

# ConSol\*CM Administrator Manual (Version 6.10, up to 6.10.2)

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  - ConSol\*CM from a System Administrator's Point of View

# 1.1 ConSol\*CM

ConSol\*CM is a **customer centric business process management software**. Using ConSol\*CM you can control and steer business processes with a strong focus on human communication and interaction, e.g. user help desk, customer service processes, marketing and sales or ordering processes. Basically, every process that is in operation in a company can be modeled and brought to life with ConSol\*CM6.

When you read this manual, your company is presumably using ConSol\*CM6 as a process management tool and it is your job to administer the system. The book will help you get a quick overview of the most important components of ConSol\*CM and will also provide a deeper and more detailed introduction to all aspects of the CM administration.

# 1.2 ConSol\*CM Documents

ConSol\*CM provides documentation for several groups of users. The following documents are available:

#### • Administrator Manual

A detailed manual for CM administrators about the ConSol\*CM configuration using the Admin Tool.

• Process Designer Manual

A guideline for workflow developers about the graphical user interface of the Process Designer and how to program workflow scripts.

• Operations Manual

A description of the ConSol\*CM infrastructure, the server integration into IT environments and the operation of the CM system, for IT administrators and operators.

#### Set-Up Manual

A technical description for CM set-up in different IT environments. For expert CM administrators.

User Manual

An introduction to the ConSol\*CM Web Client for end users.

• System Requirements

List of all requirements that have to be met to install ConSol\*CM, for IT administrators and CM administrators. Published for each ConSol\*CM version.

Technical Release Notes

Technical information about the new ConSol\*CM features. For CM administrators and key users. Published for each ConSol\*CM version.

For you as a CM administrator the book you are reading, the **Administrator Manual**, provides the required information to cover all fields of CM administrator work, see the following section for more information about the sections of the book. Please make sure that all system requirements have been taken into consideration.

# 1.3 This Book's Structure

First, some basic principles of the ConSol\*CM6 application will be explained to provide the theoretical background you need to become a CM administrator.

The Overview section explains how to get access to the system.

The following four sections explain the features and functionalities of the main administration application, the ConSol\*CM Admin Tool. You can decide which section(s) you need:

- In the Access and Roles Section, the basic principle and configuration concerning access permissions are explained. For example, you will learn how to define roles, how to assign roles to engineers (the users of the CM Web Client), and how to configure views (the to do lists in the system).
- In the **Ticket Data Model and GUI Design Section**, the set-up of the ticket data model and the placement of the data fields in the GUI are explained. For example, you will learn, how to define the data fields which are required in a certain process and how to build different types of lists.
- In the Customer Data Model Section, the set-up of the data models for different customer groups and the respective GUI design are explained. The representation of customer groups in CM is based on *FlexCDM*, the Flexible Customer Data Model. For example you will learn how to define one set of data fields for the customer group *Reseller* and another data model for the customer group *Direct Customers*. Furthermore, Customer Relations and Customer Actions are explained, two components which help you use CM as a CRM system.
- In the Resource Pool Section, the set-up of the data model for the Resource Pool is explained. CM. Resource Pool is a distinct CM module which has to be licensed separately. If you have purchased this module, you can learn in this section how to represent different objects like IT assets, products, SLAs or other objects as CM resources. Besides the set-up of the data model, Resource Relations and resource Actions are described.
- In the **Global Configuration Section**, some general configurations are explained, For example you will learn a lot about Queue Management, a queue being one of the core components of ConSol\*CM. Furthermore, the work with Business Calendars and projects is explained.
- Follows the **Expert Section**. This is the part of the book which is targeted at CM administrators who are responsible for the advanced CM system configuration. You might want to work together with you CM consultant in case you want to change system settings. This section covers topics like
  - preparing the CM system for reporting
  - ConSol\*CM services
  - configuration of the search module
  - e-mail configuration
  - import and export of configurations
  - template management
  - the portal CM.Track
  - working with system properties
  - working with Admin Tool scripts

• In the **appendix**, you find lists of all important terms that are used in the book (glossary), of all annotations (important for the GUI design), and properties (important for the CM system management). Please see also the trademarks page.

# **1.4 Layout Explanations**

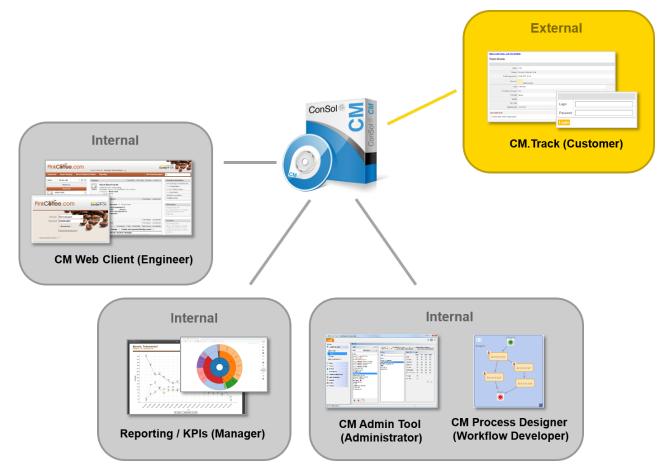
In order to emphasize and/or mark a section, icons are used.

# Information: This is an additional information. Attention: This is an important note. Be careful here! Warning: This is a warning! Tip: This is a recommendation from our everyday consulting life.

# 1.5 Basic Principles of ConSol\*CM

## **1.5.1 System Components from a User's Point of View**

ConSol\*CM comprises different client applications. Depending on your role or roles in your company you will use one or more of those applications.



- Fig. 1: ConSol\*CM System Components
  - Web Client

The primary access to the system for engineers, an engineer being the standard user of the system. Engineers work with tickets, customer data and resources.

Portal

CM.Track, the primary access to the system for (internal or external) customers. CM.Track is a distinct CM module which requires a separate license. If you have purchased this module, you can offer portal access to the tickets to your customers and/or can offer FAQs via the Web.

Admin Tool

For all system configuration tasks. As an administrator, this is the tool you will mostly work with. The tool is used to define the system set-up. All settings but workflows are configured using he Admin Tool. The access is restricted to admin users.

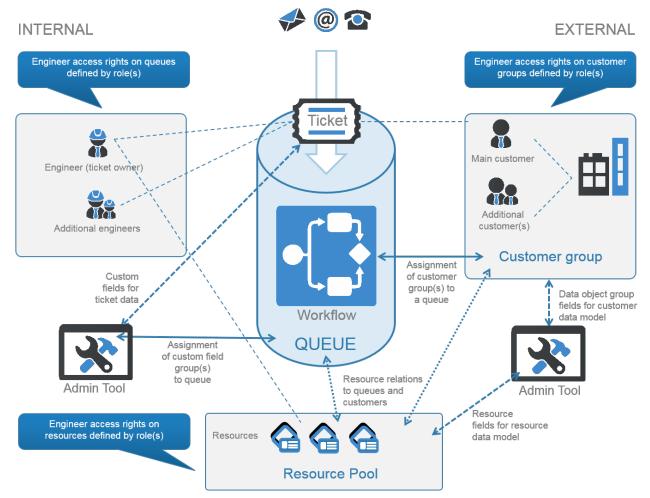
### • Process Designer

For the workflow design and implementation. As a workflow developer you will work with the Process Designer. In this tool, all workflows are designed graphically as well as in Groovy code.

The default scope of delivery also includes a data warehouse (DWH) that allows reporting about the data of your tickets.

Furthermore, ConSol\*CM is not a stand-alone application but can be easily integrated into your company's IT infrastructure, e.g. using Web Services and/or an Enterprise Service Bus (ESB).

For a detailed explanation of the system components seen from a more technical point of view, please refer to the system administrator's section (System Overview).



# 1.5.2 Basic Technical ConSol\*CM Principles and Objects

Fig. 2: ConSol\*CM Basic Principles

## The Ticket

ConSol\*CM can manage incidents, service cases, and/or other requests of internal and/or external customers. Every request is managed as a ticket that is created in the system, passes through the desired process, and is then (hopefully) solved and closed.

Closed tickets are not *lost*, but they represent a powerful archive and knowledge base. The user can search the tickets using the system search. Furthermore, the system can be configured to provide FAQ (frequently asked questions) functionalities.

Every ticket has an ID that is used internally and cannot be seen by the user.

Every ticket has a name (often called *ticket number*) that is displayed on the GUI to mark a ticket for the user.

The ticket icon in the GUI can have (and in most cases does have) a color that represents a certain value of a list. Often the priority is used, e.g. high priority tickets are displayed in red, medium tickets in orange, and low priority tickets in yellow.

However, for every process, a different color-defining value can be used. While the user help desk uses the priority, the marketing and sales department can use the probability for the conclusion of a contract, and a multi-brand service team can use the brand.

Ticket		Accept	Edit Clone	Print Dis	olay 💌
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	tickets 0 open 0				
	Contacts			Add	Hide
	Main contact				
e	Luke Skywalker V CM Customer address Kanzlerstraße 8 DE 40472 Düsseldorf				

Fig. 3: ConSol\*CM Web Client - Ticket

## The Workflow

Every process that should be managed using ConSol\*CM is modeled as a workflow. During its life cycle a ticket runs through several steps, e.g it is opened as a new ticket, has to be processed by several experts and can then be closed. During the process there might also be a pause, usually called *resubmission*. All those steps are modeled as steps in a workflow.

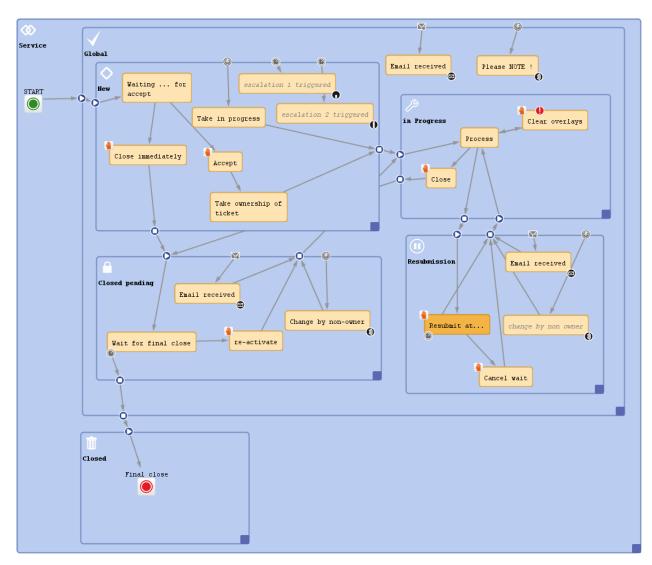


Fig. 4: ConSol\*CM Process Designer - Workflow

A business process is modeled in ConSol\*CM using the *Process Designer*, an application which is an integral element of a standard ConSol\*CM installation. A process can be represented by one or more workflows.

Since we often deal with process chains rather than with single processes, in ConSol\*CM such process chains can be designed by defining a certain order for the processes. You can work with simple process chains or with a hierarchical structure.

For example, a ticket starts in an entry pool, is directed to the 1<sup>st</sup> level team who pass it on to the 2<sup>nd</sup> level network team. Or a sales ticket starts as a customer request, becomes a lead which gets more *serious* and becomes an opportunity. Once the customer has signed the contract, an order ticket is created which generates so-called child tickets for the internal tasks up to billing. When all child tickets are closed, the parent ticket can be closed as well.

The *intelligence* of the process, like escalations, reminders, e-mails that are sent automatically, or other actions during the process, is also defined in the workflow, using *Groovy* scripts.

Please refer to the *ConSol\*CM Process Designer Manual* for a detailed introduction to process design and to process modeling using the ConSol\*CM Process Designer.

## The Queue

The queue is **the** core component of the ConSol\*CM administration. It comprises tickets from the same domain and makes sure that all tickets of this domain are treated in the same way. Every queue has exactly one workflow which cannot be changed. All data fields required in a process are assigned to tickets of the process by queue management.

For example, there is one queue for the user help desk with the *User Help Desk* workflow and data fields like *Customer Service Level, Device that does not work*, or *Priority*. Every incident ticket passes through this *User Help Desk* process. Another queue is the *Marketing and Sales* queue where fields like *probability of contract conclusion, next appointment*, or *budget [\$]* are defined.

Access permissions are also managed using the queue as basic entity.

### The Customer

The customer is the person (**contact**) or **company** who has the question or service request. This person or company is the main customer for the ticket. This represents the *external* side of the CM system.

With *FlexCDM*, the Flexible Customer Data Model, ConSol\*CM provides a data model which can define contact and company data in various constellations. In this way, you can define very simple, one-level data models which only contain contact data (e.g. name, phone number, e-mail address, address) and complex, two-level models which contain contact data (e.g. name, phone number, e-mail address) and company data (e.g. address, zip code, company size). You can define different models within one system, you can configure relations between customers, and add activities to contacts and companies. Please refer to the Customer Data Model Section, starting with chapter The CM Customer Data Model - FlexCDM, for details about all components of FlexCDM.

### **The Engineer**

The engineer is the *worker* who has a login to the Web Client and who has to manage the tasks defined in the tickets. This represents the *internal* side of the company or service team.

The engineer's access permissions are managed using roles, i.e. the roles are defined using the Admin Tool and engineers are assigned the role(s) they need.

Often, a ticket does not have an engineer when it just has been opened and it is assigned to an engineer in one of the first steps of the process. This engineer is responsible for the ticket, he/she will get the escalation e-mails and will see the ticket in his/her view *My Tickets* (*personal to-do list*).

There can be additional engineers in certain so-called *engineer roles* for a ticket, who also have tasks to do for the case. For example, a ticket has a regular engineer and an additional engineer in the engineer role *supervisor*. In this way, in the run of the process, the ticket can be automatically assigned to the supervisor.

## Resources

A resource is an object in the **CM.Resource Pool**. This is a CM module which has to be licensed separately. You as an administrator can define the resource model, i.e. you can (and have to) define the object (resource) hierarchy and the data fields for each resource type. A resource can be each object which has to be managed in the system, e.g. an IT asset like a PC or monitor, or an SLA which has to be taken into consideration when working with a ticket, or a scientific sample, a product, or even a newsletter which should be sent to customers.

For resources, relations are defined. In this way, a resource can have relations to tickets, e.g. when a PC has a problem and the respective resource has to be liked to the incident ticket. A resource can also have relations to other resources to represent certain system configurations, product hierarchies or other types of relations. Or a resource can have relations to customers, .e.g. an SLA can be linked to all companies where you have to work according to this contract.

All aspects of the CM.Resource Pool are covered in the Resource Pool Section, starting with chapter CM Resource Pool - Introduction.

## The CM Action Framework

In addition to workflow activities which are activities executed during a certain step of your business process, activities, here called *actions*, can also be triggered from other objects:

- **Customer Actions** (Data Object Actions) are actions which are executed based on the customer object. i.e. for a contact or for a company. In this way, you can, for example, implement a company action which updates your company-specific sales figures every night.
- **Resource Actions** are actions which are executed based on a resource, i.e. on an object in the CM. Resource Pool. In this way, you could offer an action in the Web Client where the engineer can have a list with all customers for a certain newsletter created.
- Search Actions are actions which can be executed based on a result of a detailed search. In this way you can, for example, trigger an e-mail to all customers of a list of tickets which you have retrieved using the search interface.

All actions can be either executed manually or automatically. Manual actions are offered in the Web Client like workflow activities. Automatic actions run in the background without any engineer activity being involved.

## The Task Execution Framework

The Task Execution Framework (TEF) stores and executes long-running tasks which should not be linked to any specific activity. For example, TEF tasks can be very helpful for import scripts.

## ConSol\*CM Dogma

In ConSol\*CM6, there is a main *dogma*.

I A ticket always has a **main customer**. This can be a contact or a company.

A ticket can have no or one engineer who has to work on the ticket.

## 1.5.3 ConSol\*CM from a System Administrator's Point of View

ConSol\*CM is a Java EE application which runs in a standard application server. The data is stored in a relational database. ConSol\*CM connects to an e-mail server to retrieve incoming e-mails and sends e-mails using an SMTP server. Please refer to the *ConSol\*CM Operations Manual* for a detailed explanation of all aspects concerning running ConSol\*CM in an IT environment. A first introduction is provided in section System Overview in this manual. If you need to know the supported application servers and relational database systems, please ask for the current *System Requirements* and/or the *Release Notes* of the latest ConSol\*CM version.

# 2 Start of the Admin Tool

- Login
- Troubleshooting: When the Admin Tool Does Not Start
  - Correct Process
  - Process with Errors
- How to Use the Admin Tool

# 2.1 Login

Most of the ConSol\*CM system is administrated using a Java Web Start application called *Admin Tool* which is provided on the main web page of the CM application server system. To start the Admin Tool you can either use the link on the page or you can store the *jnlp* file locally and start it there. Java Web Start is part of each standard JRE.

	ConSol*CM6 - Start Page	ConSol CM6							
	ConSol*CM6 Web Client								
	This is the main part of the ConSol <sup>®</sup> CM6 Application for the most users. The web client is the user interface for working with tickets and contacts. It is optimized for context based specific business domain.	This is the main part of the ConSol*CM6 Application for the most users. The web client is the user interface for working with tickets and contacts. It is optimized for context based working and shaped to the demands of specific business domain.							
	Please use the following link to get into the web client. You might want to bookmark this:	Please use the following link to get into the web client. You might want to bookmark this:							
	http://cm5doku-cm1.ht.consol.de/8080/cm-client								
	Please ensure following system requirements: Web browser Firefox 24 Extended Support Release (ESR) or Microsoft IE8 or IE9, 1 GHz Processor, 2 GB RAM, screen resolution of 1280 pixel in width								
Click here to start	ConSol*CM6 Admin Tool								
the Admin-Tool	The Admin Tool is for administration of all central configuration like users, queues, custom fields and more. It is based on Java Web Start Technology to enable an offsite administration of the ConSol <sup>®</sup> CM6 Server.								
	Following the link should be enough to start the Admin Tool:								
	http://cm6doku-cm1.int.consol.de:8080/admin/cm-admin-tool.jnjp								
	On some systems you may need to start Java Web Start from the command line:								
	• javaws http://cm6doku-cm1.int.consol.de:8080/admin/cm-admin-tool.jnlp								
	Please ensure following system requirements: Java Runtime Environment 6 or 7 (this includes Java Web Start), 1 GHz Processor, 2 GB RAM, screen resolution of 1280 pixel in with	lth							
	ConSol*CM6 Process Designer								
	The Process Designer is for editing process definitions used by the ConSol <sup>®</sup> CM6 Server. The activities available in the Web Clent, the status of ticket and al automatic processes a with this designer. The designer and thus the workflows are focused on business needs; you will be able to understand them without much technical knowledge.	re defined by graphical workflows made							
	Following the link should be enough to start the Process Designer:								
	http://cm6doku-cm1.int.consol.de:8080/workflow/master.jnp								
	Same as for Admin Tool, needed in seldom circumstances:								
	• javaws http://cm6doku-cm1.int.consol.de:8080/workflow/master.jnlp								
	Same system requirements as for Admin Tool.								
	www.MuleSoft.com Powered by Mule. MuleSoft is Open for Integration. Copyright (c) 2003-2009 MuleSoft Inc.								

#### Fig. 1: ConSol\*CM Start Page

After clicking on *Admin Tool.jnlp*, the *jnlp* file is downloaded, the Admin Tool is started, and the login window is displayed (for details see the *Troubleshooting* section):

🚺 CM6 Admin Login	@ cm6-demo.int.conso 🕰
😣 Username required.	
	-
Username	
Password	
_	
	OK Cancel

Fig. 2: ConSol\*CM Admin Tool - Login Window

Enter your login data to get access to the Admin Tool functions. A first user name and password are assigned during system set-up. Further admin users can be configured later on in the Admin Tool.

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Global Configuration	۲						
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🔅 Services	۲						
🗹 E-Mail	۲						
💠 System	۲						
		-					
<u><u><u></u></u></u>							

After you have logged in successfully, the start page of the Admin Tool appears:

Fig. 3: ConSol\*CM Admin Tool - Start Page

# 2.2 Troubleshooting: When the Admin Tool Does Not Start

## 2.2.1 Correct Process

To be able to find the problems you should know the correct process.

In case everything is set-up correctly, after clicking on the Admin Tool hyper link, the following steps are performed:

In a pop-up window, you are prompted for the decision if you would like to open the *jnlp* file - *Java* (*TM*) Web Start Launcher should be offered as default application for that - or if you want to store a local copy of the *jnlp* file.

Confirm with Open with Java (TM) Web Start Launcher.

- 2. The download of the Admin Tool *jnlp* file is started. During this process, the ConSol\*CM logo is displayed.
- 3. Java Web Start starts the Admin Tool. In a pop-up window the *Verifying application* message is displayed.
- 4. In case the Java Web Console is activated, the console is opened and you can follow the download.
- 5. The Admin Tool GUI is displayed with the login window in the foreground.

## Step1

ConSol*CM6 - Start Page		ConSeil				
ConSol*CM6 Web Client						
This is the main part of the ConSol®CM6 Application for the most users. The web clent	is the user interface for working with tickets and contacts. It is optimized for con	text based working and shaped to the demands of specific business domain.				
Please use the following link to get into the web client. You might want to bookmark th	NS:					
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Same system requirements as for Admin Tool.						
www.MuleSaft.com Powend by Mule. HuleSaft is Open for Integration. Copyright (c) 2003-2009 MuleSoft Inc.						

## Step2

ConSol*CM6 - Start Page	Conter CM 6
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This is the main part of the ConSol®CM6 Application for the most users. The web client is the user interface for	working with tickets and contacts. It is optimized for context based working and shaped to the demands of specific business domain.
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ConSol*CM6 Admin Tool	
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Same system requirements as for Admin Tool.	
www.MuleSaft.com Powered by Mule. MuleSaft is Open for Integration. Copyright (c) 2003-2009 MuleSaft In	x.

Fig. 4: ConSol\*CM Admin Tool - Start: Steps 1 and 2

## Step3

ConSol*CM6 - Start Page			Confed CM 6			
ConSol*CM6 Web Client						
This is the main part of the ConSol*CM6 Application for the most users. The web client is	the user interface for working with tickets and contacts. It is optimized for context based working	ng and shaped to the	demands of specific business domain.			
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http://cm6doku-cm1.int.consol.de:8080/cm-clent						
Please ensure following system requirements: Web browser Firefox 24 Extended Suppor	Release (ESR) or Microsoft IE8 or IE9, 1 GHz Processor, 2 GB RAM, screen resolution of 1280 p					
ConSol*CM6 Admin Tool	Starting application	22				
The Admin Tool is for administration of al central configuration like users, queues, custor Following the link should be enough to start the Admin Tool: <ul> <li><a href="http://cm/doku-cm1.int.consol.de/b000/admin/cm-admin-tool.pip">http://cm/doku-cm1.int.consol.de/b000/admin/cm-admin-tool.pip</a></li> <li>On some systems you may need to start Java Web Start from the command line: <ul> <li>&gt; javaus http://cm/doku-cm1.int.consol.de/b000/admin/cm-admin-tool.pip</li> </ul> </li> <li>Please ensure following system requerements: Java Bunttme Environment 6 or 7 (this incoment).</li> </ul>	Verifying application. Name: CM6 Admin-Tool (http://om6doku-cm1.i Publisher: Con5ol*Software GmbH From: http:///cm-admin-tool.jnlp	14	ver.			
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Same system requirements as for Admin Tool.						
www.Mukisot.com Powerd by Muki. Mukisot is Open for Integration. Copyright (c) 2003-2009 Mukisot Inc.						

## Step 4 (only if Java console is activated)

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Match: 2MM args final: Xmx1g Xms256m -Ojnip.cmas.remote.uri=http:/ Match: Running REInfo Version match: 1.7.0.21 == 1.7.0.21					
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Please ensure following system requirements: Java Runtime Environment 6 or 7 (this in	cludes Java Web Start), 1 GHz Processor, 2 GB RAM, screen resolution of 1280 pixel in width				
ConSol*CM6 Process Designer					
The Process Designer is for editing process definitions used by the ConSoPCM6 Server you will be able to understand them without much technical knowledge.	The activities available in the Web Clent, the status of ticket and all automatic processes are defined by graphical workflows made with this designer. The designer and thus the workflows are focused on business needs;				
Following the link should be enough to start the Process Designer:					
Mttp://cmidoilu-cmi.int.consol.de.8080/workflow/master.jnip					
Same as for Admin Tool, needed in seldom circumstances:					
javans http://onidoku.cml.ak.consol.det/8080/workBow/maater.jnp					
Same system requirements as for Admin Tool.					
www.Maksolt.com Powered by Make. Maksolt is Open for Integration. Copyright (c) 2003-2009 Maksolt Inc.					

Fig. 5: ConSol\*CM Admin Tool - Start: Steps 3 and 4

ConSol*CM6 - Start Page						ConSot CM6
ConSol*CM6 Web Client	CM6 Admin-Tool				- 0 1	3
This is the main part of the ConSol*CM6 Application for	ConSol® CM6					
Please use the following link to get into the web client. Y	AHome	*	A Home			
http://cm6doku-cm1.int.consol.de:8280/cm-cle	Access and Roles	۲	Welcome, !			
Please ensure following system requirements: Web brow	Lists	8	Server Connection Release Version	Java VM Version		
ConSol*CM6 Admin Tool	2 Customers	۲	cm6doku-cm1.int.consd 6.10.2.0	1.7.0_76		
The Admin Tool is for administration of all central config	<ul> <li>Resources</li> <li>Global Configuration</li> </ul>	*	CM6 Admin Login @ cm	6doku-cm1.int		
Following the link should be enough to start the Admin	⑦ Data Warehouse	۲	i Please enter your usernar			
http://cm6doku-cm1.int.consol.de:8280/admin/	<ul> <li>Services</li> <li>E-Mail</li> </ul>	8				
On some systems you may need to start Java Web Sta		*	Username admin Password			
<ul> <li>javaws http://cm6doku-cm1.int.consol.de:8280,</li> </ul>			Pasaword			
Please ensure following system requirements: Java Run				DK Cancel		
ConSol*CM6 Process Designer						
The Process Designer is for editing process definitions u you will be able to understand them without much tech						I thus the workflows are focused on business needs;
Following the link should be enough to start the Process						
http://cm6doku-cm1.int.consol.de:8280/workfic						
Same as for Admin Tool, needed in seldom circumstanc						
<ul> <li>javaws http://cm6doku-cm1.int.consol.de:8280,</li> </ul>	<u>_</u>		1			
Same system requirements as for Admin Tool.						
Copyright (c) 2015 ConSol* Consulting & Solutions Sof	tware GmbH					

Fig. 6: ConSol\*CM Admin Tool - Start: Step 5

## 2.2.2 Process with Errors

In case the Admin Tool cannot be started, check the following settings:

#### 1. Problems with step 1:

- a. Is Java in the correct version installed on your machine?
- b. Is the correct Java version activated?
  - Under Microsoft Windows use System settings -> Java -> Java -> Display ....

#### 2. Problems with step 2:

- a. Can your client machine connect to the ConSol\*CM server over the network? Can the *jnlp* file be downloaded by the web browser?
- b. Check the Java Network connection settings.
   Under Microsoft Windows use System settings -> Java -> General -> Network settings.

#### 3. Problems with step 3:

- a. Does Java Web Start load and verify all Admin Tool application files? If not, check the network connection.
- b. For all other errors, a pop-up window with a detailed error message will be displayed.

#### 4. Notes concerning step 4:

- a. To find the cause of a problem, activate the Java Console.
   Under Microsoft Windows use System settings -> Java -> Extended -> Display console, Debugging: Tracing enabled, Debugging enabled.
- 5. Problems with step 5:
  - a. When the login window is displayed, you enter your login data. If a connection error occurs then, check the proxy settings.

# 2.3 How to Use the Admin Tool

You can reach the Admin Tool functions using the navigation tree on the left-hand side. Several navigation groups (see next figure) provide access to the navigation items of each group.

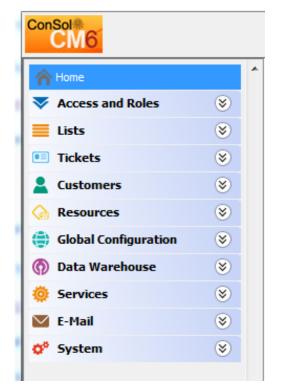


Fig. 7: ConSol\*CM Admin Tool - Navigation Tree

The function pages are very similar in structure. The following picture shows the operational concept using the engineer administration as an example:

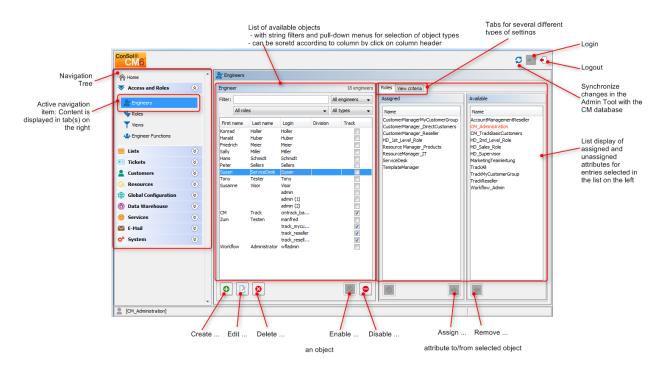


Fig. 8: ConSol\*CM - Handling of the Admin Tool

A list on the left shows the elements which can be modified. Elements can be added, edited, deleted, disabled, or enabled.

The attributes of an element are displayed on the right. You can move them from a list of *available attributes* to a list of *assigned attributes* either via double click or via click on the icon (example: *available roles* and *assigned roles*). Attributes can also be assigned via check or list boxes (not displayed here).

There are a couple of options to help you find the entries you want to edit more quickly:

#### Filters

Filters help you find entries in lists (e.g. in the engineer list) rather quickly. There are two types of filters:

#### • Text filters

Type in the characters of the required word (e.g. the engineer name) and the list will be adopted automatically, only the matching entries are displayed.

#### • Drop-down menu filters

Select a category (e.g. *all engineers*) and only the matching list entries (e.g. engineer names) are displayed.

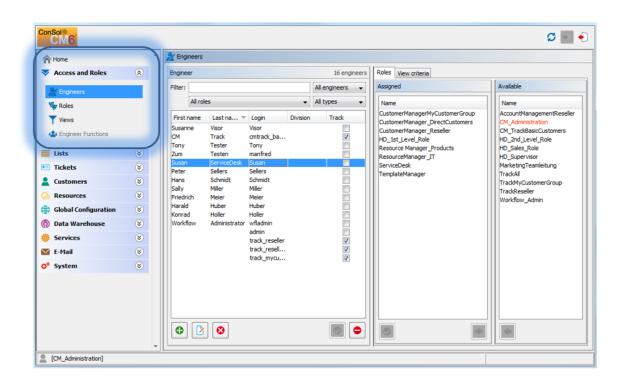
#### • Sorting

You can sort the entries in ascending or descending order by clicking in one of the title fields of the list. The icons a show the sort order.

Usually all changes you perform in the Admin Tool are submitted immediately without the need to synchronize the data. However, if changes in another module have been performed and the Admin Tool has to use the new data, it is required to synchronize the data. You can achieve this by clicking on the *Synchronize* button in the icon bar.

One example for this is the deployment of a new workflow using the Process Designer. Before you can assign the new workflow to a new queue, you have to synchronize the data in order to let the Admin Tool know that there **is** a new workflow. The Admin Tool loads all data from the database anew, including the new workflow. Then this new workflow can be used for further operations like assigning it to a new queue.

# 3 ConSol CM Administrator Manual 6.10.2 - --Access and Roles Section--



# Access and Roles

This section provides some background knowledge about the general principle of CM access permissions and shows you how to define the engineer accounts with the required parameters.

Please read the following sections:

- Engineer Administration
- Role Administration
- View Administration
- Engineer Functions

# **4 Engineer Administration**

- Introduction to Engineer Administration
- Engineer Administration Using the Admin Tool
  - Create or Edit an Engineer Account
    - Configuration of the Password Policy
    - Reset of an Engineer's Password
  - Delete an Engineer Account
  - Disable or Enable an Engineer Account
  - Tab Roles Assign Roles to an Engineer Account
    - Set Roles as Main Roles
  - Tab View Criteria Define Engineer-Specific View Criteria

# 4.1 Introduction to Engineer Administration

An *engineer account* is the basic access object which allows the engineer or the administrator to access the Web Client, the Admin Tool, or the Process Designer. During system set-up an administrator account for the first access to the Admin Tool is created. Using this account you can set up further accounts.

Newly created engineer accounts do not have any permissions. These permissions have to be assigned through one or multiple *role(s)* displayed in the tab *Roles*. If you have not created any roles yet, you will see only the administrator role (see tab *Roles*).

*Views* define which tickets engineers will see in the ticket list (*to-do list*) of the Web Client. They are created in the View Administration and assigned via roles. On the engineer administration page you can preset dynamic view criteria for specific engineers (see tab *View Criteria*).

### Information:

We would recommend that you create at least one role and one view first before you create engineer accounts.

# 4.2 Engineer Administration Using the Admin Tool

To open the Engineer Administration, open the navigation group *Access and Roles* in the Admin Tool and click on the navigation item *Engineers*.

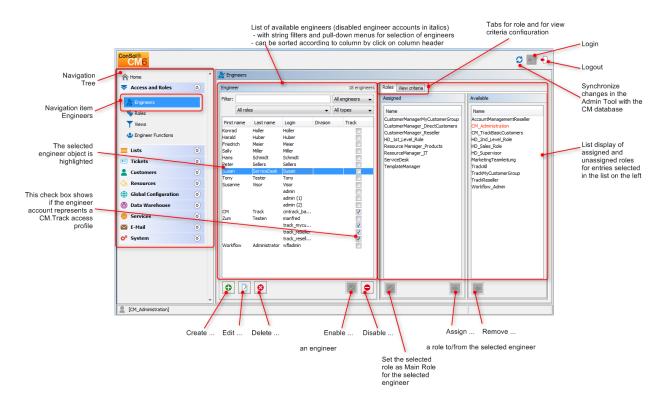


Fig. 1: ConSol\*CM Admin Tool - Engineer Administration

## 4.2.1 Create or Edit an Engineer Account

To create an engineer account click on the icon 🕑 below the account list. Or click on 🗵 if you want to edit the settings of an existing account. The same pop-up window appears:

ConSol CM6				Create new engineer		📁 📰 🌖
Home Access and Roles	*	Engineers		Create new engineer i Please fill in the required fi	elds.	
Engineers		Filter: All roles	Last name	Login:	TonyTester	Available           Name           AccountManagementReseller
Views		Konrad Harald Friedrich	Holler H Huber H Meier N	Last name: E-mail:	Tony Tester tony@consol.com	CM_Administration CM_TrackBasicCustomers CustomerManagerMyCustomerGroup CustomerManager_DirectCustomers
Lists   Lists Lists Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lists  Lis		Sally Hans Peter Susan	Miller N Schmidt S Sellers S ServiceDesk S	Position: Company:	QA ConSol*	CustomerManager_Reseller HD_2nd_Level_Role HD_Sales_Role HD_Supervisor
Resources     >       Global Configuration     >		Tony Susanne CM	Tester T Visor V a Track c	Division: Description: Phone:	Development ConSol*CM QA 12345	MarketingTeamleitung Resource Manager_Products ResourceManager_IT ServiceDesk
<ul> <li>⑦ Data Warehouse</li> <li>※</li> <li>※ Services</li> <li>※</li> </ul>		Zum	Testen n t t	n Mobile: r Fax:	0123-345678	TemplateManager TrackAll TrackMyCustomerGroup
E-Mail System System		Workflow	Administrator v	LDAP ID: Kerberos Principal Name: Password:		TrackReseller Workflow_Admin
				Password (again): Track user:	·······	
	Ŧ		8		Save Cancel	
CM_Administration]						

Fig. 2: ConSol\*CM Admin Tool - Edit an Engineer Account

The window shows the parameters describing an engineer account:

### • Login:

Mandatory. This field contains the account name which has to be entered on the login page of the Web Client. Please use only international alphabetic and numeric characters, no blanks, punctuation marks, or special characters such as umlauts, hyphens, or the like.

• First name:

Optional. The engineer's first name. This field is optional but will be displayed in the Web Client for the engineer. The entry may contain alphabetic characters, blanks, comma, periods, and hyphens. Please do not use other characters.

• Last name:

Optional. The engineer's last name. This field is optional but will be displayed in the Web Client for the engineer. The entry may contain alphabetic characters, blanks, comma, periods, and hyphens. Please do not use other characters.

• E-mail:

Mandatory. The engineer's e-mail address. Please use only international alphabetic and numeric characters, hyphens, underscores, periods, and the @ sign. The entry of multiple e-mail addresses in one line is not allowed.

### • Position:

Optional. The engineer's position or function in the company. This field is optional and has a descriptive function only. The entry may contain alphabetic characters, blanks, comma, periods, and hyphens. Please do not use other characters.

### • Company:

Optional. The engineer's company. This field is optional and has a descriptive function at the moment. The entry may contain alphabetic characters, blanks, comma, periods, and hyphens. Please do not use other characters.

### • Division:

Optional. The division in which the engineer works. This field is optional and has a descriptive function. The entry may contain alphabetic characters, blanks, comma, periods, and hyphens. Please do not use other characters.

### • Description:

Optional. An additional description for the engineer account. This field is optional and will **not** be displayed in the Web Client. The entry may contain alphabetic characters, blanks, comma, periods, and hyphens. Please do not use other characters.

### • Phone:

Optional. The engineer's phone number. This field is optional and has a descriptive function at the moment.

### • Mobile:

Optional. The engineer's mobile phone number. This field is optional and has a descriptive function at the moment.

### • Fax:

Optional. The engineer's fax number. This field is optional and has a descriptive function at the moment.

### Attention:

Several fields which contain engineer data (like *Company*, *Division*, or *Phone*) are optional fields. However, when you work with text templates which contain engineer data fields (see section The ConSol\*CM Template Manager) the e-mails or comments will not be formed correctly when the data is missing. For example, the field *ticket-engineer, phone* cannot be filled-in in the template when it has not been set for the engineer in engineer administration! So please make sure all data which will be required later on is filled-in correctly in the first place!

### LDAP ID

The LDAP user ID if LDAP is used for authentication. No password has to be set here.

### Information:

If you do not enter an LDAP ID here, the login will be used as authentication login parameter for the LDAP server (if LDAP authentication is activated)!

#### Kerberos Principal Name

The Kerberos principal name if Kerberos V5 protocol is used for authentication. Engineers can log in to the Web Client by using their Windows credentials.

#### • Password:

Mandatory. The engineer's password. The entry of a password is mandatory. Please use only international alphabetic and numeric characters, and punctuation marks, do **not** use any special characters as e.g. umlauts. The password entered will be shown as a string of asterisks. Please see section Configuration of the Password Policy for information about the optional password policy.

### Information:

This field will only appear if the engineer authenticates against the Web Client via the CM6 database, i.e. when LDAP or Kerberos authentication is used, the field is not visible.

#### • Password (again):

Mandatory. Please repeat the password here. This security query helps to avoid erroneous entries which would not be noticed otherwise because the password is shown as a string of asterisks. The repetition of the password is mandatory. Please see section Configuration of the Password Policy for information about the optional password policy.

#### Information:

This field will only appear if the engineer authenticates against the Web Client via the CM6 database, i.e. when LDAP or Kerberos authentication is used, the field is not visible.

#### Track user

This check box has to be ticked if you want to create a technical engineer (or *CM.Track user profile*) used to define access permissions for CM.Track users. The available CM.Track users (user profiles) will be shown in the Web Client when creating or modifying a customer. So, by ticking this check box, you do not define a real engineer (a person) with access permissions to the system but rather a user profile for CM.Track which is then assigned to one or more customers who should access the portal *CM.Track* using those access permissions. For a detailed description of the CM.Track access definition see also section CM.Track: System Access for CM.Track Users (Customers).

Click on *Save* afterwards to store your entries and to close the window.

### **Configuration of the Password Policy**

This configuration is optional.

The following system properties can be used to implement a certain password policy. All following system properties are located in the module *cmas-core-security*.

#### policy.password.pattern (String)

RegEx pattern for the password, example and default value: "^.3,\$".

#### policy.password.age (Integer)

Maximum validation period, in number of days, example 183 (6 months), default value: 5500 (= 15 years, i.e. no password change enforced).

 policy.rotation.ratio (Integer) number defines the number of previous passwords which may not be identical, example and default value: 1.

### • policy.username.case.sensitive(Boolean)

Defines if the password is case-sensitive. Example and default value: *true*. Note that this setting is affected by the MySQL collation setting and needs the correct collation to work properly with MySQL.

### **Reset of an Engineer's Password**

When an engineer has forgotten his/her password, he/she can request a new password by using the link *Forgot your password* on the initial login page. An e-mail with a link to a URL where the engineer can set the new password is sent to the engineer.

Please note that this can only work when a valid e-mail account is available for this engineer and when the respective value has been entered as e-mail for the enginner in the engineer data!

The e-mail which is sent to the engineer is based on the template *password-reset-template* which is stored in the *Templates* seection of the Admin Tool.Please see section Admin Tool Templates for a detailed explanation of templates in general and section Password Reset Template for Engineers in the Web Client for details about the engineer password reset.

The password reset in the Web Client is only possible when the standard mode is used. It is not possible when LDAP or Kerberos authentication is in operation. See section Authentication Methods for Engineers in the CM Web Client for an explanation of all possible authentication modes.

## 4.2.2 Delete an Engineer Account

To delete an engineer account, select the account in the list and click on <a>
</a>

Since an engineer account can only be deleted if there are no tickets (open or closed) for it anymore, you have to assign its tickets to another engineer. For all history entries in tickets and in customer pages which were performed by the deleted engineer, his or her name will still be displayed.

In case you do not want to transfer any tickets to another engineer, you can deactivate the engineer account. See next section.

## 4.2.3 Disable or Enable an Engineer Account

If engineers should not have access to the system for a certain period of time (e.g. because they have taken a sabbatical), an account can be disabled. There will be no change regarding the tickets of these engineers, but they cannot login anymore and other engineers cannot assign any tickets to their accounts. To disable an engineer account, select the account and click on  $\bigcirc$ . The entry in the list is shown in gray italics afterwards. It is not possible to create new tickets or to edit existing tickets for this account. Just click on  $\bigcirc$  at the bottom of the page, if you want to enable the account again.

# 4.2.4 Tab Roles - Assign Roles to an Engineer Account

On this tab you can assign roles to an engineer account. Select the account on the left and then the desired role(s) in the list of *available* roles on the right. Click on 
to move the selected roles into the list of *assigned* roles. Now an engineer with this account can act in the system according to the permissions set in the role(s) (see also Role Administration).

### Information:

When engineers log in to the system, they will have access permissions from all roles that have been assigned to them. So all permissions are added! There is no way of explicitly denying access to objects in ConSol\*CM, you always grant access! The sum of all granted permissions defines the final access permissions for the engineer.

### Set Roles as Main Roles

From the list of assigned roles you can choose one role as the main role for each engineer account. Select the desired role in the list and click on select the list. Afterwards the main role is marked with a red dot. Now the views of the main role will always appear at the top of the view list in the Web Client for this engineer account.

## 4.2.5 Tab View Criteria - Define Engineer-Specific View Criteria

Here you can change the dynamic view criteria for an engineer. Dynamic criteria are used to give the engineer the possibility to adjust a view interactively in the Web Client (see also View Administration).

#### Information:

This tab will show view criteria only if you have created a view with dynamic criteria and assigned it to the engineer's role.

Select the engineer account on the left and then the desired criterion in the list of *available* view criteria on the right. Click on to move it to the list of *assigned* view criteria. You will see the possible values below the criterion in the list. Tick the check boxes of the values you want to change or preset. The engineer can change these settings in the Web Client (profile page) and changes you have made in the Admin Tool will be immediately visible in the engineer's profile page.

Roles View criteria	
Assigned	Available
[priority] [Priority] Not set low I normal I high	Name product sales_chance

Fig. 3: ConSol\*CM Admin Tool - Define Engineer-Specific View Criteria

#### Example:

You have assigned the dynamic criterion *priority*. The list shows the values *Not set, low, normal*, and *high*. If you tick the values *normal* and *high* the engineer will only see tickets with normal and high priority after logging into the Web Client. If you do not tick any values the engineer will see no tickets for this view. See section View Administration for details.

#### Attention:

Please note that in a view with a dynamic criterion, only the tickets are displayed which match this criterion. So if an engineer has not selected any criteria in his/her engineer profile or if the administrator has removed all selections using the Admin Tool, the engineer's view will be empty! Make sure your users know about this fact and make sure you as an administrator are always aware of that fact.

# **5 Role Administration**

- Introduction to Role Administration
- Role Administration Using the Admin Tool
  - Create a Role
    - Tab Queue Permissions
    - Tab Global Permissions
    - Tab Customer Group Permissions
    - Tab Resource Types Permissions
    - Tab Views
  - Tab Engineer Functions
  - Delete a Role
  - Copy a Role
  - Edit a Role

# 5.1 Introduction to Role Administration

Roles provide access rights and views, they specify what an engineer is allowed to do or to see. Without a role, an engineer can log in to the system but cannot perform any actions. Only by being assigned one or more role(s) the engineer obtains system permissions. For each task in a company using the system there should be a role which defines its permissions. Engineers fulfilling the task should have this role.

### Information:

When engineers log in to the system, they will have all permissions from all roles they have been assigned. So all permissions are added! There is no way of explicitly preventing access to objects in ConSol\*CM, but you always grant access!

The sum of all granted permissions defines the final permissions for the engineer.

Roles define:

#### Access permissions to one or more queue(s)

E.g. read, write, and append rights are granted. The permissions are valid for all tickets in the queue (s).

• Global permissions

Several system-wide permissions are managed here, e.g. the rights concerning template management, workflow design, and system administration.

- Access permissions to customer data Read, write, modify, and delete permissions for each distinct customer group.
- Access permissions to resource data

Read, write, modify, create permissions, assigned on the basis of resource types.

Views

To do lists of tickets which will be displayed in the ticket list in the Web Client.

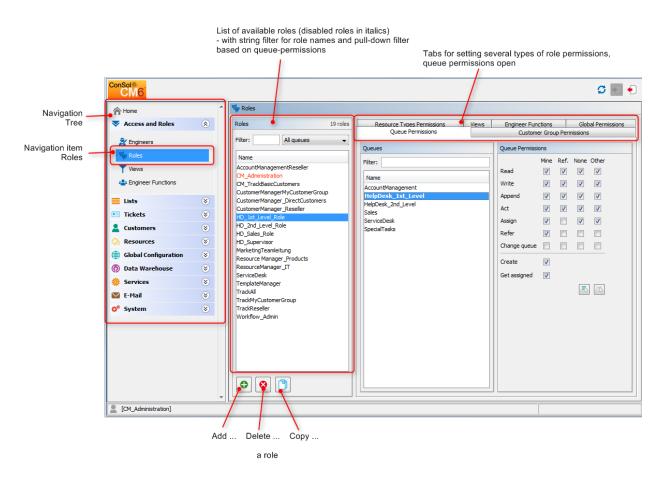
Engineer functions

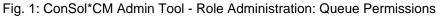
Additional engineer functions which can be assigned to members of this role, e.g. approver.

# 5.2 Role Administration Using the Admin Tool

To open the Role Administration, open the navigation group *Access and Roles* in the Admin Tool and click on the navigation item *Roles*. In the Role Administration, you see the list of all available roles on the lefthand side and the permissions which can be granted on the right-hand side. In the list of roles, all roles which have been set as *main role* for at least one engineer are marked with a red dot. You always work with the access permissions of the role which has been selected in the list of roles. Only one role can be selected at a time. On the right-hand side, several tabs are available. During role management you switch between those tabs:

- Queue Permissions
- Global Permissions
- Customer Group Permissions
- Resource Types Permissions
- Views
- Engineer Functions





### **Attention**:

All changes on the Role Management tabs are immediately effective resp. after clicking the OK button. You do not have to click on  $\mathcal{O}$  (Refresh data) in the icon bar.

In the Web Client, engineers have to log in again to use their new roles. Views become effective after clicking *F5* (page refresh).

# 5.2.1 Create a Role

Click on *Add* button below the role list to create a new role. A pop-up window appears where you can enter the role name. Since the role name is used only for admin purposes and not displayed in the Web Client, no localization is required here. Afterwards you have to set the permissions of this role using the tabs on the right side of the page (see also the preceding picture).

## **Tab Queue Permissions**

The permissions set in this tab apply to the selected role (left part of page) and the selected queue (center part of page). Without an entry here, an engineer with this role is not able to see tickets or to act in the system.

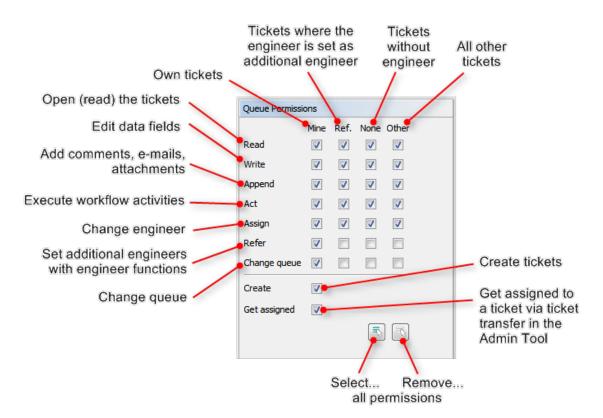


Fig. 2: ConSol\*CM Admin Tool - Role Administration: Setting Queue Permissions

The following permissions can be set:

Read

Read tickets.

• Write

Edit data fields (default fields, custom fields, etc.) of a ticket. The fields might be located in the ticket header section or in the group section.

Append

Add information to a ticket (comments, e-mails, attachments, time booking entries), i.e. add content in the ticket protocol.

• Act

Execute workflow activities, i.e. move the ticket forward in the workflow.

Assign

Assign tickets to another engineer and/or be assigned as engineer for tickets by other engineers.

• Refer

Assign an additional engineer (with engineer function, see tab Engineer Functions) for a ticket.

Change queue

Move a ticket from this queue to another queue (appropriate permissions for the *initial* and the *target queue* required).

### Attention:

Be very careful when granting the *Change queue* permission!!! Usually it is not required. On the contrary, it can destroy your process chain definition where tickets are passed from one process to another using process/workflow components, namely the *Jump-in* and *Jump-out* nodes.

This permission should only be granted if it is absolutely necessary and when all sideeffects have been considered well.

You can define for which range of tickets the permissions are valid:

• Mine

Own tickets.

• Ref

Tickets for which the engineer is assigned as an additional engineer (with engineer function, see tab Engineer Functions).

• None

Tickets without assigned engineer.

• Other

Tickets assigned to other engineers.

Click on the corresponding check box to assign one or more permissions to the desired ticket range.

Two general permissions can also be set:

Create

An engineer is allowed to create tickets in this queue.

Get assigned

An engineer can receive tickets by ticket transfer which is performed using the Admin Tool.

If you want to select all permissions simultaneously just click on 🗾 below the list. Clicking on 🖭 removes all selections.

## **Tab Global Permissions**

Global permissions are general and queue-independent rights for a role. Setting these permissions is optional.

Image: Services       Image: Configure representation         Image: Services       Image: Configure representation <th>ConSol CM6</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th><b>c</b> 💽 🗧</th> <th>]</th> <th></th>	ConSol CM6						<b>c</b> 💽 🗧	]	
Image: Solution of the second seco	A Home	^	V Roles						
	Access and Roles	۲	Roles 19 roles		Views				Administrator permissions
↓ Engineer Functions       CM_Admetstration         ↓ Engineer Functions       CM_Admetstration         ↓ Lists       CustomerManager Direct/Lustomers         ↓ Lists       CustomerManager Direct/Lustomers         ↓ Lists       CustomerManager Reseler         ↓ Stepstroor       MarketngTeamletung         Resources       Services         ③ Services       Servicebeck         TraddMustomerGroup       Tradd/UstomerGroup         TraddVout/LonerGroup       Tradd/UstomerGroup         TraddVout/LonerGroup       Tradd/UstomerGroup         TraddVout/LonerGroup       Tradd/UstomerGroup         TraddVout/LonerGroup       Tradd/VstomerGroup         TraddVout/LonerGroup       Tradd/VstomerGroup         TraddVout/LonerGroup       Tradd/VstomerGroup         TraddVout/LonerGroup       TraddVout/LonerGroup         TraddVout/LonerGroup       TraddVout/LonerGroup         TraddVout/Lonereroup       TraddVout/LonerGroup <th>Roles</th> <th></th> <th>Name</th> <th>Global Permissions</th> <th>nen3</th> <th>Linginice i fonctionio</th> <th>-</th> <th>1</th> <th>(Admin Tool, Process</th>	Roles		Name	Global Permissions	nen3	Linginice i fonctionio	-	1	(Admin Tool, Process
■ Lists       ♥         ■ Tickets       ♥         ● Tickets       ♥         ● List_evel_Role       PD_2nd_Level_Role         + D_2nd_Level_Role       +         + D_2ade_Role       +         Image: Products       Representation Permissions         Representation Permissions       -         Tradk       Tradkeeler         *       Tradkeeler         Workflow_Admin       -         *       Access tickets of the own company         •       Permission or company only personal tickets)	- · ·		CM_Administration CM_TrackBasicCustomers				•		
Customers       ♥         Customers       ♥         Customers       ♥         Pard_Level_Role       Pard_Level_Role         P_Sale_Role       P_Sale_Role         P_Sale_Role       P_Sale_Role         P_Sale_Role       Porticipuestion         Image: Customers       Image: Customers         Image: Customers       I	_		CustomerManager_DirectCustomers CustomerManager_Reseller						
Image: Solution of the solutio	-	۲	HD_2nd_Level_Role HD_Sales_Role				•	1	
Image: Constraint of the const		۲	MarketingTeamleitung Resource Manager_Products	Representation Permissions			•	1	Permission to represent
Image: System	46		ServiceDesk	Track User Permissions				1	-
			TrackMyCustomerGroup TrackReseller	Access tickets of the own company					<ul> <li>user profiles to access all tickets of their company (not</li> </ul>

Fig. 3: ConSol\*CM Admin Tool - Role Administration: Global Permissions

You can specify the following:

### Global Permissions

• Administrate

Provides administrator access to the system, this applies to the Admin Tool, the Process Designer, and admin access to the Web Client.

### • Workflow Permissions

Provides permissions concerning workflow design and management. These are

- Read
- Write (modify and store)
- **Deploy** (install and put in operation).
- Template Permissions
  - Write Template provides the permission
    - to use the Template Manager which is used to create and edit e-mail and commentary templates, see section The ConSol\*CM Template Manager for details.
    - to use the Doc Template Manager which is required to define templates for CM.Doc. Only available if CM.Doc is active in the CM system.

#### Representation Permissions

#### • Configure representation

If this permission is set, engineers with this role can configure themselves as a representation for other engineers, e.g. who are ill and have not defined other engineers to represent them resp. if the defined engineers are not available at the moment. On the Web Client the engineers that can be represented by an engineer with this permission are shown in a list within the engineer profile.

### Important information about representation configurations

In case a representation rule has been configured by an engineer (see *ConSol\*CM User Manual* for details), all e-mails which are sent by CM are sent to the original recipient 1 and 1 his/her current representative. Please keep this in mind when you configure the representation permissions in the Admin Tool and inform your CM users (engineers) about this behavior! It might lead to unwanted effects, especially when persons are registered as engineers *and* as contacts in the ConSol\*CM system (e.g. for an internal help desk).

#### Track User Permissions

### Access tickets of the own company

Users with this permission are allowed to access not only their own tickets in CM.Track but all tickets of the company they belong to. This permission makes only sense for roles that define access rights of CM.Track users/user profiles, not for single users.

### **Tab Customer Group Permissions**

In order to let engineers work with customer data from one or more customer groups, e.g. to edit reseller data sets or to create new contact data within the customer group, you have to grant access permissions concerning the user group(s) to one or more roles.

ConSol CM6				S 💽 🗲	]
A Home	*	V Roles			-
Access and Roles	۲	Roles 19 roles		r Functions Global Permissions omer Group Permissions	The permissions
🏂 Engineers		Filter: All queues	Customer Groups	Customer Group Permissions	which are granted to
V Roles		Name	Customer Groups		the selected role for
Views		AccountManagementReseller	Name	Own All	the selected customer group
+ Engineer Functions		CM_Administration CM_TrackBasicCustomers	DirectCustomers MyCustomerGroup		
		CustomerManagerMyCustomerGroup	Reseller	Write	
Eists	۲	CustomerManager_DirectCustomers		Delete	
Tickets	۲	CustomerManager_Reseller HD 1st Level Role		Act 🗖	
Lustomers	۲	HD_2nd_Level_Role		Deactivate/	
A Resources	8	HD_Sales_Role HD_Supervisor			
(a) Global Configuration	8	MarketingTeamleitung		Details read 📃 📃	
⑦ Data Warehouse	*	Resource Manager_Products ResourceManager IT		Details write	
		ServiceDesk		Details delete 📃 📃	
Services	8	TemplateManager TrackAll		Create	
E-Mail	۲	TrackMyCustomerGroup			
💠 System	۲	TrackReseller Workflow Admin			
					Select / deselect all permissions
[CM_Administration]	Ŧ				

Fig. 4: ConSol\* Admin Tool - Assigning Permissions for Customer Groups to a Role

### Bests Practice

A concept which has proven very useful in various customer environment is the set-up of specific roles for customer data management. For example, there could be a role *CustomerManager\_CustomerGroup1* and another role *CustomerManager\_CustomerGroup2*. You can even differentiate between CustomerManager\_CustomerGroup1\_full and CustomerManager\_CustomerGroup1 \_light. In this way, you can use the assignment of the customer manager roles as a "toggle" and you do not mix-up queue access permissions and customer management permissions. This can be very helpful in case you have a heterogeneous team in which not everyone is allowed to edit the complete customer data.

However, do not forget to grant read permissions to customer data of the required customer groups to all engineers of the respective queues! Otherwise, they cannot open their tickets at all!

The access rights which can be granted have been modified compared to previous ConSol\*CM versions. New rights have been added which concern a new section of the customer page. The contact page as well as the company page in the Web Client have a new section, the *Details* section.

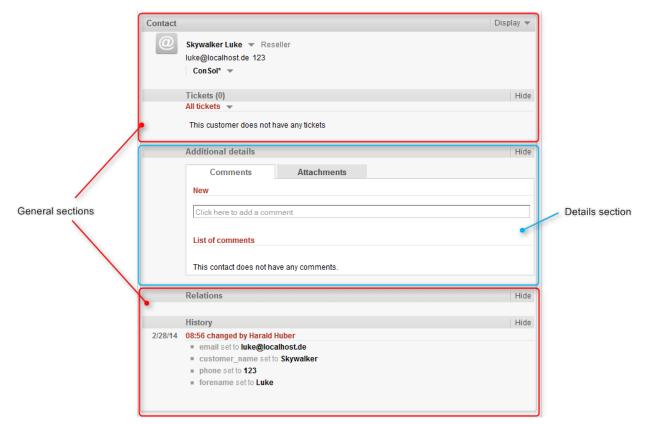


Fig. 5: ConSol\*CM Web Client - Details Section of a Contact Page

The following access permissions can be granted:

#### • Customer type

Refers to the tickets of the customer.

• Own

All (main or additional) customers of tickets which are currently assigned to the engineer or where the engineer is set as additional engineer.

• All

All customers.

- General sections
  - Read

Read the customer data.

• Write

Write/modify the customer data.

Delete

Delete a customer data set. Transfer all tickets associated with a customer of this customer group to another customer.

• Act

Execute actions for this customer (see section Action Framework - Data Object Actions for details about customer actions).

#### Deactivate/activate

Deactivate and (re-)activate the contact or company. It is not possible to create tickets for a deactivated customer.

- Details section
  - Details read

Read customer data in the *Details* section.

- Details write Write/modify customer data in the *Details* section.
- Details delete

Delete customer data in the Details section.

- General
  - Create

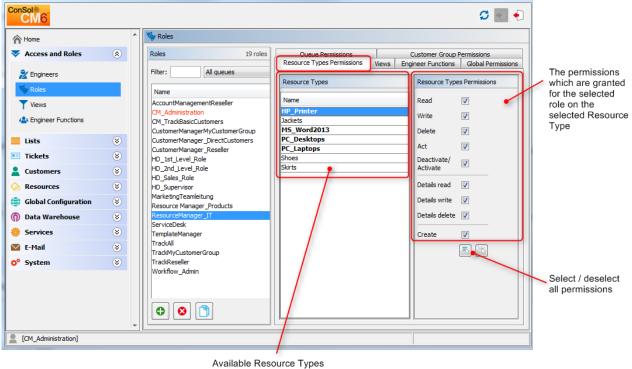
Create a customer data set. In a two-level customer data model this refers to contact as well as to company data sets.

```
Attention:
```

Please keep in mind that an engineer must have at least *read* permissions for a customer group to open and/or create tickets for customers in this group!

## **Tab Resource Types Permissions**

Resource Types permissions control an engineer's access to resources, i.e. objects which are stored in the Resource Pool.



(Bold for all Resource Types on which the selected role has at leat one access permission)

Fig. 6: ConSol\*CM Admin Tool - Resource Types Permissions

The following permissions can be granted:

- Read Load and display resources of the selected type in the Web Client. • Write Change custom field data of this type of resources. • Delete Delete resource of the respective type from CM6. • Act Execute resource actions defined for this type of resources. Deactivate/Activaze (De-) Activate resources of the selected type. • Details read Load and display comments/attachments for resources of this type. · Details write Add and change comments/attachments for resources of this type. • Details delete Remove comments and attachments for resources of this type.
- Create

Create new resource entries for the type of resources.

### **Tab Views**

Views define which tickets engineers will see in the ticket list of the Web Client. This tab shows the assigned views on the left and the available views on the right (see also View Administration). The displayed views can be filtered by name and queue. Assigning views is optional.

### Information:

We recommend to assign at least one view to a role. Otherwise an engineer with this role will see no tickets in the ticket list of the Web Client.

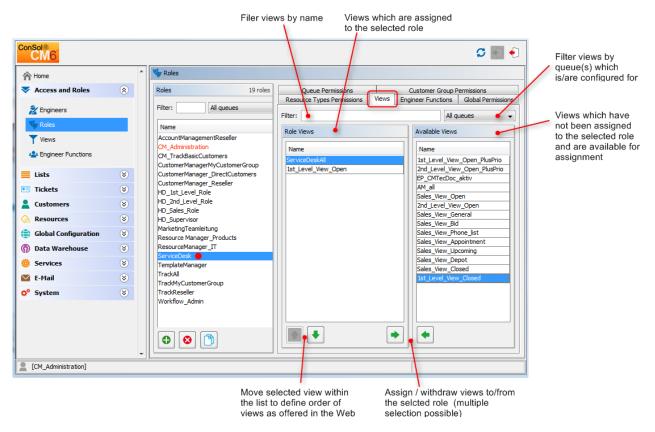


Fig. 7: ConSol\*CM Admin Tool - Role Administration: Views

Select a role on the left side of the page first and then the desired view(s) in the list of *available views*. Click on to move the selected view(s) to the list of *role views*. If you want to remove views from this list, select the respective views and click on

For regular roles, you cannot define the order of the views here. In the drop-down menu of the Web Client, the views will always be displayed in the order they have in the list of the view administration. Please see also section View Administration. Only in case a role has been marked as *main role* for at least one engineer (and is thus marked with a red dot), the views can be sorted using the arrow buttons 1 and 1.

# **5.2.2 Tab Engineer Functions**

On this tab you can assign *engineer functions* to a role. Engineer functions are used if you need an additional engineer for a ticket, e.g. a supervisor who has to decide what to do, before the ticket can be moved on in the workflow. Thus you have to assign a role with the respective engineer function to this supervisor. In the Web Client engineer functions and associated engineers are shown when assigning an additional engineer.

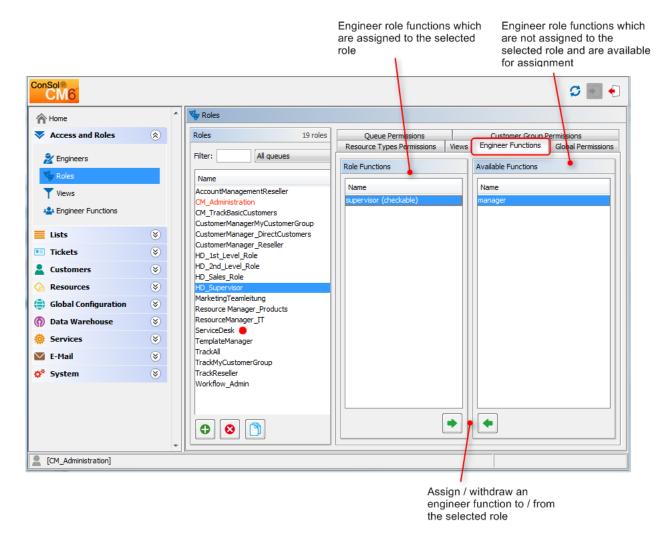


Fig. 8: ConSol\*CM Admin Tool - Role Administration: Engineer Functions

Select a role on the left side of the page and then the desired engineer function(s) in the list of *available functions*. Click on <a> to move the selected function(s) to the list of *role functions*. If you want to remove functions from this list, select the respective function(s) and click on <a> .</a>

After you have defined the new role by setting permissions, views, and engineer functions in the tabs you can assign the role to the desired engineer accounts. Engineers will obtain the rights of a role immediately after assignment (without an additional update of the system).

## 5.2.3 Delete a Role

Select the role you want to delete and click on select the role list. If you choose *Yes* in the following confirmation dialog, the role will be removed from the list and the system.

### Attention:

If you delete a role, please consider that engineers with only this role will immediately loose all permissions in the system.

## 5.2.4 Copy a Role

If you want to create a new role and use an existing role as a template you can copy it. Select the existing role and click on below the role list. A pop-up window appears in which you can enter the name for the copy. Afterwards you can modify the copy according to your wishes.

## 5.2.5 Edit a Role

Select the role you want to edit in the list and modify the permissions in the respective tabs as desired. The changes are immediately effective for engineers with this role. The engineer just has to login again.

# **6 View Administration**

- Introduction to View Administration
- View Administration Using the Admin Tool
  - Create a View
    - Queue Filter
    - Scope Filter
    - Static Criterion
    - Dynamic Criterion
    - Edit a View
    - Delete a View
    - Copy a View

# 6.1 Introduction to View Administration

Views are used to filter tickets according to certain criteria (e.g. all active tickets in the Queue *Helpdesk*) and display the resulting tickets in the ticket list of the Web Client. Since views are associated with roles engineers obtain their view(s) via the roles which are assigned to them. Engineers can switch between their views in the Web Client.

Engineers need the appropriate permissions to see all tickets filtered by a view. Permissions are not automatically granted when a view is assigned, but they have to be assigned within the definition of roles (as queue and customer group permissions). One and the same view can result in varying subsets of tickets and information therein for engineers with different roles.

The creation of views is optional. However we recommend it in order to assure central features of the Web Client. Without a view engineers will not see any tickets in the ticket list. They can only access tickets by using the search function.

# 6.2 View Administration Using the Admin Tool

To create, edit or delete views, open the navigation item *Views* in the navigation group *Access and Roles*, in the Admin Tool.

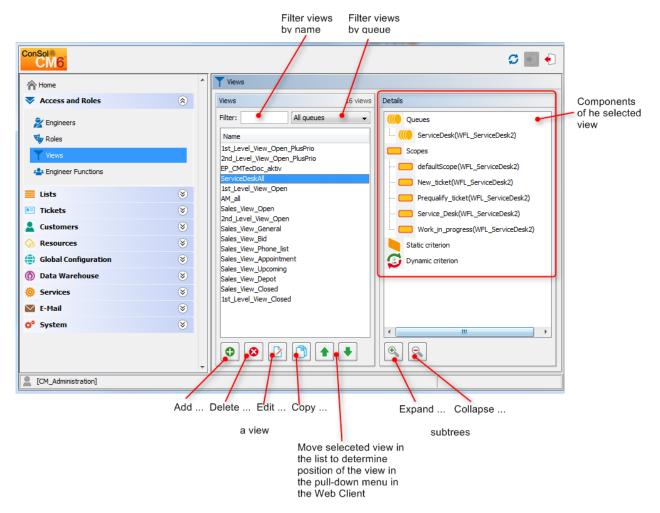


Fig. 1: ConSol\*CM Admin Tool - View Administration

## 6.2.1 Create a View

After clicking on below the view list the pop-up window *View Wizard* appears where you have to define the name for the new view first. You can also enter a description for it.

By clicking on equivalent general states and description. The pop-up window *Localize* shows the available locales on the left side. Enter the corresponding view name or description in the *Value* field for each additional language on the right. After clicking *Save* the name or description will be displayed in the respective language of the engineer's locale.

Via *Next* > you can continue with the definition of view criteria:

• queue filter

- scope filter
- static criterion
- dynamic criterion

### **Queue Filter**

At first you choose the queues for the new view. Select the desired queues in the list *Unassigned* and move them to the list *Assigned* by clicking on  $\checkmark$ . To remove an assigned queue, select it and click on  $\checkmark$ . Continue with the *Next* > button, in order to define scope filters, too.

🔢 View Wizard	ĺ	×
Create view		
i New queue filter.		
		_
Assigned	Unassigned	_
Name 🔺	Name 🔺	
Sales(Sales)	HelpDesk_1st_Level(helpdesk1) HelpDesk_2nd_Level(helpdesk2)	
		_
	< Back Next > Finish Cancel	
	/ \ \	$\prec$
Move queue to the Back		Leave View Wizard
opposite list previous	s step next step	without storing

Fig. 2: ConSol\*CM Admin Tool - View Wizard: Queue Filter

### **Scope Filter**

Next you can limit the view to certain workflow scopes of the selected queue(s). Scopes group workflow activities that have a special topic in common, e.g. tickets with an appointment.

Select the desired scopes in the list *Unassigned* and move them to the list *Assigned* by clicking on  $\checkmark$ . To remove assigned scopes, select them and click on  $\checkmark$ . Continue with the *Next* > button, if you want to define further criteria. Otherwise click on *Finish* to create the view.

### Information:

If you do not assign scopes in the *View Wizard*, the view exists by name but will not show tickets in the Web Client.

### Attention:

Since for the view definition you can only use scopes which have been defined during workflow development, please make sure that the workflows contain all required scopes. For example, when you want to have *active* and *inactive* tickets, there have to be separate scopes in the workflow, otherwise it will not be possible to define an *active* and an *inactive/waiting* view!

View Wizard <b>Freate view</b> <b>j</b> New scope filter.	
Assigned	Unassigned
Name  Appointment(Sales) FollowUp(Sales) Phone(Sales)	Name        Name        Bid(Sales)        Depot(Sales)        Lost(Sales)        Sales(Sales)        Snooze(Sales)        Won(Sales)        defaultScope(Sales)
	< Back Next > Finish Cancel

Fig. 3: ConSol\*CM Admin Tool - View Wizard: Scope Filter

### **Static Criterion**

You can restrict the view further by a static criterion to show only tickets with a certain value in a defined data field, e.g. tickets concerning a special product or only tickets with high priority. The criterion is static because the engineer cannot change it in the Web Client. Please see the *ConSol\*CM User Manual* for a detailed description of working with views.

Choose the data field in the *Field* list (e.g. *product*) and select the desired value in the *Value* list below (e.g. *crm*). Continue with the *Next* > button, if you want to define a dynamic criterion, too. Otherwise click on *Finish* to create the view.

🚺 View	Wizard 🔀
Create i Add	view new static criterion
Criteria	a definition
Field:	product 🔹
	not set cm
Value:	dwh process management others
	< Back Next > Finish Cancel

Fig. 4: ConSol\*CM Admin Tool - View Wizard: Static Criterion

### **Dynamic Criterion**

Like a static criterion, a dynamic criterion is used to show only tickets with certain values in a defined data field, but in contrast to a static criterion, with a dynamic criterion engineers can choose the value(s) for the parameter themselves. This can be done in the Web Client by editing the *User Profile*. Additionally, the administrator can adjust the value individually for each engineer on the *View criteria* tab of the engineer administration (see section Engineer Administration). Please see the *ConSol\*CM User Manual* for a detailed description of working with views.

🗾 View Wizard	×
Create view i Add new dynamic criterion	
Criteria definition	
Field: sales_chance	•
<pre>Seck Next &gt; Finish</pre>	Cancel

Fig. 5: ConSol\*CM Admin Tool - View Wizard: Dynamic Criterion

Click on *Finish* to create the view. You can leave the window any time without storing by choosing *Cancel*. Via the *Back* button you can return to the previous step of the view definition.

Now you can see the new view in the view list on the left. The assigned criteria are shown in the *Details* area on the right side of the page.

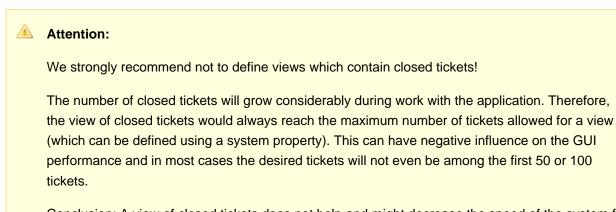
### Attention:

Please note that in a view with a dynamic criterion, only the tickets are displayed which match this criterion. So if an engineer has not selected any criteria in his/her engineer profile or if the administrator has removed all selections using the Admin Tool (*View criteria* in Engineer Administration), the engineer's view will be empty! Make sure your users know about this fact and make sure you as an administrator are always aware of that fact.

Details	
((() Queues	_
Sales(Sales)	
Scopes	
Appointment(Sales)	
FollowUp(Sales)	
Phone(Sales)	
Static criterion	
m 🗊 product	
Dynamic criterion	
sales_chance	

Fig. 6: ConSol\*CM Admin Tool - View Administration: View Details

You can expand or collapse all details by clicking on 🖭 or 🔍 below the list.



Conclusion: A view of closed tickets does not help and might decrease the speed of the system for the engineers. Only in test environments, a view for closed tickets might be an option.

# 6.2.2 Edit a View

Select the view you want to edit in the view list. The view details are shown on the right side of the page. To edit the selected view just click on a filter criterion with the right mouse button. The following drop-down menu appears:

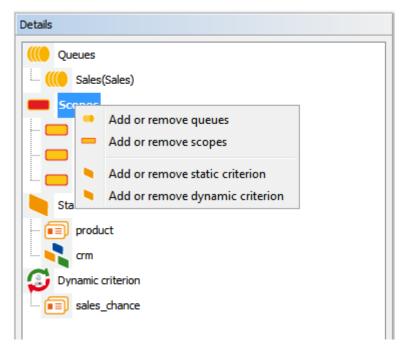


Fig. 7: ConSol\*CM Admin Tool - View Administration: Edit a View

The menu contains these options:

- Add or remove queues
- Add or remove scopes
- Add or remove static criterion
- Add or remove dynamic criterion

Just click on the desired menu item. The respective window of the *View Wizard* appears where you can add or delete filter criteria as described in Create a View. Double-clicking on a filter criterion will also open the *View Wizard*.

### Information:

You cannot edit view criteria by clicking on 🕑. Here you can only modify name and description of a view.

## 6.2.3 Delete a View

Click on selected view. A pop-up window appears where you are asked whether you really want to delete the view. If you choose *Yes*, the view will not be available for any engineer. Engineer permissions are not affected by this operation.

## 6.2.4 Copy a View

The icon 🗋 allows you to save time when creating a view. The selected view will be copied completely and you can edit the copy afterwards. The new view has the same name as the copied view. You can change it by double-clicking on the name or by clicking on the 🔯 icon.

# **7 Engineer Functions**

- Introduction
  - Create or Edit an Engineer Function
  - Delete an Engineer Function
  - Disable or Enable an Engineer Function
- Engineer Permissions Concerning Engineer Functions

# 7.1 Introduction

Engineer functions are used if you need an additional engineer for a ticket, e.g. a supervisor who has to decide what to do, before the ticket can be moved on in the workflow.

In the Admin Tool, engineer functions are managed using the navigation item *Engineer Functions* in the navigation group *Access and Roles*.

ConSol CM6				S 🔤 •		
A Home		^	Engineer Functions			
Access and Roles	۲		Engineer functions			
2 Engineers			Name Type supervisor checkable	•		t of available gineer functions
Views			manager regular			
Engineer Functions						
🗮 Lists	۲					
Tickets	۲					
2 Customers	۲					
lesources	۲					
(a) Global Configuration	n 🛞					
⑦ Data Warehouse	۲					
🔅 Services	۲					
E-Mail	۲					
💠 System	۲					
CM_Administration]						
	Add	Edit	Delete Deactivate Activate	Move the selecte function in the lis		
			an engineer function	the position in the menu in the Web	e pull-down	

Fig. 1: ConSol\*CM Admin Tool - User Attributes: Engineer Functions

The corresponding activities for such a process have to be created in the workflow. Engineer functions are assigned to engineer roles which in turn need to be assigned to the respective engineers. In the Web Client you can choose a function and an appropriate engineer when adding an engineer to the ticket.

Ticket	Accept   Edit   Clone   Print   Display 🕶
SUP-32	Adding attachments is possible for worker which has got only "Read tickets" permission HelpDesk 1st Level   Qualify Unassigned   Open since 4/14/08 1:43 PM Priority low Module AdminTool Reaction time 7/1/11 Ask for feedback no
	Customers Add Hide
	Main customer
e	Mr Luke Skywalker 👻 CustomerGroup luke@consol.de
	ConSol* GmbH ▼ Company ConSol* GmbH Address Franziskanerstr. 38 81543 München No comment
	Engineers
	Visor, Susanne 🔀 * Supervisor 🗨 *
	The supervizor has to approve the time bookings on this ticket
	OK Cancel
	No relations Add   Hide
	History Comment   E-Mail   Attachment   Time booking   Hide
	Display communication 💌 Sorting latest first 💌
	Add comment, e-mail or attachment

Fig. 2: ConSol\*CM Web Client - Assigning an (Additional) Engineer with an Engineer Function

# 7.1.1 Create or Edit an Engineer Function

An engineer function is defined by its name. By clicking on 🕑 a pop-up window appears where you can enter the name. You will get the same window when you click on 🖄 in order to edit an engineer function. The check box *Checkable* has to be ticked if additional engineers shall have the permission to execute a certain activity, e.g. give their approval, before the ticket can be moved on. The approval state is then displayed in the ticket.



After creation of an engineer function the check box *Checkable* cannot be de-selected anymore.

📔 Engineer f	unction			X
Engineer fun				
i Create ner	w engineer function			
Function de	etails			
Name:	consultant			
Checkable:				
Localized v	alues			
				51
Locale	e 10	Value		
English(de German	fault)			
Polish				-11
				-11
				_
			OK Cano	el

Fig. 3: ConSol\*CM Admin Tool - User Attributes: Create or Edit an Engineer Function

You can also localize the name of an engineer function in this window. The available locales are shown on the left side of the table. Enter the corresponding engineer function name in the *Value* field for each additional language on the right. After clicking *OK* the engineer function is created and the name will be displayed in the respective language of the engineer's locale.

# 7.1.2 Delete an Engineer Function

An engineer function can only be deleted if it is not assigned to any roles. Otherwise you get a warning and you can only disable this engineer function (see below).

In order to delete an engineer function, select it in the list and click on <a></a>. After choosing Yes in the confirmation dialog the engineer function will be removed from the list and the system.

# 7.1.3 Disable or Enable an Engineer Function

If an engineer function is still assigned to a role but is not needed anymore you can disable it. To do this select the engineer function and click on <a>></a>. The entry in the list is shown in italics afterwards. The engineer function cannot be assigned anymore. Just click on <a>></a> at the bottom of the page, if you want to enable the function again.

# 7.2 Engineer Permissions Concerning Engineer Functions

For engineers, resp. for roles, specific permissions can be granted which concern only the tickets for which the engineer who has this role is assigned as engineer with a certain function. Those permissions are granted as queue permissions (see also section Role Administration). This principle provides a good basis for a very sophisticated management of processes like approvals or other processes where people with different roles and responsibilities have to work on a case at the same time.

Using the Role Administration (navigation group *Access and Roles*, navigation item *Roles*), you can grant /withdraw the following permissions (for a detailed explanation of the permissions see section Role Administration):

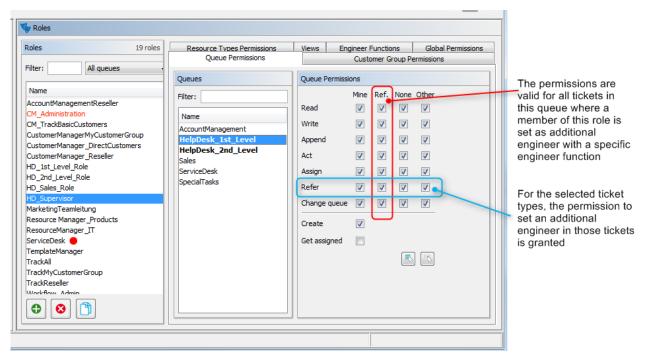


Fig. 4: ConSol\*CM Admin Tool - Permissions Concerning Engineer Functions

# 8 Ticket Data Model and GUI Design Section

ConSol® CM6					S 🔤 🕯
	-	Custom Fields			
Access and Roles	۲	Groups		Fields	
Lists	8	Filter:	All queues 🗸	Filter:	
Enums		Ticket data Activity Form data		Name	Data type
ALAS		Name			our the
		helpdesk_standard sales_standard			
Tickets	8	conversation_data			
		qualification			
<ul> <li>Custom Fields</li> </ul>		workaround			
History		feedback			
Administration		queue_fields			
		am_fields order_data			
Search Actions		serviceDesk_fields			
	-	ServiceDeskDismissFields			
Customers	۲	CustomerTicketListFields			
Resources	۲	SolutionFields			
Global Configuration	8	LocationFields LocationFieldsTable			
Global Configuration	8	RequestType			
1 anguages		icequest ype			
,	_				
🚫 Labels					
( Queues					
i Projects					
🛗 Business Calendars				0	
🕧 Classes Of Text					
🕥 Data Warehouse	۲	Assigned annotations		Assigned annotations	
Services	8	Name Value	Annotation group	Name Value	Annotation group
E-Mail	*				
	8				
🗘 System					

# Ticket Data Model and GUI Design

In this section, you learn how to define the data model for ticket data, thus this is about Custom Field definition and the positioning of the custom fields on the web Client GUI. However, some of the data structures (enums, MLAs) might also be used for data object group fields, see section Data Object Group Field Management and GUI Design. The Web Client Dashboard, a new feature in versions as of 6.9.4 is included, as well as the Page Customization, a powerful mechanism to configure the layout and functionalities of the Web Client.

Furthermore you will learn how to configure labels which are displayed in the Web Client.

In this section, the following topics are covered:

- Custom Field Administration
- Managing Sorted Lists: Enum Administration
- MLA Administration
- Configuration of the Ticket History
- Configuration of the Web Client Dashboard
- Page Customization

# 9 Custom Field Administration (Setting Up the Ticket Data Model)

- Introduction to Custom Field Administration
- Custom Field Administration Using the Admin Tool
  - Tab Ticket Data
    - Create a Custom Field Group
    - Edit a Custom Field Group
    - Annotate a Custom Field Group
    - Delete a Custom Field Group
    - Enable or Disable a Custom Field Group
    - Create a Custom Field
    - Edit a Custom Field
    - Annotate a Custom Field
    - Delete a Custom Field
    - Enable or Disable a Custom Field
  - Tab Activity Form Data
    - Short Introduction to Activity Control Forms (ACFs)
    - Definition of Activity Control Forms (ACFs)
    - Create an Activity Control Form
    - Edit an Activity Control Form
    - Delete an Activity Control Form
    - Enable or Disable an Activity Control Form
    - Localize an Activity Control Form
  - Frequently Used Annotations

# 9.1 Introduction to Custom Field Administration

Custom Fields are fields that contain ticket data (e.g. *priority, software module, reaction time*, or *sales potential*) of the ConSol\*CM system.

### Attention:

Custom fields (CFs) are defined as distinct fields, but the system configuration concerning Custom Fields is always based on Custom Field Groups (CF groups), never on single CFs.

### A Custom Field Group (CF group) ...

- can be assigned to a queue, e.g. the CF group *helpdesk\_data\_fields* is assigned to the queue *HelpDesk*.
- can be faded in and out in the GUI during the process; only the whole group, not single fields (CFs).
- can be displayed as tab or in the *Groups* section of a ticket. The title (and mouse-over) of the tab is the (localized) name of the CF group.
- is configured by the group annotations. Annotations are used to define special parameters and characteristics for a CF, e.g. the position in the user interface. Please see section Appendix A for a list of all available annotations.
- is placed on the GUI based on its position in the CF group list (defines e.g. the order of tabs).

### A Custom Field (CF) ...

- is always defined within a Custom Field Group.
- can be assigned to a queue only as part of its Custom Field Group.
- can be made invisible using annotations, but cannot be faded in or out as single field during the process.
- is configured using field annotations. Annotations are used to define special parameters and characteristics for a CF, e.g. the position in the user interface. Please see section Appendix A for a list of all available annotations.
- is placed on the GUI based on the value of its *position* annotation or based on its creation time ("first CFs first in the GUI") if *position* is not set.

When you want to **define new Custom Fields** for a queue (e.g. you need some data about hardware details like order number, IP address, and brand), you have to perform the following steps:

- 1. Define a Custom Field Group, set the respective annotations.
- Define all sorted lists (enums) in the enum administration which you will need in the Custom Fields (e. g. when you need a CF brand which should contain a sorted list, you have to define this enum first).
- 3. Define all Custom Fields within the new CF group.
- 4. Assign the new CF group to all queues where the fields are required.
- 5. Test the results in the Web Client GUI. You do not need to log in again, it will be sufficient to press F5 to refresh the page.

All those steps will be explained in detail in the following sections.

In case some data fields should be offered in a form during one or more processes, Activity Control Forms (ACFs) can be defined. This is explained in the section Tab Activity Form Data.

# 9.2 Custom Field Administration Using the Admin Tool

In the Admin Tool, Custom Fields are managed using the navigation item *Custom Fields* in the navigation group *Tickets*.

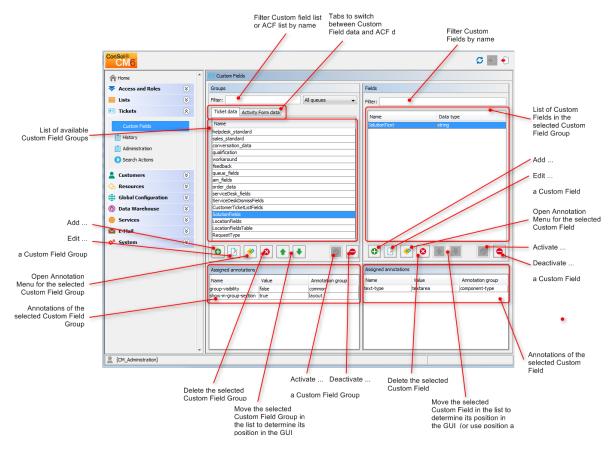


Fig. 1: ConSol\*CM Admin Tool - Custom Field Administration

# 9.2.1 Tab Ticket Data

On this tab, you can define groups and fields for *ticket* data. The tab Activity Form data will be explained in one of the subsequent sections.

### **Create a Custom Field Group**

To create a new Custom Field Group just click on the elicon below the list on the left side of the page. The following pop-up window appears.

	🗾 Create group		
	Create group		
	i Create a new group of custom fields.		=
			-
Custom Field Group name 🚤	Group details		
	Name: car_type		
Custom Fields of this group	For all queues:		
Custom Fields of this group are visible in all queues	Dependent Enum Scripts		
	Assigned scripts	Available scripts	
Assigned scripts for	Assigned DependentEnum	Available A MultipleChoiceDependentEnum	
multi-level lists	ocpendententam	MatapicenticeDependententian	
Move selected script			
up or down in the list			
			Assign selected script(s)
			·
	Localized values		
	Locale	Value	
	English(default)	Car type	Localized values for the
	German Polish	Auto-Typ	Custom Field Group name
		OK Cancel	
		Calicer	

Fig. 2: ConSol\*CM Admin Tool - Custom Field Administration: Create a Custom Field Group

• Name

Enter a name for the Custom Field Group. The name must be unique.

• For all queues

If this check box is activated, this group's Custom Fields are visible in all queues. Usually Custom Field Groups for ticket data are only valid in specific queues (see Queue Administration ).

• Dependent Enum Scripts

Dependent enum scripts define the structure of *dependent enums* (hierarchical multi-level lists) used in Custom Fields of this Custom Field Group. With dependent enums you can limit the choices in multi-level lists. You select an element in a list and based on this selection only matching results will be shown in the next lower hierarchy level of the list. The enums (single lists) for the Custom Fields have to be created within the Enum Administration while the scripts that couple the lists to create the dependent enum are created using an Admin Tool script, see section Admin Tool Scripts. To assign dependent enum scripts to a Custom Field Group select the desired script(s) in the list *Available scripts* and move them to the list *Assigned scripts* by clicking on

#### Localized values

Enter the corresponding group name in the *Value* field for each additional language. In the Web Client's user interface the name will be displayed in the language of the engineer's web browser locale. If you do not make an entry here the object name, i.e. the content of the *Name* field, will be taken instead.

### **Edit a Custom Field Group**

If you want to edit a Custom Field Group, select it in the list and click on 2. The same window as described above for creating a Custom Field Group will appear. You can modify all fields and save your changes by clicking *OK*.

### Annotate a Custom Field Group

Custom Field Groups are annotated to define their characteristics, e.g. where a group is displayed in the Web Client, if a group is indexed, or if it should be visible. You can define e.g. if a group is visible in the Web Client (annotation *group-visibility*) or if it is shown in the *Groups* section of the Web Client (annotation *show-in-group-section*). To assign annotations select a group and click on  $\checkmark$ . The following pop-up window appears:

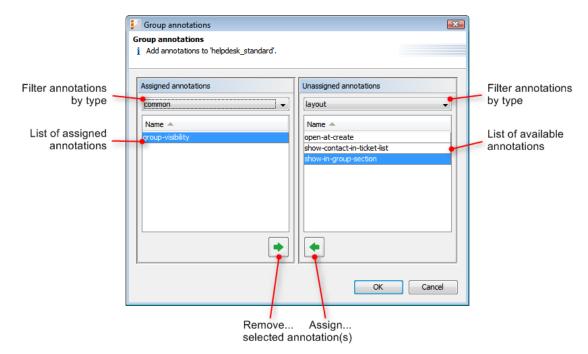


Fig. 3: ConSol\*CM Admin Tool - Custom Field Administration: Assign Custom Field Group Annotations

The right part of the window contains the available annotations. Using the selection field above the list you can filter the display according to annotation type (e.g. *common* or *layout*). Select the desired annotations and move them to the *Assigned annotations* list on the left by clicking on Image: Select the desired annotation type. Click on *OK* to assign the annotations to the Custom Field Group and to close the window. See Appendix A (Annotations), section *Group Annotations* for detailed information.

The annotations are now shown with a default value (if available, e.g. *true* or *false*) in the bottom left-hand corner of the administration page. The value can be modified by double-clicking into the corresponding *Value* field and typing the desired value. Press the *Enter* key afterwards.

Custom Field Groups will appear in the Web Client as they are ordered in the list. Select a group and use the icons 1 and 1 if you want to change the position of this group in the list.

### **Delete a Custom Field Group**

A Custom Field Group can only be deleted if it is not assigned to a queue or a ticket. Otherwise you get a warning stating you can only disable this group (see below). In order to delete a Custom Field Group select it in the list and click on <sup>2</sup>. If you confirm the following dialog with *Yes*, the group with its corresponding fields will be removed from the list and the system.

### Enable or Disable a Custom Field Group

If you cannot delete a Custom Field Group or if you do not want to delete it, because you might need it again, you can disable it. To do so select the group and click on <a>
</a>

Image: The entry in the list is shown in italics afterwards. Disabled Custom Field Groups are not displayed in the Web Client. Just click on <a>
</a> below the group list, if you want to enable the group again.

### **Create a Custom Field**

Custom Fields contain the data for tickets, e.g. priority, service level, deadline, or hardware module. The fields of a Custom Field Group are created in the right part of the page. Select the desired group first on the left and then click on the olic below the Custom Field area on the right. The following pop-up window appears:

Custom Field name Defines that the Custom Field belongs to another Custom Field	Create field  Create field  Create new field.  Field details  Name: testist_struct  Data type: struct  Belongs to: testist  testist  qa_list qa_list qa_struct	Data type of the Custom Field
	Localized values          Locale       Value         English(default)       German         Polish       OK	Localized values for the Custom Field name

Fig. 4: ConSol\*CM Admin Tool - Custom Field Administration: Create a Custom Field for Ticket Data

### • Name:

Enter a name for the Custom Field. The name must be unique.

### • Data type:

Choose one of the following data types for the new Custom Field:

• boolean

Values: true/false. Depending on the annotation *boolean-type*, the value is displayed as check box, radio buttons, or drop-down list.

When you work with scripts, either in CM workflows or in the Admin Tool, please note that the **behavior of boolean fields** which are represented as check boxes, i.e. with annotation *boolean-type = checkbox* (default) is different depending on the CM version!

• In CM versions prior to 6.9.4.0:

When a boolean field has not been touched, its value is *false*. If it is checked, its value is *true*, and if it is unchecked again, its value is *false* again.

In version 6.9.4.0 and up:
 When a boolean field has not been touched, its value is *NULL*. If it is checked, its value is *true*, and if it is unchecked again, its value is *false*.

Fields which already have been set in the database will not be changed during an update from a version prior to 6.9.4.0 to a version 6.9.4.0 and up. Boolean fields represented as radio buttons (annotation *boolean-type = radio*) or drop-down menu (annotation *boolean-type = select*) have always shown and will show in future the behavior as described for versions 6.9.4.0 and up, i.e. with *NULL* value when untouched.

#### • date

Format and accuracy can be set by annotations.

• enum

For sorted lists. The engineer can choose one of the enum values on the Web Client. Enums and values have to be created previously within the Enum Administration. Select the desired *Enum type* and *group* in the fields below.

• list

A Custom Field of this data type is the first step to create a list (one column) or a table (multiple columns) of input fields in the Web Client.

- For a **table** the next step will be to create another Custom Field of type *struct* (see below) to contain the input of the individual list fields (which will become the columns of the table). So, if you want to create a table you have to define a Custom Field of the type *struct* first (see below) before you can add the Custom Fields for the table columns.
- For a **simple list**, the next step will be to create fields which belong to the list. No *struct* is required.

For all Custom Fields belonging to a list or table you have to set the dependencies in the field *Belongs to* (see below). For example, a table field (which is a regular CF) always belongs to a *struct*, a struct always belongs to a *list*.

struct

A Custom Field of this type defines a data structure (line of a table) which groups one or multiple Custom Field(s). It is the second step to build a table after you have created a Custom Field of the type *list.* Add the Custom Fields for the columns of the table in the next step. The dependencies have to be set for each Custom Field in the *Belongs to* field (see below), i.e. a struct always belongs to a *list.* 

	List		
Struct (line 0)	CF1	CF2	CF3
Struct (line 1)	CF1	CF2	CF3
Struct (line n)	CF1	CF2	CF3

Fig. 5: Scheme: List of Structs

• number

For integer values.

• fixed point number

For numbers with a fractional part, e.g. currencies. You have to enter the total number of digits (*Precision*) and the number of digits that fall to the right of the decimal point (*Scale*) in the respective fields below.

• string

For up to 4000 alphanumeric characters.

long string

For large objects, unrestricted length.

• short string

For up to 255 alphanumeric characters.

contact data reference

Special data type used internally for referencing the contacts associated with a ticket.

MLA field

This data type is used for Custom Fields that contain hierarchical lists with a tree structure called *MLA* (Multi Level Attributes). The name of the Custom Field will be the name of the new MLA that has to be defined within the MLA Administration. The group of the Custom Field has to be referenced when the MLA is created.

• Belongs to:

This field shows the available Custom Fields of the data types *list* and *struct* used to create lists or tables. Choose in the drop-down box to which list or structure the Custom Field belongs (if applicable).

### • Localized values:

Enter the corresponding Custom Field name in the *Value* field for each additional language. In the Web Client, the name will be displayed in the respective language of the user's web browser locale. If you do not make an entry here the object name, i.e. the content of the *Name* field, will be taken instead.

#### Attention:

The data type you choose on creating a Custom Field cannot be changed afterwards!

### **Edit a Custom Field**

If you want to edit a Custom Field, select it in the list and click on **D**. The same window as described above for creating a Custom Field will appear. Except *data type*, *enum type*, and *enum group* you can modify all fields and save your changes by clicking *OK*.

### Annotate a Custom Field

Just like Custom Field Groups Custom Fields are annotated to define the properties of the field, e.g. is it read-only, should it be indexed, where should it be displayed on the GUI (please see section Appendix A for a list of all available annotations). Select a field and click on select the list. The following pop-up window appears:

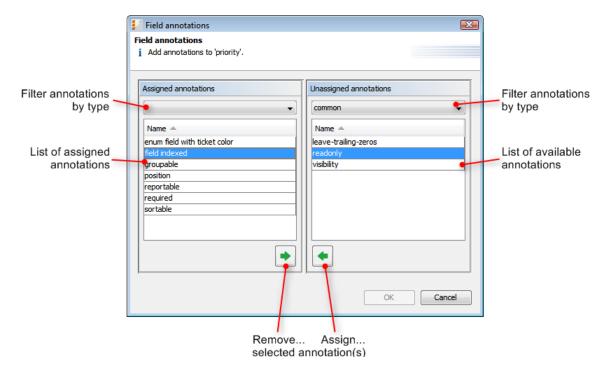


Fig. 6: ConSol\*CM Admin Tool - Custom Field Administration: Assign Custom Field Annotations

The right part of the window contains the available annotations. Using the selection field above the list you can filter the display according to annotation type. Select the desired annotations and move them to the *Assigned annotations* list on the left by clicking on 
This list can also be filtered according to annotation type. Click on *OK* to assign the annotations to the Custom Field and to close the window.

The annotations for the selected field are now shown with a default value (if available, e.g. *true* or *false*) in the bottom right-hand corner of the administration page. The value can be modified by double-clicking into the corresponding *Value* field and typing the desired value. Press the *Enter* key afterwards.

Custom fields will appear in the Web Client as they are ordered in the list unless you have assigned a layout via the *position* annotation. You can change the position of a field in the list by using the icons and the below.

Yo	or the layout of the ticket data, p ou can define three columns of elow) can start with 0, 1 or 2.	lease note: data fields on each line, i.e. the p	position annotation (see table
0	);0	0;1	0;2
1	;0	1;1	1;2

### **Delete a Custom Field**

A Custom Field can only be deleted if it is not assigned to a queue or a ticket. Otherwise you get a warning stating you can only disable this field (see below). In order to delete a Custom Field select it in the list and click on <sup>(2)</sup>. If you confirm the following dialog with *Yes*, the Custom Field will be removed from the list and the system.

### **Enable or Disable a Custom Field**

If you cannot delete a Custom Field or if you do not want to delete it, because you might need it again, you can disable it. To do so select the field and click on <a>></a>. The entry in the list is shown in italics afterwards. A disabled Custom Field is not displayed in the Web Client. Just click on <a>></a> below the Custom Field list, if you want to enable the field again.

# 9.2.2 Tab Activity Form Data

### Short Introduction to Activity Control Forms (ACFs)

An Activity Control Form is a web form which is displayed during the process, i.e. when the engineer works on the ticket. When he/she clicks on a workflow activity, the ACF is displayed first. When the engineer has filled in and saved the required data, the process can continue. i.e. the workflow activity is executed.

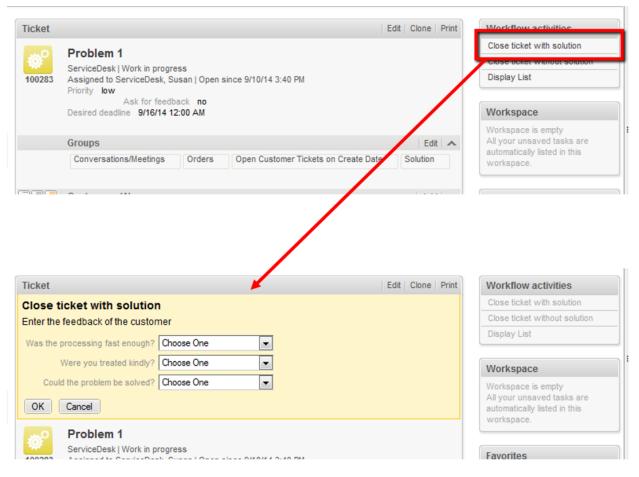


Fig. 7: Example ACF

The Custom Fields which are used in an ACF have to be defined first, as regular CFs. They can belong to one or more CF groups. The ACFs is integrated into the process (workflow) using the ConSol\*CM Process Designer. Here, you can also define which CFs should be required and which fields are optional. The display of an ACF can depend on a condition (e.g. the ACF "Reasons for dismissal of request" is only displayed when the customer has *Gold* or *Platin* status. ACF dependencies are configured using scripts. This is explained in detail in the *ConSol\*CM Process Designer Manual*.

# **Definition of Activity Control Forms (ACFs)**

On this tab, you can create activity control forms (ACF) which can be assigned to activities in the Process Designer. They are used to gather input in the Web Client when a manual workflow activity needs more information for the next step, e.g. if a ticket has to be qualified before it can be moved on or if you want feedback for a ticket. ACFs are basically a set of Custom Fields already created on the tab *Ticket data*. An ACF can contain Custom Fields of more than one Custom Field Group. However, all Custom Fields have to be allowed in the queue to which the workflow using the ACF is assigned. Please read the chapter on ACFs in the *ConSol\*CM Process Designer Manual* for detailed information about the process flow with ACFs and the features provided using programming ACF scripts.

#### ConSol\*CM Administrator Manual (Version 6.10, up to 6.10.2)

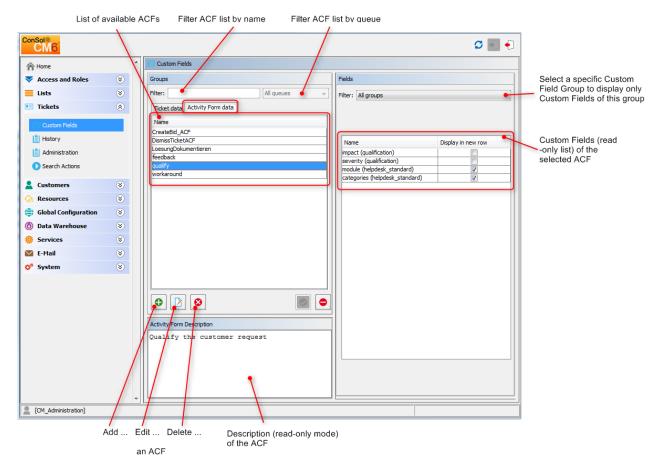


Fig. 8: ConSol\*CM Admin Tool - Custom Field Administration: Activity Form Data

# **Create an Activity Control Form**

To create an ACF just click on the **D** icon below the list on the left side of the page. The following pop-up window appears.

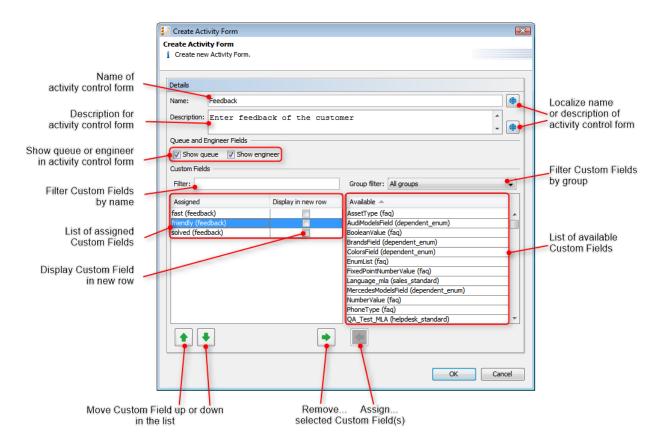


Fig. 9: ConSol\*CM Admin Tool - Custom Field Administration: Create an Activity Control Form

Please enter or select the following data:

• Name

Enter the name of the ACF in this field. You can localize the name by clicking on 😐 (see below).

• Description

Enter a description for the ACF in this field. The description will be shown as the title of the ACF in the Web Client. You can localize the description by clicking on (see below).

• Show queue

Mark this check box if the queue of the ticket shall be displayed with the ACF in the Web Client.

• Show Engineer

Mark this check box if the engineer of the ticket shall be displayed with the ACF in the Web Client.

Filter

You can enter a string of characters into this field to filter the assigned Custom Fields by name.

• Group filter

Select a group of Custom Fields from this list if you want to display only Custom Fields belonging to this group in the list of available Custom Fields below.

#### Custom Field lists

The list on the right shows the available Custom Fields with their respective Custom Field Group. You can sort the entries in ascending or descending order by clicking into the title field of the list. The icons a or show the sort order. Select the Custom Fields for the ACF in this list and move them to the list *Assigned* on the left by clicking on .

For each assigned Custom Field you can define if it shall be displayed in a new row by marking the corresponding check box. The assigned Custom Fields will appear in the Web Client as they are ordered in the list. You can rearrange the list by selecting an item and clicking on  $\frown$  or  $\frown$ . To remove assigned Custom Fields, select them and click on  $\frown$ .

Click on OK afterwards to store your entries and to close the window.

### **Edit an Activity Control Form**

If you want to edit an ACF, select it in the list and click on is or just double-click the name of the ACF. The same pop-up window as for creating an ACF will appear where you can modify the details. Store your changes by clicking *OK*.

### **Delete an Activity Control Form**

An ACF can only be deleted if it is not assigned to a workflow activity. Otherwise you get a warning stating you can only disable this ACF (see below). In order to delete an ACF select it in the list and click on <sup>1</sup> you confirm the following dialog with *Yes*, the ACF will be removed from the list and the system.

### **Enable or Disable an Activity Control Form**

If you cannot delete an ACF or if you do not want to delete it, because you might need it again, you can disable it. To do so select the ACF and click on <a></a>

Image: The entry in the list is shown in italics afterwards. A disabled ACF is not available in the Process Designer. ACFs which are in use cannot be disabled. Just click on <a></a> below the ACF list, if you want to enable the form again.

### Localize an Activity Control Form

By clicking on the respective globe icon in the create or edit window you can localize name and description of an ACF. The pop-up window *Localize* shows the available locales on the left side. Enter the corresponding name or description in the *Value* field for each additional language on the right. After clicking *Save* the name or description will be displayed in the respective language of the engineer's locale.

# 9.2.3 Frequently Used Annotations

Here are some frequently used annotations on field level. You can find a complete list of group and field annotations in Appendix A .

Annotation	Annotation Type	Description	Value	Comment
groupable	cmweb-common	Enables grouping of fields in the ticket list.		Used only with <i>enu</i> <i>m</i> Custom Fields. No value is needed.
sortable	cmweb-common	Used to enable sorting of the ticket list.		Used with Custom Fields of type <i>enu</i> <i>m</i> or of type <i>Date</i> . No value is needed.
readonly	common	Used to indicate that the Custom Field cannot be modified.	true / false	Field is read only if value is set to <i>tru</i> <i>e</i> . Lack of value or any value except <i>f</i> <i>alse</i> is also treated as <i>true</i> .
visibility	common	Defines when the field is visible.	edit	Field will be displayed in <i>edit</i> mode.
			view	Field will be displayed in <i>view</i> mode.
			none	Field is not visible.
text-type	component-type	Defines the possible types of a string field.	text (default)	Single-line input field.
			textarea	Multi-line input field.
			password	Input field for passwords. Password will be displayed as ******* in <i>view</i> mode.

Annotation	Annotation Type	Description	Value	Comment
			label	Input will be displayed as a label, i.e. the field is displayed only, no input is possible.
			url	Input will be displayed as a hyperlink in <i>view</i> mode. String has to match a specific URL pattern.
reportable	dwh	Indicates that the field is reportable and that it should be transferred to the DWH.	true / false	Field is reportable if value is set to <i>tru</i> <i>e</i> .
field indexed	indexing	Used to indicate that a database index will be created for this field.	transitive (default)	All data is displayed (ticket and customer).
			unit	Used for customer data. Only the unit and the parent unit (i.e. company) is given as a search result, no tickets are provided.
			local	Used for customer data. Only the unit is given as a search result, no company and no tickets are displayed.
			not indexed	Field is not indexed.

Annotation	Annotation Type	Description	Value	Comment
position	layout	Defines the position of a field within a grid layout.	<number>; <number></number></number>	Values define <i>row</i> and <i>column</i> (row; column), numbering starts at 0;0. If no values are set, the Custom Field will take the next free grid cell.
		Defines the position of a field within a list (struct).	0; <number></number>	Only the <i>column</i> value is used, the <i>r</i> <i>ow</i> value is ignored.
colspan	layout	Defines how many columns are reserved for the field in the layout.	<number></number>	Number of columns.
rowspan	layout	Indicates how many rows within the layout are occupied by this field.	<number></number>	Number of rows.
field-group	layout	Allows grouping of fields in <i>view</i> mode. Annotation is ignored in <i>edit</i> mode.	<string></string>	To group fields the same string value has to be set in the annotation of each field.

Annotation	Annotation Type	Description	Value	Comment
fieldsize	layout	Displayed field size within ticket layout.	<rows>;<cols></cols></rows>	For <i>string</i> Custom Fields with annotation <i>text-</i> <i>type</i> and value <i>text</i> <i>area.</i> <rows> defines the number of displayed rows and <cols> defines the number of characters displayed per row. Used only for layout purposes.</cols></rows>
			<number></number>	For <i>enum</i> Custom Fields. Defines how many values are directly visible in the list box. Used only for layout purposes.
enum field with ticket color	ticket display	Defines the background color of the ticket icon for ticket list and ticket.	true / false	The field has to exist within enum administration where lists, values, and colors are defined.
accuracy	validation	Used for date fields, to define the level of detail displayed.	date (default)	Show date without time.
			date-time	Show date with time.
			only-time	Show only time, no date.
format	validation	Used to check the correct format of <i>d ate</i> fields.	<date format=""></date>	The pattern for the date is based on <i>Si mpleDateFormat</i> , e.g. dd.mm.yyyy.

Annotation	Annotation Type	Description	Value	Comment
maxLength	validation	Defines the maximum length of input for <i>string</i> Custom Fields.	<number></number>	May be used with <i>s</i> <i>tring</i> Custom Fields.
minLength	validation	Defines the minimum length of input for <i>string</i> Custom Fields.	<number></number>	May be used with <i>s</i> <i>tring</i> Custom Fields.
required	validation	Indicates that this is a required field.	true / false	Field is required if value is set to <i>true</i> . The user cannot save the ticket without having entered a value in a required field. In the Web Client, required fields are marked by a red asterisk.

# **10 Managing Sorted Lists: Enum Administration**

- Introduction to Enum Administration
- Enum Administration Using the Admin Tool
  - Enum Types
    - Create an Enum Type
    - Edit an Enum Type
    - Delete an Enum Type
    - Enable or Disable an Enum Type
  - Enum Groups
    - Create an Enum Group
    - Edit an Enum Group
    - Delete an Enum Group
    - Enable or Disable an Enum Group
  - Enum Values
    - Create an Enum Value
    - Edit an Enum Value
    - Set a Background Color
    - Delete an Enum Value
    - Change the Order of the Value List
    - Enable or Disable an Enum Value
  - Placing an Enum in the Data Model
    - Enums for Ticket Data
    - Enums for Customer Data

# **10.1 Introduction to Enum Administration**

In the *Enum Administration* you can configure enums = sorted lists. They are part of the ConSol\*CM data concept. You define an enum once and can use it multiple times:

- as a selection list (in drop-down menus) for custom fields or data object group fields of type enum
- as hierarchical lists for custom fields or data object group fields of type *MLA field* (Multi Level Attributes, see section MLA Administration)
- as dependent enums, i.e. as enums that form a hierarchy, a data construct implemented by Dependent Enum Scripts

#### Attention:

You only define the lists, i.e. the structures with various list values, in the enum administration. To display the enum in the Web Client (as custom field values or data object group field values), you have to complete one of the following steps:

- create a custom field of type enum and assign the respective enum there
- create a data object group field of type enum and assign the respective enum there
- create an MLA which is linked automatically as custom field to the custom field group or as data object group field to the data object group that has been indicated during MLA set-up
- create a dependent enum script and assign this to a custom field group

#### **Examples:**

A list of country names (Germany, Italy, France, etc.) is used in the data object group field *Country* belonging to an address data set. The same list can also be used in the ticket data custom field *Machine location* of queue *A* or in further custom fields. Priority lists (high, normal, low, etc.) are other typical examples.

Depending on the annotation *enum-type*, an *enum* field is displayed in the Web Client as follows:

- enum-type not set or enum-type = select.
   drop-down menu (default, see example in the picture below)
- enum-type = radio.
   radio buttons
- enum-type = autocomplete.
   self-completing (autocomplete) list

Ticket	Accept   Clone   Print   Display 🔻
	AT: Unexpected behaviour in 'Deployment Administration'
SUP-100	Queue: HelpDesk 1st Le Assigned to: Unassigned
	Priority     Iow     Module     misc       Reaction time normal high     Iow     Iow     Iow
	QA Test None -
	QA List Date Enum Price Number Text Department QA_Test_Mla_For_Struct Add row
	Country Choose one Cho
	OK Cancel

Fig. 1: ConSol\*CM Web Client - Enum for Priority (Localized Enum Values Displayed as List Items)

# **10.2 Enum Administration Using the Admin Tool**

Enums are organized in three levels:

• Type

The *type* helps to organize your lists within the Admin Tool. Its name is never displayed in the Web Client and does not have any other implications.

• Group

The group represents a group of enum values, i.e. the list.

Value

The value represents one value within a list.

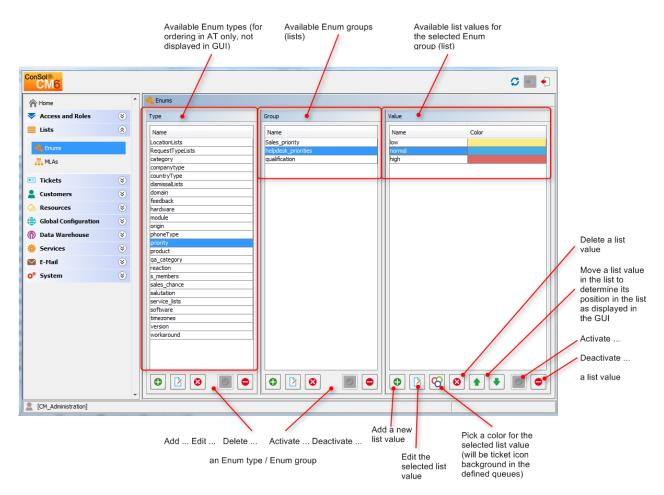


Fig. 2: ConSol\*CM Admin Tool - Enum Administration

# 10.2.1 Enum Types

### Create an Enum Type

To create a new enum type just click on below the list in the *Type* area on the left of the window. The following pop-up window appears.

🗾 Create enum type		<b>X</b>
Create enum type		
i Please fill in the required fie	elds.	
Details		
Name: sales		
Localized values		
Locale	Value	
English(default)	Sales	
German	Vertrieb	
Polish		
	ОК	Cancel

Fig. 3: ConSol\*CM Admin Tool - Enum Administration: Create an Enum Type

• Name:

Enter a name for the new enum type. The name must be unique.

• Localized values:

Enter the corresponding type name in the *Value* field for each additional language. If you do not make an entry here the object name, i.e. the content of the *Name* field, will be taken instead.

Click on *OK* to create the enum type and to close the window.

# Edit an Enum Type

If you want to edit an enum type, select it in the list and click on  $\square$ . The same window as described above for creating an enum type will appear. You can modify all fields and save your changes by clicking *OK*.

# **Delete an Enum Type**

An enum type can only be deleted, if there are no enum groups for it anymore. Either you have to delete all groups belonging to this type first or you have to assign them to another type. In order to delete an enum type select it in the list and click on 2. If you confirm the following dialog with *Yes*, the type will be removed from the list and the system.

### Enable or Disable an Enum Type

If you do not want to delete an enum type, because you might need it again, you can disable it. To do so select the type and click on <a></a>. The entry in the list is shown in italics afterwards. Just click on <a></a> below the type list, if you want to enable the type again.

# 10.2.2 Enum Groups

### **Create an Enum Group**

An enum group represents a list, i.e. the enum group is a collection of list (enum) values. All groups of an enum type (i.e. all lists which belong to this type) are created and managed in the middle part of the *Enum Administration* window. To create a new enum group select the desired type on the left, then click on below the *Group* area. The following pop-up window appears:

📔 Create en	um group		X
Create enur			
i Please fill	in the required fields.		
Enum Grou	ıp Details		
Name:	support		
Type:	priority	•	
Order by:	user-defined		
Localized v	alues		
Locale		Value	
English(de	efault)	Support	
German Polish		Hilfe	
Polisi			
		OK Cancel	

Fig. 4: ConSol\*CM Admin Tool - Enum Administration: Create an Enum Group

• Name:

Enter a name for the enum group. The name must be unique.

• Type:

This field shows the selected enum type for the group. You can also choose any other type from the selection list e.g. if you want to assign the group to a different type.

### • Order by:

Here you can define the way the values of a group shall be ordered. If you select *user-defined* you can determine the sort order by means of arrow icons below the value list. If you choose *name* the values will be ordered alphabetically when you create them.

### • Localized values:

Enter the corresponding group name in the *Value* field for each additional language. If you do not make an entry here the object name, i.e. the content of the *Name* field, will be taken instead.

Click on OK to create the enum group and to close the window.

# Edit an Enum Group

If you want to edit an enum group, select it in the list and click on 2. The same window as described above for creating an enum group will appear. You can modify all fields and save your changes by clicking *OK*.

### **Delete an Enum Group**

An enum group can only be deleted if it is not used in a ticket or an MLA. In order to delete a group select it in the list and click on <sup>(2)</sup>. If you confirm the following dialog with *Yes*, the group will be removed from the list and the system.

### Enable or Disable an Enum Group

If you cannot delete an enum group or if you do not want to delete it, because you might need it again, you can disable it. To do so select the group and click on <a></a>. The entry in the list is shown in italics afterwards. Just click on <a></a> below the group list, if you want to enable the group again.

Information:

An enum group cannot be disabled if it is still used in an MLA.

# 10.2.3 Enum Values

### **Create an Enum Value**

The individual values of an enum group (i.e. the list values) are created in the right part of the window. Select the desired group and click on below the *Value* area. The following pop-up window appears.

📔 Create enu	m value		X
Create enum			
i Please fill in	the required fields.		
Enum Value	Details		
Name: prin	ter		
Localized va	lues		
Locale		Value	
English(defa	ault)	printer	
German		Drucker	
Polish			
	Save and next	ОК	Cancel

Fig. 5: ConSol\*CM Admin Tool - Enum Administration: Create an Enum Value

• Name:

Enter a value which shall be displayed in the sorted list on the Web Client.

• Localized values:

Enter the corresponding value name in the *Value* field for each available language. In the Web Client's user interface the name will be displayed in the language of the user's web browser locale. If you do not make an entry here, the technical object name, i.e. the content of the *Name* field, will be displayed.

Click on *Save and next*, if you want to continue to create values for this enum group. To finish the creation of the list click *OK*.

### **Edit an Enum Value**

If you want to edit an enum value, select it in the list and click on  $\boxed{2}$ . A pop-up window will appear where you can modify the name and the localized values. Click *OK* to save your changes.

### Set a Background Color

You can assign a color to a selected enum value, if you click on S. This can be used for example for priorities. The priority of a ticket in the Web Client can be recognized immediately by its background color. This will be effective when the respective annotation is set, see the following info box.

#### Information:

Please note that only one enum can determine the color of the ticket icon for a queue. You have to assign the annotation *enum field with ticket color* to the respective custom field of type *enum* in the Custom Field Administration. For example, you can use the custom field *priority* to determine the ticket icon color in the helpdesk queue and the custom field (enum) *likelihood of closing a deal* in the sales queue.

The pop-up window contains a range of colors from which you can choose the desired background color. Click on the desired color to set it for the marked list value. You can check the selected color in the *Preview* area. Click on *OK* to save your choice. Click on *Reset* if you want to return to the last saved color.

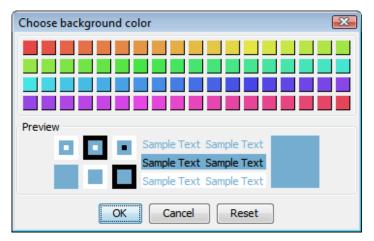


Fig. 6: ConSol\*CM Admin Tool - Enum Administration: Set a Background Color

### **Delete an Enum Value**

An enum value can only be deleted if it is not used in an MLA. To delete a value select it in the list and click on <sup>(a)</sup>. If you confirm the following dialog with *Yes*, the value will be removed from the list and the system.

#### Attention:

Before you delete an enum value, make sure there are no references to it in workflow scripts! This is not checked in the Admin Tool!

### Change the Order of the Value List

If you have chosen *user-defined* in the *Order by* field of an enum group you can arrange the enum values by using the arrow icons below the list. Click on 1 to move the selected value one line up resp. click on 1 to move it one line down. If you change the value for *Order by* from *user-defined* to *name*, the enum values will automatically be ordered by name in alphabetical order.

### Enable or Disable an Enum Value

If you do not want to delete an enum value, because you might need it again, you can disable it. To do so select the value and click on <a>
</a>. The entry in the list is shown in italics afterwards and the value is not available in the Web Client any longer. Just click on <a>
</a> below the value list, if you want to enable the value again.

#### Information:

An enum value cannot be disabled if it is still used in an MLA.

# **10.2.4 Placing an Enum in the Data Model**

Enums can be used in custom fields (i.e. for ticket data) and for data object group fields (i.e. for customer data). The example below shows an enum for ticket data.

### **Enums for Ticket Data**

In order to place an enum in the ticket data model, i.e. to make it available in queues and visible in the Web Client, a custom field of type *enum* has to be defined. Please see section Custom Field Administration for a detailed explanation of the work with custom fields.

### **Enums for Customer Data**

In order to place an enum in the customer data model, i.e. to make it available for company or contact data in the Web Client, a data object group field of type *enum* has to be defined. Please see section Data Object Group Field Management and GUI Design for Customer Data for a detailed explanation of the work with data object group fields.

			Edit field			23
M6 Admin-Tool @ cm6-demo.int.consol.de			Edit field i Edit field.			
File Views Help	= % 🧔	) () ()	Field details Name:	priority		
Custom Field Administration	Fields		Data type:	enum		
Filter: All queues	Filter:		Belongs to:	Please select type an	d group of enum values	▼
Ticket data Customer data Activity Form data	Name QA_Test_MLA	Data type MLA field		priority helpdesk_priorities		▼ ▼
helpdesk_standard sales_standard qualification	categories country	MLA field enum boolean	Localized value			
workaround feedback	priority	enum	Locale	es	Value	
dependent_enum queue_fields fag	testlist	list enum	English(defau German Polish	lt)	Priority Priorität	
numbers	qa_enum_struct_member qa_fixedpoint_struct_member	enum fixed-point number				
		string list		T		OK Cancel
Assigned annotations	Assigned annotations					
Name Value Annotation group	Name Value groupable true sortable true reportable true	Annotation cmweb-com cmweb-com dwh	mon			
CM_Administration]						

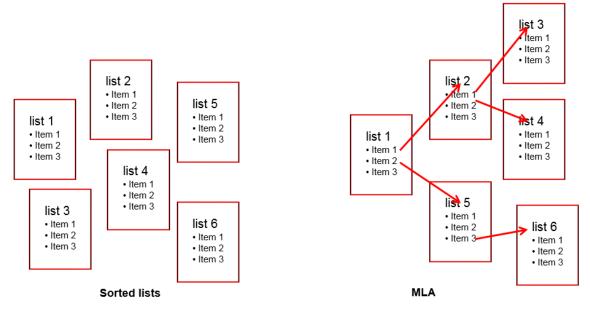
Fig. 7: ConSol\*CM Admin Tool - Definition of a Custom Field of Type enum

# **11 MLA Administration**

- Introduction to MLA Administration
- MLA Administration Using the Admin Tool
  - Create an MLA
    - Create an MLA Level
    - Edit a Level Value
    - Delete a Level
    - Enable or Disable a Level
  - Edit an MLA
  - Delete an MLA
  - Enable or Disable an MLA

# **11.1 Introduction to MLA Administration**

MLA means *Multi Level Attributes*. An MLA is used to represent a hierarchical data set and consists of several lists which form a tree structure. Each item of a list can lead to a list of the next level with the item name being the name of the subordinate list. An MLA can be used for ticket data or for customer data.



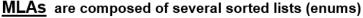


Fig. 1: ConSol\*CM Admin Tool - MLA Construction Principle

#### Example:

For quality management you need to specify hardware or software products in a ticket. For this purpose you can create an MLA with the name *QA\_MLA*. The next step will be to create the first level with the items *Hardware* and *Software*. For each item of a level you can create further levels, e.g. *Graphics Card*, *Monitor*, and *Mainboard* for item *Hardware* and so on. The picture below shows such an MLA in the Web Client.

Ticket											Accept	Clone	Print	Display	y <del>-</del>
<b>1</b>	Adding att	achments i	is po	os	sible for wor	ker wł	nict	has got only "Read	*						
SUP-32	Queue:	HelpDesk 1st L			Assigned to:	Unassig	ned								
	Priority	low	-		Module	AdminTo	ool								
	Reaction time	7/1/11				📃 Ask f	or fe	edback							
	Category	y Software   Operating systems 🔻													
	QA Test MLA	Mla							X	1					
	QA List	Hardware	•	*	Office	•		Windows XP							
		Software	•		Operating system	is 🕨		Windows Vista							
								Windows 7	Ξ						
	Country							Windows 8		one 💌					
								Suse Linux 10							
	OK Cano							Suse Linux 11							
				Ŧ			-	Fedora 12	-						
	Customers							OK Can	cel					Add	Hir

Fig. 2: ConSol\*CM Web Client - MLA for Hardware and Software Selection

The sorted lists (enums) for each level of an MLA ...

- can be created within the Enum Administration and are just referenced when a new MLA level is defined.
- can be completely created within the MLA Administration during set-up of a new MLA.



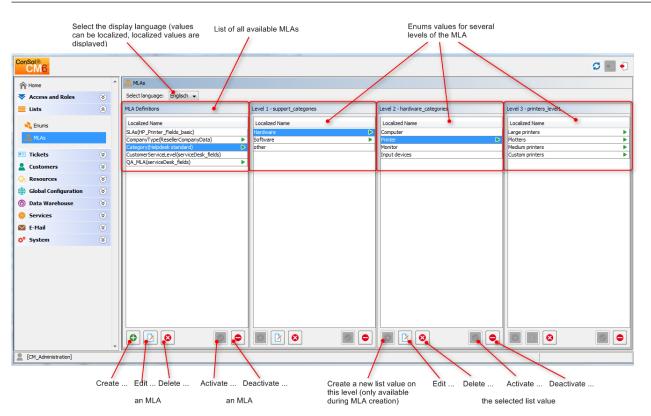


Fig. 3: ConSol\*CM Admin Tool - MLA Administration

All entries are shown with their localized names (i.e. how they are displayed on the Web Client) in the selected language. You can change the display language of this page by choosing a different locale in the *Select language* field above the list.

# 11.2.1 Create an MLA

To create an MLA click on 🕑 below the MLA list in the bottom left corner of the page. The following pop-up window appears.

Ľ	MLA De	finition Form		X		
MLA Definition Form i Please fill in the required fields.						
	MLA def	inition details				
Name: QA_MLA						
	Type:	Ticket		-		
	Group:	serviceDesk_fields		-		
	Localize	d values				
	Locale		Value			
	Deutsc	1				
			QA_MLA			
	Polnisch	1				
			ОК Са	ncel		
	м	MLA Defin j Please to MLA definition Name: Type: Group: Localized Localized Deutscol Englisch	j Please fill in the required fields.          MLA definition details         Name:       QA_MLA         Type:       Ticket         Group:       serviceDesk_fields         Localized values	MLA Definition Form         j       Please fill in the required fields.         MLA definition details         Name:       QA_MLA         Type:       Ticket         Group:       serviceDesk_fields         Localized values       Locale         Locale       Value         Deutsch       Englisch(default)         Polnisch		

Fig. 4: ConSol\*CM Admin Tool - MLA Administration: Create an MLA

• Name:

Enter a name for the new MLA. The name must be unique.

- Type:
  - Ticket

MLA will be used in ticket data, i.e. in a custom field.

• Data object

MLA will be used in customer data, i.e. in a data object group field.

• Group:

Choose the required custom field group (ticket data) or data object group (customer data) in the list box. For the new MLA a custom field or data object group field of type *MLA field* will be created automatically in this group. This is necessary to display the MLA on the Web Client. The custom field or data object group field can be annotated as described in sections Custom Field Administration and Data Object Group Field Management and GUI Design for Customer Data.

• Localized values:

Enter the corresponding MLA name in the *Value* field for each additional language. On the Web Client the name will be displayed in the respective language of the user's browser locale. If you do not make an entry here the object name, i.e. the content of the *Name* field, will be taken instead.

Click on OK to save the details of the new MLA.

#### Information:

You can also create the custom field or data object group field for the MLA first. In this case you will find the localized name of the custom field or data object group field already in the list of available MLAs.

## **Create an MLA Level**

Having created a name and a custom field or data object group field for the MLA you can go on with the definition of levels. Select the MLA in the list and click on below *Level 1*. You will get the *Enum level form* where you can specify an enum for this level.

	Enum level form Enum level form i Choose enum gro			
Tree path of this level – Type, group, and values of the enum for this level	Tree path: Select enum type Select enum group Enum values:	QA_MLA category support_categories Enums hardware software OK	<ul> <li></li></ul>	Create, edit, delete an enum type Create, edit, delete an enum group Create, edit, delete enum values

This menu is only available during the process of creating a new MLA, not when editing an existing MLA.

Fig. 5: ConSol\*CM Admin Tool - MLA Administration: Create an MLA Level

#### • Tree path:

This field shows the tree path of the new MLA level. Thus you can always see the position of the level within the MLA. The field is read only.

#### • Select enum type:

Choose an enum type from the list to use the corresponding enum groups (which have been created in the enum administration first) or create a new enum type directly here in the MLA administration. The new type will also be visible in the enum administration afterwards.

#### • Select enum group:

Choose the desired enum group for this level from the lists in the enum administration which are located within the selected type. If you have created a new enum type in the previous step you also have to create a new enum group. The new enum group will also be visible in the enum administration afterwards.

#### • Enum values:

These are the list values of the new level which will be displayed in the Web Client. You can either take the list as is or you can enter/add or delete values. The changes will be immediately visible in the respective enum values in the enum administration. If you have created a new enum group you also have to create one or more enum values for the new group.

Click on OK to create the new MLA level and to close the window.

You can either create all enum types, groups, and values you need before you start to define an MLA or create an enum during the definition of a level in the MLA Administration by clicking on next to the respective fields in the window. By clicking on real or real you can also edit or delete enum types, groups, and values here but please consider that changes will affect other MLAs using the same enum. You cannot delete an enum if it is already used in another MLA.

For each value of a level you can create further levels as previously described. Just select the value in the list and click on below the next level area to the right.

#### Information:

If you have finished your MLA definition and see that you need an additional value for one of the levels, you have to create that value in the respective enum group within the Enum Administration.

## Edit a Level Value

If you want to edit a value of the level, select it in the list and click on  $\mathbb{M}$ . You can change the object name and the localized values but please consider that changes will affect other MLAs using the same enum.

### **Delete a Level**

A level can only be deleted if it is not used in a ticket. In order to delete it click on 2 below the respective level. If you confirm the following dialog with *Yes*, the level and all its dependent levels will be removed from the list and the system.

### Enable or Disable a Level

If you cannot delete a level or if you do not want to delete it, because you might need it again, you can disable it. Just click on selow the respective level. The level values (including the values of dependent levels) are shown in italics afterwards. Click on selow the respective level if you want to enable the level again.

# 11.2.2 Edit an MLA

If you want to edit an MLA, select it in the list and click on 🖄. The same window as described above for creating an MLA will appear. You can modify all fields except the custom field group. Click *OK* to save your changes.

# 11.2.3 Delete an MLA

You can only delete an MLA if it is not in use. Otherwise you get a warning stating you can only disable this MLA (see below). In order to delete an MLA select it in the list and click on <sup>(2)</sup>. If you confirm the following dialog with *Yes*, the MLA (and the custom field within *Custom Field Administration* or the data object group field within *User attributes*) will be removed from the list and the system.

# 11.2.4 Enable or Disable an MLA

If you cannot delete an MLA or if you do not want to delete it, because you might need it again, you can disable it. To do so select the MLA and click on <a></a>. The entry in the list is shown in italics afterwards. A disabled MLA will not be displayed in the Web Client. Just click on <a></a> below the MLA list, if you want to enable the MLA again.

# **12 Ticket History**

- Introduction
- Display Modes of Ticket History in the Web Client
- General Information about the Visibility of Ticket History Entries
  - The Display Mode
  - The Visibility Level
- Ticket History Storage and Transfer to the Data Warehouse (DWH)

# **12.1 Introduction**

For each ticket, the ticket history is stored in the ConSol\*CM database, i.e. the entire life cycle of a ticket can be traced. This comprises actions like workflow activities or incoming e-mails as well as automatic and system actions like the change of the responsible engineer or the check if a time trigger has to fire. For those of you who know ConSol\*CM version 5: this is the equivalent to the ticket protocol.

The ticket history is displayed in the *History* section on the ticket page.

In case the DWH is in use (see section Data Warehouse DWH Management), you can configure if the history data should be transferred to the DWH, see section on this page.

# 12.2 Display Modes of Ticket History in the Web Client

The display mode for the ticket history can be configured on the navigation item *History* in the navigation group *Tickets*. On this item you can configure the visibility level for each major action or event that has taken place concerning a ticket. The entries of the indicated type(s) will be visible in the ticket history when the user has selected the respective visibility level. This is of importance when the display mode *Display all entries* is used.

The visibility of e-mails, comments and attachments (i.e. their visibility level and if the text entries are displayed *full* or *short*) can be controlled by classes of text. The visibility of entries with no class of text assigned to them is determined by the *default class of text* (in a default installation of ConSol\*CM, the default class for e-mails and comments is named *default\_class* and the default class for attachments is named *default\_attachment\_class*).

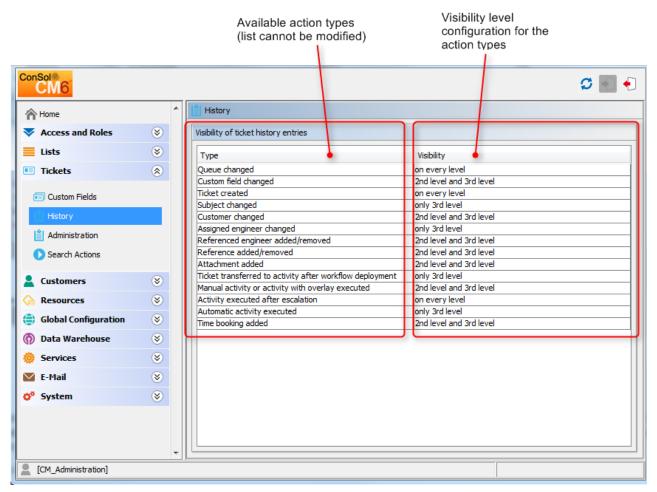


Fig. 1: ConSol\*CM Admin Tool - Configuration: Ticket History

The editing panel for the ticket history shows a list of all configured values, each with:

• Type

The type of action that has been performed.

• Visibility

The visibility level in the Web Client. There are three levels History :

- Basic (1st level)
- Extended (2nd level)
- Detail (3rd level)

The following figures show the action type time booking added configured for 2nd level and 3rd level.

	No comment			
	Engineers	Add	Hide	
	No relations	Add	Hide	-
	Comment   E-Mail   Attachment   Time booking   H			
	Display all entries V Sorting latest first V Add comment, e-mail or attachment			
29.01.14 15.	49 #10 created by Charly Chef   Action 💌			
	This can only be fixed by installing the patch release 47.11			
01.07.11 10.	18 #6 created by admin   Action 💌			
9	Dem Lorem ipsum dolor st amet, consectetuer adipiscing elit. Acieean commodol ligula eget dolor. Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus			

Fig. 2: ConSol\*CM Web Client - Time Booking Entry Not Visible on 1st Level

		No comment					
	Engin	eers				Add	Hide
	No re	lations				Add	Hide
	Histor	γ	Comment	E-Mail	Attachment	Time booking	Hide
	Displa	y all entries 🔻 Sorting latest first 💌					
-	Add c	omment, e-mail or attachment					
29.01.14 16	6.19	#10 created by Charly Chef   Action 👻 no class					
	_	Time booking added: 1/29/14 3:48 PM Duration: 00:30 Project: Project1 WindowsMigration (Server preparation)					
26.11.13 12	2.26	#9 changed by Charly Chef Main customer changed from Silke Kaufmann to Luke Skywalker					
07.07.11 10	0.18	#7 changed by cmas;jbpm:timer Reaction overdue has been triggered					
01.07.11 10.18 #6 created by admin   Action v default class							
		l orem insum dolor sit amet consectetuer adiniscion elit. Aenean commodo linula enet dolor. Aenean massa. Cum sociis natonue nen	atihus et ma	sih sinni	narturient mon	ites nascetur	

Fig. 3: ConSol\*CM Web Client - Time Booking Entry Visible on 2nd Level

It is not possible to add new action types to the list. To edit the visibility for an existing entry, double-click on the visibility value you would like to modify and select the desired option from the drop-down menu.

Activity executed after escalation	on every level			
Automatic activity executed	only 3rd level			
Time booking added	2nd level and 3rd level			
	on every level			
	2nd level and 3rd level			
	only 3rd level			

Fig. 4: ConSol\*CM Admin Tool - Selecting the Visibility Level for an Action Type

The next picture shows the visibility for the action type *time booking added* after the setting has been modified on the navigation item *History* in the navigation group *Tickets*.

		No comment		l
	Engine	neers	Add   Hide	
	No rela	elations /	dd   Hide	-
	Histor	Dry Comment   E-Mail   Attachment   Time bool	ing   Hide	ľ
_	Display	ay all entries 🔻 Sorting latest first 👻		
	Add co	comment, e-mail or attachment		
29.01.14	16.19	#10 created by Charly Chef   Action 👻		1
		This can only be fixed by installing the patch release 47.11		
		Time booking added: 1/29/14 3:48 PM Duration: 00:30 Project: Project1 WindowsMigration (Server preparation)		ł
01.07.11 (\$\bar{\$})		#6 created by admin   Action 👻 Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur mus. Donec quam felis, ultricles nec, pellentesque eu, pretium quis, sem. Nulla consequat massa quis enim. Donec pede justo, fringilla vel, alquet nec, vulputate eget, arcu. In enim ju		

Fig. 5: ConSol\*CM Web Client - Time Booking Entry Visible on 1st Level

# 12.3 General Information about the Visibility of Ticket History Entries

There a two visibility settings configuring the visibility of ticket history entries:

- The chosen display mode
- The chosen visibility level (including the additional information, whether entries shall be displayed *full* or *short* within the chosen visibility level).

Furthermore, there are two kinds of ticket history entries, for which you can define the visibility settings:

#### • Communication

Refers to comments, e-mails and attachments. Their *visibility level* and if the text entries are displayed *full* or *short* can be controlled by classes of text. The visibility of entries with no class of text assigned to them is determined by the *default class of text* (in a default installation of ConSol\*CM, the default class for e-mails and comments is named *default\_class* and the default class for attachments is named *default\_attachment\_class*).

• Other entries For example, entries about a ticket changing the queue or the scope, assigning and unassigning engineers or the execution of automatic activities. The full list of all possible types of *other entries* can be found in the Admin Tool in the navigation item Ticket History, where you can also set the *visibility level* for this entries.

# 12.3.1 The Display Mode

The display mode determines, which kinds of ticket history entries are generally shown in the ticket history. In line with the two kinds of ticket history entries (*communication* and *other entries*), there are two display modes for the ticket history:

- Display mode *Display communication* (shows communication entires only)
- Display mode *Display all entries* (shows communication and all other entries)

#### Display mode Display communication

Shows only comments, e-mails and attachments (not the full attachment, but an entry, that an attachment has been added and a link to open the attachment). Whether an communication entry is shown and in which length they are shown, depends an the selected visibility level (including the additional information, whether entries shall be displayed *full* or *short* within the chosen visibility level).

#### Display mode Display all entries

Shows all other entries in addition the the communication entries (e.g. entries about a ticket changing the queue or the scope). The full list of all possible types of *other entries* can be found in the Admin Tool in the navigation item Ticket History, where you can also set the *visibility level* for this entries.

These *other entries* are visible only when the display mode *Display all entries* is chosen. After this requirement is met, the selected visibility level determines, whether the different kinds of entries are shown. In contrast to communication entires, there is no differentiation between *full* and *short* visibility for these *other entries*.

	History Comment   E-Mail   Attachment   Time booking   🔨					
	Display communication 🔻 Sorting latest first 💌					
	Add comment, e-mail or attachment					
6/24/15	#19 created by Susan ServiceDesk   Action 12:03 default class					
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidu						

Fig. 6: ConSol\*CM Web Client - Setting the Display Mode

# 12.3.2 The Visibility Level

There are three ticket history levels History in the Web Client:

- Basic (1st level)
- Extended (2nd level)
- Detail (3rd level)

#### Visibility level for communication entries

In which visibility level (Basic, Extended or Detail) communication entries will be shown or hidden in the ticket history is determined by classes of text. You can create and manage them in the navigation item *Classes of Text*. The visibility of entries with no class of text assigned to them is determined by the *default class of text* (in a default installation of ConSol\*CM, the default class for e-mails and comments is named *default\_class* and the default class for attachments is named *default\_attachment\_class*).

In addition to the general visibility of an communication entry, you can also determine if an entry of this class should be displayed in full length (*full) or shortened after a certain number of characters (short).* 

#### Visibility level for other entries

In which visibility level (Basic, Extended or Detail) other entries will be shown or hidden in the ticket history can be configured in the navigation item Ticket History. In contrast to communication entires, there is no differentiation between *full* and *short* visibility for these other entries.



Fig. 7: ConSol\*CM Web Client - Setting the Visibility Level

# 12.4 Ticket History Storage and Transfer to the Data Warehouse (DWH)

In a standard CM installation which uses the Data Warehouse, the ticket history is stored in the CM database and transferred to the DWH.

You can use annotations to prevent the writing of the ticket history into the CM database and to prevent the transfer of ticket history data to the DWH:

Available in CM versions	Group annotation	Field annotation	Triggered behavior
6.6.0 and up	no-history	no-history-field	For the custom field groups or single custom fields with this annotation, no history data will be written into the CM database. So no history data will be available at all - the <i>dwh</i> <i>-no-history</i> does not have to be set for the respective custom fields or custom field groups.
6.10.2 and up	dwh-no-history	dwh-no-history-field	For the custom field groups or single custom fields with this annotation, no history data will betransferred to the DWH.

Thus, when you want to see the history in the Web Client, but there are good reasons not to transfer all the data to the DWH, use *dwh-no-history* and *dwh-no-history-field*. In case you do not want to write history data at all, e.g. when some internal programing data is written into custom fields, the use the *no-history* and *no-history-field* combination. Of course you can combine the two variants and use different values for each field or field group.

Please note that there might have been changes concerning the history transfer configuration during the life of a CM system. This might result in a CM database which contains (old) history data even though, currently, the annotation *no-history* is set.

#### Information:

Please note the CM behavior during an update to versions 6.10.2 and higher:

For keeping old system configurations valid, for all custom fields and custom field groups which are annotated with *no-history-field* and *no-history*, the new annotations *dwh-no-history-field* and *dwh-no-history* are added automatically.

# 13 Configuration of the Web Client Dashboard

Starting with version 6.9.4, the ConSol\*CM Web Client provides a *dashboard* for engineers which is displayed on the Web Client *Overview* page. The dashboard is composed of one or more so called widgets. As default configuration, the dashboard contains only one widget which displays a graphic with the the number of tickets in all groups of the selected view. Dashboards can contain interactive elements, e.g. to show or hide elements of the graphic. However, persistent engineer-specific (personal) adaption is not possible.

#### Information:

After an update from a previous version to CM version 6.9.4, the Web Client Dashboard will be disabled.

In a new CM 6.9.4 installation, the Web Client Dashboard will be enabled by default. A default dashboard configuration is provided (see example below).



Fig. 1: ConSol\*CM Web Client - Web Client Dashboard with Default Graphic

Overview	Overview
ServiceDeskAll	ServiceDeskAll
50	50
40 source of the second secon	40 50 20 10 0 All Own Unassigned

Fig. 2: ConSol\*CM Web Client - Interactive Widget (Fade-in and -out Parts of the Graphic)

Widgets which are used for the dashboard are of one of two possible types:

• Chart

for graphical representation of data

• Table

for table representation of data

You as an administrator can design the layout of the dashboards as required, i.e. you can place chart widgets and table widgets on the dashboard page. They are placed on the page based on a grid layout.

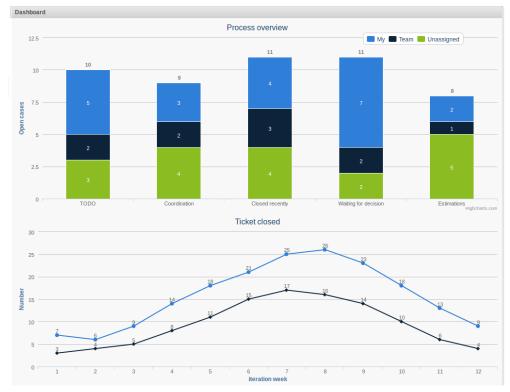


Fig. 3: ConSol\*CM Web Client - Example for a Dashboard with Two Graph Widgets in One Column



Fig. 4: ConSol\*CM Web Client - Example for a Dashboard with One Chart and One Table Widget in One Column

The data for the graphs and/or tables in the widgets are retrieved using Groovy statements which are placed in an Admin Tool script.

The dashboard is configured using Page Customization.

# 14 ConSol CM Administrator Manual 6.10.2 - Page Customization

# 14.1 Page Customization

- General Introduction to Page Customization
- Page Customization in the Web Client
- Page Customization Using Attributes
  - Possible Pages (Scopes) for Page Customization
    - companyEditPage
    - contactCreatePage
    - contactEditPage
    - resourceDashboard
    - resourceType (Resource Type Page)
    - resource (Resource Detail Page)
    - officeTemplatePage (Only When CM.Doc Has Been Activated)
    - searchDetailPage
    - templateViewPage
    - ticketCreatePage
    - ticketEditPage
    - userProfilePage
    - welcomePage

- Page Customization Attributes for Types, Scopes and Subscopes, in Alphabetical Order
  - acimSection (Type or Subscope)
  - accordionTicketList (Type)
  - attachmentSection (Type or Subscope)
  - autocomplete
  - boxContent
  - calendarSection
  - cmRichTextEditor
  - customerGroupSelector
  - customerSectionPanel
  - detailSearch
  - engineerAutocomplete
  - enumAutocomplete
  - generalFeedback
  - globalSearchField
  - mailTemplate
  - navigationLinks
  - resourceRelations
  - resourceRelationsPanel
  - resourceTypes
  - section (Type)
  - sectionList (Type)
  - table
  - ticketList (Subscope)
  - ticketsAutocomplete
  - ticketsBookingAutocomplete
  - ticketPanel
  - TicketRelation
  - timeBookingSection
  - unitAutocomplete
  - unitFormPanel
  - UnitResourceRelation
  - unitSearch
  - unitRelationSection (Type UnitSection)
  - unitSearchHeader
  - viewDiscriminatorsSection (Type)
  - welcomePage
- Order and Priorities of Page Customization

# 14.1.1 General Introduction to Page Customization

In addition to the design of the Web Client GUI in the process of defining Custom Fields (see section Custom Field Administration) and Data Object Group Fields (see section Data Object Group Field Management and GUI Design), an administrator can configure more GUI layout features and functionalities using **page customization**.

When you log in to the Web Client as an administrator, you see the item *Enable page customization* in the main menu. Depending on the context, i.e. on the page that is currently displayed, the page customization offers different, page- and context-specific functionalities.

For example, when you have opened a ticket and start the page customization, you can configure attributes for the ticket in general. When the Ticket E-Mail Editor is open, you can also configure e-mail editor-specific attributes.

In the following sections, the general principle of page customization and all available page customization attributes are described and explained in detail. In all other sections of this *ConSol\*CM Administrator Manual*, references to this sections will be included where required.

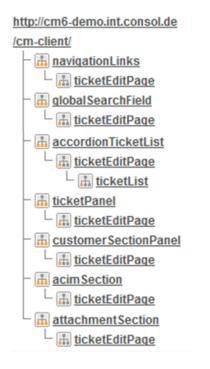
# 14.1.2 Page Customization in the Web Client

When you start the page customization mode, the *Page Customization Definition Section* (PCDS) is displayed in the lower half of the GUI. On the right side you see a tree that reflects the structure of the current page. Within the page, every element of the page is marked by a blue border. When you move the mouse over an element, its name is displayed. When you click on this name, the editor section for this element in the PCDS is opened, and the element is marked in the tree. That way you can easily identify the component you would like to modify.

ConSol*			0	6
CIVIC		Logged in: admin	-	
Overview Create ticket	Create customer	Manage templates Manage Word templates Enable page customization	All customer groups	٩
View: No view avala Own tickets Vist is empty No tickets availab Workgroup ticl Unassigned tic	e sets (0)	Ticket	Accept   Edt   Clone   Print   Display V   Add   Hide   Add   Hide   Add   Hide   Add   Hide   Comment   E-Mail   Attachment   Time booking   Hide	Workflow activities         Close immediately         Deny ticket         Ask for approval         Workspace         Workspace is empty         Al your unasved tasks are automatically listed in this workspace.         Favorites         Image: Test wg. ABB
giobarSearchine type Customization of Global	scope	className conngurat	E - E	Interiment       Interinterim <td< th=""></td<>
Attribute name	Comma-seperated	Description alues defining order and visibility of search result items. Possible values are:	Value TICKET, COMPANY, CC	L III ticketEditPage
searchResultItemsOrder	Comma-seperated			ticketPanel

Fig. 1: ConSol\*CM Web Client - Page Customization Definition Section

The tree might display the following elements (see next figure). Since the PCDS is rather small you might have to scroll to see all elements. In this example the administrator has opened the *ticketEditPage* (see following paragraphs for details).



#### Fig. 2: ConSol\*CM Web Client - Page Customization Tree

Icon	Description
<b></b>	Configuration of all components of this type
	Configuration of this specific component deployed within the identified scope

You can also click on an element name in the tree to open the editor for this element in the left area of the PCDS, e.g. for the element *navigationLinks* (see following figure).

ConSol券		0	
CM6		Logged In: admin 💿	
Overview Create ticket	Create customer	Manage templates Manage Word templates Enable page customization All customer s	groups Q
View: No view available	- 80	Ticket "Login not possible" created successfully.	Workflow activities
	D)	Ticket Accept Edt Clone Print Display	
List is empty No tickets available Workgroup ticket Unassigned ticket		Cogin not possible     Hepbest 1st Level [Qualify     Hepbest 1st Level [Qualify     Hepbest 1st Level [Qualify     Hoolub Web Clant     Protorp: hpin Module Web Clant     Readon time 127/11/13 Ask for feedback no     Country USA	Deny ticket Ask for approval Workspace Workspace is empty All your unsaved tasks are
	1	Customers Add H	Hide automatically listed in this workspace.
		Main customer  Miles Styvaller  CustomerGroup Like@consolde	Favorites
		Engineers Add H	
		No relations Add   F	lide
		E-Mail Attachment   Time booking   F	lide
		Display all entries * Sorting latest first *           Add comment, e-mail or statchment           10.12.2013 15.35         #1 created by admin   Action *           Image: Paise holp, hanks           * Ticket created           * Queue set to HeipDesk 1st Level	
		Attachments	Hide
<			
Guatomization of havigation	i ilina, context-g		p://cm6-demo.int.consol.de
Attribute name			- 🔝 navigationLinks
createContactLinkVisible	Whether the create link)	Contact link can be shown (note: apart from this property user must have appropriate permissions to see createContact true toolean)	alobalSearchField     ticketEditPage
createTicketLinkVisible	Whether the create link)	Ticket link can be shown (note: apart from this property user must have appropriate permissions to see createTicket true (boolean)	accordionTicketList     iii ticketEditPage     iii ticketList     iii ticketList

Fig. 3: ConSol\*CM Web Client - Selected Tree Element in PCDS

The entire page is built according to a strictly hierarchical structure and every element is defined by a type, a scope, and a class. These are displayed in the blue header section of the editor in the PCDS when you mark an element either in the tree or in the GUI. Using the page customization, you can decide on which level you want to configure attributes. When you work on the *type* level, you define the attributes for all sub-elements of this type, i.e. for all scopes and classes. When you work on the *scope* level you define the attributes for this scope. When you work on the *class* level, you define the attributes for this class only.

Please see the following example for ticket list configuration.

• Type level:

ConSol⋇			
Consol			
CIVIO	Logged in: admin		
Overview Create ticket Create customer		All customer groups	٩
A accordionTicketList			
view: no ew available VIEW	Ticket	Accept Edit Clone Print Display 🕶	Workflow activities
Own uckets (0)	Login not possible		Close immediately
No tickets available	HelpDesk 1st Level   Qualify 100620 Unassigned   Open since 12/10/13 3:35 PM		Deny ticket Ask for approval
	Priority high Module Web Client Reaction time 12/11/13 Ask for feedback no		Ask for approval
Workgroup tickets (0)	Country USA		Workspace
Unassigned tickets (0)	Customers	Add Hide	Workspace is empty
	Main customer		All your unsaved tasks are automatically listed in this
1	Mr Luke Skywalker  CustomerGroup		workspace.
	luke@consol.de		
	Engineers	Add Hide	Favorites
	No relations	Add Hide	Test wg. ABB
	History	Comment E-Mail Attachment Time booking Hide	
	Display all entries V Sorting latest first V		
	Add comment, e-mail or attachment		
	10.12.2013 15.35 #1 created by admin   Action V		
	Please help, thanks		
	<ul> <li>Ticket created</li> </ul>		
	Queue set to HelpDesk 1st Level		
	Attachments	Hide	
4			•
-		A	uouarsearcinneiu     ticketEditPage
accordionTicketList scope Ac	cordionTicketListCustomization NEW configuration scrip		accordionTicketList
type cla	ssName	E L	an ucketeditPage
			ticketList
Customization of accordion ticket list, context	0		ticketPanel
			customerSectionPanel
Attribute name	Description	Value	ticketEditPage
		- 13	acim Soction

Fig. 4: ConSol\*CM Web Client - Defining Parameters on Type Level

• Scope level:

ConSol ⋇		
CM6	Logged in: admin 💽	
Overview Create ticket Create custome	r Manage templates Manage Word templates Enable page customization	All customer groups
accordionTicketList i / ticketEdtPage / bketList     View: No view available     Own tickets (0)	Ticket	Accept   Edit   Clone   Print   Display v   Workflow activities Close immediately
Vorkgroup tickets (0)	HelpDesk 1st Level   Qualify 100620 Unassigned   Open since 12/10/13 3:35 PM Priority high Module Web Client Reaction time 12/11/13 Ask for feedback no Country USA	Deny ticket Ask for approval Workspace
Unassigned tickets (0)	Customers  Main customer  Main customer  Main customerGroup  luke@consol.de	Add Hide Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Engineers No relations	Add   Hide
	Comment Comment	E-Mail Attachment   Time booking   Hide
	Display all entries  Sorting latest first Add commert. e-mail or attachment Add commert. e-mail or attachment I0.12.2013 16.35 If created by admin   Action Please heb, thanks Ticket created Queue set to HelpDesk 1st Level	
	Attachments	Hide
<		เมา ศักราช เป็นเป็น
accordionTicketList /ticketEc type scope	itPage AccordionTicketListCustomization NEW configuration script:	
Customization of accordion ticket list, conte	d={}	- ticketPanel
Attribute name	Description	Value

Fig. 5: ConSol\*CM Web Client - Defining Parameters on Scope Level

• Subscope level:

ConSolᢜ		0	6
CM6	Logged in: admin	-	
Overview Create ticket Create cust		All customer groups	٩
accordionTicketList 🚠 / ticketEditPage / ticketL View: No view available	Ticket	Accept   Edit   Clone   Print   Display 💌	Workflow activities
Own tickets (0)	Login not possible     Helpback 1st Level   Qualify     Imassimer   Densinger 12/10/13.3:35 PM		Close immediately Deny ticket
No tickets available	100620 Unassigned   Open since 12/10/13 3:35 PM PPorty high Module Web Client Reaction time 12/11/13 Ask for feedback no Country USA		Ask for approval
Workgroup tickets (0)			Workspace
Unassigned tickets (0)	Customers	Add Hide	Workspace is empty All your unsaved tasks are
	Main customer Mr Luke Skywalker  CustomerGroup bike@consolde		automatically listed in this workspace.
	Engineers	Add Hide	Favorites
	No relations	Add Hide	Test wg. ABB
	Com	ment   E-Mail   Attachment   Time booking   Hide	
	Display all entries 🔻 Sorting latest first 🔻		
	Add comment, e-mail or attachment		
	10.12.2013 15.35 #1 created by admin   Action 🔻		
	Please help, thanks		
	<ul> <li>Ticket created</li> <li>Queue set to HelpDesk 1st Level</li> </ul>		
	Attachments	Hide	
		1.122	<u>i yiubai seai ciirieiu</u>
accordionTicketList /ticke type scope	etEditPage/ticketList AccordionTicketListCustomization NEW		
	configuration script:		└
Customization of accordion ticket list, co	ntext=₽	- 1	

Fig. 6: ConSol\*CM Web Client - Defining Parameters on Subscope Level

For some elements there may be two hierarchical paths, as shown in the following example for the Subscope *contactSection*.

- Path 1: customerSectionPanel / ticketEditPage / contactSection
- Path 2: sectionList / ticketEditPage / contactSection

So, in this example, the ticketEditPage / contactSection subscope can be configured for two different types: *customerSectionPanel* and *sectionList*.

Ticket	
100313	Printer still does not work         ServiceDesk   New ticket         Assigned to ServiceDesk, Susan   Open since 11/11/14 2:30 PM         Priority normal       Module Web Client         Ask for feedback       no         Desired deadline       11/18/14 12:00 AM         This is a clone of ticket #       100245         Continent       Europe         Request Type       Request Type         Complaint       Complaint
	Groups Section name: customfields
	Conversations/Meetings Orders Open Cus merSectionPanel A / ticketEditPage / contactSection List A / ticketEditPage / contactSection Customers (2) Section name: contacts
	Mrs Mia Skydiver VyCustomerGroup Starship Operator Dr. Special Forces
	There are 1 more customers.

Fig. 7: ConSol\*CM Web Client - Two Paths to the Page Customization Element contactSection

For every element, there is also a configuration script that can dynamically define values. The script is executed in the context of the engineer who is currently logged in. Therefore, the engineer permissions might exert an influence on the script result. E.g. when you use the code to select *all tickets*, the amount of tickets will be different depending on the queue permissions of the current engineer. When you need global access within the script, you can always execute it with admin privileges by ticking the respective check box.

acimSection scor type	Acim Section Customization className	configuration script: mailToSelectionConfig run with admin privileges: 🗹	* III
Customization of acim section	ion component_context={ticketId}		

Fig. 8: ConSol\*CM Web Client - Configuration Script for Defining Values

E.g. there should be only one e-mail recipient (here: the main customer) for medium and low priority tickets, but a high priority ticket should be sent to all customers of the ticket. The following script can be used:

<pre>import com.consol.cmas.common.model.ticket.Ticket</pre>
<pre>import com.consol.cmas.common.model.customfield.enums.EnumValue</pre>
Ticket ticket = ticketService.getById(ticketId);
<pre>EnumValue value = ticket.get("helpdesk_standard.priority");</pre>
<pre>if (value != null &amp;&amp; "high".equals(value.getName()))</pre>
return [mailToSelection: 'contacts'];
return [mailToSelection: 'contact'];

It has to be stored in the *Scripts* section of the Admin Tool (see section Scripts for details) and its name has to be entered in the field *configuration script*.

The return values define the values for the attributes which can also be defined using the string input fields. Please note the order of all components involved, see section Order and Priorities of Page Customization.

E

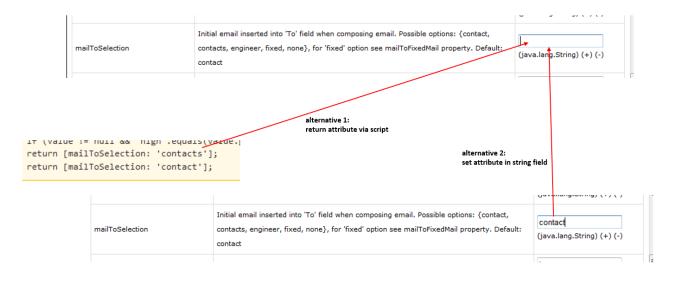


Fig. 9: Two Alternatives for Setting Page Customization Attributes

# 14.1.3 Page Customization Using Attributes

In the following sections, all configuration attributes for page customization will be explained. A short description is also given for each attribute in the editor section.

# **Possible Pages (Scopes) for Page Customization**

The following main scopes are available, i.e. when you have opened the respective page you can configure page customization attributes which are visible only on this page for the given attribute.

## companyEditPage

ConSol CM6	Logged in: admin 💽		0	0		
Overview Create ticket Create customer	Resource pool Text templates Document templates Hilfe Hilfe2	Enable page custo	omization		Reseller	Q
View: No view available v IIII 0 Own tickets (0) List is empty No tickets available	ComeanvEdtSection     Inf. / companyEdtPace / pompanyEdtSecton     MytewSpaceCompany 999      Reseler     address Mikywey 77 ctly Alderaan zip 7777     country Unknown     phone_frontdesk 123				Print	Activities (Re-)Check service status of the company Create new Help Desk ticket Go to AM ticket
Workgroup tickets (0) Unassigned tickets (0)	Groups Section name: customfields Service Contract Data Internal responsibilities Mrs. Miler Mrs. Schwartz				Edit	Workspace Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Tickets (3) Section name: tickets				~	Favorites
	All tickets       Kain Customer      Main Customer      Main Customer      Main Customer      Move MynewSpaceCompany 999      Move SpaceCompany 999      Move SpaceCompany 999      Move SpaceCompany 999      Move SpaceCompany					Favorites are empty Drag tickets, contacts, companies or searches into this space to save them as favorites.
	ServiceDesk, Susan MyNewSpaceCompany 999 Contacts (1) Section name: contacts	<b>6</b> 100307	Question about last invo		Add 🗛	
	Image: Specific Contract Login (LDAP)     CM/Track Login (Username without LDF)       Luke     III	P) CM/Track Password	d Contact	customer_name e Skywalker k	⊧mail atja@con ⊧	
	Additional details (2) Section name: additional_details Comments New Click here to add a comment List of comments			Comment   Attachme		
	Date Added by Comment			Actions Apply filters		

Fig. 10: companyEditPage for Page Customization

## contactCreatePage

ConSol *	Logged i	in: admin 💌			0	
Overview Create ticket Create customer	Manage	e templates Manage Wor	d templates Enable page	customization	All customer groups	٩
View: No view available 👻 📰 🔘	New cus	stomer				Workspace
Own tickets (0) List is empty No tickets available	0	Find Company   Create Company Please enter keywo	rds such as name, company or e-ma	· .		Workspace is empty All your unsaved tasks are automatically listed in this workspace.
Workgroup tickets (0)		Create contact Choose One	First name	*		Favorites
Unassigned tickets (0)		Function	First name	Acad. title		Test wg. ABB
		E-mail		Robinson		
P		Phone	Choose One	Phone 1		
			Choose One	Phone 2		
			Choose One	Phone 3		
			Choose One	Phone 4		
		Division				
		Domair	Choose One	Budget responsible		
			Functional decider	Preparer		
		Comment				
		CM6 Porter Login	CM6 Porter Password			
		Active Add row	Account			
		Fixed size				
		1 100 3120				
		Track user 💌				
		ОК				

Fig. 11: ConSol\*CM Web Client - Create Contact Page

#### contactEditPage

	Logged in: admin •	·
Overview Create ticket Create customer	Manage templates Manage Word templates Enable page customization	MyCustomerGroup Q
View: No view available  View: No view available Own tickets (0) List is empty No tickets available Workgroup tickets (0) Unassigned tickets (0)	Contact Smith Jack V Reseller kaja@consol.de 58951 no IBM 789 V Tickets (1) All tickets V Add/Remove column "Engineer', 'Main Customer', V OK	Display ▼     Activities       (Re-)Check service status of the company       Create new Help Desk ticket       Hide       Number per page 10 ▼
	-	bject
	ServiceDesk, Susan	e send material
	Additional details	Hide
	Comments     Attachments       New     Click here to add a comment       List of comments       This contact does not have any comments.	

Fig. 12: ConSol\*CM Web Client - Edit Contact Page

#### resourceDashboard

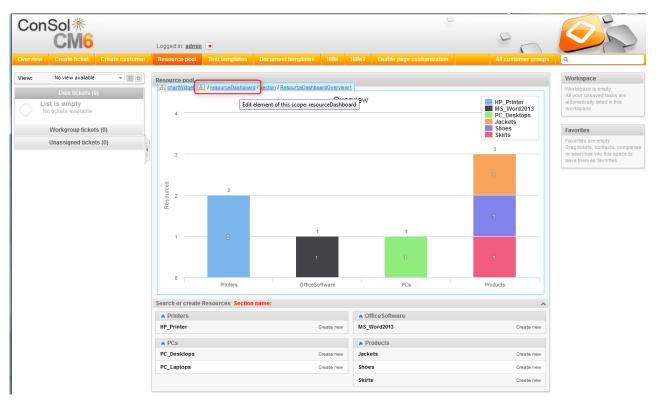


Fig. 13: ConSol\*CM Web Client - Resource Pool Dashboard Page Customization

#### ConSol **\*** CM6 0 Logged in: admin 🕒 5 No view available ▼ ■ 0 View: Workspace Create Workspace is empty All your unsaved tasks are automatically listed in this workspace. Search results (2) List is empty No tickets available Keyword (Pattern) v Enter text or patter 🛱 🕂 🛛 Filter Deactivated incl. Workgroup tickets (0) Favorites Favorites are empty Drag tickets, contacts, compar or searches into this space to save them as favorites. Unassigned tickets (0) Location In my office top floor Inventory number IP address 4712 123.123.123.123 Name My new HP printer Next maintenace at 8/14/15 192.168.123.123 8/14/15 4711 Best Printer ever Overview Section name: dashboard ~

resourceType (Resource Type Page)

Fig. 14: ConSol\*CM Web Client - Resource Type Page for Page Customization

## resource (Resource Detail Page)

	Logged in: admin	
	Resource pool Text templates Document templates Hilfe Hilfe2 Enable page customization All customer groups	۹
Art Naview evelopie		Workspace
	Resource detail Edit   Deactivate   Delete	Workspace is empty
Own tickets (0)	HP Printer: 4712	All your unsaved tasks are automatically listed in this
No tickets available	Printers      HP_Printer	workspace.
	Internal   Creation date: 7/10/15 12:16 PM Name My new HP printer	
Workgroup tickets (0)	Inventory number 4712 Next maintenace at 8/14/15	Favorites
Unassigned tickets (0)	Location in my office IP address 123.123.123	Favorites are empty Drag tickets, contacts, companies or searches into this space to
	No additional details Section name: additional_details Comment   Attachments   A	save them as favorites.
	Comments Attachments	
	New	
	Click here to add a comment	
	List of comments	
	Resource detail does not have any comments.	
[	Related Resources (1) Section name: resource_relations	
	n PCs	
	PC_Desktop_TO_HP_Printer_Relation (1)	
-		
	Related Companies and Contacts Section name: unit_relations	
[	Related Tickets Section name: ticket_relations	
	All 👻	
	No search results	
	History Section name: history	
	7/31/15 09:48 - 10:04 changed by Susan ServiceDesk	
	Itext maintenace at set to 8/14/15	
	Next maintenace at unset from 8/14/15     Next maintenace at set to 8/14/15	
1	Next maintenace at set to 8/14/15	

Fig. 15: ConSol\*CM Web Client - Resource Detail Page for Page Customization

ConSol *	age	Logged in: admin				0		0	
Overview Create ticket Cr	eate customer	Manage templates Mana	ige Word te	mplates	Enable page customization			All customer groups	٩
Overview Create ticket Cr View: No view available Own tickets (0) Workgroup tickets (0) List is empty No tickets available Unassigned tickets (0)	-	Word templates New Word template Name Group Language Engl Queues Sele Word template OK Word MailMerge fit Show MailMerge fit Ticket name or subject Reset Template library List of templates	sh ct queues irchsuchen i Cancel ids available	Veine Datei a	usgewäht.			All customer groups	Q Workspace is emply A your unseved tasks are automatically lated in this workspace. Favorites mvn test : not w
		Name	Group	Language	Queues	Word template	Delete		
		InvoiceTemplate_1	Invoices	en	HelpDesk 1st Level, HelpDesk 2nd Level	InvoiceTemplate.docx-4.docx	×		
		test	testGroup	en	Sales	Testdocx	×		
		testWe	testWeG	en	HelpDesk 1st Level	wordvorlage_test.doc	×		

#### officeTemplatePage (Only When CM.Doc Has Been Activated)

Fig. 16: ConSol\*CM Web Client - Word Template Page (Only When CM.Doc is Activated)

#### searchDetailPage

	Sol *	aiPage	Logged in: admin			0	0	
Overview	Create ticket	Create customer	Manage templates	Manage Word templates	Enable page customization		All customer groups	۹
View:	No view available	-	Search					Workspace
	Own tickets (0 st is empty lo tickets available		Search criteria	Search				Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Workgroup ticket		Tickets	Contacts	Companies			Favorites Test wg. ABB
			View as:	st BB Grid				

Fig. 17: ConSol\*CM Web Client - Detailed Search Page

## templateViewPage

	Logged in: admin							0	$\bigcap$	
erview Create ticket Create custome	Manage templates Manag	e Word templates Enable p	age customiza	ition				All cus	omer groups	٩
w: No view available 🔻 🔡 🔘	Templates								New	Workspace
Own tickets (0)	Template library									Workspace is empty
	Filter									All your unsaved tasks are automatically listed in this
Workgroup tickets (0)	Active									workspace.
No tickets available										
INU IICKEIS AVAIIADIE	For queue Choose On	ie 💌								Favorites
Unassigned tickets (0)	Context									o mvn test : not w
	1. None 👻						•			
	2. None 💌						•			
	Group Temp	late	Language	Туре	None	None	Usage	Used within workflow		
	Vertrag Ablehn	nung, Vertrag abgelaufen 0.0.1 👻	en	Letter			0	no		
	general CallBa	ckRequest 0.0.1 💌	en	Letter			0	no		
	general Salutat	tion_gender-specific 0.0.1 💌	en	Script			0	no		
	Vertrag Angeb	ot Vertragsverlängerung 0.0.1 💌	de	Text Block			0	no		
	Vertrag Annah	me, Vertrag abgelaufen 0.0.1 📼	de	Letter			0	no		
	allgemein Begrüß	Sung 0.0.1 💌	de	Include			0	no		
		rung 0.0.1 🔻	de	Letter			0	no		
	-	Rückfrage 0.0.1 💌	de	Letter			0	no		
		g Allgemein 0.0.1 🔻	de	Text Block			0	no		
		g Drucker 0.0.1 💌	de	Text Block			0	no		
		g PC 0.0.1 👻	de	Text Block			0	no		
		Produkte 0.0.1 💌	de	Text Block			0	no		
		ur Firma 0.0.1 👻	de	Include			0	no		
	allgemein Signat	tur standard (Standard) 0.0.1 💌	de	Letter				no		

Fig. 18: ConSol\*CM Web Client - Template View Page

ConSol *	Logged in: admin •	0h
Overview Create ticket Create customer	Manage templates Manage Word templates Enable page customization All customer group	ps Q
View: No view available  View:  Own tickets (0) List is empty No tickets available Workgroup tickets (0) Unassigned tickets (0)	New Ticket   Subject   Queue: Frequently_Ask. Assigned to: Unassigned   Priority (Drose One Module Choose One Reaction time  Category None   QA Test MLA None   QA List Date Enum Price Number Text Department QA_Test_Mia_For_Struct  Add row  Country Choose one Medidek Choose one Medidek Choose one Medidek	Workspace       Workspace is empty       All your naaved tasks are automatically lated in this workspace.       Favorites       Image: The set of th
	AssetType_en Choose One  ReadonlyGroupable Choose One  StringList_en StringList_en StringValue_en  Add row	
	Main customer         Image: Second state of the	

## ticketCreatePage

Fig. 19: ConSol\*CM Web Client - Create Ticket Page

# ticketEditPage

ConSol *		0	
AnavigationLinks A / ticketEditPage	Logged in: admin.	$\bigcap$	
Overview Create ticket Create customer	Manage templates Manage Word templates Enable page customization	All customer groups	۹
View: No view available View: Ovin tickets (0)	Ticket	Accept   Edit   Clone   Print   Display 💌	Workflow activities Close immediately
List is empty No tickets available	HebDesk 1st Level   Qualify 100520 Unassigned   Open since 12/10/13 3:35 PM Priority high Reaction time 12/11/13 Ask for feedback no		Deny ticket Ask for approval
Workgroup tickets (0)	Country USA		Workspace
Unassigned tickets (0)	Customers  Main customer  Mr Luke Skywalker  CustomerGroup  Luke@consol.de	Add   Hide	Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Engineers	Add Hide	Favorites
	No relations	Add Hide	Test wg. ABB
	History	Comment E-Mail Attachment Time booking Hide	
	Display all entries  Sorting latest first  Add comment. e-mail or attachment  10.12.2013 15.35  Please help, thanks	]	
	Please help, thanks  Ticket created  Queue set to HelpDesk 1st Level		
	Attachments	Hide	

Fig. 20: ConSol\*CM Web Client - Edit Ticket Page

# userProfilePage

Engineer profile
Password change
Old password
New password
Repeat password
OK Cancel
Representation
Engineere representing me
Engineer
Engineers represented by me
Engineer
General settings
View criteria
OK
Default Customer Group
Choose One
Time booking A
Day 1/29/14
Time period Day Week Month
Jan 29, 2014 Total bookings on this day: 00:1

Fig. 21: ConSol\*CM Web Client - User Profile Page

Con	Sol ∦ CM6		Logged in: admin	]	0	0	
Overview	Create ticket	Create customer	Manage templates	Manage Word templates	Enable page customization	All customer groups	۹
View:	No view available	mePage / ticketList					Workspace
	Own tickets (0) i <b>st is empty</b> No tickets available	)		Weld	ome to CM6		Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Workgroup tickets	s (0)					Favorites
	Unassigned ticket	s (0)					Favorites are empty Drag tickets, contacts, companies or searches into this space to save them as favorites.

# welcomePage

Fig. 22: ConSol\*CM Web Client - Welcome Page

For example, for the type *globalSearchField* (see subsequent section) the following page-specific scopes can be configured. That means the behavior of the *globalSearchField* (type) can be configured for each of the following pages (scopes) where it is available:

- globalSearchField/companyEditPage
- globalSearchField/contactCreatePage
- globalSearchField/contactEditPage
- globalSearchField/resource
- globalSearchField/resourceDashboard
- globalSearchField/resourceType
- globalSearchField/searchDetailPage
- globalSearchField/ticketCreatePage
- globalSearchField/ticketEditPage
- globalSearchField/welcomePage

# Page Customization Attributes for Types, Scopes and Subscopes, in Alphabetical Order

# acimSection (Type or Subscope)

An ACIM (activity item) is an entry in the History section of a ticket. This can be ...

- a comment
- an e-mail which has been sent from the ticket
- an e-mail which has been received by the ticket
- an attachment
- a time booking entry

An ACIM group is a group of entries which has a distinct date/time stamp. An ACIM item is a single entry within the ACIM group. It has only a time stamp.

Histo	pry	
Disp	lay all entries 💌 Sorting latest first 💌	
Add	comment, e-mail or attachment	
	ACIM entry	
26.11.13 14.52	#4 changed by Workflow Timer	
	14:52 Reaction overdue has been triggered	
26.11.13 08.52	#3 changed by Workflow Timer	
	08:52 75% due reaction has been triggered	
26.11.13 02.52	#2 abanged by Warkflow Timer	
20.11.13 02.52	#2 changed by Workflow Timer 02:52 50% due reaction has been triggered	
	ACIM group	
25.11.13 14.51	#1 created by admin   Action 💌	
Ş	14:51 default class	
	help	
	14:51 Mark without SLA has been triggered	
	14:51 SLA exists? has been triggered, new Scope is Qualify	
	14:51 Reaction time set to 11/26/13	
	14:51 Calculate time for reaction has been triggered	
	14:51 Start has been triggered, new Scope is Helpdesk 1st Level workflow	
	14:51 Main customer set to Lea Skywalker	
	14:51 Ticket created	
	14:51 Queue set to HelpDesk 1st Level	
	14:51 Subject set to Login error	
	14:51 Country set to USA	
	14:51 Priority set to high	
	14:51 Ask for feedback set to no	

Fig. 23: ConSol\*CM Web Client - ACIM Group and Item

#### Warning:

Please make sure that the date format you have entered for one of the following date attributes is correct! If the date format is not correct, the entire page cannot be displayed! The Web Client will not work! Please see the correct date formats in the following table. By using an empty text (' ') as value it is possible to hide the date/time stamp completely.

Letter	Date or Time Component	Examples
G	Era designator	AD
у	Year	1996; 96
M	Month in year	July; Jul; 07
w	Week in year	27
W	Week in month	2
D	Day in year	189
d	Day in month	10
F	Day of week in month	2
E	Day in week	Tuesday; Tue
a	Am/pm marker	PM
Н	Hour in day (0-23)	0
k	Hour in day (1-24)	24
K	Hour in am/pm (0-11)	0
h	Hour in am/pm (1-12)	12
m	Minute in hour	30
s	Second in minute	55
S	Millisecond	978
z	Time zone	Pacific Standard Time; PST; GMT-08:00
Z	Time zone <u>RFC 822</u>	-0800

Fig. 24: ConSol\*CM Web Client - Valid Date Formats for ACIM Date Configuration

#### Attributes:

#### • acimGroupActionEntryDateFormat

Date format for group of ACIM without text or e-mail entry (i.e. for automatic actions). If nothing has been entered as pattern, the default one will be used.

 ${\small Syntax: } date {\small Format} \\ First \\ Level \\ Of \\ Details \\ | second \\ Level \\ | third \\ Level \\ |$ 

(java.lang.String, default = dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm)

	History
_	Display all entries 💌 Sorting latest first 💌
	Add comment, e-mail or attachment
26.11.2013	14.52 #4 changed by Workflow Timer Reaction overdue has been triggered
26.11.2013	08.52 #3 changed by Workflow Timer 75% due reaction has been triggered
26.11.2013	02.52 #2 changed by Workflow Timer 50% due reaction has been triggered

Fig. 25: ConSol\*CM Web Client - Display for Format: dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm

E Hist	огу
Disp	lay all entries 🔻 Sorting latest first 💌
Add	comment, e-mail or attachment
26.11.13 14.52	#4 changed by Workflow Timer Reaction overdue has been triggered
26.11.13 08.52	#3 changed by Workflow Timer • 75% due reaction has been triggered
26.11.13 02.52	<ul> <li>#2 changed by Workflow Timer</li> <li>50% due reaction has been triggered</li> </ul>

Fig. 26: ConSol\*CM Web Client - Display for Format: dd.MM.yy HH.mm|dd.MM.yy HH.mm|dd.MM.yy HH. mm

## acimGroupTextEntryDateFormat

Date format for group of ACIM with text, e-mail, or attachment entry. If nothing has been entered as pattern, the default one will be used.

Syntax: dateFormatFirstLevelOfDetails|secondLevel|thirdLevel

(java.lang.String, default = dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm)

	History	
	Display all entries 💌 Sorting latest first 💌	
	Add comment, e-mail or attachment	
8.12.201	3 07.59 2 created by admin   Action 💌	

Fig. 27: ConSol\*CM Web Client - Display for Format: dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm

(ПЕС н	istory
Di	isplay all entries 🔻 Sorting latest first 💌
P	dd comment, e-mail or attachment
18.12.13 08.0	7 #2 created by admin   Action
	This is my new comment

Fig. 28: ConSol\*CM Web Client - Display for Format: dd.MM.yy HH.mm|dd.MM.yy HH.mm|dd.MM.yy HH. mm

#### acimItemActionEntryDateFormat

Date format for item of ACIM entry. If nothing has been entered as pattern, the default one will be used.

Syntax: dateFormatFirstLevelOfDetails|secondLevel|thirdLevel

(java.lang.String, default = dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm)

## • acimItemTextEntryDateFormat

Date format for text or e-mail entry. If nothing has been entered as pattern, the default one will be used.

Syntax: dateFormatFirstLevelOfDetails|secondLevel|thirdLevel

(java.lang.String, default = dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm|dd.MM.yyyy HH.mm)

## showCloneOption

Enables clone option for text ACIM entry (comment or e-mail entry). (boolean)

25.11.13 14.51 (1)	#1 created by admin   Action	•		
	14:51 default class	Reply		
	help	Clone		
	14:51 Mark without SLA has b	been triggered		
	14:51 SLA exists? has been triggered, new Scope is Qualify			
	14:51 Reaction time set to 11/26/13			
	14:51 Calculate time for react	tion has been triggered		
	14:51 Start has been triggered,	new Scope is Helpdesk	1st Level workflow	

#### Fig. 29: ConSol\*CM Web Client - Clone Option for Text ACIM Entry

#### • appendOrReplaceOnClone

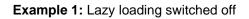
Works only if clone option is set to *true*. If the editor is opened and already contains some text, you can append or replace its content when clone for another item is selected simultaneously. Possible values are *append*, *replace*. Default is *append*. (java.lang.String)

#### headHistoryElementsCount

*Lazy loading* - Number of groups in ACIM section that will be loaded from the top of the history. Default number is O(= lazy loading switched off). Customization works only when configured by type, not location. If head and tail elements count is O, then all history is loaded at once. (int)

## • tailHistoryElementsCount

*Lazy loading* - Number of groups in ACIM section that will be loaded from the bottom of the history. Default number is O(= lazy loading switched off). Customization works only when configured by type, not location. If head and tail elements count is O, then all history is loaded at once. (int)



Ticket		Accept Edit Clone Print Display	•
SUP-45	HelpD Unass	ItimeExcpetion during login to cmhelp lesk 1st Level   Qualify signed   Open since 5/13/08 11:13 AM Priority high Module AdminTool tion time 7/1/11 Ask for feedback no	
	Cust	omers Add Hid	le
	Main	customer	
0		ieter Macher ▼ CustomerGroup er@devnull.consol.de Private 0951-77635-422 Fax 0951-77635-200 Mobile 0171-5896446	
	Engir	Add   Hid	le
	No re	elations Add   Hid	le
	Histo	Dry Comment   E-Mail   Attachment   Time booking   Hid	le
	Displ	ay all entries 🔻 Sorting latest first 💌	
	Add	comment, e-mail or attachment	
18.12.13 0	9.47	#9 created by admin   Action 💌	
P		Next comment	
18.12.13 09	9.47	#8 created by admin   Action Switching off appliances doesn't stop the flow of electricity — while plugged in, they can stay on indefinitely in power-sapping standby mode. How much power? The Belkin Conserve Insight gives you solid data about how many watts a device is burning, how it's affecting your carbon footprint, and how much it's hitting your wallet. Check out this Gadget Lab video to find out how you can figure what (or who) is the biggest electricity hog in your household.	
18.12.13 0	9.46	<ul> <li>#7 created by admin   Action *</li> <li>One of the rallying cries for Google Glass is to make technology that's there when you need it, gone when you don't. It is intended to help people go on with their lives, without focusing on the technology. Wearable computers, in general, play supporting roles in what the user is doing — as opposed to the computer use being the primary focus itself.</li> <li>Vannevar Bush, one of the earliest computing pioneers, understood this idea and described wearable computers and cameras in the 1945 <i>LIFE</i> magazine version of his famous essay "As We May Think." Unfortunately, only early mainframes existed then, and mainframes require that we bring <i>ourselves</i> to the computer. Slowly, though, the technology came to us: from computers on our desktops to laptops to mobile phones.</li> <li>Bringing technology and computing closer to the body can actually allow technology to get further out of the way.</li> <li>While these technologies lowered the barrier to communicating and accessing information, they created other barriers. We are now often greeted in meetings with a <i>literal barrier</i> of screens that get in the way of face-to-face communication.</li> <li>Can we instead make devices that encourage in-person, face-to-face communication — while still delivering the data people need, only when the need it? I've been making and using wearable computers in my daily life since 1993 and have been a technical lead and manager on Google Glass since its first year in 2010. It may seem like a paradox, but I argue that bringing technology and computing <i>closer</i> to the body can actually improve communication and attention — allowing technology to get <i>further</i> out of the way.</li> </ul>	d sy

Fig. 30: ConSol\*CM Web Client - Lazy Loading Switched Off

## Example 2: headHistoryElementsCount and tailHistoryElementsCount set to 1

Ticket		Accept   Edit   Clone   Print   Displa	iy 💌
SUP-45	RuntimeExcpetion during login to cmhelp HelpDesk 1st Level   Qualify Unassigned   Open since 5/13/08 11:13 AM Priority high Module AdminTool Reaction time 7/1/11 Ask for feedback no		
	Customers	Add	Hide
_	Main customer		
	Mr Dieter Macher V CustomerGroup macher@devnull.consol.de Private 0951-77635-422 Fax 0951-77635-200 Mobile 0171-5896446		
	Engineers	Add	Hide
	No relations	bbA	Hide
	History	Comment   E-Mail   Attachment   Time booking	Hide
	Display all entries 🔻 Sorting latest first 💌		
	Add comment, e-mail or attachment		
18.12.13 0	9.47 #9 created by admin   Action Vext comment	head: 1 entry opened	
18.12.13 0	9.47 <u>#8 created by admin</u>		
18.12.13 0	9.46 <u>#7 created by admin</u>	middle: entries closed, can be expanded by click	
18.12.13 0	9.23 #6 created by admin		
01.07.11 10	0.18 <u>#4 created by admin</u>		
30.06.11 1	5.49 <b>#1 changed by admin</b> <ul> <li>Ticket created</li> <li>Queue set to HelpDesk 1st Level</li> </ul>	tail: 1 entry opened	
	Attachments	•	Hide

Fig. 31: ConSol\*CM Web Client - headHistoryElementsCount and tailHistoryElementsCount Set to 1

#### mailToSelection

Initial e-mail address inserted into TO-field when composing e-mail. Default: *contact* (java.lang.String) Possible options:

contact

The e-mail address of the main contact is copied into the TO-field when the Ticket E-Mail Editor is opened.

• contacts

The e-mail addresses of the main contact and all additional contacts are copied into the TOfield when the Ticket E-Mail Editor is opened.

• engineer

The e-mail address of the engineer is copied into the TO-field when the Ticket E-Mail Editor is opened.

• fixed

for *fixed* option see *mailToFixedMail* attribute.

• none

The TO-field is left empty when the Ticket E-Mail Editor is opened.

#### mailToFixedMail

Fixed e-mail address used when attribute mailToSelection is set to fixed. (java.lang.String)

**Example:** E-mail to a fixed e-mail address, *mailToFixedMail* set to *foo@bar.de, mailToSelection* set to *fixed*.

History					Comment E-Mail	Attachment	Time booking
Display of	communication 🔻 Sorting la	atest first 💌					
Comment	E-Mail	Attachment	Time booking				
New E-m	nail	1					
	show Cc  show Bcc						
To:	foo@bar.de						
Subject:	Ticket (SUP-45) RuntimeExcper	ion during login to cmhelp					
Template	Signatur standard 🔻						
Quote	Select entries   Entries visib	le to the customer					
B I	<u>U</u> <del>S</del>   ≣ ≣ ≣	DIV (default) 🔻 Font Fami	ily 🔻 Font Size 🔻 💆 🗸 🗸	*			
7 87							

Fig. 32: ConSol\*CM Web Client - E-Mail to a Fixed E-Mail Address

#### recordLastUsedAcimTab

Records last used ACIM tab, i.e. when you open the editor again, the tab (comment/e-mail /attachment/time booking) will be opened that was open when you closed the editor last time. (boolean)

#### reloadPagelfIE8onAcimSubmit

Reloads page after a new ACIM submit, only for *IE8*. This is a workaround for the problem that adding comments/e-mails may take a long time when using IE8. (boolean)

#### removeContentOnTabSwitch

Clears text area content each time the tab panel in the editor is being switched. (boolean, default = *false*, i.e. when you switch for example from the Ticket E-Mail Editor to the Comment Editor, the text you have typed will remain in the editor panel and will not be removed)

#### • timeBookingFeature

Activates or deactivates the time booking support in acimSection (i.e. display the link to time booking and the tab in the editor). (boolean, default = *true*)

	History	Comment   E-Mail   Attachment   Time booking   lide
	Display communication 🔻 Sorting latest first 🔻	
	Add comment, e-mail or attachment	
7/1/11 10:18 (\$\Bar{1})	#4 created by admin   Action 🔻 default class	
	Nulla consequat massa quis enim. Donec pede justo, fringilla vel, venenatis vitae, justo. Nullam dictum felis eu pede mollis pretium. I Aenean vulputate eleifend tellus. Aenean leo ligula, porttitor eu, ce	Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem. aliquet nec, vulputate eget, arcu. In enim justo, rhoncus ut, imperdiet a, nteger tincidunt. Cras dapibus. Vivamus elementum semper nisi.

Fig. 33: ConSol\*CM Web Client - Activate Time Booking Support (timeBookingFeature = true)

	History	Comment	E-Mail	Attachment	Hide
	Display communication 🔻 Sorting latest first 💌				
	Add comment, e-mail or attachment				
7/1/11 10:18	#4 created by admin   Action v default class				
	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Aen penatibus et magnis dis parturient montes, nascetur ridiculus mus. Donec quam felis, ultricies na Nulla conseguat massa guis enim. Donec pede iusto, fringilla vel, aliquet nec, vulgutate eget, arc	ec, pellenteso	que eu, p	, pretium quis, s	

Fig. 34: ConSol\*CM Web Client - De-Activate Time Booking Support (timeBookingFeature = false)

Information:
Please note that the value <i>false</i> in the <i>timeBookingFeature</i> hides the hyperlink from the time booking editor, see figure above. The engineer cannot show it again by using the <i>Display</i> option in the ticket's menu!

Please keep in mind that the visibility of the time booking section on the *userProfilePage* is configured via the *timeBookingSection* attribute *visible*!

# accordionTicketList (Type)

Here you can define attributes for the ticket list. Only one subscope is available: ticketList

#### Attributes:

## • loadingTicketListMode

The mode used to render the ticket list. There are four options to select from:

1. LAZY\_SYNCH (default)

The waiting indicator is shown in the place of the ticket list while the rest of a page is rendered. Then the ticket list is loaded. The main benefit of this approach is the possibility to show/read the main content faster.

2. LAZY\_ASYNCH

(deprecated since 6.8.2, will be treated as LAZY\_SYNCH mode)

The modification of the LAZY\_SYNCH strategy. It does not wait when the page is being rendered but sends the second request and then loads the ticket list. This strategy will load the ticket list faster but may reduce the benefit of having the main page immediately.

3. INCLUDED

The ticket list is loaded along with the rest of a page.

4. LAZY\_ASAP

The waiting indicator is shown in the place of the ticket list while the rest of a page is rendered. The request for the ticket list is sent immediately after two necessary libraries are loaded. In this approach a request for the ticket list is sent and processed concurrently with the first request.The ticket list will appear much faster on the page. (java.lang.String)

## • mainCustomerDescriptionVisible

The page customization attribute *accordionTicketList.mainCustomerDescriptionVisible* ={true, false} replaces the annotation *show-contact-in-ticket-list* (which is valid until CM version 6.8). When this value is set to true, the customer data of the main customer is displayed in the ticket list representation of the ticket. Default is *true*.

## • quickAssignLinkShowsTicketPageFlag

Whether the *quick assign* link (represented by the arrow rendered for each unassigned ticket) opens the assigned ticket immediately (boolean, default is *false*).

# attachmentSection (Type or Subscope)

## Attributes:

## defaultVisibilityFlag

The visibility of the attachment section for engineers who did not change the default visibility yet (for others the last visibility state is used, default = *false*, i.e. attachment section is not displayed). This feature defines only the initial behavior of the system. The engineer can show the attachment section using the *Display* option in the ticket's menu and the Web Client will remember this configuration for this particular engineer.

Valid until CM version 6.9.3. For higher versions (i.e. 6.9.4 and up) with the new ticket section management, use the *state* attribute in sectionList / ticketEditPage / attachmentSection.

Ticket	Accept	Edit Clone Pr	int Display 🔻 Wo	rkflov
100620	Login not possible HelpDesk 1st Level   Qualify Unassigned   Open since 12/10/13 3:35 PM Priority high Module Reaction time 12/11/13 Ask for feedback Country USA	Web Client no	<ul> <li>Customers</li> <li>Engineers</li> <li>Relations</li> <li>History</li> <li>Attachments</li> </ul>	nm cke e t ap
			Wo	rkspa

Fig. 35: ConSol\*CM Web Client - Visibility of Attachment Section (defaultVisibilityFlag = true)

Ticket		Accept	Edit Clone	Print Dis	play 💌	Workflo
100620	Login not possik HelpDesk 1st Level   Qu Unassigned   Open sinc Priority high Reaction time 12/11/13 Country USA	alify e 12/10/13 3:35 PM Module	Web Client no		<ul> <li>Customers</li> <li>Engineers</li> <li>Relations</li> <li>History</li> <li>Attachmer</li> </ul>	ck e
	Customere			- Ad	d Hide	Worksp

Fig. 36: ConSol\*CM Web Client - Visibility of Attachment Section (defaultVisibilityFlag = false)

## autocomplete

(available e.g. on userProfilePage)

#### Attributes:

#### • suffixCharactersToRemove

Occurrence of any of these characters will be removed from the tail of each search pattern word. (java.lang.String)

Example: If you search by using patterns, i.e. of the form "<Last name>, <First name>" then the search will not find any results because the word "<Last name>," is not found in the search index because of the "," at the end of the word. it is now possible to configure that certain characters should be removed from the tail of the search pattern word. So in this case the "," will be ignored during the search and (see following figure) the engineer *Holler* is found.

Engineers	
Add engineer	
Holler, Konrad	×
Note	
OK Cancel	

Fig. 37: ConSol\*CM Web Client - Input in a Search Field Where Charactes Should Be Ignored in the Search

# boxContent

Available for the following scopes:

- ticketEditPage
- userProfilePage

Attributes:

• order

Specify the order of the sections within a ticket in csv format (eg: header, history, relations). Default values for standard installation:

- ticket create: customfields, contacts, comment
- ticket details: customfields, contacts, engineers, relations, history, attachments
- contact details: customfields, tickets, additional\_details, relations, history
- company details: customfields, tickets, contacts, additional\_details, relations, history
- (For other pages or custom projects check the section names at header or in your ContentBuilder implementation)
- (This attribute has to be created before it can be changed. Use the *Create* button of the page customization.)

Ticket				Edi	t   Clone   I	Print
100245	Desired deadline 4/14/ Continent Europe	k, Susan   Open sinc Module Web Cl r feedback no 14 12:00 AM				
	Groups				Edit	V
	Customers (2)				Add	^
	Main					
	Mrs Mia Skydiver V Starship Operator Dr. Special Forces There are 1 more cus					
	Engineers (1)				Add	V
	Relations (1)				Add	^
	referenced by					
?	100254 User cannot a ServiceDesk   Pre-qualit Assigned to ServiceDes	y ticket				
	History		Comment E-Mai	I Attachment Tin	ne booking	v
	Attachments (5)					^
	Attachments (5)			Number per	page 10	~ *
	Attachments (5) Class	File type	Name	Number per	page 10 Date	~ *
	Class	File type	Name			* *

## order

ticket details: customfields, contacts, engineers, relations, history, attachments

Fig. 38: ConSol\*CM Web Client - Default Value for Attribute boxContent / order

## calendarSection

This is used to configure the Calendar section on ticket pages and customer pages. Currently the respective attributes are used to configure the integration of Microsoft Exchange calendar views. Please see section MS Exchange Calendar Integration for a detailed explanation of the feature with a list of all available attributes.

## cmRichTextEditor

#### Attributes:

#### • editorFeatures

Additional editor features. As default value, all values are set, i.e. the respective menu entries are available. (java.lang.String)

#### Possible values:

• SUB\_SUP X2 X2

Allows subscript and superscript.

• INDENTS 💷 💷

Provides the possibility to add indents to the text.

• LISTS 📃 📃

Allows to insert/format lists.

• TABLES 🗹 🖬 💷 🦉 🚽 👘 🖓 👘 🖓

Allows to insert tables.

• INSERT

Allows to insert text elements; for finer control:

• INSERT\_EMOTION

Allows to insert emoticons.

• INSERT\_CHAR

Allows to insert special characters.

• INSERT\_IMAGE

Allows to insert images.

## editorFonts

The list of fonts for the editor in form <Font display name>=<Font name in system>.

Fonts are separated by ';'. You can specify a comma-separated list of possible system names for each font. (java.lang.String) (default = empty string)

Example: Arial=arial,helvetica,sans-serif;Courier New=courier new,courier;Verdana=verdana,geneva

fontSizeValue

This is the default size for the text in the rich text editor. It must be one of the values form the list in the other customization "fontSizeValues".

## fontSizeValues

This is the list of values offered in the font size selector of the rich text editor. It is a comma separates list of legitimate font size values including their unit like "6pt,10pt,12pt". The values can be prepended by a label which is shown in the selector instead of the value itself: "tiny=6pt,regular size=10pt, large=12pt".

## imagePasteEnabled

Flag, whether direct pasting of images from clipboard into editor is enabled. Note that enabling this requires a Java Applet to run (boolean, default = false). Web browsers (i.e. Internet Explorer, Firefox) might show different behavior concerning display of the images.

#### customerGroupSelector

Available directly under root node in PCDS.

#### Attributes:

#### hiddenCustomerGroups

List of the technical names of customer groups which should not appear in Customer Groups Filter in the main menu. Comma-separated list of names of customer groups. Default: empty.

<ul> <li>http://cm6doku- cm1.int.consol.de:8280/cm-ci</li> </ul>
Customization of customer group selector, context={} <ul> <li>Attribute name</li> <li>Description</li> <li>Value</li> <li>Banagement Selector</li> <li>Banagement Selector</li></ul>
hiddenCustomerGroups Ust of customer group which not appear in selector(comma separated names of customer groups) (+) (-)

Fig. 39: ConSol\*CM Web Client - hiddenCustomerGroups

#### customerSectionPanel

Here you can define if the menu item *edit* should be displayed in the context menu for companies. Please note that the engineer must also have the according access rights (see section Role Administration) to edit company data.

#### Attributes:

 referencedUnitEditLinkVisible (Versions 6.9.3.3 and less. Similar, new attribute is companyEditLinkVisible)

The visibility of the link for editing referenced units (boolean, default is *true*).

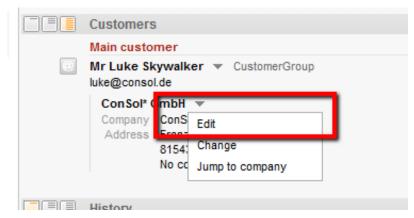


Fig. 40: ConSol\*CM Web Client - Visibility of Edit Link (referencedUnitEditLinkVisible = true)

	Customers
	Main customer
e	Mr Luke Skywalker 🔻 CustomerGroup luke@consol.de
	ConSol* GmbH 💌
	Company ConS Change
	Address Franz 81541 Jump to company
	No comment
	lieton

Fig. 41: ConSol\*CM Web Client - Visibility of Edit Link (referencedUnitEditLinkVisible = false)

 companyEditLinkVisible (Versions 6.9.3.4 and up. Older attribute is *referencedUnitEditLinkVisible*) (available in *customerSectionPanel* in ticket and on *companyEditPage* and *contactEditPage*) The visibility of the link for editing a company, default is *true*.

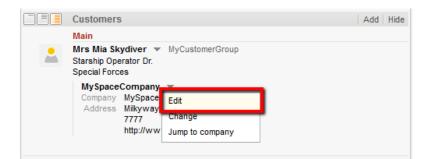


Fig. 42: ConSol\*CM Web Client - Visibility of Company Ddit Link (companyEditLinkVisible = true)

	Customers	Add Hide
	Main	
-	Mrs Mia Skydiver  My Starship Operator Dr. Special Forces	yCustomerGroup
	MySpaceCompany Company MySpace Address Milkyway	nange
		ump to company

Fig. 43: ConSol\*CM Web Client - Visibility of Company Edit Link (companyEditLinkVisible = false)

#### • additionalCustomersSortStrategy

The sort order of additional customers for a ticket can be defined using this attribute. If no value is set, the additional customers are sorted in the order they have been added to the ticket.

ïcket		Edit   Clone   Print   Display
GUP-124	X-Cm: Exception during status change which m HelpDesk 1st Level   Qualify Assigned to Huber, Harald   Open since 5/5/08 11:39 AM Priority high Module inventory Reaction time 8/8/09 Ask for feedback no	noves a ticket into a new queue
	Customers	
	Main	Additional contacts
	Mr Andreas Hansen v MyCustomerGroup Dr. R & D	in order as added to the ticket
	Additional	
	Mrs Mia Skydiver v MyCustomerGroup Starship Operator Dr. Special Forces	
<b>.</b>	Mr Peter Diermau 👻 MyCustomerGroup Dr. CIO	
	Mr Luigi Arcon - MyCustomerGroup Dr. Office	

Fig. 44: ConSol\*CM Web Client - Page Customization for Sort Order of Additional Coustomers (1)

The following values are possible:

• COMPANY\_OF\_MAIN\_CUSTOMER

Customers are sorted by the company description with the company of the main customer first.

• COMPANY

Customers are sorted by the company description.

• CONTACT

Customers are sorted by the contact description.

ROLE

Customers are sorted by customer roles.

Multiple values can be provided as a comma-separated list. The default sort order (no value) works as before: customers are sorted as previously in the order of their addition.

The Data Object descriptions used for the display of contacts and companies are taken from the template *<Contact>. Ticket page*, see section Templates for Customer Data.

In the following example, the additional customers should be ordered by the name of the customer using the value *CONTACT*.

ConSol∛	9	0	
Dverview Create ticket Create custo	Logged in: <u>admin</u>	ation MyCustomerGroup	9
iew: No view available View		Edit Clone Print Display -	Workflow activities
Own tickets (0) List is empty No tickets available	SUP-124 SUP-124 HelpDesk 1st Level   Qualify Assigned to Huber, Harald   Open since 5/5/08 11:39 AM		Close immediately Deny ticket Ask for approval
Workgroup tickets (0)	Priority high Module inventory Reaction time 8/8/09 Ask for feedback no		Workspace
Unassigned tickets (0)	Image: Subtract of the second seco	Add Hide	Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Cr. R & D		Favorites
	Additional         Mrs Mia Skydiver ▼ MyCustomerGroup         Starship Operator Dr.         Special Forces         Mr Peter Diermau ▼ MyCustomerGroup         Dr.         Cl0         Mr Luigi Arcon ▼ MyCustomerGroup         Dr.         Office		Favorites are empty Drag tickets, contacts, companies or searches into this space to save them as favorites.
	Engineers	Add Hide	
	No relations	Add Hide	
	History     Comment E-Mail       Display communication v     Sorting latest first v       Add comment, e-mail or attachment	il   Attachment   Time booking   Hide	
Attribute name	Description	Value	ttp://cm6doku_ m1.int.consol.de:8080
additionalCustomersSortStrategy COMPA	I customers sorting strategies. Possible comma separated options are: /_OF_MAIN_CUSTOMER,COMPANY,CONTACT,ROLE. /_OF_MAIN_CUSTOMER(company of main customer are at PANY(sort by company description), CONTACT(sort by contact	<u>/c</u>	

Fig. 45: ConSol\*CM Web Client - Page Customization for Sort Order of Additional Customers (2)

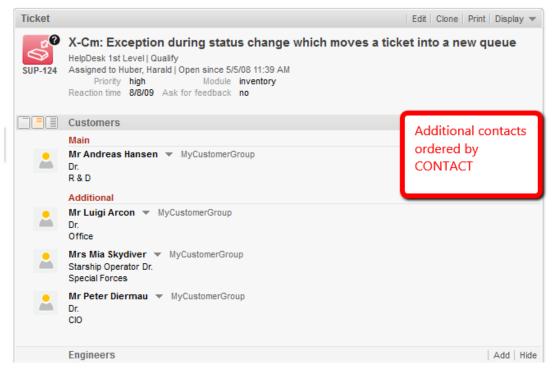


Fig. 46: ConSol\*CM Web Client - Page Customization for Sort Order of Additional Customers (3)

## detailSearch

#### Attributes:

#### • criteriaForAllTypeOfContacts

Boolean field, when set to *true*, the search will include the main customers and the additional customers of tickets. When set to *false* (default), the search will apply the search criteria only to the main customers of tickets.

#### duplicatedCustomFieldLabelFormat

It allows to customize the label format used when several Custom Fields have the same localized name. There are four values which can be used to create a unique label:

- fieldName
- groupName
- fieldTechnicalName
- groupTechnicalName

The values *fieldName* and *groupName* are localized.

Default format: \${fieldName} (\${groupName}) (java.lang.String)

This helps distinguish different Custom Fields or Data Object Group Fields with the same name, e.g. when they are offered in the drop-down menu in the detail search.

#### Example:

SalesProcess - Priority

HelpdeskProcess - Priority

#### maxGridTicketsNumber

Maximum number of tickets shown in grid view, i.e. in the entire grid, not in one column. The default value is *120*.

duplicatedCustomFieldLabelFormat	parameters which can be used to create unique label: fieldName, groupName, fieldTechnicalName, groupTechnicalName. Parameters fieldName and groupName are localized. Default format: \${fieldName} (\${groupName})	\${fieldName} (\${group  (java.lang.String) (+) (-)	- A <u>navigationLinks</u> - A <u>searchDetailPage</u> - A <u>globalSearchField</u> - A <u>searchDetailPage</u>
maxGridTicketsNumber	Maximum number of tickets shown in the grid view. The default value is 120.	7 (int)	AccordionTicketList     AccordionTicketList     According     SearchDetailPage     According
Erzeugen Zurücksetzen		×	adetailSearch

Fig. 47: ConSol\*CM Web Client - Using Page Customization to Adapt Maximum Number of Tickets Shown in Grid

Some tickets will not be visible, only 7 can be displayed on the grid								
Search								
Search criteria								
Queue 'ServiceDesk' -								
Tickets MyCustomerGr	oup (MyCustomer) MyCustomer	Group (Company)						
View as: List B Grid Group by: Priority	Drag tickets to other columns	to update their selected property.						
low	normal	high	Not set					
Call back Customer from New York	Printer does not work 100245 Customer question regarding product documentation	Urgent! Customer has question about usage of software! Do244 Deadline running out - provide offer NOW!						
	Contatc person has changed - please enter new contact data							

Fig. 48: ConSol\*CM Web Client - Maximum Number in Ticket Grid with Maximum 7

The maximum number of tickets displayed in the ticket grid view can also be role-specific. For example, an engineer with the role *Teamlead* would see 100 tickets, whereas an engineer with the role *Helpdesk* would see 50 tickets. In the following simple example, all engineers with the role *ServiceDesk* see ten tickets, all others see 5. The configuration uses a script which is defined for the page customization type. The script is stored in the *Script and Template Administration* of the Admin Tool.

	detailSearch scope type	configuration script: maxTicketGridSize				
	Customizations for detail search p	Customizations for detail search page, context={}			- 📑 <u>globalSearchField</u> - 📑 <u>searchDetailPage</u> - 📑 accordionTicketList	
Attribute name Whether criteria should be applied		Description		Value		L I searchDetailPage
	Whether criteria should be applied to all contacts(main		dditional). Valid options:	false		detailSearch

Fig. 49: ConSol\*CM Web Client - Defining a Script for Maximum Number of Tickets in Grid View Using Page Customization

♦ Script and Template Administration						
Scripts Template						
Scripts	Source					
All script types 👻	<pre>import com.consol.cmas.common.model.Engineer; import com.consol.cmas.common.model.EngineerRole;</pre>					
Name Type 🔺	<pre>Engineer engineer = engineerService.getCurrent();</pre>					
maxTicketGridSize	<pre>Set<engineerrole> roles = engineerRoleRelationService.getRolesForEngineer(engineer);</engineerrole></pre>					
CloneTichetry corr, Norkflow	if( roles.find { it.name == "ServiceDesk" }) {					
DisplayCustomerD Workflow	[maxGridTicketsNumber: "10"]					
AppendToTicket.g E-mail	) else (					
IncomingMailRouti E-mail	[naxGridTicketsNumber: "5"]					
CreateTicket.groovy E-mail						
ChangeOutgoing E-mail						

Fig. 50: ConSol\*CM Admin Tool - Script for Maximum Number of Tickets in Grid

ServiceDesk engineer	
Some tickets will not be visible, only 10 can be displayed on the grid	×
Search	
Caarch critaria	
HelpDesk 1st Level engineer	
Some tickets will not be visible, only 5 can be displayed on the grid	×
Search	

Fig. 51: ConSol\*CM Web Client - Number of Tickets in Ticket Grid for Different Engineer Roles

## engineerAutocomplete

(available on ticketCreatePage, ticketEditPage, userProfilePage, contactEditPage)

#### Attributes:

• maxHints

Defines the maximum number of suggestions which is displayed. When set to *O*, all suggestions are displayed, no limit.

#### suffixCharactersToRemove

Occurrence of any of these characters will be removed from the tail of each search pattern word. (string, default: empty)

#### enumAutocomplete

(available on *ticketEditPage* for enums with annotation *enum type = autocomplete*)

#### Attributes:

• maxHints

Defines the maximum number of suggestions which is displayed. When set to *O*, all suggestions are displayed, no limit.

• suffixCharactersToRemove

Occurrence of any of these characters will be removed from the tail of each search pattern word. (string, default: empty)

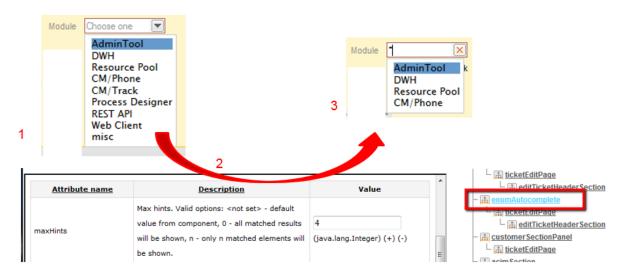


Fig. 52: ConSol\*CM Web Client - Using enumAutocomplete Parameter to Reduce Number of Hints

## generalFeedback

This type is used to manipulate log entries in a clustered environment.

Attributes:

• appendHostInfo

Configures if the cluster node information is shown together with the error message.

• appendHostInfoSystemProperty

Identifies which system property will be used to provide the value shown in *lappendHostInfo*. There are two properties which can be used:

- cmas.http.host.port (default)
- cmas.clusternode.id

## globalSearchField

Here you can define the layout and the behavior of the Quick Search input field.

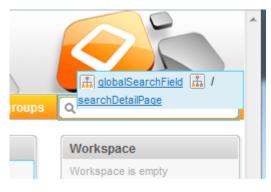


Fig. 53: ConSol\*CM Web Client - Quick Search Input Field

#### Attributes:

• maxHints

Defines the maximum number of suggestions which is displayed. When set to *O*, all suggestions are displayed, no limit.

- searchResultItemsOrder
   Comma-separated values defining order and visibility of search result items. (java.lang.String)
   Possible values: CONTACT, COMPANY, TICKET
- suffixCharactersToRemove Occurrence of any of these characters will be removed from the tail of each search pattern word. (java.lang.String).

#### mailTemplate

#### Attributes:

- addingManyTemplateEnabled Makes it possible to compose an e-mail by using more than one template. (boolean)
- engineerPersonalMailsIncluded
   Enable appending personal e-mail feature. (boolean)
- includeTextBlocksInEmailTemplate Whether text blocks from e-mail template will be included by default. (boolean)
- mailBodyLockedAfterTemplateSelection Indicates whether e-mail body will be locked after template selection. (boolean)
- mailEncryptionAvailable
   Makes e-mail encryption option available. (boolean)
- mailSelectionComponentWidth The width of the e-mail selection component (in pixels). (java.lang.Integer)
- mailTemplateSortStrategy
   E-mail template list sorting strategies. (java.lang.String)

   Default value: USAGE, NAME. Possible comma separated options are: USAGE, NAME

## • maxElementLength

The maximum length of a single element. If variable's value is set to O, elements will not be trimmed. (java.lang.Integer)

## • minMailInputLength

Minimum input length that triggers email suggestion drop-down when engineer starts typing e-mail recipients. Integer. Default 1.

## • quotingFeature

Activate the quoting function in e-mail content. (boolean)

## selectionComponentWidth

The width of the mail/comment selection component (in pixels). Integer.

## • showUniqueEmails

Results in autocomplete e-mail fields will be compared by e-mail, only first e-mail will be used in results. If set to *true* then results will be compared by whole e-mail description. (boolean)

## templateSortStrategy

Template list sorting strategies. Default value is: USAGE, NAME. Possible comma separated options are: USAGE, NAME. String. Default USAGE, NAME.

## navigationLinks

Here, you can define the display for several hyperlinks that are displayed in the main menu of the Web Client.

## Attributes:

## • createContactLinkVisible

Whether the *createContact* link can be shown (boolean, i.e. possible values are *true* or *false*, default value is *true*).

## Information:

In addition to this attribute being set to *true*, engineers must have appropriate permissions to see the *createContact* link.

## createTicketLinkVisible

Whether the *createTicket* link can be shown (boolean, i.e. possible values are *true* or *false*, default value is *true*).

## Information:

In addition to this attribute being set to *true*, engineers must have appropriate permissions to see the *createTicket* link.

#### • externalLinks

External links which will be appended to navigation bar. This attribute may configure more than one external link (the order matters).

Format (compatible with wiki): [http://link description]

This attribute might be used to integrate hyperlinks to the company's web site, to a reporting application, to a help page or to any other valid URL on the Internet and/or intranet. **Example:** [http://www.consol.com ConSol\*][http://www.somewhere.com Somewhere]

## manageTemplateLinkVisible

Whether the *Manage Templates* link (for the start of the *ConSol\*CM Template Manager*) can be shown (boolean, i.e. possible values are *true* or *false*, default value is *true*). See also section The ConSol\*CM Template Manager.

## Information:

In addition to this attribute being set to *true*, engineers must have appropriate permissions ( *Global Permissions - Write template*) to see the *Manage Template*s link.

## • officeTemplateLinkVisible

Whether the *officeTemplate* link (for the start of the *Doc Template Manager*) can be shown (boolean, i.e. possible values are *true* or *false*, default value is *true*).

## Information:

In addition to this attribute being set to *true*, engineers must have appropriate permissions ( *Global Permissions - Write template*) to see the *officeTemplate* link. CM.Doc has to be enabled in the system (see section CM.Doc).

## overviewLinkVisible

Whether the Overview link can be shown.

## resourceRelations

Available e.g. on Ticket Page

## Attributes:

- **counterVisible** Whether the counter should be shown in the section header. The default value is true.
- defaultRelationSortStrategy Additional resource relation sorting strategies. Possible options are: CREATION\_DATE, DESCRIPTION, Default CREATION\_DATE.
- state

The visibility mode of the section, possible values are [expanded, collapsed, collapsed\_and\_preload, hidden], default: 'expanded'

# resourceRelationsPanel

Available e.g. on Ticket page.

## Attributes:

## • preserveOrder

It allow to preserve order of elements. By default elements will be placing in optimal position based on available vertical space. Default is *false*.

## resourceTypes

Available e.g. on Resource Dashboard

## Attributes:

## • preserveOrder

It allow to preserve order of elements. By default elements will be placing in optimal position based on available vertical space. Default is *false*.

# section (Type)

Available in the following scopes.

- ticketEditPage
- contactEditPage
- companyEditPage
- userProfilePage

## Attributes:

• state

The visibility mode of the section. A detailed explanation is provided under sectionList

# sectionList (Type)

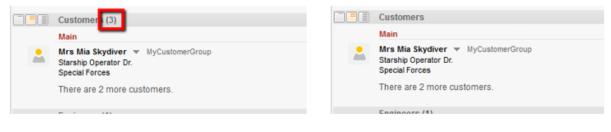
Avaiable in the following scopes.

- ticketEditPage
- contactEditPage
- companyEditPage

#### Attributes:

• counterVisible

Whether the counter should be shown in the section header. The default value is true.



counterVisible = true

counterVisible = false

Fig. 54: ConSol\*CM Web Client - Attribute counterVisible

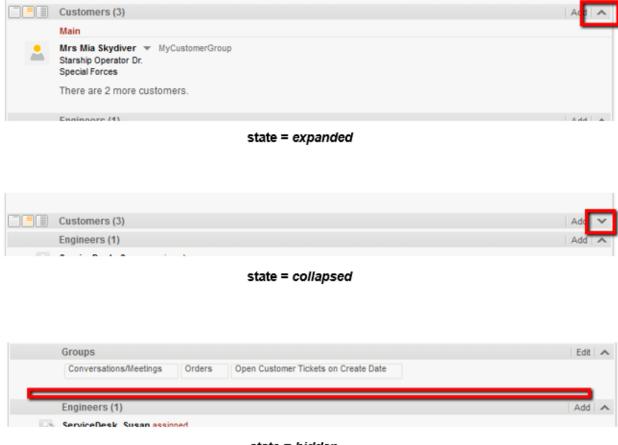
state

The visibility mode of the section, possible values are [expanded, collapsed, collapsed\_and\_preload, hidden], default: 'expanded'. The default value is 'expanded'. This mode defines the initial visibility mode after start of a session. The engineer can change the visibility of a section afterwards, but this will not be saved. When the next session is started (next login), the initial visibility mode will be applied again.

- *expanded* (default, data are shown initially)
- *collapsed* (data are not shown initially and will be loaded only on demand, can provide some performance improvement)
- collapsed\_and\_preload (data are not shown initially, but will be loaded)
- *A hidden* (the section is completely hidden and cannot be made visible) *A* Can only be reversed by database or JBoss Admin Console access

#### Attribute HIDDEN will hide all customer data (!)

When the attribute state = hidden has been set for a section/scope, this scope will not be displayed in the page customization tree and thus will not be available in the page customization anymore  $\triangle$  You can reverse this setting only by database access or using the JBoss Admin Console  $\triangle$  So please think twice before applying this value  $\triangle$ 



state = hidden

Fig. 55: ConSol\*CM Web Client - Attribute state

## table

This is used to configure the csv export functionality in search result pages. Please refer to section CSV Export of Search Results for an explanation.

## ticketList (Subscope)

see accordionTicketList(type)

## ticketsAutocomplete

(available on the relations addition form)

#### Attributes:

maxHints

Defines the maximum number of suggestions which is displayed. When set to *O*, all suggestions are displayed, no limit.

# ticketsBookingAutocomplete

(available on the time booking addition form of the userProfilePage)

#### Attributes:

• maxHints

Defines the maximum number of suggestions which is displayed. When set to *O*, all suggestions are displayed, no limit.

## ticketPanel

#### Attributes:

scrollSpeed

Scroll speed in milliseconds. The attribute is used to determine the speed of page scrolling when you click on a handler on the right side of the main page section.



The value will determine how long the animation will run. Typical values: 200, 600, 1000 ... (higher value means slower) (java.lang.String, default = 200). E.g., 200 means that the scroll to the bottom /top of the page will take 200ms.

## • topBottomPageButtonVisible

Whether go to top and bottom page button is visible (boolean, default is false).

New Tick	et
100	Subject *
~~~	Queue: Frequently_Asker Assigned to: Unassigned
	Priority Choose One 💌 Module Choose One 💌
	Reaction time Ask for feedback
	Category None 💌
	QA Test MLA None 💌
	QA List Date Enum Price Number Text Department QA_Test_Mla_For_Struct Add row
	Country Choose one  Helpdesk Choose one  priorities
	AssetType_en Choose One  BooleanValue_en EnumList_en Colors_en Add row
	FixedPointNumber_en NumberValue_en PhoneType_en Choose One
	ReadonlyGroupable Choose One 🚽 StringList_en StringListElement_en StringValue_en
	Add row
	Customers
_	Main customer
	Find customer   Create customer   Please enter keywords such as name, company or e-mail *
	Content Add comment
	B I U S ≡ ≡ ≡ □ DIV (default) ▼ Font Family ▼ Font Size ▼ A ▼ _ ▼
	x² x₂   Ξ Ξ   ∰ ∰   🗹 🗃 🗏 Ψ 🚽 🖓 🐜 🔩 🚰 🛄 🛄   Ω 🥯 🔍

# • topBottomPageButtonVisible = false:

Fig. 56: ConSol\*CM Web Client - Button "go to top and bottom page" Not Visible

• topBottomPageButtonVisible = true:

New Ticket								
Subject *								
Queue: Frequently_Aske Assigned to: Unassigned								
Priority Choose One 💌 Module Choose One 💌								
Reaction time Ask for feedback	Reaction time Ask for feedback							
Category None 🔻								
QA Test MLA None 💌								
QA List Date Enum Price Number Text Department QA_Test_Mla_For_Struct								
Add row     Helpdesk       Country     Choose one       Choose one     priorities								
AssetType_en Choose One  BooleanValue_en EnumList_en Colors Add ro								
FixedPointNumber_en NumberValue_en PhoneType_en Choose	e One 💌							
ReadonlyGroupable Choose One 🔍 StringList_en StringListElement_en StringValue_en								
Add row								
Customers								
Main customer								
Find customer   Create     customer   Please enter keywords such as name, company or e-mail     *								
Casconial Produce childe recy words adden as manife, company or e-main								
Content								
Content Add comment								
	B I U S   ≣ ≣ ≣   DIV (default) ▼ Font Family ▼ Font Size ▼ A ▼ _ ▼							
x² x₂   ⊟ ⊟   ∰ ∰   🖬 🛗 🔜 🗉 ¥ 🖻 m <sup>2</sup> % 3₄ 3″ 🖼 📰   Ω 🥯 🕄								

Fig. 57: ConSol\*CM Web Client - Button "go to top and bottom page" Visible

## **TicketRelation**

Available in the following scopes:

• TicketRelationSection (e.g. on Resource Detail Page)

#### Attributes:

• compactViewLimit

If the limit is exceed the table is presented along with filtering feature. The default limit is set to 10.

defaultRelationSortStrategy
 Additional resource relation sorting strategies. Possible options are(default is CREATION\_DATE):
 CREATION\_DATE, FIRST\_SORTABLE\_COLUMN(sort by first column which is sortable)

# timeBookingSection

(available e.g. on userProfilePage)

#### Attributes:

• visible

The visibility of the time booking section on the *userProfilePage*. (boolean, default value = *true*) Please keep in mind that the visibility of the time booking section on the ticket page is configured via the *acimSection* attribute *timeBookingFeature*!

## unitAutocomplete

(available on the customer addition and creation forms)

#### Attributes :

#### • maxHints

Defines the maximum number of suggestions which is displayed. When set to *O*, all suggestions are displayed, no limit.

## unitFormPanel

(available on *contactCreatePage*, *ticketEditPage*, *contactEditPage*, e.g. unitFormPanel / ticketCreatePage / contactSection)

#### Attributes:

• maxSuggestions

This refers to the customer section which is displayed when you create a new ticket. Here, suggestions for customers are displayed if matching hits are found in the database. The number of suggestions which are displayed can be configured using this attribute.

	Customers						
	Main						
-	Company Find   Create						
	Please find or create company fi	irst.					
	MyCustomer						-
	Choose One 💌	First name	Ha	*	Suggestions		
	Function		Acad. title		🚋 Dietrich Habermann	Select	
	E-mail		Robinson		🔜 Andreas Hansen	Select	
	Phone	Choose One	Phone 1				
		Choose One	Phone 2				
		Choose One	Phone 3				
		Choose One	Phone 4				
	Division						
	Domain	Choose One					
		Manager	Budget responsible				
		Functional decider	Preparer				
	Comment						
	VIP	📄 vip					
	CM/Track access	CM/Track login	cmtrack_password				
	Track user 💌						
	Create and select						

Fig. 58: ConSol\*CM Web Client - Suggestions for the Ticket Contact

## UnitResourceRelation

Available in unitRelationsSection (e.g. on Resource Detail Page).

## Attributes:

• compactViewLimit

If the limit is exceed the relations are presented along with filtering feature. The default limit is 10.

defaultRelationSortStrategy

Additional resource relation sorting strategies. Possible options are(default is CREATION\_DATE): CREATION\_DATE, FIRST\_SORTABLE\_COLUMN(sort by first column which is sortable)

• numberOfRelations

The default number of the presentedt relations. The default value is 10.

## unitSearch

(available on the *ticketCreatePage* in the company section)

#### Attributes:

• aidLevel

Beginner-friendly help level:

- NONE
- BASIC (wider search field with more descriptive text)
- EXTENDED (as in BASIC plus additional help icon with tool tip)

(java.lang.String, default value = BAS/C)

	FixedPointNumber_en ReadonlyGroupable Choose O	ne EXTENDED aidL	evel	lem	You can enter one or more keywords. Keywords are automatically appended with the wildcard *. If you are using a keyword which is not at the beginning of the word you are searching for, you can
	Customers				expand the search by adding a
e	Main customer Find Company   Create			μ	preceding * to the keyword.
	Company Please enter keywords s	such as name, company or e-mail			· ②
	Create contact			-	
	Choose One	First name	Lastname		*
	Function		Acad. title		
	E-mail		Robins	son	
	Phone	Choose One 🗨	Phone 1		
		Channe One	Dharan 0		

Fig. 59: ConSol\*CM Web Client - EXTENDED aidLevel in the Unit Search

# unitRelationSection (Type UnitSection)

Available on the

- contactEditPage
- companyEditPage

#### Attributes:

#### compactViewLimit

If the limit is exceed the relations are presented along with filtering feature. The default limit is 10.

Relations (6)							Add 🔺	
Supervizor (MyCuston	nerGroup) (Contact)							
Add/Remove column 'Co	ontact', 'First name',	-	ОК				Number per page 10 🔻	Filter option
Contact	First name	Lastr	name	Date	Note		Actions	with more th
							Apply filters Clear filters	3 entries
💄 Minnie Mouse	Minnie	Mouse	e	12/8/14 15:04	Ec	fit	×	
💄 Markus Schmidt	Markus	Schm	idt	12/8/14 14:51	r I	Edit	×	
💄 Silke Kaufmann	Silke	Kaufn	nann	12/8/14 14:51	Ec	lit	×	
🚊 Dieter Macher	Dieter	Mach	er	12/8/14 14:50	Ec	dit	×	
Subordinate (MyCusto Add/Remove column Co	ontact', 'First name',		ок				Number per page 10	Filter option NOT display
Contact	First nam	ne	Lastname	Date		Note	Actions	for list with I
📩 Hans Wille	Hans		Wille	12/8/14 14:52		Edit	×	than 3 entrie
💄 Daisy Duck	Daisy		Duck	12/8/14 14:52		Edit	×	

Fig. 60: ConSol\*CM Web Client - Effect of Attribute compactViewLimit

• numberOfRelations

The default number of the presented relations. The default value is 10.

unitPreviewLayout

The unit preview configuration, this is used for the box which is displayed when you click on the name of a customer or company in the relation section. Similar to the box which is displayed when you click on a ticket name in a list which contains tickets.

A JSon object has to be returned, see next code example.

```
JSon Object for Customer Data Format in Box Preview
{ "layout": [ ["firstname", "lastname", "lastname"], ["email",
"email", null] ]}
```

For different unit definitions in the FlexCDM use the following syntax:

```
Example Value for Customer Data Preview Box Layout
{''unit_definition_1": <json description>, "unit_definition_2": "component_name_used_to_display_
preview"}.
```

In Json we set the configuration for a particular unit definition. Json document can contain unit preview or just the name of a component (spring bean) used to render the preview.

#### unitSearchHeader

(available on *ticketCreatePage* in the company section)

#### Attributes:

• companyCreateLinkVisible The visibility of the link for referenced company creation. (boolean)

#### viewDiscriminatorsSection (Type)

(available e.g. on userProfilePage)

#### Attributes:

• visibilityFlag

The visibility of the *View criteria* section (section for attribute settings for dynamic views on *userProfilePage*). (boolean, default value = *true*)

Engineer profile
Password change
Old password *
New password *
Repeat password *
OK Cancel
Representation
Engineers representing me
Engineer 💽
Engineers represented by me
General settings
View criteria
Priority low', 'nomal'
OK
Default Customer Group
Choose One
Time healing

Fig. 61: ConSol\*CM Web Client - Visibility of View Criteria Section (visibilityFlag=true)

Engineer profile	
Password change	
Old password	*
New password	*
Repeat password	*
OK Cancel	
Representation	
Engineers representing me	
Engineer	
Engineers represented by me	
Engineer	
General settings	
Default Customer Group	
Choose One	
Time booking	Add
Day 1/29/14	
Time period Day Week Month	
Jan 29, 2014	🖣 <u>Today</u> 🕨
	Total bookings on this day: 00:00

Fig. 62: ConSol\*CM Web Client - Visibility of View Criteria Section (visibilityFlag=false)

#### welcomePage

The most important configuration on the *welcomePage* is the Page Customization for the Web Client Dashboard.

## 14.1.4 Order and Priorities of Page Customization

In case there are more than one values which are set for an attribute, the following hierarchy is applied:

- 1. Highest priority: script
- 2. Medium priority: scope definition
- 3. Lowest priority: type definition

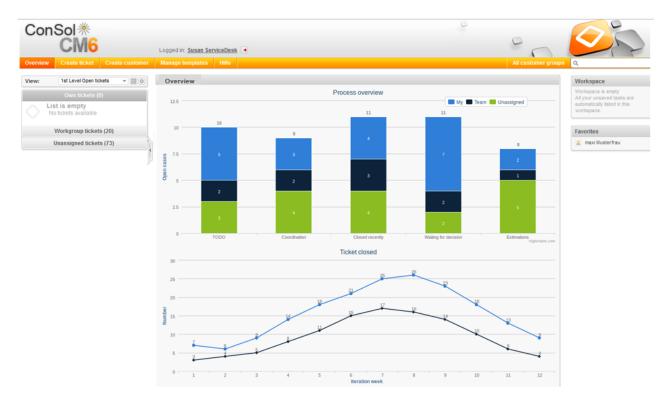
Example for the value of *maxHints* in the *Global Search* field on the *ticketEditPage* :

- Variant A:
  - script: no value
  - scope definition (GlobalSearchField/ticketEditPage): maxHints = 10
  - type definition (GlobalSearchField): maxHints = 5
  - => maxHints will be 10
- Variant B:
  - script: maxHints = 7
  - scope definition (GlobalSearchField/ticketEditPage): no value
  - type definitoin (GlobalSearchField): maxHints = 5
  - => maxHints will be 7
- Variant C:
  - script: no value
  - scope definition (GlobalSearchField/ticketEditPage): no value
  - type definitoin (GlobalSearchField): maxHints = 5
  - => maxHints will be 5

For keeping old system configurations valid, all fields and groups annotated with *no-history-field* and *no-history* get assigned correspondingly: *dwh-no-history-field* and *dwh-no-history* annotations during update from previous CM versions.

# 14.2 Page Customization for the Web Client Dashboard

- Introduction
- Definition of the Overall Dashboard Layout
- Configuration of Widgets
  - Configuration Script for Widgets
  - Configuration Attributes for Widgets
    - General Attributes
      - Examples for Visibility Configuration
    - Attributes for Chart Widgets
      - Example for a Chart Widget
    - Attributes for Table Widgets
      - Example for a Table Widget
    - Example for a Composed Dashboard
- Print Functionality in the Web Client Dashboard
- 3D-Rendering for Graphics (Chart Widgets)
- Drilldown Functionality for Graphics (Chart Widgets)



# 14.2.1 Introduction

Fig. 1: ConSol\*CM Web Client - Web Client Dashboard with two Widgets

The Web Client Dashboard is configured using page customization.

Log in as *admin*, open the *Overview* page and select *Enable page customization* in the main menu. Besides other attributes which are not relevant for the Dashboard and are explained on in the section Page Customization, the following (Dashboard-relevant) elements can be configured (i.e. attributes can be set). Each of the three elements is represented by a subtree in the page customization tree.

#### 1. widgetsGrid / welcomePage

Here, the Web Client Dashboard can be switched on or off. If a correct value is entered in the layout field, the Dashboard is displayed. If the field is empty, no Dashboard is shown. The following configuration can be made here:

- a. the Dashboard layout, i.e. the layout of the grid on which the Dashboard is based (see section Definition of the Overall Dashboard Layout), this comprises:
  - i. the widgets which should be displayed
  - ii. the order and organization of those widgets on the Dashboard page
- 2. chartWidget / welcomePage (only available if chart widgets are present)
  - a. the definition/layout for all chart widgets in the chartWidget subtree
  - b. each widget is represented by one node which has the name of the widget, e.g. *chartWidget / welcomePage / ticketsInView*
  - c. a new chart widget is added when its name has been added in the layout value
  - d. attributes can be defined for all chartWidgets on the level *chartWidget* or *chartWidget* / *welcomePage* or they can be configured for one chart widget individually using the values of the attributes for the chartWidget, e.g. *chartWidget* / *welcomePage* / *ticketsInView*.
- 3. tableWidget / welcomePage (only available if table widgets are present)
  - a. the definition of all table widgets in the tableWidget subtree
  - b. each widget is represented by one node which has the name of the widget, e.g. tableWidget / welcomePage / ticketsOverview
  - c. a new table widget is added when its name has been added in the layout value
  - d. attributes can be defined for all tableWidgets on the level *tableWidget* or *tableWidget / welcomePage* or they can be configured for one table widget individually using the values of the attributes for the tableWidget, e.g. *tableWidget / welcomePage / ticketsOverview*.

The following figure provides an example page customization tree with subtrees relevant for the Web Client Dashboard. A detailed explanation is provided in the following sections.





## 14.2.2 Definition of the Overall Dashboard Layout

The overall layout of the entire Web Client Dashboard is defined using the page customization attribute *widgetsGrid / welcomePage*.

#### Attributes:

#### • layout

This defines the layout of the entire Dashboard on the welcomePage based on the following principles:

- Each row of the Dashboard grid is represented as an array of elements: [x,y,z]. A new widget object will be added to the page customization tree automatically when it is added as value in the layout attribute, e.g. when the value *has been*[ticketsInView:Chart, ticketsInView] and the value is now [ticketsInView:Chart, ticketsInView, myTickets:Table], a new table widget named *myTickets* will appear in the page customization tree (see figure above). In the same way, widgets can be removed from the Dashboard just remove the name and type of the widget in the layout value. After saving and reloading the page all layout changes are available in the tree for further configuration.
- A widget is described by its name and its type, separated by a colon, i.e 'ticketsInView:Chart'. The name for a specific widget must be unique.
- The grid starts with the upper-left corner (0,0) and it is built up row after row, e.g. a layout value with two pairs of [] brackets will represent two rows as shown in the figure and code shown below.
- *null* is a reserved key word for an empty cell.
- The type of a widget is *Chart* or *Table*. The type has to be indicated only at the first appearance of the widgets name, afterwards, it can be omitted, e.g. [ticketsInView:Chart, ticketsInView, ticketsInView].
- The widget can occupy multiple adjacent rows and columns.
- The Dashboard can be completely disabled in removing the value from the attribute *layout*.

The following figures show the organization of an example grid and its representation in the page customization.

Chart:	Table: myTickets
ticketsInView	Chart: ticketsOverview

Fig. 3: Organization of an Example Grid for a welcomePage

The value of the respective *layout* attribute would be:

```
[ticketsInView:Chart, ticketsInView, myTickets:Table], [ticketsInView, ticketsInView, ticketsInView,
```

# 14.2.3 Configuration of Widgets

### **Configuration Script for Widgets**

Each chart widget and each table widget has a configuration script. This script is a Groovy script which is stored in the Admin Tool script section ad is referenced by its name. The scripts has to be of type *Page customization*. Select the widget in the PCDS and enter the script name:

chartW type	get         /welcomePage/ticketsInView scope         ChartWidgetCustomization className         configuration script: ticketsInViewDataWidg         un with admin privileges:					
Define the properties of the chart widget, context={viewld}						
<u>Attribute</u> <u>name</u>	Description Value					
chart	art Options regarding the chart area and plot area as well as general chart options (http://api.highcharts.com/highcharts#chart) (java.lang.String) (+) (-)					
colors	An array containing the default colors for the chart's series. When all colors are used, new colors are pulled from the start					

Fig. 4: ConSol\*CM Web Client - Script Definition for a Chart Widget

ripts		Source
Ill script types	•	if (viewId == -1) {
Name	Туре	return [visible: 'false']
oToCompanyURL	Data object action	
ncomingMailRouting.groovy	E-mail	<pre>def engineerLocale = engineerService.getCurrentLocale()</pre>
ad data	Data object action	def view = viewService.getById(viewId)
ailScriptServiceDesk	E-mail	def viewName = localizationService.getLocalizedProperty(View.class,
ailSetReplyTo.groovy	E-mail	"name", viewId, engineerLocale)
ailToClosedTicket.groovy	F-mail	
essageToEngineerRemove.gro		ViewCriteria allCriteria = <b>new</b> ViewCriteria(view,
vFirstTaskScript	Task	ViewAssignmentParameter.allTickets(),
mhAppendToTicket.groovy	E-mail	ViewGroupParameter.allTickets(),
	E-mail	new ViewOrderParameter())
mhCreateTicket.groovy	E-mail	
mhIncomingMailRouting.groovy		<pre>def allTickets = ticketService.getCountForView(allCriteria)</pre>
mhMailToClosedTicket.groovy	E-mail	
fferCreateTicketPage	Data object action	ViewCriteria ownCriteria = <b>new</b> ViewCriteria(view,
fferCreateUnitPage	Data object action	<pre>ViewAssignmentParameter.allTickets(engineerService.getCurrent()),</pre>
pen report	Data object action	ViewGroupParameter.onlyOwnTickets(),
odateContactData	Data object action	new ViewOrderParameter())
axTicketGridSize		<pre>def ownTickets = ticketService.getCountForView(ownCriteria)</pre>
yNewTaskScript	Task	
etDefaultPrioMedium.groovy	Defa values	ViewCriteria unassignedCriteria = <b>new</b> ViewCriteria(view,
Llewidget0icg.corr,	Age contamination	ViewlagimmentDeremeter allUnaggimedTickets()
cketsInViewDataWidget.groovy	Page customization	

Fig. 5: ConSol\*CM Admin Tool - Admin Tool Script for a Widget of the Web Client Dashboard

The configuration script of a widget is the place where the statements are defined which retrieve the required data from the CM system and where the widget layout is defined. The execution of this groovy script is a core part of the customization. The script must return a map of variables which correspond to the defined widget properties.

An incorrect script does not provide a data structure which can be displayed by the Web Client Dashboard. Since the Dashboard is displayed on the Overview page which is the start page, the Web Client will not start in those cases! Disable or comment out the script to start the Web Client again.

The script overwrites the configuration data provided in the page customization 1. The values are *not* merged! The script thus will overrides any widget attribute value set in the customization, so please make sure that the desired property is not set within the script, if you want to use the page customization for property setting.

A **script** which is associated with a widget is usually executed with user (= engineer) permissions, e.g. the standard chart widget shows a graphical representation of the selected view. However, sometimes values have to be used which are not available in the engineer context, e.g. escalated tickets (of all engineers) in a certain queue. In order to execute a script with admin permissions, select the check box *run with admin privileges*. Please keep in mind that the results of the Java or Groovy methods which retrieve the data will vary depending on the context. For example, the method *ticketService.getAll()* will return only tickets for which the the current engineer has at least read permissions, but will return absolutely all tickets in the system when executed as admin.

The **chart** representation in the Web Client Dashboard is based on the Highcharts library. Thus, for chart widgets, the Admin Tool script has to return the attributes which should be set, as a HashMap (see return statement in the code example above which uses the attributes *series*, *visible*, *chart*, *title*, *tooltip*, and *localization*). A detailed explanation of all attributes and the respective hyperlinks are provided in the section Attributes for Chart Widgets.

The **table** representation in the Web Client Dashboard is based on the Datatables library. Thus, for table widgets, the Admin Tool script has to return the attributes which should be set, as a HashMap. Please see section Attributes for Table Widgets.

Very complex scripts can decrease system performance!!!

The following example shows the script ticketsInViewDataWidget.groovy which is provided with a standard ConSol\*CM distribution.

```
Standard ConSol*CM Table Widget Script ticketsInViewDataWidget.groovy
import com.consol.cmas.common.model.ticket.*;
import com.consol.cmas.common.model.ticket.view.*;
import java.util.*;
import java.util.Map.Entry;
if (viewId == -1) {
 return [visible: 'false']
}
def engineerLocale = engineerService.getCurrentLocale()
def view = viewService.getById(viewId)
def viewName = localizationService.getLocalizedProperty(View.class, "name", viewId,
engineerLocale)
ViewCriteria allCriteria = new ViewCriteria(view,
        ViewAssignmentParameter.allTickets(),
        ViewGroupParameter.allTickets(),
        new ViewOrderParameter())
def allTickets = ticketService.getCountForView(allCriteria)
ViewCriteria ownCriteria = new ViewCriteria(view,
    ViewAssignmentParameter.allTickets(engineerService.getCurrent()),
    ViewGroupParameter.onlyOwnTickets(),
    new ViewOrderParameter())
def ownTickets = ticketService.getCountForView(ownCriteria)
ViewCriteria unassignedCriteria = new ViewCriteria(view,
    ViewAssignmentParameter.allUnassignedTickets(),
   ViewGroupParameter.onlyUnassignedTickets(),
   new ViewOrderParameter())
def unassignedTickets = ticketService.getCountForView(unassignedCriteria)
def data = []
data.add("{name: _('all'), data:[${allTickets}]}" as String)
data.add("{name: _('own'), data:[${ownTickets}]}"as String)
data.add("{name: _('unassigned'), data:[${unassignedTickets}]}"as String)
return [series: "[${data.join(',')}]" as String,
        visible: 'true',
        chart: "{type: 'column'}", title: "{text: '${viewName}'}" as String,
        tooltip:"{headerFormat:''}" ,
        localization:"de: {all:'Alle',own:'Eigene',unassigned:'Unzugewiesene'},"+ "en:
{all:'All', own:'Own', unassigned: 'Unassigned'}"];
```

The following chart is defined by the script above. For a detailed explanation, please refer to the section Example for a Chart Widget.

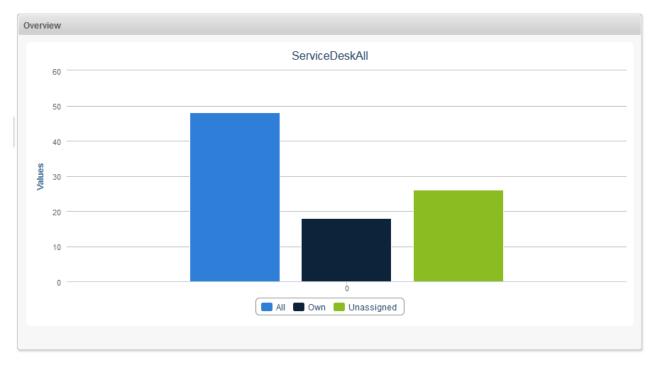


Fig. 6: ConSol\*CM Web Client - Example Chart Widget

## **Configuration Attributes for Widgets**

All definitions which can be used for a widget can be set using the attributes and values of the page customization. There are three types of attributes:

- general attributes (available for each widget type)
- attributes for chart widgets
- attributes for table widgets

Please keep in mind that a attribute which is set within the Admin Tool script of a widget always overwrites the respective attribute which has been set as attribute!

Example: For the chart widget *ticketsInView*, the attribute *visibility* has been set to *true*. The Admin Tool script which is associated with the widget (*ticketsInViewDataWidget.groovy*) contains the statement

```
return [visible: 'false']
```

In this case the widget will not be displayed!

#### **General Attributes**

Those attributes are valid for all widgets and can be set in two locations of the page customization tree:

- widgetsGrid
- widgetsGrid/welcomePage

#### Attributes:

- layout see section about layout
- refreshOnViewChange

Indicates whether the Dashboard should be refreshed when the engineer changes the view, i.e. uses the drop-down view list to select another view for the ticket list, default value is *true* 

#### **Examples for Visibility Configuration**

Example 1: The chart should not be displayed.

```
Visibility Switched off (Set in Admin Tool Script)
return [visible: 'false']
```

**Example 2:** The chart should only be displayed if the selected view is *service\_customer and the* engineer has *the consultant* role.

```
Visibility Depending on Engineer Role (Set within Admin Tool Script)
view = viewService.getById(view_id) // view_id is passed in context
if (!view.getName().equals("service_customer"))
{
    return {"visible": false}
}
def role = roleService.getById('consultant');
def engineer = engineerService.getById(engineer_id);
if
 (!getRolesForEngineer(engineer).contains(role)) {
    return {"visible": false}
}
```

#### **Attributes for Chart Widgets**

Chart widgets use the Highcharts library. All attributes are JSON objects.

The attributes which can be set comprise:

- General attributes like visibility.
- The basic configuration options of the Highcharts library. Their values ...
  - can be set using the page customization attributes.
  - can be set using the Admin Tool script which is associated with the chart widget, see section above. The attributes have to be returned as a HashMap.
  - can be left empty.

```
$("#container").highcharts({
 b chart: { ... }
   colors: [ ... ]
 credits: { ... }
  data : { ... }
  drilldown: { ... }
 exporting: { ... }
 ▶ labels: { ... }
 legend : { ... }
 loading: { ... }
 navigation: { ... }
 ▶ noData: { ... }
 pane: { ... }
  plotOptions : { ... }
  series : [{ ... }]
  subtitle: { ... }
  title: { ... }
 tooltip: { ... }
 xAxis: { ... }
 yAxis: { ... }
});
```

Fig. 7: Highcharts Configuration Options

#### **General attributes:**

localization

localized values, i.e -> "de: {subject:'Thema', yes:'Ja'}, en: {subject:'Subject', yes:'Yes'}"

visible

defines if the widget is displayed, true or false.

#### Highchart-specific attributes:

• chart

Options regarding the chart area and plot area as well as general chart options (http://api.highcharts. com/highcharts#chart). Example:

Example for Chart Object

chart = "type:'column', pltShadow:false, backgroundColor:'#4dc245', height: 300";"items: [{html:'sometext', style: { left: '100px'; }}]"

#### • colors

An array containing the default colors for the chart's series. When all colors are used, new colors are pulled from the start again. Defaults to: (http://api.highcharts.com/highcharts#colors)

#### credits

Highchart by default puts a credits label in the lower right corner of the chart. This can be changed using these options (http://api.highcharts.com/highcharts#credits)

#### • drilldown

Options for drill down, the concept of inspecting increasingly high resolution data through clicking on chart items like columns or pie slices (http://api.highcharts.com/highcharts#drilldown)

#### • exporting

Options for the exporting module (http://api.highcharts.com/highcharts#exporting)

global

Global options that don't apply to each chart (http://api.highcharts.com/highcharts#global). Can only be set for a type, i.e. for chartWidget or tableWidget, not for scopes or single widgets!

labels

HTML labels that can be positioned anywhere in the chart area (http://api.highcharts.com /highcharts#labels).

Example for Lables Object

```
labels = "items: [{html:'sometext', style: { left: '100px'; }}]"
```

#### • lang

Language object. The language object is global and it can't be set on each chart initiation (http://api. highcharts.com/highcharts#lang). Can only be set for a type, i.e. for chartWidget or tableWidget, not for scopes or single widgets!

• legend

The legend is a box containing a symbol and name for each series item or point item in the chart ( http://api.highcharts.com/highcharts#legend)

#### loading

The loading options control the appearance of the loading screen that covers the plot area on chart operations (http://api.highcharts.com/highcharts#loading)

localization

localized values, i.e -> "de: {subject:'Thema', yes:'Ja'}, en: {subject:'Subject', yes:'Yes'}"

navigation

A collection of options for buttons and menus appearing in the exporting module (http://api.highcharts. com/highcharts#navigation)

noData

Options for displaying a message like "No data to display" (http://api.highcharts.com /highcharts#noData)

#### • pane

Applies only to polar charts and angular gauges. This configuration object holds general options for the combined X and Y axes set (http://api.highcharts.com/highcharts#pane)

plotOptions

The plotOptions is a wrapper object for config objects for each series type (http://api.highcharts.com /highcharts#plotOptions)

series

The actual series to append to the chart (http://api.highcharts.com/highcharts#series)

• subtitle

The chart's subtitle (http://api.highcharts.com/highcharts#subtitle)

• title

The chart's main title (http://api.highcharts.com/highcharts#title)

• tooltip

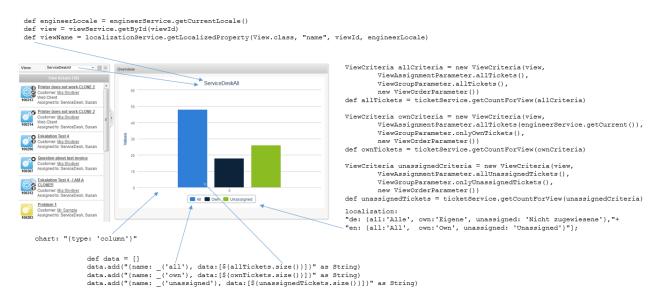
Options for the tool tip that appears when the user hovers over a series or point (http://api.highcharts. com/highcharts#tooltip)

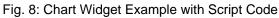
- visible Indicates whether the widget is shown
- xAxis
   The X axis or category axis (http://api.highcharts.com/highcharts#xAxis)
- yAxis

The Y axis or value axis (http://api.highcharts.com/highcharts#yAxis)

#### **Example for a Chart Widget**

The following example shows the widget *TicketsIn View* and explains the logic of the associated Admin Tool script *ticketsIn ViewDataWidget.groovy*. For the entire script, please see the code block above. Here, the lines of code are set in relation to the GUI elements which they configure.





#### **Attributes for Table Widgets**

Table widgets use the Datatables library.

The attributes can be set in the page customization or they can be set in the associated Admin Tool script. Please keep in mind that the script parameters always overwrite the respective attributes.

Attributes comprise:

- General attributes
- Datatables-specific attributes

#### **General attributes:**

localization

localized values, i.e -> "de: {subject:'Thema', yes:'Ja'}, en: {subject:'Subject', yes:'Yes'}"

• visible

defines if the widget is displayed, true or false.

#### Datatables-specific attributes:

• columns

Options which you can apply to the columns objects (http://datatables.net/reference/option/#Columns

) • data

Data (http://datatables.net/reference/option/#Data)

- localization
   localized values, i.e -> "de: {subject:'Thema', yes:'Ja'}, en: {subject:'Subject', yes:'Yes'}
- options

Options (http://datatables.net/reference/option/)

• visible

Indicates whether the widget is shown

#### Example for a Table Widget

The following demonstrates the basic principle of the implementation of a table widget based on the Datatables library.

Example Admin Tool Script for a Table Widget		
// provide some dummy data for display def rawdata = [		
[firstname:'Homer' , lastname:'Simpson' , title:'	Nuclear disaster' ,	level:'3' ,
hired:'25.03.1989'], [firstname:'Zaphod' , lastname:'Beeblebrox' , title:'	Progident of the Calaval	
hired: '12.09.1979'],	President of the Galaxy,	ievei. 0,
[firstname:'Sheldon' , lastname:'Cooper' , title:'	Mad scientist' ,	level:'321',
hired:'01.04.2006'],		
[firstname:'Robin' , lastname:'Scherbatsky', title:'	Anchorwoman',	level:'25' ,
hired:'10.09.2004'], [firstname:'Elmer' , lastname:'Fudd' , title:'	Duck hunter',	level:'1' ,
hired: '15.12.1962'],	buck nuncer ,	ievei i ,
[firstname:'Eric' , lastname:'Cartman' , title:'	Pupil',	level:'10' ,
hired:'23.02.1995'],		
_	Private investigator',	level:'111',
hired:'04.11.1932'], [firstname:'Wilma' , lastname:'Flintstone' , title:'	Housewife	level:'64' ,
hired:'07.01.1964'],	nousewile ,	ievei 04 ,
	Composer',	level:'12' ,
hired:'16.07.2001'],		
	Mother of dragons' ,	level:'238',
hired:'08.05.2010'],	Tomb Daidors!	lowol • 10201
[firstname:'Lara' , lastname:'Croft' , title:' hired:'10.12.1991'],	Tomb Raider',	level:'239',
	Archeologist',	level:'109',
hired:'08.06.1942']		
]		
<pre>// prepare the data for display   def tabledata = []</pre>		
rawdata.each { element ->		
tabledata.add("""		
<pre>{'firstname': '\${element['firstname']}',     'lastname' : '\${element['lastname']}',</pre>		
'jobtitle' : '\${element['title']}' ,		
<pre>'expertise': '\${element['level']}' ,</pre>		
<pre>'hiredate' : '\${element['hired']}' }</pre>		
нин)		
}		
<pre>// return the table information including the data return [</pre>		
"columns": """[		
{title: 'First name' , data: 'firstname'},		
<pre>{title: 'Last name' , data: 'lastname' },</pre>		
<pre>{title: 'Job title' , data: 'jobtitle' }, {title: 'Job title' }</pre>		
<pre>{title: 'Expertise level', data: 'expertise'}, {title: 'Hire date' , data: 'hiredate' }</pre>		
]""",		
"options": """{		
'order': []		
}""", 		
"data": "[\${tabledata.join(",")}]" as String ]		
3		

Show 10 💌 entri	es		Sea	rch:
First name	🔶 Last name	♦ Job title	Expertise level	🔶 Hire date
Homer	Simpson	Nuclear disaster	3	25.03.1989
Zaphod	Beeblebrox	President of the Galaxy	0	12.09.1979
Sheldon	Cooper	Mad scientist	321	01.04.2006
Robin	Scherbatsky	Anchorwoman	25	10.09.2004
Elmer	Fudd	Duck hunter	1	15.12.1962
Eric	Cartman	Pupil	10	23.02.1995
Mickey	Mouse	Private investigator	111	04.11.1932
Wilma	Flintstone	Housewife	64	07.01.1964
Charlie	Harper	Composer	12	16.07.2001
Daenerys	Targaryen	Mother of dragons	238	08.05.2010

In the Web Client, the table is displayed as follows (all other widgets have been set to invisible).

Fig. 9: ConSol\*CM Web Client - Web Client Dashboard with One Example Table Widget

#### Example for a Composed Dashboard

The Dashboards looks like this:

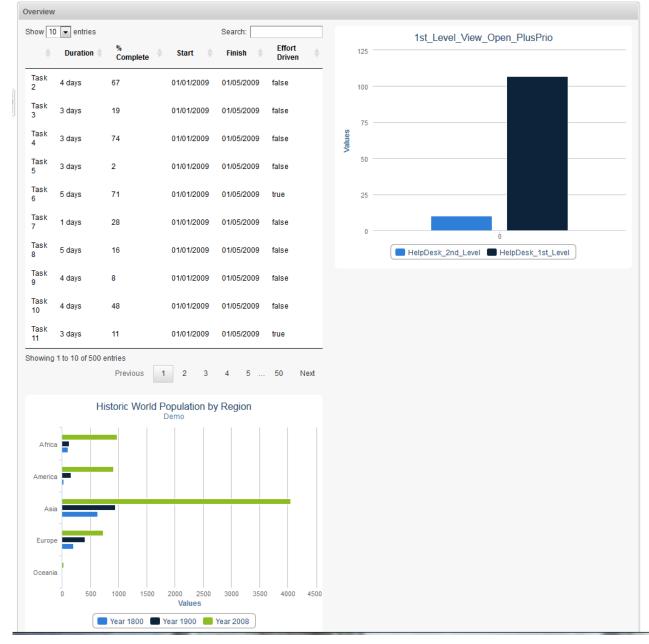


Fig. 10: ConSol\*CM Web Client - Example of Composed Dashboard

The page customization attribute widgetsGrid / welcomePage / layout is set as follows:

```
Layout Attribute for Composed Dashboard
[process:Table, escalation:Chart], [process:Table, null], [bar:Chart, null]
```



The page customization attributes subtree looks like this:

Fig. 11: ConSol\*CM Web Client - Example Page Customization Attributes Subtree

The table widget (named process) has an associated Admin Tool script:

tableWidget type	/welcomePage/process scope	TableWidgetCustomization className	configuration script: table	run with admin privileges:		A accordion ficketList     A welcomePage     C      TicketList     ficketList     A widgetsGrid
Define the properties of the table widget, context={viewld}						Image: Solution           Image: Solution
Attribute name		Description		Value		welcomePage

Fig. 12: ConSol\*CM Web Client - Configuration of Example Table Widget

The Admin Tool script (named *table*) for the table widget (named *process*):

```
Example Admin Tool Script Associated with Table Widget
def data = []
(1..500).each { i ->
 data.add("""
  { 'title': 'Task ${i+1}',
  'duration': '${Math.round(Math.random() * 5) + 1} days',
 'percentComplete': '${Math.round(Math.random() * 100)}',
  'start': '01/01/2009',
  'finish': '01/05/2009',
  'effortDriven': '${i % 5 == 0}'}
  """)
}
return [
"columns": """[
   {data: 'title'},
   {title: 'Duration', data: 'duration'},
    {title: '% Complete', data: 'percentComplete'},
    {title: 'Start', data: 'start'},
    {title: 'Finish', data: 'finish'},
    {title: 'Effort Driven', data: 'effortDriven'}]""",
"options": """{
    'order': []
    }""",
"data": "[${data.join(",")}]" as String
];
```

The first chart widget (named escalation) also has an associated Admin Tool script (named chart):

chartWi type	chartWidget /welcomePage/escalation chartWidgetCustomization configuration script: chart un with admin privileges:					└ कि <u>ticketList</u> - कि <u>widgetsGrid</u> └ कि <u>welcomePage</u>
Define the properties of the chart widget, context={viewld}						- A <u>tableWidget</u>
<u>Attribute</u> <u>name</u>		Description		Value		- ArtWidget BecomePage Becalation

Fig. 13: ConSol\*CM Web Client - Configuration of Example Chart Widget

The Admin Tool script for the first chart widget (upper right, named *escalation*):

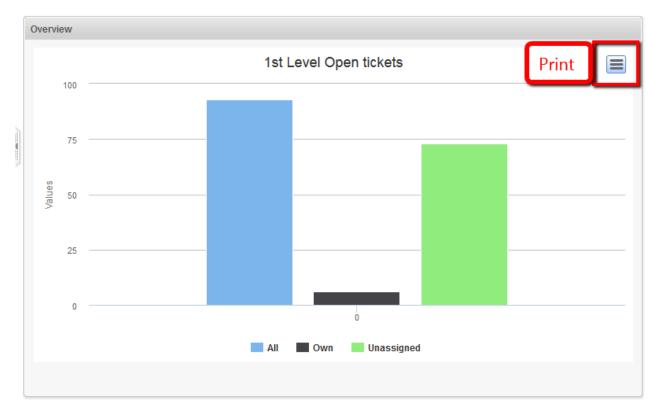
```
Example Admin Tool script Associated with Chart Widget
import com.consol.cmas.common.model.ticket.*;
import java.util.*;
import java.util.Map.Entry;
if (viewId == -1) {
 return [visible: 'false']
}
def view = viewService.getById(viewId);
TicketCriteria crt = new TicketCriteria();
crt.setStatus(view.name.toLowerCase() =~ 'close' ?
    TicketCriteria.Status.CLOSED : TicketCriteria.Status.OPEN);
tickets = ticketService.getByCriteria(crt);
def queues = [:]
tickets.each { ticket ->
 def qname = ticket.queue.name
 if (queues.containsKey(qname)) {
    queues[qname] = queues[qname] + 1
  } else {
    queues[qname] = 1
  }
}
def data = []
queues.each { entry ->
  data.add("{name: '$entry.key', data:[$entry.value]}")
}
return [series: "[${data.join(',')}]" as String, visible: 'true',
    chart: "{type: 'column'}", title: "{text: '${view.name}'}" as String];
```

The second chart widget (lower line, named *bar*) does not have an associated script. It is configured entirely by attributes using the page customization. The following values have been set:

Attribute	Value
chart	type:'bar'
credits	enabled: false
series	[{ name: 'Year 1800', data: [107, 31, 635, 203, 2] }, {name: 'Year 1900', data: [133, 156, 947, 408, 6]}, {name: 'Year 2008', data: [973, 914, 4054, 732, 34] }]

Attribute	Value
subtitle	text:'Demo'
title	text: 'Historic World Population by Region'
visible	true
xAxis	categories: ['Africa', 'America', 'Asia', 'Europe', 'Oceania'], title: {text: null}
yAxis	min: 0, title: {text: 'Population (millions)', align: 'high'}, labels: { overflow: 'justify'}

# 14.2.4 Print Functionality in the Web Client Dashboard



Starting with version 6.9.4.2, ConSol\*CM offers print functionality for Chart Widgets in the Web Client Dashboard. The print button opens the print dialog of the operation system.

Fig. 14: ConSol\*CM Web Client - Print Button in Web Client Dashboard

In order to disable the print functionality, i.e. to hide the button, set the page customization attribute *exporting* to the value *enabled:false*.

# 14.2.5 3D-Rendering for Graphics (Chart Widgets)

You can use 3D-rendering for chart widgets. The following library is used: http://api.highcharts.com /highcharts#chart.options3d.

For more information on the 3D implementation and concepts of the solution see http://www.highcharts.com /docs/chart-concepts/3d-charts.

#### A Caution:

Usage of this kind of rendering puts a rather heavy performance load on the browser. Please be sure that the client environments are capable of displaying these 3D charts when implementing them!

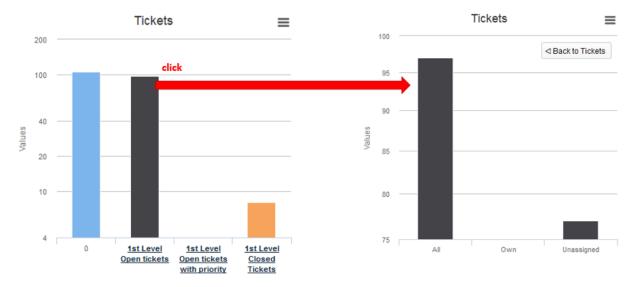
An example script for showing the default chart in a 3D view is listed below. It sets the 3D options in the return value of the script. The additional options in comparison to the standard script are highlighted.

```
import com.consol.cmas.common.model.ticket.*;
import com.consol.cmas.common.model.ticket.view.*;
import java.util.*;
import java.util.Map.Entry;
if (viewId == -1) {
   return [visible: 'false']
}
def engineerLocale = engineerService.getCurrentLocale()
def view = viewService.getById(viewId)
def viewName = localizationService.getLocalizedProperty(View.class, "name", viewId,
engineerLocale)
ViewCriteria allCriteria = new ViewCriteria(view,
         ViewAssignmentParameter.allTickets(),
         ViewGroupParameter.allTickets(),
        new ViewOrderParameter())
def allTickets = ticketService.getIdsByView(allCriteria)
ViewCriteria ownCriteria = new ViewCriteria(view,
         ViewAssignmentParameter.allTickets(engineerService.getCurrent()),
         ViewGroupParameter.onlyOwnTickets(),
         new ViewOrderParameter())
def ownTickets = ticketService.getIdsByView(ownCriteria)
ViewCriteria unassignedCriteria = new ViewCriteria(view,
         ViewAssignmentParameter.allUnassignedTickets(),
         ViewGroupParameter.onlyUnassignedTickets(),
         new ViewOrderParameter())
def unassignedTickets = ticketService.getIdsByView(unassignedCriteria)
def data = []
data.add("{name: _('all'), data:[${allTickets.size()}]}" as String)
data.add("{name: _('own'), data:[${ownTickets.size()}]}" as String)
data.add("{name: _('unassigned'), data:[${unassignedTickets.size()}]}" as String)
return [series: "[${data.join(',')}]" as String,
     visible: 'true',
    chart: "{type: 'column',
              options3d: {enabled: 'true', alpha: '15', beta: '15', depth: '50',
                          viewDistance: '25'}}",
    plotOptions: "{column: {depth: '25'}}",
    title: "{text: '${viewName}'}" as String,
    tooltip:"{headerFormat:''}" ,
    localization: "de: {all:'Alle', own:'Eigene', unassigned:'Nicht zugewiesene'},"
                + "en: {all:'All', own:'Own', unassigned: 'Unassigned'}"];
```

## 14.2.6 Drilldown Functionality for Graphics (Chart Widgets)

ConSol\*CM offers basic drilldown functionality for charts in the Dashboard. The page customization attribute *drilldown* can be used for general settings. The following library is used: http://api.highcharts.com /highcharts#drilldown

However, to be reasonably used by this functionality the data script should be extended, too. The data in the return script needs to be extended with the data shown in the drilldown. These additional data must be referenced with the data they extend. For a description of the concepts see the highcharts documentation: http://www.highcharts.com/docs/chart-concepts/drilldown The effect is that a second level of data can be shown in the same chart when clicking on a subset. In the left screenshot the columns are clickable and the column name labels are links. After clicking on either a detail view of this subset is shown, illustrated by the right screenshot.



#### Fig. 15: ConSol\*CM Web Client - Drilldown Functionality in Chart Widgets

The color of the columns in the detail view is the color of the selected subset in the main view. The detail view also displays a back button on the upper left side of the chart. The following data script dynamically provides the data for this drilldown.

```
import com.consol.cmas.common.model.ticket.*;
import com.consol.cmas.common.model.ticket.view.*;
import java.util.*;
import java.util.Map.Entry;
if (viewId == -1) {
    return [visible: 'false']
}
def engineerLocale = engineerService.getCurrentLocale()
def views = []
def seriesdata = []
def drilldownseries = []
def allTicketsCounter = 0
views = viewService.getByEngineer(engineerService.getCurrent())
for (view in views){
    def viewName = localizationService.getLocalizedProperty(View.class,
           "name",
           view.getId(),
           engineerLocale)
    ViewCriteria allCriteria = new ViewCriteria(view,
           ViewAssignmentParameter.allTickets(),
          ViewGroupParameter.allTickets(),
           new ViewOrderParameter())
     def allTickets = ticketService.getIdsByView(allCriteria)
    ViewCriteria ownCriteria = new ViewCriteria(view,
           ViewAssignmentParameter.allTickets(engineerService.getCurrent()),
           ViewGroupParameter.onlyOwnTickets(),
           new ViewOrderParameter())
```

```
def ownTickets = ticketService.getIdsByView(ownCriteria)
    ViewCriteria unassignedCriteria = new ViewCriteria(view,
           ViewAssignmentParameter.allUnassignedTickets(),
           ViewGroupParameter.onlyUnassignedTickets(),
           new ViewOrderParameter())
    def unassignedTickets = ticketService.getIdsByView(unassignedCriteria)
    seriesdata.add("{name: '${viewName}',
           y: ${allTickets.size()},
           drilldown: '${view.getName()}'}")
    def data = []
    data.add("['All', ${allTickets.size()}]")
    data.add("['Own', ${ownTickets.size()}]")
    data.add("['Unassigned', ${unassignedTickets.size()}]")
    drilldownseries.add("{id: '${view.getName()}',
           data:[${data.join(',')}]}" as String)
    allTicketsCounter += allTickets.size()
}
return [series: "[{name: 'Tickets', colorByPoint: true,
          data: [${allTicketsCounter}, ${seriesdata.join(',')}]}]" as String,
        drilldown: "{series: [${drilldownseries.join(',')}]}" as String,
        visible: 'true',
        chart: "{type: 'column'}",
       title: "{text: 'Tickets'}",
        xAxis: "{type: 'category'}",
        yAxis: "{type: 'linear'}",
        legend: "{enabled: false}"
];
```

# **15 Labels**

- Introduction
- Configuring Labels Using the Admin Tool

# **15.1 Introduction**

Starting with CM version 6.10, it is possible to manipulate labels which are displayed on the GUI, i.e. in the Web Client. In this way, you as an administrator can customize the graphical user interface according to your company's requirements concerning terminology and/or Corporate Design.

Currently, the configuration is possible for terms which concern the CM.Resource Pool. In future CM versions, more adaptations will be possible.

# **15.2 Configuring Labels Using the Admin Tool**

In the Admin Tool, labels are configured on the navigation item *Labels* in the navigation group *Global Configuration*.

Logged in: Susan Service	Desk •			
r Asset management T	ext templates Document templates		All customer groups	
Asset management	ConSel			
	Consol	↑ Cabels		0 📰 🗨
Web Client	A Home			
	Access and Roles	S Coluci Localization		Details
	Eists	😸 🛛 Key 🔺		Key: cmweb.rp.resource_pool.base
	Tickets	S cmweb.rp.resource		System: 🗸
	Lustomers	<ul> <li>cmweb.rp.resource</li> <li>cmweb.rp.resource</li> </ul>		Localizations
	Resources	cmweb.rp.resource	.to	Locale Value
	(=) Global Configuration	cmweb.rp.resource     cmweb.rp.resource		de Assetmanagement
		cmweb.rp.resource		en(default) Asset management
	C Languages			
	🛇 Labels			
	()) Queues			
	Projects			
	Business Calendars			
	Classes Of Text			
	⑦ Data Warehouse	*		
	Services	8		
	💟 E-Mail	*		
	0 <sup>8</sup> System			
	CM_Administration]			
	Admin Tool			

Fig. 1: ConSol\*CM Admin Tool - Label Configuration

The following labels are currently available:

Label	GUI location	
cmweb.rp.resource.base	Header for Resource Detail Page	
cmweb.rp.resource.new	Header on Create Resource form	
cmweb.rp.resource.plural	Expression for more than one resources, e.g. on Resource Pool Dashboard in <i>Search or create <u>Res</u> <u>ources</u> section or tab on Detailed Search page</i>	
cmweb.rp.resource.to	Entry in context menu which leads to resource, default <i>Jump to resource</i>	
cmweb.rp.resource_pool.base	Entry in main menu	
cmweb.rp.resource_relation.base	Expression for resource relation	

Label	GUI location
cmweb.rp.resource_type.base	Expression for Resource Type, e.g. on Detail Search page for resources

# **16 Customer Data Model Section**

ConSol® CM6			ជ 💽 🌖
A Home	*	Data Models	
Access and Roles	۲	Customer data models Customer data model details	
Lists	8	Company	
2 Customers	۲	Company ap outcomer	
Lata Models	- 11	Company to Concern to Company to	
Actions		□         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □         □	* *
Relations		Company Data     Company Data     Company Data     Company ServiceContractData	
Resources	*	ReselerCompanyInternalResp     ReselerCompanyInternalResp     ReselerCustomer     ReselerCustomerData     T	
<ul> <li>Global Configuration</li> <li>Data Warehouse</li> </ul>	*		
Services	8	Assigned annotations	
E-Mail	8	Name 🔺 Value Annotation group Customer groups	
<b>o</b> ⁰ System	8	Name Reseler	
	Ŧ		

# Customer Data Model (FlexCDM)

In this section, you learn how to set-up and manage the Flexible ConSol\*CM Customer Data Model, FlexCDM and all related topics. The following subjects are explained:

- The CM Customer Data Model: FlexCDM
  - Introduction to FlexCDM
  - A Short Introduction to FlexCDM-Specific Web Client Functionalities
  - Setting Up the Customer Data Model
  - Data Object Group Field Management and GUI Design
  - Templates for Customer Data
- Managing Customer Groups
- Customer Roles
- Customer Relations
- Action Framework Data Object Actions
- Address Autocomplete

# 17 ConSol CM Administrator Manual 6.10.2 - The CM Customer Data Model - FlexCDM

# 17.1 The CM Customer Data Model: FlexCDM

Starting with version 6.9, ConSol\*CM offers a very flexible and powerful customer administration based on the *FlexCDM*, the Flexible Customer Data Model.

In the following sections, all aspects of the new data model are explained.

- Introduction to FlexCDM
- A Short Introduction to FlexCDM-Specific Web Client Functionalities
- Setting Up the Customer Data Model
- Data Object Group Field Management and GUI Design
- Templates for Customer Data

# **17.2 Introduction to FlexCDM**

- FlexCDM at a Glance
  - Flexible Customer Data Model
- Introduction to FlexCDM Objects
  - Important Terms
- Management of FlexCDM Objects Using the Admin Tool

Because the customer data model *FlexCDM*, which has been introduced to ConSol\*CM with version 6.9, is rather complex and very powerful, a separate introduction chapter will help you to understand all the details.

# 17.2.1 FlexCDM at a Glance

## Flexible Customer Data Model

As the name *FlexCDM* suggests, the ConSol\*CM customer data model offers a very high degree of flexibility. Various **customer groups** can be defined, each with its particular data model.

In ConSol\*CM, we talk about **customers** to describe the general CM object. This can be either a company or a contact. A **company** represents an object on company level which will, in most cases, be a real company, a subsidiary, a division or some other organitazional unit on a higher level. It can also be a collection of products, a machine pool, or any other object which comprises sub-objects. A **contact** represents an object on contact level, i.e. on the lower level of the customer model. A contact will often be a real person but can also be a product, a machine or some other object.

Contacts as well as companies can be set as customer for a ticket.

There are different ways to configure customer data models for customer groups. Within a customer group, there might be ...

- a *contact* and a *company* level: then we talk about a **two-level customer model** (where a company can contain several contacts)
- only a *contact* or only a *company* level: then we talk about a **one-level customer model**

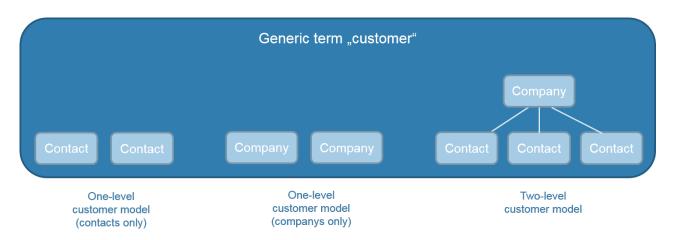


Fig. 1: Types of Customer Data Models in ConSol\*CM

For example, you could classify your customers in two customer groups:

#### 1. Resellers

With contact and company level.

#### 2. End customers

With contact level only.

You can configure as many customer data models as required. Every customer data model can be used for one or more customer groups.

A customer data model comprises the general model, i.e. the levels (contact and company or contact /company only) and all data fields for all components (e.g. name, address, and phone for a company or name, e-mail, and room number for a contact).

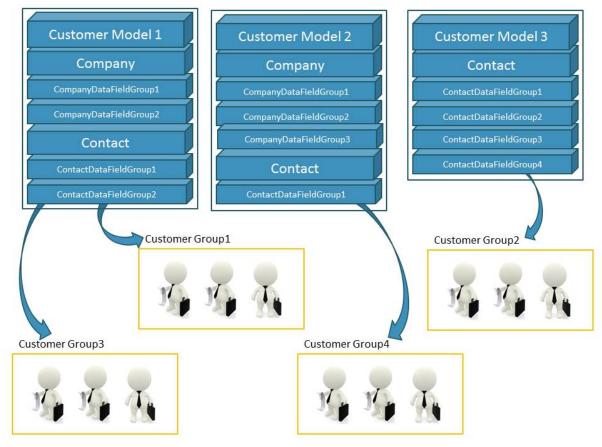


Fig. 2: ConSol\*CM FlexCDM - General Principle

#### Information:

#### For a two-level customer model:

The terms *company* and *contact* are used to indicate the hierarchical level of an object within FlexCDM. An object of type *company* does not necessarily have to be a real company, it can also be a town with several machines (contacts) located in this town, an organization with several subsidiaries (contacts), or even a technical unit (e.g. a ship) with several contacts in the unit. Similarly, an object of type *contact* does not necessarily have to be a person, it can also be a location, a machine, or anything else which should represent the contact level.

#### For a one-level customer model:

The customer objects in a one-level customer model are either of type contact or of type company.

For the customers which are managed by your ConSol\*CM system, the levels and names of all components entirely depend on the configuration of FlexCDM.

Using FlexCDM you can build different realms where each includes a specific customer group and the respective data and processes.

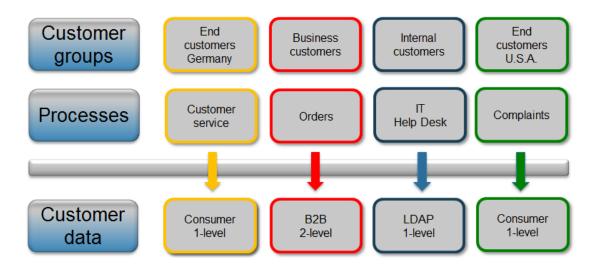


Fig. 3: ConSol\*CM FlexCDM - Customer Data Model

Please see section Setting Up the Customer Data Model for a detailed description of the customer management.

# **17.2.2 Introduction to FlexCDM Objects**

In this section, we will give you an overview of all objects which are relevant for the FlexCDM.

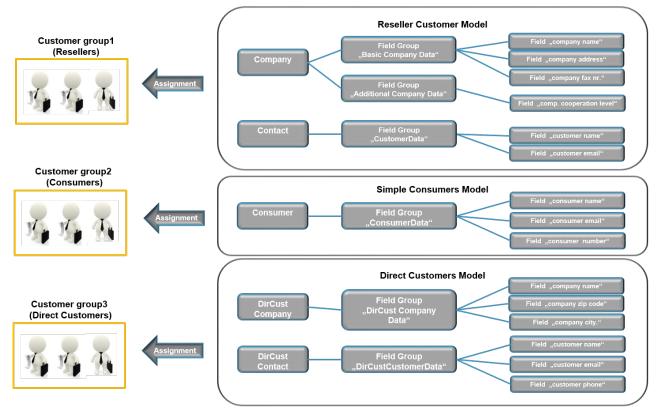


Fig. 4: ConSol\*CM FlexCDM - Example Configuration

# **Important Terms**

Here are some important terms for the FlexCDM:

Customer

General term for customer objects, can be of type contact or of type company.

Company

Data object of type *company*, company level.

• Contact

Data object of type *contact*, contact level.

• Customer group

A group of customers with a specific customer data model. The engineer permissions (via roles) for customer management are assigned based on customer groups.

• Data object

An object within the customer data model. The object type can be *customer* (often times a person) or *company*. The technical (Groovy) equivalent is an object of class *Unit*.

#### • Data object definition

All definitions pertaining to the unit. For a company these are e.g. all data object groups, all group annotations, and the assignment of all templates (for the display of customer data in the Web Client, not to be confused with other templates in ConSol\*CM!)

#### • Data object group

A group comprising one or more data field(s) (data object group fields), analog to a custom field group for ticket data. A data object group can be shown or hidden or it can be displayed as a tab in the (new) customer data group section.

#### • Data object group field

A single data field (types like custom field types) that can contain customer data, analog to custom fields when defining data fields for ticket data.

#### • Customer data model

The whole data model that can be assigned to a customer group. The data model can have:

- one level (only contact or only company)
- two levels (company and contact)

The customer data model also contains the definitions of data object groups and data object group fields.

#### Customer relations

Relations between a company and contacts or between companies or between contacts. All relations in their entirety represent the customer relations network.

# 17.2.3 Management of FlexCDM Objects Using the Admin Tool

In the Admin Tool, the new FlexCDM configuration options are to be found in the navigation group *Customers.* 

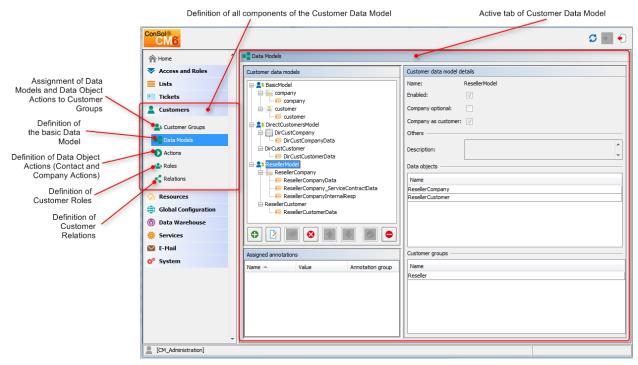


Fig. 5: ConSol\*CM Admin Tool - Customer Navigation Items Relevant in FlexCDM

Three tabs are relevant for the definition and management of the customer data model:

#### Customer groups

Assignment of the following components (which have to be defined beforehand) to a customer group (see section Managing Customer Groups for details).

- Customer Data Model
- Data Object Actions
- Search Actions
- CM.Phone configuration, if CM.Phone is active
- Data Models

Definition of the data models, i.e. definition of the data fields for customers (i.e. contacts and companies) and the GUI design (i.e. placing the data fields on the Web Client GUI). Please see sections Setting Up the Customer Data Model and GUI Design for details.

#### Actions

Definition of Data Object Actions, i.e. contact actions and company actions, please see section Action Framework - Data Object Actions for details.

Roles

Definition of Customer Roles, see section Customer Roles for details.

#### Relations

Definition of Data Object Relations, which represent references between customer (i.e. contact and company) objects, please see section Customer (Data Object) Relations for details. (Relations from Resources to customers have to be defined in the Resource Pool data model, they cannot be configured here.)

# 17.3 A Short Introduction to FlexCDM-Specific Web Client Functionalities

- Introduction
- Working with the ConSol\*CM Web Client with FlexCDM
  - Example 1: Selecting the Customer Group
  - Example 2: Creating a New Company and Contact
  - Example 3: Using Company and Contact Page
    - Company Page
    - Contact Page
  - Example 4: Setting a Company as Main Customer of a Ticket
  - Example 5: Using Company and Contact Actions
  - Example 6: Setting Relations between Contacts and Companies
  - Example 7: Deactivate a Customer (i.e. a Company or a Contact)
  - Example 8: Using the Ticket Filters on Company or Contact Pages
    - Ticket Filter on Company Page
    - Ticket Filter on Contact Page
  - Example 9: Customer Group Displayed in Quick Search
  - Example 10: Using Search Actions for Company or Contact Data

# 17.3.1 Introduction

You as an administrator might wonder why a Web Client GUI introduction is provided in an administrator's manual. However, when you want to work with the new customer data model, the *FlexCDM*, you have to know the effects of all administration actions. And of course, those actions are visible in the Web Client. So in this section, we will take the role of an engineer and show several examples for the work with the new customer data model.

All configuration details which are required to understand the system's behavior will be explained in the corresponding sections of the manual.

# 17.3.2 Working with the ConSol\*CM Web Client with FlexCDM

# **Example 1: Selecting the Customer Group**

Provided that the engineers have access permissions for more than one customer group, they can **select the customer group** which should be used for certain operations using the *Customer Groups Filter*, a dropdown list in the main menu. The name which is displayed is the localized name of the customer group.



Fig. 1: ConSol\*CM Web Client - Selecting a Customer Group

The selection influences the following actions:

- The quick search is performed only within the selected customer group.
- In the detail search, the criterion *customer group* is only offered when *All customer groups* has been selected in the drop-down menu. Otherwise the search uses implicitly only data from the selected customer group.
- In the detail search, only the search fields from the selected customer group are offered.
- When a ticket is created, only the selected customer group is offered (implicitly) when a company and /or contact should be created in-line.
- A ticket can be created only in queues for which the selected customer group has been assigned.
- In the ticket list, only views are available which contain tickets from queues for which the selected customer group has been assigned.
- Please note that the Page Customization attribute hiddenCustomerGroups can influence the list of customer groups in the Customer Groups Filter. See section Page Customization, hiddenCustomerGroups for details.

# **Example 2: Creating a New Company and Contact**

In case engineers have access to several customer groups (and have selected *All customer groups* in the main menu, see example 1), they can **select the customer group when a new ticket is created** and a contact/company should be created in-line. This also depends on the selected queue. Only the customer groups which are assigned to the selected queue are available. In case the option *All customer groups* has been selected in the drop-down menu, one tab is visible for the customer data of each customer group and the engineer can select the desired group.

Company			
Company	MyNewInformationCompany		*
	Additional company data		
Search name	Short name		
Address	Street		
	Zip code	City	
	Choose One		
Internet	WWW		
Phone	Phone		
Fax	Fax		
Version	Choose One	Support	
Reaction time	Choose One		
Sales member	Choose One		
Operation	comment_field		

Fig. 2: ConSol\*CM Web Client - Creating a New Company within a Customer Group

# **Example 3: Using Company and Contact Page**

Provided there is a two-level customer data model (company and contact) there is **a separate company and a contact page**. On both pages, you can *add comments* and *attach files*. Those operations are then also visible in the history of the company (resp. contact) page.

For the company and for the contact object, icons can be defined for each customer data model which improves the usability.

#### **Company Page**

Company	/						Activities
	MyNew SpaceCompany	999 🔻 Reseller					(Re-)Check service status of the company
	Groups					Edit 🔨	Create new Help Desk ticket
	ResellerCompanyDa	ta Service Contract Da	ata Internal resp	onsibilities			Go to AM ticket
			internation				
	Mrs. Miller Mrs. Schwartz						Workspace
	into: contrarte						Workspace is empty All your unsaved tasks are
	Tickets (7)					~	automatically listed in this
	Open tickets of contact	s 🔻					workspace.
	Add/Remove column 'Engineer', 'Main Customer', V OK Number per page 10 V						
							Favorites
	Engineer	Main Custom	er	Name	Subject		OpenTicketsAUSTR
	ServiceDesk, Susan	🔔 Minnie Mouse		00259	Login in ERP-System not possible!		Service request
	ServiceDesk, Susan	Skywalker,Le	a	0 100286	New Invoice Feb 2015		
	Huber, Harald	🙎 Peter Dierma	ı	SUP-91	AT: NPE when copying roles		
	ServiceDesk, Susan	Skywalker,Lu	ke	100263	Question about Order #4711		
		Skywalker,Lu	ke	00267	Question concerning delivery July 2014		
		Skywalker,Lu	ke	<b>62</b> 100260	Sell a printer to each special end custome	er	
		Skywalker,Lu	ke	100293	Test Eskalation 1		
	Contacts (1)					Add 🔨	
	Add/Remove column 'Co	ontact'	- ОК			Number per page 10 💌	
	Contact						
	Skywalker,Luke						
	Additional details (2)					Comment Attachments	
	Comments	Attachments					
	New						
	Click here to add a com	nent					
	List of comments						
	List or comments						
						Number per page 10 💌	
	Date	Added by Cor	nment			Actions	
		•				Apply filters Clear filters	
	3/2/15 09:24	ServiceDesk, Susan My f	avorite company!			×	
		, coouriny i					
	Relations (1)					Add 🔺	
		CUSTOMERS relation (Direc		act)		Number per page 40 -	
	Add/Remove column Cor	ntact'	- OK			Number per page 10 💌	
	Contact	Date	Note			Actions	
	Mr. Sample	7/21/14 15:29	Dieser Wiederverkä	iufer verkauft an Endi	sunden Edit	×	

Fig. 3: ConSol\*CM Web Client - Top Section of Company Page

	History
3/2/15	09:24 changed by Susan ServiceDesk
	Attachment CM6-Release-Notes-6.9.4.pdf added
	Comment added: My favorite company!
8/19/14	15:55 - 16:37 changed by Susan ServiceDesk
	Relation removed: Testrelation ConSol Düsseldorf 4711
	Relation note for: Testrelation ConSol Düsseldorf 4711
	Relation note for: Reseller SELLS TO END CUSTOMERS relation Mr. Sample
	Relation added: Testrelation ConSol Düsseldorf 4711
	Relation note for: Reseller SELLS TO END CUSTOMERS relation Mr. Sample
	Relation note for: Reseller SELLS TO END CUSTOMERS relation Mr. Sample
7/21/14	15:25 - 15:29 changed by Susan ServiceDesk
	Relation added: Reseller SELLS TO END CUSTOMERS relation Mr. Sample
	Relation removed: Reseller SELLS TO END CUSTOMERS relation Mr. Sample
5/5/14	15:10 - 15:51 changed by Susan ServiceDesk
	Relation added: Reseller SELLS TO END CUSTOMERS relation Mr. Sample
	Relation removed: Reseller SELLS TO END CUSTOMERS relation Mr. Sample
3/7/14	15:41 changed by Harald Huber
	Relation added: Reseller SELLS TO END CUSTOMERS relation Mr. Sample
3/5/14	15:51 changed by Harald Huber
3/5/14	15:51 changed by Harald Huber = salesRep set to Mrs. Schwartz
3/5/14	
3/5/14	= salesRep set to Mrs. Schwartz
3/5/14	<ul> <li>salesRep set to Mrs. Schwartz</li> <li>Assistance/Office set to Mrs. Miller</li> </ul>
	<ul> <li>salesRep set to Mrs. Schwartz</li> <li>Assistance/Office set to Mrs. Miller</li> <li>Contract start set to 3/2/14</li> </ul>
	<ul> <li>salesRep set to Mrs. Schwartz</li> <li>Assistance/Office set to Mrs. Miller</li> <li>Contract start set to 3/2/14</li> <li>Service level set to Gold</li> </ul>
	salesRep set to Mrs. Schwartz     Assistance/Office set to Mrs. Miller     Contract start set to 3/2/14     Service level set to Gold 11:50 - 11:51 changed by Harald Huber
	salesRep set to Mrs. Schwartz     Assistance/Office set to Mrs. Miller     Contract start set to 32/14     Service level set to Gold  11:50 - 11:51 changed by Harald Huber     address changed from likyway 77 to Milkyway 77
	<ul> <li>salesRep set to Mrs. Schwartz</li> <li>Assistance/Office set to Mrs. Miller</li> <li>Contract start set to 3/2/14</li> <li>Service level set to Gold</li> </ul> 11:50 - 11:51 changed by Harald Huber <ul> <li>address changed from Byway 77 to Milkyway 77</li> <li>phone_frontdesk set to 123</li> </ul>
	<ul> <li>salesRep set to Mrs. Schwartz</li> <li>Assistance/Office set to Mrs. Miller</li> <li>Contract start set to 3/2/14</li> <li>Service level set to Gold</li> <li>11:50 - 11:51 changed by Harald Huber</li> <li>address changed from Bkyway 77 to Milkyway 77</li> <li>phone_frontdesk set to 123</li> <li>country set to Unknown</li> </ul>
	<ul> <li>salesRep set to Mrs. Schwartz</li> <li>Assistance/Office set to Mrs. Miller</li> <li>Contract start set to 3/2/14</li> <li>Service level set to Gold</li> </ul> 11:50 - 11:51 changed by Harald Huber <ul> <li>address changed from Byway 77 to Milkyway 77</li> <li>phone_frontdesk set to 123</li> <li>country set to Unknown</li> <li>zip set to 7777</li> </ul>
	<ul> <li>salesRep set to Mrs. Schwartz</li> <li>Assistance/Office set to Mrs. Miller</li> <li>Contract start set to 32/14</li> <li>Service level set to Gold</li> </ul> 11:50 - 11:51 changed by Harald Huber <ul> <li>address changed from Byway 77 to Milkyway 77</li> <li>phone_frontdesk set to 123</li> <li>country set to Unknown</li> <li>zip set to T777</li> <li>address set to ilkyway 77</li> </ul>

Fig. 4: ConSol\*CM Web Client - Bottom Section of Company Page

The Company page contains the following sections:

#### • Company data

company data like address, phone number, service data (i.e. the data object group fields you have defined in the Customer Data Model). All company data might be placed in the ticket section or there might be one or more tabs in the *Groups* section.

#### • Tickets

All tickets for the company are listed in this section. Starting with version 6.9, it is possible to assign a ticket to a company directly. In the customer data model the option *Company as customer* has to be set to activate this functionality.

#### Contacts

This section shows a list of all contacts belonging to this company. Click on a contact name to open the contact page.

#### Additional details

There are two tabs:

#### Comments

Here, all comments concerning this company are listed.

• Attachments

All attachments of the company are listed here. The list of attachments can be filtered or sorted based on file type, name, description, date, or engineer.

#### Relations

Here, all relations to and from this company are listed.

#### • History

In this section, all actions which have been performed with this company object are listed, e.g. the change of a name or any other value of one of the data object group fields.

Please refer to the ConSol\*CM User Manual for a detailed introduction of how to work with companies.

#### **Contact Page**

Contact						Activities
0	Skywalker Luke 🔻 Re	eseller				(Re-)Check service status of the company
	luke@starship.com 123 no					Create new Help Desk ticket
	luke					
	MyNewSpaceCo	ompany 999 💌				Workspace
						Workspace is empty All your unsaved tasks are
	Tickets (8)				~	automatically listed in this workspace.
	All tickets 🔻				Number per page 10 💌	
	Add/Remove column 'Er	ngineer', 'Name',	*	OK	Number per page 10 +	Favorites
	Engineer	Name	<b>a</b>	Subject		OpenTicketsAUSTR
	ServiceDesk, Susan	[6] 100		Login in ERP-System not possible!		Service request
	ServiceDesk, Susan		286	New Invoice Feb 2015		Scriec request
	Huber, Harald	sui		AT: NPE when copying roles		
	ServiceDesk, Susan	I 100		Question about Order #4711		
	Connococia, Cucan	100		Task - Child of Ticket 100263 : Bitte um Bestellung kümmern		
		100		Question concerning delivery July 2014		
		☑ 100		Sell a printer to each special end customer		
		100		Test Eskalation 1		
	Additional details (2)				Comment Attachments	
	Comments	Attachments				
	New					
	Click here to add a com	ment				
	List of comments					
					Number per page 10 👻	
	Date	Added by	Comment		Actions	
		-			Apply filters Clear filters	
	3/2/15 09:39	ServiceDesk, Susan	Rewarel Profe	ssional ledi	× ×	
	0.210 00.00	oor noob ook, oaban	2011010.11010			
	No relations				Add 🖍	
	SalesRep (MyCustome	rGroup) (Contact)				
	No relations available.					
	History				~	
3/2/15	09:37 - 09:40 changed by		addad			
	<ul> <li>Attachment CM6-Re</li> <li>Comment added: Be</li> </ul>					
	Comment Reward Dr					

Fig. 5: ConSol\*CM Web Client - Contact Page

These are the sections on the *Contact* page:

- Contact data
  - contact data like address, phone number, service data (i.e. the data object group fields you have defined in the Customer Data Model). All contact data might be placed in the ticket section or there might be one or more tabs in the *Groups* section.
- Tickets

All tickets for the contact are listed in this section.

• Additional details

There are two tabs:

Comments

Here, all comments concerning this contact are listed.

• Attachments

All attachments of the contact are listed here. The list of attachments can be filtered or sorted based on file type, name, description, date, or engineer.

#### Relations

Here, all relations to and from this contact are listed, e.g. if the contact has a relation to a certain resource like a laptop to represent an employee's working environment.

#### • History

In this section, all actions which have been performed with this contact object are listed, e.g. the change of a name or any other value of one of the data object group fields, or adding/removing relations, comments or attachments.

Please refer to the ConSol\*CM User Manual for a detailed introduction of how to work with contacts.

# Attention: Please keep in mind that only engineers who have at least one role with the following access permissions for the respective customer group are allowed to access the *Additional details* section of tickets: Details read Details write Details delete

# Example 4: Setting a Company as Main Customer of a Ticket

If the configuration option *Company as customer* has been set for a customer data model, a **company can be used as main customer** for a ticket.

Ticket		Edit Clone Print	Workflow activities
©°	ServiceDesk   Work in progress		Work on ticket
100307	Assigned to ServiceDesk, Susan   Open since 10/27/14 12:10 PM		Workspace
	Priority normal Ask for feedback no Desired deadline 10/22/14 12:00 AM Continent America		Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Groups	Edit 🔨	
	Conversations/Meetings Orders Open Customer Tickets on Create Date		Favorites
			OpenTicketsAUSTR
	Customers (1)	Add 🗛	Service request
	Main		
	MyNewSpaceCompany 999 🔻 Reseller		
	No engineers	Add 🗛	
	No relations	Add 🗛	
	History Comment E-Mail Attachm	nent   Time booking   🔺	
	Display communication 💌 Sorting latest first 💌		
	Add comment, e-mail or attachment		
2			
1 minute			
	Please call customer at 3 p.m 4 p.m.		

Fig. 6: ConSol\*CM Web Client - Using the Company as Main Customer for a Ticket

# **Example 5: Using Company and Contact Actions**

For companies and contacts, manual and automatic actions can be defined.

**Manual actions** are triggered using links in the Web Client, very similar to workflow actions (activities) for tickets. In this way, actions concerning the company or the contact data can be performed which are independent of ticket data. For example, an engineer can load the KPIs of the last month for the company, create a new contact within the company (see following figure), or can update the contact data from another database, or create a ticket for the contact (see figure after next).

**Automatic actions** can be performed when a system action takes place (create/update/delete of a customer). The company and contact actions are based on the *Action Framework*.

Service level Gold   Contract start 3/2/14     Tickets (1)     All tickets *   Add/Remove column 'Engineer', 'Main Customer', * OK     Number per page 10 *     Engineer   Main Customer   ServiceDesk, Susan   MyNewSpaceCompany 999   100307   Question about last invoice     Ok     Number per page 10 *     Add/Remove column 'Contact'     OK     Number per page 10 *	Company	MyNewSpaceCompany 999 🔻 Reseller Groups	al responsibilities	Edit 🖍	Activities (Re-)Check service status of the company Create new Help Desk ticket Go to AM ticket
Engineer     Main Customer     Name     Subject       ServiceDesk, Susan <ul> <li>MyNewSpaceCompany 999</li> <li>100307</li> <li>Question about last invoice</li> <li>Service request</li> <li>Add </li> <li>Add </li></ul>		Contract start 3/2/14 Tickets (1) All tickets 💌	Ж		Workspace is empty All your unsaved tasks are automatically listed in this workspace.
		ServiceDesk, Susan Jacob MyNewSpaceCompany 999 Contacts (1)	<b>2</b> 100307	Question about last invoice	<u> </u>

Fig. 7: ConSol\*CM Web Client - Manual Company Actions

Contact	Skywalker Luke V Resell luke@starship.com 123 no luke	er		Activities (Re-)Check service status of the company Create new Help Desk ticket
	MyNewSpaceComp	any 999 🔻		Workspace Workspace is empty All your unsaved tasks are
	Tickets (8)		•	automatically listed in this workspace.
		and Manual	Number per page 10 v	
	Add/Remove column Engine	er, Name,	▼ OK Number per page 10 ▼	Favorites
	Engineer	Name	Subject	OpenTicketsAUSTR
	ServiceDesk, Susan	100259	Login in ERP-System not possible!	Service request
	ServiceDesk, Susan	00286	New Invoice Feb 2015	
	Huber, Harald	SUP-91	AT: NPE when copying roles	
	ServiceDesk, Susan	100263	Question about Order #4711	

Fig. 8: ConSol\*CM Web Client - Manual Contact Action

#### **Attention:**

Please keep in mind that only engineers who have at least one role with the following access permissions for the respective customer group are allowed to use the customer actions, i.e. only then the *Activities* will be displayed in the Web Client:

• Act

## **Example 6: Setting Relations between Contacts and Companies**

When you work with several customer groups it can be important to establish **relations between contacts and/or companies**. For example, your ConSol\*CM system can then represent a reference *sells products to* ... between a company and a contact. Or a relation *is supervisor of* ... between two contacts. In this way, you can create a network of your companies and contacts which improves *Customer Relationship Management* (CRM) functionalities.

In the Web Client, relations between companies and/or contacts are established and displayed similar to ticket relations. In the example, *MyNewSpaceCompany* sells products to the end customer *Mr. Sample*.



Fig. 9: ConSol\*CM Web Client - Establishing a Company-Contact Relation

Relations			Add H
Reseller SELLS TO END CUS	TOMERS relation (DirectCustomers) (Contact)		
Add/Remove column 'Custo	omer name'   OK		Number per page 10
Add/itemove columni Cusic			
	,		
Date	Customer name	Note	Actions

Fig. 10: ConSol\*CM Web Client - Display of Company-Contact Relation

# Example 7: Deactivate a Customer (i.e. a Company or a Contact)

A customer, i.e. **a company or a contact**, **can be deactivated**. This feature might be useful when a contract with a company is no longer valid or when an employee (= contact) has left the company. In this way, the tickets can be kept and retrieved under the *old* contact/company name, but it is not possible to create new tickets for this customer. In case the customer has to be deleted, all of its tickets (open and closed) have to be moved. In that case, the former contact-ticket or company-ticket relation is not as easy to find.

The contact or company can only be deactivated if no open tickets are assigned to this contact or company.

Please keep in mind that only engineers who have at least one role with the following access permissions for the respective customer group are allowed to to deactivate (and reactivate) companies and contacts, i.e. only then the *Deactivate/Activate* menu items will be displayed in the Web Client:

• Deactivate/activate

Contact	
	Mrs Lea Skywalker VyCustomerGroup Starship Operator D lea@localhost Office 1: Special Forces Deactivate MySpaceCompan Company MySpa Address Milkyway 77 7777 Alderaan
	Tiskota (0)

Fig. 11: ConSol\*CM Web Client - Deactivating a Contact

The following actions **can** be performed for a deactivated customer:

- Edit the customer data (e.g. name, address, phone).
- Delete the customer.
- Transfer the closed ticket to another customer.

The following actions **cannot** be performed for a deactivated customer:

- Create a new ticket.
- Assign a ticket to this customer.
- Assign a deactivated contact to another company.
- Assign contacts to a deactivated company.
- Search for the customer (deactivated contacts and companies are not shown in search results, except in the Detailed Search when the engineer specifically activated the checkbox "include deactivated customers").

#### Attention:

#### Deactivation in a two-level model

When a company (or more generally spoken: an object on company level) is deactivated, all assigned contacts are deactivated automatically.

There are two use cases:

- All contacts of the company can be deactivated (no open ticket assigned). In this case the company and all assigned contacts will be deactivated. Afterwards the company page will be reloaded, company and contact data are marked as deactivated.
- The company has still contacts which cannot be deactivated because of open tickets. Here, the deactivation of a company is not allowed. The *deactivated* option is not selectable.

#### Reactivation in a two-level model

In case a company is reactivated, the assigned contacts will **not** be reactivated **automatically**. They have to be reactivated **manually**.

# **Example 8: Using the Ticket Filters on Company or Contact Pages**

On the company and contact pages, ticket filters are available, i.e. **filter options** can be used to display selected tickets for the company or contact.

#### **Ticket Filter on Company Page**

Company	Activities
MySpaceCompany VyCustomerGroup Address Milkyway 77 7777 Alderaan	Create New Customer Open Web Site of Company
http://www.consol.de	Workspace
Tickets (1) All tickets  Add/Remo Closed tickets Company tickets Company tickets	Number per page 10 Vorkspace is empty All your unsaved tasks are automatically listed in this workspace.
Open tickets         Open tickets         In Customer         Name         Subject           ServiceDel         Open tickets of contacts         TySpaceCompany         If 100313         Printer still of 100313	does not work
Contacts (2)	Add Add
Add/Remove column 'Contact', 'First name'	Number per page 10 💌
Contact First name	
🚵 Max Miller Max	
🔝 Mia Skydiver Mia	

Fig. 12: ConSol\*CM Web Client - Ticket Filter on Company Page

#### Available options:

- Closed tickets Closed tickets where the company is the main customer or additional customer.
- **Company tickets** Tickets where the company is the main customer.
- Open tickets

Open tickets where the company is the main customer or additional customer.

• Open tickets of contacts

Open tickets of contacts of this company.

#### **Ticket Filter on Contact Page**



Fig. 13: ConSol\*CM Web Client - Ticket Filter on Contact Page

#### Available options:

Closed tickets

Closed tickets where the contact is the main customer or additional customer.

• Company tickets

Tickets where the company of the customer is the main customer or an additional customer.

Open tickets

Open tickets where the contact is the main customer or additional customer.

Own tickets

Tickets where the contact is the main customer.

# **Example 9: Customer Group Displayed in Quick Search**

The customer group is displayed for all search results in the list. The following notation is used:

<Localized name of data object group> (<localized name of customer group>)

	All customer groups 🔍 Sky
HelpDesk 1st Level	SUP-89 Oracle issue concerning Long column type
	SUP-91 AT: NPE when copying roles
	SUP-54 Admin-Tool: Error during creating queue (Oracle
	SUP-126 Exception when sending mail while changing engi
	SUP_118 Exception when no template is assigned to queue
MyCustomer (MyCustomerGroup)	Mia Skydiver
ResellerCustomer (Reseller)	Skywalker,Lea
	Skywalker,Luke
	Show all
	Create ticket
	Create customer
	Number ner nage 10 💌

Fig. 14: ConSol\*CM Web Client - Search Results for Quick Search

## **Example 10: Using Search Actions for Company or Contact Data**

See section Action Framework - Search Actions.

# 17.4 Setting Up the Customer Data Model

- Introduction to Setting Up the Customer Data Model Based on FlexCDM
- Managing Contacts and Companies Using the Admin Tool
  - Creating a New Two-Level Customer Data Model
    - Step 1: Create the Customer Data Model with the First Data Object
    - Step 2: Create Another Data Object
    - Step 3: Configuring the Parameters for the Defined Objects
      - Parameters for the Customer Data Model
        - Parameters for the Data Object
        - Parameters for the Data Object Group
  - Creating a New Customer Group Using the New Customer Data Model
  - Assigning Access Rights for Customer Groups with the New Model to Roles
  - Assign the New Customer Groups to Queues

# 17.4.1 Introduction to Setting Up the Customer Data Model Based on FlexCDM

With *FlexCDM* various customer data models can be implemented. Please refer to section Introduction to FlexCDM for a detailed introduction. To work with a new customer data model within a certain customer group, the following steps have to be performed:

1. Create a customer data model.

(This implies you have already decided if this should be a one- or a two-level data model. In this example, we will create a two-level model.)

- 2. Create a new customer group.
- 3. Assign the customer data model to the group.

A customer data model comprises objects on three model levels:

#### 1. The customer data model definition

2. The data objects within this model

A data object can be of one of two types:

a. Company

E.g. an institution, but can also be a machine, a ship, or anything else which represents the company level.

#### b. Contact

E.g. a person, but can also be a machine, a hardware device, a product, or anything else which represents the contact level.

If a company level is present, the contact is a sub-level of the company. For a simple customer data model, use only the contact object or only the company object.

#### 3. The Data Object Group Fields

These are the data fields for the data objects, i.e. either the Data Object Group Fields for company data (e.g. ZIP, address, phone) or the Data Object Group Fields for contact data (e.g. name, forename, e-mail address).

# 17.4.2 Managing Contacts and Companies Using the Admin Tool

To manage components of the Customer Data Model, use the items in the navigation group *Customers* in the Admin Tool. Open the navigation item *Data Models* to set up a new data model or to edit existing models.

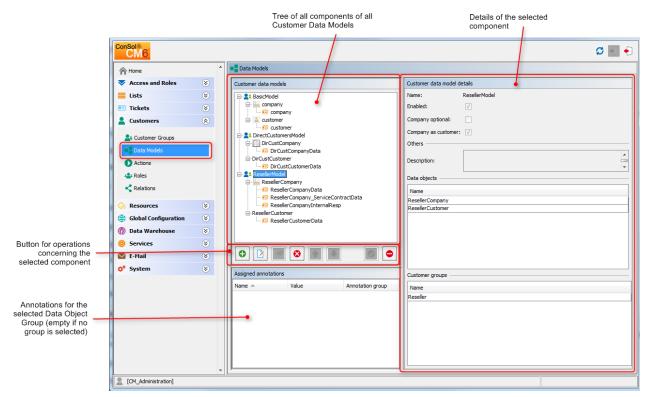


Fig. 1: ConSol\*CM Admin Tool - Customer Data Model Definiton

To explain how to work with the customer data model, we will walk you through an example in the next sections.

# **Creating a New Two-Level Customer Data Model**

To create a new customer data model you have to create the objects on all levels of the data model. In the following example, we will build a customer data model for reseller data. We will create a customer data model with a company and a contact object, i.e. we will have to create the following objects:

- the customer data model itself
- the company data object (1st level)
- the Data Object Group Fields for the company

- the contact data object (2nd level)
- the Data Object Group Fields for the contact

After having defined an object, the parameters for this object can be (or rather should be) configured.

#### Step 1: Create the Customer Data Model with the First Data Object

When you create a new customer data model, you have to add a data object and the respective Data Object Group Fields in one step.

To create a new customer data model, mark another customer data model (that way you select the level on which you want to work) and use the 🕑 button to open the pop-up window.

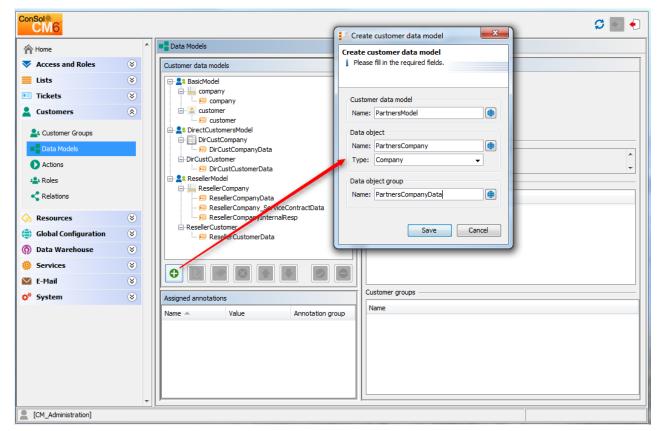


Fig. 2: ConSol\*CM Admin Tool - Creating a New Customer Data Model

You have to fill-in the following fields:

#### • Customer data model

Name

The name of the new customer data model. As usual in ConSol\*CM6, there is one (unique) technical object name. By using the 🗐 button you can open a pop-up window where you can enter the values for the name in various languages.

- Data object
  - Name

The unique technical name of the company/contact object, can also be localized using the button.

• Type

Select *Contact* or *Customer*. There can be only one company object and one contact object within one customer data model.

- Data Object Group
  - Name

The unique technical name of the first Data Object Group for company data within the defined data object. More Data Object Groups can be added later on.

#### Step 2: Create Another Data Object

In the next step, you have to add the contact object. Select the object *ResellerCompany* (to set the correct level for the following *Add* operation) and use the • button to open the pop-up window.

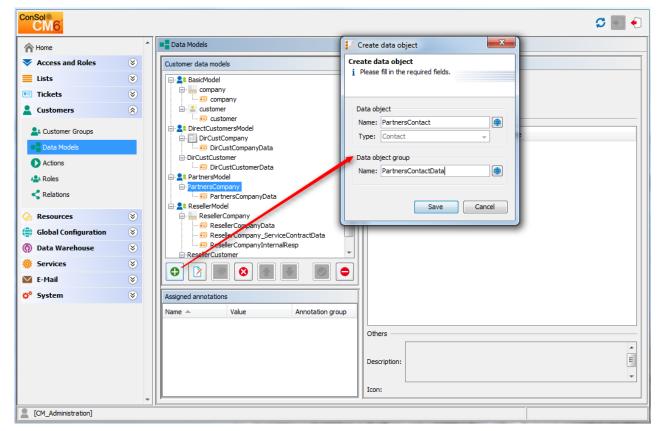


Fig. 3: ConSol\*CM Admin Tool - Adding a New Data Object

You have to fill-in the following fields:

- Data object
  - Name

The unique technical name of the contact object, can also be localized using the 🗐 button.

• Type

Here, *Contact* is pre-selected and cannot be modified, because a company object is already present in the customer data model.

- Data Object Group
  - Name

The unique technical name of the first Data Object Group for contact data within the defined data object. More Data Object Groups can be added later on.

#### Step 3: Configuring the Parameters for the Defined Objects

#### Parameters for the Customer Data Model

Double-click on the name of the customer data model (*ResellerModel* in our example) or mark the customer data model in the list and click on it to open the pop-up window where you can define the parameters for the model.

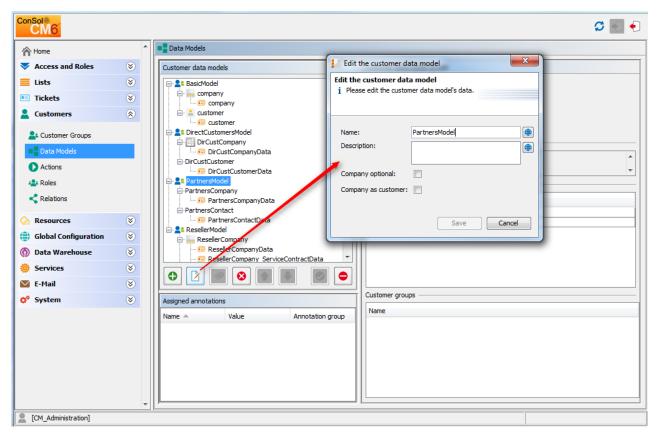


Fig. 4: ConSol\*CM Admin Tool - Parameters for a Customer Data Model

You can fill-in the following fields:

- Name
  - Check or modify the existing name of the model.
- Description

Optional description.

Company optional

If this check box is marked it is possible to add a contact to a ticket without the contact being part of a company. The company might be set later but it is not required. So here, you can enable the system to work with single contacts, even within a two-level customer data model.

• Company as customer

Mark this check box if it should be allowed to create tickets not only for contacts but also for companies within the model.

#### Parameters for the Data Object

Double-click on the name of a data object, e.g. the *PartnersCompany* or select the object and press the *Edit* button to open the pop-up menu where you can configure the parameters for this object.

ConSol*			📔 Edit data d	object		×
		-	Edit data obj	<b>iect</b> t the data object's data.		
A Home	^	Data Models	I Please eur	t the data object's data.		
Access and Roles	۲	Customer data models				
🗮 Lists	۲	BasicModel	Name:	PartnersCompany		
Tickets	۲	company	Description:			
Lustomers	۲	customer				
La Customer Groups		DirectCustomersModel				
Data Models		DirCustCompanyData	Type:	Company		
Actions		DirCustCustomer     DirCustCustomerData	Icon:			
4 Roles		PartnersModel	Templates:	Туре	Name	
Relations		PartnersCompanyData		Default	partner_company_default_template	
A Resources	8	PartnersContact     PartnersContactData	-	REST		
	<u> </u>			Dragged E-mail		
Global Configuration	۲	🖶 🐜 ResellerCompany		Quick Search		
💮 Data Warehouse	۲	ResellerCompanyData		Data object search result		
🙆 Services	8			Ticket search result Ticket page		
E-Mail	8			Ticket list	partner_company-ticketlist_template	
_	<u> </u>			Ticket relation		
💠 System	۲	Assigned annotations		Workspace and Favorites		
		Name A Value A		History		
				Suggestion CMPhone customer details		
				CMPhone customer list		
				Chenone customer list		
	-				Save	Cancel
CM_Administration]						

Fig. 5: ConSol\*CM Admin Tool - Parameters for a Data Object

You can fill-in the following fields:

• Name

The unique technical name of the data object with technical name and localized name(s).

• Description

The description of the data object. Will be used in future ConSol\*CM versions.

• Type

A read-only field which displays the type (contact or company) of the data object.

• Icon

The icon for all companies within this model. It will be displayed in the Web Client. You can either use one of the standard CM icons using the button ( ...) or upload an icon from the file system using the file explorer button  $\Xi$ .

Templates

The templates which are used to render the data of the data object, i.e. the templates which define the data fields that are displayed in the Web Client for objects of this type. There are various positions in the GUI for which the layout of the company or contact data can be defined. The templates are stored in the *Script and Template* section of the Admin Tool. Please see section Templates for Customer Data for a detailed explanation.

#### Parameters for the Data Object Group

Double-click on the name of the Data Object Group to change the technical and/or localized name(s) of the group.

To define the Data Object Group Fields, use the GUI elements on the right-hand side. In the following figure, an example for the definition of Data Object Group Fields for the *ResellerCompany* is shown. Here, only one Data Object Group (*ResellerCompanyData*) is used. You can use as many Data Object Groups in one data object as you consider suitable for your system.

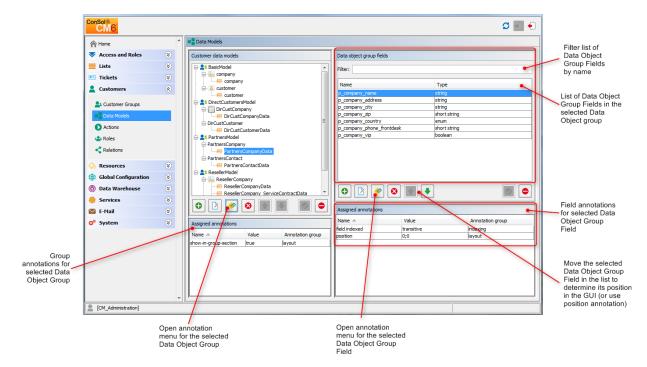


Fig. 6: ConSol\*CM Admin Tool - Parameters for the Data Object Group

The definition of Data Object Group Fields within customer data models is based on the same principles as the definition of custom fields for ticket data. For a detailed introduction to the definition and management of custom fields, please refer to sections Custom Field Administration and Data Object Group Field Management and GUI Design.

The available Data Object Group Field annotations are listed in section Appendix A (Annotations). The annotation *unit is a contact* is no longer in use, because the level of a unit (i.e. the company or contact) is defined by its unit type (*company* or *contact*).

#### Attention:

Please make sure that the annotation *field indexed* is set for all fields which should be searchable. This concerns the quick search, the detail search, and all auto-complete operations! See also section Search Configuration and Indexer Management.

Congratulations! When you have completed all the steps in the previous sections, you have created a new ConSol\*CM customer data model and can now go ahead to assign the model to one or more customer group(s).

# Creating a New Customer Group Using the New Customer Data Model

When the customer data model has been defined, it can now be assigned to one or more customer groups. In the example, we will create the new customer group *Resellers* which will use the new *ResellerModel*.

Use the navigation item *Customer Groups* in the navigation group *Customers* of the Admin Tool to create a new customer group and to assign the desired customer data model.

CM6 Admin-Tool @ cm6dd	alau contint	concol do	Create customer group
	oku-emi.inu	consolute	Create customer group
ConSol <sup>®</sup> CM6			i Please fill in the required fields.
A Home	^	La Customer Groups	
Access and Roles	۲	Customer groups	Name: OurPartnerCompanies
E Lists	۲	Filter:	Customer data model: PartnersModel
Tickets	۲	Name 🔺	Automatic Actions Manual Actions Search Actions CMPhone
Lustomers	۲	DirectCustomers	Contact Automatic Actions
La Customer Groups		MyCustomerGroup Reseller	Create:
Data Models	_		Update:
Actions			Delete:
Actions A Roles			Company Automatic Actions
< Relations			Create:
Relations			Update:
le Resources	۲		Delete:
Global Configuration	۲		
⑦ Data Warehouse	۲		
🔅 Services	۲		
🗹 E-Mail	۲		Save Cancel
🕫 System	۲		
			Fallback Phone Number Configuration
			Country prefix:
			Area prefix: Company prefix:
			Subscriber pattern:
			Internal pattern:
			Mobile pattern:
	-		
[CM_Administration]			
e			("

Fig. 7: ConSol\*CM Admin Tool - Definition of a New Customer Group

You can fill-in the following fields:

• Name

The unique technical name (and localized name) of the new customer group.

• Customer data model

Select the desired data model from the drop-down menu.

• Actions

Here, the customer actions can be defined. This will be explained in detail in section Action Framework - Data Object Actions.

For an engineer who has access permissions on four customer groups, the Web Client will look as shown in the following figure.

	Create Ne	ew Customer					
DirectCustomers MyCustomerGroup Partners Reseller							
PartnersCompany							
	0	Groups					
		PartnersCompanyData					
		Name					
		Address					
		City					
		ZIP					
		Country Choose One					
		Phone (frontdesk)					
		VIP					
		Create Cancel					
		PartnersContact					
	0	Track user					
		Create					
L							

Fig. 8: ConSol\*CM Web Client - Creating a New Company and Customer

# Assigning Access Rights for Customer Groups with the New Model to Roles

In order to let engineers work with customer data from the new customer group, i.e. to create new reseller data sets or to modify them, you have to grant access permissions for the user groups to one or more roles.

See section Permissions on Customer Groups.

## Assign the New Customer Groups to Queues

Please keep in mind that you have to assign the new customer group to all queues where tickets should be created for customers of this group. See section Queue Administration for details.

# 17.5 Data Object Group Field Management and GUI Design for Customer Data

- Introduction
- Defining Data Object Group Fields for Customer Data Using the Admin Tool
  - Admin Tool GUI
  - Data Object Groups
  - Data Object Group Field Definition
    - Labels for Data Object Group Fields
      - Label Mode after an Update from CM Version Prior to 6.9.4 to a Version 6.9.4 and Up
      - Default Mode for New Data Object Groups and Data Object Group Fields
- Scripting Using Objects from the FlexCDM
  - New Scripting Features Since ConSol\*CM Version 6.9
  - Extension of the Custom Field Expression Language (CFEL)
- Changes in Scripting from Consol\*CM Version 6.8 to Version 6.9
  - AbstractField
  - ActivityFormFieldsSet
  - ContentFile
  - ContentResource
  - FieldLogEntry
  - Ticket
  - TimerTrigger
  - Unit
  - New (Convenience) Methods
- New Objects in ConSol\*CM 6.9 and Up

# 17.5.1 Introduction

One feature of ConSol\*CM version 6.9 is the great flexibility as far as customer data model (*FlexCDM*) and GUI design are concerned. You as an administrator can define any data field (Data Object Group Field) which is required and place it on the user interface wherever it is suitable. The basic principle is now the same as the one you know for ticket Custom Fields: full flexibility.

The management of the ticket data model and GUI design is explained in section Custom Field Administration. The management of objects within the customer model is explained in section Setting Up the Customer Data Model. Please refer to those sections for a detailed explanation. In this chapter, we assume that you have a good knowledge of those topics.

# 17.5.2 Defining Data Object Group Fields for Customer Data Using the Admin Tool

# Admin Tool GUI

The data field definition for customer data is part of the definition of the entire customer data model, see section Setting Up the Customer Data Model. The data model is defined on the navigation item *Data Models* in the navigation group *Customers*, in the Admin Tool.

Data fields for data objects within the customer data model are called *Data Object Group Fields*. The work with Data Object Group Fields is based on the same principle as the work with ticket data fields (Custom Fields): data fields are managed in groups and the groups as well as the single fields can be annotated.

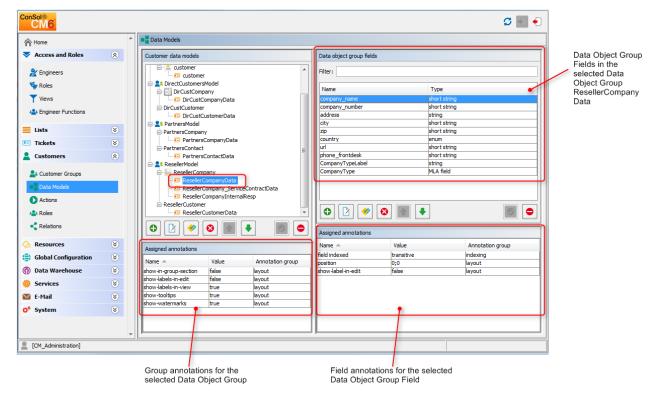


Fig. 1: ConSol\*CM Admin Tool - Definition of Data Object Group Fields

# **Data Object Groups**

Like the Custom Fields in previous versions, Data Object Group Fields are placed in groups, the *Data Object Groups*. Each data object within a customer data model can have as many Data Object Groups as required. For example, for a reseller company, there can be a Data Object Group for the general data, one for the contract data, and one for the persons who are responsible for this reseller. For contacts within the reseller data model, one Data Object Group with general data is defined.

Data object groups for Reseller company	ResellerCompany ResellerCompany ResellerCompany_ServiceContractData ResellerCompany_InternalResp ResellerCustomer ResellerCustomerData	Data object group for Reseller customer
--------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------

Fig. 2: ConSol\*CM Admin Tool - Customer Data Model with Several Data Object Groups

The organization of data fields in groups has several implications. Please keep them in mind to make sure your data model design meets the users' needs.

A Data Object Group ...

- can be faded in and out in the GUI during the process, but only the whole group, not single fields (= Data Object Group Fields) of it.
- can be displayed as tab or in the customer data section. The title (and mouse-over) of the tab is the (localized) name of the Data Object Group.
- is configured by the group annotations.
- is placed on the GUI based on its position in the Data Object Group list (defines e.g. the order of tabs).

Company		Display 🔻
MyNe MyNe	wSpaceCompany 999 V Reseller	
Grou		Edit Hide
Re	sellerCompanyData Service Contract D Internal responsibilities	
Mill	NewSpaceCompany 999 kyway 77 Alderaan 7777 known 3	

Fig. 3: ConSol\*CM Web Client - Company Data Organized in Tabs (Based on Data Object Groups)

# **Data Object Group Field Definition**

The definition of Data Object Group Fields (i.e. data fields like *name*, *address*, or *phone number*) is based on the principle which has been used for Custom Fields in previous ConSol\*CM versions.

A Data Object Group Field ...

- is defined by a data type.
- is configured using Custom Field annotations (e.g. *position* or *field-indexed*), see Annotations.

In contrast to Custom Fields and ticket layout where you can use three columns for data fields, you can use as many data field columns as you like for the definition of Data Object Group Fields.

#### Labels for Data Object Group Fields

In CM versions prior to 6.9.4, the labels for Data Object Group Fields (e.g. name, address) are displayed in the Web Client as watermarks per default. If a distinct label is required, a separate Data Object Group Field of type *string* with the annotation *text-type* = *label* has to be used, as shown in the following figures.

New customer										
O Direc	🖸 DirectCustomers 🛛 🔛 MyCustomerGroup									
	ResellerCompany									
<u>w</u>	Groups									
	ResellerCompanyData	Service Contract Data	Internal responsibilities							
	company_name		company_number							
	address	city	zip							
	Choose One	URL								
	phone_frontdesk									
	Company Ty	<sub>pe</sub> None 🔻								
	OK Cancel									
	ResellerCustomer									
	customer_name	forename	]							
	email	phone	]							
	vip_person		1							
	CM/Track Login (LDAP)	CM/Track Password								
	Track user									
	ОК									

Fig. 4: ConSol\*CM Web Client - Default Display of Data Object Group Field Labels in Versions Prior to 6.9.4

New cust	omer								
🖸 DirectCustomers 🛛 🔛 MyCustomerGroup									
ResellerCompany									
Find   Create									
	Please find or create company first.	*							
	ResellerCustomer								
	Name / First name customer_name	forename							
	E-mail / Phone email	phone							
	VIP 🔲 (yes/no)								
	CM/Track access CM/Track Login (LDAP)	CM/Track Password							
	Track user								
	OK								
		ResellerCompany         Find   Create         Please find or create company first.         ResellerCustomer         Name / First name        customer_name         E-mail / Phone       email         VIP       (yes/no)         CM/Track access       CM/Track Login (LDAP)							

Fig. 5: ConSol\*CM Web Client - Labels as Distinct Data Object Group Fields in Versions Prior to 6.9.4

Now (as of CM version 6.9.4) you as an administrator can decide if watermarks or labels (or both) should be used, labels are now implemented similar to the labels for Custom Fields (i.e. the data fields for ticket data). Furthermore, tool tips can be added. The display modes of labels for Data Object Group Fields is controlled by annotations. Annotations can be set on Data Object Group level and on Data Object Group Field level. The field annotations overwrite the group annotations. In tis way, you can define a group display behavior but can modify one or more single fields. Please see the example which is explained below.

#### Annotations for Data Object Groups:

- layout:show-labels-in-view (true if not set)
- layout:show-labels-in-edit (true if not set)
- layout:show-watermarks (false if not set)
- layout:show-tooltips (true if not set)

#### Annotations for Data Object Group Fields:

- layout:show-label-in-view
- layout:show-label-in-edit
- layout:show-watermark
- layout:show-tooltip

Ser attributes							
Customer groups Custome	r data model Data	a object actions Customer ro	bles Data object relations	Engineer functions Proje	cts		
Customer data models			Data object group field	S			
EP_Firma	Firma	*	Filter:				
EP_Kontakt	Kontakt		Name Type				
ResellerModel	<u>.</u>	E	company_number	short s			
	mpanyData mpany_servicecon	tractData 🗸	city shorts				
	3 🖪 두		zip short string country enum url short string				
			CompanyTypeLabel MLA field				
Assigned annotations							
Name 🔺	······						
show-in-group-section show-labels-in-edit	true false	layout layout					
show-labels-in-view	true	layout	Assigned annotations				
show-tooltips	true	layout	Assigned annotations				
show-watermarks	true	layout	Name 🔺	Value	Annotation group		
			field indexed	transitive	indexing		
			position	0.2	layout		
			show-label-in-edit	true	liyout		

Fig. 6: ConSol\*CM Admin Tool - Configuration for Reseller Data Object Group, One Field Configured Field-Specific

	Company							
		ConSol Düsseldorf 👻 Rea	seller					
		Groups						
		ResellerCompanyData	Service	e Contract Data	Internal	responsibiliti	es	
1		ConSol Düsseldorf				Company number	Company number	
		Kanzlerstraße 8		Düsseldorf			40472	
		Germany	•	http://www.conso	l.de			
		0211/339903-100						
		Comp	any Type	small   5-25 💌				
		OK Cancel						

Fig. 7: ConSol\*CM Web Client - (Edit Mode) View for Reseller Data Object Group, One Field Configured Field-Specific

Company	1								
	ConSol Düsseldor	f 4711 🔻 I	Reseller						
	Groups								Edit 🔺
	ResellerCompar	nyData	Service	Cont	ract Data	Interna	l responsibilities		
	company_name	ConSol Dü	sseldorf				Company number	4711	
	address	Kanzlerstra	aße 8	city	Düsseldorf		zip	40472	
	country	Germany		URL	http://www	.consol.de			
	phone_frontdesk	0211/3399	03-100						
	CompanyType	small   5-25	5						
									1

Fig. 8: ConSol\*CM Web Client - (View Mode) View for Reseller Data Object Group, One Field Configured Field-Specific

The labels are inserted automatically, so in the end, there might be six columns as maximum. In the following example, two columns are used.

- Field\_1: position 0;0
- Field\_2: position 0;1
- Field\_3: position 1;0
- Field\_4: position 1;1
- Field\_5: position 2;0
- Field\_6: position 2;1

Label_1	Field_1	Label_2	Field_2
Label_3	Field_3	Label_4	Field_4
Label_5	Field_5	Label_6	Field_6

Fig. 9: Example for Data Object Group Field Positions in the Grid

#### Label Mode after an Update from CM Version Prior to 6.9.4 to a Version 6.9.4 and Up

The layout of the customer model will be preserved during the update! All annotations will be set accordingly and can be modified later.

For all existing Data Object Groups the annotation setting layout: *show-labels-in-edit* = *false* (which will hide standard labels in edit mode) is made during the update.

#### Default Mode for New Data Object Groups and Data Object Group Fields

All new Data Object Groups will be rendered with the new default configuration. This means:

- standard labels
- watermarks disabled
- tool tip enabled

New cust	omer	Company name	
	DirCustCompany		
曲	Company name		Company number
	City		
	OK Cancel		
	DirCustCustomer		

Fig. 10: ConSol\*CM Web Client - Default Display Mode for Data Object Group Fields

## 17.5.3 Scripting Using Objects from the FlexCDM

In this book we use the terms *data object* and *data object definition*. However, the names of the corresponding Java classes are *Unit* and *UnitDefinition*. All other Java classes which deal with customer data objects also are still named *Unit…* Please keep that in mind when you work on the administrator level as well as on the programmer's level. Please refer to the *ConSol\*CM Java API Doc* and to the *ConSol\*CM Process Designer Manual* for details.

#### New Scripting Features Since ConSol\*CM Version 6.9

Up to ConSol\*CM version 6.8, a *Unit* could have only one Custom Field Group. The expression *unit.get* ("name") was always valid because one Custom Field with a specified name could exist only once, for example "group 1.name".

Starting with ConSol\*CM version 6.9, a data object (*Unit*) may have one or more Data Object Group Fields with the same field name, e.g *"name"* can be represented as *"group1.name"*, *"group2.name"*. In such cases, the expression *Unit.get("name")* is not valid and throws an exception.

#### Attention:

For backwards compatibility the code *unit.get("name")* will work as long as the Custom Field *"name"* is unique. When another Custom Field with the same name is added, the code *unit.get ("name")* will no longer work!

Now use the following notation to retrieve unit field (Data Object Group Field) data:

• For one field:

```
unit.get("group1 :name ")
```

 For numerous fields: unit.get(" group1:field1.group2:field2 ") Example to Get Contact Company Name unit.get("contactFields:companyReference.companyFields:name")

## Extension of the Custom Field Expression Language (CFEL)

Starting with ConSol\*CM version 6.9, the *Custom Field Expression Language* (CFEL) has been improved to provide simple access to many objects. This concerns scripting for ticket and other objects as well as objects from the customer data model, i.e. Units (data objects: objects on contact or company level). Here, the improvements concerning units (data objects) will be explained. For a detailed explanation on how to write Java or Groovy code which uses customer data model objects, please refer to the *ConSol\*CM Process Designer Manual*.

You can access the customer data model objects from different scripts:

- Workflow:
  - Scripts in workflow activities
  - Scripts in workflow conditions
- Admin Tool (AT) scripts of type:
  - Dependent enum
  - E-mail
  - Clone
  - Default values
  - Data object action
  - Data object condition
  - Workflow

# 17.5.4 Changes in Scripting from Consol\*CM Version 6.8 to Version 6.9

In ConSol\*CM version 6.9, some methods were declared deprecated and have to be replaced by new methods. This is only relevant if you have scripts from version 6.8 or older. In this case, the scripts have to be redesigned using the new methods.

#### AbstractField

Removed custom value accessors for each Custom Field type.

Removed/changed method	Replacement	
StringField.getStringValue()	StringField.getValue()	
NumberField.getNumberValue()	NumberField.getValue()	

#### ActivityFormFieldsSet

Removed accessors with plain FieldDefinition, use ActivityFormElement instead.

Removed/changed method	Replacement
ActivityFormFieldsSet.addFieldDefinition(new FieldDefinition)	ActivityFormFieldsSet.addElement(new ActivityFormElement(new FieldDefinition()))
ActivityFormFieldsSet.getFields() returns List <fielddefinition></fielddefinition>	ActivityFormFieldsSet.getElements() returns List <activityformelement></activityformelement>
ActivityFormFieldsSet.setFields (List <fielddefinition>)</fielddefinition>	ActivityFormFieldsSet.setElements (List <activityformelement>)</activityformelement>
ActivityFormFieldsSet.removeFieldDefinition (FieldDefinition)	ActivityFormFieldsSet.removeElement (ActivityFormElement)
ActivityFormFieldsSet.removeAllFieldDefinitions()	ActivityFormFieldsSet.removeAllElements()
ActivityFormFieldsSet.getFieldDefinition(index) returns FieldDefinition	ActivityFormFieldsSet.getElement(index) returns ActivityFormElement
ActivityFormFieldsSet.addFieldDefinition(new FieldDefinition, index)	ActivityFormFieldsSet.setElements(ordered list of elements)

## ContentFile

Added size parameter to input stream methods.

Removed/changed method	Replacement
new ContentFile(filename, inputstream)	new ContentFile(filename, inputstream, streamsize)
ContentFile.setInputStream(inputstream)	ContentFile.setInputStream(inputstream, streamsize)

#### ContentResource

Same changes as in ContentFile.

Removed/changed method	Replacement
new ContentResource(filename, inputstream)	new ContentResource(filename, inputstream, streamsize)

Removed/changed method	Replacement	
ContentResource.setInputStream(inputstream)	ContentResource.setInputStream(inputstream, streamsize)	

## FieldLogEntry

Removed modification accessors.

Removed/changed method	Replacement	
FieldLogEntry.setModification(Modification)	FieldLogEntry.setValue(value) + FieldLogEntry. setPreviousValue(value)	
FieldLogEntry.getModification()	FieldLogEntry.getValue() + FieldLogEntry. getPreviousValue()	

## Ticket

Removed renamed Custom Fields accessors and other changes.

Replacement
Previously mixing <i>groupName</i> and <i>fieldName</i> parameters worked, now only the order <i>groupNam e, fieldName</i> is accepted.
Ticket.addField(AbstractField)
Ticket.setFieldValue(pGroupName, pFieldName, Object pValue)
EnumValue enumValue = getFieldValue(String pGroupName, String pFieldName) String enumName = enumValue.getName();

Removed/changed method	Replacement
Ticket.setEnumValue(fieldName, groupName, enumName)	EnumValue enumValue = enumService. getEnumValue(enumGroupName, enumValueName); Ticket.setFieldValue(pGroupName, pFieldName, enumValue); For workflow usage:
	Ticket.setFieldValue(pGroupName, pFieldName, getEnumValueByName(enumGroupName, enumValueName));

## TimerTrigger

Removed *setDuedate* method.

Removed/changed method	Replacement
TimerTrigger.setDuedate	TimerTrigger.setDueTime

#### Unit

Removed renamed Custom Fields accessors.

Removed/changed method	Replacement
Unit.getFieldsSet()	Unit.getFields()
Unit.setFieldsMap(Map)	Unit.addFields(Set)
Unit.setField(AbstractField)	Unit.addField(AbstractField)

## New (Convenience) Methods

Examples for new methods:

Object.Method	Explanation
<pre>def contacts = unit.get("contacts()") List contacts = company.getContacts()</pre>	Using CFEL ("contacts()") a list of all contacts is retrieved for the company (unit).
Unit company = mainContact.getCompany()	For a contact, the company can be retrieved easily.
newContact.set("company()", newCompany)	For a (new) contact, the company is assigned the CFEL expression "company()", provides easy access to the company object.
List tickets = company.get("tickets()")	For a company, all tickets are retrieved.
Ticket ticket = getTicket(); Unit mainContact = ticket.getMainContact() List tickets = mainContact.get("tickets()")	For a contact, all tickets are retrieved.
Integer count = contact.get("company().contacts() [0].tickets()[count]");	A chain of expressions is used to get the number of tickets for a specific contact.

```
Example 1: Search for the Tickets of a Contact or of a Company
TicketCriteria ticketCriteria = new TicketCriteria();
Unit patternContact = new Unit("contact", customerGroup);
mdcmCriteriaBuilder.setReferencedContactCriteria(ticketCriteria, patternContact);
Example 2: Search for the Tickets of the Contact Who is Member of a Certain Company
```

```
TicketCriteria ticketCriteria = new TicketCriteria();
Unit contactPattern = new Unit("contact", customerGroup);
mdcmCriteriaBuilder.setReferencedContactCriteria(ticketCriteria, contactPattern);
Unit companyPattern = new Unit("company", customerGroup);
companyPattern.setFieldValue("name", "ConSol");
mdcmCriteriaBuilder.setReferencedCompanyCriteria(contactPattern, companyPattern);
```

#### Example 3: Search for Contacts of a Certain Company

UnitCriteria unitCriteria = new UnitCriteria();Unit c
ompanyPattern = new Unit("company", customerGroup);
mdcmCriteriaBuilder.setReferencedCompanyCriteria(unitCriteria, companyPattern);

#### Information:

For detailed information about the methods, including input parameters (method signatures) and output data type, please refer to the *ConSol\*CM Java API Doc*.

## 17.5.5 New Objects in ConSol\*CM 6.9 and Up

The objects which are available in the script obviously depend on the script's context. The following examples demonstrate some of the possible use cases:

Starting point	Script	Objects	Example
Company page	data object action script	unit represents the company	def contacts = unit.get ("contacts()")
Contact page	data object action script	unit represents the contact	List tickets = unit.get ("tickets()")
Workflow activity	workflow action or condition script	ticket	def id = ticket.getId()
Workflow activity with script in AT	workflow action or condition script	ticket not present implicitly!	import com.consol. cmas.common.model. ticket.Ticket def id = ticket.getId()

# **17.6 Templates for Customer Data**

- Introduction to Using Templates for the Display of Customer Data
- Coding Templates
  - Examples for Templates
- Template Types
  - Standard (Default)
  - REST
  - Dragged
  - E-Mail
  - Quick Search
  - Data Object Search Result
  - Ticket Search Result
  - Ticket Page
  - Ticket List
  - Ticket Relation
  - Workspace and Favorites
  - History
  - Suggestion
  - CM.Phone Customer Details
  - CM.Phone Customer List

# 17.6.1 Introduction to Using Templates for the Display of Customer Data

In the ConSol\*CM Web Client, customer data sets are displayed in short form at various locations, based on templates. For example in the ticket list, the contact name and company name might be required whereas in the customer data section of the ticket, the name, first name, and phone number of a contact might be needed. This section will show you where short forms are used and how the respective templates are configured using the Admin Tool.

The configuration is based on the following principle (very similar to the principle used in previous ConSol\*CM versions):

- An annotation is assigned to a Data Object, i.e. to a contact or company definition, in the navigation item *Data Mode*/in the navigation group *Customers* in the Admin Tool. It defines for which section of the Web Client the annotation is valid.
- The referenced template must be the name of a template which is stored in the *Script and Template* section of the Admin Tool. You as an administrator are free to assign names to the templates. All you have to make sure is that the referenced name in the *Edit Data Object* window and the template name in the *Script and Template* section are identical.

📔 Edit data c	object		x
Edit data obj i Please edit	<b>ect</b> the data object's data.		
Name:	ResellerCompany		2
Description:			
Type:	Company		
Icon:		<u>—</u>	
Templates:	Туре	Name	
	Default	ResellerCompany-standard-template	
	REST	ResellerCompany-REST-template	
	Dragged	ResellerCompany-dragged-template	
	E-mail	ResellerCompany-eMail-template	
	Quick Search	Resellercompany-searchresult-template	
	Data object search result	Resellercompany-searchresult-template	
	Ticket search result	ResellerCompany-ticketSearchResult-template	
	Ticket page	ResellerCompany-ticketPage-template	
	Ticket list	Resellercompany-ticketlist-template	
	Ticket relation	ResellerCompany-ticketList-temlate	
	Workspace and Favorites	ResellerCompany-favorites-template	
	History	ResellerCompany-history-template	
	Suggestion	ResellerCompany-suggestion-template	
	CMPhone customer details	ResellerCompany-phoneCustomerDetails-template	
	CMPhone customer list	ResellerCompany-phoneCustomerList-template	
		Save Cancel	

Fig. 1: ConSol\*CM Admin Tool - Template Annotations for Data Object (Here: Company)

In the following paragraphs, the syntax and coding for templates and all possible template types are explained.

## 17.6.2 Coding Templates

The templates are written in *FreeMarker* notation. For detailed information, please refer to the FreeMarker web site.

Within the templates, you work with three object types:

1. Name of the Data Object

i.e. the name of a company or contact object.

- 2. Name of the Data Object group within the Data Object (a Data Object group is similar to a custom field group for ticket data).
- 3. Name of the Data Object group fields within the Data Object group.

See the following figure for an example:

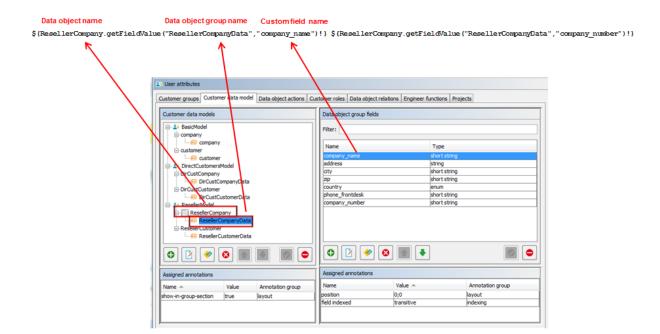


Fig. 2: ConSol\*CM Admin Tool - Writing Customer Templates

#### Attention:

The customer templates must be single-row! They must not contain line-breaks!

#### **Examples for Templates**

Here are some examples for templates:

```
Example for engineer description template name (has to be written in one line!)
<##if ResellerCustomer.getFieldValue("ResellerCustomerData", "customer_name")?has_content &&
ResellerCustomer.getFieldValue("ResellerCustomerData", "firstname")?has_content>
${ResellerCustomer.getFieldValue("ResellerCustomerData", "customer_name")!},
${ResellerCustomer.getFieldValue("ResellerCustomerData", "firstname")!}
<##if ResellerCustomer.getFieldValue("ResellerCustomerData", "firstname")!}
<##if ResellerCustomer.getFieldValue("ResellerCustomerData", "firstname")!}
<##if ResellerCustomer.getFieldValue("ResellerCustomerData", "customer_name")!}
#{ResellerCustomer.getFieldValue("ResellerCustomerData", "customer_name")!}</pre>

Example for company-contact-template (has to be written in one line!)
${company.getFieldValue("company", "name1")!}${customer.getFieldValue("customer", "firstname")!}
${customer.getFieldValue("customer", "name")!}
```

```
Example for search-customer-template (has to be written in one line!)
<#if company?>>${company.getFieldValue("company", "name1")!}${company.getFieldValue("company", "
name2")!}
${company.getFieldValue("company", "mainaddr_city")!},
</#if>${customer.getFieldValue("customer", "firstname")!}${customer.getFieldValue("customer", "n
ame")!}
```

#### Setting number format: removing

```
<#setting number_format="#"/>${customerModelCompany.getFieldValue("groupName", "numberValueField
")!}
```

## 17.6.3 Template Types

#### Standard (Default)

This template, respectively format, is used at all following locations if no special templates have been defined, i.e. all other annotations could be omitted if a standard template is defined.

#### **Attention:**

If no template is defined for a certain Web Client location and no standard template has been defined either, there will be an error in the log file and *-- unknown --* will be displayed in the Web Client.

So make sure that at least a standard template is defined. In a two-level customer data model, this has to be done for the company and for the contact level!

#### REST

The display of customer data using the *REST API*. In the standard configuration, no customer data are displayed in the CM portal, CM.Track which is based on the REST API. This template will only be effective when you address the REST API directly, e.g. for programming CM interfaces. The following example shows a REST client request for customer data and the resulting answer of the CM server via REST API. The value within the <mark> tag in the XML output is the customer information which is formatted using the REST template. In the example, the company name ("ConSol\*") and the company number ("4711") are part of the template.

#### Example REST template

\${ResellerCompany.getFieldValue("ResellerCompanyData", "company\_name")!} \${ResellerCompany.getFieldValue("ResellerCompanyData", "company\_number")!}

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Body							
j_username=Susai	n&j_password=cor	isol					
Response							
Deserves line days	Deserve De tra	Deserve De ta diletitett	Deserves Desta (Deserves)				
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Fig. 3: REST API - Request for All Units

File - Authentication - Headers - View -	Favorite Requests 👻	Setting 👻	RESTClient
[-] Request			
Method GET VIRL http://cm6doku-cm1.int.consol.de:8180/restapi/units/66.xml		*	✓ SEND
Body			
j_username=Susan&j_password=consol			
[-] Response			
Response Headers         Response Body (Raw)         Response Body (Highlight)         Response Body (Preview)			
<pre></pre> <pre> </pre> </th <th>npanyData"&gt;</th> <th>ı9w%3D%3D"</th> <th></th>	npanyData">	ı9w%3D%3D"	

Fig. 4: REST API - Request for One Unit by ID

## Dragged

This defines the format of a customer data set while the data set is dragged, e.g. from the *Customers* section to the *Favorites* section.

	Customers Main customer Luke Skywalker luke@consol.de ▼ CustomerGroup	Skywalker	
	Engineers		

Fig. 5: ConSol\*CM Web Client - Customer Dragged Template

## E-Mail

In the Ticket E-Mail Editor an automatic search provides search results in-line in form of a drop-down list. The format of those search results can be configured using this template.

New E-ma	il second se	
:	show Cc  show Bcc	
To	Slot	
Subjec	"Skywalker, Lea, Special Forces" <lea@localhost>.gir p engineer</lea@localhost>	

Fig. 6: ConSol\*CM Web Client - Customer E-Mail Template



## **Quick Search**

This template defines the format of the search result for contacts or companies in the quick search. The template has to be short and single-line.

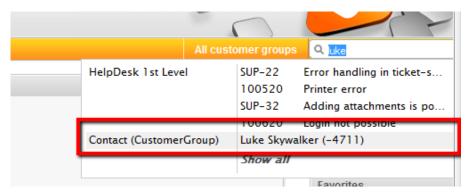


Fig. 7: ConSol\*CM Web Client - Customer Quick Search Template

#### **Data Object Search Result**

This template defines the search results for automatic searches in auto-complete fields.

New Tick	ət
<b>1</b>	Subject
	Queue: HelpDesk 1st L Assigned to: Unassigned
	Priority Choose One 💌 Module Choose One 💌
	Reaction time Ask for feedback
	Category None 🔻
	Customers
	Main
	ResellerCompany
0	Find   Create
	MyN X
	MyNewSpaceCompany 999

Fig. 8: ConSol\*CM Web Client - Customer Data Object Search Result Template

This is the applied template:

```
ResellerCompany search result template (has to be written in one line!)

${ResellerCompany.getFieldValue("ResellerCompanyData","company_name")!}

${ResellerCompany.getFieldValue("ResellerCompanyData","company_number")!}
```

#### **Ticket Search Result**

In the results page of the detail search the tickets found by the search are displayed as a list. One column of this list contains the main customer of the ticket. The *Ticket search result* template defines the layout of the customer data in this column.

Search						
Search criteria	Search criteria					
Queue 'Hel						
Tickets	Search CustomerGroup (custo	omer) Custom	erGroup (Company) Reseller (ResellerCustomer)			
Search results (9	View as: List Grid Search results (99) Add/Remove column 'Engineer', 'Main Customer',  OK Number per page 20					
1 to 20 of 99						
Engineer	Main Customer	Name	Subject			
Huber, Harald	💿 Marylin Monroe	SUP-17	'Take over as primary contact' doesn't work			
	💿 Minnie Mouse	SUP-103	"Send mail" action: attachment selection is lost after clicking "Quote ticket"			
	Dieter Macher	80P-57	"Vanishing" locales			
	💿 Max Mustermann	80P-32	IP-32 Adding attachments is possible for worker which has got only "Read tickets" permission			
	Daisy Duck	30P-98	Administrate permission			
Meier, Friedrich	Dietrich Habermann	30P-41	Admin-Tool: Broken layout			
	🔯 Peter Diermau 🛛 😸 SUP-15 Admin-Tool: Confirmation Dialog is missed during delete Customer Attributes					
	Marvlin Monroe Result SUP-54 Admin-Tool: Error during creating queue (Oracle 10g)					

Fig. 9: ConSol\*CM Web Client - Customer Ticket Search Result Template

#### **Ticket Page**

This template defines the presentation of customer data in the *Customers* section of a ticket. The template defines the appearance of the customer data only for the minimum display level

In the medium and large level, the first line (positions 0;x) of the Data Object Group Fields definitions are displayed.



Fig. 10: ConSol\*CM Web Client - Customer Ticket Page Template

#### **Ticket List**

This template defines the presentation of the customer data in the ticket list.

#### Attention:

If you would like to work with this template type, please make sure that the page customization parameter *accordionTicketList.mainCustomerDescriptionVisible* has been set to *true*. Otherwise customer data cannot be displayed in the ticket list.

Customer: 777 - Luke Skywalker		
Assigned to Cher Chany		Printer error
Assigned to: Cher, Chany	ŚP	Customer: 777 - Luke Skywalker
	00520	Assigned to: Oner, Onany

Fig. 11: ConSol\*CM Web Client - Customer Ticket List Template

#### **Ticket Relation**

This template defines the presentation of the customer data in ticket references in the *Relations* section of a ticket. Please keep in mind that customer data of referenced tickets are only displayed in visibility level *extended*.

	Engineers
	Relations
3	referenced by 100520 Printer error  HelpDesk 1st Level   Qualify Assigned to Chef, Charly   Open since 11/19/13 1:26 PM
	Customer Luke Skywalker - 777

Fig. 12: ConSol\*CM Web Client - Customer Ticket Relation Template

#### **Workspace and Favorites**

This template defines the presentation of customer data in the Favorites section.



Fig. 13: ConSol\*CM Web Client - Customer Favorites Template

## History

This template defines the presentation of customer data in the ticket protocol, i.e. in the *History* section of a ticket.

Ticket		Edit Clo	ne   Print   Display 🔻	
SUP-124	X-Cm: Exception during status change which in HelpDesk 1st Level   Qualify Assigned to Huber, Harald   Open since 5/5/08 11:39 AM Priority high Module inventory Reaction time 8/8/09 Ask for feedback no	noves a ticket into a new	queue	
	Customers		Add Hide	
@	Main Mrs Lea Skywalker  CustomerGroup Starship Operator Dr. lea@localhost Office 123 Special Forces			
	History	Comment   E-Mail   Attachment	Time booking Hide	
	Display all entries 🔻 Sorting latest first 💌			
	Add comment, e-mail or attachment			
40 minutes ago #39 changed by Harald Huber = Main customer changed from Dieter Macher Lea Skywalker				

Fig. 14: ConSol\*CM Web Client - Customer History Template

## Suggestion

This template defines the presentation of customer data for suggestions which are displayed when a ticket is created.

New Tick	tet		
<b>10</b> 2	Subject *		
	Queue: HelpDesk 1st L Assigned to: Unassigned		
	Priority Choose One Module Choose One		
	Reaction time Ask for feedback		
	Category None 💌		
	Customers		
	Main		
0	Company Find   Create		
	Please enter keywords such as name or e-mail		
	customer		
	Suggestions		
	Lea Skywalker  Select		
	Choose One First name sky		
	Function Acad. title		

Fig. 15: ConSol\*CM Web Client - Customer Suggestion Template

#### **CM.Phone Customer Details**

See section CTI with ConSol\*CM: CM.Phone.

#### **CM.Phone Customer List**

See section CTI with ConSol\*CM: CM.Phone.

# **18 Managing Customer Groups**

- Basic Principle for Customer Data Models and Customer Groups
- Managing Customer Groups Using the Admin Tool
  - Customer Groups List
    - Customer Group Details
    - Creating a New Customer Group
    - Editing a Customer Group
    - Deleting a Customer Group
    - Disabling and (Re-)Enabling a Customer Group
- Assigning Access Rights for Customer Groups

# **18.1 Basic Principle for Customer Data Models and Customer Groups**

In a ConSol\*CM system several customer groups can be used.

#### A Principles:

There can be any number of customer groups and any number of customer data models.

Each customer group has exactly one customer data model.

Each customer data model can be assigned to any number of customer groups.

In the following example, the system contains three customer groups, each with its specific customer data model.

# **18.2 Managing Customer Groups Using the Admin Tool**

In the Admin Tool, customer groups are managed using the navigation item *Customer Groups* in the navigation group *Customers*.

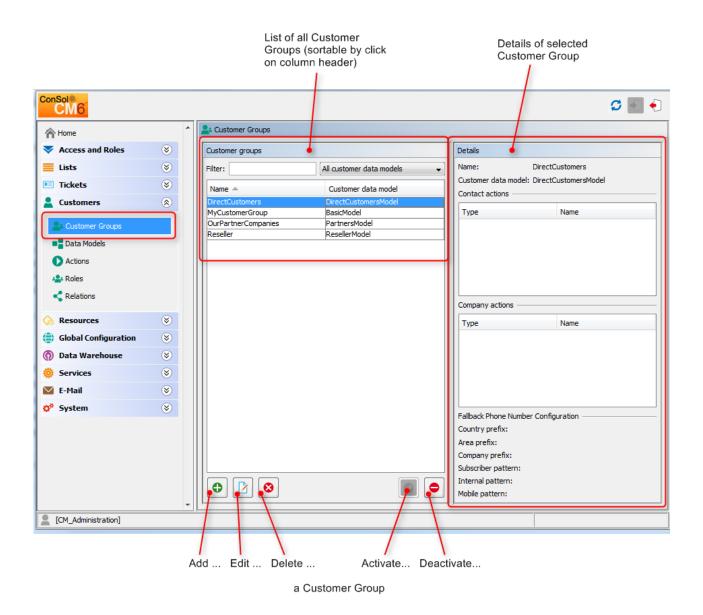


Fig. 1: ConSol\*CM Admin Tool - Managing Customer Groups

## **18.2.1 Customer Groups List**

On the left side, all customer groups are listed:

• Name

The technical name of the customer group.

#### • Customer data model

The name of the customer data model which has been assigned to the customer group.

You can apply two sorts of filters:

• Name filter

Enter a text or some characters in the field *Filter*. Only the customer groups where the name contains the text/characters will be displayed in the list.

#### Customer data model filter

Select a customer data model from the drop-down list. Only customer groups with the selected data model will be displayed in the list.

## **18.2.2 Customer Group Details**

On the right side, the details of the customer group, which is selected in the list, will be displayed. An explanation of all parameters is given in the following section.

## 18.2.3 Creating a New Customer Group

You create a new customer group by clicking on 🕑 below the group list. A pop-up window is opened where you have to enter the customer group parameters.

		Search Actions (for search result lists with data objects of this customer group)	CM.Phone configuration, only available if CM-Phone is active
	Edit customer group		x
Data Object Actions	Edit customer group [ Please edit the customer group data. Name: Customer data model: Reseller/Model Automatic Actions Contact Manual Actions Assigned	CMPhone Available	· · ·
Actions can be assigned to contacts and/or to companies of the customer group	Name CheckServiceStatus OfferCreateTicketPageOnGUI	Name       LoadReport       DoSomethingInteresting       DoSomethingInteresting2       GoToAM_TicketOnGUI       GoToCompanyURL       Offer CreateUnitPageOnGUI       LoadData	
	Company Manual Actions Assigned Name CheckServiceStatus OfferCreateTicketPageOnGUI GoToAM_TicketOnGUI	Available Name LoadReport DoSomethingInteresting DoSomethingInteresting2 GoToCompanyURL OfferCreateUnitPageOnGUI LoadData	Save Cancel
			Save Cancel

Fig. 2: ConSol\*CM Admin Tool - Parameters for a Customer Group

#### • Name

The technical and unique name of the customer group. Click on 🗐 to enter the localized name of the customer group for all languages that are available in the system. The localized queue name will be displayed in the Web Client in the ticket header. If no localized values are provided, the name will be displayed in the default language.

#### Customer data model

Select the customer data model from the drop-down list. All customer data models which have been defined (see section Setting up the Customer Data Model) are available.

#### • Automatic Actions

Here, automatic Data Object Actions can be assigned to a customer group. All Data Object Actions which have already been defined will be offered in the lists. You can assign those actions for contacts and/or for companies of the customer group. Automatic actions will be triggered when a Data Object is created, edited or deleted. The entire configuration is explained in detail in section Action Framework - Data Object Actions.

#### Manual Actions

Manual actions can also be assigned to contacts and/or to companies. All Data Object Actions which have already been defined will be offered in the lists. The actions will be offered as activities on the contacts or company page and have to be triggered manually by an engineer, very similar to workflow activities for tickets. You can use the arrow buttons below the lists of assigned actions to define the order of the activities in the Web Client. Details about manual Data Object Actions are explained in section Action Framework - Data Object Actions.

#### Search Actions

Search Actions are offered as activities for result list of detail searches and have to be assigned to contacts and/or to companies of a customer group. For example, a company Search Action for the customer group *Reseller* will always be offered in search result lists which contain lists of Reseller companies. All Data Object Search Actions (*bulk Data Object Actions*) which have already been defined will be offered in the lists. Search Actions are part of the Action Framework and are explained in detail in section Action Framework - Search Actions.

#### • CM.Phone

Tab for all CM.Phone parameters. Only available if CM.Phone is active, see section CTI with ConSol\*CM: CM.Phone.

## 18.2.4 Editing a Customer Group

If you want to edit a customer group, select it in the list and click on D or just double-click the name of the customer group. Modify the customer group parameters and click *Save* to store your modifications.

## 18.2.5 Deleting a Customer Group

Select the customer group you want to delete in the list and click on <a></a>

 with Yes, the customer group will be deleted and is no longer available in the system. A customer group can only be deleted if it is not assigned to a queue and if there are no tickets for customers of the group. In a system which has been in operation for a while, it will usually not be possible to delete a customer group.

## 18.2.6 Disabling and (Re-)Enabling a Customer Group

To disable a customer group, select the customer group in the list and click on <a>
 </a>. The entry in the list is now shown in italics. Just click on <a>
 </a> at the bottom of the page, if you want to enable the customer group again. When a customer group is disabled, it is not possible to create new tickets for companies or contacts of the group. Tickets of the group are still visible.</a>

# **18.3 Assigning Access Rights for Customer Groups**

In order to let engineers work with customer data of a customer group, e.g. to create new reseller data sets or to modify them, you have to grant access permissions for the user groups to one or more roles.

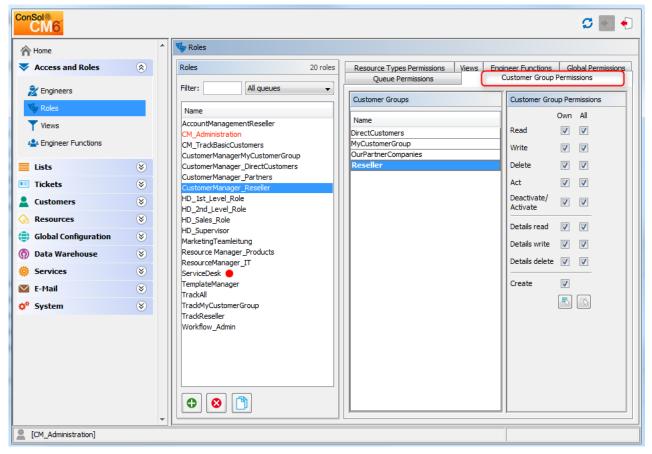


Fig. 3: ConSol\*CM Admin Tool - Assigning Permissions on Customer Groups to a Role

The access rights which can be granted have been modified compared to previous ConSol\*CM versions. New rights have been added which concern a new section of the customer page. The customer page in the Web Client has a new section, the *Details* section.

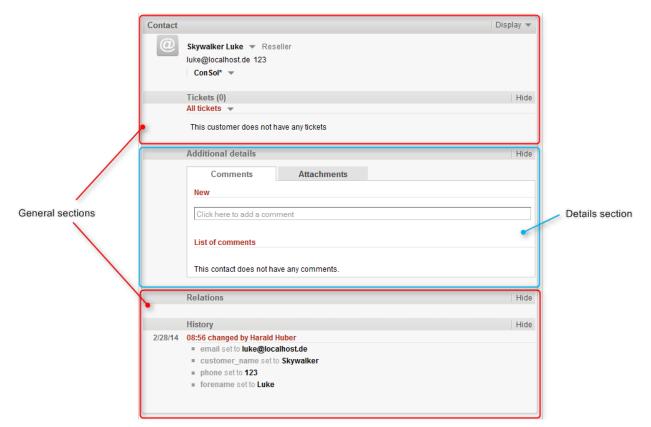


Fig. 4: ConSol\*CM Web Client - Contact Page: Details Section

The following access permissions can be granted:

#### • Customer type

Refers to the tickets of the customer.

• Own

All (main or additional) customers of tickets which are currently assigned to the engineer or where the engineer is set as additional engineer.

• All

All customers.

- General sections
  - Read

Read the customer data.

• Write

Write/modify the customer data.

Delete

Delete a customer data set.

• Act

Execute actions for this customer (see section Action Framework for details about customer actions).

Deactivate/activate

Deactivate and (re-)activate the customer. It is not possible to create tickets for a deactivated customer.

#### Details section

Details read

Read customer data in the *Details* section.

- Details write Write/modify customer data in the *Details* section.
- Details delete

Delete customer data in the Details section.

- General
  - Create

Create a customer data set. In a two-level customer data model this refers to contact as well as to company data sets.

#### **Attention**:

Please keep in mind that an engineer must have at least read permissions for a customer group to open and/or create tickets for customers in this group!

# **19 Customer Roles**

- Introduction
- Defining Customer Roles Using the Admin Tool
  - Create or Edit a Customer Role
  - Delete a Customer Role
  - Disable or Enable a Customer Role
  - Localize a Customer Role

# **19.1 Introduction**

Customer Roles help you distinguish different customers who are linked to a ticket. For example, it will help a great deal if the engineer finds a trouble ticket and instantly knows who of the assigned customers is the manager, who is the technical contact person and who he might have to contact for questions concerning billing.

You can define any number of customer roles. Technically, it is a simple list, and the engineer, working with the Web Client, can (but does not have to) assign a customer role to any additional customer of the ticket. A customer can only have none or one role, not more than one.

Besides helping he engineer in his everyday work, customer roles can also be helpful for designing processes and writing scripts, e.g. write an e-mail to all managers of all open Service Desk tickets of a company to deliver a certain information.

# **19.2 Defining Customer Roles Using the Admin Tool**

Open the navigation item *Roles* in the navigation group *Customers* to add (create), edit or delete customer roles.

ConSol*			<b>5</b> 💽 🗲	
A Home	*	44 Roles		List of all
Access and Roles	۲	Customer Roles		available
Eists	۲	Name	-	Customer Roles
Tickets	۲	end customer		T(0)63
Lustomers	۲	Team-MemberIT Team-MemberMarketing		
La Customer Groups		AdministrationOffice ProjectManagement		
Data Models				
Actions		<b>L</b>	<b>/</b>	
A Roles				
< Relations				
ᢙ Resources	۲			
🜐 Global Configuration	۲			
👩 Data Warehouse	۲			
🔅 Services	۲			
🗹 E-Mail	۲			
🗘 System	۲			
	-			
[CM_Administration]				
<b></b>	/			
	Add	Edit Delete Move the selected Customer	Activate Deacti	ivate
	-	Role in the list to determine its		
	а	position in the list in the GUI	a Customer Ro	ble

Fig. 1: ConSol\*CM Admin Tool - Customers: Customer Roles

In the Web Client these roles can be assigned to additional customers of a ticket to show the function of these customers, e.g. project manager or end customer.

There are two implications of the assignment of a customer role to an additional customer:

- 1. Information in the Web Client is provided (e.g. you would not want to send a log file to a *manager* but to the *IT contact*).
- 2. The customer role can be used in workflow programming to control the process flow (e.g. send an e-mail to all *IT contacts* but not to contacts with other roles).

	Customers		Add Hide
	Main		
0	Skywalker Luke 💌 Reseller		
	katja@consol.de 123		
	no		
	luke ********		
	MyNewSpaceCompany 999 💌		
	Additional		
@	Skywalker Lea 💌 Reseller No rol	e 🔻	
	katja@consol.de 123	end customer	
	yes	Team Member IT	
	ConSol* 💌	Team Member Marketing	
		Administration Office	
	Engineers		Add Hide
	Relations	Project Management	Add Hide
	Relations		Add Hide

Fig. 2: ConSol\*CM Web Client - Setting a Customer Role for an Additional Customer

## 19.2.1 Create or Edit a Customer Role

A customer role is defined by its name. By clicking on 
a pop-up window appears where you can enter the name. Using the globe icon 
next to the name field you can localize the name subsequently (see below). The check box *Enabled* is already selected to set the customer role active in the system (see also Disable or Enable a Customer Role). You will get the same window when you click on in order to edit a customer role.

🚰 Create a new customer role		
Create a new customer role i Please fill in the required fields.		
Name: Enabled:	manager 🕘	
	OK Cancel	

Fig. 3: ConSol\*CM Admin Tool - Create or Edit a Customer Role

## 19.2.2 Delete a Customer Role

A customer role can only be deleted if it is not assigned to any customers. Otherwise you get a warning and you can only disable this customer role (see below).

In order to delete a customer role, select it in the list and click on <sup>2</sup>. After choosing *Yes* in the confirmation dialog the customer role will be removed from the list and the system.

## 19.2.3 Disable or Enable a Customer Role

If a customer role is still assigned to a customer but is not needed anymore you can disable it. To do this select the customer role and click on <a>></a>. The entry in the list is shown in italics afterwards. The customer role cannot be assigned anymore. Just click on <a>></a> at the bottom of the page, if you want to enable the role again.

You can also enable or disable a customer role in the window used for editing customer roles by selecting or de-selecting the check box *Enabled*. When you create a customer role this check box is automatically selected.

## 19.2.4 Localize a Customer Role

Click on the globe icon in the create or edit window to enter the localized name of a customer role. In the pop-up window *Localize* all languages that are available in the system are listed. Enter the customer role name in the *Value* field for each additional language on the right and click *Save*. The localized customer role name, according to the locale of the web browser, will be displayed in the Web Client. If no localized value is found, the default value is displayed. This is the value of the default language. If this has not been defined either, the technical name of the customer group is displayed.

# 20 Customer (Data Object) Relations

- Introduction to Customer (Data Object) Relations
- Management of Customer Relations Using the Admin Tool
- Creating Customer Relations Using the Web Client
- Scripting Using Relations
- Data Object (Customer) Relations to Resources

# 20.1 Introduction to Customer (Data Object) Relations

*Customer Relations* represent relations between customers (Data Objects), i.e. companies and contacts. They can be one of two types:

- directional (different levels in a hierarchy)
- reference (same level, no hierarchy)

A relation is of one of the following types:

- company company
  - e.g. ... has a cooperation with ... (company X cooperates with company Y)
    - The companies can belong to the same or to different customer groups.
    - The involved customer groups can have the same or different customer data models.
- company contact

e.g. ... is customer of ... (contact X is customer of company Y)

- The company and the contact can belong to the same or to different customer groups.
- The involved customer groups can have the same or different customer data models.
- contact contact
  - e.g. ... is serviced by ... (contact X from company X is serviced by contact Y from company Y)
    - The companies and contacts can belong to the same or to different customer groups.
    - The involved customer groups can have the same or different customer data models.

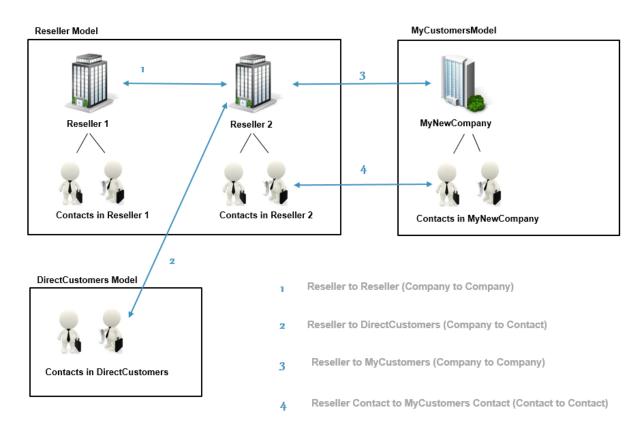


Fig. 1: ConSol\*CM FlexCDM - Examples of Customer Relations

# 20.2 Management of Customer Relations Using the Admin Tool

To make Customer Relations available to the engineers the relations have to be defined in the Admin Tool. Open the navigation item *Relations* in the navigation group *Customers*. All relations are listed, new relations can be added, or old ones can be deleted.

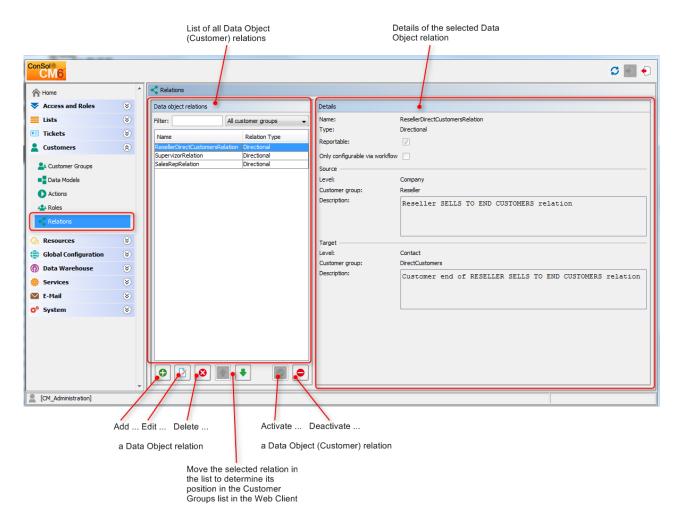


Fig. 2: ConSol\*CM Admin Tool - Managing Customer Relations

The following elements are available:

- List of relations
- Filter
  - Filter for an expression which has to be entered into the field *Filter*. Use the asterisk as a placeholder for any character.
  - Filter for customer groups using the drop-down menu.
- Add button

Add a new relation. The pop-up window *Create Data Object relation* with the details fields (see next section) is opened.

• Edit button 🔝

Modify the parameters of a relation. The pop-up window *Edit Data Object relation* with the details fields (see next section) is opened.

Delete button

Delete an existing relation. This is only possible when no relations of this type have been set (using the Web Client).

## Change order (arrows up ▲ and down ▲)

Place a relation at a specific position in the list. This defines the order of the manual relations as they are displayed in the Web Client.

## • Activate 🖉 / deactivate 😑 relations

A deactivated relation is not available in the Web Client, i.e. a relation of this type can no longer be created. Existing relations of this type are not modified and are displayed in the GUI.

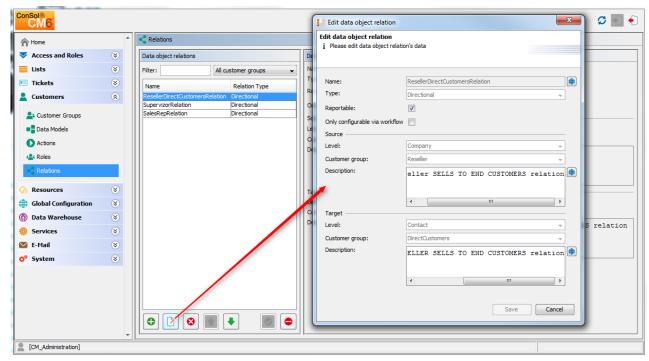


Fig. 3: ConSol\*CM Admin Tool - Details of a Customer Relation

To create a new relation, use the 🕑 button, to edit a relation use the 🖄 button. In both cases, the detail information pop-up window for a relation is opened where you can edit the following fields:

### Name

Name of the relation. The technical name is used for internal use cases (scripts), the localized name will be displayed in the Web Client as for most fields in ConSol\*CM.

## Type

Select one of two types:

Directional

A directional relation has a defined source and a defined target. A Data Object can be source and target for different relation types at the same time. An example for a directional relation is a reseller (company) to end customer (contact) relation: *sells products to*. A company (reseller) sells products to a contact (end customer). Or a relation between two contacts of a company: *is boss of*. The other direction *works for* can also be used. However, a consistent structure for the entire system should be designed to avoid misunderstandings.

## Reference

A reference is an undirected relation with no hierarchical implications, e.g. *has a cooperation with*.

## • Reportable

Defines if the relations of this type should be transferred to the data warehouse.

## • Only configurable via workflow

If this check box is marked the relation is not available in the Web Client but can only be created via workflow scripts. Therefore such relations cannot be manipulated manually.

- For a directional relation select:
  - Source

### Level

Level of the relation source, i.e. *company* or *contact* or *any* (choose the latter if the source can be either a company or a contact).

### Customer group

The customer group of the source Data Object.

### • Description

Will be displayed in the Web Client as description of the relation on the source side.

### • Target

• Level

Level of the relation target, i.e. *company* or *contact* or *any* (choose the latter if the target can be either a company or a contact).

Customer group

The customer group of the target Data Object.

## • Description

Will be displayed in the Web Client as description of the relation on the target side.

## 20.3 Creating Customer Relations Using the Web Client

In spite of this book being an administrator's manual, we will show you how relations are set using the Web Client, because as an administrator you should always know what the consequences of administration modifications are.

As an engineer who has the access permissions to the source and to the target customer group, you can add a relation of one Data Object to another in the *Relations* section of the source Data Object. You have to have at least one role with the access permission *Write* for the source customer group and the target customer group to perform this operation. You can set the relations on the Data Object-specific page, i.e. open the company page or the contact page of the potential source object.

For example, you can create a relation *Sells products to* from a company in the *Reseller* customer group to a contact in the *Direct customers* customer group. Of course, this relation has to be defined in the Admin Tool first. Use the *Add* link in the *Relations* section and then select the relation from the drop-down menu. Enter the target name (e.g. contact name) in the auto-complete text field. You can also add a note. Then press *OK*. The relation can be edited or deleted afterwards using the respective links (*Edit, Remove*).

Please refer to the ConSol\*CM User Manual for a detailed explanation of the work with Customer Relations.

	Relations	
	Add relation Con Sol*	
mpany		
	Reseller SELLS TO EN	
ConSol* V Reseller	Note Mr. Sample	
Groups	OK Cancel	
0100.05	Reseller SELLS TO END CUSTOMERS relation (DirectCustomers) (Cont	acti
ResellerCompanyData Service Contr	No relations available.	and cy
ConSol*	<b>4</b>	WURDUUD
Franziskanerstraße 38 München 81669		Workspace is empty
Germany		All your unsaved tasks are
+49 89 45841 - 0		automatically listed in this
		workspace.
Relations		Favorites
Add relation		
ConSol*		Andreas Hansen
ConSol* Choose One Choose One		Andreas Hansen
ConSol* Choose One Choose One Reseller SELLS TO END CUSTOMERS relation		💄 Andreas Hansen
ConSol* Choose One Choose One		Andreas Hansen
ConSol* Choose One Choose One Reseller SELLS TO END CUSTOMERS relation	rectCustomers) (Contact)	Andreas Hansen
Con Sol* Choose One Choose One Reseller SELLS TO END CUSTOMERS relation OK Cancel	rectCustomers) (Contact)	Andreas Hansen
Con Sol* Choose One Choose One Reseller SELLS TO END CUSTOMERS relation OK Cancel Reseller SELLS TO END CUSTOMERS relation (Dir	rectCustomers) (Contact)	Andreas Hansen
Con Sol* Choose One Choose One Reseller SELLS TO END CUSTOMERS relation OK Cancel Reseller SELLS TO END CUSTOMERS relation (Dir	rectCustomers) (Contact)	Andreas Hansen

Fig. 4: ConSol\*CM Web Client - Setting a Relation

## 20.4 Scripting Using Relations

A new class, the UnitRelationService, is available. For details please refer to the ConSol\*CM API Java Doc.

In this book we will use the terms Data Object and Data Object definition. However, the names of the corresponding Java classes are Unit and UnitDefinition. All other Java classes which deal with customer Data Objects also are still named Unit... Please keep that in mind when you work on the administrator level as well as on the programmer's level. Please refer to the the ConSol\*CM Java API Doc for details.

```
// Creates the unit relation
UnitRelation create(UnitRelation pUnitRelation)
// Deletes the unit relation
void delete(UnitRelation pUnitRelation)
// Get a set of relations by criteria
PageResult<UnitRelation> getByCriteria(UnitRelationCriteria pCritieria)
// Gets unit relations by source and target units
Set<UnitRelation> getBySourceAndTarget(Unit pSourceUnit, Unit pTargetUnit)
// Gets unit relations by source or target units
Set<UnitRelation> getByUnits(Collection<Unit> pUnits)
// Updates the unit relation
void update(UnitRelation pUnitRelation)
```

Please refer to the *ConSol\*CM Process Designer Manual* for a detailed explanation on how to write scripts which use Customer Relations.

## 20.5 Data Object (Customer) Relations to Resources

The relations of resources to contacts or to companies are always defined as Resource Relations, i.e. defined for resources, not for Data Objects. The company or contact objects are assigned as potential target objects when the Resource Relation is defined. Resource Relations are explained in section CM Resource Pool - Resource Relations.

# **21 Action Framework - Data Object Actions**

- Introduction to Data Object Actions
- Managing Data Object Actions Using the Admin Tool
  - Step 1: Write the Data Object Action Script
  - Step 2: Create Data Object Action(s) Which Use the Script
  - Step 3: Assign Data Object Actions to Customer Groups
- Using Data Object Actions as an Engineer (User)
- Examples for Data Object Action Scripts
  - Example 1: Simple Manual Action
  - Example 2: New Ticket for a Customer
- Scripts for the Action Framework: Programming Data Object Actions
  - Data Object Action Scripts
    - Automatic Data Object Action Scripts
    - Manual Data Object Action Scripts
      - Create a Unit
        - Create a Ticket
        - Open a Unit Page
        - Open a Ticket Page
        - Open a Web Page
  - Data Object Condition Scripts
  - Important Groovy Objects
    - Object UnitActionScriptResult (CM Version 6.9)
    - Object actionScriptResult (CM Version 6.10 and Up)

# **21.1 Introduction to Data Object Actions**

*Data Object Actions* are components of the ConSol\*CM Action Framework. Data Object Actions are sometimes also called *Unit Actions*. They can be performed for a Data Object (unit), i.e. a contact or a company. The actions can be performed automatically by the system or manually, triggered by an engineer who has the required permissions. You might want to apply Data Object Actions for use cases like the following:

- Load additional data into a company's data set.
- Build an automatic report about the company-specific KPIs.
- Transfer ConSol\*CM data to another system (e.g. an ERP system).
- Create/update a Google Maps link from the address data.

You can use the following types of Data Object Actions:

- Automatic actions which are performed by the system after one of the following Data Object operations:
  - CREATE
  - UPDATE
  - DELETE
- **Manual** actions which are performed by the engineer using *Activities* links in the Data Object page ( *company* or *contact* page) of the Web Client (similar to *Workflow activities* for tickets). Manual actions are executed for the Data Object which is displayed, i.e. when the company page is open, company actions will be offered, when the contact page is open, contact actions will be offered.
- Please keep in mind that only engineers who have at least one role with the following access permissions for the respective customer group are allowed to use the Data Object Actions, i.e. only then the *Activities* will be displayed in the Web Client:

• Act

ompany	Display 🔻 Activities
MyNewSpaceCompany Veseller	Load report Do something interesting
Groups	Edit Hide Load data
ResellerCompanyData	Workspace
MyNewSpaceCompany Milkyway 77 Alderaan 777 Unknown 123 999	Workspace is empty All your unsaved tasks are automatically listed in this workspace.

Fig. 1: ConSol\*CM Web Client - Example for Manual Data Object Activities

Data Object Actions are defined as Groovy scripts which are stored in the *Script and Template* section of the Admin Tool.

The execution of Data Object Actions can be controlled using condition scripts, i.e. you can implement a condition script which is executed before the Data Object Action itself. Only when this script returns *true*, the following action script is executed.

So there are two types of scripts you have to deal with when you use the ConSol\*CM Action Framework:

Data Object Action scripts

Defines the action which should be performed.

• Data Object condition scripts

Defines one or more conditions for the display of the action in the Web Client. Has to return *true* or *false*. If *false* is returned the action is not displayed on the GUI and therefore cannot be performed.

When you want to use a Data Object Action you have to proceed in three steps:

- 1. Create Data Object Action script (either action script only or action script and condition script).
- 2. Create the Data Object Action(s) which use(s) the script(s).
- 3. Assign the Data Object Action(s) to the customer group(s) where they should be available. You can assign the actions to contacts and/or companies of a customer group.

In the following sections, all three steps are explained in detail.

# 21.2 Managing Data Object Actions Using the Admin Tool

In this book we will use the terms *Data Object* and *Data Object definition*. However, the names of the corresponding Java classes are *Unit* and *UnitDefinition*. All other Java classes which deal with customer Data Objects are also still named *Unit...* Please keep that in mind when you work on the administrator level as well as on the programmer's level. Please refer to the the *ConSol\*CM Java API Doc* for details.

## 21.2.1 Step 1: Write the Data Object Action Script

Create a new Admin Tool script of type *Data Object Action*. If required, create another script of type *Data Object condition*.

For a detailed explanation of Admin Tool scripts, please refer to section Admin Tool Scripts. For an introduction to Admin Tool scripts used for Data Object Actions, please read section Scripts for the Action Framework in this chapter.

Scripts	
All script types	
Name	Туре
AppendToTicket.groovy	E-mail
ChangeOutgoingMail.groovy	E-mail
CheckAndUpdateCompanyServiceStatus	Data object action
CloneTicket.groovy	Workflow
ConditionUpdateContactData	Data object condition
CreateTicket.groovy	E-mail
DisplayCustomerData.groovy	Workflow
Do something interesting	Data object action
GoToAMTicketScript	Data object action
GoToCompanyURL	Data object action
IncomingMailRouting.groovy	E-mail
Load data	Data object action
MailToClosedTicket.groovy	E-mail
OfferCreateTicketPage	Data object action
OfferCreateUnitPage	Data object action
Open report	Data object action
UpdateContactData	Data object action

Fig. 2: ConSol\*CM Admin Tool - Scripts for Data Object Actions

```
Example data object action script for CM version 6.9.4
//create and return action result that will tell the web to create new ticket with unit as
//a main customer
def queueId = queueService.getByName("Helpdesk").getId();
Map<String, Object> valuesMap = new HashMap<String, Object>
valuesMap.put(PostActionParameter.UNIT_ID, unit.getId())
valuesMap.put(PostActionParameter.QUEUE_ID, queueId)
return unitActionScriptResultFactory.getPostAction(PostActionType.CREATE_TICKET, valuesMap)
Example data object action script for CM version 6.10
// offer Create Ticket page for a new Service Desk ticket
import com.consol.cmas.core.server.service.action.PostActionType
import com.consol.cmas.common.model.ticket.Ticket
def newtic = new Ticket()
def qu = queueService.getByName("ServiceDesk")
newtic.setOueue(qu)
return actionScriptResultFactory.getPostAction(PostActionType.CREATE_TICKET, newtic, unit)
```

# 21.2.2 Step 2: Create Data Object Action(s) Which Use the Script

Open the navigation item *Actions* in the navigation group *Customers* in the Admin Tool and add (= create) a new action object using the *Plus* button . The pop-up window is the same for adding and editing a Data Object Action.

00								
ConSol CM6			Edit data object action	<b>c</b> 🔄 🗲				
A Home	*	Actions	Edit data object action					
Access and Roles	۲	Data object actions	i Please edit data object action's data					
🗮 Lists	۲	Filter: All action types	ne					
Tickets	۲	Name Type	Name: UpdateResellerCustomerData					
Lustomers	۲	CheckServiceStatus Manual	Type: Update					
La Customer Groups		DoSomethingInteresting Manual DoSomethingInteresting2 Manual GoToAM_TicketOnGUI Manual GoToCompanyURL Manual	Condition Script: ConditionUpdateContactData   Execution Script: UpdateContactData	m ERP				
Actions		LoadData Manual LoadReport Manual	Description: Retrieve orders for previous week from ERP					
🚣 Roles		OfferCreateTicketPageOnGUI Manual OfferCreateUnitPageOnGUI Manual						
Relations		UpdateResellerCustomerData Update						
Resources	۲		Save Cancel					
🖨 Global Configuration	۲							
💮 Data Warehouse	۲							
🔅 Services	۲							
💟 E-Mail	۲		Name Localizations					
🕫 System	۲		Locale Value					
	_							
CM_Administration]		11						

Fig. 3: ConSol\*CM Admin Tool - Editing a Data Object Actions

In the pop-up window, the parameters for the new action have to be defined:

Name

The unique technical name of the action. Can be localized using the *Localize* button 🗐 .The localization is required for manual actions, because the localized name is displayed under *Activities* in the Web Client.

Type

The action type which defines when it should be executed. Select one of the following types:

Create

This script will be executed automatically when the contact/company is created.

• Update

This script will be executed automatically when the contact/company is updated, i.e. when the data has been modified (either manually or automatically) and is saved again.

• Delete

This script will be executed automatically when the contact/company is deleted.

Manual

This script will be offered on the contact/company page as manual activity.

Condition Script

In case a condition script should be executed before the action script, the name of the condition script has to be entered here. Only when the condition script has returned *true*, the action script will be executed. If there is no condition, just leave this field empty.

• Execution Script

The name of the action script which should be executed. This has to be the exact name under which the script is stored in the *Script and Template* section of the Admin Tool.

#### • Description

Enter the description which should be displayed as mouse-over in the Web Client (for manual actions only).

Save the action. Then you can assign it to customer groups. Please see following step.

## 21.2.3 Step 3: Assign Data Object Actions to Customer Groups

For the Data Object Action to become effective, you have to assign it to a customer group. Then it will be available for all customers of this customer group. Depending on the initial definition (contact or company action), the action will be available for contacts or for companies in the customer group. To assign a Data Object Action to a customer group, open the navigation item *Customer Groups* in the navigation group *Customers* of the Admin Tool. Select the customer group you would like to edit and click on Pop-up window to assign the Data Object Actions. All Data Object Actions which have been stored under *Actions* (see step 2) will be offered here, each for the corresponding action type. For example, an action which has been defined for the type *Update* during definition (see step 2) will only be offered as *Update* action.

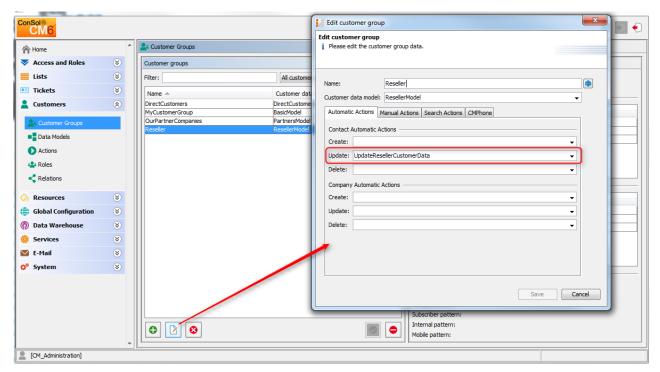


Fig. 4: ConSol\*CM Admin Tool - Assigning Data Object Actions to a Customer Group

You can define the following action types:

#### • Automatic Actions

#### Contact Automatic Actions

The script will be executed for the contact. Manual actions are offered on the contact page only.

#### Company Automatic Actions

The script will be executed for the company. Manual actions are offered on the company page only.

For each type you can determine the system behavior for the following actions:

• Create

This script will be executed automatically when the contact/company is created.

• Update

This script will be executed automatically when the contact/company is updated, i.e. when the data has been modified (either manually or automatically) and is saved again.

Delete

This script will be executed automatically when the contact/company is deleted.

Manual Actions

This script will be offered on the contact/company page as manual activity.

#### Search Actions

Those will be explained in section Action Framework - Search Actions.

# 21.3 Using Data Object Actions as an Engineer (User)

As an engineer (user), only the Data Object Action type *manual* is relevant for you. The *CREATE, UPDATE* and *DELETE* scripts run in the background.

Manual actions are offered in the Web Client similar to workflow activities for a ticket. Please see *Example 1* in the next section.

# 21.4 Examples for Data Object Action Scripts

# 21.4.1 Example 1: Simple Manual Action

A manual action is coded and stored as an Admin Tool script, then a company action is defined using the script, and the action is assigned to a customer group.

Gcripts	
All script types	
Name	Туре
AppendToTicket.groovy	E-mail
BuildLocationDependentEnum	Dependent enum
BuildLocationDependentEnumForTable	Dependent enum
ChangeOutgoingMail.groovy	E-mail
CheckAndUpdateCompanyServiceStatus	Data object action
CheckClosedChildTickets.groovy	Workflow
CloneServiceTickets.groovy	Clone
CloneTicket.groovy	Workflow
ConditionUpdateContactData	Data object condition
CreateTicket.groovy	E-mail
DefaultValuesServiceDesk.groovy	Default values
DisplayCustomerData.groovy	Workflow
Do something interesting	Data object action
GoToAMTicketScript	Data object action
GoToCompanyURL	Data object action
IncomingMailRouting.groovy	E-mail
Load data	Data object action
MailOutServiceDesk.groovy	E-mail
MailScriptServiceDesk	E-mail
MailToClosedTicket.groovy	E-mail
MessageToEngineerRemove.groovy	E-mail
❹ 🕑 😆 🛅	

Fig. 5: ConSol\*CM Admin Tool - Data Object Action Script to Be Used as Company Script

[ 🗾 CM6 Admin-Tool @ cm6dc	ku-cm1	.int.c	onsol.de		<u></u>			
ConSol *					📔 Edit data objec	t action		
CM6					Edit data object action			
A Home	Actions				i Please edit data object action's data			
Access and Roles	۲		Data object actions		1			
🗮 Lists	۲		Filter: All action t	ypes 👻 🖌 All c		CheckServiceStatus		
Tickets	۲		Name	Туре	Type:	Manual		
Lustomers	۲		CheckServiceStatus	Manual	Condition Script:	<b></b>		
La Customer Groups			DoSomethingInteresting DoSomethingInteresting2 GoToAM_TicketOnGUI	Manual Manual Manual	Execution Script: Description:	CheckAndUpdateCompanyServiceStatus           (Re-)Check Service Status: Platin Gold Silver		
Data Models			GoToCompanyURL	Manual	-	(Re-) check service status: Flatingold sliver		
Actions			LoadData LoadReport	Manual Manual				
A Roles			OfferCreateTicketPageOnGUI	Manual				
Relations			OfferCreateUnitPageOnGUI UpdateResellerCustomerData	Manual				
- Activitions			UpdateResellerCustomerData	Update	1	Save Cancel		
ᢙ Resources	۲					1111		
🖨 Global Configuration	۲							
⑦ Data Warehouse	۲							
🔅 Services	۲							
🗹 E-Mail	۲					Name Localizations		
🗭 System	۲					Locale Value		
						Englisch (Re-)Check service status of the co		
		Ŧ						
[CM_Administration]								

Fig. 6: ConSol\*CM Admin Tool - Defining the Company Action

			F	Edit customer group		×
				dit customer group		
📔 CM6 Admin-Tool @ cm6d	oku-cm1.int.co	onsol.de	l i	Please edit the customer group data.		
ConSol CM6			$\left  - \right $			
A Home	*	La Customer Groups		Name: MyCustomerGroup Customer data model: BasicModel		
Access and Roles	۲	Customer groups		Automatic Actions Manual Actions Search Actions	CMDhama	
E Lists	۲	Filter: All customer data models	s		CMPhone	
Tickets	۲	Name 🔺 Customer data model		Contact Manual Actions		_
Lustomers	۲	DirectCustomers DirectCustomersModel		Assigned	Available	
State Customer Groups		MyCustomerGroup BasicModel OurPartnerCompanies PartnersModel		Name	Name	
Data Models		Reseller ResellerModel				
-					DoSomethingInteresting DoSomethingInteresting2	
Actions					OfferCreateTicketPageOnGUI	-
Ar Roles					Cottom Talanoocut	
< Relations						
ᢙ Resources	۲			Company Manual Actions		
🖨 Global Configuration	۲		1	Assigned	Available	
💮 Data Warehouse	۲					_
🔅 Services	۲			Name CheckServiceStatus	Name DoSomethingInteresting	
🗹 E-Mail	۲			CheckServiceStatus	DoSomethingInteresting2	
🔗 System	8				OfferCreateTicketPageOnGUI GoToAM TicketOnGUI	
	<u> </u>				GoToCompanyURI	<u>-</u>
					Save	Cancel
	Ψ.					
CM_Administration]						

Fig. 7: ConSol\*CM Admin Tool - Assigning a Company Action

The engineer can use the action manually in the Web Client.

Company	y MySpaceCompany 🔻	MyCustomorC	roup				Display 🔻	Activities (Re-)Check service status of the
121	Address Milkyway 77 7777 Aldera		company					
	T: 1 ( (0)							Workspace
	Tickets (0)						Hide	Workspace is empty
	All tickets v		All your unsaved tasks are automatically listed in this workspace.					
	Contacts (1)						Hide Add	Favorites
	Add/Remove column Phone 1', 'phonetype1', VIC Number per page 10							Andreas Hansen
	Contact	Phone 1	phonetype1	Acad. title	Division	Function	E-mail	Max Mustermann
	Lea Skywalker	123	Office	Dr.	Special Forces	Starship Operator	lea@localhost	Marylin Monroe

Fig. 8: ConSol\*CM Web Client - Using a Manual Company Action

A script similar to the following could be used:

```
Example Data Object Action script, CM version 6.10
// check service status for a Reseller company and set new status
// this is an example for documentation purposes
import com.consol.cmas.common.model.customfield.enums.EnumValue
c
// ... do something, e.g. reference an external system to find the current service status of
the company) ...
// here, the example value "ok" is used, this has to be an enum value in the service_status list
def ser_stat = enumService.getValueByName("service_status","ok")
// set the new service status for the company
unit.setFieldValue("ResellerCompanyData","service_status",ser_stat)
return actionScriptResultFactory.getPostAction(PostActionType.SUCCESS, "action.result.success").
withRefreshContent();
```

## 21.4.2 Example 2: New Ticket for a Customer

The following script opens the *Create ticket* page for the contact or company from which the action has been performed. The target queue is *ServiceDesk*. That way a new Service Desk ticket can be created in no time for the open contact or cpmpany. For an introduction to Admin Tool scripts for the Action Framework, please read the following section.

```
Example contact script (CM version 6.9.4)
import com.consol.cmas.common.model.scripting.unit.PostActionParameterimport
import com.consol.cmas.core.server.service.UnitActionScriptResultFactoryimport
import com.consol.cmas.common.model.scripting.unit.PostActionType
def queueId = queueService.getByName("ServiceDesk").getId();
Map<String, Object> valuesMap = new HashMap<String, Object>()
valuesMap.put(PostActionParameter.UNIT_ID, unit.getId())
valuesMap.put(PostActionParameter.QUEUE_ID, queueId)
return unitActionScriptResultFactory.getPostAction("createTicket", valuesMap)
```

```
Example customer action script (CM version 6.10)
import com.consol.cmas.core.server.service.action.PostActionType
import com.consol.cmas.common.model.ticket.Ticket
def newtic = new Ticket()
def qu = queueService.getByName("ServiceDesk")
newtic.setQueue(qu)
return actionScriptResultFactory.getPostAction(PostActionType.CREATE_TICKET, newtic, unit)
```

Please note that, in case a ticket should be created with a company as main customer, the check box *Company as customer* must be checked for the customer data model of the respective customer group.

# 21.5 Scripts for the Action Framework: Programming Data Object Actions

Data Object Actions are defined by Admin Tool scripts, i.e. by Groovy scripts which are stored in the *Script and Template* section of the Admin Tool. The predefined object *unit* (i.e. an object of class *Unit*) is available for those scripts. Objects of the class *Unit* can represent a company or a contact, depending on the context.

There are two types of scripts for the Action Framework:

- Data Object Action scripts
- Data Object Condition scripts

## 21.5.1 Data Object Action Scripts

The actions in this script are executed either triggered automatically by the system operations *CREATE*, *UPDATE*, or *DELETE* or by a manual action (using *Activities* in the Web Client) of the engineer.

## Automatic Data Object Action Scripts

```
Example script: Set a value in customer data and update the unit
unit.set("personalData.name", "Skywalker")
unitService.update(unit)
```

#### Attention:

When you use *unitService.update(unit)* as in the example above, you can use a Data Object condition script to avoid infinite loops. See note in section *Data Object Condition Scripts*.

## **Manual Data Object Action Scripts**

For manual Data Object Action scripts you can make use of some specific methods and objects.

## CM version 6.9:

- Methods (fields of the Interface PostActionType, com.consol.cmas.common.model.scripting.unit )
  - CREATE\_UNIT
    - Open create unit page.
  - CREATE\_TICKET Open create ticket page.
  - GOTO\_UNIT Open unit detail page.
  - GOTO\_TICKET Open ticket page.
  - GOTO PAGE
    - Open a web page (URL).
- Objects
  - UnitActionScriptResult

## CM versions 6.10 and up:

- Methods (fields of the Interface PostActionType, com.consol.cmas.core.server.service.action. PostActionType)
  - CREATE\_RESOURCE
    - Open create resource page
  - CREATE\_UNIT Open create unit page.
  - CREATE\_TICKET Open create ticket page.
  - GOTO\_RESOURCE Open resource detail page
  - **GOTO\_UNIT** Open unit detail page.
  - **GOTO\_TICKET** Open ticket page.
  - GOTO\_PAGE

Open a web page (URL).

- Objects
  - actionScriptResult

For a detailed explanation of the PostActionTypes in CM versions 6.10 and up, please refer to section Scripts for the Action Framework.

## Create a Unit

(*PostActionType.CREATE\_UNIT*) redirects the user to the create unit page. It uses the optional parameter *PostActionParameter.CUSTOMER\_GROUP\_ID* to decide for which customer group a new unit has to be created and optionally the map of Data Object group fields (*PostActionParameter.FIELDS\_MAP*) to fill the unit's Data Object group fields with the passed values.

```
Example company action script which fills some unit data, CM version 6.9.4
import com.consol.cmas.common.model.customfield.meta.FieldKey
import com.consol.cmas.common.model.customfield.AbstractField
import com.consol.cmas.common.model.customfield.StringField
import com.consol.cmas.common.model.scripting.unit.PostActionParameter
import com.consol.cmas.common.model.scripting.unit.PostActionType
Map<FieldKey, AbstractField<?>> fieldsMap = new HashMap<FieldKey, AbstractField<?>>()
FieldKey firstName = new FieldKey("customer", "firstname")
FieldKey name = new FieldKey("customer", "name")
fieldsMap.put(firstName, new StringField(firstName, "Han"))
fieldsMap.put(name, new StringField(name, "Solo"))
Map<String, Object> valuesMap = new HashMap<String, Object>()
valuesMap.put(PostActionParameter.CUSTOMER_GROUP_ID, unit.getCustomerGroup().getId())
valuesMap.put(PostActionParameter.FIELDS_MAP, fieldsMap)
return unitActionScriptResultFactory.getPostAction(PostActionType.CREATE_UNIT, valuesMap)
```

```
Example company action script which fills some unit data, CM version 6.10
// used for companies in MyCustomerGroup to create new contacts easily
import com.consol.cmas.common.model.customfield.meta.*
import com.consol.cmas.core.server.service.action.PostActionType
def myunit = new Unit()
def mycustomergroup = customerGroupService.getByName("MyCustomerGroup")
myunit.setCustomerGroup(mycustomergroup)
def mycustomerdefinition = unitDefinitionService.getByName("customer")
myunit.setDefinition(mycustomerdefinition)
myunit.set("customer.firstname", "Han")
myunit.set("customer.name", "Solo")
return actionScriptResultFactory.getPostAction(PostActionType.CREATE_UNIT, myunit)
```


Compar	ny						Display 💌	Activities
<u></u>	MySpaceCompany Address Milkyway 77 7777 Aldera	-	Group					Create New Customer
	Tickets (0) All tickets ▼						Hide	Workspace is empty All your unsaved tasks are automatically listed in this
	No search results							workspace.
	Contacts (1)						Hide Add	Favorites
	Add/Remove column	'Phone 1', 'p	honetype1',	▼ OK		Number p	perpage 10 🔻	Andreas Hansen     Max Mustermann
	Contact	Phone 1	phonetype1	Acad. title	Division	Function	E-mail	
	Lea Skywalker	123	Office	Dr.	Special Forces	Starship Operator	lea@localhost	Marylin Monroe
	Additional details						Hide	

Fig. 9: ConSol\*CM Web Client - Company Action Script

Create I	lew Customer					Company pre-selected
		Company 77	Alderaan			(the company for which the create customer activity was performed
	Cancel MyCustomer					Some Data Object Group Fields are pre-
<b>_</b>	Choose One	-	Han	Solo 🔶	*	filled
	Function			Acad. title		
	E-mail			Robinson		
		Phone	Choose One	Phone 1		
			Choose One	Phone 2		
			Choose One	Phone 3		
			Choose One	Phone 4		
	Division					
		Domain				
			Manager Functional decider	Budget responsible Preparer		
	Comment			<u> </u>		
		VIF	o 📄 vip			
	СМЛ	Frack access				
	CM/Track login		CM/Track password			
	Track user					
	Create					

Fig. 10: ConSol\*CM Web Client - Create Unit Page Opened and Pre-Filled by Company Action Script

Of course, the names of the Data Object Group Fields which are used in the script have to be the ones from the customer data model which has been assigned to the customer group for which a new contact should be created.

ActionScript assigned to a customer group with this model!		-		-	mer", "name") customer", "f		7
ConSolition CM6					/	/ /	S 🗐 🗧
A Home	<u> </u>	Data Models			/		
▼ Access and Roles	8	Customer data mode	els		Data object group fields		
E Lists	۲	BasicModel			Filter:	/	
Tickets	۲	e- 🐜 company					
Lustomers	۲	E- 🔝 com			Name	Type	
La Customer Groups		Electronic Custo      Electronic Custo	mersModel	E	firstname name	enum short string short string short string	E
Actions		DirCustCustomer     DirCustCustomerData			email comment_field	short string short string	
Relations		PartnersMon     PartnersCon	del		companyRef decision division	contact dat boolean short string	
Resources	۲	PartnersCon	atact			enum	
(=) Global Configuration	۲						
⑦ Data Warehouse	۲	Assigned annotation	ns		Assigned annotations		
Services	۲	Name A	Value	Annotation group	Name 🔺	Value	Annotation group

Fig. 11: ConSol\*CM Admin Tool - Script for Creating Unit Page as Company Action

#### **Create a Ticket**

(*PostActionType.CREATE\_TICKET*) redirects the user to a create ticket page. It uses the optional *PostActionParameter.UNIT\_ID* with the ID of the main customer, *PostActionParameter.QUEUE\_ID* with the ID of the queue, and the custom fields map *PostActionParameter.FIELDS\_MAP*.

```
Script creates and returns action result that will tell the web to create a new ticket with
unit as the main contact, CM version 6.9.4
// offer Create Ticket page for a new HelpDesk 1st level ticket
import com.consol.cmas.common.model.scripting.unit.PostActionType
import com.consol.cmas.common.model.scripting.unit.PostActionParameter
def queueId = queueService.getByName("HelpDesk_1st_Level").getId()
Map<String, Object> valuesMap = new HashMap<String, Object>()
valuesMap.put(PostActionParameter.UNIT_ID, unit.getId())
valuesMap.put(PostActionParameter.QUEUE_ID, queueId)
return unitActionScriptResultFactory.getPostAction(PostActionType.CREATE_TICKET, valuesMap)
Script creates and returns action result that will tell the web to create a new ticket with
unit as the main contact, CM version 6.10
// offer Create Ticket page for a new Service Desk ticket
import com.consol.cmas.core.server.service.action.PostActionType
import com.consol.cmas.common.model.ticket.Ticket
def newtic = new Ticket()
def qu = queueService.getByName("ServiceDesk")
newtic.setOueue(qu)
return actionScriptResultFactory.getPostAction(PostActionType.CREATE_TICKET, newtic, unit)
```

#### Attention:

Please remember that the customer group for which the script should be applied has to be assigned to the queue where the ticket is to be created (*HelpDesk\_1st\_Level* in the example).

Contact	Skywalker Luke 💌 Reseller	Display 🔻	Activities (Re-)Check service status of the
	luke@localhost.de 123 MyNewSpaceCompany		Create new Help Desk ticket
	Tickets (1) All tickets	Hide	Workspace Workspace is empty
	Add/Remove column 'Engineer', 'Main Customer',  Number per page OK	e 10 🔻	All your unsaved tasks are automatically listed in this workspace.

Fig. 12: ConSol\*CM Web Client - Example Contact Action Script

New Tick	et	Workspace
6	Subject	Workspace is empty All your unsaved tasks are
1995 I	Queue: HelpDesk 1st L Assigned to: Unassigned	automatically listed in this workspace.
	Priority Choose One  Module Choose One	
	Reaction time Ask for feedback	Favorites
	Category None 💌	Andreas Hansen
		Max Mustermann
	Customers Add	Marylin Monroe
	Main	Maryini Mollioe

Fig. 13: ConSol\*CM Web Client - Create Ticket Page Opened and Pre-Filled by Contact Action Script

## **Open a Unit Page**

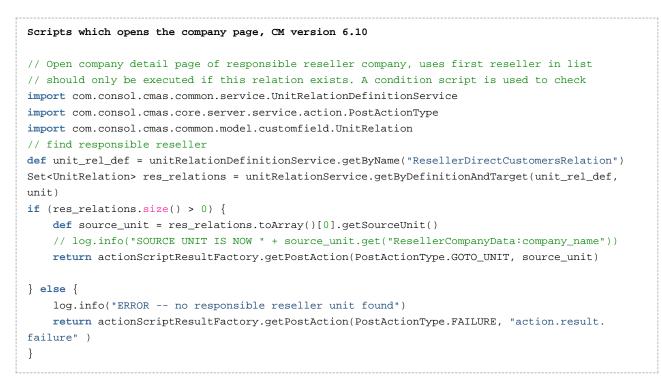
(*PostActionType.GOTO\_UN/T*) redirects to a unit page. It uses the obligatory parameter *PostActionParameter.UN/T\_ID* with the ID of the unit.

```
Scripts which opens the company page, CM version 6.9.4
import com.consol.cmas.common.model.scripting.unit.PostActionType
import com.consol.cmas.common.model.scripting.unit.PostActionParameter
Map<String, Object> valuesMap = new HashMap<String, Object>()
valuesMap.put(PostActionParameter.UNIT_ID, unit.get("company()").getId())
return unitActionScriptResultFactory.getPostAction(PostActionType.GOTO_UNIT, valuesMap)
```

**Example:** Go to the contact detail page of an end customer and open the company detail page of the Reseller company which is responsible for this end customer. A company-contact relation has been established before. If more than one reseller relation have been defined, the first relation in the list is used.

Contact									Print	Activities
@	Ernst End Customer V DirectCu	ustomers								OpenResponsibleResellerPage
	Samples Inc.  Samples Inc.									Workspace
	No tickets									Workspace is empty All your unsaved tasks are automatically listed in this
<u> </u>	No additional details							Comment Atta		workspace.
	Relations (1)								Add 🔺	Francisco de la
	The end customer buys from the	e following res	eller (Re	seller) (Company	()					Favorites
	¢ ▼ Company	Date	Note	address	city	company_name	Company number	CompanyType	country	💄 Susanne Stuller
	🔛 ConSol Düsseldorf 4711	8/19/14 15:47	Edit	Kanzlerstraße 8	Düsseldorf	ConSol Düsseldorf	4711	small   5-25	Germany	All Contacts
	•	m							Þ	HP printers
	History								~	HP Printer: 4712
8/13/15	10:20 changed by Susan Servicel									OpenTicketsAUSTR
8/40/44	Customer name changed from Waltraud Wiederverkäufer to Ernst End Customer								Service request	
0/10/14	<ul> <li>Relation added: Customer en</li> <li>Customer name changed fron</li> <li>Customer name set to Erich E</li> </ul>	d of RESELLER Erich Endkund				nSol Düsseldorf 47	11			

Fig. 14: ConSol\*CM Web Client - Data Object Action on Contact Detail Page (Activity Opens Company Detail Page of Responsible Reseller, CM Version 6.10)



In case the activity OpenResponsibleResellerPage should only be offered in the Web Client if a relation to the responsible reseller has been set, yo can work with a data object condition script. It has to be ceated as Admin Tool script of type *Data object condition* and has to be assigned to the data object action script in the *Actions* section.

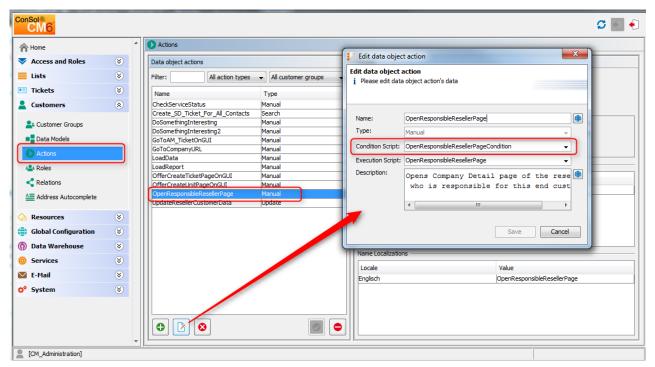


Fig. 15: Admin Tool: Assignment of Data Object Condition

```
Data Object Condition script which checks if reseller relation is present
// Checks if reseller relation is set
import com.consol.cmas.common.service.UnitRelationDefinitionService
import com.consol.cmas.common.model.customfield.UnitRelation
// find responsible reseller
def unit_rel_def = unitRelationDefinitionService.getByName("ResellerDirectCustomersRelation")
Set<UnitRelation> res_relations = unitRelationService.getByDefinitionAndTarget(unit_rel_def,
unit)
if (res_relations.size() > 0) {
    return true
} else {
    return false
}
```

## **Open a Ticket Page**

(*PostActionType.GOTO\_TICKET*) redirects to a ticket page. It uses the obligatory parameter *PostActionParameter.TICKET\_ID* with the ID of the ticket.

```
Open a ticket page in view mode, CM version 6.9
import com.consol.cmas.common.model.scripting.unit.PostActionType
import com.consol.cmas.common.model.scripting.unit.PostActionParameter
import com.consol.cmas.common.model.customfield.Unit
import com.consol.cmas.common.model.ticket.TicketCriteria
import com.consol.cmas.common.model.customfield.ListField
import com.consol.cmas.common.model.customfield.ContactReferenceField
import com.consol.cmas.common.model.customfield.UnitReferenceSearchField
import com.consol.cmas.common.model.customfield.ContactReferenceSearchField
import com.consol.cmas.common.model.customfield.meta.FieldKey
import com.consol.cmas.common.model.ticket.Ticket
import com.consol.cmas.common.model.ContactTicketRole
import com.consol.cmas.common.model.customfield.StringField
import com.consol.cmas.common.model.scripting.unit.UnitActionScriptResult
//get AM gueue for search
def q_id = (workflowApi.getQueueByName("AccountManagement")).id
def q_ids = new HashSet()
q_ids.add(q_id)
//find AM ticket for the company
def crit = new TicketCriteria()
crit.setQueueIds(q_ids)
// create list field key
def contactSearchListFieldKey = new FieldKey("queue_fields","contacts")
// prepare list field
def contactsListField = new ListField(contactSearchListFieldKey )
// create member field key
def contactSearchFieldKey = new FieldKey("queue_fields","contacts_member")
// create unit member field with Unit and ticket main role
def contactsMember = new
ContactReferenceSearchField(contactSearchFieldKey, unit,
ContactTicketRole.MAIN_ROLE)
// put member field in Unit list field
contactsListField.addChild(contactsMember)
// put field(s) into the criteria
crit.setFields([contactsListField] as Set)
// seek and find
def foundTickets = ticketService.getByCriteria(crit)
if ( foundTickets ) {
 def AM_tic = foundTickets.first()
 def AM_tic_id = AM_tic.id
  // go to AM ticket
 Map<String, Object> valuesMap = new HashMap<String, Object>()
  valuesMap.put(PostActionParameter.TICKET_ID, AM_tic_id)
 return unitActionScriptResultFactory.getPostAction(PostActionType.GOTO_TICKET, valuesMap)
}
// Default: found nothing
return null
```

```
Open a ticket page in view mode, CM version 6.10
import com.consol.cmas.common.model.customfield.Unit
import com.consol.cmas.common.model.ticket.TicketCriteria
import com.consol.cmas.common.model.customfield.ListField
import com.consol.cmas.common.model.customfield.ContactReferenceField
import com.consol.cmas.common.model.customfield.UnitReferenceSearchField
import com.consol.cmas.common.model.customfield.ContactReferenceSearchField
import com.consol.cmas.common.model.customfield.meta.FieldKey
import com.consol.cmas.common.model.ticket.Ticket
import com.consol.cmas.common.model.ContactTicketRole
import com.consol.cmas.common.model.customfield.StringField
import com.consol.cmas.core.server.service.action.PostActionType
//get AM queue for search
def q_id = (workflowApi.getQueueByName("AccountManagement")).id
def q_ids = new HashSet()
q ids.add(q id)
//find AM ticket for the company
def crit = new TicketCriteria()
crit.setQueueIds(q_ids)
// Listenfeld-Key erzeugen
def contactSearchListFieldKey = new FieldKey("queue_fields","contacts")
// Listenfeld vorbereiten
def contactsListField = new ListField(contactSearchListFieldKey )
// Memberfeld-Key erzeugen
def contactSearchFieldKey = new FieldKey("queue_fields","contacts_member")
// Unit-Memberfeld mit Unit und Ticket-Hauptrolle erzeugen
// COmpany is MAIN CONTACT at the AM ticket!
def contactsMember = new ContactReferenceSearchField(contactSearchFieldKey, unit,
ContactTicketRole.MAIN_ROLE)
// Member-Feld in Unit-Listenfeld stopfen
contactsListField.addChild(contactsMember)
// Feld(er) in die Kriterien stopfen
crit.setFields([contactsListField] as Set)
// Suchen und finden
def foundTickets = ticketService.getByCriteria(crit)
println "Found tickets: ${foundTickets}"
if ( foundTickets ) {
 def AM_tic = foundTickets.first()
 return actionScriptResultFactory.getPostAction(PostActionType.GOTO_TICKET, AM_tic)
}
// Default: found nothing
return null
```

#### Attention:

When you use on e of the scripts above, please keep in mind that the ticket search requires that the Data Object group fields of the company be indexed (annotation *field-indexed = true*).

Company	Display 🔻 Activities
MyNewSpaceCompany V Reseller	(Re-)Check service status of the company
Groups	Edit Hide
ResellerCompanyData	Go to AM ticket
MyNewSpaceCompany	Workspace
MyNewSpaceCompany Milkyway 77 Alderaan 7777 Unknown	Workspace is empty
Milkyway 77 Alderaan 7777	

Fig. 16: ConSol\*CM Web Client - Company Action Available on Company Page (1)

Ticket		Accept Edit Clone	Print   Display 💌	Workflow activities
Å	AM Ticket MyNewSpaceCompany AccountManagement   Account Management			End account
100120	Unassigned   Open since 3/4/14 3:21 PM			Workspace
	Account started 3/2/14			Workspace is empty All your unsaved tasks are
	Customers		Add Hide	automatically listed in this
	Main			workspace.
ΞĒ	MyNewSpaceCompany 999 🔻 Reseller			Favorites
				Tavontes
	12.4	the second second second second	a an lana	Andreas Hansen

Fig. 17: ConSol\*CM Web Client - AM Page Opened after Company Action Go to Ticket

## **Open a Web Page**

(*PostActionType.GOTO\_PAGE*) redirects to URL. It uses the obligatory *PostActionParameter.URL* with the URL.

The following code shows a simple example with a fixed URL for each company.

```
Scripts which opens a cerain web site (URL), CM version 6.9.4
import com.consol.cmas.common.model.scripting.unit.PostActionType
import com.consol.cmas.common.model.scripting.unit.PostActionParameter
Map<String, Object> valuesMap = new HashMap<String, Object>()
valuesMap.put(PostActionParameter.URL, unit.get("company:www"))
return unitActionScriptResultFactory.getPostAction(PostActionType.GOTO_PAGE, valuesMap)
```

```
Scripts which opens a cerain web site (URL), CM version 6.10
// opens company's web site
import com.consol.cmas.core.server.service.action.PostActionType
def url = unit.get("url")
if (!url) {
    return actionScriptResultFactory.getPostAction(PostActionType.FAILURE, "error.script.no.url"
    }
} else {
    return actionScriptResultFactory.getPostAction(PostActionType.GOTO_PAGE,url)
}
```

The string *error.script.no.url* is a label which has been defined in the navigation group Labels, see section Labels.

ompany	Display 🔻 Activities
ConSol* GmbH VyCustomerGroup ConSol* GmbH Address Franziskanerstr. 38 81543 München http://www.consol.de	Open Web Site of Company
	Workspace
	Workspace is empty

Fig. 18: ConSol\*CM Web Client - Company Action Available on Company Page (2)

#### Attention:

To open a fixed URL, you can use a Data Object group field of type *string* with the annotation texttype *url*. This will automatically create a hyperlink. Thus, the use of the *GOTO\_URL* parameter in Data Object Action scripts is only recommended when a URL is built dynamically within a script.

## 21.5.2 Data Object Condition Scripts

A Data Object condition script defines whether the action should be shown in the Web Client or not. It is executed before executing the Data Object Action script. If it returns *false*, the Data Object Action script will not be executed.

```
Example data object condition script

if(unit.getFieldValue("customer.personalData") == null) {
   return true
} else {
   return false
}
```

To put a data object condition script into operation, you have to permorm the following steps:

- Write an Admin Tool script of type *data object condition*. The script has to define the conditions for the return values *true* and *false*. See example above. At this point you already have to know for which customer groups and data models the script will be used to make sure you reference the correct data fields within the script.
- 2. Assign the data object condition script to one or more data object action script(s). This is done in the *Actions* section, navigation group *Customers*.

That's it. You do not have to assign the condition script to a customer group. This happens implicitly when the respective data object action script is assigned to contacts or companies of certain customer groups.

## 21.5.3 Important Groovy Objects

## **Object UnitActionScriptResult (CM Version 6.9)**

The object *UnitActionScriptResult* is only taken into account for manual actions. For actions like *CREATE*, *UPDATE*, or *DELETE* it is not available. The *UnitActionScriptResult* object is created by the *unitActionScriptResultFactory.getPostAction(String, Map<String, Object>)* method. This class (resp. the object) is used to store information that will influence the process flow of the Web Client after the manual action has been executed. The *UnitActionScriptResult* object contains the manual action type, the IDs of the ticket, the unit, the queue, and the customer group. After having executed the manual action the user can be redirected to a different page.

## **Object actionScriptResult (CM Version 6.10 and Up)**

Starting with CM version 6.10, the Action Framework offers the classes ActionScriptResult and ActionScriptResultFactory. An object (singleto) of the class ActionScriptResultFactory is available as *actionScriptResultFactory* in every action script, no matter which type of action script.

See section Scripts for the Action Framework for details.

## Attention:

The Data Object Actions *CREATE*, *UPDATE*, and *DELETE* are executed in the core methods *create*, *update*, and *delete* of the object *unitService*.

So if the update action script updates the Data Object using the *unitService.update(Unit)* method then a *java.lang.StackOverflowError* error can be thrown, because the update action will be executed infinitely. In that case a Data Object condition script can be used to avoid such infinite loops.

# 22 Address Autocomplete

- Introduction
- Switch on the Autocomplete Address Feature Using the Admin Tool
- Import Zip/City/Address Data into the CM Database
- Define the Autocomplete Strategy Using the Admin Tool
  - Create One or More Autocomplete Strategy Definitions
  - Configure the Behavior for Each Autocomplete Strategy Definition
  - Refresh the Index
- Edit an Autocomplete Strategy Definition
- Delete an Autocomplete Strategy or Autocomplete Address Fields

# 22.1 Introduction

In some ConSol\*CM systems it is required that engineers enter or edit a great number of customer data manually. In that case it can be helpful to have system support to

- provide suggestions for the input into some data fields (like e.g. zip or address) to ensure that the entered address really exists
- avoid entering duplicates

To provide those functionalities, ConSol\*CM offers the feature *Autocomplete Address*. This feature can be switched on/off using a system property. In standard ConSol\*CM installations, it is switched off. When it has been switched on, the engineer can receive suggestions for the input in one or more of the following data object group fields:

- one or more fields which contain the zip code
- one or more fields that contain the city
- one or more fields that contain the address (street and number)

This applies to the following operations in the CM Web Client:

- Create a customer on the create customer page
- Create a customer in the *Customers* section of a ticket
- Edit a customer on the customer page
- Edit a customer in the *Customers Section* of a ticket
- Entering customer data on the Detail Search page
- Entering customer data in an ACF (Activity Control Form)

Usually, a data set which is publicly available, e.g. a data collection on CD ROM, serves as source for the import of the address data. In this way, the engineers can implicitly use a vast collection of zip/city/address mappings.

Please note that in order to use this feature, your company will have to purchase an address collection, i.e. the feature *Autocomplete Address* is based on the import of external data which is not part of a ConSol\*CM distribution!

In the following example, a German address collection has been imported into a ConSol\*CM Demo system. Please see the three example figures from the respective CM Web Client to learn how CM can help engineers improve their data input quality.

**Example 1:** The engineer starts typing into the *ZIP* field. Only the existing ZIP codes will be offered. The number of suggestions which are displayed is part of a Autocomplete Strategy Definition, please see section Define the Autocomplete Strategy Using the ConSol\*CM Admin Tool for details.

ZIP / City	02	*	City	*
Address	02625		*	
Address	02627			
Country	02633			
	02681			
Phone (front desk)	02689			
	02692			
Fax (front desk)	02694			
Web Site	02699			
WOD DIG	02708			
	02727			
	02727			

Fig. 1: ConSol\*CM Web Client - Suggestions of Autocomplete Address Feature, Example 1

**Example 2:** The *ZIP* field has already been filled. For the *City* field, only the correct possible values are suggested.

ZIP / City	40477	*	Düsseldorf	*
Address	Address		Düsseldorf	
Country	Choose one			
Phone (front desk)	Telefon			
Fax (front desk)	Fax			
Web Site	Webseite			
	🔲 geprüft			

Fig. 2: ConSol\*CM Web Client - Suggestions of Autocomplete Address Feature, Example 2

**Example 3:** The *ZIP* field and the *City* field have already been filled. For the *Address* field, only correct possible values are suggested.

ZIP / City	40477 * Düsseldorf	
Address	Address	*
Country	Annastr. Augustastr.	
Phone (front desk)	Blücherstr. Carl-Mosterts-Platz	
Fax (front desk)	Cordobastr.	
Web Site	Duisburger Str. Eulerstr. Fischerstr. Gneisenaustr.	
	Goebenstr.	

Fig. 3: ConSol\*CM Web Client - Suggestions of Autocomplete Address Feature, Example 3

I Please note that the values which are displayed are only suggestions. The engineer can always overwrite the suggested values by typing into the field manually.

Of course, parallel to this feature, the CM standard feature *Autocomplete Search* works and will display suggestions for the customers which are already part of the CM database.

ZIP / City	40477	•	Düsseldorf	•	Suggestions	
Address	Address			*	💹 MySuperReseller 998877	Select
Country	Annastr. Augustastr.				🥁 ConSol Düsseldorf 4711	Select
Phone (front desk)	Blücherstr. Carl-Mosterts-Platz					
Fax (front desk)	Cordobastr. Duisburger Str.					
Web Site	Eulerstr.					
	Fischerstr. Gneisenaustr.					
	Goebenstr.					

Fig. 4: ConSol\*CM Web Client - Standard Autocomplete / Suggestion Feature in Combination with Autocomplete Address

To configure your ConSol\*CM system for this feature, the following steps have to be performed:

- 1. Switch on the *Autocomplete Addresses* feature using the Admin Tool, see section Switch on the *Autocomplete Address* Feature Using the Admin Tool
- 2. Import zip/city/address data into the CM database. See section Import Zip/City/Address Data into the CM Database
- 3. Define the autocomplete strategy using the ConSol\*CM Admin Tool, see section Define the Autocomplete Strategy Using the ConSol\*CM Admin Tool
- 4. Refresh the index, see section Refresh the Index

# 22.2 Switch on the Autocomplete Address Feature Using the Admin Tool

Enter the system property *cmas-app-admin-tool, autocomplete.enabled* and set its value to *true*. The system property is not present in a standard CM installation and has to be added manually.

Edit configuration entry									
Edit configuration entry         j       Please edit the configuration entry									
Module:	cmas-app-admin-tool								
Property:	autocomplete.enabled								
Type:	Boolean								
Value field:	true								
Description:									
Restart required:									
Optional:									
	Save Cancel								

Fig. 5: ConSol\*CM Admin Tool - System Property for the Autocomplete Addresses Feature

Restart the Admin Tool. You will then see the new navigation item *Address Autocomplete* in the navigation group *Customers*. You will learn how to configure the autocomplete strategy in section Define the Autocomplete Strategy using the ConSol\*CM Admin Tool. But before it makes sense to define the strategy, the source data have to be imported. Please proceed to the next section to learn how to do this.

ConSol*				<b>C</b> 🗐 🔶
A Home	^	Address Autocomplete		
<ul> <li>Home</li> <li>Access and Roles</li> <li>Lists</li> <li>Tickets</li> <li>Customers</li> <li>Customer Groups</li> <li>Data Models</li> <li>Actions</li> <li>Roles</li> <li>Relations</li> <li>Address Autocomplete</li> <li>Global Configuration</li> <li>Data Warehouse</li> <li>Services</li> </ul>	<ul> <li>&gt;&gt;</li> <li>&gt;</li> <li>&gt;&gt;</li> <l< th=""><th>Address Autocomplete Address autocomplete Filter: Name</th><th>Address autocomplete fields Filter: Name</th><th>Details         Name:         Address autocomplete:         On Input:       0         Cut off:       0         Field definition:</th></l<></ul>	Address Autocomplete Address autocomplete Filter: Name	Address autocomplete fields Filter: Name	Details         Name:         Address autocomplete:         On Input:       0         Cut off:       0         Field definition:
<ul> <li>Services</li> <li>E-Mail</li> <li>System</li> </ul>	* *			
CM_Administration]		J Pr		

Fig. 6: ConSol\*CM Admin Tool - Address Autocomplete Tab in User Attributes Section

### 22.3 Import Zip/City/Address Data into the CM Database

Import the data into the table *cmas\_autocomplete\_address* in your CM database.

This import has to be implemented by a person who knows how to insert data correctly into a relational database! An import or import script are neither part of the ConSol\*CM distribution nor part of standard maintenance. You can implement the import script using a tool of your choice. In case you need any support, please ask your ConSol\*CM Consultant for help and advice.

The import has to comprise three fields for each data set (see the figure below)

- city
- street
- zip

	+	-+-		-+		+		+
Field		12			-	۰.	Default	•
id	· · · · · · · · · · · · · · · · · · ·	1.1				۰.		'   auto_increment
city	varchar(255)	1	YES	I.	MUL	L	NULL	l i i i i i i i i i i i i i i i i i i i
street	varchar(255)	1	YES	1	MUL	Ľ	NULL	l i i i i i i i i i i i i i i i i i i i
zip	varchar(32)	1	YES	1	MUL	Ľ.	NULL	

Fig. 7: ConSol\*CM Database - Table cmas\_autocomplete\_address

# 22.4 Define the Autocomplete Strategy Using the Admin Tool

To define the autocomplete strategy, you have to perform the following steps:

- 1. Create one or more Autocomplete Strategy Definitions
- 2. Configure the behavior for each Autocomplete Strategy Definition

#### 22.4.1 Create One or More Autocomplete Strategy Definitions

An Autocomplete Strategy Definition represents a mapping of a data object group field to one of the key fields in the *cmas\_autocomplete\_address* table, e.g. you want to define the following definition "When the engineer starts the input in the field *ResellerCompanyData.zip*, the system should search in *ZIP*, and when the engineer starts typing in the data object group field *ResellerCompanyData.city*, the system should search in the city field".

You have to define each of the Autocomplete Strategy Definitions in the Admin Tool in the navigation item Address Autocomplete in the navigation group *Customers*. Add a new Autocomplete Strategy Definition by pressing the plus <sup>①</sup> button. Enter the name of the new strategy definition and press *Save*.

ConSol CM6		C 📰
A Home	*	Aldress Autocomplete
Access and Roles	۲	Address autocomplete Address autocomplete fields Details
Eists	۲	Filter: Filter: Name:
Tickets	۲	Name Address autocomplete:
Customers	۲	On Input: 0
Lustomer Groups		Create address autocomplete configuration
Data Models		Create address autocomplete configuration
Actions		i Please fill in the required fields.
+a+ Roles		
Relations		Name: AutocompleteDefinitionZIP1
A Address Autocomplete		
Resources	*	Save Cancel
Global Configuration	*	
<ul> <li>Data Warehouse</li> </ul>	*	
Services	*	
E-Mail	*	
💇 System	*	
	•	
[CM_Administration]		

Fig. 8: ConSol\*CM Admin Tool - Adding a New Autocomplete Strategy Definition

## 22.4.2 Configure the Behavior for Each Autocomplete Strategy Definition

To configure an Autocomplete Strategy Definition, mark the definition in the list and add one or more Autocomplete Address Fields. These are the mapping rules from the data object group fields to the key fields in the *cmas\_autocomplete\_address* table.

CM6 Admin-Tool @ cm6d	oku-cm1.in	i.consol.de					
ConSol CM6					S 📰 🜖		
A Home		Address Autocomplete					
Access and Roles	۲	Address autocomplete	Address autocomplete	fields	Details		
E Lists	۲	Filter:	Filter:	Create address autoc	omplete field		×
Tickets	۲	Name	Name	Create address autoco	mplete field		
Lustomers	۲	AutocompleteDefinitionZIP1		i Please fill in the require	ed fields.		
Latomer Groups							
Data Models				Autocomplete address p	properties		
Actions				Name: zip			•
📲 Roles				Autocomplete: 🔽			
Relations				On Input:			2 ≑
Address Autocomplete				Cut off:		1	10 ≑
A Resources	۲			Field Definition			
Global Configuration	۲			Filter:		All groups	•
⑦ Data Warehouse	۲			Field: Name			
🔅 Services	۲				er (ResellerCompanyData) erCompanyData)		_ ^
💟 E-Mail	۲			city (ResellerCon zip (ResellerCon			
🗘 <sup>o</sup> System	۲			url (ResellerCom	npanyData)		
					sk (ResellerCompanyData) abel (ResellerCompanyData)		- 11
					lerCompanyInternalResp) ce.(ResellerCompanyInternalResp)		
[CM_Administration]		F					
						Save	Cancel

Fig. 9: ConSol\*CM Admin Tool - Definition of Autocomplete Address Fields

The following fields have to be defined for each Autocomplete Address Field:

• Name:

Select *city, street,* or *zip.* Here you define which key field from the *cmas\_autocomplete\_address* table is used.

• Autocomplete:

if switched on: The field itself will be an autocomplete field without any dependencies to other fields. if switched off: The field will not be an autocomplete field itself but will be filled by dependence on other fields. E.g. a *city* field with autocomplete switched off will be automatically filled when the *zip* field or the *address* field is filled but will not react to engineer input itself.

• On Input:

Here you define the number of characters the engineer has to type into the data object group field before the value recognition and autocompletion start. If you want the system to display the list as soon as the cursor has been placed in the data object group field in the Web Client, leave the configuration field here empty.

• Cut off:

Here you define the number of suggestions in the (drop-down) list.

• Field Definition:

Here you select one data object group field which should be sensitive for the autocomplete input. Only single selection is possible. In the following example, two Autocomplete Address Fields have been defined for the Autocomplete Address definition *AutocompleteDefinitionZIP1*, see the following figure.

Address Autocomplete			
Address autocomplete         Filter:         Name         AutocompleteDefinitionZIP1	Address autocomplete fields Filter: Name tty Zp	Details Name: city Address autocomplete: On Input: 0 Cut off: 5	]
Address Autocomplete	Address autocomplete fields	Field definition: city	y (ResellerCompanyData)
Filter:           Name           AutocompleteDefinitionZIP 1	Filter:	Name: zip Address autocomplete: On Input: 2 Cut off: 10 Field definition: zip	2

Fig. 10: ConSol\*CM Admin Tool - Complete Autocomplete Address Definition

#### 22.4.3 Refresh the Index

When you have entered and configured all required Autocomplete Strategy Definitions, you have to refresh the index. For details about the index, please refer to section Search Configuration and Indexer Management.

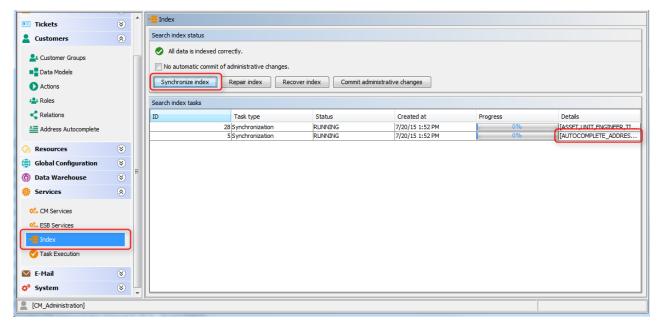


Fig. 11: ConSol\*CM Admin Tool - Index Refresh

## 22.5 Edit an Autocomplete Strategy Definition

In order to edit an existing Autocomplete Strategy Definition, use the edit D button. You can edit the Autocomplete Strategy Definition and/or each of the Autocomplete Address Fields.

# 22.6 Delete an Autocomplete Strategy or Autocomplete Address Fields

In order to delete an Autocomplete Strategy Definition or Autocomplete Address Fields, mark the strategy definition or the field in the respective list and press the delete 😢 button.

### 23 CM.Resource Pool Section

ConSol CM6			🗘 💽 🌖
A Home	Data Models		
▼ Access and Roles 🛛 🛞	Resource Groups and Types	Details Relations	
Lists 🛞	Printers     HP_Printer	Resource Type Details Name: PC_Desktops	
Customerc X Resources		Mode: Internal Enabled: Icon:	
Cata Models  Relations Overview  Actions	C_Desktops     C_Desktop_Fields_basic     PC_Laptops     PC_Laptops_Fields_basic     PC_Laptops_Fields_basic     PC_Laptops_Fields_basic	Description:	
🖨 Global Configuration 🛛 😵	Jackets Fields basic	Туре	Name
🕥 Data Warehouse 🛛 🛞	Jackets Fields extended	Default	PC_Desktop_Template_Default
Services 🛞			
E-Mail 🛞	Assigned annotations		
🕈 System 🛛 😵	Name  Value Annotation group		
		Actions	
		Туре	Name
		Manual	CreateTicketForResourceAction
[CM_Administration]			

## **CM.Resource Pool**

In this section, you learn how to configure all elements of the CM.Resource Pool. In the following chapters, all topics are covered which you might need to configure and operate a ConSol\*CM system with the CM. Resource Pool module.

All sections are listed on the CM.Resource Pool Start Page.

## 24 ConSol CM Administrator Manual 6.10.2 - CM Resource Pool

### 24.1 CM.Resource Pool

Starting with version 6.10, ConSol\*CM offers the Add-on *CM.Resource Pool.* Using this module, you can extend the CM database to store data objects for any type of asset or object in you company. A service enterprise might use the Resource Pool to store and manage SLAs, for an IT Service Desk, the Resource Pool might be used to implement an IT asset database, a marketing department might store design and text templates, and a reseller might reflect the product portfolio in the Resource Pool. Hence, implementing the Resource Pool for your company can be a core step in the CM customization process. To learn about how to work with the module, read the following sections:

For a general introduction to the CM.Resource Pool, read the section CM.Resource Pool - Introduction.

All elements in the Admin Tool which you will work with to configure the resource Pool are explained in section CM.Resource Pool - Admin Tool Elements.

To give you as an administrator an impression of how the Resource Pool objects are managed by engineers working with the Web Client we have written the section A Short Introduction to CM.Resource Pool Functionalities in the Web Client.

One of the first steps when you start work with the Resource Pool is the set-up of the Resource Data Model. This is covered in section CM.Resource Pool - Setting Up the Basic Resource Model.

Similar to Unit templates, you can define templates which control the appearance of resource data in te Web Client (GUI). These templates are explained in section CM.Resource Pool - Templates for Resource Data.

Resources can be related. Read section CM.Resource Pool - Resource Relations to learn how to define and to work with Resource Relations.

For every resource type, activities can be performed. They are based on Resource Actions which are explained in section CM.Resource Pool - Resource Actions. Some more specific information about how to implement scripts for the Action Framework are also provided in section Scripts for the Action Framework.

According to general ConSol\*CM standards, engineers can have certain access permissions to resources. Those permissions are based on roles. Please read section CM.Resource Pool - Assigning Permissions for Resources for details.

The Resource Pool Dashboard provides a very convenient entry to all Resource Pool objects. The Dashboard configuration is explained in section CM.Resource Pool - The Resource Pool Dashboard.

## 24.2 Introduction to CM.Resource Pool

- Introduction to CM.Resource Pool
- CM.Resource Pool at a Glance
  - CM.Resource Pool Structure
  - Important Terms
- Defining Resource Templates Using the Admin Tool
- Licensing
- Programming with Resource Pool Objects

#### 24.2.1 Introduction to CM.Resource Pool

Starting with CM version 6.10, the Add-on **CM.Resource Pool** is available. The *Resource Pool* provides a database extension which enables CM to create and store objects other than tickets or customers. For example, you could represent your IT landscape by modeling each asset (like PCs, laptops, monitors, printers) as a resource in the Resource Pool. Similar resources (e.g. HP printers) are managed in one *Resource Type*, and similar Resource Types form a *Resource Group* (e.g. printers). Every specific object (e. g. the printer #4711) is an instance of a Resource Type (e.g. Resource Type *HP Printer*). Other examples for the use of CM.Resource Pool are the use for products, facilities, machines, rooms, vehicles, contracts (e. g. SLAs), or scientific samples.

CM.Resource Pool extends the ConSol\*CM basic objects:

- 1. A ticket is an instance of a process execution.
- 2. A real-world customer (e.g. a person who calls the service desk to open a ticket) is an instance of a customer (unit) definition.
- 3. A real-world resource (e.g. a printer or an SLA) is an instance of a resource definition.

#### 24.2.2 CM.Resource Pool at a Glance

#### **CM.Resource Pool Structure**

The Resource Pool is structured based on a two-level hierarchy and comprises any number of Resource Groups. Each Resource Group represents a subtree within the Resource Pool. You can manage any number of Resource Groups, i.e. any number of subtrees, within the Resource Pool. In this way, you could, for example, manage the IT landscape as well as your product portfolio as resources, each in one or more specific Resource Groups/subtrees.

Relations between resources and other CM objects can mirror various constellations, e.g. a resource of resource group *printer* and of resource type *HP printer* can have a relation to a ticket, because in this ticket, a problem concerning this specific printer has to be solved. Or the printer is related to all contacts which use this printer. Relations between resources are also possible. For a detailed explanation of the work with Resource Relations, see section CM.Resource Pool - Resource Relations.

The data fields are defined for each Resource Type in a way similar to the field definition for ticket data (Custom Fields) and customer data (Data Object Group Fields). Data fields are are called *Resource Fields* and are always managed in groups which are called *Resource Field Groups*. The Set-Up of the data model for the Resource Pool, i.e. the *Resource Model*, is explained in detail in section CM.Resource Pool - Setting Up the Basic Resource Model.

For each Resource Type, Resource Actions can be defined, very similar to Unit Actions for customer objects (companies and contacts). The Resource Actions will trigger scripts which perform resource-specific activities, like updating the data of a resource (e.g. providing a list with all companies which are related to the printer #4711 and create a maintenance ticket for a firmware update). Resource Actions are a component of the Action Framework and are explained in detail in section CM.Resource Pool - Resource Actions.

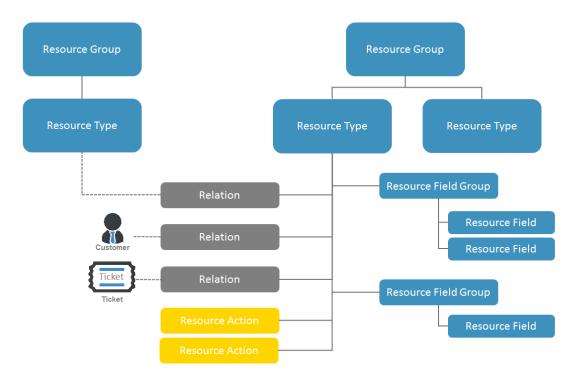


Fig. 1: CM.Resource Pool - Objects in a Resource Model

#### **Important Terms**

#### • A Resource Group

represents the highest hierarchy level in the Resource Pool, it can be seen as the root node of a Resource Pool subtree. For example, the Resource Pool of a company could have a Resource Group *Printers*. A Resource Group comprises one or more Resource Types, e.g. HP\_Printers, Kyocera\_Printers, Lexmark\_Printers.

#### • A Resource Type

represents similar resources which share the same data fields but with other values. For example, the Resource Type *HP\_Printers* has the data fields (Resource Fields) *Model, IP Address, Inventory Number*, and *Location*. Each real-world HP printer is represented by an object of this Resource type. Lexmark printers might have the data fields (Resource Fields) *Model, IP Address, Location* and *SLA type*. Each real world Lexmark printer is represented by an object of this Resource Type.

Within the Resource Pool hierarchy, there is no inheritance! Data fields (Resource Fields) are always defined as Resource Field Groups for each specific Resource Type!

#### • A Resource Field Group

groups one or more Resource Fields within one Resource Type. On the Resource Detail Page, a Resource Field group can be displayed as tab, just like the Custom Field Group for ticket data on the ticket page. Resource Field Groups can be annotated.

#### • A Resource Field

is a data field for data of a Resource Type, e.g. *Model, IP address*, or *Location*. A Resource Field always is of one specific data type. Resource Fields contain resource data as Custom Fields contain ticket data. Resource Fields can be annotated to modify their logical behavior or graphical appearance.

#### • The Resource Model

is the complete data model which defines all objects within the Resource Pool. Is is built using the Admin Tool, navigation group *Resources*, tab *Data Models*.

#### • A Resource Relation

is a relation of a resource to another CM object. This can be a ticket, a customer or another resource.

#### • A Resource Action

is an action defined for a resource type and available for each real-world resource object of this type. The action can be triggered automatically or manually. Manual Resource Actions can be selected in the Web Client on the Resource Type Page like Workflow Activities for Tickets.

#### • The Resource Detail Page

is the page in the Web Client where all data for one real-world resource is displayed, e.g. the Resource Type page for the HP printer #4711.

#### • The Resource Type Page

is the page in the Web Client which provides information about a resource type and and an overview (list) of all resources of this type.

#### • The Resource Pool Dashboard

is the overview page in the Web Client where all Resource Groups and Resource Types are displayed according to the access permissions of the current engineer.

#### 24.2.3 Defining Resource Templates Using the Admin Tool

To be able to create real-world resources (e.g. HP printer #4711), a resource template has to be defined first, i.e. a definition of all data fields which are required for all resources of a type, e.g. of type *HP\_printer*. All resource templates have to be defined using the Admin Tool. This applies to:

- Resource Groups (e.g. Resource Group Printers)
- Resource Types (e.g. Resource Type *HP Printer*)
- Resource Relations (e.g. possible relation between Resource Type HP Printer and Ticket)
- Resource Actions (e.g. Resource Action Retrieve Maintenance Contract Data from ERP System)

The following figure shows an example of a simple Resource Pool configuration with four Resource Groups. All steps you have to perform to configure this constellation will be explained in detail in the following sections. The Admin Tool sections involved in Resource Pool configuration are described in section CM. Resource Pool - Admin Tool Elements.

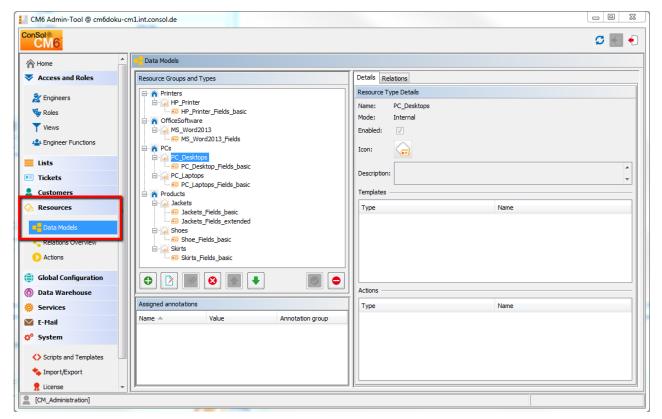


Fig. 2: ConSol\*CM Admin Tool - Simple Resource Pool Configuration

Once you have defined the Resources (i.e. the templates for the real resources) using the Admin Tool, the engineers can start work with real resource objects using the Web Client. This will be explained briefly in section A Short Introduction to CM.Resource Pool Functionalities in the Web Client. A detailed explanation is provided in the *Consol\*CM User Manual*.

#### 24.2.4 Licensing

CM.Resource Pool has to be licensed separately. Please ask your CM sales representative for more information.

#### 24.2.5 Programming with Resource Pool Objects

The ConSol\*CM Java API has been extended considerably to implement the Resource Pool. The explanation of important Groovy classes and various programming examples are provided in the *ConSol\*CM Process Designer Manual*, CM version 6.10.

### 24.3 CM.Resource Pool - Admin Tool Elements

You will have to work with several sections of the Admin Tool to configure CM.Resource Pool:

- Navigation group *Access and Roles* To assign Resource Pool permissions to roles
- Navigation group *Lists* In case you use MLAs and/or enums (sorted lists) in Resource Group Fields
- Navigation group *Resources* (see following figure)
  - Data Models Definition of the Resource Data Model, including Resource Relations
  - Relations Overview Contains a list of all resource relations, read-only mode, no definitions/configurations here
  - Actions
     Definition of Resource Actions
- Navigation group Global Configuration
  - Labels

In case you would like to modify labels of Resource Pool elements in the Web Client or define your own labels used in scripts

- Navigation group System
  - Scripts and Templates
    - Scripts for resource actions
    - Templates for the display of resource data in the Web Client
  - License

To activate a new license for CM version 6.10 with CM.Resource Pool

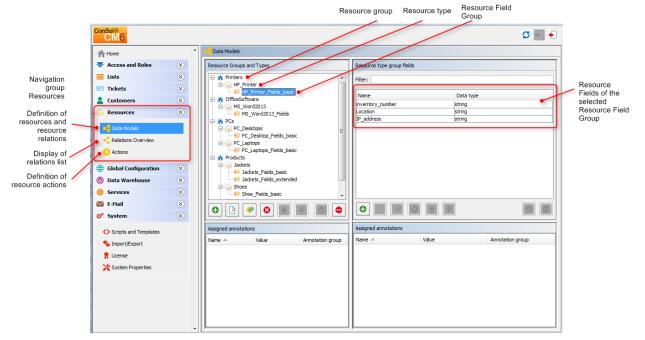


Fig. 1: ConSol\*CM Admin Tool - Main Elements for Configuration of CM.Resource Pool

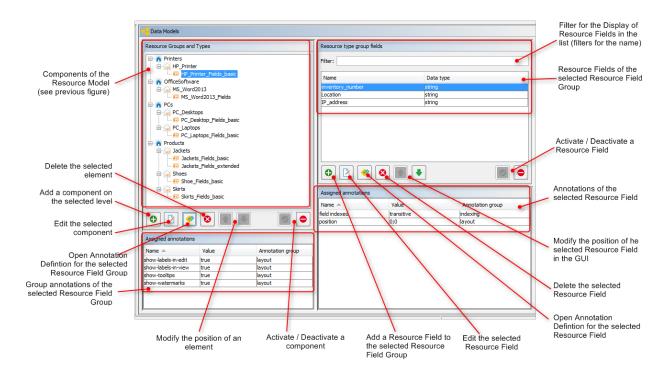


Fig. 2: ConSol\*CM Admin Tool - CM.Resource Pool Configuration

## 24.4 A Short Introduction to CM.Resource Pool Functionalities in the Web Client

- Overview of Resource Pool Operations in the Web Client
- Creating Resources Using the Web Client
  - How You as an Administrator Can Manipulate the Layout of the Web Client Dashboard Section "Search or create Resources"
  - How you as an Administrator Can Manipulate the Layout of the Resource Detail Page
- Working with the Resource Type Page
  - How You as an Administrator Can Manipulate the Layout of the Resource Type Page
- Setting a Resource as Favorite
  - How You as an Administrator Can Manipulate the Display Format of the Resource Concerning Drag-and-Drop to Favorites
- Defining and Using Resource Relations
  - How You as an Administrator Can Manipulate the Display of Resource Relations
- Defining and Using Resource Actions
  - How You as an Administrator can Manipulate the Display of Resource Actions
- Use the Quick Search to Find Resources
  - How You as an Administrator can Manipulate the Display of Resources in the Quick Search
- Use the Detailed Search to Find Resources
  - How You as an Administrator Can Manipulate the Display of Resources in the Detail Search

### 24.4.1 Overview of Resource Pool Operations in the Web Client

When you as an administrator have defined the Resource Pool templates (Resource Groups and the required Resource Types with their Resource Field Groups and Resource Fields) using the Admin Tool, an engineer can start work with real-world Resource Pool objects, provided he has the required access permissions. Permissions will be treated in section CM.Resource Pool - Assigning Permissions for Resources, in this section here, you will get an overview of the following operations:

- Creating Resources Using the Web Client
- Working with the Resource Type Page
- Setting a Resource as Favorite
- Defining and Using Resource Relations
- Defining and Using Resource Actions
- Use the Quick Search to Find Resources
- Use the Detailed Search to Find Resources

#### 24.4.2 Creating Resources Using the Web Client

In the Admin Tool, you only define the templates for the objects (in case you are a developer: this is comparable to defining classes in OO programming). The real objects (the instances of the defined templates) have to be defined using the Web Client where the Resource Pool Dashboard provides the required graphical user interface. The permissions to resources are managed based on Resource Types, using roles, according to the ConSol\*CM standard. An engineer only sees the Resource Types in the Resource Pool Dashboard if he has the required permissions. The role management for resources is explained in detail in section CM.Resource Pool - Assigning Permissions for Resources.

The following figure shows the Resource Pool Dashboard with the resource templates which have been defined in the Admin Tool (see section CM.Resource Pool - Admin Tool Elements). The engineer who is logged in has access permissions for all Resource Types.

The label for the Resource Pool in the main menu (like shown in the following figure) can be modified according to the requirements in the specific system. Examples for alternative wording could be *Asset management, Products, Machines*, or *Inventory.* Please refer to section Labels for an explanation how to change the label.

Cor	nSol CM6		Logged in: Susan	ServiceDesk		0	0	0 F
Overview	Create ticket	Create customer	Resource pool	Text templates	Document templates		All customer groups	٩
View:	ServiceDeskAll		Resource pool					Workspace
		9)	Search or create	Search or create Resources				
0	New Ticket for Reso	Irce: 3	n Printers			<ul> <li>OfficeSoftware</li> </ul>		All your unsaved tasks are automatically listed in this
	Customer: <u>Katja GU</u> Assigned to: ServiceD		HP_Printer		Create new	MS_Word2013	Create new	workspace.
100198	-		n PCs			n Products		Favorites
	Service request #4711 Customer: <u>Arnold Schwarzenegger</u> Neb Client Assigned to: ServiceDesk, Susan		PC_Desktops		Create new	Jackets	Create new	HP Printer: 4712
400244			PC_Laptops		Create new	Shoes	Create new	OpenTicketsAUSTR
	Printer still does not					Skirts	Create new	Service request
100313 A	Customer: <u>Luiqi Arcor</u> Veb Client Assigned to: ServiceD	n Desk, Susan						
100242	Complaint #42 - plea care asap!!! Customer: <u>Mia Skydiv</u> Assigned to: ServiceD	er						
080	Question about last i Customer: <u>MyNewSpa</u>	nvoice aceCompany						

Fig. 1: ConSol\*CM Web Client - Resource Pool Dashboard

When the templates have been defined (in the Admin Tool) and you as an engineer have the required access permissions, you can create a real object, e.g. you can create an object for the printer #4711 which is located on the top floor.

The following figures show the steps which you should perform.

Logged in: Susan	ServiceDesk 🕒			- 0
Resource pool	Text templates	Document template	es	All customer groups
		1		
Resource pool Search or create l	Desources			
Search of creater	Aesources			~
n Printers			<ul> <li>Office Software</li> </ul>	
HP_Printer		Create new	MS_Word2013	Create new
n PCs			A Products	
PC_Desktops		Create new	Jackets	Create new
PC_Laptops		Create new	Shoes	Create new
			Skirts	Create new

Fig. 2: ConSol\*CM Web Client - Resource Pool Dashboard: Create a New Resource of Type HP\_Printer, Step 1

Resource p	ool Tex	t templates	Document templates	All customer groups
Create New	resource			
	inters/HP_P			
		ne Best Printer o on top floor	ever	
	IP addres	ss 192.168.123	.123	

Fig. 3: ConSol\*CM Web Client - Create a New Resource of Type HP\_Printer, Step 2

Image: Weight of the system         Image: Weight of the system         Internal   Creation date: 7/24/15 8:30 AM         Inventory number         4711         Name         Best Printer ever         Location         Ip floor         IP address         192.168.123.123	
No additional details Comment Attachments	^
Comments Attachments	
New	.
Click here to add a comment	
List of comments	-
Resource does not have any comments.	
Related Resources	^
n PCs	
PC_Desktop_TO_HP_Printer_Relation Add (0)	
Related Companies and Contacts	~
Related Tickets	^
All 💌	
No search results	
	^
7/24/15 08:30 changed by Susan ServiceDesk	_
Name set to Best Printer ever     IP address set to 192.168.123.123	
<ul> <li>Inventory number set to 4711</li> </ul>	
Location set to top floor	

Fig. 4: ConSol\*CM Web Client - Resource Detail Page: Create a New Resource of Type HP\_Printer, Step 3

Now you have created a new HP Printer object, i.e. you have registered the printer #4711 which is located on the top floor. The Resource Detail page of this specific printer is displayed (see figure above).

For a detailed introduction to the work with CM.Resource Pool using the Web Client, please refer to the *ConSol\*CM User Manual*. Here, we will only provide short explanations to show you as an administrator what is happening when you work with the Admin Tool configuration for the CM Resources.

#### How You as an Administrator Can Manipulate the Layout of the Web Client Dashboard Section "Search or create Resources"

- The roles of an engineer determine if he has access permissions to a Resource Type. Hence, for the engineer currently logged in, only the Resource Types are displayed to which he has access permissions.
- The name of a Resource Type is displayed as hyperlink which leads to the Resource Type Page. This hyperlink is only active if the engineer has the access privilege READ for the respective Resource Type.
- The Link *Create new* for a Resource Type is only displayed if the engineer (or better: at least one of his roles) has the access permission CREATE on this Resource Type.

## How you as an Administrator Can Manipulate the Layout of the Resource Detail Page

- In the top section of the Resource Detail page, the localized values of the Resource Fields are displayed (analog to ticket data of Custom Fields in a ticket). Data of Resource Fields may also be displayed in tabs which represent Resource Field Groups (also analog to tabs on a ticket page which represent Custom Field groups). The Resource Fields are displayed according to the layout you have defined, see section CM.Resource Pool - Setting Up the Basic Resource Model for details.
- The icon for each resource of the Resource Type can be defined in the Admin Tool for each Resource Type.
- The template for the display of the resource name is defined for the Resource Type, here on the Resource Detail page, the *Default* template is used, see section CM.Resource Pool Templates for Resource Data for details.
- The menu entries (links) in the top right corner of the page are only visible if the engineer has the required access permissions:
  - Edit link: WRITE permission
  - Deactivate link: DEACTIVATE / ACTIVATE permission
  - Delete link: DELETE permission
- In case Resource Actions are defined for resources of this type (not shown in the figure above), they
  will be offered on the Resource Detail page as well, just like workflow activities for tickets, see section
  CM.Resource Pool Resource Actions for details. However, an engineer will only see the Resource
  Actions if he has the permission ACT for the respective Resource Type.
- For an engineer, the section *Additional Details* might not be displayed if his roles do not have the permission *Details read*, see section CM.Resource Pool Assigning Permissions for Resources for details.
- Only if relations to other resources, to contacts or companies or to tickets have been defined in the Admin Tool, there might be relations displayed in the respective sections of the Resource Detail page, if real relations have been created for the resource by an engineer. See section CM.Resource Pool - Resource Relations for details.

### 24.4.3 Working with the Resource Type Page

The Resource Type Page provides an overview over all resources of one specific Resource Type. You can open the Resource Type Page by opening the Resource Pool dashboard and clicking on the name of the Resource Type.

Open Resource	Resource pool	Text templates	Document template	es l	All customer groups
Pool					
Dashboard	Resource pool	-			
	Search or create	Resources			
Click to open	n Printers			<ul> <li>Office Software</li> </ul>	
Resource Type	HP_Printer		Create new	MS_Word2013	Create new
Page	n PCs			n Products	
	PC_Desktops		Create new	Jackets	Create new
	PC_Laptops		Create new	Shoes	Create new
				Skirts	Create new

Fig. 5: ConSol\*CM Web Client - Opening a Resource Type Page

Coarob requite (2)				
Search results (2)				
Keyword (Pattern)	Enter text or pattern	Titte	er	
	Deactivated incl.			
	Deactivated incl.			
	Deactivated incl.			
¢▼ Inventory number	Deactivated incl.           IP address	Location	Name	
✿▼ Inventory number 4712		Location In my office	<u>Name</u> My new HP printe	r

Fig. 6: ConSol\*CM Web Client - Resource Type Page

On the Resource Type Page, all resources of this type are listed. They can be filtered according to the values of the Resource Fields using the search in the top section of the page.

## How You as an Administrator Can Manipulate the Layout of the Resource Type Page

- In the pull-down menu for the search, only fields are offered which have been indexed, see section Search Configuration and Indexer Management for details.
- The column headers represent the localized values of the names of the Resource Fields which you have (or another admin has) defined, see section CM.Resource Pool - Setting Up the Basic Resource Model for details.

#### 24.4.4 Setting a Resource as Favorite

Like tickets, searches and customers, resources can also be placed in the Favorites section using drag-anddrop, e.g. on the Resource Detail page.

plac	urce to be sd in Favorites -and-drop)	
Resource PC: My cool PC - Computer-0815 PC: My cool PC - Computer-0815 Reternal (Creation date: //15446 troor All name My cool PC model Computer-0815	PC: My cool PC	Activities Create a new ticket in SD for this resource Workspace Workspace is empty Al your unsaved tasks are automatically listed in this workspace.
No additional details Comments Attachments New Click here to add a comment List of comments Resource does not have any comments.	Comment - Aug	Favorites     Resource already stored in Favorites       HP Printer: 4712     In Favorites       OpenTicketsAUSTR     Service request
Related Resources (2)         Printers       Office Software         Represents usage of the HP printer by the de HP Printer 3/11 Inventory number P address       4711 Best Printer ever top floor 192.168.123.123         Date 7/2/15 10:50 AM         HP Printer 3/12 II Inventory number Name Location P address       4712 4712 My new HP print hm with response 123.123.123.123         Date 7/13/15 11:33 AM		

Fig. 7: ConSol\*CM Web Client - Resource Detail Page: Using Drag-and-Drop to Put a Resource into the Favorites Section

## How You as an Administrator Can Manipulate the Display Format of the Resource Concerning Drag-and-Drop to Favorites

- The format for the display of the resource in the Favorites section is based in the *Default* template, for details see section CM.Resource Pool Templates for Resource Data.
- The format for the display of the resource in the drag-and-drop box is based in the *Default* template, for details see section CM.Resource Pool Templates for Resource Data.

#### 24.4.5 Defining and Using Resource Relations

The same principle as for Resource Groups and Resource Types also applies to Resource Relations:

• First, the Resource Relation templates have to be defined using the Admin Tool

• Then, the real relations between resources (objects of a certain Resource Type) and other objects (tickets, customers or other resources) have to be created using the Web Client.

This will be explained in detail in section CM.Resource Pool - Resource Relations. Here, a short example is given.

To link a resource (e.g. a PC desktop) to tickets in the queue Service Desk, first, this relation type (i.e. resource-ticket) has to be defined in the Admin Tool.

Then an engineer can create a relation of a PC to a ticket, e.g. when an incident ticket has come in which covers a problem with this machine.

	Search Se				
	Resource Groups and Types	Details Relations			
Possible relations are defined for a Resource Type!		Details Relations Resource Type Relations Filter: Source  PC_Desktops PC_Deskt	Name PC_Desktop_TO_HP_Printer_Relation PC_Desktop_to_Word2013_Rel PC_Desktop_to_Ticket_Relation PC_Desktop_to_MainContactRelation The rel PC_Desktop_to_MainContactRelation The rel PC_Desktop_to_MainContactRelation The rel PC_Desktop_to_MainContactRelation The rel PC_Desktop_to_MainContactRelation The rel to the	All target types Target type Resource Resource Ticket Contact Tickets in the esk	be

Fig. 8: ConSol\*CM Admin Tool - Defining a New Resource Relation

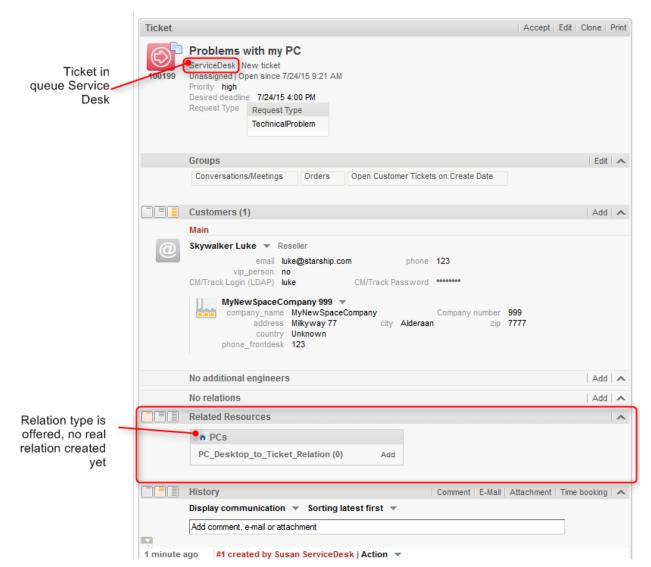


Fig. 9: ConSol\*CM Web Client - Ticket Where a Relation to a PC Can Be Created

No relations	Add 🗛
Related Resources	~
n PCs	
PC_Desktop_to_Ticket_Relation (0)	
Add Relation	
PC_Desktops	
PC: My cool PC - Computer-0815 Note	
OK Cancel	
History	Comment F-Mail Attachment Time booking

Fig. 10: ConSol\*CM Web Client - Creating a Relation between a Ticket and a PC

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 NOTEIAUOUS		
Related Resources (1)		~
n PCs		
PC_Desktop_to_Ticket_Relation (1)	Add	
History		Comment E-Mail Attachment Time booking

Fig. 11: ConSol\*CM Web Client - Ticket with Relation to a PC

When the relation has been created successfully, the counter of the relation is set to 1. The engineer can then display details of the relation by clicking on the relation name.

Related Resources (1)		
PC_Desktop_to_Ticket_Relation PC: My cool PC - Computer-0815		Add
	Jump to resource Remove relation	
History		

Fig. 12: ConSol\*CM Web Client - Details of a Related Resource and Context Menu

The context menu of the related resource offers two options:

- Jump to resource opens the Resource Detail page of the related resource
- **Remove relation** removes the relation of the ticket with the resource

## How You as an Administrator Can Manipulate the Display of Resource Relations

- The name and description of the relation which is displayed is the localized value of the relation name and description which you defined using the Admin Tool. Please note that there is one description for the source side and one for the target side of a relation.
- A note for a resource relation can only be added in the Web Client if the BOOLEAN field *Note field is available* has been set for the resource relation definition in the Admin Tool.
- When one resource of a type has been added to an object (e.g. to a ticket), the *Add* option (e.g. to add another resource of the type PC to the ticket) will only be available when the multiplicity of the relation is set to *many-to-one, one-to-many* or *many-to-many*.

### 24.4.6 Defining and Using Resource Actions

Resource Actions also have to be defined using the Admin Tool. Each Resource Action is based on an Admin Tool script.

Resource Actions are explained in detail in section CM.Resource Pool - Resource Actions. Here, only a short example is provided.

A Resource Action always is defined on the tab *Actions* in the navigation group *Resources* and the assigned to one or more Resource Type(s). For example, an action is defined which should offer the possibility to create a new ticket in the queue Service Desk, directly from the Resource Detail page. Thus, when a customer calls to complain about a problem with the PC, the Service Desk agent can start by opening the PC Detail page for information about this asset. If necessary, he or she can directly create a new Service Desk ticket for the customer.

ConSol <sup>®</sup>			🗢 💽 🔶
A Home	*	Actions	
Access and Roles	۲	Resource Type Action Administration	Details
E Lists	۲	Filter: All action types	Name: CreateTicketForPC_DesktopAction
Tickets	۲	Name A Type	Type: Manual Condition Script:
Lustomers	۲	CreateTicketForPC_DesktopAction Manual	Execution Script: CreateTicketForPC_Desktop.groovy
ᢙ Resources	۲		Description:
Data Models      Relations Overview      Actions			Resource types
Global Configuration	۲		
🕥 Data Warehouse	۲		
🔅 Services	۲		
💟 E-Mail	۲		Name Localizations
🗘 System	۲		Locale Value Deutsch Neues Ticket in SD für diese Ressource erstellen
			Englisch Create a new ticket in SD for this resource
	Ŧ		
CM_Administration]	,		

Fig. 13: ConSol\*CM Admin Tool - Definition of a Resource Action

							C		Resource
Resource					Edit	Deactivate Delete	Activities -		Action offered
	PC: My cool PC - Com						Create a new ticket in SD for this resource	J	as activity on the Resource Detail Page
	Internal   Creation date: 7						Workspace		
	name My cool PC modell Computer-0815						Workspace is empty All your unsaved tasks are automatically listed in this workspace.		
	No additional details				Comme	nt   Attachments   🔺			
	Comments	Attach	iments				Favorites	Ξ	
	New						HP Printer: 4712		
	Click here to add a cor						OpenTicketsAUSTR		
	Click here to add a cor	nmeni					Service request		
	List of comments							1	
	Resource does not have	ve any comments	ŝ.						
	Related Resources (1	)				~			
	n Printers			n Office Sof	ftware				
	Represents usage of desktop PC (1)	of the HP printe	er by the Add	PC_Desktop	_to_Word2013_Rel (0)	Add			
	Related Companies a	nd Contacts (1	)			Add			
	PC_Desktop_to_Main(	ContactRelation	(MyCustomerGroup)	(Contact)					
	Ø.▼ Contact	Date	Firs	st name	Lastname	Actions			
	💄 Luigi Arcon	7/14/15 11:42 A	M Luig	i	Arcon	×			
	Related Tickets (1)					Add			
	All 🔻								
	Ø.▼ Date	Name	Relation		Subject	Actions			
	7/24/15 9:28 AM	00199 🚳	PC_Desktop_to_Tick	et_Relation	Problems with my PC	×			
	History							-	

Fig. 14: ConSol\*CM Web Client - Resource Activity (Based on Resource Action)

New Ticket for Resource: My cool PC ServiceDesk   New ticket Unassigned   Open since 8/14/15 1:54 PM Priority low				
Priority low Groups				
			Ed	it   🔺
Conversations/Meetings Orders Open Customer Tickets on Create Date				
Customers (1)			Ad	A   b
Main				
Luigi Arcon VyCustomerGroup				
No additional engineers			Ad	<b>~</b>   b
No relations			Ad	A b
Related Resources (1)				
n PCs				
PC_Desktop_to_Ticket_Relation (1) Add				
Comment E-Mail Att	ttachment	Time	e booking	
Display communication 💌 Sorting latest first 💌				
Add comment, e-mail or attachment				
No attachments				-

Fig. 15: ConSol\*CM Web Client - Service Desk Ticket Created by a Resource Action

## How You as an Administrator can Manipulate the Display of Resource Actions

- The name of the resource activity which is displayed in the Web Client is the localized name of the Resource Action which you as an administrator have defined in the Resource Actions panel. For details see section CM.Resource Pool Resource Actions.
- The localized value of the description of the Resource Action will be displayed as mouse-over for the resource activity in the Web Client.

#### 24.4.7 Use the Quick Search to Find Resources

All customer groups Q, printer TICKETS ServiceDesk 100245 Printer does not work 100313 Printer still does not work Resources 100260 Sell a printer to each special end customer section in RESOURCES Quick Search HP Printer HP Printer: My new HP printer - 4712 result list HP Printer: Best Printer ever - 4711 Show all Create ticket Create customer

In the result list of the Quick Search, resources are displayed in a distinct section:

Fig. 16: ConSol\*CM Web Client - Result List of Quick Search with Distinct Resource Section

## How You as an Administrator can Manipulate the Display of Resources in the Quick Search

- The format for the display of the resource in the Quick Search result list section is based in the *Quick Search* template, for details see section CM.Resource Pool Templates for Resource Data.
- The value of the system property *cmweb-server-adapter, globalSearchResultSizeLimit* will define the maximum number of hits displayed in the result list.

#### 24.4.8 Use the Detailed Search to Find Resources

In the Detailed Search, an engineer can search for all resources of a certain type, provided that the respective Resource Field is indexed (the annotation *field indexed* has been set, usually to the value *transitive*).

	Logged in: Susan ServiceDes	sk 💌	0	
	Resource pool Text temp	plates Document templates	All customer groups	A
(	Search			Workspace
	Search criteria Resource type Please select	 Q Search		Workspace is empty All your unsaved tasks are automatically listed in this workspace.
		Printers		Favorites
		HP_Printer		HP Printer: 4712
	Partners (PartnersCompan	OfficeSoftware MS_Word2013 her) Reseller (ResellerCompany) Resources		OpenTicketsAUSTR
	Search results (0)	PCs		Service request
	No search results	PC_Desktops PC_Laptops		
		Products		
	l	Jackets		

Fig. 17: ConSol\*CM Web Client - Detailed Search for Resources

	Search							
	Search criteria							
	Resource type			arch				
	Partners (PartnersCompany)	Reseller (ResellerCustomer)	Res	eller (ResellerCompany)		Resources		
	Search results (2)							
Ø ▼ Inventory number IP address Location						Name		
	4712 123.123.123			In my office		My new HP printer		
	4711 19	2.168.123.123		top floor		Best Printer ever		

Fig. 18: ConSol\*CM Web Client - Result List of a Detailed Search for Resources

## How You as an Administrator Can Manipulate the Display of Resources in the Detail Search

- On the Detailed Search page, in the drop-down menu where Resource Types are listed, a Resource Type will only appear if the respective Resource Field has been annotated with *field indexed*, usually the value will be *transitive*.
- The value of the system property *cmweb-server-adapter*, *searchPageSize* defines the number of hits which are initially displayed

# 24.5 CM.Resource Pool - Setting Up the Basic Resource Model

- Introduction
- Creating a Resource Group with the First Resource Type
  - Editing the Resource Group
  - Editing the Resource Type
  - Editing the Resource Field Group
    - Editing Resource Field Group-Specific Parameters
    - Setting Resource Field Group Annotations
    - Creating and Editing Resource Fields
    - Creating A New Resource Field
    - Setting Resource Field Annotations
- Creating Further Resource Types within a Resource Group
- Create Resource Field Groups and Resource Fields
- Creating Further Resource Groups
- Example for a Complete Resource Model
- Defining Resource Relations
- Defining Resource Actions
- Assigning Access Permissions for Resources to Engineers Using Roles

### 24.5.1 Introduction

This chapter will guide you through the complete set-up of a resource model. You will learn how to

- create a Resource Group
- create two Resource Types within this Resource Group
- create data fields for the resources, i.e. create Resource Field Groups for the Resource Types
- create Resource Fields within the Resource Field Groups. i.e. create the data fields
- define templates for the display format of the resource names in the Web Client

In our example, you are an administrator who has to set up a resource model for a company which want to manage their IT assets as well as their product using the Resource Pool.

The complete model will look like the one in the following figure. We will show you how to define the Printers and the Office software to demonstrate the basic principles. Then you should be able to configure all remaining resources yourself.

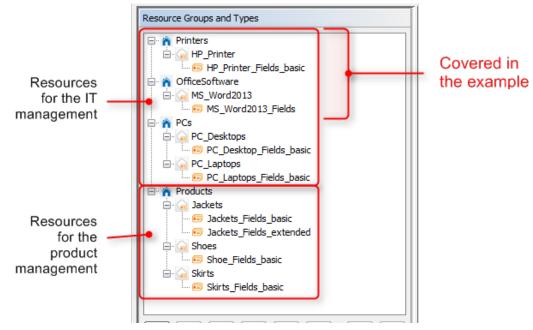


Fig. 1: ConSol\*CM Admin Tool - Example resource model

#### 24.5.2 Creating a Resource Group with the First Resource Type

A Resource Group represents the template for objects on the highest hierarchical level in the Resource Pool. In our example, all printers are managed in a Resource Group *Printers* and all office software packages are managed in a Resource Group called *OfficeSoftware*. The following figure shows some Resource Groups and Resource Types in the Web Client. This should help you keep the overview over the configuration in the Admin Tool and its consequences in the GUI. Please keep in mind that the technical object names which are used in the Admin Tool are usually not the (localized) names which are displayed in the Web Client.

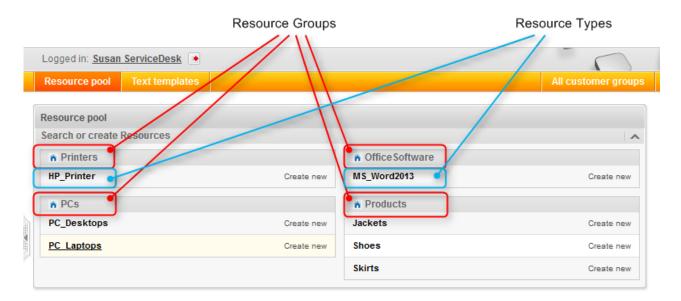


Fig. 1: ConSol\*CM Web Client - Resources in the Resource Pool Dashboard

The first step in a new (empty) resource model is to create a new Resource Group which already contains one Resource Type. The Resource Type already contains one Resource Field Group.

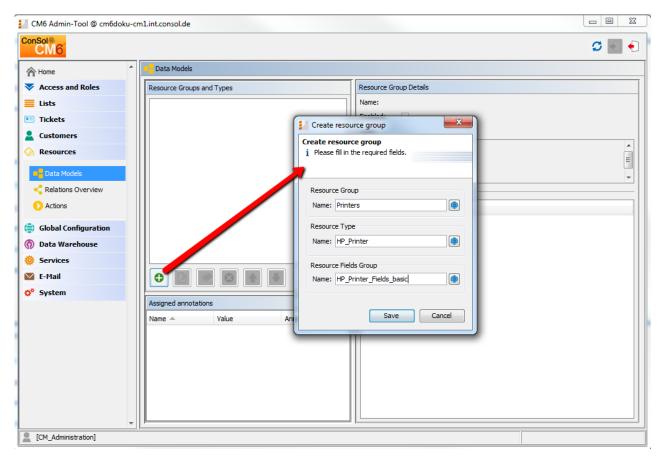


Fig. 2: ConSol\*CM Admin Tool - Creating a New Resource Group

To create a Resource Group, enter the values in the following fields:

• Resource Group, Name

The technical name of the Resource Group, it can be localized using the Globe button.

- Resource Type, Name
   The technical name of the first Resource Type within the Resource Group. The name can be
   localized using the Globe button.
   More Resource Types for the Resource Group can be added later on.
- Resource Field Group, Name

The name of the first Resource Field Group (similar to a Custom Field Group for ticket data) within the Resource Type. The name can be localized using the Globe button.

More Resource Field Groups for the same Resource Type can be added later-on.

Click Save to create the Resource Group, Type and first Field Group.

When you have defined the Resource Group, you can add some more data for the created objects.

## **Editing the Resource Group**

	Edit resource group	🗢 💽 🌖
Data Models Resource Groups and Types	Edit resource group i Please edit resource group data	
Frinters HP_Printer HP_Printer_Fields_basic	Name: Printers	
	Icon:	
Assigned annotations Name  Value Annotation of	group	

Fig. 3: ConSol\*CM Admin Tool - Editing a Resource Group

Mark the Resource Group and press the Edit button to edit some Resource Group parameters:

• Description

You can enter the description directly in the pop-up window, this will become the default description. Or you can use the Globe button to enter localized values for each language . The Resource Group description is displayed as information in the Admin Tool only, not in the Web Client.

• Icon

Select one of the CM standard icons by clicking on the icon or use the file browser to upload an icon of your choice. The Resource Group icon will be displayed in the Web Client next to the name of the Resource Group. In this way, you can, for example, select a Printer icon for printers, a PC icon for PCs etc. Allowed formats are: jpg, jpeg, png, gif.

Create new
(

Fig. 4: ConSol\*CM Web Client - Customized Icon for a Resource Group

Click Save to commit your changes.

## **Editing the Resource Type**

	Edit resource type	×
Data Models     Resource Groups and Types	Edit resource type i Please edit the resource type data.	
Printers     Printer     Printer     Fields_basic	Name: HP_Printer Description:	
	Mode:     Internal       Icon:     Image: Construction in the second se	
Assigned annotations Name A Value	templateType     templateName       Default     HP_Printer_Template_Default       Quick Search     Search       Rest     History	
		Save Cancel

Fig. 5: ConSol\*CM Admin Tool - Editing a Resource Type

Mark the Resource Type and press the Edit button to edit some Resource Type parameters:

#### • Description

You can enter the description directly in the pop-up window, this will become the default description. Or you can use the Globe button to enter localized values for each language. The Resource Type description is displayed as information in the Admin Tool only, not in the Web Client.

- Mode
  - Internal: resource data is fully managed by CM6
  - **On the fly**: resource data are retrieved from an external backend system whenever requested (available only in a later release). The mode "On the fly" relies on a customer specific implementation of the class *ResourceExternalSource*.
  - **Cached**: resource data come from an external backend system and are cached in CM6, a refresh a an item can be triggered manually (available only in a later release). The mode "Cached" relies on a customer specific implementation of the class *ResourceExternalSource*.
  - **Imported**: resource data come from an external backend system and are stored in CM5, an update required a new bulk data import (available only in a later release). The mode "Imported" requires a previous import by ETL
- Icon

Select one of the CM standard icons by clicking on the icon or use the file browser to upload an icon of your choice. The Resource Type icon will be displayed in the Web Client next to the name of the Resource Type, e.g. on the Resource Type page. In this way, you can, for example, select a Printer icon for printers, a PC icon for PCs etc. Allowed formats are: jpg, jpeg, png, gif.

#### • Templates

Here you can define the templates for the display format of resource data in the Web Client (analog to templates for customer data). This is explained in detail in section Templates for Resource Data.

• Automatic Actions

Here, you can assign automatic resource actions to the Resource Type. The resource actions have to be defined first, using the Resource Actions Section of the Admin Tool. See section Resource Actions for a detailed explanation.

#### Manual Actions

Here, you can assign automatic resource actions to the Resource Type. The resource actions have to be defined first, using the Resource Actions Section of the Admin Tool. See section Resource Actions for a detailed explanation.

#### • Search Actions

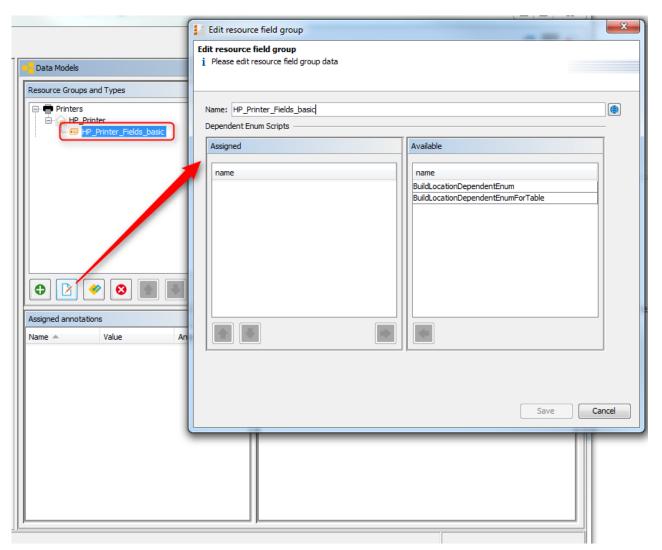
Here, you can assign search actions to the Resource Type. The resource search actions have to be defined first, using the Search Actions section of the Admin Tool (navigation group *Tickets*). See section Search Actions for a detailed explanation.

The Resource Relations are also defined for a Resource Type. This is described in detail in the section CM. Resource Pool - Resource Relations.

## **Editing the Resource Field Group**

A Resource Field Group is a collection of Resource Fields, the data fields for resource data (analog to a Custom Field Group which is a collection of Custom Fields for ticket data). Resource Fields can never be managed as singular objects, they are always managed (e.g. faded-in or out) as a Resource Field Group.

A Resource Field Group has the following group-specific parameters. Mark the desired Resource Field Group and press *Edit* to edit those values (see next section).



## **Editing Resource Field Group-Specific Parameters**

Fig. 6: ConSol\*CM Admin Tool - Editing Resource Field Group Specific Parameters

Here, you can edit the following fields:

• Name

The technical name of the Resource Field Group. <sup>(1)</sup> This should only be changed if this is really required, because it might have side effects for all scripts (workflow and Admin Tool) which use the Resource Group name (1)

#### • Dependent Enum Scripts

Here, you can assign a Dependent Enum to the Resource Field Group. The Dependent Enum has to be defined as Admin Tool Script first, see section Admin Tool Scripts, Dependent Enums.

### **Setting Resource Field Group Annotations**

A Resource Field Group can have annotations. Select the Resource Field Group and press the Annotations button to set or unset annotations. The annotations are the same as for Custom Field groups. All annotations are listed and explained in Appendix A (Annotations).

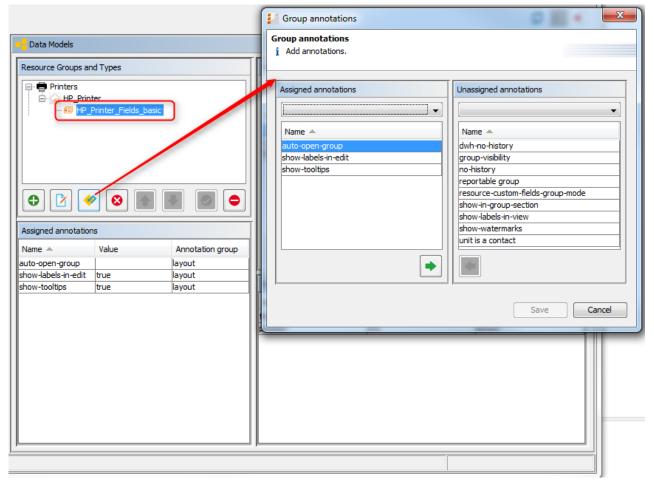


Fig. 7: ConSol\*CM Admin Tool - Resource Field Group Annotations

#### **Creating and Editing Resource Fields**

Resource Fields are containers for the data of resources (analog to Custom Fields for ticket data). Resource Fields always belong to a Resource Field Group. To add or edit Resource Fields of a Resource Field Group, select the group in the resource data model and enter all required data on the right side of the Admin Tool.

. .

Data Models					
Resource Groups and Types		Resource type group fields			
Printers		Filter:			
	Printer_Fields_b	asic	Name Data type		
			inventory_number	string	
			Location IP_address	string string	
Assigned annotation			Assigned annotations		
Name 🔺	Value	Annotation group	Name 🔺	Value	Annotation group
auto-open-group		layout	field indexed	transitive	indexing
show-labels-in-edit show-tooltips	true true	layout layout	position	0;0	layout
Show coolaps	duc	ayour			
1					
ŗ					

Fig. 8: ConSol\*CM Admin Tool - Managing Resource Fields

## **Creating A New Resource Field**

To create a new Resource Field, press the Plus button and enter the required data in the pop-up window.

Resource type group fields		Create field X
Filter:		Field details
Name inventory_number Location IP_address Assigned annotations Name  Value	Data type string string string	Name: note Data type: string list struct number fixed-point number string long string short string MLA field Save Cancel

Fig. 9: ConSol\*CM Admin Tool - Creating a New Resource Field

Enter the following data:

• Name

The technical name of the Resource Field. This is used in scripts and templates. Set the localized value by using the Globe button.

• Data type

The data type of the Resource Field. You can select a data type from a pull-down list, like for Custom Fields. A detailed explanation of all available data types is provided in section Custom Field Administration (Setting Up the Ticket Data Model), Data type.

### **Setting Resource Field Annotations**

The characteristics of a Resource Field, e.g. the visibility, the position in the Web Client GUI, if the field should be indexed or if it should be reportable, are defined using annotations. You might know this principle from your work with Custom Field annotations.

		_	Field annotations			23
			Field annotations i Add annotations.			
Resource type group fields			Assigned annotations		Unassigned annotations	
Filter:				•		-
Name	Data type		Name 🔺		Name 🔺	
inventory_number	string		position		show-label-in-edit	
Location	string		text-type		show-label-in-view	
P_address	string				show-tooltip	
note	string				show-watermark	
					sortable	
					ticket-list-colspan	_
🗘 📝 🔇					ticket-list-position	=
		_			ticket-list-rowspan	
ssigned annotations					username	-
Name 🔺 V	/alue A	nnotat				
					Save	ancel

Fig. 10: ConSol\*CM Admin Tool - Defining Resource Field Annotations

The annotations which are available are the same as for Custom Fields and are listed and explained in detail in Appendix A (Annotations).

The position annotation marks the position of the field on

- the form which is used to create a new resource, see section A Short Introduction to CM.Resource Pool Functionalities in the Web Client, Resource Create Form.
- the Resource Detail Page which is explained in section A Short Introduction to CM.Resource Pool Functionalities in the Web Client, Resource Detail Page.

As for ticket layout you can place the Resource Fields on the GUI by using the matrix principle and setting the position accordingly:

0;0	0;1	0;2
1;0	1;1	1;2
2;0	2;1	2;2
n;0	n;1	n;2

Fig. 11: Example Matrix for Position Annotation

In contrast to Custom Fields and ticket layout where you can use three columns for data fields, you can use as many data field columns as you like for the definition of Resource Fields.

# 24.5.3 Creating Further Resource Types within a Resource Group

To add a new Resource Type within a Resource Group, mark another Resource Type of the desired Resource Group in the list and press the Add button. Then fill in all required data as described in the section Editing the Resource Type.

# 24.5.4 Create Resource Field Groups and Resource Fields

To create a new Resource Field Group within a Resource Type, select another Resource Field Group of the desired Resource Type in the list and press the *Add*/button.

Then enter all the required data as described in the section Editing the Resource Field Group.

# 24.5.5 Creating Further Resource Groups

To create a new Resource Type (OfficeSoftware in our example), select another Resource Type in the list and click the Add button.

Enter all the data as for the first Resource Type, see section Editing the Resource Group.

	Create resource group
	Create resource group i Please fill in the required fields.
Data Models	
Resource Groups and Types	Resource Group Name: OfficeSoftware
⊡ · · · · · · · · · · · · · · · · · · ·	Resource Type Name: MS_Word2013
	Resource Fields Group Name: MS_Word2013_Fields
	Save Cancel

Fig. 12: ConSol\*CM Admin Tool - Adding a New Resource Group

To fill the new Resource Group with Resource Types and Resource Fields, please proceed as described in the previous sections.

# 24.5.6 Example for a Complete Resource Model

In our example, the following resource model has been created. It will be used in the further course of this Manual.

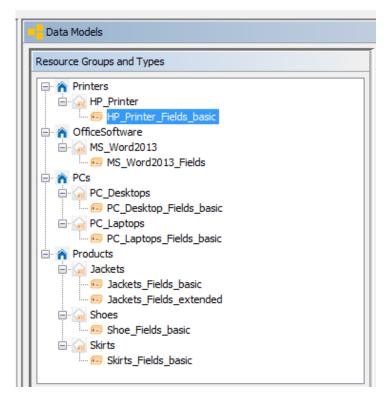


Fig. 13: ConSol\*CM Admin Tool - Example for a Resource Model

Resource pool	Text templates			All customer group
Resource pool				
Search or create	Resources			^
n Printers			n Office Software	
HP_Printer		Create new	MS_Word2013	Create new
n PCs			A Products	
PC_Desktops		Create new	Jackets	Create new
PC_Laptops		Create new	Shoes	Create new
			Skirts	Create new

Fig. 14: ConSol\*CM Web Client - Example for a Resource Model (in Resource Pool Dashboard)

# 24.5.7 Defining Resource Relations

This is explained in detail in the section Resource Relations.

# 24.5.8 Defining Resource Actions

This is explained in detail in the section Resource Actions.

# 24.5.9 Assigning Access Permissions for Resources to Engineers Using Roles

This is explained in detail in the section Role Administration, Resource Types Permissions.

# 24.6 Templates for Resource Data

- Introduction to Using Templates for the Display of Resource Data
- Creating and Editing Resource Data Format Templates
- Coding Resource Data Format Templates
  - General Principle
  - Examples for Templates
- Template Types
  - Default
  - Quick Search
  - Search
  - Rest
  - History
- Web Client Locations for the Use of Templates
  - Header of the Resource Detail Page
  - Dragged Resource in Drag-and-Drop Operations
  - Favorites
  - Quick Search
  - Search
  - History Sections of Resource Detail Page, Customer Detail Page and Ticket
  - REST

# 24.6.1 Introduction to Using Templates for the Display of Resource Data

In the ConSol\*CM Web Client, resource data sets are displayed in short form at various locations, based on templates. For example in the ticket history, the resource name, inventory number and location might be required whereas in the quick search, only the name and inventory number should be displayed. This section will show you where short forms are used and how the respective templates are configured using the Admin Tool.

**Templates are always defined for a Resource Type**. In our example, *HP\_Printers* are a Resource Type, i. e. the templates will be valid for all real-world HP printers which are stored in the CM system.

The configuration is based on the following principle (very similar to the principle used for the display of contact data):

- A template for a specific location in the Web Client is assigned to a Resource Type in the Resource Model definition (navigation group *Resources*, navigation item *Data model*).
- The referenced template must be the name of a template which is stored in the navigation item *Scripts and Templates*, navigation group *System* of the Admin Tool. You as an administrator are free to assign names to the templates. All you have to make sure is that the referenced template name in the Resource Type definition and the template name in the *Scripts and Templates* section are identical.

## 24.6.2 Creating and Editing Resource Data Format Templates

To create and edit Resource Data Format Templates, edit the desired Resource Type in the Admin Tool and enter the names of the templates. Choose the names as you like or according to the naming conventions of your company.

	Edit resource type						
n-Tool @ cm6doku-cm1.int.consol.de	Edit resource t j Please edit t	t <b>ype</b> he resource type da	ata.				8
Data Models      Resource Groups and Types      Printers	Name: H Description:	HP_Printer					
Printer     HP_Printer     Fields_basic     GrficeSoftware     MS_Word2013     MS Word2013     MS Word2013 Fields	Icon:	Internal	Manual Actions	Search Actions			
PC_s     PC_besktops     PC_besktop_Fields_basic     PC_Laptops     PC_Laptops Fields_basic	templateTy Default Quick Search Search	•	HP_Printer_T	ne emplate_Default emplate_QuickSearch emplate_Search			* *
Products     Jackets     Jackets     Jackets_Fields_basic     Jackets_Fields_extended     Jackets_Fields_basic     J	Rest History		HP_Printer_To	emplate_History		F	
Skirts felds_basic		necono		Save	Cancel		

Fig. 1: ConSol\*CM Admin Tool - Resource Data Format Template Definition for a Resource Type

In the next step, you have to create the respective templates and store them in the *Scripts and Templates* section. For details, please refer to the following section.

# 24.6.3 Coding Resource Data Format Templates

## **General Principle**

The templates are written in *FreeMarker* notation. For detailed information, please refer to the FreeMarker web site.

Within the templates, you work with three object types:

- 1. resource: this is the current resource object
- 2. the technical name of the Resource Field Group
- 3. the technical names of the Resource Fields

Please note that there might be more than one Resource Field Group within a Resource Type!

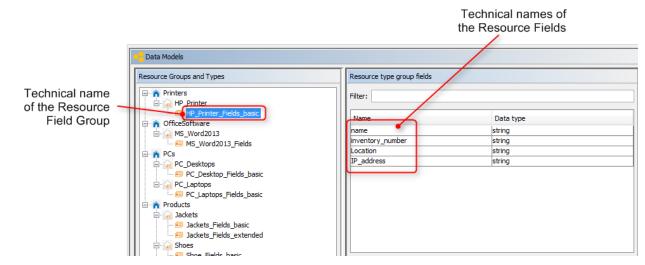
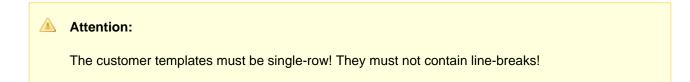


Fig. 2: ConSol\*CM Admin Tool - Objects Used in Resource Data Template Definition



## **Examples for Templates**

```
// Example 1
// Resource Field group is named vehicleProperties, Resource Fields are named
vehicleIdentification and vehicleLicense
${resource.get("vehicleProperties", "vehicleIdentification") + ' (' + resource.get("vehicleProp
erties", "vehicleLicense") + ')'}
// Example 2
// // Resource Field group is named publicTransportProperties, Resource Fields is named passName
${resource.get("publicTransportProperties", "passName")}
```

# 24.6.4 Template Types

The following Template types can be defined:

- Default
- Quick Search
- Search
- REST
- History

## Default

This template always has to be defined. If it is not defined, there will be an error in the Web Client (*unknown* is displayed as name of all resources of this type). The template will be used for all locations in the Web Client if no other templates have been defined. The templates which are described in the subsequent sections will overwrite the default template for the specific GUI location.

#### Example:

```
HP Printer: ${resource.getFieldValue("HP_Printer_Fields_basic","inventory_number")!}
```

#### The template is used for

- the header of the Resource Type Page
- the dragged resource in drag-and-drop operations
- the display of the resource in the Favorites

## **Quick Search**

This template defines the format of the resource data in the result of the Quick Search, for an example see section Quick Search.

## Search

This template defines the format of the resource data in the result of the search (in suggestion lists) for resources when a resource is linked to another object, e.g. a ticket. For an example see section Search.

## Rest

This template defines the format of the resource data in the result of the REST API. In the standard configuration, no customer data are displayed in the CM portal, CM.Track which is based on the REST API. This template will only be effective when you address the REST API directly, e.g. for programming CM interfaces. For an example see section REST.

## History

This template defines the format of the resource data in the result of the ticket, customer and resource history, e.g. when a relation to or from a resource was added. For an example see section History.

# 24.6.5 Web Client Locations for the Use of Templates

The following locations are in use:

- the header of the Resource Detail Page
- the dragged resource in drag-and-drop operations
- the display of the resource in the Favorites
- the results of the Quick Search
- the results of the search in suggestion lists
- the REST API
- History sections

## Header of the Resource Detail Page

Resource
HP Printer: 4712
Internal   Creation date: 7/10/15 12:16 PM inventory_number 4712 name My new HP printer Location In my office IP_address 123.123.123
No additional details
Comments Attachments
New
Click here to add a comment
List of comments
Resource does not have any comments.

Fig. 3: ConSol\*CM Web Client - Header of the Resource Type Page

Used template: *Default* (see example above)

## **Dragged Resource in Drag-and-Drop Operations**

Resource					
	HP Printer: 4712 Printers  HP_Printer Internal   Creation da inventory_number name Location IP_address 123.123.123.123	ter (m)			
	No additional details				
	Comments At	ttachments			
	New				

Fig. 4: ConSol\*CM Web Client - Dragged Resource in Drag-and-Drop Operations

Used template: *Default* (see example above)

## **Favorites**

Favorites	
HP Printer: 4712	

Fig. 5: ConSol\*CM Web Client - Resource Name in Favorites

Used template: *Default* (see example above)

## **Quick Search**

	1	. )	~	
	All custom	er groups	Q 4712	
RESOURCES				
HP_Printer	HP Printer: My	new HP printe	er - 4712	
	Show all	Create	ticket	Create customer
			automa	tically listed in this

Fig. 6: ConSol\*CM Web Client - Results for Quick Search (Resource)

Used template: Quick Search, if this is defined. If not Default.

#### Example template used here:

```
HP Printer: ${resource.getFieldValue("HP_Printer_Fields_basic","name")!} - ${resource.
getFieldValue("HP_Printer_Fields_basic","inventory_number")!}
```

## Search

Resource		Edit   Deactivate   Delete	
	PC: My cool PC - Computer-0815 PCs  PC_Desktops Internal   Creation date: 7/13/15 11:02 AM name My cool PC modell Computer-0815		
	No additional details	Comment   Attachments   🗸	
	Related Resources (1)	^	
	n Printers	n Office Software	
	Represents usage of the HP printer by the desktop PC (1)	PC_Desktop_to_Word2013_Rel (0) Add	
	Add Relation HP_Printer HP Printer: Best Printer ever 192.168.	123.123	Resource representation according to Search template

Fig. 7: ConSol\*CM Web Client - Resource in Suggestion List, Formatted Based on Search template

Used template: Search, if this is defined. If not: Default.

Example template used here:

```
HP Printer: ${resource.getFieldValue("HP_Printer_Fields_basic","name")!} - - ${resource.
getFieldValue("HP_Printer_Fields_basic","IP_address")!}
```

# History Sections of Resource Detail Page, Customer Detail Page and Ticket

The history template for a resource will be displayed, for example, in the ticket history for the extende level, when Show all entries has been selected.

Ticket		Edit Clone Print
100314	Service request #4711         ServiceDesk   Work in progress         Assigned to ServiceDesk, Susan   Open since 11/11/14 2:36 PM         Priority high       Module Web Client         Ask for feedback no         Desired deadline       11/11/14 10:10 AM         This is a clone of ticket # 100313         Continent Europe         Request Type         Complaint	
	Groups	Edit 🗸
	Customers (2)	Add 🗸
	No additional engineers	Add A
	No relations	▲   bbA
	Related Resources (1)	^
	PCs     PC_Desktop_to_Ticket_Relation (1)     Add	
	History	Comment   E-Mail   Attachment   Time booking   🔺
	Display all entries 🔻 Sorting latest first 💌	
	Add comment, e-mail or attachment	
8/14/15	#15 changed by Susan ServiceDesk 14:44 Resource relation added: PC_Desktop_to_Ticke	et_Relation PC My cool PC - Computer-0815
2/26/15	#14 changed by Workflow Timer	

Fig. 8: ConSol\*CM Web Client - History Template for Resource Data

Used Template: History, if this is defined. If not: Default.

## REST

The following example shows a REST client request for resource data and the resulting answer of the CM server via REST API. The value within the <mark> tag in the XML output is the resource information which is formatted using the REST template. In the example, the resource name ("My new Printer") and the inventory number ("4711") are part of the template.

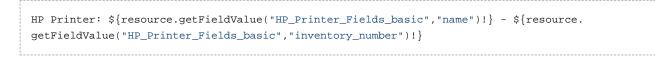
Body Request Body [-] Response	Gdoku-cm1.int.consol.de:8280/restapi/resou	ces.xml 🖈 🖌 SEN
Body Request Body [-] Response Response Headers Response Body (Raw) Response Headers	Sdoku-cm1.int.consol.de:8280/restapi/resou	ces.xml 🖈 🕶 SEN
Request Body       [-] Response       Response Headers     Response Body (Raw)		
[-] Response Response Headers Response Body (Raw) Response		
Response Headers Response Body (Raw) Res		
Response Headers Response Body (Raw) Res		
	onse Body (Highlight) Response Body (Preview	)
<lastpagenumber>0</lastpagenumber> <pagenumber>0</pagenumber> <pagesize>2</pagesize> <totalnumberofelements>2</totalnumberofelements> 22222222222222222222222222222222222222222222222222222222222222222222222222222 <td></td> <td></td>		
<resource cm6doku-cm1.int.conso<="" http:="" td="" uri="http://cm6doku-cm1.int.conso&lt;br&gt;&lt;resource uri="><td>de:8280/restani/resources/2" id="2"/&gt;</td><td></td></resource>	de:8280/restani/resources/2" id="2"/>	

Fig. 9: REST API - List of All Resources

Request								
lethod GET	*	URL ht	tp://cm6doku-cm1.int.cons	ol.de:8280/restapi/resource	s/2.xml		☆ ♥	SEND
ody								
equest Body								
Response	Response Bo	dv (Raw)	Response Body (Highlight)	Response Body (Preview)				
<resourcetype <accessmoded <modificatione <groups></groups></modificatione </accessmoded </resourcetype 	ter: My new H uri="http://cr late>1436523 Jate>1436523	IP printer m6doku-ci 3788853378885 </th <th>m1.int.consol.de:8280/rest accessModeDate&gt; modificationDate&gt;</th> <th>api/resources/2 &gt; api/resourcetypes/HP_Print</th> <th>er?v=mTsdGGBk9</th> <th>Vmo6DAzpwC3A</th> <th>A%3D%3D"/:</th> <th>&gt;</th>	m1.int.consol.de:8280/rest accessModeDate> modificationDate>	api/resources/2 > api/resourcetypes/HP_Print	er?v=mTsdGGBk9	Vmo6DAzpwC3A	A%3D%3D"/:	>
<resource lype<br=""><accessmoded <modificatione <groups> - <group name<br=""><definition %3D%3D"/: - <fields> - <field td="" xs<=""><td>ter: My new H uri="http://cr bate&gt;1436523 Date&gt;1436523 De="HP_Printer uri="http://cr</td><td>IP printer m6doku-cl 3788853378885r_Fields_t m6doku-c pFieldElen</td><td>- 4712) m1.int.consol.de:8280/rest accessModeDate&gt; imodificationDate&gt; basic"&gt; m1.int.consol.de:8280/rest</td><td></td><td>rinter_Fields_basi</td><td>c?v=x5CsDLHdQ≀</td><td></td><td></td></field></fields></definition </group></groups></modificatione </accessmoded </resource>	ter: My new H uri="http://cr bate>1436523 Date>1436523 De="HP_Printer uri="http://cr	IP printer m6doku-cl 3788853378885r_Fields_t m6doku-c pFieldElen	- 4712) m1.int.consol.de:8280/rest accessModeDate> imodificationDate> basic"> m1.int.consol.de:8280/rest		rinter_Fields_basi	c?v=x5CsDLHdQ≀		
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Fig. 10: REST API - Details of One Selected Resource (ID 2)

#### Example template used here:



Used template: REST, if defined. If not: Default.

# 24.7 CM.Resource Pool - Resource Relations

- Introduction to Resource Relations
- Creating Resource Relation Templates Using the Admin Tool
- Relations Overview
- Creating Resource Relations Using the Web Client
- Configuration of Resource Relations in the Web Client

# 24.7.1 Introduction to Resource Relations

A resource can have relations to other ConSol\*CM objects. In contrast to Customer Relations, no hierarchy levels are defined. All relations are simple references. A resource can have one or more relation to the following types of CM objects:

- **Ticket** (e.g., an incident ticket has a ticket-resource relation to the printer which caused a problem)
- Company (e.g. a company has a company-resource relation to a specific SLA)
- Contact (e.g. a contact has a contact-resource-relation to the terminal server access rights)
- **Customer** (i.e. company OR contact of a customer group) (e.g. a resource has a resource-customer relation to a customer group to reflect that customers in this customer group are all potential receivers of a newsletter)
- **Resource** (e.g. a Laptop has a resource-resource relation to all connected/configured printers)

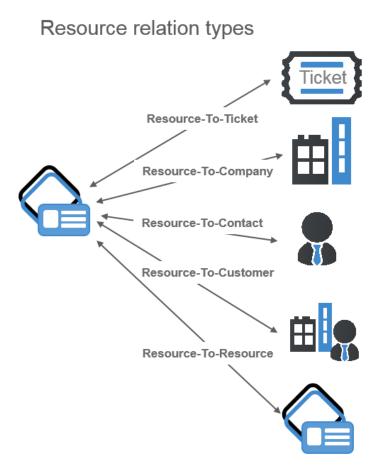
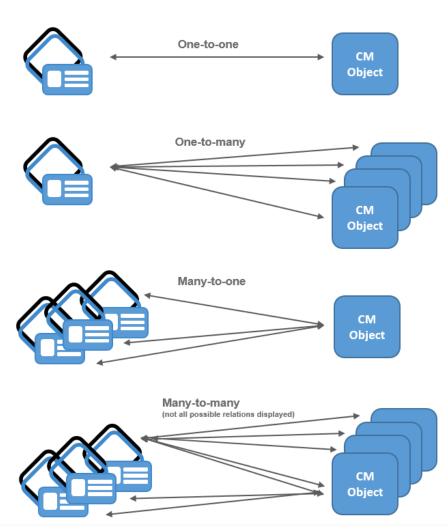


Fig. 1: ConSol\*CM Resource Relation Types

For a Resource Relation, the multiplicity has to be defined, i.e. for each relation is is defined to how many objects of the selected object type a relation can be created. The following configurations are possible for the Resource Relation multiplicity:

- One-to-one: Each resource can have only one relation with a single target object
- **One-to-many**: Each resource can have many relations with different target objects (e.g. one laptop can have resource-Resource Relations to one, two, or more printers)
- Many-to-one: Many resources can have one relation each with only one single target objects
- Many-to-many: Many resources can have many relations with different target objects



Resource relation multiplicity

Fig. 1: ConSol\*CM Resource Relation Multiplicity

# 24.7.2 Creating Resource Relation Templates Using the Admin Tool

Resource Relations are always defined for a Resource Type, e.g. for the Resource Type HP\_Printers.

To create new Resource Relations or to edit Resource Relations, open the Resource Type panel in the Admin Tool (navigation group *Resources*, navigation item *Data Models*).

Please note that you cannot create or edit Resource Relations using the navigation item *Relations Overview*. This panel is used only for display of the relations and for defining the order of the relations for their display in the Web Client!

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A Home	Data Models				
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📃 Lists 🛛 🛞	Printers A	Resource Type Relat	ions		
Tickets	HP_Printer	Filter:	A	ll target types	▼]
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ᢙ Resources 🛛 🛞	MS_Word2013 MS_Word2013_Fields	PC_Desktops	PC_Desktop_TO_HP_Printer_Relation	Resource	HP_Printer
Data Models         < Relations Overview         À Actions         ## Global Configuration       ※         (1) Data Warehouse       ※         (2) Services       ※         E-Mail       ※         System       ※	PCs     PC_Desktops     PC_Desktops     PC_Laptops     PC_Laptops     PC_Laptops     PC_Laptops     PC_Laptops     PCs     PC_Laptops     PCs     PC_Laptops     PCs     PCs     PC_Laptops     PCs     P				
CM Administration]					

Fig. 2: ConSol\*CM Admin Tool - Creating and Editing Resource Relations

To define a new Resource Relation, press the *Add* button, and fill-in the required fields in the pop-up window.

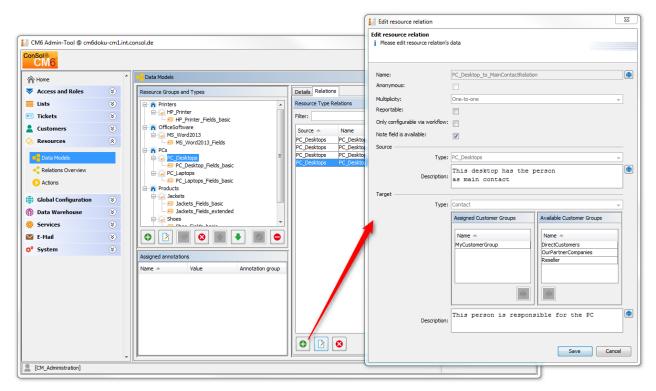


Fig. 3: ConSol\*CM Admin Tool - Creating a New Resource Relation

#### • Name

The technical name of the Resource Relation. You can localize it using the *Globe* button. This name will be displayed in the Web Client when a Resource Relation of this type has been established.

#### • Anonymous

If this checkbox is ticked, *related* will be displayed as description for the relation in the Web Client. Use this checkbox if you do not want to have a description displayed. (Since you cannot leave the name field empty, the only other way would be to display the technical name of the relation.)

#### • Multiplicity

Select the multiplicity for the relation (see the explanation of the relation multiplicity above).

#### • Reportable

If this checkbox is ticked, the relations of this type will be transferred into the DWH.

#### • Only configurable via workflow

If this checkbox is ticked, the relation can only be set / removed using workflow scripts. The relation will not be offered in the respective menus in the Web Client.

#### • Note field is available

Isf this checkbox is ticked, a note field will be displayed for each resource when a new Resource Relation is established (see the following two figures)

	Resource			Edit   Deactivate   Delete
Annual Contraction of		PC: My cool PC - Computer-0815 PCs  PC_Desktops Internal   Creation date: 7/13/15 11:02 AM name My cool PC modell Computer-0815		
		No additional details		Comment Attachments
		Related Resources		~
		n Printers	<ul> <li>OfficeSoftware</li> </ul>	
		Represents usage of the HP printer by the desktop PC (0)	PC_Desktop_to_Word2013_Rel (0)	Add
		Add Relation		
		HP_Printer HP Printer: My new I Note OK Cancel		

Fig. 4: ConSol\*CM Web Client - Establishing a Resource-Resource Relation with Note Field

Resource			Edit Deactivate Delete
	PC: My cool PC - Computer-0815 PCs  PC_Desktops Internal   Creation date: 7/13/15 11:02 AM name My cool PC modell Computer-0815		
	No additional details		Comment Attachments V
	Related Resources		~
	n Printers	n Office Software	
	Represents usage of the HP printer by the desktop PC (0) Add Relation HP_Printer HP Printer: My new IX OK Cancel	PC_Desktop_to_Word2013_Rel (0)	bbA

Fig. 5: ConSol\*CM Web Client - Establishing a Resource-Resource Relation without Note Field

- Source
  - Type

the current resource. The value is pre-selected and cannot be modified.

Description

The description of the relation. It will be displayed in the Web Client as header for any relation of this type on the source side. The description can be localized using the *Globe* button.

- Target
  - Type

The object type of the target of this relation. For an explanation, please see the section about Relation Types.

#### • Assignment table

Here, you can assign objects of the selected type to the relation, i.e. the Resource Relation will only be available for those objects. Depending on the selected target object type, there will be different object which can be selected in the assignment table:

- Target type Resource: Assigned/Available Resource Types
- Target type Customer: Assigned/Available Customer Groups
- Target type Contact: Assigned/Available Customer Groups
- Target type Company: Assigned/Available Customer Groups
- Target type Ticket: Assigned/Available Queues
- Description

The description of the relation. It will be displayed in the Web Client as header for any relation of this type on the target side. The description can be localized using the *Globe* button.

# 24.7.3 Relations Overview

The navigation item *Relations Overview* provides a list of all defined relations and provides the possibility to define the display order of the relations in the Web Client.

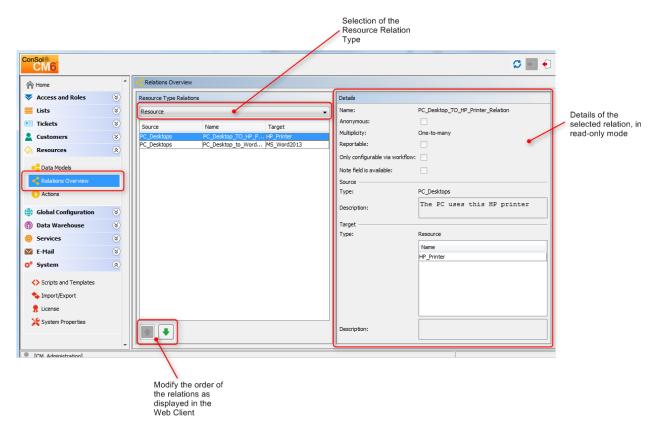


Fig. 6: ConSol\*CM Admin Tool - Relations Overview

Use the filter (pull-down menu) in the top row to select the target object type. Only relations with this target object type will be displayed in the list. Please refer to the section about Relation Types for details about possible target object types.

Please note he filter above the list. You always have to select one Resource Relation type:

- Resource
- Customer
- Contact
- Company
- Ticket

Only relations of this type will be dispayed in the list.

Two functionalities are available in the Relations Overview:

- Display relation details Select a relation. The relation details will be displayed on the right side in read-only mode.
- Modify display order

Select a relation and use the UP and DOWN arrows to move it up/down within the list. This will define the position of the relation in the relations list in case more than one relation is offered for selection in the Web Client.

# 24.7.4 Creating Resource Relations Using the Web Client

Resource Relation can be established on several pages in the Web Client, depending on the source object.

- Ticket-to-X relations can be created on the ticket page.
- Resource-to-X relations can be created on the resource page.
- Contact-to-X relations can be created on the contact page.
- Company-to-X relations can be created on the company page.

For a short explanation of the work with Resource Relations, see section A Short Introduction to CM. Resource Pool Functionalities in the Web Client. A detailed explanation if all resource-related Web Client functionalities is provided in the *ConSol\*CM User Manual*.

# 24.7.5 Configuration of Resource Relations in the Web Client

Some parameters concerning the display mode of Resource Relations can be configured using Page Customization. There are:

- the default limit for the number of Resource Relations which is required to display the table-filter control elements
- the sorting strategy for Resource Relations

For details about the parameters concerning unit pages, please see section Page Customization, unitResourceRelation.

For details about the parameters concerning the Resource Detail Page, please see section Page Customization, TicketRelation.

For details about the parameters concerning the ticket page, see section Page Customization, resourceRelations.

# 24.8 CM.Resource Pool - Resource Actions

- Introduction to Resource Actions
- Creating Resource Actions Using the Admin Tool
  - Step 1: Write the Data Object Action Script
  - Step 2: Create Resource Action(s) Which Use the Script
  - Step 3: Assign Resource Actions to Resource Types
- Using Resource Actions in the Web Client (as an Engineer)
- Programming Scripts for Resource Actions and Resource Conditions
- Examples for Resource Actions
  - Example 1: Simple Manual Action
  - Example 2: Open a Maintenance Ticket from a Resource, Using an ACF

# 24.8.1 Introduction to Resource Actions

*Resource Actions* are a component of the ConSol\*CM Action Framework. Resource Actions are actions which can be performed for a resource i.e. an object which is stored in the Resource Pool. The actions can be performed automatically by the system or manually, triggered by an engineer who has the required permissions. You might want to apply Resource Actions for use cases like the following:

- Create a maintenance ticket for a printer which has to be taken care of.
- Find all companies who use a certain SLA.

You can use the following types of Resource Actions:

- Automatic actions which are performed by the system after one of the following data object operations:
  - CREATE
  - UPDATE
  - DELETE
  - SEARCH
- **Manual** actions which are performed by the engineer using *Activities* links on a Resource Detail Page in the Web Client (similar to *Workflow activities* for tickets). Manual actions are executed for the resource which is displayed.

A Please keep in mind that only engineers who have at least one role with the following access permissions for the respective resource type are allowed to use the Resource Actions, i.e. only then the Activities will be displayed in the Web Client:

Act



Fig. 1: ConSol\*CM Web Client - Resource Action (on Resource Page)

Resource Actions are defined as Groovy scripts which are stored in the *Script and Template* section of the Admin Tool.

The execution of *Resource action* scripts can be controlled using condition scripts, i.e. you can implement a condition script which is executed before the Resource Action itself. Only when this script returns *true*, the following action script is executed.

So there are two types of scripts you have to deal with when you use ConSol\*CM Resource Actions:

Resource action scripts

Defines the action which should be performed.

Resource condition scripts
 Defines one or more conditions for the execution of the action script Has to return *true* or *false*. If *false* is returned the action script is not executed. If this is a manual action, it is not displayed as *Activity* in the Web Client.

When you want to implement a Resource Action you have to proceed in three steps:

- 1. Create a *Resource action* script (either action script only or action script and condition script).
- 2. Create the Resource Action(s) which use(s) the script(s).
- 3. Assign the Resource Action(s) to the resource type(s) where they should be available.

In the following sections, all three steps are explained in detail.

# 24.8.2 Creating Resource Actions Using the Admin Tool

## Step 1: Write the Data Object Action Script

Create a new Admin Tool script of type *Resource action*. If required, create another script of type *Resource condition*.

For a detailed explanation of Admin Tool scripts in general, please refer to section Admin Tool Scripts.

Scripts & Templates Administration     cripts Template		
Scripts		
scipts	1	
All script types	▼.	
Name 🔺	Туре	
AppendToTicket.groovy	E-mail	
BuildLocationDependentEnum	Dependent enum	
BuildLocationDependentEnumForTable	Dependent enum	
ChangeOutgoingMail.groovy	E-mail	
CheckAndUpdateCompanyServiceSt	Data object action	
CheckClosedChildTickets.groovy	Workflow	
CloneServiceTickets.groovy	Clone	
CloneTicket.groovy	Workflow	
ConditionUpdateContactData	Data object condition	
CreateTicket.groovy	E-mail	
CreateTicketForPC_Desktop.groovy	Resource action	
DefaultValuesServiceDesk.groovy	Default values	
DisplayCustomerData.groovy	Workflow	
Do something interesting	Data object action	
GoToAMTicketScript	Data object action	
GoToCompanyURL	Data object action	
IncomingMailRouting.groovy	E-mail	
Load data	Data object action	
MailScriptServiceDesk	E-mail	
MailSetReplyTo.groovy	E-mail	
MailToClosedTicket.groovy	E-mail	
MessageToEngineerRemove.groovy	E-mail	
MyFirstTaskScript	Task	
NimhAppendToTicket.groovy	E-mail	

Fig. 2: ConSol\*CM Admin Tool - Resource Action Script in Scripts Section

```
Example resource action script:
^{\prime\prime} this script creates a new ticket for the resource from which the activity is executed, i.e.
creates new ticket and links it to resource
// resource - ticket relation must be configured beforehand!
import com.consol.cmas.common.model.ticket.Ticket
import com.consol.cmas.common.model.customfield.Unit
import com.consol.cmas.common.model.resource.*
import com.consol.cmas.common.service.resource.*
import com.consol.cmas.common.model.ticket.Queue
import com.consol.cmas.common.model.resource.meta.*
println 'CreateTicketForResource.groovy started ...'
Ticket newtic = new Ticket()
Queue qu = queueService.getByName("ServiceDesk")
newtic.setQueue(qu)
newtic.setSubject("New Ticket for Resource: " + resource.getId())
newtic.set("helpdesk_standard.priority","low")
// use main contact person of the resource as main contact for the ticket
Unit maincont = new Unit()
def crit = new ResourceRelationWithTargetUnitCriteria()
crit.setResource(resource)
List<ResourceRelationWithTargetUnit> cont_list = resourceRelationService.getByCriteria(crit)
if (cont_list.size() == 0) {
    workflowApi.addValidationError("ERRROR", "No contact set!")
} else {
   def cont_rel = cont_list[0]
    maincont = cont_rel.getTargetUnit()
```

```
}
ticketService.createWithUnit(newtic,maincont)
println 'New Ticket created for resource with ID' + resource.getId()
// link ticket to resource
def resRelationDefCriteria = new ResourceRelationDefinitionCriteria()
resRelationDefCriteria.addDefinitionName("PC_Desktop_to_Ticket_Relation")
def s_res_type = resource.getResourceType()
resRelationDefCriteria.addSourceResourceType(s_res_type)
resRelationDefCriteria.addTargetQueue(qu)
//log.info "resRelationDefCriteria = " + resRelationDefCriteria
//log.info "resRelationDefCriteria.definitionName = " + resRelationDefCriteria.
getDefinitionsNames()
def resRelationDef = resourceRelationDefinitionService.getByCriteriaUniqueResult
(resRelationDefCriteria)
def resRelation = new ResourceTicketRelation(resRelationDef, resource, newtic)
// log.info "resRelation" + resRelation
resourceRelationService.create(resRelation)
```

## Step 2: Create Resource Action(s) Which Use the Script

To create, edit or delete Resource Actions, open the tab *Actions*, navigation group *Resources*, in the Admin Tool.

To create / add a new action press the *Plus* button <sup>1</sup> and fill-in the required data in the pop-up window.

ConSol CM6		C 📰 🕄
A Home	*	Actions
Access and Roles	۲	Resource Type Action Administration Details
Eists	۲	Filter: All action types  All resource types  Name:
Tickets	۲	Name A Type Type:
Lustomers	۲	Create resource action
ᢙ Resources	۲	Create resource action
Data Models		i Please fill in the required fields.
Relations Overview		
Actions		Name: CreateTicketForResourceAction
😩 Global Configuration	۲	Type: Manual 🗸
🕥 Data Warehouse	۲	Condition Script:
🔅 Services	۲	Execution Script: CreateTicketForResource.groovy
💟 E-Mail	۲	Description:
🛟 System	۲	
Scripts and Templates		
🝫 Import/Export		Save Cancel
👷 License		
💥 System Properties	-	
[CM_Administration]		<u> </u>

Fig. 3: ConSol\*CM Admin Tool - Creating a Resource Action

#### Name

The technical name of the Resource Action. You can localize the value by using the Globe button.

### Type

The Resource Action type. Select one of the following types. If a type has been defined, it cannot be modified afterwards (when you edit an existing Resource Action).

### Create

This script will be executed automatically when the resource is created

• Update

This script will be executed automatically when the resource is updated, i.e. when the data has been modified (either manually or automatically) and is saved again.

• Delete

This script will be executed automatically when the resource is deleted.

Manual

The Resource Action is displayed as *Activity* in the Web Client and can be executed only manually. If a resource condition script is implemented, the activity will only be displayed in the Web Client if the condition script has returned *true*.

Search

The Resource Action is a search action. Actions of this type are explained in section Search Actions.

### Condition Script

In case a condition script should be executed before the action script, the name of the condition script has to be entered here. Use the pull-down menu to select from a list with all scripts of type *Resource condition* which are stored in the scripts section of the Admin Tool. Only when the condition script has returned *true*, the action script will be executed. If there is no condition, just leave this field empty.

• Execution Script

The name of the action script which should be executed. Use the pull-down menu to select from a list with all scripts of type *Resource action* which are stored in the scripts section of the Admin Tool.

• Description

Enter the description which should be displayed as mouse-over in the Web Client (for manual actions only).

Save the action. Then you can assign it to resource types. Please see following step.

## Step 3: Assign Resource Actions to Resource Types

To assign pre-defined Resource Action and/or resource condition scripts to resource types, open the tab *Data Models*, navigation item *Resources*, in the Admin Tool. Select the resource type you would like to edit and click on to open the pop-up window to assign the Resource Actions. Only Resource Actions which have been stored as Admin Tool scripts of types *Resource action* will be offered here. Scripts of type *Resource condition* are not offered, because they are not directly assigned to a resource type but assigned to a *Resource action* script.

In the following example (next figure), a manual Resource Action is assigned to the resource type *HP\_Printer*.

ConSol CM6			Edit resource type
Home Access and Roles Lists Customers Resources	* * *	Data Models         Resource Groups and Types         Printers         G HP_Printer_Fields_basic         G OfficeSoftware         G MS_Word2013         S MS_Word2013_Fields         PCs	
<ul> <li>Data Models</li> <li>Relations Overview</li> <li>Actions</li> <li>Global Configuration</li> <li>Data Warehouse</li> <li>Services</li> <li>E-Mail</li> </ul>	<ul><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li><li></li></ul> <li></li>	PC_Desktops     PC_Desktop_Fields_bace     PC_Laptops     PC_Laptops     Products      Assigned annotations      Name      Value     Annotations	Mode: Internal  Icon:  Templates Automatic Actions Manual Actions Search Actions Assigned Name CreateTicketForResourceAction Name
<ul> <li>System</li> <li>Scripts and Templates</li> <li>Import/Export</li> <li>License</li> <li>System Properties</li> </ul>	8		Save Cancel

Fig. 4: ConSol\*CM Admin Tool - Assigning Resource Actions to a Resource Type

You can define the following action types:

#### • Automatic Actions

Those actions will be executed automatically when the respective type of event (create, update, or delete) has been triggered. Select a script for each type which is required. Only the actions with the correct type (which have ben defined as Resource Actions before, see Step 2) are offered in each pull-down menu. For example, for an automatic action of type CREATE, only Resource Actions of type CREATE (which have been defined in the Actions section) will be offered.

#### Manual Actions

Those actions are displayed as activities on the Resource Detail Page in the Web Client and have to be executed manually. An activity is only displayed if either no resource condition script is present or if the respective reource condition script has returned *true*.

### • Search Actions See section Search Actions.

# 24.8.3 Using Resource Actions in the Web Client (as an Engineer)

As an engineer (user), two Resource Action types are relevant for you, because they are available as activities in the Web Client:

• MANUAL - Manual actions are offered in the Web Client similar to workflow activities for a ticket. Please see *Example 1* in the next section. SEARCH - see section Search Actions.

The DELETE, UPDATE, and CREATE scripts run in the background.

# 24.8.4 Programming Scripts for Resource Actions and Resource Conditions

Please read the section about Working with the Action Framework for a general introduction about important principles, classes and methods for action and condition scripts.

### 24.8.5 Examples for Resource Actions

### Example 1: Simple Manual Action

Use Case: The engineer should be able to create a new Service Desk ticket directly from a Resource Page of a PC\_Desktop. The new ticket should be related to the resource (PC). The main contact of the new Service Desk ticket should be the person who is responsible for the PC. This is implemented as resource-contact relation in the resource type PC\_desktop. To implement the Resource Action, perform the following steps.

Wirite the Resource action script:

```
Resource action script for PC-Desktops to create a new Service Desk ticket for responsible PC
contact
// this script creates a new ticket for the resource from which the activity is executed, i.e.
creates new ticket and links it to resource
// resource - ticket relation must be configured beforehand!
import com.consol.cmas.common.model.ticket.Ticket
import com.consol.cmas.common.model.customfield.Unit
import com.consol.cmas.common.model.resource.*
import com.consol.cmas.common.service.resource.*
import com.consol.cmas.common.model.ticket.Queue
import com.consol.cmas.common.model.resource.meta.*
import com.consol.cmas.core.server.service.action.*
println 'CreateTicketForResource.groovy started ...'
Ticket newtic = new Ticket()
Queue qu = queueService.getByName("ServiceDesk")
newtic.setQueue(qu)
def subj = resource.get("PC_Desktop_Fields_basic.name")
// newtic.setSubject("New Ticket for Resource: " + resource.getId())
newtic.setSubject("New Ticket for Resource: " + subj)
newtic.set("helpdesk standard.priority","low")
\ensuremath{{\prime\prime}}\xspace // use main contact person of the resource as main contact for the ticket
Unit maincont = new Unit()
def crit = new ResourceRelationWithTargetUnitCriteria()
crit.setResource(resource)
List<ResourceRelationWithTargetUnit> cont_list = resourceRelationService.getByCriteria(crit)
```

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```
if (cont_list.size() == 0) {
   workflowApi.addValidationError("ERRROR", "No contact set!")
} else {
   def cont_rel = cont_list[0]
   maincont = cont_rel.getTargetUnit()
}
ticketService.createWithUnit(newtic,maincont)
println 'New Ticket created for resource with ID' + resource.getId()
// link ticket to resource
def resRelationDefCriteria = new ResourceRelationDefinitionCriteria()
resRelationDefCriteria.addDefinitionName("PC_Desktop_to_Ticket_Relation")
def s_res_type = resource.getResourceType()
resRelationDefCriteria.addSourceResourceType(s_res_type)
resRelationDefCriteria.addTargetQueue(qu)
log.info "resRelationDefCriteria = " + resRelationDefCriteria
log.info "resRelationDefCriteria.definitionName = " + resRelationDefCriteria.
getDefinitionsNames()
def resRelationDef = resourceRelationDefinitionService.getByCriteriaUniqueResult
(resRelationDefCriteria)
def resRelation = new ResourceTicketRelation(resRelationDef, resource, newtic)
log.info "resRelation" + resRelation
resourceRelationService.create(resRelation)
// go to new ticket
return actionScriptResultFactory.getPostAction(PostActionType.GOTO_TICKET, newtic)
```

CM6 Admin-Tool @ cm6d	oku-cm1.int.	consol.de
ConSol CM6		S 📓 🕤
A Home	*	O Actions
Access and Roles	۲	Resource Type Action Administration Details
Eists	۲	Filter: All action types  All resource types  Edit resource action
Tickets	۲	Name A Type Edit resource action
Lustomers	۲	CreateMaintenanceTickeForHP_Printer Manual i Please edit resource action's data
le Resources	۲	CreateTicketForPC_DesktopAction Manual SetNextMaintenanceDate_HP_Printers Search
Data Models		Name: CreateTicketForPC_DesktopAction
Relations Overview		Type: Manual 👻
Actions		Condition Script:
Global Configuration	8	Execution Script: CreateTicketForPC_Desktop.groovy
Data Warehouse	8	Description: This will create a new Service Desk 🗐
Services	<ul> <li>Image: Second sec</li></ul>	Ticket and relate it to this PC
E-Mail	8	
💕 System	* *	
ç <sup>a</sup> System	8	Save Cancel
Scripts and Templates		
🝫 Import/Export		
📌 License		
🔀 System Properties		
[CM_Administration]	•	

Create a Resource Action based on the script:

Fig. 5: ConSol\*CM Admin Tool - Creating a New Resource Action

Assign the action to the correct resource type:

			Edit resource type
CM6 Admin-Tool @ cm6do	oku-cm1.int.c	onsol.de	Edit resource type j Please edit the resource type data.
A Home	*	- Data Models	Name: PC_Desktops
Access and Roles	۲	Resource Groups and Types	Description:
E Lists Lists Lists Lists Lists Lickets Lickets Contemporate S Con	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		Mode: Internal Icon: Templates Automatic Actions Manual Actions Search Actions Templates Automatic Actions Manual Actions Search Actions Assigned Name Create TicketForPC_DesktopAction CreateMaintenanceTickeForHP_Printer
🕫 System	*	Assigned annotations	
<ul> <li>Scripts and Templates</li> <li>Import/Export</li> <li>License</li> <li>System Properties</li> </ul>		Name A Value Annotation gro	Save Cancel
CM_Administration]	•	<u>}</u>	

Fig. 6: ConSol\*CM Admin Tool - Assign the Resource Action to the Correct Resource Type

Check the functionality using the Web Client:

Resource	e detail PC: My cool PC - Com PCs  PC_Desktop Internal   Creation date: 7 name My cool PC modell Computer-0815	s		1	Edit   Deactivate   De	lete	Activities Create a new ticket in SD f resource Workspace Workspace is empty All your unsaved tasks are automatically listed in this			Resource action
	No additional details Related Resources (2 Related Companies a	Favorites			Resource-contact					
		for the PC Desktop (MyCusto Date 7/14/15 11:42 AM	merGroup)(Contact) First name Luigi	Lastname Arcon	Add Actions		All Contacts     HP printers     HP Printer: 4712		_	relation to reflect responsibility for the PC
	Related Tickets (1) Add A						OpenTicketsAUSTR Service request			
	Image: Ware         Subject         Actions           8/14/15 2:44 PM         Image: Ware         Service request #4711         Image: Ware									
8/17/15	Relation removed:     Relation removed:     Relation removed:     Relation removed:     Relation removed:	an ServiceDesk PC_Desktop_to_Ticket_Relativ PC_Desktop_to_Ticket_Relativ PC_Desktop_to_Ticket_Relativ PC_Desktop_to_Ticket_Relativ PC_Desktop_to_Ticket_Relativ PC_Desktop_to_Ticket_Relativ	on 100336 on 100321 on 100203 on 100200	olem with this PC)		~		-		

Fig. 7: ConSol\*CM Web Client - Resource Detail Page with the Resource Action

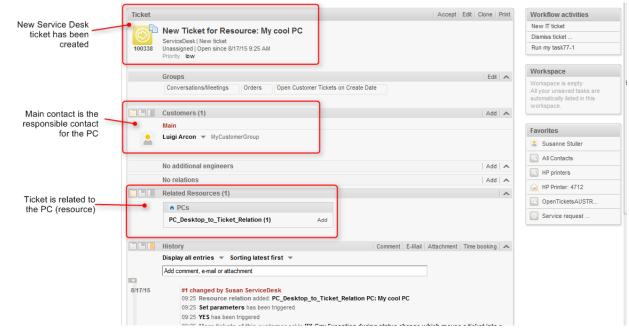


Fig. 8: ConSol\*CM Web Client - New Service Desk Ticket Created by the Resource Action

Resource	detail				Edit Deactivate Del	ete	Activities	
	PC: My cool PC - Com						Create a new ticket in SD for this resource	
	Internal   Creation date: 7	/13/15 11:02 AM					Workspace	=
	name My cool PC modell Computer-0815						Workspace is empty All your unsaved tasks are automatically listed in this workspace.	
	No additional details				Comment   Attachments	$\mathbf{v}$		
	Related Resources (2	2)				$\mathbf{v}$	Favorites	
	Related Companies a	nd Contacts (1)			Add	^	💄 Susanne Stuller	
	Responsible Contact	for the PC Desktop	(MyCustomerGroup)(Contact)				All Contacts	
	Ø ▼ Contact	Date	First name	Lastname	Actions		HP printers	_
	💄 Luigi Arcon	7/14/15 11:42 AM	Luigi	Arcon	×		HP Printer: 4712	
							OpenTicketsAUSTR	
	Related Tickets (2)				Add	~	Service request	
	PC_Desktop_to_Ticke	t_Relation All 🔻						
	‡‡ ▼ Date	Name	Subject		Actions			
-	8/14/15 2:44 PM	<b>100314</b>	Service request #4711		×			New Service
	8/17/15 9:25 AM	100338	New Ticket for Resource: My coo	I PC	×	•		Desk ticket is related to the
L L						_		resource
	History							

Fig. 9: ConSol\*CM Web Client - Resource Detail Page with One or More Ticket Relations (New Service Desk Ticket)

### Example 2: Open a Maintenance Ticket from a Resource, Using an ACF

The Action Framework offers the possibility to open an ACF when a ticket is opened. The following example demonstrates this functionality. For a resource, a HP printer, a maintenance ticket should be opened. During the (sub-) process, an ACF should be offered to ask for the next.

To implement the Resource Action, perform the following steps.

Write the Resource action script:

```
Resource action script which opens a ticket and uses an ACF
// this script creates a new ticket for the resource from which the activity is executed, i.e.
creates new ticket and links it to resource
// resource - ticket relation must be configured beforehand!
// CreateTicketForHP_PrinterWithACF.groovy
import com.consol.cmas.common.model.ticket.Ticket
import com.consol.cmas.common.model.customfield.Unit
import com.consol.cmas.common.model.resource.*
import com.consol.cmas.common.service.resource.*
import com.consol.cmas.common.model.ticket.Oueue
import com.consol.cmas.common.model.resource.meta.*
import com.consol.cmas.core.server.service.action.*
import com.consol.cmas.common.service.*
println 'CreateTicketForHP_PrinterWithACF.groovy started ...'
Ticket newtic = new Ticket()
Queue qu = queueService.getByName("SpecialTasks")
newtic.setOueue(gu)
newtic.setSubject("New Ticket for HP Printer: " + resource.getId())
newtic.set("SpecialTasks_Fields.SpecialTasksPrio", "normal")
// use main contact person of the resource as main contact for the ticket
Unit maincont = new Unit()
def crit = new ResourceRelationWithTargetUnitCriteria()
```

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```
crit.setResource(resource)
List<ResourceRelationWithTargetUnit> cont_list = resourceRelationService.getByCriteria(crit)
if (cont_list.size() == 0) {
    log.info("ERRROR in script CreateTicketForHP_PrinterWithACF -- No contact set!")
} else {
   def cont_rel = cont_list[0]
   maincont = cont_rel.getTargetUnit()
}
ticketService.createWithUnit(newtic,maincont)
println 'New Ticket created for resource with ID' + resource.getId()
// link ticket to resource
def resRelationDefCriteria = new ResourceRelationDefinitionCriteria()
resRelationDefCriteria.addDefinitionName("HP_Printer_ToTicket_Relation")
def s_res_type = resource.getResourceType()
{\tt resRelationDefCriteria.addSourceResourceType(s\_res\_type)}
resRelationDefCriteria.addTargetQueue(qu)
log.info "resRelationDefCriteria = " + resRelationDefCriteria
log.info "resRelationDefCriteria.definitionName = " + resRelationDefCriteria.
getDefinitionsNames()
def resRelationDef = resourceRelationDefinitionService.getByCriteriaUniqueResult
(resRelationDefCriteria)
def resRelation = new ResourceTicketRelation(resRelationDef, resource, newtic)
log.info "resRelation" + resRelation
resourceRelationService.create(resRelation)
// go to new ticket, but fill ACF before
def executionContext = activityFormDefinitionService.getExecutionContext(newtic, "defaultScope
/TaskInProgress/Aufgabe annehmen")
if (!executionContext) {
  return actionScriptResultFactory.getPostAction(PostActionType.FAILURE, "action.fail.wrong.
activity")
}
// Modify entities from the execution context - not the original ones
// - since the user may still press cancel.
executionContext.ticket.add("SpecialTasks_Fields", "Deadline", new Date());
return actionScriptResultFactory.getPostAction(PostActionType.GOTO_TICKET, newtic,
executionContext);
```

Create a Resource Action based on the script.

CM6 Admin-Tool @ cm6do	oku-cm1.int	.consol.de					<u>ר</u>
ConSol*				Edit resource a	action	0 -	×
A Home	^	Actions		Edit resource act			
Access and Roles	۲	Resource Type Action Administration		-			
E Lists	۲	Filter: All action types	All resource types				
Tickets	۲	Name 🔺	Туре	Name:	CreateMaintenanceTickeFort	IP_Printer	
Lustomers	۲	CreateMaintenanceTickeForHP_Printer	Manual	Type:	Manual		<b>T</b>
lesources	۲	CreateTicketForPC_DesktopAction SetNextMaintenanceDate_HP_Printers	Manual Search	Condition Script:			-
Data Models					CreateTicketForHP_PrinterW	ithACF.groovy	-
< Relations Overview				Description:			۲
Actions							
Global Configuration	۲						
⑦ Data Warehouse	۲					Save	Cancel
Services	۲						
💟 E-Mail	۲			Name Local	lan tinan		
🛟 System	۲						
Scripts and Templates				Locale Englisch	Value Create ma	intenance ticke f	
Selpts and relipiates							
System Properties							
a system Properties			$\bigcirc$				
	-						
[CM_Administration]							

Fig. 10: ConSol\*CM Admin Tool - Create the Resource Action for the HP Printer Maintenance ticket

Assign the action to the correct resource type:

CM6 Admin-Tool @ cm6do	oku-cm1.int.c	onsol.de	Edit resource type
ConSol CM6	•	Data Models	Edit resource type j Please edit the resource type data.
<ul> <li>Access and Roles</li> <li>Lists</li> <li>Tickets</li> <li>Customers</li> <li>Resources</li> <li>Data Models</li> <li>Relations Overview</li> <li>Actions</li> <li>Global Configuration</li> <li>Data Warehouse</li> <li>Services</li> <li>E-Mail</li> <li>System</li> <li>System</li> <li>Scripts and Templates</li> <li>Import/Export</li> <li>License</li> <li>System Properties</li> </ul>	(a)     (a)     (a)     (a)     (a)     (a)       (b)     (c)     (c)     (c)     (c)     (c)	Resource Groups and Types         Printers         Printer         PC_Postop <th>Name:       HP_Printer         Description:       HP printer, general IT asset         Mode:       Internal         Icon:       Image: Construction of the second actions         Assigned       Available         Name       CreateMaintenanceTickeForHP_Printer         Image: CreateMaintenanceTickeForHP_Printer       Image: CreateTicketForPC_DesktopAction         Save       Cancel</th>	Name:       HP_Printer         Description:       HP printer, general IT asset         Mode:       Internal         Icon:       Image: Construction of the second actions         Assigned       Available         Name       CreateMaintenanceTickeForHP_Printer         Image: CreateMaintenanceTickeForHP_Printer       Image: CreateTicketForPC_DesktopAction         Save       Cancel
CM_Administration]			

Fig. 11: ConSol\*CM Admin Tool - Assigning the Resource Action to the Correct Resource (HP Printer)

#### Check the functionality using the Web Client:

Resource	e detail	Edit   Deactivate   Delete	Activities Create maintenance ticke for HP
	HP Printer: 4711 Printer: ♦ HP_Printer Internal   Creation date: 7/24/15 8:30 AM Name Best Printer ever Inventory number 4711 Next maintenace at 8/24/15 Location top floor IP address 192.168.123.123		Workspace Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	No additional details	Comment   Attachments   🗙	Favorites
	Related Resources (1)	· · ·	All Contacts
	Related Companies and Contacts (1)	Add 🗸 🗸	-
	Related Tickets	Add 🔺	HP printers
	HP_Printer_ToTicket_Relation All 💌		
	No search results		
	History	^	
8/10/15	15:41 changed by Susan ServiceDesk		

Fig. 12: ConSol\*CM Web Client - Resource Action for HP Printer

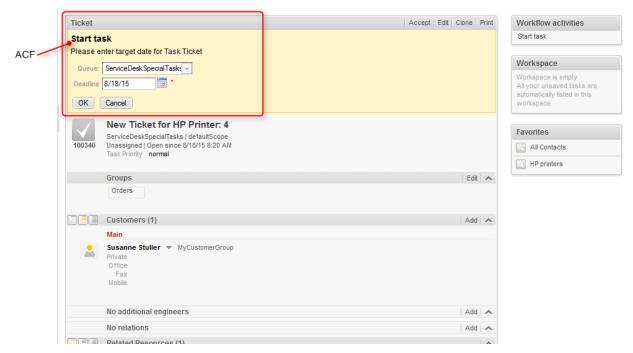


Fig. 13: ConSol\*CM Web Client - New Maintenance Ticket for Resource (HP Printer), ACF

# 24.9 Assigning Permissions for Resources

- Introduction to Permissions Concerning Resources
- Assigning Resource Permissions Using the Admin Tool

### 24.9.1 Introduction to Permissions Concerning Resources

According to the ConSol\*CM basic principle, an engineer can only access resources if he has the required permissions, i.e. if he has at least one role which has the required permissions. Resource permissions are granted on Resource Type level, e.g., members of the role ResourceManager\_IT can access the Resource Types *HP\_Printer, MS\_Word2013, PC\_Desktops, and PC\_Laptops*.

### 24.9.2 Assigning Resource Permissions Using the Admin Tool

To manage resource permissions, open the tab *Resource Types Permissions* (navigation group *Access and Roles*, navigation item *Roles*) in the Admin Tool.

ConSol® CM6						🕫 💽 🌖
A Home	*	😽 Roles				
Access and Roles	۲	Roles 19 roles	Oucue Permissions Resource Types Permissions		ustomer Group P	
👷 Engineers		Filter: All queues	ų	Views Engine	er Functions	Global Permissions
😽 Roles		Name	Resource Types		Resource Typ	es Permissions
Views		AccountManagementReseller CM_Administration	Name HP Printer		Read	
A Engineer Functions		CM_TrackBasicCustomers	Jackets M5 Word2013		Write	
Eists	8	CustomerManagerMyCustomerGroup CustomerManager_DirectCustomers	PC_Desktops		Delete Act	
Tickets	⊗	CustomerManager_Reseller HD_1st_Level_Role	PC_Laptops Shoes		Deactivate/	
Lustomers	⊗	HD_2nd_Level_Role HD_Sales_Role	Skirts		Activate	<u></u>
ᢙ Resources	۲	HD_Supervisor MarketingTeamleitung			Details read	
Data Models		Resource Manager_Products			Details write	
Relations Overview		ResourceManager_IT ServiceDesk			Details delete	
Actions		TemplateManager TrackAll			Create	
Global Configuration	8	TrackMyCustomerGroup TrackReseller				
⑦ Data Warehouse	۲	Workflow_Admin			L	
🔅 Services						
🔛 E-Mail	۲					
💠 System	۲					
Scripts and Templates	-		<u></u>		J	

Fig. 1: ConSol\*CM Admin Tool - Assigning Resource Permissions

For a detailed description of the permissions, see section Role Administration, Tab Resource Types Permissions.

# 24.10 The Resource Pool Dashboard

- Introduction
- Configuring Reports for the Resource Pool Dashboard
- Definition of the Overall Dashboard Layout
- Configuration of Widgets
  - Configuration Script for Widgets
  - Configuration Attributes for Widgets

### 24.10.1 Introduction

The Resource Pool Dashboard provides an overview of all objects in the Resource Pool. According to CM principles, only the objects are displayed which are covered by the access permissions of the engineer who is logged in and opens the dashboard.

The Resource Pool Dashboard will always contain the overview of all resources (section *Search or create resources*, see following figure). It might also contain some charts and/or tables which display figures /reports about resources.

Open the Resource Pool Dashboard by clicking on *Resource pool* (or the label which has been configured in your CM system) in the main menu:

Logged in: <u>Susan (</u>	ServiceDesk 🔸			0
Resource pool	Text templates	Document templates		All customer groups
Resource pool				
Search or create R	lesources			~
n Printers			OfficeSoftware	
HP_Printer		Create new	MS_Word2013	Create new
n PCs			n Products	
PC_Desktops		Create new	Jackets	Create new
PC_Laptops		Create new	Shoes	Create new
			Skirts	Create new

Fig. 1: ConSol\*CM Web Client - Resource Pool Dashboard without Reports

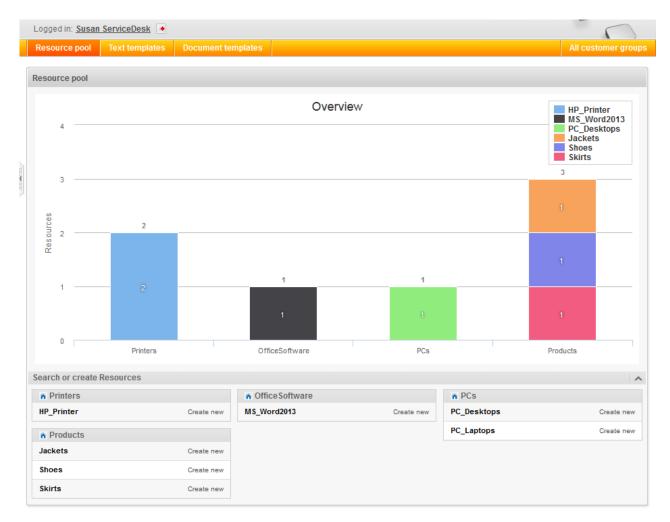


Fig. 2: ConSol\*CM Web Client - Resource Pool Dashboard with Report

The Resource Pool, including the Resource Pool Dashboard, is a new feature which has been introduced in CM version 6.10. However, after a system update from a version previous to 6.10, only the section *Search or create resources* will be displayed. Any Resource Pool Dashboard report (chart and/or table widgets) has to be configured manually.

### 24.10.2 Configuring Reports for the Resource Pool Dashboard

When you configure reports with graphs and tables (or both) for the Resource Pool Dashboard, you work according to the same principles which are applied for configuring the Web Client Dashboard (see section Page Customization for the Web Client Dashboard).

#### The Resource Pool Dashboard is configured using page customization.

Log in as *admin*, open the *Overview* page and select *Enable page customization* in the main menu. Besides other attributes which are not relevant for the Dashboard and are explained on in the section Page Customization, the following (Resource Dashboard-relevant) elements can be configured (i.e. attributes can be set). Each of the three elements is represented by a subtree in the page customization tree.

### 1. widgetsGrid / resourceDashboard

Here, the Resource Pool Dashboard can be switched on or off. If a correct value is entered in the layout field, the Dashboard is displayed. If the field is empty, no Dashboard is shown. The following configuration can be made here:

- a. the Dashboard layout, i.e. the layout of the grid on which the Dashboard is based (see section Definition of the overall Dashboard Layout), this comprises:
  - i. the widgets which should be displayed
  - ii. the order and organization of those widgets on the Dashboard page
- 2. chartWidget / resourceDashboard (only available if chart widgets are present)
  - a. the definition/layout for all chart widgets in the chartWidget subtree
  - b. each widget is represented by one node which has the name of the widget, e.g. *chartWidget / resourceDashboard / ResourceDashboardOverview1*
  - c. a new chart widget is added when its name has been added in the layout value
  - d. attributes can be defined for all chartWidgets on the level *chartWidget* or *chartWidget / resourceDashboard* or they can be configured for one chart widget individually using the values of the attributes for the chartWidget, e.g. *chartWidget / resourceDashboard / ResourceDashboardOverview1*
- 3. tableWidget / welcomePage (only available if table widgets are present)
  - a. the definition of all table widgets in the tableWidget subtree
  - b. each widget is represented by one node which has the name of the widget, e.g. tableWidget / resourceDashboard/ ResourceDashboardOverview2\_table
  - c. a new table widget is added when its name has been added in the layout value
  - d. attributes can be defined for all tableWidgets on the level *tableWidget* or *tableWidget / resourceDashboard* or they can be configured for one table widget individually using the values of the attributes for the tableWidget, e.g. *tableWidget / welcomePage / ResourceDashboardOverview2\_table*.

The following figure provides an example page customization tree with subtrees relevant for the Web Client Dashboard. A detailed explanation is provided in the following sections.

Overall layout for Resource Pool Dashboard	midgetsGrid      main resourceDashboard      main section      main resourceDashboard      main resourceDashboard      main resourceDashboard      main resourceDashboard      main resourceDashboard      main resourceDashboard	Dashboard Overview Section with all Resources (default)
	► mathematical chartWidget L mathematical mathematical chartword in the section	Definition of layout for all chart widgets in Resource Pool Dashboard

Fig. 3: ConSol\*CM Web Client - Page Customization Subtree for Resource Pool Dashboard Configuration

### 24.10.3 Definition of the Overall Dashboard Layout

The overall layout of the entire Resource Pool Dashboard is defined using the page customization attribute *widgetsGrid / resourceDashboard*.

### Attributes:

### • layout

This defines the layout of the entire Dashboard on the Resource Pool Dashboard page based on the following principles:

- Each row of the Dashboard grid is represented as an array of elements: [x,y,z]. A new widget object will be added to the page customization tree automatically when it is added as value in the layout attribute, e.g. when the value *has been* [*ResourceDashboardOverview1*:Chart] and the value is now [*ResourceDashboardOverview1*:Chart, *ResourceDashboardOverview1*, *ResourceDashboardOverview2\_table*:Table], a new table widget named *ResourceDashboardOverview2\_table* will appear in the page customization tree (see figure above). In the same way, widgets can be removed from the Dashboard just remove the name and type of the widget in the layout value. After saving and reloading the page all layout changes are available in the tree for further configuration.
- A widget is described by its name and its type, separated by a colon, i.e ' *ResourceDashboardOverview1*:Chart'. The name for a specific widget must be unique.
- The grid starts with the upper-left corner (0,0) and it is built up row after row, e.g. a layout value with two pairs of [] brackets will represent two rows as shown in the figure and code shown below.
- *null* is a reserved key word for an empty cell.
- The type of a widget is *Chart* or *Table*. The type has to be indicated only at the first appearance of the widgets name, afterwards, it can be omitted, e.g. [ *ResourceDashboardOverview1*:Chart, *ResourceDashboardOverview1*, *ResourceDashboardOverview1*] for a three-columns chart.
- The widget can occupy multiple adjacent rows and columns.
- The Dashboard can be completely disabled in removing the value from the attribute layout.

The following figures show the organization of an example grid and its representation in the page customization. This is a simple example with only one chart. For a more complex example which is show for the Web Client dashboard, please take a look at the respective section in section Page Customization for the Web Client Dashboard.



Fig. 4: Organization of an Example Grid (1 Row, 1 Column Only) for Page Customization for the Resource Pool Dashboard

The value of the respective *layout* attribute would be:

```
[ResourceDashboardOverview1:Chart]
```

If you work with only one chart or table, it is not necessary to indicate more than one column since the entire width of the page will be filled with the widget.

### 24.10.4 Configuration of Widgets

### **Configuration Script for Widgets**

Each chart widget and each table widget has a configuration script which will provide the data for the chart or table (e.g. connect to the database and execute the SQL statements to retrieve the data and to render the data correctly in the next step). This script is a Groovy script which is stored in the Admin Tool script section and is referenced by its name. The scripts has to be of type *Page customization*. Select the widget in the PCDS and enter the script name:

chartWidget type	/resourceDashboard/section/ResourceDashboardOverview1 scope	ChartWidgetCustomization className	- [#] <u>section</u> └ [#] <u>resourceDashboard</u> └ [#] <u>section</u> - [#] <u>chartWidget</u>
	configuration script: ResourcePoolOverv	un with admin privileges: 🗹	L I resourceDashboard

Fig. 5: ConSol\*CM Web Client - Script Definition for a Chart Widget

CM6						<b>C</b> 🔤 •
A Home	*	Scripts & Templates Administration				
Access and Roles	۲	Scripts Template				
Lists	۲	Scripts			Source	
Tickets	۲	Call and a barren		- 1		
	_	All script types		•	import con.consol.cnas.common.security.permission.*;	
Customers	۲	Name	Type		import con.consol.cnas.common.model.resource.meta.*;	
Resources	۲	AppendToTicket.groovy	E-mail		import con.consol.cmas.common.model.resource.*;	
		BuildLocationDependentEnum	Dependent enum	-11		
Global Configuration	۲	BuildLocationDependentEnumFo		-11	<pre>def dashboard = [:];</pre>	
Data Warehouse	8	ChangeOutgoingMail.groovy	E-mail	-11	<pre>def categories = [];</pre>	
Data warenouse	V		Data object action	-11	def localeEN = [];	
Services	8	CheckClosedChildTickets.groovy	Workflow	-11	def localeDE = [];	
	_	CloneServiceTickets.groovy	Clone	-11		
E-Mail	۲		Workflow		<pre>def series = [];</pre>	
System	۲	CloneTicket.groovy				
System	×	ConditionUpdateContactData	Data object condition		// non empty resource groups with readable, active and internal resource types	
		CreateTicket.groovy	E-mail		resourceGroupService.all.each ( resourceGroup ->	
🛟 Scripts and Templates		CreateTicketForPC_Desktop.gro			<pre>def resourceTypes = [];</pre>	
. Innert Frenzet		DefaultValuesServiceDesk.groovy				
Import/Export		DisplayCustomerData.groovy	Workflow		if (resourceGroup.enabled) {	
License		Do something interesting	Data object action		resourceGroup.resourceTypes.each { name, resourceType ->	
		GoToAMTicketScript	Data object action			
🗲 System Properties		GoToCompanyURL	Data object action		if (resourceType.enabled) (	
		IncomingMailRouting.groovy	E-mail		<pre>if (resourceType.accessMode != ResourceAccessMode.ON_THE_FLY) {</pre>	
		Load data	Data object action		if (authorizationServiceImpl.isAccessGranted(resourceType, [ResourceTypeP	ermissior
		MailScriptServiceDesk	E-mail		resourceTypes.add(resourceType);	
		MailSetReplyTo.groovy	E-mail		)	
		MailToClosedTicket.groovy	E-mail		3	
		MessageToEngineerRemove.gro	E-mail	-11		
		MyFirstTaskScript	Task	-11	1	
		NimhAppendToTicket.groovy	E-mail	-11		
		NimhCreateTicket.groovy	E-mail	-11	);	
		NimhIncomingMailRouting.groovy	E-mail	-11		
		NimhMailToClosedTicket.groovy	E-mail		if (resourceTypes) (	
					Collections.sort (resourceTypes);	
		OfferCreateTicketPage	Data object action	- 1	dashboard.put(resourceGroup, resourceTypes);	
		OfferCreateUnitPage	Data object action	_	<pre>categories.add('_(\'' + resourceGroup.name + '\')');</pre>	
		Open report	Data object action		1	
		ResourcePoolOverview1.groovy	Page customization	- J		
		UpdateContactData	Data object action		· ·	
		maxTicketGridSize			// add localization	
		myNewTaskScript	Task			
		setDefaultPrioMedium.groovy	Default values		dashboard.each { resourceGroup, resourceTypes ->	
		tableWidgetOverview.groovy	Page customization		def resourceGroupEN = localizationService.getLocalizedProperty(ResourceGroup.class	
		test	Task		def resourceGroupDE = localizationService.getLocalizedProperty(ResourceGroup.class	s, "name"
		ticketsInViewDataWidget.groovy	Page customization			
			·			,
	-					
[CM Administration]						

Fig. 6: ConSol\*CM Admin Tool - Admin Tool Script for a Widget of the Web Client Dashboard

The configuration script of a widget is the place where the statements are defined which retrieve the required data from the CM system and where the widget layout is defined. The execution of this Groovy script is a core part of the customization. The script must return a map of variables which correspond to the defined widget properties.

### Attention:

The script overwrites the configuration data provided in the page customization. <sup>(1)</sup> The values are *not* merged! <sup>(1)</sup> The script thus will override any widget attribute value set in the page customization, so please make sure that the desired property is not set within the script, if you want to use the page customization for property settings.

A **script** which is associated with a widget is usually executed with user (= engineer) permissions. However, sometimes values have to be used which are not available in the engineer context, e.g. escalated tickets (of all engineers) in a certain queue. In order to execute a script with admin permissions, select the check box *run with admin privileges.* Please keep in mind that the results of the Java or Groovy methods which retrieve the data will vary depending on the context. For example, the method *ticketService.getAll()* will return only tickets for which the the current engineer has at least read permissions, but will return absolutely all tickets in the system when executed as admin.

The **chart** representation in the Web Client Dashboard is based on the Highcharts library. Thus, for chart widgets, the Admin Tool script has to return the attributes which should be set, as a HashMap (see return statement in the code example below which uses, for example, the attributes *visible, chart, title, legend, align*, *backgroundColor*). A detailed explanation of all attributes and the respective hyperlinks are provided in the section Attributes for Chart Widgets.

The **table** representation in the Web Client Dashboard is based on the Datatables library. Thus, for table widgets, the Admin Tool script has to return the attributes which should be set, as a HashMap. Please see section Attributes for Table Widgets.

Attention:

Please note: Very complex scripts can decrease system performance!!!

The following example shows the script ResourceDashboardOverview1.groovy.

Example script for ConSol\*CM chart widget ticketsInViewDataWidget.groovy:

```
import com.consol.cmas.common.security.permission.*;
import com.consol.cmas.common.model.resource.meta.*;
import com.consol.cmas.common.model.resource.*;
def dashboard = [:];
def categories = [];
def localeEN = [];
def localeDE = [];
def series = [];
// non empty resource groups with readable, active and internal resource types
resourceGroupService.all.each { resourceGroup ->
def resourceTypes = [];
if (resourceGroup.enabled) {
 resourceGroup.resourceTypes.each { name, resourceType ->
 if (resourceType.enabled) {
 if (resourceType.accessMode != ResourceAccessMode.ON_THE_FLY) {
 if (authorizationServiceImpl.isAccessGranted(resourceType, [ResourceTypePermissionType.READ]
as Set)) {
 resourceTypes.add(resourceType);
 }
 }
 }
 }
 };
 if (resourceTypes) {
 Collections.sort(resourceTypes);
 dashboard.put(resourceGroup, resourceTypes);
 categories.add('_(\'' + resourceGroup.name + '\')');
 }
};
// add localization
dashboard.each { resourceGroup, resourceTypes ->
def resourceGroupEN = localizationService.getLocalizedProperty(ResourceGroup.class, "name",
resourceGroup.getId(), Locale.ENGLISH);
```

```
def resourceGroupDE = localizationService.getLocalizedProperty(ResourceGroup.class, "name",
resourceGroup.getId(), Locale.GERMAN);
 if (resourceGroupEN) {
localeEN.add("${resourceGroup.name}:${resourceGroupEN}" as String);
 }
if (resourceGroupDE) {
 localeDE.add("${resourceGroup.name}:${resourceGroupDE}" as String);
 }
resourceTypes.each { resourceType ->
 def resourceTypeEN = localizationService.getLocalizedProperty(ResourceType.class, "name",
resourceType.getId(), Locale.ENGLISH);
def resourceTypeDE = localizationService.getLocalizedProperty(ResourceType.class, "name",
resourceType.getId(), Locale.GERMAN);
if (resourceTypeEN) {
localeEN.add("${resourceType.name}:${resourceTypeEN}" as String);
if (resourceTypeDE) {
localeDE.add("${resourceType.name}:${resourceTypeDE}" as String);
 }
};
};
// prepare data
Map<Long, Long> counters = resourceService.
getResourceTypesIdsToActiveResourcesCountersMapping();
dashboard.eachWithIndex { resourceGroup, resourceTypes, index ->
resourceTypes.each { resourceType ->
def count = counters.get(resourceType.id);
 if (count != null && count > 0) {
 def data = [null] * categories.size;
 data[index] = count;
 series.add("{ name: _('${resourceType.name}'), data:[${data.join(',')}] }" as String);
 }
};
};
return [
visible: "true",
chart: "{ type: 'column' }",
title: "{ text: 'Overview' }",
legend: "{ layout: 'vertical', align: 'right', verticalAlign: 'top', floating: true,
maxHeight: 200, backgroundColor: 'white', borderColor: '#CCC', borderWidth: 1, shadow: false,
navigation: { animation: true } }",
xAxis: "{ categories: [${categories.join(',')}] }" as String,
yAxis: "{ allowDecimals: false, min: 0, title: { text: 'Resources' }, stackLabels: { enabled:
true, style: { fontWeight: 'bold', color: 'gray' } } ",
 tooltip: "{ headerFormat: '<b>{point.key}: </b>', pointFormat: '{point.stackTotal}<br><span</pre>
style=\"color:{series.color}\">?</span> {series.name}: {point.y}'",
plotOptions: "{ column: { stacking: 'normal', dataLabels: { enabled: true, zIndex: 5, color:
'white', style: { textShadow: '0 0 3px black' } } } ",
series: "[ ${series.join(',')} ]" as String,
localization: "{ de: {${localeDE.join(',')}}, en: {${localeEN.join(',')}}}" as String
1;
```

The following chart is defined by the script above. For a detailed explanation, please refer to the section Example for a Chart Widget.

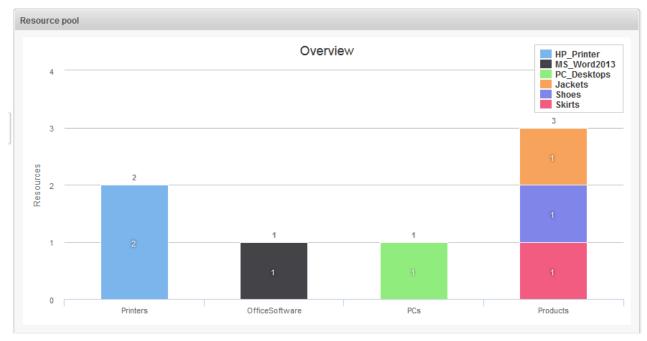


Fig. 7: Example Chart Widget

### **Configuration Attributes for Widgets**

These are the same as for the Web Client Dashboard. Please refer to section Page Customization for the Web Client Dashboard, Configuration Attributes.

# **25 Global Configuration Section**

ConSol® CM6				S 📰 🗧
A Home	*	((() Queues		
Access and Roles	۲	Queues 6 queue	s Details	
Lists Tickets	*	Filter: All customer groups	Queue: Prefix: Workflow:	ServiceDesk
Customers	۲	AccountManagement HelpDesk_1st_Level	Calendar:	ServiceDeskCalendar
Resources		HelpDesk_2nd_Level	Enabled:	$\checkmark$
(a) Global Configuration	۲	Sales ServiceDesk	FAQ:	
🧐 Languages		SpecialTasks	Templates	
🚫 Labels			Assigning ticket: Unassigning ticket:	engineer-assigned-default-mail engineer-removed-default-mail
((() Queues			Scripts	engineer-removed-derault-mail
mojects			E-Mail script:	MailSetReplyTo.groovy
Business Calendars				ot: DefaultValuesServiceDesk.groovy
Classes Of Text			Clone script: Other	CloneServiceTickets.groovy
⑦ Data Warehouse	*		Description:	Service Desk Queue description
🔅 Services	۲		Groups	
🗹 E-Mail	۲		Custom Fields:	LocationFields ^
🔆 System	۲			RequestType serviceDesk_fields
			Customer Groups:	DirectCustomers A Reseller E MyCustomerGroup
CM_Administration]				

# **Global Configuration**

In this section, you learn how to configure some global settings in the CM system:

- Languages
- Queue Administration
- Projects
- Working with Calendars
  - Business Calendars
  - MS Exchange Calendar Integration
- Classes of Text

# 26 Languages

ConSol\*CM can be configured to display the GUI (Web Client) in one or more of a great number of languages. In the Admin Tool, this is configured on the navigation item *Languages* in the navigation group *Global Configuration*. This will also influence the languages which are offered in the Process Designer.

ConSol CM6	0	
A Home	🕫 Languages	List of all active
▼ Access and Roles ×	Configured Locales	languages
🗮 Lists 🛛 🐇	Locale	
Tickets ¥	English(default) German	
💄 Customers 🛛 🛛 🕹	yerman	
🐼 Resources 🛛 🕹		
🖨 Global Configuration 🛛 🛸		
🤪 Languages		
S Labels		
() Queues		
📨 Projects		
🛗 Business Calendars		
Classes Of Text		
🔞 Data Warehouse 🛛 🗧 🖇		
Services ×		
💟 E-Mail 🛛 🕹		
🔗 System 🛛 🖇		
ECM Administration		
A	Id Delete Set selected language	
	as default language a language	

Fig. 1: ConSol\*CM Admin Tool - Global Configuration: Languages

### **Configured Locales:**

In this list, the locales which will be available in the entire system are configured. This influences the lists for localized values in the Process Designer (e.g. for activities) and in the Admin Tool (e.g. for Custom Field values). The displayed values for those activities or fields then depend on the locale of the web browser which is used to display the ConSol\*CM Web Client.

- Click on 鱼 to add more locales.
- Click on <sup>1</sup> to remove the selected locale from the list.
- Click on set the selected locale as default locale. The default locale will be used if the browser locale is not present in CM, e.g. when the engineer has set the browser locale to FR and in the CM administration only English (default), German, and Polish are available, the English values will be displayed.

### **Attention:**

Make sure that the configured languages are installed on each machine where ConSol\*CM is running or is used. This will not be checked automatically.

### 26.1 The Use of Locales

For an engineer who works with the ConSol\*CM Web Client, the GUI is displayed in the language that is configured in the web browser if it is a locale that is configured in ConSol\*CM. If no matching CM locale can be found, the default locale which has been set in the Admin Tool is used.

When an administrator configures Custom Fields or Data Object Group Fields he/she can always indicate a translation for each configured language/locale, see following figure.

CM6 Admin-Tool @ cm6doku-cm1.int.consol.de			
CIVID Admin-1001 W CM0d0ku-Cm1.int.consol.de	Edit field		
e Views Help	j Edit field.		
🏫 🕺 🍆 🍸 📖 🏩 🙃 🔧 🚍 📎 .	õ (Č		
	Field details		
Custom Field Administration			
Groups	Name:	priority	
	Data type:	enim	
Filter: All queues 🔻 Filter:			
Ticket data Activity Form data	Belongs to:		<b>•</b>
Name		Please select type and group of enum valu	IPS.
Name categor			
helpdesk_standard feedbac	Enum type:	priority	
sales_standard module	Enum group	helpdesk_priorities	-
conversation_data priority		L	
qualification quick_r			
workaround reaction	me Localized va	alues	
feedback			
queue_fields am fields	Locale	Value	
order_data	English(def		
serviceDesk fields	German Polish	Priorität	
ServiceDeskDismissFields	Polish		
CustomerTicketListFields			
SolutionFields			
LocationFields			
	2	OK	Cancel
	notations		
Name Value Annotation group Name	Value	Annotation group	
groupable	true	cmweb-common	
sortable	true	cmweb-common	
reportable	true	dwh	
field index		indexing	
position	0;0	layout 👻	

Fig. 2: ConSol\*CM Admin Tool - Custom Field Administration: Localized Values for a Custom Field

In the Process Designer, the locales which have been configured in the Admin Tool are offered. However, you can also delete locales in the Process Designer. Please refer to the *ConSol\*CM Process Designer Manual* for details.

# **27 Queue Administration**

- Introduction to Queue Administration
- Queue Administration Using the Admin Tool
  - Filter the Queue List
  - Create a Queue
  - Edit a Queue
  - Delete a Queue
  - Copy a Queue
  - Enable or Disable a Queue

# **27.1 Introduction to Queue Administration**

Queues are a central element of ConSol\*CM. Tickets are grouped in queues, e.g. for certain tasks or work groups. To each queue a single workflow is assigned which controls the processing steps of all tickets in this queue. For example, there might be one queue *Helpdesk*, one queue *Marketing*, and one queue *Sales*.

In a queue you define:

- The workflow of the queue (mandatory), i.e. the process which should be used for all tickets in the queue (e.g. all tickets of a department). A queue can only have one workflow but a workflow can be used by multiple queues.
- The template for the e-mails which are sent to engineers when a ticket is assigned or removed (optional).
- Several scripts that define the behavior of tickets in this queue (optional).
- One or more customer group(s) which are associated with the queue. Only for customers of those customer groups tickets can be created in the queue (one customer group is mandatory, more are optional).
- The business calendar (i.e. the working hours) which should be applied for tickets in this queue (optional).
- The data fields (Custom Fields) which should be available in tickets of the queue. They are defined by assigning Custom Field Groups to the queue (some mandatory, some optional).
- The classes of text which should be available for tickets in this queue (optional).
- The project(s) which should be available for time booking in tickets of the queue (optional).

### Information:

As a central element the queue uses various objects and elements that have been defined at another place, i.e. on another page of the Admin Tool, so usually the elements which are later required for the queue definition are defined first. However, except for the workflow, all parameters can be modified even after a queue definition has been saved. So you can configure the queue using an iterative approach if you like.

Furthermore, a queue is the basis for the assignment of access permissions, please see section Role Administration for details.

## 27.2 Queue Administration Using the Admin Tool

In the Admin Tool, queues are managed on the navigation item *Queues* in the navigation group *Global Configuration*.

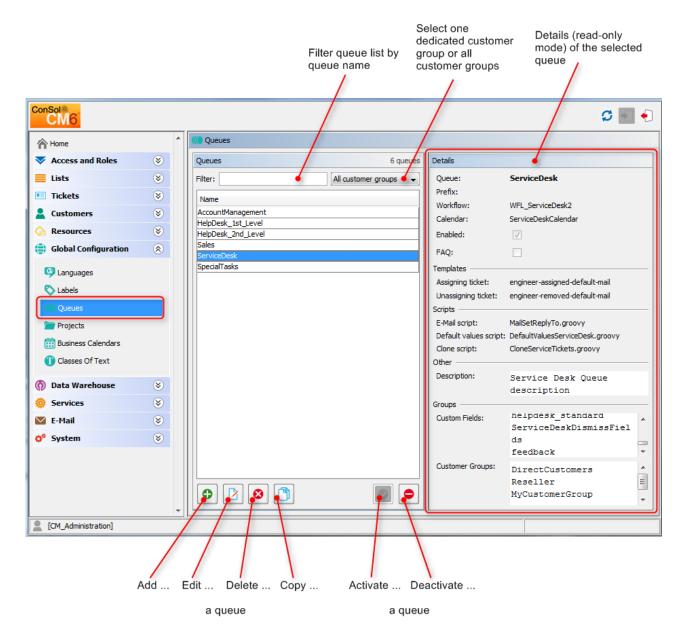


Fig. 1: ConSol\*CM Admin Tool - Queue Administration

### 27.2.1 Filter the Queue List

Queues you want to edit or copy can be found faster, if you enter filter information in the fields above the queue list.

You can filter for queues which

- contain a certain text string (blanks are interpreted, too) and/or
- are specific for customer groups.

### 27.2.2 Create a Queue

You create a new queue by clicking on below the queue list. The following pop-up window appears:

	Edit queue						x	J	
	<b>lit queue</b> Please edit the queu	e's data.							Workflow for the queue
Queue name (can be localized)	Details							1	(cannot be changed!)
Queue prefix (optional) —	Queue:	ServiceDesk			Workflow:	: WFL_ServiceDesk2	Ĵ.		Calendar for the queue
Marker for FAQ queues —	Prefix:					-	5		Check if queue is enabled
Templates for e-mails to engineers	FAQ:	lates			Enabled:				(active)
when ticket is assigned to or removed from engineer	Assign: Scripts	engineer-assigned-default-mail		•]	Unassign:	engineer-removed-default-mail	J		
	 E-Mail script:	MailOutServiceDesk.groovy		-				L	Scripts for outgoing e-mails,
	Default values script:	DefaultValuesServiceDesk.groovy		-					<ul> <li>for setting default values, and for cloning tickets (all optional)</li> </ul>
Description for admin purposes	Clone script:	CloneServiceTickets.groovy		•					
(optional)	Other Description:					¢.			
Assignment of custom field groups,			-				4		
customer groups, classes of text, — and projects to a queue	Assigned A	omer groups Classes of text Project	5	Availat			-		
	CustomerTicketListFie	elds		Location	nFieldsTable	2			
	LocationFields RequestType			am_fiel			-11		
	ServiceDeskDismissFi	elds		qualifica					
	SolutionFields conversation_data			sales_s	tandard		-11		
	helpdesk_standard				Jana		-11		
	order_data								
	queue_fields (*) serviceDesk_fields								
			•						
	l								
						Save			

Fig. 2: ConSol\*CM Admin Tool - Queue Administration: Create a Queue

Here, you can define the queue details:

• Queue:

Enter the technical queue name in this field. Click on to enter the localized queue name for all languages that are available in the system. The localized queue name (depending on the Web Browser locale) will be displayed in the Web Client in the ticket header. If no localized values are provided, the name will be displayed in the default language.

• Workflow:

Choose the workflow for the queue from this list.

### Best Practice:

When you have developed and deployed a new workflow, it will only be available in the Admin Tool after a reload  $\bigcirc$  of Admin Tool data!

#### Warning:

Once you have assigned a workflow to a queue it cannot be changed anymore!

#### • Prefix:

You can enter a prefix for the ticket IDs of a queue, e.g. if the ticket ID shall indicate to which queue or organizational structure it belongs.

#### Attention:

The prefix will remain with the ticket name if the ticket is moved to another queue.

#### • Calendar:

Choose the business calendar for the queue from the list. Calendars define working hours, holidays and the valid timezone (see section Business Calendars). They are used e.g. for time triggers in the workflow and have to be activated explicitly for each trigger, i.e. in order to work with time calculations based on a business calendar, it has to be configured in three places:

- In the navigation group *Global Configuration*, navigation item Business Calendars the calendar is created and the active and vacation times are configured.
- In the queue administration a calendar is assigned to the queue.
- For each time trigger in the workflow the use of the queue-specific calendar can be activated or not. Refer to the *ConSol\*CM Process Designer Manual* for a detailed explanation of the work with time triggers.

#### • Enable:

If this check box is ticked, the queue is immediately available in the system after saving. If the check box is not ticked, the queue is disabled. In enabled queues, you can create tickets, in disabled queues, this is not possible.

#### • FAQ:

Ticking this check box marks the queue as a knowledge base for CM.Track users. They can search for tickets of this queue in CM.Track, the ConSol\*CM Web Portal. Please see also section CM.Track: FAQs in CM.Track on this topic.

#### • Ticket assignment templates:

Here you can choose e-mail templates that shall be used for an automatic e-mail which is sent to the (new) engineer when a ticket is assigned to an engineer (*Assign*) or to the (old) engineer when a ticket is retrieved from an engineer (*Unassign*). When you have defined the templates in the *Scripts & Templates Administration* of the Admin Tool (see section Admin Tool Templates) they will be available in the drop-down menu. When you do not want the CM system to send an automatic e-mail in case of the engineer operation, just leave the field empty. Please keep in mind that the system properties *cmas-core-server, mail.notification.engineerChange* (=*true*) and *cmas-core-server, mail. notification.sender* have to be set, see Appendix C (System Properties) for details.

#### • Scripts:

Scripts are used to automate recurring tasks and activities. They are managed and stored in the *Scripts & Templates Administration* (see section Scripts). You can assign:

• E-mail script

Choose a script from the list if outgoing e-mails for this queue should be modified by the script, e.g. to contain default values like the sender or address fields. The e-mail script indicated here is the last script that processes an outgoing e-mail so all former settings will be overwritten (except for REPLY-TO, see warning below!) in case a variable has been set before. All scripts of type *E-mail* that are stored in the script section are available, please make sure to pick the correct one.

When you work with the configuration of the REPLY-TO e-mail address, please note the following technical behavior of ConSol\*CM and adapt your system accordingly! The technical background:

There are three potential REPLY-TO addresses which you deal with:

- The REPLY-TO address which is set with the system property *mail.reply. to*. If it is set, it will be displayed in the Ticket-E-Mail Editor in the Web Client. If it is really the effective REPLY-TO address in an e-mail depends on the configuration in the queue-specific outgoing e-mail script. See next topic.
- 2. The **REPLY-TO address which is set in a queue-specific outgoing e-mail script**. Since the outgoing e-mail script is the last instance which processes an outgoing e-mail, the REPLY-TO address set in this script will always be the effective REPLY-TO address which is used. In case the *mail.reply.to* property is set, it will not really be used (but it will be displayed in the Ticket E-Mail Editor which might cause some confusion! What that means for your system configuration is explained in the next section).
- The e-mail address of the current engineer (the engineer who is logged in to the Web Client). This personal e-mail address is used as REPLY-TO address for e-mails from the Web Client if neither the *mail.reply.to* property is set nor a queue-specific outgoing e-mail script is configured.

In the Web Client, in the ticket history, the REPLY-TO address which was really used is always displayed for outgoing e-mails. So even in case there should be a

difference between the address which was displayed in the Ticket E-Mail Editor (the *mail.reply.to* property) and the REPLY-TO address which was really used (the REPLY-TO in the queue-specific outgoing e-mail script), the effective address is displayed. This would be the one from the script in this case.

#### What we recommend:

A system REPLY-TO address should always be set! You can decide if you

- work with the REPLY-TO address in the queue-specific outgoing e-mail script or
  - use the *mail.reply.to* system property.

However, since the e-mail communication should take place via ConSol\*CM and not using personal e-mail addresses, one of the two system settings mentioned above should be used to prevent CM from using personal e-mail addresses as REPLY-TO. The latter would automatically lead to customer e-mails being sent to an engineer's personal e-mail account instead of CM.

#### What that means for your system configuration:

- 1. The simplest way to set a REPLY-TO address by using the *mail.reply.to* system property. It will be displayed in the Ticket E-Mail Editor and will be the effective REPLY-TO address.
- If you work with queue-specific outgoing e-mail scripts, you have to configure a script for each queue! The *mail.reply.to* system property should then be left empty! You can
  - a. write queue-specific scripts which are only used in one queue (e.g. to set a team-specific REPLY-TO address), e.g. *ChangeOutgoingMail. groovy\_Queue1, ChangeOutgoingMail.groovy\_Queue2, ... ChangeOutgoingMail.groovy\_Queue\_n.*
  - b. write a standard outgoing e-mail script which is configured for all queues, e.g. *ChangeOutgoingMail.groovy\_Queue\_standard*
  - c. combine a and b, i.e. to set a standard script for most queues and configure specific scripts for specific queues

What that means when you work with workflow scripts which send e-mails: (a detailed explanation is provided in the *ConSol\*CM Process Designer Manual*.)

- Use the object and method *configurationService.getValue("cmweb-server-adapter", "mail.reply.to")* to retrieve the value of the system property and set it as REPLY-TO address in the outgoing e-mail.
- Use the Mail object when the queue-specific script should be used: e.g. mail. useDefaultScript(). This will overwrite the mail.reply.to property! Hence, use either property or script.

If neither the system property nor the queue-specific outgoing e-mail script is used, i. e. when the REPLY-TO address is not set, usually the FROM address will be used as REPLY-TO by the e-mail client.

#### Default values script

Here you can select a script to preset values of list boxes when creating a ticket for this queue in the Web Client. The script has to be present in the *Scripts & Templates Administration* of the Admin Tool and has to be of type *Default values*.

### Clone script

Here you can select a script which is executed when a ticket in this queue is cloned (duplicated) using the Web Client (*Clone* option in the ticket menu). The script has to be present in the *Scripts & Templates Administration* of the Admin Tool and has to be of type *Clone*. The clone script sets default values for a ticket which is created using the *Clone* operation.

### • Description:

You can enter a free-form description in this field, e.g. to document the purpose of the queue. This information is shown in the Admin Tool only.

### • Tab Custom Fields:

In order to show data fields (Custom Fields) in tickets of the queue, you have to assign the respective custom field groups here.

### • Tab Customer groups:

Tickets in the queue can only be created for customers from the selected customer groups. Please make sure that the engineers who are supposed to work with tickets of the queue also have the respective access permissions to the customer (group) data.

### Tab Classes of text

Here you can assign the classes of text which should be available in tickets of this queue. Please see section Classes of Text for an explanation of the text class definition.

### Tab Projects

Here you can assign projects to the queue. Engineers who work on a ticket in the queue can book times on the projects that have been assigned to the queue. Projects are defined on the Projects page.

On each tab you can assign a selected entry by clicking on < and remove it by clicking on 🖄.

Click on *Save* afterwards to create the queue. The details of the new queue are displayed on the right side of the page.

### 27.2.3 Edit a Queue

If you want to edit a queue, select it in the list and click on  $\square$  or just double-click the name of the queue. Modify the queue details and click *Save* to store your modifications.

### Attention:

You cannot change the workflow of a queue, once the queue has been saved for the first time!

### 27.2.4 Delete a Queue

Select the queue you want to delete in the list and click on 🕙 . If you confirm the following dialog with *Yes*, the queue will be deleted and is no longer available in the system.

#### Attention:

If there are still tickets for a queue it cannot be deleted. You have to move the tickets to another queue before you can delete it.

### 27.2.5 Copy a Queue

The icon  $\square$  allows you to save time when creating a queue. The selected queue will be copied. The new queue has the same name as the copied queue. Double-click on the name or click on  $\square$  to open the edit window where you can modify the name and details of the queue. Click *Save* to store your modifications.

Attention:

You cannot change the workflow of a queue, once the queue has been saved for the first time!

### 27.2.6 Enable or Disable a Queue

You can disable a queue to prevent that new tickets can be opened in this queue. That way you can reactivate the queue later and do not have to delete it. To disable a queue, select the queue in the queue list and click on  $\bigcirc$ . The entry in the list is now shown in italics. Just click on  $\bigcirc$  at the bottom of the page, if you want to enable the queue again.

You can still read tickets in a disabled queue (provided you have the read access rights for this queue), but you cannot process tickets, i.e. they cannot be moved to the next step in the process using workflow activities.

# **28 Projects**

- Introduction
- Managing Projects Using the Admin Tool
  - Create or Edit a Project
  - Delete a Project
  - Disable or Enable a Project
  - Localize a Project

# **28.1 Introduction**

With ConSol\*CM you can book amounts of time on projects, please see section Time Booking for a detailed explanation.

### 28.2 Managing Projects Using the Admin Tool

The projects are managed on the navigation item *Projects* in the navigation group *Global Configuration*. For a project to become active and available in the Web Client, it has to be assigned to a queue (see section Queue Administration). In the Web Client you can then book amounts of time on tickets that are in one of the queues where the project has been assigned. An engineer can see his/her time bookings on the engineer profile page.

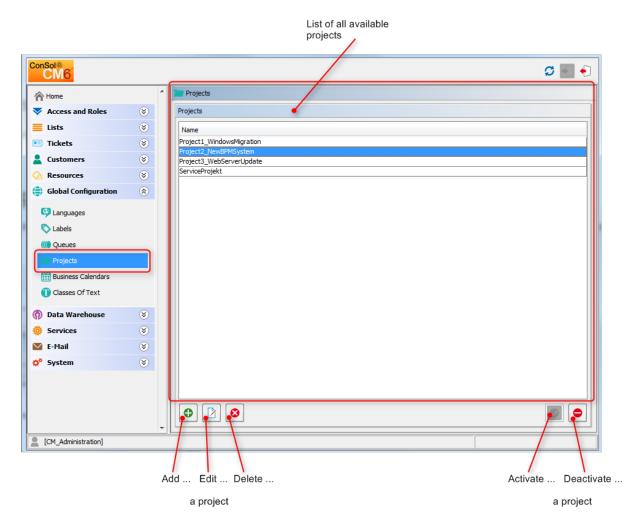


Fig. 1: ConSol\*CM Admin Tool - Global Configuration: Projects

### 28.2.1 Create or Edit a Project

A project is defined by its name. By clicking on 🕑 a pop-up window appears where you can enter the name. Using the globe icon 🗐 next to the name field you can localize the name subsequently (see below). The check box *Enabled* is already selected to set the project active in the system (see also Disable or Enable a Project). You will get the same window when you click on 📝 in order to edit a project.

Project create						
Project o i Create	reate project for time booking					
Name: Enabled:	Consulting	•				
	ОК	Cancel				

Fig. 2: ConSol\*CM Admin Tool - Global Configuration: Create or Edit a Project

### 28.2.2 Delete a Project

A project can only be deleted if it is not assigned to any queues and has not been used for any time bookings. Otherwise you get a warning and you can only disable this project (see below).

In order to delete a project, select it in the list and click on <sup>2</sup>. After choosing *Yes* in the confirmation dialog the project will be removed from the list and the system.

### 28.2.3 Disable or Enable a Project

If a project is still assigned to a queue or has been used for a time booking in a ticket but is not needed anymore you can disable it. To do this select the project and click on <a>
</a>

Image: The entry in the list is shown in italics afterwards. The project is not available for time bookings anymore. Just click on <a>
</a> at the bottom of the page, if you want to enable the project again.

You can also enable or disable a project in the window used for editing projects by selecting or de-selecting the check box *Enabled*. When you create a project this check box is automatically selected.

### 28.2.4 Localize a Project

Click on the globe icon in the create or edit window to enter the localized name of a project. In the popup window *Localize* all languages that are available in the system are listed. Enter the project name in the *Value* field for each additional language on the right and click *Save*. The localized project name, according to the locale of the web browser, will be displayed in the Web Client in the time booking section of a ticket. If no localized value is found, the default value is displayed. This is the value of the default language. If this has not been defined either, the technical name of the project is displayed.

# 29 ConSol CM Administrator Manual 6.10.2 -Working With Calendars

# 29.1 Working with Calendars

In ConSol\*CM, there are two configurations which concern calendars:

- 1. You can define Business Calendars which can be used to manage and rule business hours for one or for all teams who work with CM. This is covered in section Business Calendars.
- 2. You can configure CM to offer access to Microsoft Exchange Server calendars. This is explained in section MS Exchange Calendar Integration.

# 29.2 Business Calendars

- Introduction
- Configuration of Business Calendars Using the Admin Tool
  - Creating a New Calendar
  - Defining the Working Hours for a Calendar
  - Defining the Holidays for a Calendar
    - Defining the Holidays for a Calendar Manually
    - Importing Holidays for a Calendar from an .csv File

### 29.2.1 Introduction

A Business Calendar defines working hours. This can be used, for example, to represent the business hours of the Service Desk team to avoid system escalations being fired during free time.

In ConSol\*CM, you can define as many Business Calendars as your company's environment requires. In this way you can configure specific working hours for each team.

#### Example:

Tickets which have not been assigned to an engineer more than one hour after opening shall be automatically moved to an escalation level. If a calendar defines working hours from 8 a.m. to 5 p. m. and a ticket arrives at 4:45 p.m., the ticket will not escalate at 5:45 p.m. but at 8:45 a.m. the next day. This time is calculated as follows: 15 minutes between ticket arrival and end of the working hours *plus* 45 minutes from next beginning of the working hours until the full hour given by the escalation limit is reached.

SLA = Reaction time 4 hours within the regular business hours Monday - Friday 9:00 - 17:00

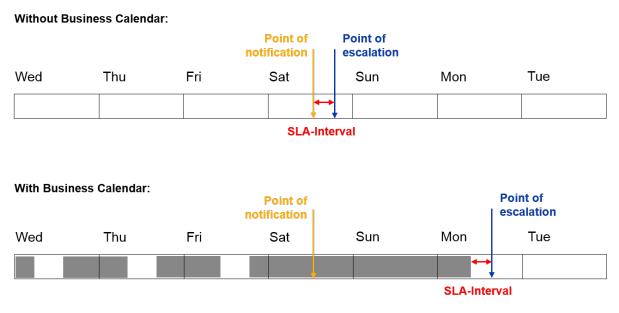


Fig. 1: ConSol\*CM Principle - Business Calendar

Besides working hours you can define holidays, too. On these days the automatic escalation pauses entirely. Holidays have to be defined per calendar. It is not possible to define a holiday that is valid for all existing calendars simultaneously.

If you want to work with times which are defined in a business calendar (e.g. use active time for a timer trigger in a workflow for an escalation), you have to perform three steps:

- create the business calendar with its active/inactive times (Admin Tool, see explanation below)
- assign the business calendar to all queues where it should be in operation, see section Queue Administration (Admin Tool)
- assign the use of a calendar to every single workflow element where the calendar should be the basis for time calculations (Process Designer), this is explained in the *ConSol\*CM Process Designer Manual*.

# 29.2.2 Configuration of Business Calendars Using the Admin Tool

In the Admin Tool, Business calendars are defined on the navigation item *Business Calendars* in the navigation group *Global Configuration*.

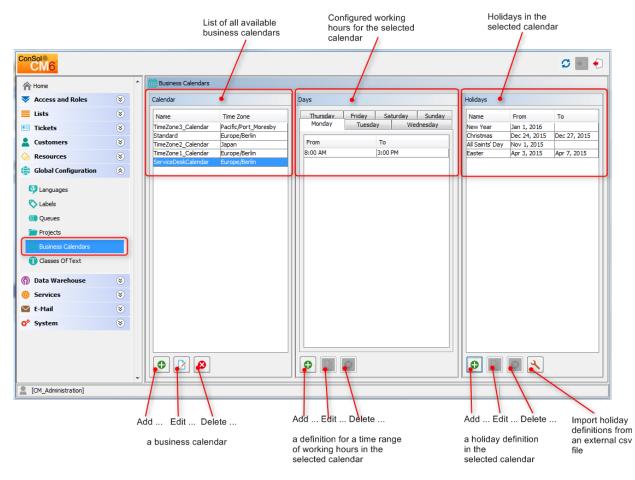


Fig. 2: ConSol\*CM Admin Tool - Global Configuration: Business Calendars

### **Creating a New Calendar**

Click on 1 in the left part of the page to create a new calendar. The following window appears:

📔 Create ne	w business calendar 🗧	X							
Create new business calendar i Please fill in business calendar name.									
Name:	Regular Workdays								
Timezone:	Europe/Berlin 🗸								
	Save Cancel								

Fig. 3: ConSol\*CM Admin Tool - Business Calendars: New Calendar

• Name:

Enter a unique name for the calendar.

• Timezone:

Choose the time zone to be used for the calendar.

#### Attention:

This field only describes to which time zone the defined hours refer. The calendar itself is valid worldwide for the respective workflow!

Example:

The ConSol\*CM server is located in Detroit, MI, USA. In the business calendar, Europe /Berlin is set as timezone. A time trigger which uses the business trigger would fire according to the Berlin time and not the Detroit time.

Click on Save afterwards to create the calendar.

Clicking on Dyou can modify a selected calendar in the same way. Click on  $\begin{subarray}{c} \end{subarray}$ , if you want to delete the selected calendar.

### Defining the Working Hours for a Calendar

Select a calendar on the left and click on in the middle part of the page to create the days and hours for this calendar. The following window appears:

🚺 Add	Day Part		X				
Add Day i Pleas		equired fields.					
Time ra	nge						
From:	8:00 AM		<u>^</u>				
To:	5:30 PM		*				
Days							
V Mo	nday						
🔽 Tu	esday						
Ve We	ednesday						
🔽 Th	ursday						
🔽 Fri	day						
Sat	turday						
🔲 Sur	🗐 Sunday						
		Save	Cancel				

Fig. 4: ConSol\*CM Admin Tool - Business Calendars: Working Hours of a Calendar

• Time range

Enter the time range for which the automatic workflow escalations shall be active.

• Days

Mark the check boxes of the days for which the time range shall be valid. It is possible to choose individual or all days (check box A/I).

Information:
In case, the system detects an inconsistency of the time you define here with an already existing time, you will get a corresponding message.

Click on Save afterwards to create this time range for the marked days.

If you want to edit the time range later, you have to do it separately for each day. Select the respective day, click on 2 and change the time range in the window that appears. Or click on 2 if you want to delete the time range for a selected day. It is not possible to edit or delete the time range for multiple days at once.

### Defining the Holidays for a Calendar

You can define the dates and time periods for holidays using one of two approaches:

- Defining the holidays manually.
- Importing the holidays from an *Exce*/file.

#### Defining the Holidays for a Calendar Manually

Select a calendar and click on 🕑 in the right part of the page to create a new holiday entry. The following window appears:

🗾 Create	e new holiday 🛛 🔀
	e fill in the required fields.
Name: From:	Xmas
To:	12/26/14
	Save Cancel

Fig. 5: ConSol\*CM Admin Tool - Business Calendars: Holidays of a Calendar

• Name:

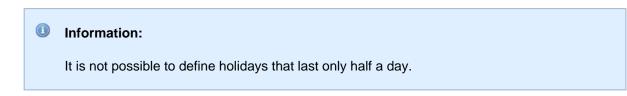
Enter the name of the holiday here.

• From:

Enter the date of the holiday in this field.

• To:

If it is a multi-day holiday (e.g. Christmas), you can enter the last date of the holiday here.



Click on Save afterwards to create the holiday.

If you want to edit a selected holiday entry just click on 🖄 . Clicking on 🙆 deletes one or more selected entry/entries.

#### Importing Holidays for a Calendar from an .csv File

Holiday data can be imported from a .csv file which is based on the following format:

- First column: title/name of the holiday
- Second column: start date
- Third column: end date (use the same date as start date if it's a one-day holiday)
- Separator: comma (no comma at the end of the line)
- Slashes for the dates

```
.csv file for holiday import
```

```
Christmas,24/12/2014,26/12/2014
New Year,01/01/2015,01/01/2015
Easter,03/04/2015,06/04/2015
```

In the Admin Tool navigation group *Global Configuration,* navigation item *Business Calendars*, select a calendar and click on  $\checkmark$  *Import holidays* and enter the path for the .csv import file.

Magnet Import holidays	and the target target to be	23
Import holidays i Please select a file to	p import. Selecting option 'Delete before import' will remove all current holiday entries!	
File: Delete before import:	D:\CM6\HolidayImportEx.csv	
	Import	Cancel

Fig. 6: Consol\*CM Admin Tool - Business Calendars: Importing Holidays

The new holidays will be imported in the holiday list of the selected business calendar.

Holidays		
lolidays		
Name	From	То
Easter	Apr 3, 2015	Apr 7, 2015
New Year	Jan 1, 2015	
Christmas	Dec 24, 2014	Dec 27, 2014

Fig. 7: Consol\*CM Admin Tool - Business Calendars: Newly Imported Holidays

# 29.3 MS Exchange Calendar Integration

- Introduction
- Configuring the MS Exchange Calendar Integration
  - Basic Configuration
  - Advanced Configuration: Page Customization Parameters for the MS Exchange Calendar Integration
    - Short Background Information about the MS Exchange Calendar Integration
    - Pages for the Configuration of the calendarSection
    - calendarSection

## 29.3.1 Introduction

Starting with CM version 6.10, it is possible to include an MS Exchange calendar view into the Web Client.

Supported MS Exchange versions are:

- Exchange Server 2010 SP2
- Exchange Server 2013

The calendar view can be offered ...

- on the ticket page
- on the customer detail page, i.e.
  - on the contact detail page
  - on the company detail page

The calendar will be displayed in a distinct section of the ticket / customer page.

An engineer who works with the calendar view can ...

- display the monthly or weekly view
- move existing appointments using drag-and-drop
- create new appointments (if the full access has been configured)

	N	lo addition	al engineers					Add
	N	lo relations	5					Add
	С	alendar					Add app	ointment Refresh
<	>	today			May 2015			month wee
w	S	Sun	Mon	Tue	Wed	Thu	Fri	Sat
18		26	27	28	29	30	1	2
19		3	4	5	6	7	8	9
20		10	11	12	13 8:30a Stand up parti	14 Customer Workshop	15	16
21		17	18	19	20	21	22	23
22		24	25 1p Steering board Me	26	27	28	29	30
23		31	1	2	3	4	5	6
	R	elated Res	sources (1)					
	Hardw				Soft	ware		

Fig. 1: ConSol\*CM Web Client - Ticket with Calendar Section (Monthly View)

New appoint	tment	Х
Subject	Customer Workshop	
Location	Main hall	
Start	5/14/15 🕅 🕅 All day event	
End	5/14/15	
Content		
	B <i>I</i> <u>U</u> AB€   ∽	
	Create	Close

Fig. 2: ConSol\*CM Web Client - Adding an Appointment in the Calendar

## 29.3.2 Configuring the MS Exchange Calendar Integration

### **Basic Configuration**

The configuration of an MS Exchange server which should provide the calendar data is done based on *page customization*. For a detailed introduction to this topic, please read the section about Page Customization. Here, only the calendar-specific configuration will be explained.

Perform the following steps:

1. Make the calendar section visible (example for the Ticket Edit page):

Log in as administrator and open a ticket. Select *Enable page customization* in the main menu. Since the calendar section is not yet displayed you cannot mark the element you want to configure, but you have to select it in the page customization tree. Select *calendar/ticketEditPage/calendarSection* and set the attribute *state* from *hidden* to *expanded*. Alternatively, you can set *collapsed*. This will initially display a collapsed *Calendar* section and the engineer can expand it manually. In both cases, the calendar section of the ticket will be visible. As header *No Calendar* will be displayed. The configuration of the calendar will follow in step 2.

View: No view availa	ole 👻 🔡 O	Ticket		Edit Clone Print	Workflow activities
Own ticket:			Printer does not work		Ticket in progress
	(0)	\$\$\$	ServiceDesk   Work in progress		Put ticket on hold
No tickets availabl		100245	Assigned to ServiceDesk, Susan   Open since 3/19/14 2:58 PM		Display List
INU LICKELS AVAILAD	6		Priority normal Module Web Client Ask for feedback no		Display Customer Data
Workgroup tic	rets (0)		Desired deadline 4/14/14 12:00 AM		Clone ticket
Unassigned tic			Continent Europe Request Type Request Type		Add RESELLER-END CUSTOMER relation
			Complaint		Create task (hand-over products list)
			Groups Section name: customfields	Edit	Acknowledge: E-Mail has been read
			Conversations/Meetings Orders Open Customer Tickets on Create Date		ExecuteMyTask
			Customers (4) Section name: customers	Add	Workspace
			Main		Workspace is empty
		<b>.</b>	Mia Skydiver 💌 MyCustomerGroup		All your unsaved tasks are automatically listed in this workspace.
			There are 3 more customers.		
			Additional Engineers (1) Section name: engineers	Add 🔺	Favorites
			ServiceDesk, Susan assigned		Favorites are empty Drag tickets, contacts, companies
			Supervisor		or searches into this space to
			Holler, Konrad 🔻		save them as favorites.
			Relations (1) Section name: relations	Add 🔺	
			referenced by		
		?	100254 User cannot activate product key ServiceDask Hrequark fictor Assigned to ServiceDesk, Susan   Open since 3/31/14 2:24 PM		
			Related Resources Section name: resources	~	
<					P
snapDuration	time grid.	Also affects t	e granularity at which selections can be made. Default	☐ ा <u>m</u> <u>relation</u>	
	value is se	t to 'slotDura	(java.lang.String) (+) (-)	- 🔠 calendar	
state	The visibili	ty mode of th	e section, possible values are [expanded, collapsed, hidden	L TicketEditPa	and an
	collapsed_	and_preload,	hidden], default: 'expanded' (java.lang.String) (+) (-)	- 🚠 resourceRelatio	ons
weekNumbers	Determine	s if week nur	bers should be displayed on the calendar.	L I <u>ticketEditPa</u> L I <u>section</u> - II layout	

Fig. 3: ConSol\*CM Web Client - Using Page Customization to Make the Calendar Section of a Ticket Visible

snapDuration	time grid. Also affects the granularity at which selections can be made. Default value is set to 'slotDuration'.	(java.lang.String) (+) (-)	^	ifing relation Section     ifing attachment Section     calendar	*	-
state	The visibility mode of the section, possible values are [expanded, collapsed, collapsed_and_preload, hidden], default: 'expanded'	expanded (java.lang.String) (+) (-)		□ math licketEditPage       □ math licketEditPage       □ math licketEditPage       □ math licketEditPage		E
weekNumbers	Determines if week numbers should be displayed on the calendar.	true (boolean) (+) (-)		L I ticketEditPage L I section - I layout		-

Fig. 4: ConSol\*CM Web Client - Page Customization Definition Section (PCDS) for the Calendar Section of Tickets

#### 2. Configure the calendar script:

The connection to the calendar of an MS Exchange server is implemented using an Admin Tool script. The script has to be stored in the Admin Tool script section, i.e. navigation group *System*, tab *Scripts and Templates* and must be of script type *Calendar integration*. The name of this script has to be entered as value for the attribute *calendarInitializationScript* in the page customization (see step 1).

The script has to be coded as shown in the following example:

```
return [
name: 'Exchange Source',
'access.type': 'EXCHANGE',
'access.url': 'https://exchangel.server.net/EWS/Exchange.asmx',
'access.username': 'exchange-user',
'access.password': 'exchange-password',
'access.domain': 'SSO',
'access.impersonation':'somebody@sso.server.net',
'access.version': '2013'
]
```

For *somebody*, you have to insert the desired name of the MS Exchange user. The calendar on the ticket page or on the customer detail page will be based on the view of this user in the Exchange calendar. For example, *somebody* could be the Exchange login of the CM engineer who is currently logged in. In case it is the same login as in CM, you can retrieve it using the method *workflowApi. getCurrentEngineer().getName().* 

#### 3. Enable edit mode for the calendar:

To allow full access (i.e. to create and/or edit appointments) for engineers, set the attribute *editable* to *true*.

# Advanced Configuration: Page Customization Parameters for the MS Exchange Calendar Integration

#### Short Background Information about the MS Exchange Calendar Integration

The integration (or better the *display*) of MS Exchange calendars in ConSol\*CM is based on the jQuery solution *fullcalendar*. If you would like to go into details, please refer to the fullcalendar web site.

#### Pages for the Configuration of the calendarSection

The Calendar section can be configured on three pages:

• Ticket page

Use calendar/ticketEditPage/calendarSection.

- Customer detail pages
  - Contact detail page
     Use calendar type/contactEditPage/calendarSection.
  - Company detail page Use *calendar/companyEditPage/calendarSection*.

#### calendarSection

The following attributes can be used to configure the appearance and behavior of the integrated Exchange calendar.

#### Attributes:

allDaySlot

Determines if the "all-day" slot is displayed at the top of the calendar. (boolean)

• appointmentBackgroundColor

Sets the background color for all appointments on the calendar. You can use any of the CSS color formats such as *#f00, #ff0000, rgb(255,0,0)*, or *red.* (java.lang.String)

#### • appointmentBorderColor

Sets the border color for all appointments on the calendar. You can use any of the CSS color formats such as *#f00, #ff0000, rgb(255,0,0)*, or *red*. (java.lang.String)

#### • appointmentColor

Sets the background and border colors for all appointments on the calendar. You can use any of the CSS color formats such as *#f00, #ff0000, rgb(255,0,0)*, or *red.* (java.lang.String)

#### appointmentConstraint

Limits appointment dragging and resizing to certain windows of time. (java.lang.String) **Possible values:** 

#### <appointment\_ID>

Appointments that are being dragged or resized must be fully contained by at least one of the appointments linked to by the given appointment ID.

businessHours

Appointments being dragged or resized must be fully contained within the week's business hours (default: Monday-Friday 9am-5pm), see *businessHours* attribute for details.

#### • <start-time>-<end\_time>;<days\_of\_week>

A custom time-window. Same format as *businessHours* attribute. Days of week are optional. Examples: *10:00-18:00; 1,2,3,4* or *10:00-18:00* 

#### • appointmentDurationEditable

Allows appointments' durations to be editable through resizing. (boolean)

#### appointmentOverlap

Determines if appointments on the calendar, when dragged and resized, are allowed to overlap each other. (boolean)

#### • appointmentStartEditable

Allows appointments' start times to be editable through dragging. (boolean)

#### appointmentTextColor

Sets the text color for all appointments on the calendar. You can use any of the CSS color formats such as *#f00, #ff0000, rgb(255,0,0)*, or *red*. (java.lang.String)

#### • aspectRatio

Determines the width-to-height aspect ratio of the calendar. If not set default value *1.35* will be set. (java.lang.String)

#### • businessHours

Emphasizes certain time slots on the calendar. (java.lang.String)

Format: <start-time>-<end\_time>;<days\_of\_week>

Example: 10:00-18:00; 1,2,3,4 (from 10am to 6pm, Monday-Thursday)

#### calendarEventHandlerScript

Name of the script which handles calendar events. Besides standard context variables like **ticket** there are additional ones:

• eventType

enum (values: CREATE, UPDATE, DELETE)

• appointment

with appointment data (uid, subject, location, etc.).

See documentation for details. (java.lang.String)

#### calendarInitializationScript

Name of the script which produces calendar configuration. If value is empty or script returns *null* the calendar won't be shown. (java.lang.String)

#### • contentHeight

Will make the calendar's content area a pixel height. By default, this option is not set and the calendar's height is calculated by *aspectRatio*. (java.lang.String)

#### defaultAllDayAppointmentDuration

A fallback duration for all-day appointments without a specified *end time* value. If not set, the default value will be set to 1 (one day). (java.lang.String)

#### • defaultDate

The initial date displayed when the calendar first loads. Accepts an ISO8601 date string like *2014-02-01*. (java.lang.String)

#### defaultTimedAppointmentDuration

A fallback duration for timed appointments without a specified *end time* value. If not set default value will be *02:00:00* (2 hours). This attribute also affects default duration of appointment during creation. (java.lang.String)

#### • defaultView

Default view.

**Possible values:** month, basicWeek, basicDay, agendaWeek, agendaDay. View examples at Available Views. (java.lang.String)

• editable

Whether the appointments can be dragged and resized. This value overwrites source configuration. (boolean)

firstDay

The day that each week begins with. (Sunday=0, Monday=1, Tuesday=2, etc.). If empty, value will be based on browser's locale. (java.lang.String)

#### • forceAppointmentDuration

A flag to force calculation of an appointment's end if it is unspecified. (boolean)

#### handleWindowResize

Whether to resize the calendar automatically when the browser window resizes. (boolean)

headerCenter

Defines the buttons and title at the top of the calendar (*middle*). See *headerLeft* description for details. (java.lang.String)

#### • headerLeft

Defines the buttons and title at the top of the calendar (*left side*). Comma or space separated list values (values separated by a comma will be displayed adjacently). (java.lang.String)

#### Possible values:

• title

Text containing the current month/week/day.

• prev

Button for moving the calendar back one month/week/day.

• next

Button for moving the calendar forward one month/week/day.

• prevYear

Button for moving the calendar back on year.

nextYear

Button for moving the calendar forward one year.

• today

Button for moving the calendar to the current month/week/day.

• <view name>

Button that will switch the calendar to any of the available views (see *defaultView* description for available views).

Header will disappear if all three header\* attributes (Center, Left, Right) are empty.

#### • headerRight

Defines the buttons and title at the top of the calendar (*right side*). See *headerLeft* attribute description for details. (java.lang.String)

#### height

Will make the entire calendar (including header) a pixel height. By default, this option is not set and the calendar's height is calculated by *aspectRatio*. (java.lang.String)

#### hiddenDays

Excludes certain days of the week from being displayed. Comma separated list of day-of-week indices (Example: '1,3,5'). Each index is zero-based (Sunday=0) and ranges from 0-6. (java.lang. String)

• lazyFetching

Determines when appointment fetching should occur. See detailed documentation. Setting this attribute to *false* makes sense when there are a lot of external changes to the user's calendar. (boolean)

#### • maxTime

Determines the end time (exclusively) that will be displayed, even if the scrollbars have been scrolled all the way down. Default value is *24:00:00.* (java.lang.String)

#### • minTime

Determines the starting time that will be displayed, even if the scrollbars have been scrolled all the way up. Default value is *00:00:00*. (java.lang.String)

#### nextDayThreshold

When an appointment's end time spans into another day, the minimum time it must be in order for it to render as if it were on that day. Default: *09:00:00* (9am). Only affects timed appointments that appear on whole days. Whole day cells occur in *month view, basicDay, basicWeek* and the *all-day slots* in the agenda views. (java.lang.String)

#### • rightToLeftMode

Displays the calendar in right-to-left mode. (boolean)

#### • scrollTime

Determines how far down the scroll pane is initially scrolled down. Default is: *06:00:00* (6am). (java. lang.String)

#### • slotAppointmentOverlap

Determines if timed appointments in agenda view should visually overlap. (boolean)

#### • slotDuration

The frequency for displaying time slots. Default is 00:30:00 (30 minutes). (java.lang.String)

#### • snapDuration

The time interval at which a dragged appointment will snap to the agenda view time grid. Also affects the granularity at which selections can be made. Default value is set to *slotDuration*. (java.lang. String)

#### • state

The visibility mode of the section, possible values are [expanded, collapsed, collapsed\_and\_preload, hidden]. Default: *expanded*. (java.lang.String)

#### • weekNumbers

Determines if week numbers should be displayed on the calendar. (boolean)

#### weekends

Whether to include Saturday/Sunday columns in any of the calendar views. (boolean)

# **30 Classes of Text**

- Introduction
- Managing Classes of Text Using the Admin Tool
  - Installing a New Class of Text
    - Defining a Class of Text
    - Assigning the Class of Text to a Queue
  - Edit a Class of Text
  - Delete a Class of Text
  - Setting the Default Class of Text
  - Working With Classes of Text in Scripts
  - Transfer of Classes of Text to the DWH

# **30.1 Introduction**

A class of text is a class that you assign to a ticket entry. This entry can be:

- a comment
- an e-mail that was sent from the ticket
- an e-mail that was received in the ticket
- an attachment

Assigning a class of text can have one or more of the following purposes:

- Highlighting the text in the ticket with a special color to make it easier to find (e.g. an important note as shown in the following figure). An icon can also be used for each class of text.
- Marking a ticket entry to make it visible in CM.Track, i.e. to make it available for customers who log in to the CM customer portal.
- Marking the entry to control the process flow, e.g. a ticket can only be finished when exactly one entry has been marked as *solution*.
- Marking the entry for hand-over to another process, e.g. the entries marked *question* and *answer* are automatically used for an FAQ ticket.

Thus, with classes of text you can organize ticket information within the ticket and can also control the process flow and the availability of information.

Ticke	et		Edit Clor	e   Print   D	ispla	у 🔻
SUP	Ð,	Error handling in ticket-search by id (in ticket relations) HelpDesk 1st Level   Qualify Assigned to Sommer   Open since 4/14/08 11:47 AM Priority low Module Web Client Reaction time 7/1/11 Ask for feedback no				
		Customers		A	dd	Hide
		Main customer				
	0	Mr Luke Skywalker 🔻 CustomerGroup luke@consol.de				
		ConSol* GmbH  Company ConSol* GmbH Address Franziskanerstr. 38 81543 München No comment				
		Engineers		A	dd	Hide
		No relations		A	dd	Hide
		History	achment	Time booki	ng	Hide
		Display communication 💌 Sorting latest first 💌 Internal important note				
		Add sommark a mail an all a blandshared				_
	1.14 15 🕏	49 #10 created by Charly Chef   Action  15:49 Internal Important Note				
		This can only be fixed by installing the patch release 47.11 !!				
01.07		10 Ro Created by admini ( Action V 10/18 default class			_	_
	<u>4</u>	Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Aenean commodo ligula eget dolor. Aenean massa. Cum sociis parturient montes, nascetur ridiculus mus. Donec quam felis, ultricies nec, pellentesque eu, pretium quis, sem. Nulla cons pede justo, fringilla vel, aliquet nec, vulputate eget, arcu. In enim justo, rhoncus ut, imperdiet a, venenatis vitae, justo. Nu pretium, Integer tincidunt. Cras dapibus. Vivamus elementum semper nisi. Aenean vulputate eleifend tellus. Aenean leo li eleifend ac, enim. Aliquam lorem ante, dapibus in, viverra quis, feugiat a, tellus. Phasellus viverra nulla ut metus varius la imperdiet. Etiam utricies nisi vel augue. Curabitur ullamcorper ultricies nisi. Nam eget dui. Etiam rhoncus. Maecenas temp rhoncus, sem quam semper libero, sit amet adipiscing sem neque sed ipsum. Nam quam nunc, blandit vel, luctus pulvina nec odio et ante tincidunt tempus. Donec vitae sapien ut libero venenatis faucibus. Nullam quis ante. Etiam sit amet orci e leo. Sed fringilla mauris sit amet nibh. Donec sodales sagittis magna. Sed consequat, leo eget bibendum sodales, augue	sequat mass llam dictum fo gula, porttitor oreet. Quisq us, tellus ego r, hendrerit id get eros fau	a quis enim. elis eu pede eu, conseq ue rutrum. A t condimenti , lorem. Mae cibus tincidu	Done mollis uat vi enea um cena	ec s ritae, an is

Fig. 1: ConSol\*CM Web Client - Using a Class of Text for an Internal Important Note

# **30.2 Managing Classes of Text Using the Admin Tool**

# 30.2.1 Installing a New Class of Text

Two steps are required to install a new class of text for tickets in a certain queue:

- 1. Defining the class of text in the navigation item Classes of text.
- 2. Assigning the class of text to the queue where it should be available for tickets (see section Queue Administration for more information).

### **Defining a Class of Text**

Classes of text are defined and managed in the corresponding navigation item in the navigation group *Global Configuration* in the Admin Tool (see following figure).

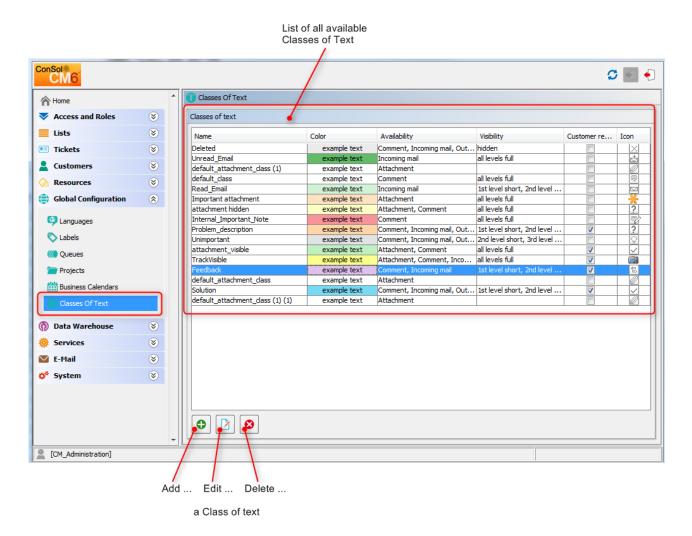


Fig. 2: ConSol\*CM Admin Tool - Global Configuration: Classes of Text

You define a new class of text by clicking on 🕒 below the list. The following pop-up window appears:

Class of text modif	ication			×
 ass of text modific Please edit the class				
Class of text details				
Name:	Internal_Important_	Note		
Color:				
Availability:	Attachment			
	Comment			
	Incoming mail			
	Outgoing mail			
Visibility:	all levels full			•
Icon:	₽²		Browse.	
Customer readable:				
Localized values				
Locale		Value		
Deutsch		Interne wichtige Notiz		
Englisch(default) Polnisch		Internal Important Note		
		ОК	Can	cel

Fig. 3: ConSol\*CM Admin Tool - New Class of Text

Here, you have to define the class details:

• Name

Enter a name for the new class of text. The name must be unique.

Color

When you click into the *Color* field a pop-up window appears. It contains a range of colors from which you can choose the desired color for the class by clicking on it. You can check the selected color in the *Preview* area. Click on *OK* to save your choice. Click on *Reset* if you want to return to the last saved color.

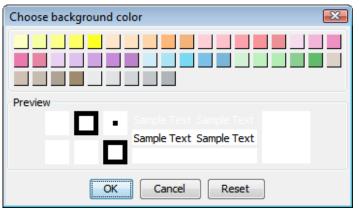


Fig. 4: ConSol\*CM Admin Tool - Choose a Color for the Text Class

#### • Availability

You can choose here for which ticket information the class of text shall be available. Mark one or several of the following options:

- Attachment
- Comment
- Incoming mail
- Outgoing mail

#### • Visibility

(see also General Information about the Visibility of Ticket History Entries)

There are three ticket history levels History in the Web Client:

- Basic (1st level)
- Extended (2nd level)
- Detail (3rd level)

Thus, the configuration of a class of text concerning one or more of those levels determines if a text entry marked with this class of text is displayed on the level or not.

The addition *short* and *full* indicates, whether entries are shown *within* the chosen visibility level in full length (*full*) or if they are shortened after a certain number of characters (*short*):

- **short** shortened
- full full length

- <b>- H</b>	istory	Comment E-Mail Attachment Time booking
D	isplay communication 💌	Sorting latest first 💌
A	dd comment, e-mail or attachm	nent
2		
3 minutes a <u>o</u>	go #19 created by Susan default class	n ServiceDesk   Action 🔻
	labore et dolore magna a et ea rebum. Stet cita ka ipsum dolor sit amet, con dolore magna aliquyam e rebum. Stet cita kasd gu dolor sit amet, consetetu magna aliquyam erat, se Stet cita kasd gubergrei Duis autem vel eum iriur eu feugiat nulla facilisis	met, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolo asad gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lor unsetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea ubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ip ur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolo ed diam voluptua. At vero eos et accusam et justo duo dolores et ea rehor so sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ip en no sea takimata sanctus est Lorem ipsum dolor sit amet. re dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolor at vero eros et accumsan et iusto doi dignissim qui blandit praesent luptat dolore te feugait nulla facilisi. Lorem ipsum dolor sit amet.

Fig. 5: ConSol\*CM Web Client - Example: Visibility Level "Extended" (2nd Level) Shows Entries in Full Length ("full")



Fig. 6: ConSol\*CM Web Client - Example: Visibility Level "Basic" (1st Level) Shows Entries Shortened ("short")

Select in the drop-down menu on which history levels the marked ticket information shall be visible (see picture below).

all levels full	-
1st level short, 2nd level full, 3rd level full	*
1st level short, 2nd level full, 3rd level full	_
1st level short, 2nd level short, 3rd level full	
2nd level full, 3rd level full	
2nd level short, 3rd level full	E
3rd level full	
3rd level short	
hidden	-

Fig. 7: ConSol\*CM Admin Tool - Choose a Visibility Level

If you choose *hidden*, the ticket History entry marked by this class of text will not be visible in the ticket history. For a detailed explanation of visibility level and display mode for ticket History entries, please refer to section Ticket History, General Information about the Visibility of Ticket History Entries

#### • Icon

When you click into the box next to *lcon* you will get a selection of standard CM icons. Select one of these icons for the new class of text or load your own individual icon by clicking on the *Browse...* button.

	P		Ŗ
$\square$	$\checkmark$	?	Å
	Q;		

Fig. 8: ConSol\*CM Admin Tool - Choose an Icon for the Text Class

#### • Customer readable

Select this check box if ticket information marked with this class of text shall be visible for customers in CM.Track, the CM customer portal.

#### Localized values

You can localize the name of a class of text. Enter the corresponding class name in the *Value* field for each additional language. In the Web Client (in the context menu for classes of text, see next figure) the name will be displayed in the respective language of the locale of the web browser. If you do not make an entry here the object name, i.e. the content of the *Name* field, will be taken instead.

Click on OK to save the details of the new class of text and to close the window.

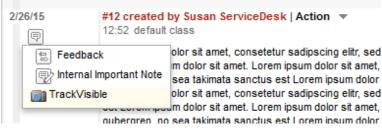


Fig. 9: ConSol\*CM Web Client - Context Menu for Classes of Text in Ticket History Section

### Assigning the Class of Text to a Queue

After assigning the class of text to a queue within the Queue Administration it will be available for tickets of this queue in the Web Client.

### 30.2.2 Edit a Class of Text

If you want to edit a class of text, select it in the list and click on  $\square$ . The same window as described above for creating a class will appear. You can modify all details and save your changes by clicking *OK*.

### 30.2.3 Delete a Class of Text

You can only delete a class of text if it is not used within any tickets and if it is not assigned to a queue. In order to delete a class select it in the list and click on <a></a>

If you confirm the following dialog with Yes, the class will be removed from the list and the system.

### 30.2.4 Setting the Default Class of Text

To define the default class of text, use the system property *cmweb-server-adapter*, *defaultContentEntryClassName* (see Appendix C). The default class of text will be applied to any ticket entry which is not explicitly marked with another class of text.

Depending on the visibility configuration of this class of text, the regular comments in the ticket (i.e. the comments which have the class of text *default class*) will be displayed, see section Visibility.

### **30.2.5 Working With Classes of Text in Scripts**

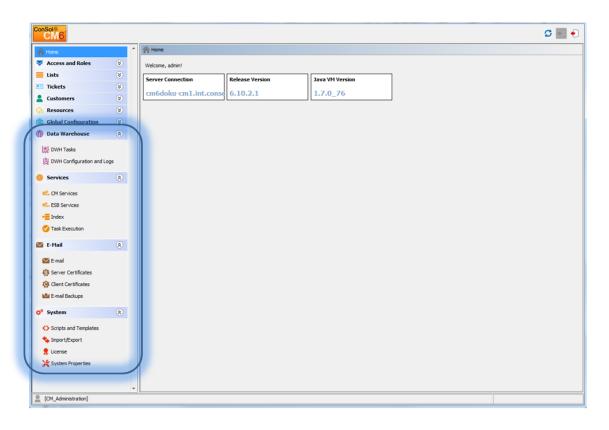
You can work with classes of text in scripts which are used in workflow activities or which are located in the *Script* section of the Admin Tool. For details about programming, please read the *ConSol\*CM Process Designer Manual*.

In scripts, you can assign a class of text to a TextEntry, even when the class of text is not assigned to the queue! This can help automate processes.

### **30.2.6 Transfer of Classes of Text to the DWH**

All classes of text (default classes and special ones) used in history entries (comments, e-mails) are transferred from CM to the data warehouse (DWH) automatically in all transfer modes (LIVE and ADMIN). There is no configuration required for this feature, and the installation is upgraded automatically. A new initialization and initial transfer are required, however.

# **31 Advanced System Configuration**



# Advanced System Configuration

In this section, you learn how to configure some advanced settings in the ConSol\*CM system:

The following topics will be covered:

- Ticket Administration: You will learn how to delete or re-open tickets.
- Data Warehouse DWH Management: You will learn how to configure CM to initialize and work with the Data Warehouse which is the basis for CM Reporting.
- Services: You will learn which services work within the CM application.
- Search in ConSol\*CM: You will learn all about search in CM, e.g. how to manage the Indexer or how to implement Search Action for the Action Framework.
- The Task Execution Framework (TEF): You will learn what the TEF is and how you can configure it in your CM system.
- E-Mail Configuration: You will learn all about the e-mail functionality in ConSol\*CM and how to configure the respective modules.
- Script and Admin Tool Template Administration: You will learn which script and templates types are managed with the Admin Tool and how to code those scripts and templates yourself.

- Deployment (Import/Export): You will learn all about CM scenarios which are used for CM system export and import.
- License Management: You will learn how to install a new license in your CM system.
- System Properties: You will learn what system properties are and what you can do with them to configure basic settings of CM.
- Working with Text Templates: You will learn all about E-mail and Doc templates which can be used as integral part of your CM system.
- Time Booking: You will learn what you have to do to prepare your ConSol\*CM system for time booking.
- Authentication Methods for Engineers in the CM Web Client: You will learn various configurations for the engineer authentication in the Web Client.
- CTI with ConSol CM: CM.Phone: You will learn all about the CTI module of ConSol\*CM which has to be licensed separately.
- The Customer Portal: CM.Track: You will learn all about CM.Track configuration, the CM customer portal which is also a separate module based on an additional license.
- System Architecture: You will get a first glimpse at the CM system architecture. More information on this topic is provided in the *ConSol\*CM Set-Up Manual* and the *ConSol\*CM Operations Manual*.

# **32 Ticket Administration**

- Introduction to Ticket Administration
- Ticket Administration Using the Admin Tool
  - Delete or Reopen Tickets
  - Switching off the Delete Functionality Using a System Property
  - Search Tickets

# **32.1 Introduction to Ticket Administration**

In the ticket administration you can:

• Delete tickets

e.g. if a ticket was created by mistake.

• Reopen tickets e.g. if a ticket has been closed too early.

#### Attention:

Please keep in mind that a ticket, which is reopened, starts in the process at the start node of the respective workflow. So when a ticket has passed nodes where events are triggered that should be performed only once (e.g. the ticket is passed to an approver) it might be better to open a new ticket. An alternative way is to modify the workflow to contain a shortcut.

# 32.2 Ticket Administration Using the Admin Tool

In the Admin Tool, you can manage tickets using the navigation item *Administration* in the navigation group *Tickets*.

		Filter tickets by name	Filt	er tickets by	queue	/	List of all tickets which match search criteria	
ConSol CM6							🕫 💽 🗧	
A Home	*	Administration						
Access and Roles	۲	Tickets				50 ticke	ts Search details	
Lists	۲	Name:	<b>`</b>			All queues	History	
Tickets	۲	Id Name	Scope	Creation	Queue	Subject		
<ul> <li>Custom Fields</li> <li>History</li> </ul>		100 103 SUP-116	<b>1</b>	2008/07/03		one ticket - two c	Basic Details of Idrange: *-10000000 Search Search	currei
Administration Search Actions		100105 100269		2014/08/27	ServiceDesk	Kundenservice A	Name pattern: not specified Subject pattern: not specified	
Customers	۲	100 106 SUP-25	@ <sup>9</sup>	2008/07/03	HelpDesk_2nd_L	Exception during	States Selected tickets: All tickets	
ᢙ Resources	۲						Selected queues	
🖨 Global Configuration	۲	100107 100284	$\checkmark$	2014/09/10	SpecialTasks	Problem 2	ServiceDesk	
💮 Data Warehouse	۲						HelpDesk_2nd_Level HelpDesk_1st_Level	
Services	۲	100108 100258		2014/04/22	ServiceDesk	Test	AccountManagement SpecialTasks	
🗹 E-Mail	8		0				Sales	
💠 System	۲	100109 SUP-102		2008/02/22	HelpDesk_2nd_L	ticket search is v		
		100110 SUP-31	@ <sup>©</sup>	2008/06/13	HelpDesk_2nd_L	Exception while i		
		100112 SUP-43	<b>1</b>	2008/05/13	HelpDesk_2nd_L	Ticket search do		
	-							
[CM_Administration]	/	/ / /						
	Define sea	start a						

Fig. 1: ConSol\*CM Admin Tool - Ticket Administration after Ticket Search

### 32.2.1 Delete or Reopen Tickets

For those operations you can either use the buttons below the list, or you can use the context menu.

1. Buttons:

Select the desired tickets in the list and click on 2 to delete tickets resp. click on 2 to reopen tickets. If you confirm the following dialog with *Yes*, the corresponding action will be executed.

2. Context menu:

Select the desired tickets in the list and use the right mouse button to open the context menu. Select the desired operation.

# 32.2.2 Switching off the Delete Functionality Using a System Property

The delete functionality can be switched off using the system property *cmas-app-admin-tool, delete.ticket. enabled.* This is a boolean property. When it is set to *false* the *Delete* button is no longer displayed and the delete functionality is no longer available in the context menu.

							Search details History		
Id		Name	Scope	Creation	Queue	Subject		Basic	
	100 103	SUP-116	<b>1</b>	2008/07/03	HelpDesk_2nd_L	one ticket - two c		Id range: * - 10000000 Date range: not specified	
	100105	100269		2014/08/27	ServiceDesk	Kundenservice A		Name pattern: not specified Subject pattern: not specified	
	100 106	SUP-25	<b>1</b>	2008/07/03	HelpDesk_2nd_L	Exception during		States Selected tickets: All tickets	
	100107	100284		2014/09/10		Problem 2		Selected queues ServiceDesk HelpDesk_2nd_Level HelpDesk_1st_Level AccountManagement SpecialTasks	
	100 108	100258		2 Reopen 1 2 Delete ti	Desk	Test			
	100 109	SUP-102	(A)	2008/02/22	HelpDesk_2nd_L	ticket search is v		Sales	
	100110	SUP-31	(A)	2008/06/13	HelpDesk_2nd_L	Exception while i			
	100112	SUP-43	<b>(1)</b>	2008/05/13	HelpDesk_2nd_L		-		
0	3 🛛								

Fig. 2: ConSol\*CM Admin Tool - Ticket Administration Page with cmas-app-admin-tool, delete.ticket. enabled = true

ckets					50 tick	ets	Search details	
ame:					All queues	•	History	
d	Name	Scope	Creation	Queue	Subject		Di-	
10010	3 SUP-116	@ <sup>©</sup>	2008/07/03	HelpDesk_2nd_L	one ticket - two c		Date range: n	- 10000000000000000 ot specified
10010	5 100269		2014/08/27	ServiceDesk	Kundenservice A		Name pattern: n Subject pattern: n	
10010	6 SUP-25	<b>1</b>	2008/07/03	HelpDesk_2nd_L	Exception during		States Selected tickets: C	Open tickets
100 10	7 100284		2014/09/10	SpecialTasko Select tickets	Problem 2		Selected queues – ServiceDesk HelpDesk_2nd_Lev	
10010	8 100258		2014/04/22	Reopen tickets	st		HelpDesk_1st_Lev AccountManageme SpecialTasks	
10010	9 SUP-102	@ <sup>©</sup>	2008/02/22	HelpDesk_2nd_L	ticket search is v		Sales	
10011	0 SUP-31	<b>©</b>	2008/06/13	HelpDesk_2nd_L	Exception while i			
10011	2 SUP-43	<b>S</b>	2008/05/13	HelpDesk_2nd_L		-		
9								

Fig. 3: ConSol\*CM Admin Tool - Ticket Administration Page with cmas-app-admin-tool, delete.ticket. enabled = false

## 32.2.3 Search Tickets

To search for tickets you want to delete or reopen click on sin the bottom left corner of the page or use the context menu. A pop-up window appears where you can enter the search criteria.

ſ	Select tickets			X	
	Select tickets				
	j Please enter criteria fo				
	Search parameters				
	Ticket id:	from: 100100	to 100300		
	Creation date:	from: 1/1/13	▼ to 11/11/13	•	Search criteria
	Name pattern:				<ul> <li>(ticket ID, creation date, name or subject pattern)</li> </ul>
	Subject pattern:	test			hame of easyeet patient,
	Max number of tickets:	50	•	Maximum number of	
	Ticket State				tickets displayed
Select a ticket state	<ul> <li>Open tickets</li> </ul>				
	Queues				
	Search in queues 🔺		Available queues 🔺		
	HelpDesk_1st_Level		Frequently_Asked_Questions		List of
Queues to search in	T		HelpDesk_2nd_Level Sales		available queues
		•			
		7			
		/		K Cancel	
				Curree	
-					-
	I	Remove queue from	Add queue to		
		searc	ch list		

Fig. 4: ConSol\*CM Admin Tool - Ticket Administration: Ticket Search

The following parameters can be used for searching:

• Ticket id:

You can enter an ID range for the tickets here.

• Creation date:

Via calendars you can define a time period within which the tickets have been opened.

• Name pattern:

Here you can enter keywords or search patterns for the ticket name.

Subject pattern:

In this field you can enter keywords or search patterns for the ticket subject.

• Max number of tickets:

Here you can specify the maximum number of tickets displayed in the list.

• Ticket State:

Using the radio buttons you can determine if you want to search for open, closed, or all tickets.

• Queues:

The list on the right shows the available queues. Select the queues to search in here and click on to move them to the search list on the left. If you do not choose any queues the search will be extended to all available queues.

Click on *OK* to start the search. The result will be displayed on the *Ticket Administration* page. If the list is too long, you can limit the display using the name and queue filters above the list.

In the area next to the ticket list on the right you can find an overview of the search criteria you have chosen. The list box *History* above this area contains your last searches. If you click on an entry in this list a pop-up window with the criteria of the selected search will open. You can modify the search here or just start it again.

# 33 Data Warehouse (DWH) Management

- Introduction
  - Data Warehouse
  - ConSol\*CM Data Warehouse and ConSol\*CM Reporting Framework
- DWH Management Using the Admin Tool
  - DWH Configuration and Logs
    - Basic DWH Configuration
    - Initialization of the DWH
    - First DWH Synchronization
    - DWH Synchronization During System Operation
  - DWH Tasks
  - DWH Troubleshooting and Repair
- DWH-Related System Properties
- Transfer Modes: JMS or DIRECT
  - Configuring the Transfer Mode
  - JMS Mode
  - DIRECT Mode

### Attention:

To set up a DWH, a ConSol\*CM Reporting Framework (CMRF) that is up and running is required. If your system does not include a CMRF yet, please talk to your ConSol\*CM manager or contact ConSol\* Software.

# **33.1 Introduction**

# 33.1.1 Data Warehouse

A data warehouse is a collection of data from one or more systems and/or databases that provides the basis for reporting and for data analysis. Often, the data has been combined or rearranged (integrated) in a way that a perfect basis for reporting and for data analysis is provided.

# 33.1.2 ConSol\*CM Data Warehouse and ConSol\*CM Reporting Framework

A ConSol\*CM default installation comprises all modules that are required to build a data warehouse. The core component is the **ConSol\*CM Reporting Framework (CMRF)**.

This is a Java EE application which synchronizes the data between the ConSol\*CM database and the DWH database. Please see the following picture for a system architecture example with DWH and CMRF. We recommend that you use two servers, one for ConSol\*CM and one for CMRF. Please refer to the current *System Requirements* for information about the supported application servers and RDBMS.

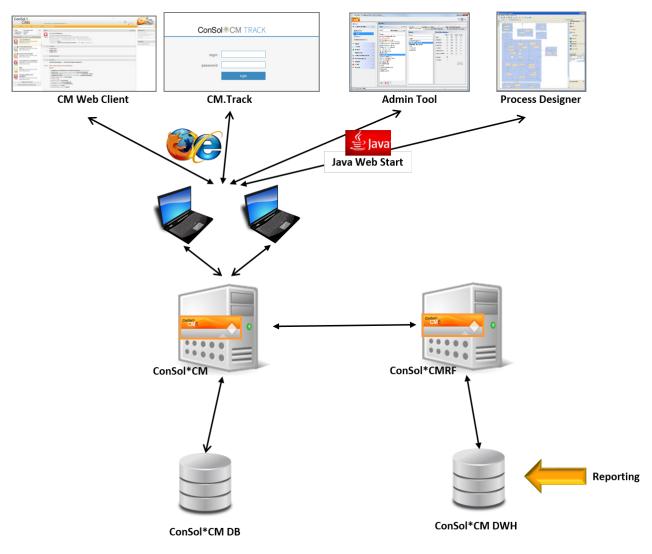


Fig. 1: ConSol\*CM - System architecture with DWH and CMRF (2 Servers)

There are two different modes to synchronize the DWH with the CM database:

### • LIVE mode

In this mode, every change that has been submitted to the CM database is immediately synchronized with the DWH.

### • ADMIN mode

In this mode, the administrator has to trigger the synchronization manually.

### **Attention**:

Only data from custom fields and data object group fields with the annotation *reportable = true* will be synchronized with the DWH!

# 33.2 DWH Management Using the Admin Tool

To manage the DWH, use the navigation items in the navigation group Data Warehouse:

- DWH Tasks
- DWH Configuration and Logs

# **33.2.1 DWH Configuration and Logs**

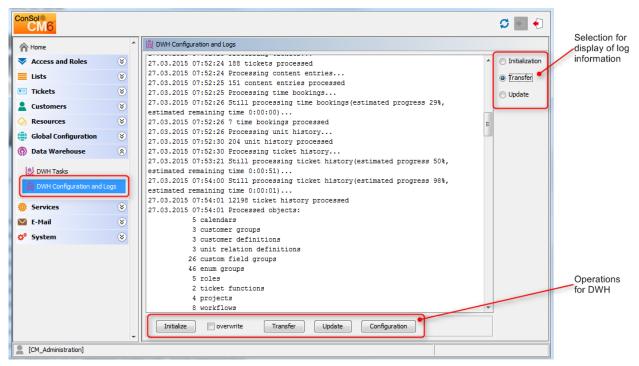


Fig. 2: ConSol\*CM Admin Tool - DWH Configuration and Logs

In the center area, the log file information of DWH operations is displayed. Use the radio buttons on the righthand side to select which log file should be displayed. The DWH operations are available as buttons in the row below the center area.

• Initialize

Create tables during DWH set-up, see Initialization of the DWH.

• overwrite

Used for re-initialization, see Initialization of the DWH.

• Transfer

Start initial data transfer after set-up, see First DWH Synchronization.

• Update

Transfer new/additional data to the DWH, see DWH Synchronization During System Operation.

Configuration

Open DWH configuration panel, see Basic DWH Configuration.

The radio buttons and the buttons for DWH operations do not influence one another, i.e. when you select an operation, the log file display is not changed. See the following paragraphs for detailed explanations about all operations.

### **Basic DWH Configuration**

Before you can set up a ConSol\*CM DWH you have to prepare a database (or database schema) which will contain the DWH data. The respective database server has to be available for the CMRF server.

In order to prepare the system for the DWH synchronization, you have to configure the database and the DWH mode. In the Admin Tool, open the navigation group *Data Warehouse,* navigation item *DWH Configuration and Logs.* Click on *Configuration*, open the tab *Configuration*, and insert all values of the CMRF server.

ConSol CM6		DWH Configurat	
A Home	*	DWH Configuration and Logs i Please edit config	
Home Access and Roles Lists Tickets Customers Resources Global Configuration Data Warehouse DWH Tasks DWH Configuration and Ling Services E-Mail \$ System	90 90 90 90 90 90 90 90 90 90 90 90 90 9	27.03.2015 07:52:24 188 tickets processed         27.03.2015 07:52:24 Processing content entri         27.03.2015 07:52:25 151 content entries proc         27.03.2015 07:52:25 Processing time bookings         27.03.2015 07:52:26 Still processing time bookings         27.03.2015 07:52:26 Frocessing time bookings         27.03.2015 07:52:26 Processing unit history.         27.03.2015 07:52:26 Processing unit history.         27.03.2015 07:52:30 204 unit history process         27.03.2015 07:52:30 Processing ticket history	tification
		8 workflows	uration
[CM_Administration]	•		

Fig. 3: ConSol\*CM Admin Tool - DWH Configuration and Logs: DWH Configuration

At DWH Mode Selection, choose one of the available options:

### • LIVE

In this mode, every change that has been submitted to the CM database is immediately synchronized with the DWH.

ADMIN

In this mode, the administrator has to trigger the synchronization manually.

• OFF

No transfer of data to the DWH.

You can also see the DWH mode that is in operation by taking a look at the corresponding DWH system property *cmas-dwh-server*, *dwh.mode* (see Appendix C).

11	unas-cole-index-common	uisapie, autimin, task, auto, commit	IOISC	
- 11	cmas-dwh-server	dwh.mode	LIVE	1
d			A / d-+- / d-	1

Fig. 4: ConSol\*CM Admin Tool - System Property for DWH Mode

For the connection, the following parameters are required:

- For JBoss:
  - Initial context factory

The Java class that is used for the connection. No changes are required here since ConSol\*CM selects the correct value during system set-up.

• URL factory packages

The Java package that comprises the required connection classes. No changes are required here since ConSol\*CM selects the correct value during system set-up.

CMRF URL

The URL of the CMRF, i.e. the URL to which the CM system should connect in order to provide the information about new synchronization tasks. The general notation

<CMRF\_HOST\_IP>:<JNDI\_PORT>

(i.e. *192.168.0.1:1099*) can be used. Please note that the default JNDI port is *1099*. In case you are using different JBoss port mappings, then the JNDI port will also differ. I.e. when using *ports-01* then the JNDI port is *1199*, for *ports-02* it is *1299*, and so on.

### • For Weblogic:

### Initial context factory

The Java class that is used for the connection. Use:

weblogic.jndi.WLInitialContextFactory

### • URL factory packages

The Java package that comprises the required connection classes. Use:

```
weblogic.jndi.factories:weblogic.corba.j2ee.naming.url:weblogic.corba.client.
naming
```

#### CMRF URL

The URL of the CMRF, i.e. the URL to which the CM system should connect in order to provide the information about new synchronization tasks. The *t3* protocol has to be used, i.e.

i .	
i .	- 2. / / OWDE HOOM ID THDI DODM.
	t3:// <cmrf_host_ip>:<jndi_port></jndi_port></cmrf_host_ip>
i –	
i	

(i.e. *t3://localhost:7010*).

In the tab *Notification* you can configure the format of the messages (e-mails) which are sent by the system concerning DWH operations. These might be errors, success messages, or an information about an unsuccessful operation.

The values are saved in the DWH notification properties (see Appendix C for details).

🗾 DWH Config	guration
DWH Configur i Please edit o	ation configuration of DWH
Configuration	Notification
Protocol: s	mtp 🗸
Host: m	ailme.consol5lde
Port: 2	5
User:	
Password:	
Error Succ	essful Unsuccessful
From:	dwh@cm6-demo.int.consol.de
To:	dwh-admin@consol.de
Subject:	Error occurred (cm6-demo.int.consol.de)
Description:	Error occurred:
	Save Cancel

Fig. 5: ConSol\*CM Admin Tool - DWH Configuration: Tab Notification

The following fields are available:

- Protocol
  - Required The protocol that is used to send the message, usually this is SMTP.
- Host

Required - The e-mail server. You can enter a name (DNS-resolvable) or an IP address.

• Port

Required - The port on the e-mail server where the mail daemon is listening.

• User

Optional - User name if a user authentication is required at the e-mail server.

• Password

Optional - Password of the e-mail user if a user authentication is required at the e-mail server.

• Tabs Error/Successful/Unsuccessful

Here the e-mail parameters for e-mails that are sent by the system concerning the DWH can be configured. There are three types of messages: in case of an error, in case of a successful operation, and in case of an unsuccessful operation.

• From

The FROM e-mail address for messages (maybe this is another FROM address than the one used for e-mails to customers and to engineers).

• То

The e-mail address of the recipient of the DWH messages. Initially this will be the ConSol\*CM administrator e-mail address which has been entered during system set-up.

Subject

The (e-mail) subject of the error/success/unsuccessful message.

• **Description** The body (text) of the message.

## Initialization of the DWH

When the basic configuration has been performed, the DWH initialization can be started. Press *Initialize* and follow the entries in the protocol panel. Be sure to have marked *Initialization* (radio button) in the top right corner to display initialization events.

ConSol CM6		S 💽 🐔
A Home	*	👸 DWH Configuration and Logs
V Access and Roles	۲	27.03.2015 07:33:46 Starting initialization 🔺 🖲 Initialization
Lists	۲	27.03.2015 07:33:46 Creating database structure
		27.03.2015 07:34:21 Database structure created
Tickets	۲	27.03.2015 07:34:21 Filling tables O Update
Lastomers	۲	27.03.2015 07:34:20 Tables Tifled 27.03.2015 07:34:47 Initialization finished successfully
A Resources	۲	09.07.2015 10:13:43 Starting reinitialization
		09.07.2015 10:13:45 Deleting dynamic tables
🜐 Global Configuration	۲	09.07.2015 10:14:33 Dynamic tables deleted
🕥 Data Warehouse	۲	09.07.2015 10:14:33 Deleting tables
		09.07.2015 10:14:49 Tables deleted
DWH Tasks		09.07.2015 10:14:49 Creating database structure
B DWH Configuration and L	ogs	09.07.2015 10:20:12 Database structure created 09.07.2015 10:20:12 Filling tables
		09.07.2015 10:20:17 Tables filled
🔅 Services	۲	09.07.2015 10:20:54 Reinitialization finished successfully
🗹 E-Mail	۲	
🕫 System	۲	
		• •
		Initialize overwrite Transfer Update Configuration
	<b>T</b>	
CM_Administration]		

Fig. 6: ConSol\*CM Admin Tool - DWH Initialization

During this step, the database structure in the DWH is created with all tables and relations. No data will be transferred yet. Depending on the amount of tables, this might take some time.

If the DWH has been in operation and has to be set-up a second time, a reinitialization has to be performed. Check the *overwrite* option in order to delete the old database structure and create a new one. Then press *Initialize*.

### **First DWH Synchronization**

To fill the data warehouse with the CM data for the first time, press *Transfer*. The initial transfer is started. Depending on the amount of tables, this might take some time (even several hours). You can follow the log entries by opening *Transfer* in the protocol panel.

### **DWH Synchronization During System Operation**

If the DWH is running in *ADMIN* mode, the DWH administrator has to start the transfer manually by clicking on *Update*. Then all data that is supposed to be transferred, i.e. all data from fields with the *reportable = true* annotation that has been added or changed since the last transfer, is transferred. When the *Update* button has been clicked, all required operations will be created as tasks and all open tasks will be listed in the *DWH tasks* panel.

If a custom field or data object group field did not have the *reportable* annotation at the time of the last transfer and has it now, the corresponding content of the field from all tickets and/or customers is transferred.

You can follow the log entries for the DWH operation by opening the Update part of the protocol panel.

### Warning:

Do not remove the annotation *reportable = true* for any field without being absolutely sure that the data is not required in reports any longer! If you remove a field that is used in reports and/or data cubes, the reporting will fail at run-time!

# 33.2.2 DWH Tasks

In this list you will find entries (one entry for one task) if ...

- the DWH is running in *ADMIN* mode and the administrator has started an update: all tasks that have to be performed are listed.
- the DWH is running in *LIVE* mode but the check box *Automatic commit of administrative changes* has not been checked.
- custom field or data object group field annotations have been set to *reportable = true* and the check box *Automatic commit of administrative changes* has not been checked.

You can mark a task in the list and execute it manually.

If the check box *Automatic commit of administrative changes* has been checked, the tasks will be run automatically by the system.

# 33.2.3 DWH Troubleshooting and Repair

If any errors have occurred during initialization, transfer, or update, the log entries are displayed in the respective protocol panel.

You can also check the original log file under the following path:

JBoss:

<JBOSS\_HOME>\server\<CMRF\_SERVER\_NAME>\log\cmrf.log

• Weblogic:

<ORACLE\_HOME>\Middleware\user\_projects\domains\consolcm6\_domain\cmrf-logs\cmrf.log

Please note that these are the standard paths. In ConSol\*CM, *Log4*/is used. If you have configured a different path for your log files in the *log4j.xm*/file, you will know where to find them.

Usually the log file and/or protocol panel entries give good hints at the initial reason for the transfer failure. If you cannot fix the problem and you have a maintenance contract with ConSol\*, please contact our support team.

# **33.3 DWH-Related System Properties**

A list of all system properties which are relevant for a specific DWH configuration can be found in section Appendix D - Important System Properties - Ordered by Area of Application, DWH.

# **33.4 Transfer Modes: JMS or DIRECT**

All data which has been annotated as *reportable* = *true* has to be transferred to the Data Warehouse. This is performed by ConSol\*CM and the CMRF.

There are two possible modes:

- JMS mode
- DIRECT mode

# 33.4.1 Configuring the Transfer Mode

The mode is set using the system property cmas-dwh-server, communication.channel. Possible values are:

- "JMS": only possible value in versions prior to 6.8.5.0, default value before 6.9.4.1
- "DIRECT": database communication channel, exists since version 6.8.5.0 (has to be added manually in version 6.8.5.0 up to 6.9.4.0), default value since 6.9.4.1

## 33.4.2 JMS Mode

In JMS mode, the CM server sends messages to the CMRF by using the JMS-Queues *transfer*, *live*, and *control*. These JMS queues are located either in

• the table JBM\_POSTOFFICE in the CM DB (in overlay mode)

or

• in a separate JBM\_POSTOFFICE table in the DWH DB (standalone mode).

The CMRF server reads the messages from the JMS queues and writes the data into the DWH database schema.

# 33.4.3 DIRECT Mode

In DIRECT mode, the CM server sends messages to the CMRF by using direct access to database-tables (INT\_CONTROL\_QUEUE, INT\_LIVE\_QUEUE, INT\_TRANSFER\_QUEUE in the DWH database). JMS is not involved. CM is able to do that because in DIRECT mode, the CMRF datasource was made accessible for CM as well, i.e.

- in overlay mode: CM and CMRF use the same application server anyway
- in standalone mode: the CMRF database configuration file is also located on (copied to) the CM application server

The CMRF server reads the messages from the tables and writes the data into the DWH database schema.

# 34 ConSol CM Administrator Manual 6.10.2 -Services

# 34.1 Services

The Java EE application ConSol\*CM comprises several services.

In the Admin Tool, you can manage two types of those services in the navigation group Services.

- CM Services, see section CM Services.
- ESB Services, see section ESB Services.

# 34.2 CM Services

CM Services are managed on the navigation item *CM Services* in the navigation group *Services*. On this tab you can start **>** or stop **=** the individual services of the CM system, e.g. data indexing or DWH transfer.

ConSol CM6		C 📓 🕤	List of all
A Home	*	of. CM Services	available CM
V Access and Roles	۲	Services	Services
Eists	۲	Name	
Tickets	۲	DWH live service	
<b>2</b> Customers	۲	DWH log service DWH transfer service	Stopped or
lesources	۲	Job Executor Kerberos v5 authentication provider	disabled
Global Configuration	۲	ESB service	services are
🚯 Data Warehouse	۲	Nimh Remote client pooling	shown in italics
🔅 Services	۲	Rest API service Server Session Service	
Of. CM Services		TaskExecutorService index changes notifier	
o ESB Services		index changes receiver	
- Index		unused content remover	
Task Execution			
🗹 E-Mail	۲		
🗬 System	۲		
	-		
CM_Administration]			
	St	art Stop	-

selected service

Fig. 1: ConSol\*CM Admin Tool - Services: CM Services

### Attention:

The status of a service should only be changed by an experienced ConSol\*CM consultant or by a member of the ConSol\*CM support team! ConSol\*CM core functionalities might not work when a service is not running!

### List of services:

• DWH live service

Controls just-in-time DWH update in LIVE mode.

- DWH log service Reads and processes CMRF/DWH log messages for Admin Tool and stores them in CM DB. The entries are used for the log protocol in the Admin Tool. See section Data Warehouse (DWH) Management.
- DWH transfer service Controls DWH transfer.

### • Job Executor

Controls the escalations for processes resp. workflows.

Kerberos v5 authentication provider

Required if Kerberos authentication is in operation.

• ESB service

Retrieves incoming e-mails when the server is running in ESB/Mule Mail mode. This service is deactivated when NIMH is used as incoming mail module. Please see also section ESB Services.

• NIMH

Retrieves incoming e-mails when the server is running in NIMH mode. This service is deactivated when ESB/Mule Mail is used as incoming mail module.

• Remote client pooling

Controls that Web Clients get changes from Admin Tool.

Rest API service

Activates or deactivates REST (Representation State Transfer interface).

Server Session Service

Checks sessions and stops session when end of client or Admin Tool session end has been reached. See for example system properties *admin.tool.session.check.interval* and *server.session.timeout*.

### TaskExecutorService

The engine for task execution in the Task Execution Framework. It comprises a main processing thread (with watchdog attached) which scans the database for tasks with the status NEW and a second component which controls a dedicated threads pool used for tasks execution.

### • Index changes notifier

Creates JMS (*Java Message Service*) messages with notifications that there has been one or more change(s) that concern(s) the index.

• Index changes receiver Reads JMS queue and starts update in Indexer.

### • Unused content remover

Removes attachments and comments which have been marked as *deleted* in the Web Client (in the protocol section of a ticket).

# 34.3 ESB Services

- Introduction to ESB Services
- Starting and Stopping ESB Services Using the Admin Tool

### IMPORTANT INFORMATION

Since ConSol\*CM version 6.9.4, there are two modes to receive incoming e-mails:

- ESB/Mule this has also been available in all previous CM versions
- NIMH (New Incoming Mail Handler) new in version 6.9.4

For all configurations/settings which are valid for both modes, no further notes are added. For all settings which vary depending on the mode, this will be explained in separate (i.e. ESB/Mule or NIMH specific) sections.

A The ESB services are only active if ESB/Mule Mail is active! If your systems runs in NIMH mode, the navigation item ESB Services is disabled!

# 34.3.1 Introduction to ESB Services

The ESB services are in operation for incoming e-mails. Please see the following figure for the functions of the ESB services and also section E-Mail Scripts for a detailed description of the general principle of ConSol\*CM mailing.

ESB stands for *Enterprise Service Bus* and ConSol\*CM has integrated an ESB (Mule ESB<sup>TM</sup>) as one of the application modules.

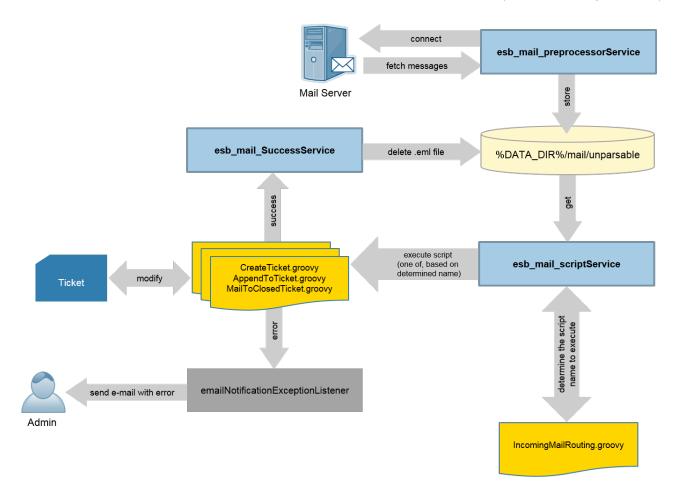


Fig. 1: ConSol\*CM ESB Services

#### ESB services:

#### esb\_mail\_preprocessorService

Responsible for fetching e-mail messages from the configured incoming mailboxes. Retrieved messages are stored in the directory *%DATA\_DIR%/mail/unparsable* as *.em*/files. Stopping this service will cause the ConSol\*CM server to disconnect from configured e-mail servers. This means that e-mails will not be fetched and initially processed. After starting this service again, ConSol\*CM will connect to configured e-mail servers and process all queued messages.

#### esb\_mail\_scriptService

This service calls the *IncomingMailRouting.groovy* script to determine the script name to execute. It can be one of *CreateTicket.groovy*, *AppendToTicket.groovy*, or *MailToClosedTicket.groovy*. Then the determined script is executed. On success, the *esb\_mail\_SuccessService* is called. On error, an e-mail with detailed cause is sent to the administrator. When this service is stopped e-mail messages will be retrieved from the mailboxes and stored in the directory *%DATA\_DIR%/mail/unparsable*. Then the processing will stop. After the service is started again, the messages will be picked up from the *unparsable* directory and processed.

#### esb\_mail\_SuccessService

Responsible for deleting e-mail files that were processed correctly from the backup folder. Stopping this service will cause e-mail copies to remain in the backup folder (*%DATA\_DIR%/mail/unparsable*) after processing.

#### Warning:

When this service (*esb\_mail\_SuccessService*) is started again, it will delete all messages which were not removed when it was stopped.

# 34.3.2 Starting and Stopping ESB Services Using the Admin Tool

ESB Services are managed in the Admin Tool on the tab *ESB Services* in the navigation group *Services*. In this tab you can start and stop the sub-services of the *Enterprise Service Bus* (ESB). You should only change the service status upon request of CM consulting or CM support!

			List of all available ESB Services
			(stopped or disabled services are shown in italics, demo system is running in NIMH mode, therefore no ESB service is started)
ConSol CM6			C 📓
A Home		Can ESB Services	
▼ Access and Roles	۲	ESB Services	
Eists	۲	Name	
Tickets	۲	esb_mail_SuccessService	
Lustomers	۲	esb_mail_preprocessorService esb_mail_scriptService	
le Resources	۲		
(a) Global Configuration	۲		
🕥 Data Warehouse	۲		
🔅 Services	۲		
Office     CM Services       Index     Index       Task Execution			
🗹 E-Mail	۲		
😋 System	۲		
[CM_Administration]			
		Start Stop the selected service	

Fig. 2: ConSol\*CM Admin Tool - Services: ESB Services

# 35 ConSol CM Administrator Manual 6.10.2 -Search in ConSol CM

# 35.1 Search in ConSol CM

ConSol\*CM offers a powerful search engine.

Learn how to configure the CM system for your search requirements in section Search Configuration and Indexer Management.

Starting with CM version 6.10.1, it is possible to perform actions on search results. This feature is part of the ConSol\*CM Action Framework and is described in section Search Actions.

Result sets which have been retrieved in the Web Client can be exported as csv list. This feature has been added in CM version 6.10.1. It is explained in section CSV Export of Search Results.

# **35.2 Search Configuration and Indexer Management**

- Search Modes
  - Quick Search
  - Detailed Search
    - Configure the Search Result List
  - Autocomplete Search (Search by Using Intelligent Fields)
- Fields Which Can Be Searched
  - Data Fields and Content Which Are Indexed by Default
  - Data Fields Which Are Annotated Using the Annotation "field indexed"
- Administrator Tasks Concerning the Indexer
- Introduction to the ConSol\*CM Indexer
- Indexer and Index Management Using the Admin Tool
  - Field Indexed Annotation
  - Indexer Management: Navigation Item Index
- Indexer and Index-Relevant System Properties
- CM Indexer Services
- Systems with More Than One Indexing Server

ConSol\*CM provides a powerful search for all objects involved in the business processes (customers, tickets and resources). Technically, the search is based on the *Indexer*, a module of ConSol\*CM.

The following paragraphs will explain the entire topic *Search in ConSol\*CM* from an administrative point of view. Please refer to the *ConSol\*CM User Manual* for a detailed explanation about how to use the search as an engineer.

## 35.2.1 Search Modes

A ConSol\*CM engineer can use several search modes:

### **Quick Search**

This is performed using the Quick Search field in the upper right-hand corner of the Web Client. The display of the results (i.e. the fields and the order of the fields in the result list) can be formatted using templates, please see section Templates for Customer Data for details. Please keep in mind that you can adapt the size of the result list using the system property *cmweb-server-adapter*, *globalSearchResultSizeLimit*, see Appendix C (System Properties) for details.

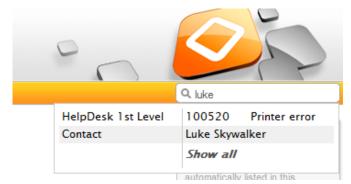


Fig. 1: ConSol\*CM Web Client - Quick Search

### **Detailed Search**

This is performed using the *Detailed Search* page. To open this page, click on the magnifier icon next to the Quick Search entry field.

Search					Search							
earch criteria												
Lastname Mouse - Queue 'ServiceDesk' - Choose One Search												
Tickets View as:	DirectCustomers (DirCustCust	omer) Direct	ctCustomers (DirCustCompany)	MyCustomerGroup (MyCustomer)	MyCustomer	Group (Company)	Reseller (ResellerCustomer)	≣▼				
Search results (2)												
Add/Remove column Engineer', 'Main Customer', 🔻 OK Number per page 20 💌												
Engineer	Main Customer	Name	Subject	Creation date	Status	Module	Priority (Helpdesk standard)					
ServiceDesk, Susan	🔝 Minnie Mouse	6 100255	Switch on 1st Level out of order?	3/31/14 2:42 PM	Open	misc	normal					
ServiceDesk, Susan	💄 Minnie Mouse	100259	Login not possible	5/2/14 3:36 PM	Open	misc	normal					

Fig. 2: ConSol\*CM Web Client - Detailed Search

Please keep in mind that the size and paging of the result list for the Detailed Search can be configured using the system properties *cmweb-server-adapter*, *searchPageSize* and *cmweb-server-adapter*, *searchPageSizeOptions*. See Appendix C (System Properties) for an explanation.

### Information:

Please refer to the *ConSol\*CM User Manual*, section *Searching for Tickets and Customers* to learn how to use the search functionality.

### **Configure the Search Result List**

You as an administrator can configure the layout of the Search result list using the annotation *order-in-result*. This annotation influences the columns of object-specific search result sets. For example, the Data Object Group *ResellerCompanyData* which belongs to the Customer Data Model *ResellerModel* contains the following Data Object Group Fields:

```
company_name: order-in-result = 1
```

#### *company\_number*: order-in-result = 2

Thus, in a search result list, e.g. a detail search which shows a result set with companies of a customer group which uses the ResellerModel, will contain the two colums company-name and companynumber.

ConSol CM6									S 🗐 🗧
A Home	*	Bata Models							
Access and Roles	۲	Customer data models	i de la companya de l		Da	ata object group fields			
Elists	۲	Partner	rsCompanyData	*	Fil	ter:			
Tickets	۲	- 🙃 Partner	rsContactData						
Customers	۲	ResellerModel				Name Dimpany name		Type short string	
Lustomer Groups		Reselle	rCompanyData rCompany_ServiceCo rCompanyInternalRes		ac di	ompany_number ddress ty		short string string short string	=
Actions		-ResellerCustom	ner erCustomerData	-	zij	p puntry		short string enum	-
🔹 Roles <\$ Relations			8			•			
Address Autocomplete		Assigned annotations			As	signed annotations			
Resources	8	Name A show-in-group-section	Value	Annotation group		ame 🔺	Value		Annotation group
Global Configuration	8		true	layout		ld indexed der-in-result	transitive 1		indexing layout
* *			true	layout		sition	0;0		layout
⑦ Data Warehouse	۲		true true	layout layout	sho	ow-label-in-edit	false		layout
🔅 Services	۲	show-waterniarks	uue	ayout	11				
🗹 E-Mail	۲				11				
💠 System	۲				11				
CM Administration	-								

### Fig. 3: ConSol\*CM Admin Tool - Setting the Annotation order-in-result for a Data Object Group Field

Logged in: Susan ServiceDesk 🔹		$\bigcap$	
Asset management Text temp	ates Document templates Con Sol* Help	Reseller	٩
Search			Workspace
Search criteria Company name (ResellerCompanyData) Please select	Search		Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Deactivated incl.		Favorites
			All Contacts
Tickets Reseller (F	esellerCustomer) Reseller (ResellerCompany) Resources		HP printers
Search results (6)		2	
¢ ▼ Company	<u>Company name</u>	Company number	
📗 MyNewSpaceCompany 999	MyNewSpaceCompany	999	
🔜 TEST123 111	TEST123	111	
🐜 ConSol* 4711	ConSol#	4711	
WySuperReseller 998877	MySuperReseller	998877	
La ConSol Düsseldorf 4711	ConSol Düsseldorf	4711	
IBM 789	IBM	789	
•	III	۴.	

Fig. 4: ConSol\*CM Web Client - Search Result Set with the Two Annotated Columns (order-in-result)

Please note that when at least one column is annotated with the *order-in-result* annotation, columns which are not annotated with the *order-in-result* annotation will not be displayed in the search results.

When no field is annotated with the *order-in-result* annotation, all fields are displayed in the search result list.

### Autocomplete Search (Search by Using Intelligent Fields)

The Autocomplete Search is performed implicitly when you start entering a word in an Autocomplete field, e. g. in company data or customer data when you create a ticket (see figures below).



Fig. 5: ConSol\*CM Web Client - Autocomplete Search

	ResellerCompany			
	Find   Create			
	Please find or create company first.			
	ResellerCustomer			
0	customer_name Sky	forename forename	Suggestions	
	email email	phone phone	🔛 Skywalker,Luke	Select
	vip_person		🔛 Skywalker,Lea	Select
	CM/Track Login (LDAP) CM/Track Login (LDAP)	CM/Track Password CM/Track Password		
	Track user			

Fig. 6: ConSol\*CM Web Client - Suggestions for an Autocomplete Search

Starting with CM version 6.10.2, a search in all contacts of the CM database is also performed in the Ticket E-Mail Editor when the engineer statrs typing in the TO, CC or BCC field:

Comment	E-Mail	Attachment	Time booking	
New E-ma	il			
	show Cc  show Bcc			
To:	😠 Schwarzenegger, k			
Reply-To:	k			<u> </u>
Subject:	Service Desk, Sarah <k< th=""><th>atja@consol.de&gt;</th><th></th><th></th></k<>	atja@consol.de>		
Template	track_reseller_extende	d <katja@consol.de></katja@consol.de>		
remplate	Track, CM <katja@cons< th=""><th>sol.de&gt;</th><th></th><th>=</th></katja@cons<>	sol.de>		=
Quote	Visor, Susanne <kerstir< th=""><th>n@consol.de&gt;</th><th></th><th>-</th></kerstir<>	n@consol.de>		-
	Holler, Konrad <holler@< th=""><th>)localhost.com&gt;</th><th></th><th></th></holler@<>	)localhost.com>		
BI	ServiceDesk, Susan <k< th=""><th>atja@consol.de&gt;</th><th></th><th></th></k<>	atja@consol.de>		
X <sup>2</sup> X <sub>2</sub>	Consultant,Conrad <te:< th=""><th>st@localhost.de&gt;</th><th></th><th></th></te:<>	st@localhost.de>		
Viele Gr	Docu,Katja <katja@con< th=""><th>isol.de&gt;</th><th></th><th></th></katja@con<>	isol.de>		
				•
Susan S	+ Add all ticket custom	ers		
	Software GmbH anerstraße 38			E

Fig. 7: ConSol\*CM Web Client - Ticket E-Mail Editor: Automatic Search for Contacts as E-Mail Receivers

The number of characters which is required to initiate the automatic search can be configured using page customization. Use the page customization attribute *minMailInputLength* (Integer, Default 1) in the scope *mailTemplate*.

# 35.2.2 Fields Which Can Be Searched

For Custom Fields and Data Object Group Fields which should be searched, the annotation *field indexed* has to be set. See section Field Indexed Annotation. This makes the field available for the Quick Search and for the Detailed Search.

There are two types of fields concerning the search functionalities:

- 1. data fields and content which are/is indexed by default
- 2. data fields which are annotated using the annotation *field indexed*

### Data Fields and Content Which Are Indexed by Default

- Engineer data
  - E-Mail
  - Firstname
  - Lastname
  - ID
- Ticket data
  - Attachment content
  - Creation date
  - Engineer
  - History
  - ID (technically the ticket name)
  - Queue
  - Referenced engineers
  - Subject
  - View

### Data Fields Which Are Annotated Using the Annotation "field indexed"

For all datafields which have been added and configured by the CM administrators, the annotation *field indexed* has to be set to make the fields available in the search. A field which is indexed is available in

- the Quick Search
- the Detail Search
- all searches in Workflow and Admin Tool scripts, which use, for example, criteria classes/objects (e. g. *TicketCriteria*, *UnitCriteria*, *ResourceCriteria*), this concerns
  - scripts which have been manually added by the administrator

• scripts which are present by default (e.g. the script *createTicketgroovy*. In this script, the correct contact for a new ticket can only be set if the data object group field which is used to retrieve the correct contact or company is inddexed)

You as an administrator can define the system's behavior concerning search results. Depending on the values of the *fiel indexed* annotation, the search results for a contact might include all the tickets for the contact as well. The following table show the implications of all possible values of the *field indexed* annotation for the different object types. The field indexed annotation has to be set for each single data field, e.g. *name* and *e-mail* for a contact, *zip* and *address* for a company, *priority* and *software module* for tickets, or *name* and *model* for a resource type.

- I Please note that you deal with two perspectives here:
  - the search criterion, i.e. the field for which you start the search, e.g. all companies that start with ConS\*. A field is made available in the search by setting the annotation fieldindexed.
  - 2. the **result set**, i.e. the objects which are displayed in the result lists. The objects in the result set are defined by the value of the annotation field-indexed. Depending on this value you might see only the objects you have searched for (e.g. only contacts) or also obkects which are related to the objects you have searched for (e.g. companies of the conatcts). Please see the following table for a detailed exaplanation.

Object type/ value of field indexed annotation	transitive	unit	local	not indexed
TICKET	<ul> <li>no difference between the three values</li> <li>the ticket data will be available for the search</li> <li>no other objects which are related to a ticket in any way will be retrieved</li> <li>we recommend to accept the default value <i>transitive</i></li> </ul>			<ul> <li>the ticket data will be NOT available for the search</li> </ul>
CONTACT	<ul> <li>the contact data will be available for the search</li> <li>the tickets of the contact will</li> </ul>	<ul> <li>the contact data will be available for the search</li> <li>the search for company</li> </ul>	<ul> <li>the contact data will be available for the search</li> <li>no other objects which are</li> </ul>	<ul> <li>the contact data will be NOT available for the search</li> </ul>

Object type/ value of field indexed	transitive	unit	local	not indexed
annotation	<ul> <li>also be found when you search for the contact</li> <li>the search for company by its contact field is NOT possible</li> </ul>	by its contact field is NOT possible	related to a contact in any way will be retrieved	
COMPANY	<ul> <li>the company data will be available for the search</li> <li>the tickets of the company will also be found when you search for the company</li> <li>the contacts of the company will also be found when you search for the company will also be found when you search for the company will also be found when you search for the company</li> </ul>	<ul> <li>the company data will be available for the search</li> <li>the contacts of the company will also be found when you search for the company</li> </ul>	<ul> <li>the company data will be available for the search</li> <li>no other objects which are related to a company in any way will be retrieved</li> </ul>	<ul> <li>the company data will be NOT available for the search</li> </ul>
RESOURCE	no difference	between the three va	lues	

Object type/ value of field indexed annotation	transitive	unit	local	not indexed
	<ul> <li>no other object way will be re</li> </ul>	data will be available f cts which are related t trieved nd to accept the defau	<ul> <li>the resource data will be NOT available for the search</li> </ul>	

# 35.2.3 Administrator Tasks Concerning the Indexer

For the administrator it is important to know how to configure ConSol\*CM in a way that ...

- all required fields can be searched.
- no overhead is produced (i.e. not too many fields are configured for searching).
- the search results are displayed in the desired way.
  - in the result table in the Detailed Search
  - as suggestions for Autocomplete Search

Those tasks will be described in the following sections.

First, some background knowledge about the Indexer, the system which manages the search in ConSol\*CM, is provided. This will help you as an administrator to look behind the scenes and understand the configuration in a better way.

# 35.2.4 Introduction to the ConSol\*CM Indexer

The Indexer is a module of ConSol\*CM which creates indexes. For each data field that should serve as search criterion (see section Fields Which Can Be Searched above), an index is created.

The indexes are stored on the hard disc in a sub-directory of the data directory that you have indicated during system set-up (the data directory is stored as a system property: *cmas-core-shared*, *data.directory*). The following picture shows an example for index files of a ConSol\*CM installation (here used for a demo environment). The *demo\_Datadir* is the data directory you have provided during set-up, all other directories are created automatically by ConSol\*CM.

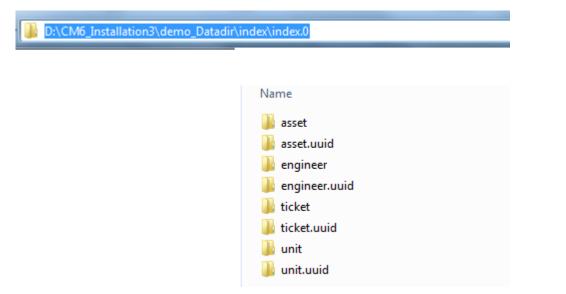


Fig. 8: ConSol\*CM Indexer - Directory demo\_Datadir

Please make sure that ...

- the data directory is always available for the ConSol\*CM server system if it has been created on another server and is linked to (or mounted on) the application server.
- that the ConSol\*CM datadir is part of the daily backup (and can be restored if required).

If the index directory should be corrupt or the index should not be available, the index can be rebuilt or repaired. Please see the following sections for details.

# 35.2.5 Indexer and Index Management Using the Admin Tool

### **Field Indexed Annotation**

By default, the entire ticket text and all attachments are indexed. For all Custom Fields Data Object Group Fields and Resource Fields, the field(s) which should be indexed has/have to have the annotation *field indexed*. Please refer to the sections Custom Field Administration, Data Object Group Field Management and GUI Design for Customer Data and Setting Up the Basic Resource Model for details about setting annotations to Custom Fields (ticket data), Data Object Group Fields (customer data) and Resource Fields (resource data). There are four possible values for this annotation:

- local
- unit
- transitive
- not indexed

A detailed explanation of the system behavior triggeerd by those values is provided in the table above.

Nested fields have to have all the same index type, otherwise they cannot be searched. For example, when you work with a list of structs, the list, the struct and all Custom Fields which should be searched have to have the value *transitive* for the annotation *field indexed*.

### **Indexer Management: Navigation Item Index**

Usually, you do not have to do anything concerning the Indexer. ConSol\*CM will handle everything regarding the indexing automatically. There are only two cases where you have to perform manual administrative operations:

- You would like to change the configuration concerning the commitment of changes concerning the *field-indexed* annotation.
- Errors have occurred in the indexing process.

In the Admin Tool, open the navigation group *Services*, navigation item *Index* to configure and manage the Indexer.

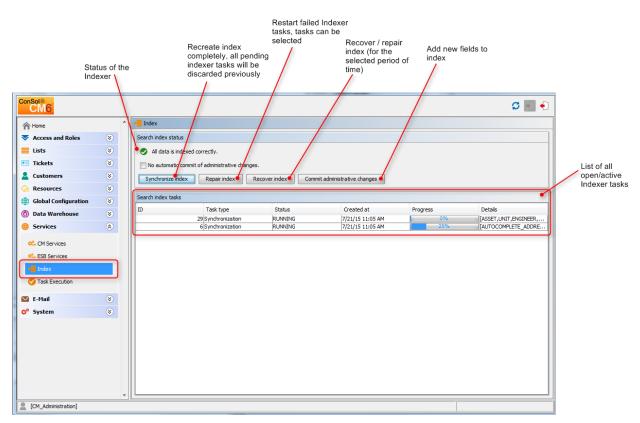


Fig. 9: ConSol\*CM Admin Tool - Navigation Group Services: Navigation Item Index

In the first line the current status of the Indexer is displayed (this is the value of the system property *cmas-core-index-common*, *index.status*):

• GREEN 🥏

All Indexer tasks have run correctly, no action required. At the beginning of the synchronization process, the index status is set to green. If it is completed successfully it remains green. If there is any problem it will change to yellow or red.

• YELLOW 📏

Fixable problems were identified, collected and persisted. The status is set when an administrative task (with auto-commit *off*) or a retry task is created.

• RED 🖾

Errors have occurred. Please check. The index needs full synchronization.

The following operations can be performed:

• Synchronize index

The index is rebuilt completely (from scratch), all open Indexer tasks are discarded.

• Repair index

Indexer tasks which have not run successfully are restarted. The tasks can be selected in the Indexer task list.

### • Recover index

A time range can be selected. All changes which have been committed to ConSol\*CM during this period of time will be (re-)indexed.

### Commit administrative changes

Click this button to commit the changes when you have set a Custom Field or Data Object Group Field to *field-indexed* that was not indexed before. This has to be used if the check box *No automatic commit of administrative changes* has been selected. If the check box is inactive, the changes will be committed automatically when you have set the new annotation(s).

### Attention:

There is a difference in CM versions concerning the meaning of *administrative changes* - this influences the manual index management!

In **versions prior to 6.9.3.0**, setting the annotation *field indexed* from *false* (or not set) to *true* is **1 not** considered an administrative change. That means, when you have added the annotation *field indexed = true* for a Custom Field which was present before, you have to modify the index manually by using either *Synchronize index* or *Recover index*.

**Starting with version 6.9.3.0**, setting the annotation *field indexed* from *false* (or not set) to *true* **is** considered an administrative change. That means, when you have added the annotation *field indexed* = *true* for a Custom Field which was present before, you have to

• modify the index manually by clicking on *Commit administrative changes* in case *No automatic commit of administrative changes* **is** set.

or

• do nothing in case No automatic commit of administrative changes is not set.

If there are open tasks in the Indexer task list, the following data is displayed for each task:

• ID

Task ID

• Task type

Three types are available:

- Synchronization
  - Recreates whole index.
  - Triggered manually using the Admin Tool, Synchronize index command.
  - Before the start all other index tasks are removed.
- Administrative changes
  - Created automatically when one of the following was updated: scope, queue, enum value, ticket function, ticket engineer, supported locale, role.
  - Processed automatically if *No automatic commit of administrative changes* option is unchecked.
  - Using *Commit administrative changes* command will start all administrative changes tasks.
- Retry
  - Created automatically when error was encountered during index update process.
  - Holds information about entities which caused problems.

- Using *Repair index* command will start all retry tasks.
- Status E.g. RUNNING
- Created at
  - Time stamp when the task was created.
- Progress

A progress bar that indicates the percentage of the task that has already been executed.

• Details

A list of objects that are (re-)indexed in the task.

#### 35.2.6 Indexer and Index-Relevant System Properties

The following system properties are also relevant for the Indexer, see following figure. Please refer to Appendix C for a detailed explanation of the Indexer system properties and Appendix D - Important System Properties - ordered by area of application, Indexer.

Module: cmas-core-index-com	non	
Module	Property 🔺	Value
cmas-core-index-common	big.task.minimum.size	15
cmas-core-index-common	database.notification.enabled	false
cmas-core-index-common	database.notification.redelivery.delay.seconds	60
cmas-core-index-common	database.notification.redelivery.max.attempts	60
cmas-core-index-common	disable.admin.task.auto.commit	false
cmas-core-index-common	index.attachment	true
cmas-core-index-common	index.history	false
cmas-core-index-common	index.status	GREEN
cmas-core-index-common	index.task.worker.threads	1
cmas-core-index-common	index.version.current	3
cmas-core-index-common	index.version.newest	3
cmas-core-index-common	indexed.assets.per.thread.in.memory	200
cmas-core-index-common	indexed.engineers.per.thread.in.memory	300
cmas-core-index-common	indexed.tickets.per.thread.in.memory	100
cmas-core-index-common	indexed.units.per.thread.in.memory	200
cmas-core-index-common	synchronize.master.address	127.0.0.1:80
cmas-core-index-common	synchronize.master.security.token	9
cmas-core-index-common	synchronize.master.security.user	b556aa28-df54-11e4-96aa-bbf9dddd9c29
cmas-core-index-common	synchronize.master.timeout.minutes	5
cmas-core-index-common	synchronize.megabits.per.second	85
cmas-core-index-common	synchronize.sleep.millis	1000

Fig. 10: ConSol\*CM Admin Tool - System Properties for Indexer

#### 35.2.7 CM Indexer Services

For indexing, two ConSol\*CM services are important:

#### • Index changes notifier

Creates JMS (*Java Message Service*) messages with notifications that there has been one or more change(s) that concern(s) the index.

#### Index changes receiver

Reads JMS queue and starts update in Indexer.

Please see also section CM Services.

Stopping *index changes receiver* is safe. After restart it will pick up all of the missing changes from the persistent store.

Stopping *index changes notifier is NOT safe.* If the indexer module discovers that the *notifier* is stopped and there is a message that has to be sent to the persistent store, the indexer will set the index status configuration property to *RED* i.e. signal that the index needs a full synchronization.

#### 35.2.8 Systems with More Than One Indexing Server

In case ConSol\*CM is run in a cluster of application servers, each cluster node holds a local index in its *\${cmas.data}/index/* directory. The index gets updated on the (single) master server, which is then polled by all slave servers to update their copies. As a result all indexing servers are eventually consistent, i.e. updates are not visible right away, usually with a small delay.

## 35.3 Search Actions

- Introduction to Search Actions
- Configuring Search Actions Using the Admin Tool
  - Steps to Perform to Implement a Search Action for Tickets
  - Steps to Perform to Implement a Search Action for Resources
  - Steps to Perform to Implement a Search Action for Data Objects (= Units = Customers)
- Tips and Tricks for Search Action Admin Tool Scripts
  - Objects Implicitly Available for Search Action Admin Tool Scripts
  - The Result Set in Search Action Admin Tool Scripts
  - The Return Code in Search Action Admin Tool Scripts

### **35.3.1 Introduction to Search Actions**

It is possible to define actions on search results. These actions are presented like workflow activities for result lists of

- tickets
- data objects (= units, = customers)
- resources

Search (Result) Actions operate on the whole result set of a search. You can configure Search (Result) Actions to offer different bulk operations to the CM engineers, e.g. assigning all tickets in the result list to the current engineer (see following figure), sending a specific e-mail to all customers in the result list, or creating a new maintenance ticket for all PCs (resources) in the result list.

Search				Activities
earch criteria				Assign all those tickets to me
Status	Open tickets	• Î		Workspace
Please select v	irectCustomers (DirCu	unt(untomor)	Search DirectCustomers (DirCustCompany)	Workspace is empty All your unsaved tasks are automatically listed in this workspace.
		isicusiomer)	DirectCustomers (DirCustCompany)	(
View as: <u>List</u>	E Grid			Favorites
Search results (156)				HP Printer: 4712
I< < 1 2 3 4 5 6 7 ► ►			1 to 10 of 156	OpenTicketsAUSTR
Ø▼ <u>Enqineer</u>	Main Customer	Name	Subject	Service request
ServiceDesk, Susan	💄 maxi Musterfrau	100270	Kundenanfrage zu Vorgang ABC - bitte asap kontaktieren	
ServiceDesk, Susan	💄 Minnie Mouse	100259	Login in ERP-System not possible!	
ServiceDesk, Susan	💄 Mia Skydiver	2 100254	User cannot activate product key	
ServiceDesk, Susan	💄 Minnie Mouse	00255	SOP neu definieren?	
ServiceDesk, Susan	💄 Sepp Mosbauer	00257	Anfrage wegen Grundstück ABC	
ServiceDesk, Susan	💄 Dieter Macher	00262	Internet-Verbindung problematisch	
ServiceDesk, Susan	Smith, Jack	00261	Please send material	
ServiceDesk, Susan	Skywalker,Lea	100264	Rechnung #12345 prüfen	
ServiceDesk, Susan	Skywalker,Luke	100263	Question about Order #4711	
ServiceDesk, Susan	💄 Mia Skydiver	100245	Printer does not work	
4 4 1 <u>2 3 4 5 6 7</u>			1 to 10 of 156	

Fig. 1: ConSol\*CM Web Client - Search Actions for Tickets

A Search (Result) Action will be displayed in the Web Client only if

- the engineer has ACT permissions to all elements of the result set (if any)
- the condition-script has returned *true* (if such a script exists)

Each Search Action is implemented based on Admin Tool scripts of the following script types.

- Used for tickets:
  - Bulk ticket action
  - Bulk ticket condition
- Used for resources:
  - Bulk resource action
  - Bulk resource condition
- Used for customers:
  - Bulk data object action
  - Bulk data object condition

Iease note that the Search Action can be performed on

a) only the part of the result list which is displayed, e.g. on only 20 of 100 hits

OR

b) on the entire result list, e.g. on all 100 hits

The behavior of the Search Action depends on the implementation of the Admin Tool script. Please see the detailed explanation in section The Result Set in Search Action Admin Tool Scripts

#### 35.3.2 Configuring Search Actions Using the Admin Tool

Search Actions are defined in the Admin Tool. You have to perform two or three steps to implement a Search Action, depending on the type of the Search Action.

#### Steps to Perform to Implement a Search Action for Tickets

- Define and write the Admin Tool script
  - 1. mandatory: a script of type bulk ticket action (see following figure)
  - 2. optional: a script of type bulk ticket condition

CM6			S 🔤 🗧
A Home	*	Scripts & Templates Administration	
Access and Roles	۲	Scripts Template	
Eists	۲	Scripts	Source
Tickets	۲	All script types	// Assigne all ticket in the result list to the current engineer
Lustomers	۲	Name Type 🔻	import com.consol.cmas.core.server.service.action.PostActionType import com.consol.cmas.common.model.ticket.Ticket
ᢙ Resources	۲	MS_ExchangeCalendarIntegr Calendar integration	
Global Configuration	۲	SetMeAsEngineerInAlITickets Bulk ticket action	<pre>def engineer = engineerService.getCurrent(); tickets.each { ticket -&gt;</pre>
💮 Data Warehouse	۲	ConditionUpdateContactData Data object condition	ticket.setEngineer(engineer);
🔅 Services	۲	OfferCreateUnitPage Data object action GoToCompanyURL Data object action	<pre>}; return actionScriptResultFactory.getPostAction("success", "cmweb.search.ass</pre>
💟 E-Mail	۲	Load data Data object action	
🛟 System	۲	UpdateContactData Data object action Open report Data object action GoToAMTicketScript Data object action	
Scripts and Templates		CheckAndUpdateCompanySe Data object action OfferCreateTicketPage Data object action	
🝫 Import/Export		Do something interesting Data object action	
👷 License		tableWidgetOverview.groovy Page customization ticketsInViewDataWidget.gro Page customization	
💥 System Properties		ResourcePoolOverview1.gro Page customization test Task	
		MyFirstTaskScript Task	
		myNewTaskScript Task	
		CloneServiceTickets.groovy Clone	
		BuildLocationDependentEnum Dependent enum	
		BuildLocationDependentEnum Dependent enum setDefaultPrioMedium.groovy Default values	
		DefaultValuesServiceDesk.gr Default values	
		AppendToTicket.groovy E-mail	
	-		,
[CM_Administration]		J M	

Fig. 2: ConSol\*CM Admin Tool - Script for a Bulk Ticket Action

#### **Example script:**

```
// Assign all tickets in the result list to the current engineer
import com.consol.cmas.core.server.service.action.PostActionType
import com.consol.cmas.common.model.ticket.Ticket
def engineer = engineerService.getCurrent();
tickets.each { ticket ->
    ticket.setEngineer(engineer);
};
return actionScriptResultFactory.getPostAction("success", "cmweb.search.assigned").
withRefreshContent();
```

For a detailed explanation about how to write scripts for the ConSol\*CM Action Framework, please read section Scripts for the Action Framework.

- ConSol CM6 🗘 💽 🌖 Search Actions A Home Details Access and Roles 8 Ticket Search Action х Create ticket search action ۲ Lists Name Create ticket search actio Tickets ۲ i Please fill in the required fields Custom Fields 📋 History SetMeAsEngineerTicketSearchAction ۲ Name: Administration Condition Script: • Execution Script: SetMeAsEngineerInAllTickets.groovy -۲ Customers Description: Assigns all tickets in the result list to ۲ 8 Resources the engineer who is currently logged in Global Configuration 8 ⑦ Data Warehouse 8 Services 8 🗹 E-Mail ۲ Save Cancel O<sup>®</sup> System ۲ [CM\_Administration]
- Define the Search Action on the navigation item Search Actions, navigation group Tickets.

Fig. 3: ConSol\*CM Admin Tool - Defining a New Ticket Search Action

#### Steps to Perform to Implement a Search Action for Resources

- Define and write the Admin Tool script
  - 1. mandatory: a script of bulk resource action
  - 2. optional: a script of type bulk resource condition

Example script which sets the next maintenance date of all retrieved HP printers to a date in two weeks:



For a detailed explanation about how to write scripts for the ConSol\*CM Action Framework, please read section Scripts for the Action Framework.

- CM6 C 📄 \* Actions A Home Access and Roles ۲ Resource Type Action Administration Details ✓ All resource types ۲ E Lists Filter: All action types Name x Create resource action Tickets ۲ Name 4 Туре ۲ Create resource action Customers CreateTicketForPC\_DesktopAction Manual i Please fill in the required fields. ۲ Resources Data Models SetNextMaintenanceDate\_HP\_Printers ۲ Name: Relations Overview Type: Search Condition Script: Global Configuration ۲ Execution Script: SetNextMaintenanceDate HP Printers.groovy -⑦ Data Warehouse ۲ Description: Sets next maintenance date for all ۲ ۲ selected HP printers to a date in Services 2 weeks ۲ 💟 E-Mail ۲ 💕 System Save Cancel Scripts and Templates 🔖 Import/Export 👷 License X System Properties 0 0 [CM\_Administration]
- Define the Search Action on the navigation item Actions, navigation group Resources.

Fig. 4: ConSol\*CM Admin Tool - Definining a Resource Search (Result) Action

• Assign the action to one or more Resource Type(s), navigation item *Data Models*, navigation group *Resources*, tab *Search Actions* for each Resource Type.

ConSol CM6		Edit resource type	×
A Home	Data Models	1 Please edit the resource type data.	
▼ Access and Roles	Resource Groups and Types		
📃 Lists 🛛 🛞	Printers	Name: HP Printer	
Tickets	HP_Printer	Name: HP_Printer Description:	
Lustomers 😵			
ᢙ Resources 🛛 🛞	MS_Word2013_Fields		-
Data Models	E- ↑ PCs □- ↓ PC_Desktops	Mode: Internal	
Relations Overview	PC_Desktop_Fields_basic     PC_Laptops	Icon:	
Actions	PC_Laptops_Fields_tasic     Products	Templates Automatic Actions Manual Actions Search Actions	
🖨 Global Configuration 🛛 🛞	jackets	Assigned Available	
🕥 Data Warehouse 🛛 🛞		Name	
🔅 Services 🛛 😵		SetNextMaintenanceDate_HP_Printers	_
🗹 E-Mail 🛛 🛞	Assigned annotations		
🔗 System 🛞	Name Annotation group		
Scripts and Templates			
tmport/Export			
👷 License			
💥 System Properties		,,	
		Save	Cancel
-	J		
[CM_Administration]	F		

Fig. 5: ConSol\*CM Admin Tool - Assigning a Search Action to a Resource Type

• Check if it works in the Web Client.

Search Search					Activities Set next maintenance date in 2 weeks
Resource type Please select	HP_Printer Deactivated incl.	•	Search		Workspace Workspace is empty All your unsaved tasks are automatically listed in this workspace.
Partners (PartnersCompa	ny) Reseller (Resel	erCustomer)	Reseller (ResellerCompany	) Resources	
Search results (2)					Favorites
to value and the second secon	IP address	Location	Name	Next maintenace at	OpenTicketsAUSTR
4712	123.123.123.123	In my office	My new HP printer		OpenTicketsAUSTR
4711	192.168.123.123	top floor	Best Printer ever		Service request

Fig. 6: ConSol\*CM Web Client - Search (Result) Action on Resources, 1

	Action succeed				X		Activities
1	Search						Set next maintenance date in 2 weeks
	Search criteria						
		HP_Printer					Workspace
	Resource type Please select	Deactivated incl.	Y	Search			Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Partners (PartnersCompa	any) Reseller (Resell	orCustomor)	Reseller (ResellerCompany)	Resources		Favorites
	Parmers (Parmerscompa	iliy) Reseller (Resell	ercustomer)	Reseller (Reseller Company)	Resources	4	C HP printers
	Search results (2)						HP Printer: 4712
	Ø▼ Inventory number	IP address	Location	Name	Next maintenace at		OpenTicketsAUSTR
	4712	123.123.123.123	In my office	My new HP printer	8/14/15		
	4711	192.168.123.123	top floor	Best Printer ever	8/14/15		Service request
ų							

Fig. 7: ConSol\*CM Web Client - Search (Result) Action on Resources, 2

# Steps to Perform to Implement a Search Action for Data Objects (= Units = Customers)

- · Define and write the Admin Tool script
  - 1. mandatory: a script of resource bulk data object action
  - optional: a script of type bulk data object condition, in this example we will work with a condition script

Example action script which creates a ticket for each contact in the result list:

```
// For all contacts in the result set, a new ticket in the queue Service Desk will be created
import com.consol.cmas.core.server.service.action.PostActionType
import com.consol.cmas.common.model.ticket.Ticket
import com.consol.cmas.common.model.customfield.Unit
import com.consol.cmas.common.model.resource.*
import com.consol.cmas.common.service.resource.*
import com.consol.cmas.common.model.ticket.Queue
import com.consol.cmas.common.model.resource.meta.*
import com.consol.cmas.core.server.service.action.*
import groovy.time.TimeCategory
println 'Search Result Action Script CreateAnSDTicketForAllSelectedContacts STARTED ... '
// deadline is a required field in Service Desk tickets!
def now = new Date()
def deadline
use(TimeCategory) {
    deadline = now + 2.weeks
}
Queue qu = queueService.getByName("ServiceDesk")
units.each{ cont ->
   def cont_name = cont.customer_name
    println 'Customer name is now : ' + cont_name
    Ticket newtic = new Ticket()
   newtic.setOueue(qu)
   newtic.set("serviceDesk_fields.desiredDeadline", deadline)
   newtic.setSubject("New Ticket due to Search Result for customer" + cont_name)
   newtic.set("helpdesk_standard.priority","low")
   ticketService.createWithUnit(newtic,cont)
    println 'New Ticket created for customer ' + cont_name
}
return actionScriptResultFactory.getPostAction("success", "cmweb.search.assigned").
withRefreshContent();
```

```
    Please make sure that
    you only use Data Object Group Fields in the script which are present in the Customer Data Model of the customer group where the Search (Result) Action script will be used!
For example: To reference the name of a contact, the exact field name has to be used (customer_name in the example above)!
Hence, as a first step before implementing the Search (Result) Action script, you might want to check the Customer Data Model for the required fields.
    the customer group has been assigned to the queue where new tickets should be created.
```

Example condition script which let the Search (Result) Action only be displayed if the list has more than five entries.

```
if (units.size() >= 5){
    return true
} else {
    return false
}
```

For a detailed explanation about how to write scripts for the ConSol\*CM Action Framework, please read section Scripts for the Action Framework.

• Define the Search Action on the navigation item Actions, navigation group Customers.

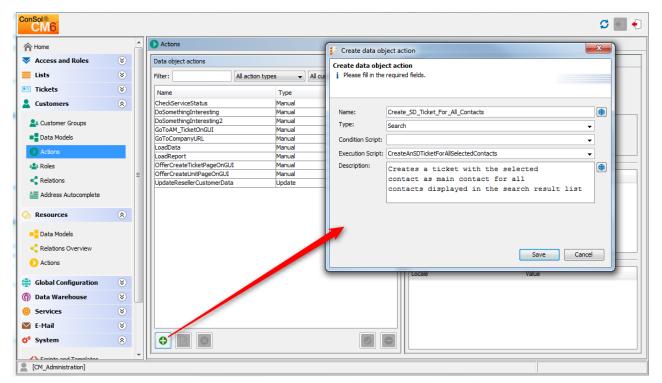


Fig. 8: ConSol\*CM Admin Tool - Definining a Unit Search (Result) Action

• Add the condition script.

ConSol CM6						🗲 📓 🌜
A Home	*	Actions	-		🚪 Edit data objec	t action
Access and Roles	*	Data object actions	] [	Edit data object action i Please edit data object action's data		
Lists	8	Filter: All action ty	rpes 👻 🖌 All custo			
Tickets     Customers	*	Name CheckServiceStatus	Type Manual		Name:	Create_SD_Ticket_For_All_Contacts
	~	Create_SD_Ticket_For_All_Contacts	Search		Type:	Search
Les Customer Groups		DoSomethingInteresting DoSomethingInteresting2	Manual Manual			DisplayResultListeGreaterThanFive.groovy
Data Models		GoToAM_TicketOnGUI	Manual			CreateAnSDTicketForAllSelectedContacts
Actions		GoToCompanyURL LoadData	Manual Manual		Description:	Creates a ticket with the selected
🏰 Roles		LoadReport	Manual			contact as main contact for all
Relations		OfferCreateTicketPageOnGUI OfferCreateUnitPageOnGUI	Manual Manual			contacts displayed in the search result list
Address Autocomplete		UpdateResellerCustomerData	Update			
le Resources	۲				1	
Global Configuration	۲					
⑦ Data Warehouse	۲			7		Save
🔅 Services	۲					
🗹 E-Mail	۲					Name Localizations
🕫 System	۲					Locale Value
Scripts and Templates						Englisch Create a Service Desk Ticket for all
s Import/Export						
R License						
System Properties						
	-			_		
CM_Administration]						

Fig. 9: ConSol\*CM Admin Tool - Defining a Search Script Condition

 Assign the action to one or more Customer Groups, navigation item *Customer Groups*, navigation group *Customers*, tab *Search Actions* for each Customer Group. assign the action(s) to the contacts ( *Contact Search Actions*) and/or the company/companies (*Company Search Actions*) of this customer group.

Note that the action and condition scripts are both offered in one table.

CM6 Admin-Tool @ cm6dol	ku-cm1.int	t.consol.de	Edit customer group
ConSol*			Edit customer group
A Home		Customer Groups	j Please edit the customer group data.
Access and Roles	۲	Customer groups	1
Eists	۲	Filter:	Name: Reseller
Tickets	۲	Name A	Customer data model: ResellerModel
Lustomers	۲	DirectCustomers	Automatic Actions Manual Actions Search Actions CMPhone
La Customer Groups		MyCustomerGroup OurPartnerCompanies	Contact Search Actions
Data Models		Reseller	Assigned Available
Actions			Name
Roles			Create_SD_Ticket_For_All_Contacts
Relations			
Address Autocomplete			
Resources	8		
Global Configuration	8		Company Search Actions
Data Warehouse	8		Assigned Available
🔅 Services	۲		Name
E-Mail	۲		Create_SD_Ticket_For_All_Contacts
💅 System	۲		
			Save
			Mobile pattern:
[CM_Administration]			

Fig. 10: ConSol\*CM Admin Tool - Assigning a Search Action to a Contact Object within a Customer Group

• Check if it works in the Web Client.

Search						Activities
earch criteria						Create a Service Desk Ticket for all displayed contacts
Keyword (Pattern)		1 Searc	:h			Workspace
	Deactivated incl.					Workspace is empty All your unsaved tasks are automatically listed in this workspace.
Tickets Reselle	er (ResellerCustomer)	Reseller (Reselle	rCompany)	Resources		
Search results (8)						Favorites
						HP printers
¢ ▼ Contact	customer name	forename	phone	ResellerCompany	vip_person	HP Printer: 4712
Wiederverkäufer,Walter	Wiederverkäufer	Walter		ConSol Düsseldorf 4711	no	
Docu,Katja	Docu	Katja		ConSol Düsseldorf 4711	no	OpenTicketsAUSTR
Skywalker,Luke	Skywalker	Luke	123	MyNewSpaceCompany 999	no	Service request
Consultant,Conrad	Consultant	Conrad	123	ConSol Düsseldorf 4711		
O Smith, Jack	Smith	Jack	58951	IBM 789	no	
Soellner, Manfred	Soellner	Manfred		ConSol* 4711		
Skywalker,Lea	Skywalker	Lea	123	TEST123 111	yes	
Sky Walker, Loa						

Fig. 11: ConSol\*CM Web Client - Search (Result) Action on Units (Here: Contacts), 1

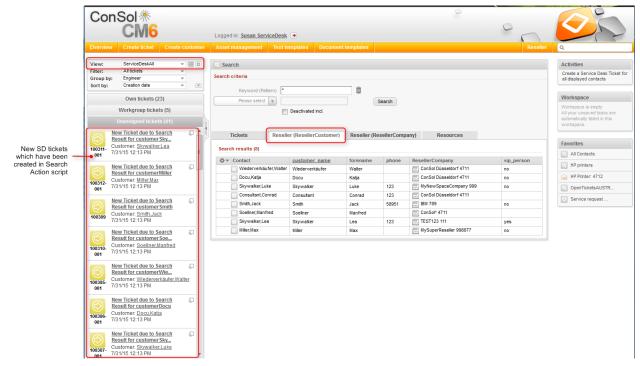


Fig. 12: ConSol\*CM Web Client - Search (Result) Action on Units (Here: Contacts), 2

Search						Workspace	No activities
earch criteria Keyword (Pattern)		<u> </u>				Workspace is empty All your unsaved tasks are automatically listed in this workspace.	offered because result list size smaller than fiv
Company_name	üsseldorf*		Search			Favorites	
	Deactivated incl.					All Contacts	
						HP printers	
Tickets Resel	ler (ResellerCustomer)	Reseller (Res	sellerCompan	y) Resources		HP Printer: 4712	
Search results (3)						OpenTicketsAUSTR	
Ø ▼ Contact	customer name	forename	phone	ResellerCompany	vip_person	Service request	
Wiederverkäufer,Walter		Walter	phone	ConSol Düsseldorf 4711	no		
Docu,Katja	Docu	Katja		ConSol Düsseldorf 4711	no		
Consultant,Conrad	Consultant	Conrad	123	ConSol Düsseldorf 4711			

Fig. 13: ConSol\*CM Web Client - Search (Result) Action on Units (Here: Contacts), 3

## 35.3.3 Tips and Tricks for Search Action Admin Tool Scripts

#### **Objects Implicitly Available for Search Action Admin Tool Scripts**

Some objects are implicitly available in the Admin Tool scripts, i.e. you do not have to import specific Groovy classes, neither do you have to instanciate the object from a class.

Objects which are implicitly (without further instanciation) in AT scripts:

All Search Action scripts

- pageSize (Integer)
- pageNumber (Integer)

Script types Bulk ticket action and Bulk ticket condition

- criteria (TicketCriteria)
- tickets (List<Ticket> for ticket Search Action)

Script types Bulk resource action and Bulk resource condition

- criteria (ResourceCriteria)
- resources (List<Resource> for resource Search Action)

Script types Bulk data object action and Bulk data object condition

- criteria (UnitCriteria)
- units (List<Unit> for unit Search Action)

#### The Result Set in Search Action Admin Tool Scripts

The Search Action can be performed on different interpretations of the result set. The behavior of the Search Action depends on the implementation of the Admin Tool script.

The Search Action can be performed on

a) only the part of the result list which is displayed in the Web Client, e.g. on only 20 of 100 hits. So this depends on the paging the engineer has selected.

In the Admin Tool script, this is represented by the list of objects which is implicitly available, i.e. *resources*, *tickets* or *units* 

OR

b) on the entire result list, e.g. on all 100 hits. This can be achieved by using the criteria object.

#### The Return Code in Search Action Admin Tool Scripts

Use the general feedback component to handle the two new PostActionTypes: SUCCESS and FAILURE.

- SUCCESS green
- FAILURE red

Example for a positive feedback:

```
return actionScriptResultFactory.getPostAction(PostActionType.SUCCESS, "cmweb.search.assigned").
withRefreshContent();
```

For a detailed explanation about how to write scripts for the ConSol\*CM Action Framework, please read section Scripts for the Action Framework.

Action	succeed		Activities
🔍 Sear	rch		Assign all those tickets to me
Search o	criteria		Workspace
	Engir Please select		Workspace is empty All your unsaved tasks are automatically listed in this workspace.
Т	lickets	DirectCustomers (DirCustCustomer) DirectCustomers (DirCustCompany)	Favorites
	View as: 📃 L	st 🔛 Grid	HP Printer: 4712
Search	h results (0)		OpenTicketsAUSTR
No sea	arch results		Service request

Fig. 14: ConSol\*CM Web Client - SUCCESS Message after Search (Result) Action

#### Example for a negative feedback:

<pre>return actionScriptResultFactory.getPostAction(PostActionType.FAILURE,</pre>	"cmweb.search.assigned").
withRefreshContent();	

For a detailed explanation about how to write scripts for the ConSol\*CM Action Framework, please read section Scripts for the Action Framework.

Action failed	Activities Assign all those tickets to me
Search criteria	Workspace
Engineer 'Service Desk, Sarah'	Workspace is empty All your unsaved tasks are automatically listed in this workspace.
Tickets DirectCustomers (DirCustCustomer) DirectCustomers (DirCustCompany)	Favorites
View as: List B Grid	HP Printer: 4712
Search results (0)	OpenTicketsAUSTR
No search results	Service request

Fig. 15: ConSol\*CM Web Client - FAILURE Message after Search (Result) Action

## 35.4 CSV Export of Search Results

- Introduction
- Activating the CSV Export Functionality

#### 35.4.1 Introduction

Starting with CM version 6.10.1, search result lists can be exported in csv format. This functionality is not activated by default but has to be activated using page customization.

In case the csv export is active in a CM system, the engineer can use the *Export table* option which is offered on search result pages for lists of

- tickets
- contacts
- companies
- resources

Search					
earch criteria					
Crea Please se	ation date after v 12/1/14	arch			
Tickets	DirectCustomers (DirCustCustomer) DirectCu	istomers (DirCustCo	ompany) 🗮 🗸		
View as:	List III Grid				
1 <u>2</u> <u>3</u> <u>4</u> <u>5</u>	×		1 to 10 of 48		
¢ ▼ Engineer	Main Customer	Name	Subject		
	🔝 maxi Musterfrau	100170	This is a useless test ticket		
Testen, Zum	🔝 Minnie Mouse	3 100176	Mailtest3		
	Manfred.Soellner@consol.de	3 100192	Testticket Mail		
	🚵 Max Mustermann	00171	Another useless test ticket		
Testen, Zum	Mr. Sample	100174	Mailtest2		
Testen, Zum	Soellner, Manfred	\$ 100173	Mailtest1		
	🔝 Minnie Mouse	00177	Mailtest4		
	🔝 Minnie Mouse	3 100178	mailtest5		
	Manfred.Soellner@consol.de	\$ 100184	test am morgen		
	Katja.Gutsche-Unrast@consol.de	\$ 100195	Test Sales Nummer 1		
<b>4 4 1</b> <u>2</u> <u>3</u> <u>4</u> <u>5</u>	H		1 to 10 of 48	csv-Export	
Number per page 1	0 -		Export Table  CSV Export Options W With Column Header Timestamp as File Name Configured limit of rows exceeded. Only the first 5 rows will be exported. Export	Activated using attribute enabled Number of rows configured with attribute exportRowsLimit	

Fig. 1: ConSol\*CM Web Client - CSV Export Option for a Ticket Search Result List

Available csv export options in the Web Client:

#### • With column header

This adds the column labels of the result table in the first lines as a content description.

#### • Timestamp as File Name

If this is selected, the preselected file name will be the current date and time instead of the standard name "export.csv".

Clicking on *Export* will automatically offer the option to open the newly created csv file with the standard application which is configured to open csv files on the client machine. In the file there will be no pagination, the result lines will be listed uninterrupted. Icons in the result display will be ignored. Custom field string values will be quoted by standard double quotes.

## 35.4.2 Activating the CSV Export Functionality

The csv export functionality has to be activated selectively for distinct search result pages and is activated based on page customization.

ConSol ∦						0		
CM6		Logged in: admin	•			C	0	
Overview Create ticket	Create customer	Asset managemen	t Text templates D	ocument templates	Enable page customiza	ation All c	ustomer groups	4
		_						
View: No view available	e 🔻 🔠 O	Search						Activities
Own tickets (	(0)	Search criteria						Assign all those tickets to me
List is empty		Creat	tion date after 💌 12/1	/14 🔟 🔟				Workspace
No tickets available		Please sel			Search			Workspace is empty
Workgroup ticke	ets (0)							All your unsaved tasks are automatically listed in this
Unassigned ticke	ets (0)							workspace.
-	<	Tickets	DirectCustomers (Dir	CustCustomer) Dire	tCustomers (DirCustC	company) 🔳 🔻		
		View as:	List 🔡 Grid					Favorites
		Search results (48	)					Favorites are empty Drag tickets, contacts, companies
		<b>1 4 1</b> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <b>▶</b>	ы				1 to 10 of 48	or searches into this space to
			Main Customer		Name	Subject		save them as favorites.
			💄 maxi Musterfrau		100170	This is a useless test ticket		
		Testen, Zum	💄 Minnie Mouse		<b>I00176</b>	Mailtest3		
			Manfred.Soellner@consol	lde	8 100192	Testticket Mail		
			Max Mustermann		00171	Another useless test ticket		
		Testen, Zum Testen, Zum	Mr. Sample Soellner,Manfred		100174	Mailtest2 Mailtest1		
		Testen, Zum	Minnie Mouse		00173	Mailtest4		
			Minnie Mouse		100178	mailtest5		
			Manfred.Soeliner@consol	lde	100184	test am morgen		
			Katja.Gutsche-Unrast@co	insol.de	100195	Test Sales Nummer 1		
		∢ ∢ 1 <u>2</u> 3 4 5 ▶	H				1 to 10 of 48	
		Number per page 1	0 🔻					
4								
Customization of data tabl	le export, context={}							searchDetailPage
Attribute name		Description			Value			eralFeedback
enabled	Enable/Disable expo	ort.		true	(boolean) (+) (-)	_		searchDetailPage ilSearch
exportRowsLimit	May limit of over-the	d rows (0 = no limit).		0	(int) (+) (-)	E		searchDetailPage
	max infinit or exporter	u rows (u = no ilmit).		U	(inc) (+) (-)		- 🚠 table	
Create Reset						-		searchDetailPage
4								

Fig. 2: ConSol\*CM Web Client - Page Customization to Activate CSV Export for Ticket Search Result Lists

Use the following sub-scopes:

- for ticket search results (see figure above) table/searchDetailPage/TicketSearchResults
- for contact search results table/searchDetailPage/<Customer Group name> This has to be defined for each customer group!
- for company search results table/searchDetailPage/<Customer Group name> This has to be defined for each customer group!
- for resource search results table/searchDetailPage/ResourceSearchResults
- Please note that you have to execute a search first to present a result table. Unless you have at least once produced a result table, the *table* scope will not be available in the page customization tree.

The following attributes are available:

• enabled

Enable/Disable csv export functionality for this search result page, Boolean. Default is false.

• exportRowsLimit Maximum number of rows to export in the csv export. 0 means no limit. Default value is 0.

# 36 The Task Execution Framework (TEF)

- Introduction
- Admin Tool Scripts of Type Task
  - Introduction to Admin Tool Scripts of Type Task
  - Example Admin Tool Script of Type Task
  - Execution of a Task Using the Admin Tool
- Programming with Tasks
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  - Coding Examples
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    - Repeating a Task
    - Defining the (First) Execution Date
    - Repeating a Task after an Error Occurred
    - Working with the ContextReference
  - Examples for the Use of Task Scripts
    - Example 1: Using a Simple Task Script
    - Example 2: Working with the ContextReference, Simple Example with Log Output
- System Properties Relevant for the TEF

## 36.1 Introduction

Using the *Task Execution Framework* (TEF), ConSol\*CM can perform various tasks which are not directly tied to or embedded in another script (like a workflow script, unit action, resource action, search action or another type of Admin Tool script) and which can be executed asynchronously. This can be used, e.g., for long-term system tasks which might cause a timeout when started within a regular CM script. The TEF tasks can be executed in an asynchronous manner. A new API has been added to ConSol\*CM (in version 6.9.4.0) in order to provide the TEF extensions. TEF scripts can be started (i.e. the TEF API is available in):

- manually in the Admin Tool
- · from workflow activity scripts
- from e-mail scripts
- from unit action scripts

A task is stored as Admin Tool Script of type *Task*. This script type is explained in the respective section below.

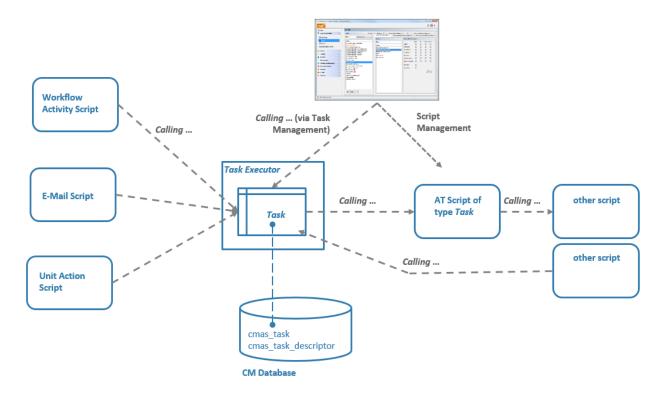


Fig. 1: ConSol\*CM Task Execution Framework

The **Task Executor** is a ConSol\*CM module (a singleton with watchdog functionalities) which controls the execution of the tasks. The Task Executor scans the database for new scheduled tasks and uses its thread pool for the execution of the tasks which have to be executed at a certain point of time.

The **task definition** is stored in an Admin Tool script. Thus, for one task definition, usually one Admin Tool script is used.

A (scheduled) task, i.e. one single run of the task, can be started ...

- using the Admin Tool, navigation item *Task execution*, see section Task Execution Using the Admin Tool. Here, a task can be started immediately, it can not be scheduled for another point in time.
- implementing the calling of the task script in another script of one of the following types. Here, a script can be executed immediately or can be scheduled for a later point in time.
  - workflow activity scripts
  - e-mail scripts
  - action scripts (as part of the Action Framework, i.e. in unit action scripts, resource action scripts or search action scripts)

In scripts, for every execution of a task, a **task descriptor**, i.e. an object of the class *TaskDescriptor*, is available. This task descriptor provides information like the task's progress or the start time of the task execution. Using the task descriptor, a newly defined task can be executed immediately or can be scheduled for a later execution time. This can be applied in scripts. Please see section Programming with Tasks for programming details.

## 36.2 Admin Tool Scripts of Type Task

#### 36.2.1 Introduction to Admin Tool Scripts of Type Task

Every Admin Tool script of type Task has to implement the following methods. The method signatures are provided when the script is created initially.

```
Methods in Admin Tool Script of Type Task
def onInitialize(taskDescriptor) {}
def onExecute(taskDescriptor) {}
def onError(taskDescriptor) {}
def onCancel(taskDescriptor) {}
```

#### 36.2.2 Example Admin Tool Script of Type Task

```
Example Admin Tool Script of Type task
//Test
def onInitialize(taskDescriptor) {
    log.info("MyFirstTaskScript has been initialized!")
}
def onExecute(taskDescriptor) {
   log.info("MyFirstTaskScript is executed")
   try {
       Thread.Sleep(300000)
    } catch (Exception ex) {
       log.info("ztztzt ...")
    }
}
def onError(taskDescriptor) {
   log.info("MyFirstTaskScript has thrown an error!")
}
def onCancel(taskDescriptor) {
    log.info("MyFirstTaskScript has been cancelled!")
}
```

#### 36.2.3 Execution of a Task Using the Admin Tool

In the Admin Tool, navigation group *Services*, navigation item *Task Execution*, you can start tasks which have been defined as Admin Tool scripts before.

To be able to execute tasks, the system property *start.groovy.task.enabled* in module *cmas-app-admin-tool* has to be set to the value *true*. This property is not present in a default installation and has to be added manually.

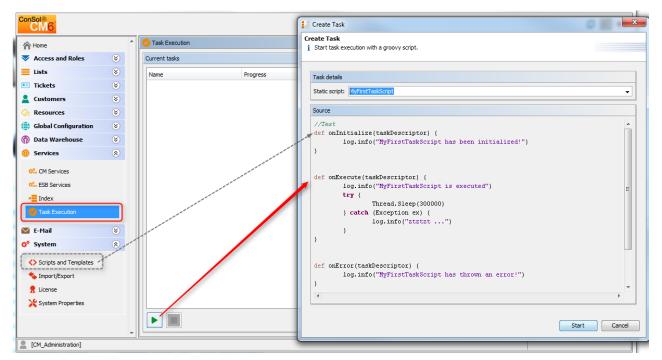


Fig. 2: ConSol\*CM Admin Tool - Admin Tool Task

To start a script, click on the *Start* button and select the name of the Admin Tool script from the drop-down menu *Static script*. All Admin Tool scripts of type *Task* will be listed here. Click on *Start* and the script will be executed immediately. It is not possible to schedule a task using the Admin Tool GUI. If the start should be delayed, this has to be implemented within the script, see the explanation below.

When a task is running, a progress bar is shown. You can stop (cancel) the task using the Stop button.

ConSol CM6								🗘 💽 🌖
A Home		^	Sask Execution					
Access and Roles	۲		Current tasks					
Eists	۲		Name	Progress	Scheduled Date	Execution Date	Status	
Tickets	۲		MyFirstTaskScript	0%	Jul 21, 2015	Jul 21, 2015	Initialized	
2 Customers	۲							
lesources	۲							
Global Configuration	۲							
⑦ Data Warehouse	۲							
🔅 Services	۲							
🔅 CM Services								
o ESB Services								
- Index								
Cask Execution								
💟 E-Mail	۲							
🛟 System	۲							
Scripts and Templates								
🝫 Import/Export								
👷 License								
💥 System Properties								
		-						
[CM_Administration]								

Fig. 3: ConSol\*CM Admin Tool - Running Task in the Admin Tool

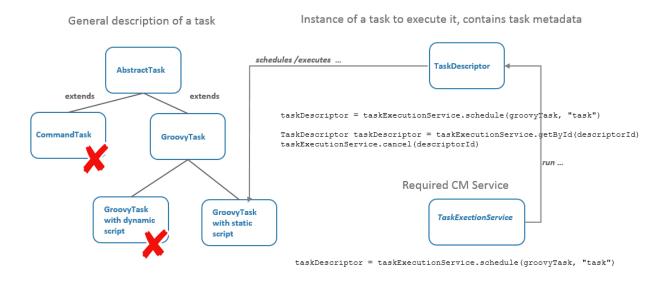
## **36.3 Programming with Tasks**

#### 36.3.1 Introduction

As of CM version 6.9.4, one type of tasks is available, the **Groovy Task with a static script**. This refers to the Admin Tool script which defines the task, see sections above.

The **Task Execution Service** (Groovy class TaskExecutionService, a singleton) runs in the background and scans the CM database for tasks (DB table cmas\_task\_descriptor) with the status INITIALIZED. Like all CM services it is implicitly available as object named *taskExecutionService* (see following examples). When the start date of the task has been reached, the task is started.

All parameters for the new task have to be set using the **task descriptor** (Groovy class TaskDescriptor), e. g. the start date of the task. The task descriptor will also provide information about the running task, like the task's progress.



GroovyTask groovyTask = new GroovyTask()
groovyTask.setStaticScript(scriptSourceService.getByName("someATScript.groovy"))

Fig. 4: Some TEF Groovy Classes

#### 36.3.2 Coding Examples

#### **Creating a Task**

```
Example for creating a task descriptor
GroovyTask groovyTask = new GroovyTask();
groovyTask.setStaticScript(scriptSourceService.getByName("someATScript.groovy"));
taskDescriptor = taskExecutionService.schedule(groovyTask, "task");
```

#### Canceling (Killing) a Task

Part 1: Create the task descriptor and save the Id somewhere.

```
Example for cancelling a task
GroovyTask groovyTask = new GroovyTask();
groovyTask.setStaticScript(scriptSourceService.getByName("someATScript.groovy"));
```

```
taskDescriptor = taskExecutionService.schedule(groovyTask, "task");
def myTaskDescriptorId = groovyTask.getId()
//save this Id wherever it will be needed, e.g. in a different script which might be used to
kill the task
```

Part 2, maybe also used at a later point of time:

```
Cancelling a task
taskExecutionService.cancel(myTaskDescriptorId)
```

#### **Repeating a Task**

If you set another execution date for a task after its job has been done, it will be rescheduled. So this code has to be used within the Admin Tool Task script.

```
def onError(taskDescriptor) {}
def onCancel(taskDescriptor) {}
```

#### **Defining the (First) Execution Date**

For a script which should not be started immediately, you can define a start time in the onlnitialize() method.

```
(Pre-) Scheduling a task
def onInitialize(taskDescriptor) {
   taskDescriptor.setExecutionDate(yourDate)
}
```

#### Repeating a Task after an Error Occurred

```
Repeating a Task after an error occured
def onInitialize(taskDescriptor) {}
def onExecute(taskDescriptor) {}
def onError(taskDescriptor) {
   return new ExecutionSpecification().setRetryRequested(true);
// this will reschedule the task for immediate re-execution, in case a future date is needed,
this can be set as explained in the example above
def onCancel(taskDescriptor) {}
```

#### Working with the ContextReference

Using the *ContextReference*, it is possible to see in which context a script has been called. For example, when a TEF-script is called from a workflow script in a certain activity and again in the process from another activity, it might be required to react differently. In this case, the *ContextReference* will help you to deduce from which workflow script the TEF-script has been called. You just set a different *ContextReference*, which is a simple string as identifier, in each workflow script. Then you can retrieve the *ContextReference* within the task. Thus the task *knows* from where it has been called.

Use the methods

- void GroovyTask.setContextReference(String ContRef)
- String TaskDescriptor.getContextReference()

See also example #2 below.

### 36.3.3 Examples for the Use of Task Scripts

#### Example 1: Using a Simple Task Script

In this example, a task script will be executed from a workflow activity. No delay is set, i.e. the task is scheduled to be executed immediately when the engineer executes the workflow activity using the Web Client. The script might then run in the background and the engineer will only see the results (like new ticket entries or new customer data) when the script is finished. The engineer does not have to do anything in between.

Ticket			Edit	Clone	Print	Workflow activities
	Printer still d	es not work				Ticket in progress
$\mathbf{O}^{\circ}$	ServiceDesk   Work		Put ticket on hold			
100313		eDesk, Susan   Open since 11/11/14 2:30 P	М			Display List
	*	Module Web Client sk for feedback no				Display Customer Data
		adline 11/18/14 12:00 AM				Clone ticket
	This is a clone of ticket # 100245 Continent Europe					Add RESELLER-END CUSTOMER relation
	Request Type Re	quest Type				Create task (hand-over products
	Co	omplaint				list)
						Acknowledge: E-Mail has been
	Groups Edit A ExecuteMvTask				ExecuteMyTask	
	Conversations/Meetings Orders Open Customer Tickets on Create Date					

Fig. 5: ConSol\*CM Web Client - Workflow Activity for Task Execution



Fig. 6: ConSol\*CM Process Designer - Workflow Activity for Task Execution

```
Workflow activity script for task execution
def myNewTask = new GroovyTask()
myNewTask.setStaticScript(scriptSourceService.getByName("MyFirstTaskScript"))
def myTaskDescriptor = taskExecutionService.schedule(myNewTask, "myTaskGroup")
myTaskDescriptor.setExecutionDate(new Date())
Log output from workflow activity script for task execution
2015-02-20 11:54:24,742 INFO [rver.service.task.TaskExecutor] [task-executor-task-executor:10.0
.6.200:0-] Task Executor task-executor:10.0.6.200:0 is executing task: TaskDesc-02-20 11:54:19.0
, transactionTimeout (sec)=0, type=class com.consol.cmas.common.model.task.GroovyTask}
2015-02-20 11:54:24,747 INFO [ database_MyFirstTaskScript] [task-executor-task-executor:10.0
.6.200:0-] MyFirstTaskScript is executed
2015-02-20 11:54:24,747 INFO [ database_MyFirstTaskScript] [task-executor-task-executor:10.0
.6.200:0-] ztztzt ...
```

```
2015-02-20 11:54:24,748 INFO [rver.service.task.TaskExecutor] [task-executor-task-executor:10.0
.6.200:0-] Task execution successful removing task : TaskDescriptor{group='myT,
transactionTimeout (sec)=0, type=class com.consol.cmas.common.model.task.GroovyTask}
```

# Example 2: Working with the ContextReference, Simple Example with Log Output

The Task script (Admin Tool script of type *Task*) will display the ContextReference from which it has been called.

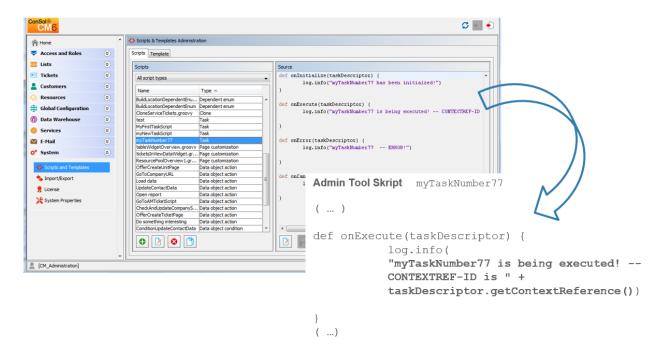


Fig. 7: ConSol\*CM Admin Tool - Admin Tool Script for a TEF Task

In different workflow activities, different ContextReferences as identifiers are set. When the TEF script is called, it will always display (in the log output) the ContextReference specifically for the calling workflow activity.

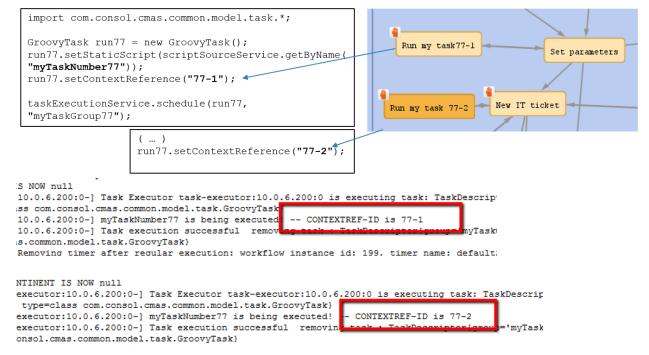


Fig. 8: Workflow Activities and Log Output When One of the Activities Has Called the TEF Script

# **36.4 System Properties Relevant for the TEF**

Module	Parameter	Default Value	Description
cmas-app-admin- tool	start.groovy.task. enabled	false	Enables the "start task" button in AdminTool
cmas-core-server	transaction. timeout.minutes	60	Sets the transaction timeout for the task execution service, i.e. one run of a task must finish before this timeout is reached
cmas-core-server	number.of.tasks	1	Thread pool size, i.e. number of tasks executed in parallel
cmas-core-server	task.execution. interval.seconds	5	Time to wait between execution of two tasks

# **37 ConSol CM Administrator Manual 6.10.2 - E-**Mail Configuration

# **37.1 E-Mail Configuration**

ConSol\*CM includes a sophisticated e-mail interface. CM fetches e-mails from one or more mail servers and can send e-mails. Incoming as well as outgoing e-mails are included in the respective tickets, hence you always have access to the complete information about one case.

Basic CM e-mail functionalities are explained in the following sections:

- E-Mail
- E-Mail Backups

In case your company want to work with e-mail encryption, you can employ server and/or client certificates, see section:

• E-Mail Encryption

## 37.2 E-Mail

- Introduction to E-Mails in ConSol\*CM
  - Sending E-Mails from ConSol\*CM
    - Manual E-Mails
    - Automatic E-Mails
  - Receiving E-Mails with ConSol\*CM
- E-Mail Configuration Using the Admin Tool
  - General E-Mail Configuration (Navigation Item E-Mail)
    - Administration
    - Incoming E-Mail
    - Outgoing E-Mail
  - E-Mail Modes: ESB/Mule Mail or NIMH
    - E-Mail Configuration Using ESB/Mule Mail
    - E-Mail Configuration Using NIMH
    - Switching from ESB/Mule Mail to NIMH
    - Running NIMH in a Clustered Environment
- E-Mail Duplication in the ConSol\*CM Web Client

In this section, the navigation item *E-mail* in navigation group *E-Mail* in the Admin Tool will be explained. Furthermore, the e-mail-related system properties and the configuration for e-mail duplication will be shown.

## 37.2.1 Introduction to E-Mails in ConSol\*CM

Before we explain the administration of e-mail accounts using the ConSol\*CM Admin Tool, we will give you a short introduction on the subject *e-mail with ConSol\*CM*, because this represents a core functionality of the application. ConSol\*CM can send and receive e-mails.

#### Sending E-Mails from ConSol\*CM

#### Manual E-Mails

E-mails can be sent manually by an engineer or automatically by the system. *Manual* e-mails are sent using the *Ticket E-Mail Editor*. In most systems, as default, the ticket's main customer is the receiver of the e-mail, but the engineer can select or type any other e-mail address. The system-wide default value can be changed by an administrator using Page Customization, using the attribute mailToselection in the Page Customization section. Furthermore, the engineer can use e-mail templates and/or quote ticket text. Please see the *ConSol\*CM User Manual* for a detailed introduction about working with the Ticket E-Mail Editor.

Comment E-Mail Attachment Time booking
Display communication V Sorting latest first V
Comment E-Mail Attachment Time booking
New E-mail
show Cc  show Bcc
To: "Martin Huber" <martin.huber@devnull.consol.de></martin.huber@devnull.consol.de>
Subject: Ticket (SUP-58) Exception during import data
Template Signatur standard 🔻
Quote Select entries   Entries visible to the customer
B I U S   ≣ ≡ ≡ ■   DIV (default) ▼ Font Family ▼ Font Size ▼ A ▼ _ ▼
x² x₂   Ξ Ξ   ∉ ∉   🗹 🖽 📟 Ψ 🗁 🖓 🐜 🔩 🔐 📟   Ω 🥥 風
Best regards,  Chady Chef -Chef- ConSol* Software GmbH Franziskanerstraße 38 81669 München Tel: 089 / 45841-1234 / Fax: -111
Send Cancel

Fig. 1: ConSol\*CM Web Client - Ticket E-Mail Editor

#### **Automatic E-Mails**

Automatic e-mails might be sent by ConSol\*CM in situations like the following:

- 1. Initiated by the workflow engine, e.g.
  - a. when the engineer to whom the ticket is assigned should be reminded to take care of the ticket.
  - b. when the customer should receive an automatic confirmation that a ticket has been opened for him/her.
  - c. when the customer should receive an automatic confirmation that his/her ticket has been closed.

d. when a supervisor or approver should receive a message that a new case has to be approved. In any workflow activity, an e-mail can be sent to every valid e-mail address. Please see the *ConSol\*CM Process Designer Manual* for a detailed explanation of the methods to use.

- 2. Initiated by the system in case of an error or for a success message, e.g.
  - a. system error
  - b. e-mail error
  - c. DWH synchronization (error or success)
     Usually, those e-mails are sent to the ConSol\*CM administrator. However, for most special error cases a special receiver e-mail address can be configured using system properties.
     Please see section Appendix C (System Properties) for details.
- 3. Initiated by the CM system to remind engineers

 a. When an engineer receives a ticket or a ticket is retrieved from the engineer, an e-mail can be sent to this engineer. This can be configured for every queue, see section Queue Administration.

#### **Receiving E-Mails with ConSol\*CM**

The ConSol\*CM system can fetch e-mails from one or more mailboxes (= e-mail accounts) on one or more e-mail server(s). The mailboxes are configured in the Admin Tool (E-mail configuration). Please keep in mind that ConSol\*CM works with mailboxes here. Each of the mailboxes can be reached by at least one e-mail address. In certain cases, one mailbox might be used for more than one e-mail address. This can be of importance for writing e-mail scripts.

ConSol\*CM acts towards the e-mail server like a regular e-mail client by fetching the e-mails using a standard mail protocol: IMAP(s), POP3(s). Depending on the mail server configuration and on the ConSol\*CM system property *cmas-esb-mail, mail.delete.read*, the e-mails are deleted from the mailbox on the e-mail server after ConSol\*CM has picked them up. The default setting is *mails are not deleted after pick-up*.

In case you do not want ConSol\*CM to delete e-mails from the e-mail server, please make sure to control the mailbox(es) manually to avoid a data overflow and server or performance problems.

All incoming e-mails are first stored in an incoming mail pool in ConSol\*CM and are then processed in a chain of mail scripts. Please see section E-Mail Scripts for a detailed explanation of those scripts. When an e-mail cannot be processed, the administrator will receive a notification e-mail. The unprocessed e-mail is listed under E-mail Backups.

There are different possibilities concerning the default system behavior concerning an incoming e-mail:

- The subject of the e-mail does not contain any ticket number with a valid syntax (i.e. it does not contain the pattern which is defined as regular expression (RegEx) for the ticket subject): A new ticket is created.
- The subject of the e-mail does contain a ticket number with a valid syntax (RegEx) and the ticket is still open:
- The e-mail is attached to the existing ticket.
- The subject of the e-mail does contain a ticket number with a valid syntax (RegEx), but the ticket is closed:

A new ticket is created and a reference to the old ticket is established.

By modifying the e-mail scripts (see section E-Mail Scripts), the default system behavior can be changed. However, this can corrupt core functionalities of the system and should not be done or only done by very experienced ConSol\* consultants!

## **37.2.2 E-Mail Configuration Using the Admin Tool**

#### IMPORTANT INFORMATION

Since ConSol\*CM version 6.9.4, there are two modes to receive incoming e-mails:

- ESB/Mule this has also been available in all previous CM versions
- NIMH (New Incoming Mail Handler) new in version 6.9.4

For all configurations/settings which are valid for both modes, no further notes are added. For all settings which vary depending on the mode, this will be explained in separate (i.e. ESB/Mule or NIMH specific) sections.

## **General E-Mail Configuration (Navigation Item E-Mail)**

In this navigation item you can set parameters for the e-mail connection.

ConSol® CM6		S 📰 🗧	1
Home	*	💌 E-mai	E-mail address
Access and Roles	۲	Administration	for general error messages
E Lists	۲	Admin e-mail: myadmin@consol.de	
Tickets	۲	Incoming e-mail	Mail accounts (not
Lustomers	۲		mail addresses!) on one or more
ᢙ Resources	۲	Configured accounts	mail servers
🖨 Global Configuration	۲	imap://cmdoku5.consol@imap.consol.de:143 imap://cmdoku6:consol@imap.consol.de:143	where CM will
⑦ Data Warehouse	۲		fetch e-mails
🔅 Services	۲		
E-Mail	۲		Add Edit
E-mail			Delete
Server Certificates			an account
Client Certificates			from the CM
E-mail Backups			list
E-mail backups			Configuration of
💠 System	۲	Incoming e-mail subject pattern: .*?Ticket\s+\((\S+)\).*	RegEx pattern for
		Outgoing e mail subject template: Ticket (\${ticketName}) Edit	recognition of existing tickets
		Maximum number of restarts: 3	
		Error e-mail address: cmdoku-mvadmin@consol.de	Number of
			restarts/retries after an error with
		Outgoing e-mail	mail delivery
		Outgoing e-mail connector: smtp://mail.consol.de:2525	
	*		E-mail address for
CM_Administration]			e-mail-related
			error messages

Address of outgoing mail server

Fig. 2: ConSol\*CM Admin Tool - E-Mail

#### Administration

#### Admin e-mail:

Enter the e-mail address which shall receive general messages or warnings from the system. Multiple addresses separated by commas are possible, the total number of characters should not exceed 72. If there are many recipients we recommend using a mailing list on the mail server system.

#### **Incoming E-Mail**

The configuration of incoming e-mail is divided into two areas:

#### • Configured accounts:

Here you can use a pop-up window to add or edit accounts from which e-mails are retrieved. The connection to the mailbox is checked during set-up, so it is not possible to configure an account that cannot be used when the system is in operation (provided the mail server has not changed etc.). The value(s) are saved as system property *cmas-esb-mail, mail.incoming.uri*. Please see the e-mail properties section in Appendix C for detailed information. Required values are:

Protocol

The protocol used to retrieve e-mails from the server. Supported protocols are IMAP4, IMAP4s, POP3, and POP3s. Please keep in mind that ConSol\*CM acts towards the e-mail server like a regular e-mail client. When the secure protocol version is used, the corresponding certificate is required! This has to be stored in the security store of the application server.

Server

The name or IP address of the e-mail server.

• Port

The port on the e-mail server where the mail daemon/service is listening.

User name

The user name of the e-mail account.

Password

The password of the e-mail account.

#### Attention:

Please keep in mind that one e-mail account can have more than one e-mail address. So here, you are dealing with the account name, i.e. with the mailbox. When you edit the Admin Tool script(s) that process the incoming e-mails, it might be required to use the e-mail address. The e-mail address is also required when you configure the REPLY-TO-address, the FROM-address, and queue-specific e-mail addresses! So be sure to use the correct parameter: mailbox or e-mail address!

#### • Configuration:

#### • Incoming e-mail subject pattern:

Describes the elements that the subject of an incoming e-mail has to contain in order to assign

this e-mail to a certain ticket. The pattern is defined in form of a regular expression (RegEx). **Example:** *.* \*?*Ticket\s+\((\S+)\).* \*would match every subject line that contains *Ticket* (*<Ticketnumber>*).

#### • Outgoing e-mail subject template:

Describes the pattern which is used to create the ticket ID in the subject of an outgoing e-mail. The template should be matched by the incoming e-mail subject pattern. Via the *Edit* button on the right you can modify the incoming e-mail subject pattern and outgoing e-mail subject template and verify if they match.

**Example:** *Ticket (\${ticketName})* would match the example RegEx above.

#### Attention:

You can check if the pattern for the incoming e-mail subject pattern and for the outgoing e-mail subject template match by using the *Edit* button and the editor that is opened. Please make sure that the e-mail subject has been set correctly at **all** locations, e.g. also in all workflow scripts and Admin Tool scripts!

#### Maximum number of restarts:

Shows the maximum number of restarts after an error when ConSol\*CM fetches e-mails. Valid for all e-mail pollers.

• Error e-mail address:

E-mail address to which messages and warnings of the mail sub-system are sent. This is usually the same as the general administrator address.

For the configuration of incoming e-mail you might also want to check the e-mail-related system properties, see Appendix C (System Properties). Particularly, the polling interval (the time interval for fetching e-mails from the mail server, system property *cmas-esb-mail, mail.polling.interval*) might be of interest.

#### **Outgoing E-Mail**

The connection data for outgoing e-mails are set here:

Outgoing e-mail connector

Use the following format:

smtp://<IP address of mail server>:<port>

#### Example with standard port:

smtp://10.0.1.151:25

#### Example for SMTP servers with authentication:

smtp://test%40consol.com:ConSol12345@123.123.123.123

If a username and password have to be provided, the '@' has to be coded as %40. For the example, the following parameters have been used: protocol: SMTP Username: test Password: ConSol12345 Host/Mailserver: 123.123.123.123 Port: 25

## E-Mail Modes: ESB/Mule Mail or NIMH

Starting with version 6.9.4, there are two modules for the retrieval of incoming e-mails:

• ESB/Mule Mail

Which has been available since the start of ConSol\*CM version 6.

• NIMH

The New Incoming Mail Handler, which is a new module since version 6.9.4. This will be the only available incoming e-mail module in future CM versions.

In the current CM version, you as an administrator can decide which module to use: you can run CM in ESB /Mule mode **or** in NIMH mode. ESB/Mule and NIMH use different system settings which are stored as system properties. They are explained in the following two sections. The "switch" which changes the incoming e-mail mode is the system property *cmas-core-server*, *nimh.enabled* which can be set to *true* or *false*.

The sending of e-mails, i.e. the SMTP server configuration is not influenced by the incoming e-mail mode.

#### E-Mail Configuration Using ESB/Mule Mail

Mule is the internal ESB (Enterprise Service Bus) which is - besides other functions - used to retrieve incoming e-mails.

When ESB/Mule Mail is enabled, the following mechanisms apply:

- ESB/Mule Mail runs as services, see sections CM Services and ESB Services.
- E-mails are retrieved from the configured mailboxes.
- It is not possible to retrieve e-mails from the file system.
- E-mails which could not be processed are stored in a separate directory (*unparsable*) in the main ConSol\*CM data directory and can be re-sent to the CM system, see section E-Mail Backups, ESB /Mule Mail.
- ESB/Mule Mail system properties have to be set. Please keep in mind that you can set most of the properties using the graphical user interface of the Admin Tool, navigation item *E-Mail* (see sections above).

The following figure provides an example of ESB/Mule Mail-related system properties. Please also refer to the detailed explanation of ESB/Mule Mail system properties in the System Properties Section in Appendix D (Important System Properties, Ordered by Area of Application)

mail.cluster.node.id
mail.db.archive
mail.delete.read
mail.incoming.uri
mail.max.restarts
mail.mime.strict
mail.mule.service
mail.polling.interval
mail.process.error
mail.process.retry.attempts
mail.process.timeout
mail.redelivery.retry.count

Fig. 3: ESB/Mule Mail System Properties

#### **E-Mail Configuration Using NIMH**

NIMH, the *New Incoming Mail Handler*, is a proprietary module of ConSol\*CM.The following picture provides an overview of all components.

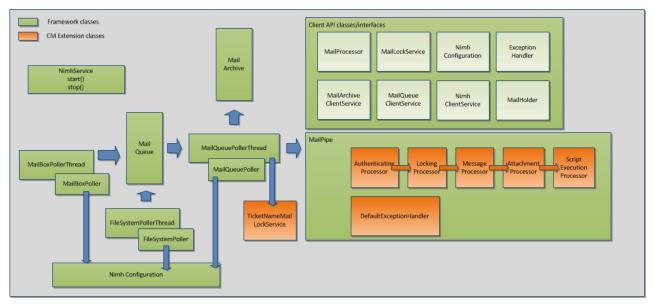


Fig. 4: NIMH Components

When NIMH is enabled, the following mechanisms apply:

- NIMH runs as a (single) CM service, see section CM Services. When NIMH is active, the ESB/Mule Mail services are disabled.
- E-mails from mailboxes on a mail server are retrieved by CM using the MailBoxPoller.
- E-mails can also be fetched from a data directory using the FileSystemPoller.
- All CM e-mails are stored in the CM database (nothing is stored in the file system).
- The MailQueuePoller retrieves the e-mails from the database and forwards them to the core CM system where the mail runs through the e-Mail script pipeline.
- NIMH uses e-mail scripts very similar to the ones used by ESB/Mule Mail, see section Admin Tool Scripts, Scripts of type e-mail (NIMH).
- E-mails which could not be processed are stored in a separate database table and can be re-sent to the CM system, see section E-Mail Backups, NIMH.

- NIMH-specific system properties are used (they are added automatically to the system configuration during an update to version 6.9.4 and up):
  - General NIMH properties
  - Default mailbox properties which are used when the property is not set as mailbox-specific property
  - Mailbox-specific properties for each mailbox which has to be retrieved
  - FileSystemPoller properties
  - MailQueuePoller properties

The following figure provides an example of NIMH properties. Please also refer to the detailed explanation of NIMH system properties in the system properties section in Appendix D (Important System Properties, Ordered by Area of Application).

#### **NIMH System Properties** nimh.enabled true mailbox.1.connection.host mailbox.1.connection.password Customer-specific mailbox #1 mailbox.1.connection.port mailbox.1.connection.protocol mailbox.1.connection.username mailbox.2.connection.host Customer-specific mailbox #2 mailbox.2.connection.password mailbox.2.connection.port mailbox.2.connection.protocol mailbox.2.connection.username mailbox.default.connection.host Default values, are used when no mailbox.default.connection.password mailbox.default.connection.port mailbox-specific equivalent is set mailbox.default.connection.protocol mailbox.default.connection.username mailbox.default.session.mail.debug mailbox.default.session.mail.imap.connectiontimeout mailbox.default.session.mail.imap.timeout mailbox.default.session.mail.mime.address.strict mailbox.default.session.mail.pop3.connectiontimeout mailbox.default.session.mail.pop3.timeout mailbox.default.task.delete.read.messages mailbox.default.task.enabled mailbox.default.task.interval.seconds mailbox.default.task.max.message.size mailbox.default.task.max.messages.per.run mailbox.default.task.timeout.seconds mailbox.polling.threads.number mailbox.polling.threads.shutdown.timeout.seconds General NIMH settings mailbox.polling.threads.watchdog.interval.seconds queue.polling.threads.number queue.poling.threads.shutdown.timeout.seconds queue.poling.threads.watchdog.interval.seconds queue.task.error.pause.seconds queue.task.interval.seconds queue.task.max.retries queue.task.timeout.seconds MailQueuePoller settings gueue.task.transaction.timeout.seconds filesystem.polling.threads.number filesystem.polling.threads.shutdown.timeout.seconds filesystem.polling.threads.watchdog.interval.seconds filesystem.task.enabled filesystem.task.interval.seconds filesystem.task.polling.folder filesystem.task.timeout.seconds FileSystemPoller settings filesystem.task.transaction.timeout.seconds

#### Fig. 5: NIMH System Properties, 1

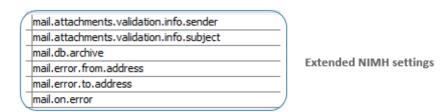


Fig. 6: NIMH System Properties, 2

#### Information about System Property mail.on.error

In ConSol\*CM versions up to 6.9.4.1, the default value for the property *mail.on.error* (module *cmas-nimh-extension*) is *false*.

In ConSol\*CM versions 6.9.4.2 and up, the default value for the property *mail.on.error* (module *cmas-nimh-extension*) is *true*.

The value will be automatically set to *true* during an update from versions 6.9.4.1 and below to a version 6.9.4.2 and up. Please be aware that you may have to disable these mail notifications after an update in case you intentionally have set the property value to *false*.

#### Switching from ESB/Mule Mail to NIMH

If you want to switch from ESB/Mule ("old") mode to NIMH ("new") incoming mail mode, you have to perform the following steps, please also note the info box *Step-By-Step Guide for a Switch From ESB/Mule Mail to NIMH*.

- Copy the Admin Tool mail scripts and rename the new scripts with the same name with Nimh as Prefix, see also section Admin Tool Scripts, Scripts of type e-mail (NIMH).
  - AppendToTicket.groovy -> NimhAppendToTicket.groovy
  - CreateTicket.groovy -> NimhCreateTicket.groovy
  - IncomingMailRouting.groovy -> NimhIncomingMailRouting.groovy
  - MailToClosedTicket.groovy -> NimhMailToClosedTicket.groovy
- Adapt the new Admin Tool scripts, see also section Admin Tool Scripts, NIMH. There are new Groovy classes which have to be used to replace the old ones
  - import required NIMH classes
  - change methods according to the table displayed in the section Admin Tool Scripts, NIMH
  - change the section in mailRouting script for target handlers
  - control / set NIMH-specific system properties for mailboxes, see section above and system properties section in Appendix D (Important System Properties, Ordered by Area of Application)
  - switch system property to activate NIMH: *cmas-core-server.nimh.enabled = true*

#### U Step-by-step guide for a switch from ESB/Mule Mail to NIMH

If you have to switch your CM system from ESB/Mule Mail to NIMH, perform the following steps in the order listed here:

- 1. Prepare the NIMH environment:
  - a. Create the Admin Tool scripts as described in the section above
  - b. Adjust the system properties. The NIMH system properties will be automatically added to the system configuration during an update from a previous version to CM version 6.9.4. Only the required values have to be set. Mailbox properties are added automatically for each mailbox which is added using the Admin Tool.
- 2. Shut down ESB/Mule Mail (stop all ESB services using the ESB Services and stop the ESB service using the CM Services. Make sure CM finishes processing e-mails, review e-mail backups and re-processing or delete the remaining e-mail backups. "Old" ESB/Mule e-mail backups will not be displayed when you have switched to NIMH (but will be displayed when you switch back to ESB/Mule Mail).
- 3. Start NIMH:
  - a. Set the system property *cmas-core-server.nimh.enabled* = *true*
  - b. Start the NIMH service

For a mapping of ESB Mail system properties to NIMH system properties, please refer to section Appendix D (Important System Properties, Ordered by Area of Application).

#### **Running NIMH in a Clustered Environment**

In a cluster, NIMH can run only on one node. Here, the according system property has to be set: *cmas-core*server, nimh.enabled.CLUSTER\_NODE\_ID = true

for example: cmas-core-server.nimh.enabled.1 = trueThis property replaces the general property *cmas-core-server.nimh.enabled* = *true*. On all other nodes NIMH and Mule (and ESB services) have to be disabled. Furthermore, set the system property *cmas-nimh, mailbox.polling.threads.mail.log.enabled* = *true*. Without this setting there is the chance that incoming e-mails may be processed several times by different cluster nodes

## 37.2.3 E-Mail Duplication in the ConSol\*CM Web Client

Please see explanations on the *Page Customization* page at showCloneOption and appendOrReplaceOnClone.

## 37.3 E-Mail Backups

- Introduction
- E-Mail Backups in the Admin Tool
- Management of E-Mail Backups with ESB/Mule
- Management of E-Mail Backups with NIMH

## 37.3.1 Introduction

Incoming e-mails which could not be processed are stored in a special store in the CM system (the location varies depending on the mode of the incoming mail configuration, see ESB and NIMH sections below).

You as an administrator can then try to re-send the e-mails to the system manually. The e-mails stored here can also be deleted, e.g. spam e-mails.

#### IMPORTANT INFORMATION

Since ConSol\*CM version 6.9.4, there are two modes to receive incoming e-mails:

- ESB/Mule this has also been available in all previous CM versions
- NIMH (New Incoming Mail Handler) new in version 6.9.4

For all configurations/settings which are valid for both modes, no further notes are added. For all settings which vary depending on the mode, this will be explained in separate (i.e. ESB/Mule or NIMH specific) sections.

## 37.3.2 E-Mail Backups in the Admin Tool

All e-mails which could not be processed are listed in the navigation item *E-mail Backups* in the navigation group *E-Mail*. If your system is running in ESB/Mule Mail mode, the ESB/Mule backup e-mails are displayed, if the system is running in NIMH mode, the NIMH backup e-mails are displayed. Backups of both types are never 4 displayed at the same time!

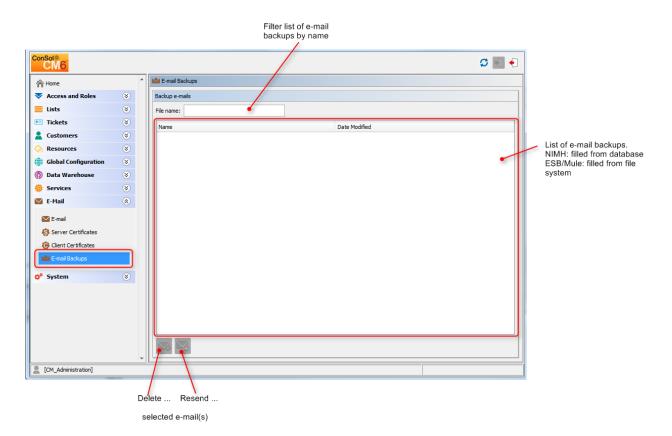


Fig. 1: ConSol\* Admin Tool - E-Mail: E-mail Backups

The list panel for unparsable e-mails contains the following elements:

• File name

This field provides a filter. When you enter the name or part of the name of e-mail files, only the matching file names will be displayed in the list.

• Name

The name of the e-mail file (usually with an .em/ extension).

• Date modified

The last date when the file was modified. Usually the date when the e-mail has been stored on the CM server.

In an error-free ConSol\*CM system, the list panel for unparsable e-mails should be empty. In case there are e-mails listed, an error has occurred concerning the processing of the incoming e-mail(s) in the system. Please see section E-Mail Scripts for a detailed explanation of the processing pipeline.

To delete an e-mail from the list, select the list entry and press the *Delete* button Select betweep in mind that the information will be lost! It will not be saved or transferred to CM in any way!

You can also try to re-send the e-mail to the processing pipeline (e.g. when a script was not working correctly and has been fixed now) by selecting it in the list and by pressing the *Resend* button Selection and the selection of the selection

## 37.3.3 Management of E-Mail Backups with ESB/Mule

Incoming e-mails which could not be processed are stored in the file system, in the following directory (as . *em*/files):

```
<CMAS_DATADIR>/mail/unparsable
```

E-Mails which were stored in the *unparsable* directory and were re-sent successfully are transferred from the *unparsable* directory to the following directory (as *.em*/file):

```
<CMAS_DATADIR>/mail/reimported
```

## 37.3.4 Management of E-Mail Backups with NIMH

Incoming e-mails which could not be processed are stored in the CM database, in the following table (as . *em*/files):

```
cmas_nimh_archived_mail
```

## **37.4 E-Mail Encryption**

- Introduction
  - General Explanation about E-Mail Encryption in ConSol\*CM
- Requirements
- Certificate Import from LDAP
- Certificates Management in the Admin Tool
  - Server Certificates
  - Client Certificates
    - Sending Encrypted E-Mails
      - Choosing if E-Mails Should be Sent Encrypted from the Web Client
      - Sending an Encrypted E-Mail from the Workflow
      - Sending Encrypted E-Mails by Default

## **37.4.1 Introduction**

Due to increasing security policies, it might be required to encrypt the e-mail traffic (including the e-mails which are sent and received by the ConSol\*CM installation) using standard S/MIME encryption.

In order to enable ConSol\*CM to work with encrypted e-mails, you first have to enable the e-mail encryption in the system:

#### 1. Mandatory:

Set the system property *cmas-esb-mail, mail.encryption* to *true*. It is set to *false* as default value. This is the basic configuration for the entire system to enable e-mail encryption.

2. Optional:

Set the page customization property *mailEncryptionAvailable* to *true*. This activates the possibility in the Web Client to choose if the e-mail should be encrypted.

## General Explanation about E-Mail Encryption in ConSol\*CM

There are two types of certificates:

• Personal Information Exchange Certificates

For incoming e-mails (here, server certificates are relevant).

• The *Personal Information Exchange* certificate can be manually imported to the system from the *PKCS12* (.p12) files. This file contains the public and the private key for the corresponding e-mail address. If the certificate file is protected with a password, the administrator must enter it during the import process.

#### • Security Certificates

For outgoing e-mails (here, client certificates are relevant).

Security certificates can be imported into the system in two ways:

• Manually

By selecting the X.509 (.cer or .crt) file.

#### • Automatically

From the LDAP repository which holds it in the same format as for the file import. This can be done on demand during the e-mail sending.

#### Attention:

The certificates treated here, are used for e-mail encryption only and **not** for the access of ConSol\*CM (as e-mail client) to the e-mail server! This has to be managed by certificates which are stored in the security store of the application server.

## Requirements

- The client certificate must contain the e-mail address of the customer in the attribute SubjectDN (E= or EMAILADDRESS=) or the X509v3 Subject Alternative Name element from the Extensions section of the certificate must contain the e-mail address.
- Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files has to be installed on the server and on the machine where the Admin Tool is started. This is required to enable the Admin Tool to import certificates.
- X.509 Base64 encoded certificates are supported.

## **Certificate Import from LDAP**

If LDAP is configured, ConSol\*CM will lookup the certificate for the requested contact in the LDAP repository. This is done in the following way:

- 1. Someone tries to send an encrypted e-mail.
- 2. The cryptography service is looking for a client certificate for the recipient.
- 3. If a client certificate is found, the e-mail is encrypted and sent.
- 4. If a client certificate is not found in the Admin Tool or it has expired, it is looked up in the LDAP repository.
- 5. If it is found, it is imported to ConSol\*CM and the e-mail is encrypted and sent.
- 6. If it is not found, the e-mail is sent unencrypted.

The following configuration properties have to be set for the certificate lookup via LDAP:

- Idap.certificate.basedn
- Idap.certificate.searchattr
- Idap.certificate.content.attribute

Please see section LDAP certificate parameters in Appendix C (System Properties) for details.

## **37.4.2 Certificates Management in the Admin Tool**

In the Admin Tool, the tabs *Server Certificates* and *Client Certificates* in the navigation group *E-Mail* are used to configure the CM environment for e-mail encryption.

## **Server Certificates**

Server certificates are used to decipher incoming e-mail messages and also to encrypt outgoing e-mail messages. They each contain the public and the private key for the given e-mail address. If you define an incoming e-mail account (see section above), you have to upload a server certificate for that e-mail address (or for all e-mail addresses covered by this mailbox) to be able to receive encrypted messages. If you have several incoming accounts, you either have to upload a server certificate for them or you can upload one certificate with all required e-mail addresses.

When you open the navigation item *Server certificates*, a list of all existing server certificates is displayed. To add a new server certificate, click on and use the file browser to find the required certificate. The certificate is checked before it is imported. If there are any incompatibilities, an error message is displayed and the certificate is not imported.

Supported formats for server certificates are:

- *PKCS #12* archive file containing certificate (public) and private key (password protected). Supported filename extensions for *PKCS #12* files are:
  - .p12
  - .pfx

## **Client Certificates**

A client certificate contains only the public key of a user. It allows encrypting messages going to that user.

When you open the tab *Client certificates*, a list of all existing client certificates is displayed. To add a new client certificate, click on • and use the file browser to find the required certificate. The certificate is checked before it is imported. If there are any incompatibilities, an error message is displayed and the certificate is not imported.

Supported formats for client certificates are:

• X509 standard format.

Supported filename extensions for *X.509* certificates are:

- .cer
- .crt
- .der
- .pem

ConSol® CM6						c	) 🗐 🗧
	^	Client Certificates					
Access and Roles	۲	Client certificates to encrypt	t outgoing e-mails				
Lists	۲						
Tickets	۲	Filter: Valid certificates	oniy				
Customers	۲	Serial number	Issued on		Expires on	E-mail address	
Resources	۲						_
(=) Global Configuration	۲		Add client ce	rtificate			×
⑦ Data Warehouse	۲		Add client certi	ficate			
Services	۲				certificate (*.cer, *.crt)		
🗹 E-Mail	۲						
E-mail							
Server Certificates					cher\TESTDATA\to@localho	st_EXT.ort	
Client Certificates			Serial number:	339104612			
E-mail Backups			Issued on:	May 24, 2013 3:24:00	PM		
O <sup>®</sup> System	8		Expires on:	May 24, 2023 3:24:00	PM		
-			E-mail:	to@localhost			i
	-					Import Cancel	

Fig. 1: ConSol\*CM Admin Tool - Pop-up Window for Adding a Client Certificate

Here are some example use cases:

- An engineer uses the ConSol\*CM Web Client and writes an encrypted e-mail using the Ticket E-Mail Editor. When he/she presses the *Send*/button, the ConSol\*CM system looks up the receiver address in the list of mail addresses under *Client certificates* and uses the public key of the recipient to encrypt the outgoing e-mail. If ConSol\*CM cannot find a matching certificate (the e-mail address is not mentioned in the list), the e-mail is loaded from LDAP. If this does not work either, the e-mail is sent unencrypted. If one of the recipients is the same as one of the incoming e-mail accounts, then also the server certificate will be used to encrypt that message.
- 2. ConSol\*CM receives an e-mail and checks the TO-address. If this is found in the list under *Client certificates*, ConSol\*CM uses the private key given in this certificate to decrypt the message and to either create a new ticket or append the message to an existing ticket.

#### Sending Encrypted E-Mails

#### Choosing if E-Mails Should be Sent Encrypted from the Web Client

If the page customization property mailEncryptionAvailable has been set to *true*, a check box *Send encrypted* is available in the Ticket E-Mail Editor in the Web Client. Thus, the user can choose if the e-mail should be sent encrypted.

Comment	E-Mail	Attachment	Time booking
New E-mail			
	show Cc   show Bcc		
To:	"Martin Huber" <mar< th=""><th>tin.huber@devnull.consol</th><th>.de&gt;</th></mar<>	tin.huber@devnull.consol	.de>
Subject:	Ticket (SUP-91) AT: N	VPE when copying roles	
Template	Signatur standard 🔻		
Send encrypted			
<u>в и ц</u>		DIV (default) 🔻 Font Fan	rily 🔻 Font Size 🔻

Fig. 2: ConSol\*CM Web Client - Send Encrypted E-Mail

#### Sending an Encrypted E-Mail from the Workflow

An encrypted e-mail can be sent by using the method *enableEncryption()*. Please see the *ConSol\*CM Process Designer Manual* for a detailed explanation.

#### Sending Encrypted E-Mails by Default

If the system property *cmas-esb-mail, mail.encryption* is set to *true*, all outgoing e-mails from the workflow and Web Client are encrypted by default.

If users would like to send selected e-mails unencrypted, they can uncheck the check box *Send encrypted* in the Web Client. For e-mails sent by the workflow the method *disableEncryption()* has to be used.

# 38 ConSol CM Administrator Manual 6.10.2 -Script and Admin Tool Template Administration

## 38.1 Script and Admin Tool Template Administration

In this chapter, you will learn how to work with scripts and templates that are stored in and managed with the Admin Tool.

Scripts are used in various contexts in ConSol\*CM, particularly in the Process Designer within workflows. Please see the *ConSol\*CM Process Designer Manual* for a detailed explanation concerning this topic. However, various scripts are also stored in the Admin Tool, in the *Scripts* section. This will be explained in section Admin Tool Scripts.

Templates are also stored in several locations:

- Accessible via Web Client:
  - In the Template Manager (e-mail templates)
  - In the Doc Template Manager (MS Word or OpenOffice templates in CM.Doc)
- Accessible via Admin Tool:
  - In the Scripts and Templates section
    - Some special e-mail templates
    - Templates for customer data
    - Templates for resource data
    - Password reset template
    - CM.Phone templates
    - <more templates depending on customizing>

For explanations of the work with e-mail templates using the Template Manager and for configuring CM. Doc, please refer to section Working with Text Templates. For an explanation of templates in the Admin Tool, please read section Admin Tool Templates.

# 38.2 ConSol CM Administrator Manual 6.10.2 - Admin Tool Scripts

## 38.2.1 Admin Tool Scripts

- Introduction to Scripts in the Admin Tool
- The Source Code Editor
- Script Types
  - Scripts of Type Clone
  - Scripts of Type Default Values
    - Overwrite Mode for Default Values Scripts
  - Scripts of Type Dependent Enum
  - Scripts of Type E-Mail
    - E-Mail Scripts for the Processing of Incoming E-Mails in ESB/Mule Mail Mode
    - E-Mail Scripts for the Processing of Incoming E-Mails in NIMH Mode
    - Differences between Scripts in ESB/Mule Mail and NIMH
    - E-Mail Scripts for Outgoing E-Mails
  - Scripts of Type Workflow
  - PostActivityExecutionScript

## Introduction to Scripts in the Admin Tool

Scripts are stored in the *Scripts and Templates* section of the Admin Tool. They are written in Groovy and should only be edited by experienced ConSol\*CM consultants and administrators.

To work with scripts, open the navigation item *Scripts and Templates* in the navigation group *System* in the Admin Tool. The tab *Scripts* is opened initially.

<ul> <li>Nume</li> <li>Type</li> <li>Resource :</li> <li>Gobal Configuration :</li> <li>Data Warchouse :</li> <li>Services :</li> <li>Services :</li> <li>Final :<th>ConSol CM6</th><th></th><th></th><th></th><th></th><th></th><th>C 📓 🕙</th><th></th></li></ul>	ConSol CM6						C 📓 🕙	
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Resources       Image       Ippe         Cobal Configuration       Cobal Configuration       Deadation Compared Thism       Dependent erun         Build.coator/DependentErun       Dependent erun       Deadation Compared Thism       Dependent erun         Services       Cobal Warehouse       Cobal Configuration       Cobal Configuration       Cobal Configuration         Services       Cobal Warehouse       Cobal Configuration       Eval       Cobal Configuration       Cobal Configuration         Cobal Configuration       Cobal Configuration       Cobal Configuration       Eval       Cobal Configuration       Eval         Services       Cobal Configuration       Cobal Configuration       Eval       Cobal Configuration       Eval         Cobal Configuration       Cobal Configuration       Cobal Configuration       Eval       Cobal Configuration       Eval         Cobal Configuration       Cobal Configuration       Cobal Configuration       Eval       Cobal Configuration       Eval         Cobal Configuration       Cobal Configuration       Cobal Configuration       Eval       Cobal Configuration       Eval         Constitution Cobactor Cobal Cobal able dopt action       Constitution Cobactor Cobal Coba	. Customers	8				•	import con.consol.cnas.common.model.ticket.Ticket	selected script
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	[CM Administration]		Ŧ			_		

Fig. 1: ConSol\*CM Admin Tool - Scripts & Templates Administration

On the left you see the list of all scripts. The list can be filtered using the drop-down menu where the script type can be selected. Two parameters have to be set for each script:

#### • Name

This is the name by which the script will be referenced, e.g. from the workflow or from other objects like queues.

#### • Type

The script type. One of the following possible script types has to be selected:

#### • Bulk ticket action

This script type is part of the Action Framework, namely the Search Actions and is described in section Search Action Scripts.

#### Bulk ticket condition

This script type is part of the Action Framework, namely the Search Actions and is described in section Search Action Scripts.

#### Bulk resource action

This script type is part of the Action Framework, namely the Search Actions and is described in section Search Action Scripts.

#### Bulk resource condition

This script type is part of the Action Framework, namely the Search Actions and is described in section Search Action Scripts.

#### Bulk data object action

This script type is part of the Action Framework, namely the Search Actions and is described in section Search Action Scripts.

#### Bulk data object condition

This script type is part of the Action Framework, namely the Search Actions and is described in section Search Action Scripts.

#### • Calendar integration

Scripts of this type provide the connection information for the integration of MS Exchange calendars. See section MS Exchange Calendar Integration.

#### Clone

Script which is executed when the *Clone* option is selected for a ticket. Has to be assigned to a queue. See section Scripts of Type Clone for details.

#### • Data object action

Script which is executed when a Data Object Action has taken place, see section Action Framework - Data Object Actions for details.

#### Data object condition

Script which is executed to evaluate if a Data Object Action should be offered in the Web Client, see section Action Framework - Data Object Actions for details.

#### • Default values

Scripts of this type are used to define default values, i.e. values that are (pre)set in data fields when a new ticket is to be created. Please see section Scripts of Type Default Values for details.

#### Dependent enum

Scripts of this type are used to define *dependent enums*, a structure that provides hierarchical lists. Please see section Scripts of Type Dependent Enum for details.

#### • E-mail

Scripts of this type are used to manage incoming and outgoing e-mails. Please see section Scripts of Type E-mail for details.

#### Page customization

Scripts of this type are referenced by page customization settings. Please see sections Page Customization for the Web Client Dashboard and The Resource Pool Dashboard for details.

#### PostActivityExecutionScript

The (optional) script which is executed after every manual workflow activity. See section PostActivityExecutionScript for details.

#### Resource action

Script which is executed when a Resource Action has taken place, see section CM.Resource Pool - Resource Actions for details.

#### Resource condition

Script which is executed to evaluate if a Resource Action should be offered in the Web Client, see section CM.Resource Pool - Resource Actions for details.

• Task

Scripts of this type are used by the TEF (Task Execution Framework), please see section The Task Execution Framework (TEF).

#### • Workflow

Scripts of this type are referenced from the workflow. Please see section Scripts of Type Workflow for details.

The buttons below the list offer the standard Admin Tool functionalities:

- Add a script
- Edit a script 🕑
- Delete a script
- Copy a script

On the right you see the *Source Code Editor*. The script that is selected in the list on the left is displayed. Here you can write the script source code when you have selected the *edit* mode.

## The Source Code Editor

The Source Code Editor provides an editing panel with syntax highlighting. You have to check for correct code yourself.

```
Source
import com.consol.cmas.common.model.customfield.UnitReferenceField
import com.consol.cmas.common.model.customfield.meta.FieldKey
import com.consol.cmas.common.model.content.AttachmentEntry
import com.consol.cmas.common.model.content.ContentEntryCategory
import com.consol.cmas.common.model.content.MailEntry
import com.consol.cmas.esb.mail.MailContextService
import javax.activation.DataHandler
import org.mule.transport.email.MailProperties
import javax.mail.internet.MimeUtility
if(mailLog.isDebugEnabled()) {
      mailLog.debug("Creating ticket from message $msg")

      String contactUnitType = "customer"
      // type of contact unit

      String contactEmailFieldName = "email"
      // name of contact unit email string field

      String contactNameFieldName = "name"
      // name of contact unit name string field

      String customerGroupName = "CustomerGroup"
      // name of contact unit customer group

String customerGroupName = "CustomerGroup" // name of contact unit customer group
String contactCompanyRefName = "companyRef" // name of contact unit company reference field

      String companyUnitType = "company"
      // type of unit which represents company

      String companyNameFieldName = "name!"
      // name of company unit name string field

      String companyNameFieldValue = "ConSol* GmbH"
      // name of company referenced by contact

String ticketQueueName = "HelpDesk_lst_Level"; // name of queue for created ticket
String ticketPriorityFieldGroupName = "helpdesk_standard" // name of queue field group
String ticketPriorityFieldName = "priority" // name of queue enum field
String ticketPriorityFieldValue = "normal"
                                                                         // value of ticket priority enum field
findContact = {
      String email = mailContextService.extractMailFromField(msg)
```

Fig. 2: ConSol\*CM Admin Tool - Source Code Editor

In the lower section of the Source Code Editor, there are the following buttons:

• Edit 🔟

Press this button to switch to *edit* mode in the Source Code Editor. When you open the navigation item *Scripts and Templates* in the Admin Tool, all scripts are in *read-only* mode to prevent an administrator from changing something accidentally.

Quit and save

Save the script and quit *edit* mode, i.e. switch to *read-only* mode again.

Quit without saving

Switch to *read-only* mode again, without saving the changes you might have made to the source code.

Open script from file

Import a script from a file. This will import the file and display it in the Source Code Editor. No checks are performed.

Save script to file

Here you can save the text of the script as a plain text file in the file system of the machine you are working on.

## **Script Types**

In the following section, the possible script types are explained. Some examples are provided to give you an impression of the potential of scripts in the system.

The following script types will be explained here in this section. Please refer to the links provided in the list above for a complete overview of all script types with links to the respective sections.

- Clone
- Default values
- Dependent enums
- E-mail
- Workflow
- PostActivityExecutionScript

#### **Scripts of Type Clone**

In the Web Client, a ticket can be cloned (duplicated) using the *Clone* option in the ticket menu. You can do this with or without a script.

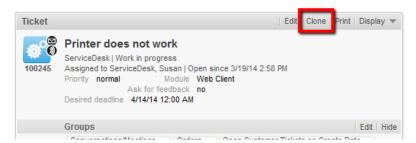


Fig. 3: ConSol\*CM Web Client - Clone Option in Ticket Menu

The following two pictures show the cloning of a ticket without a clone script.

		Edit Clone Print Display 🔻
100245	Printer does not work ServiceDesk   Work in progress Assigned to ServiceDesk, Susan   Open since 3/19/14 2:58 PM Priority normal Module Web Client Ask for feedback no Desired deadline 4/14/14 12:00 AM Continent Europe Request Type Request Type	
	Complaint	
	Groups	Edit Hide
	Conversations/Meetings Orders Open Customer Tickets on Create D	Date
	conversation_list Date of meeting 11/12/14 12/31/14	
	orders_list Hardware Contact person Number Medium printers Mr. Miller 4	
	Customers	Add Hide
	Main	
<b>.</b>	Mrs Mia Skydiver VyCustomerGroup Starship Operator Dr. Special Forces MySpaceCompany V	
	Company MySpaceCompany Address Milkyway 77 7777 Alderaan http://www.consol.de	
	Address Milkyway 77 7777 Alderaan	Add   Hide
	Address Milkyway 77 7777 Alderaan http://www.consol.de	Add   Hide
	Address Milkyway 77 7777 Alderaan http://www.consol.de	Add   Hide
	Address Milkyway 77 7777 Alderaan http://www.consol.de Engineers ServiceDesk, Susan assigned Supervisor Holler, Konrad 💌	
	Address Milkyway 77 7777 Alderaan http://www.consol.de Engineers ServiceDesk, Susan assigned Supervisor	Add Hide

Fig. 4: ConSol\*CM Web Client - Original Ticket

New Tick	et
	Printer does not work *
	Queue: ServiceDesk V Assigned to: ServiceDesk, St X
	Priority normal Module Web Client
	Reaction time Ask for feedback
	Category None 💌
	Desired 4/14/14 0
	Continent Europe
	Request Type Request Type
	Complaint 💌 🗵
	<u>Add row</u>
	Groups
	Conversations/Meetings Orders Open Customer Tickets on Create Date
	Customers Add
	Main
	Mrs Mia Skydiver V MyCustomerGroup Starship Operator Dr. Special Forces
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	Add attachment

Fig. 5: ConSol\*CM Web Client - Cloning the Ticket (without Clone Script)

#### Information:

When a ticket is cloned, the following data is transferred from the original ticket (compare the two images above):

- the ticket subject
- the queue
- the engineer (if it was set)
- the values of all Custom Fields (Ticket Data Section and Group Section)
- the main customer
- additional customers

When a ticket is cloned, the following data is **1 not** transferred from the original ticket (compare the two images above):

- all ticket text:
  - comments
  - e-mails
  - attachments
- the ticket history
- additional engineers
- ticket relations

In case the queue where the ticket is located uses a *Clone* script (see section Queue Administration), this script will be executed when the engineer has clicked on *Clone*. The script can be used similar to a *Default values* script (see respective section below): you can preset values in the ticket which will be created. In the cloning process the values are pre-filled in the Custom Fields in the Web Client, i.e. before the ticket is generated. The engineer can change the values if required.

#### Information:

Please keep in mind that in a *Clone* script, you do not work in the workflow context! That means the *workflowApi* object (implementation of *WorkflowContextService*) is not available!

In the following example, the *Clone* script is used to reset the data field *Desired deadline* to avoid wrong service dates in the (cloned) *Service Desk* ticket.

Clone Script to Reset Custom Field for Desired Deadline ticket.set("serviceDesk\_fields.desiredDeadline", null)

When the script is assigned to the queue (*ServiceDesk* in the example), the field for the desired deadline is empty when the cloned ticket is offered to the engineer (see following image).

New Tick	et						
	Printer does not	work					*
	Queue:	ServiceDesk	-	Assigned to:	ServiceDesk, Sı 🔀		
	Priority	normal	▼ *	Module	Web Client 🔀		
	Reaction time				Ask for feedback		
	Category	None 🔻					
	Desired deadline		0	tar <mark>00 ‡</mark> ice	level None 🔻	QA_MLA	None 🔻
	Continent	Europe		•	-		
	Request Type	Request Typ Complaint Add row	e T	×			
	Groups						
	Conversations	/Meetings	Orders	Open Custom	er Tickets on Create Date		
	Customers						Add
	Main						
-	Mrs Mia Skydi Starship Operate	-	ustomerGro	oup			

Fig. 6: ConSol\*CM Web Client - Cloned Ticket (with Clone Script Assigned to the Queue)

#### **Scripts of Type Default Values**

Sometimes it is required that a data field of a ticket has a certain value when the ticket is to be created, i.e. when the engineer presses *New ticket* and the respective form is opened in the Web Client, one or more value(s) should be preset. This saves the engineer from setting the value every time, e.g. when the default priority is *normal*, this can be preset. In case *high* or *low* is required, the engineer can switch to another value.

This ConSol\*CM behavior can be achieved by using one or more *Default values* scripts. The default values can be specifically defined for each queue. Please see the following example.

New Tick	et Subject					*	
<b>10</b> 1	Queue:	HelpDesk 1st Lev	Assigned to:	Unassigned Choose One			
	Priority Reaction time	Choose One	Module	Ask for fee	dback		
	Category	None 🔻					

Fig. 7: ConSol\*CM Web Client - New Ticket without Default Values

Without a *Default values* script, no value is set for the priority when an engineer creates a new ticket in the Web Client.

To define a default value, a script of type *Default values* has to be created. First, we have to look up where the respective Custom Field is to be found (in which Custom Field Group and under which name) within the *Custom Field Administration*. See section Custom Field Administration for details.

#### Information:

Please keep in mind that in a *Default values* script, you do not work in the workflow context! That means the *workflowApi* object (implementation of *WorkflowContextService*) is not available!

le Views Hi			💐 🗏 🗞 -	o ()	S 💽 🗧
Custom Fiel	d Administration				
Groups			Fields		
Filter:		All queues 🗸	Filter:		
Ticket data	Activity Form data				
	Activity Form data		Name	Data type	2
Name			categories	MLA field	
helpdesk_star			feedback	boolean	
sales_standar	rd		module	enum	
qualification			priority	enum	
workaround			quick_response	boolean	
feedback queue fields			reaction_time	date	
Assigned anno	etations	•	Assigned annotations	8	
Name	Value	Annotation group	11		
INGINE	value	Annotation group	Name	Value	Annotation group
			groupable sortable	true	cmweb-common
			reportable	true	cmweb-common dwh
			field indexed	transitive	indexing
			position	0;0	layout
			enum field with ticket color	true	ticket display
					·

Fig. 8: ConSol\*CM Admin Tool - Custom Field Administration

Since *priority* is an *enum* field (i.e. an ordered list), we have to check the possible values that can appear in the list and we have to look for the required default value within the *Enum Administration*.

File Views Help	CM6 Admin-Tool @ localhost	O G. Xhoo Lafe. North	
Image: Control of the second secon	File Views Help		
Type     Group     Value       Name     Sales_priority     Name       category     Sales_priority     Iow       countryType     Increase     Iow       domain     Increase     Iow       feedback     Increase     Iow       hardware     Iow     Iow       module     Iow     Iow       origin     Iow     Iow       phoneType     Iow     Iow       priority     Iow     Iow       product     Iow     Iow       reaction     Iow     Iow       sales_chance     Iow     Iow       salutation     Iow     Iow       version     Iow     Iow	🟫 🕺 😼 🍸 📖	🔹 🗉 🔧 🗏 🗞	🗔 🔿 🗘 🖸 🗧 🗧
Name     Name       category     Sales_priority       countryType     Image: Sales_priority       domain     feedback       hardware     qualification       module     origin       origin     phoneType       priority     product       reaction     sales_chance       salutation     software       version     version	🔍 Enum Administration		
category       Sales_priority         countryType       helpdesk_priorities         domain       qualification         feedback       qualification         hardware       qualification         module       origin         phoneType       priority         product       reaction         s_members       sales_chance         sales_chance       salutation         software       version	Туре	Group	Value
countryType       normal         domain       qualification         feedback       qualification         hardware       qualification         module       origin         priority       product         product       reaction         s_members       sales_chance         sales_chance       software         version       version			
feedback       hardware       module       origin       phoneType       priority       product       reaction       s_members       sales_chance       salutation       software       version			
hardware module origin phoneType priority product reaction s_members sales_chance salutation software version		qualification	high
origin       phoneType       priority       product       reaction       s_members       sales_chance       salutation       software       version	hardware		
priority       product       reaction       s_members       sales_chance       salutation       software       version			
product       reaction       s_members       sales_chance       salutation       software       version			
s_members sales_chance salutation software version	product		
sales_chance salutation software version			
software version	sales_chance		
workaround			
	workaround		
[CM_Administration]	2 [CM Administration]		

Fig. 9: ConSol\*CM Admin Tool - Priority Values in Enum Administration

The group, the field, and the correct value can then be used in the respective Java method in the new script.

↔ Script and Template Administration		
Scripts Template		
Scripts		Source
All script types	•	<pre>ticket.set("helpdesk_standard.priority","normal")</pre>
Name	Туре	
AppendToTicket.groovy	E-mail	
ChangeOutgoingMail.groovy	E-mail	
CreateTicket.groovy	E-mail	
CustomerXXDependentEnum	Dependent enum	
DDependentEnum	Dependent enum	
IncomingMailRouting.groovy	E-mail	
MailToClosedTicket.groovy	E-mail	
MultipleChoiceDependentEnum	Dependent enum	
setDefaultPrioMedium.groovy	Default values	

Fig. 10: ConSol\*CM Admin Tool - Include Group, Field, and Value in Script

In the *Queue Administration* we have to assign the script to the queue where the default value should be used.

Edit queue						
Edit queue i Please edit the queu	e's data.					
Details						
Queue:	HelpDesk_1st_Level		Workflow:	helpdesk1 👻		
Prefix:			Calendar:	Standard 🗸		
FAQ:			Enabled:			
Ticket assignment temp						
Assign:	engineer-assigned-default-mail	•	Unassign:	engineer-removed-default-mail 👤		
Scripts	N			h		
E-Mail script:		•				
Default values script:	setDefaultPrioMedium.groovy	-				
Clone script:		_				
Other		• )				
Description:						
Description:				÷ 🔳		
Custom fields Cust						
Custom fields Cust	omer groups Classes of text Projects					
Assigned 🔺		Available 🔺				
LocationFieldsTable		CustomerTick				
feedback helpdesk_standard		LocationFields RequestType				
qualification		ServiceDeskDismissFields				
queue_fields (*)		SolutionFields				
workaround		am_fields				
		conversation_data				
		order_data sales_standard				
		serviceDesk_fields				
1.				Save Cancel		

Fig. 11: ConSol\*CM Admin Tool - Assign Default Values Script to Queue in Queue Administration

When the engineer starts the *create ticket* operation now in the Web Client, the default value *normal* will be set in the *Priority* field.

New Tick	Subject					*
**	Queue:	HelpDesk 1st Le	Assigned to:	Unassigned		_
	Priority	nomal 💌	Module	Choose One	•	
	Reaction time			Ask for feed	back	
	Category	None 💌				

Fig. 12: ConSol\*CM Web Client - New Ticket with Default Value

#### Important information:

Please keep in mind that for every queue there can be only one *Default values* script. So if you have to define various default values, they have to be defined in one script. You might want to adapt the script name in this case.

In case the same default value has to be set in different queues and is set together with other default values, this has to be coded in one script for each queue also.

#### **Overwrite Mode for Default Values Scripts**

By default the fields of a ticket that are pre-filled by a *Default values* script are not overwritten, i.e. when the ticket is sent to another queue that has a different *Default values* script assigned, this second script will try to set fields that were already filled by the first script. Since this is not possible the default value of the first script will be persistent.

If a *Default values* script should overwrite already existing values, the *overwrite* mode has to be activated. To activate this mode insert the following code at the beginning of your *Default values* script:

```
import com.consol.cmas.common.model.ticket.TicketPrototypeContext
TicketPrototypeContext.enableOverwriteMode()
```

#### Scripts of Type Dependent Enum

Dependent enums are hierarchical lists which provide a data structure similar to the one provided by *MLAs* (see section MLA Administration). In contrast to MLAs, with dependent enums only one level at a time is displayed. Depending on the value the user has selected in the list on this level, another list, the one on the sub-level, is opened. There do not have to be sub-lists for every list entry, so in graph notation, the list might be a combination of nodes and leaves. A dependent enum script is assigned to the Custom Field Group where it is required.

Please see the following example:

In help desk tickets a category can be selected. When the user has selected *hardware* a hardware sub-list is displayed, when the user has selected *software*, the software sub-list is displayed. All Custom Fields have to be defined as regular *enum* fields first. In the script, the value of the first level list is checked and, depending on this value, another list is displayed in the second level. This can be used for as many levels as required, but please keep in mind that the editing of the script will become more and more complex.

The *Dependent enum* script is placed in the Admin Tool. Please ask our CM consultants for support when creating and/or editing the script since this is a rather complex task.

N 🗶 🤹 🝸		-	$\equiv \otimes \textcircled{o} \otimes \otimes$	0		
Script and Template Administratio	n				_	
ripts Template						
Scripts			Source		_	-
All script types		•]	import com.consol.cmas.common.model.customfield.meta.FieldKey			
Name	Туре		def result = new DependentEnumMap()			
AppendToTicket.groovy ChangeOutgoingMail.groovy	E-mail E-mail		// log.info("DEPENDENT ENUM SCRIPT REACHED!/!")			
CreateTicket.groovy	E-mail E-mail					
AailToClosedTicket.groovy	E-mail		<pre>EnumFieldScriptContext categoryEnumContext = createEnumField('helpdesk_standard', 'categories_levell')</pre>			
oadContactData	Dependent enum Data object action		<pre>EnumFieldScriptContext hardwareEnumContext = createEnumField('helpdesk_standard', 'hardware_categories_level2') EnumFieldScriptContext softwareEnumContext = createEnumField('helpdesk_standard', 'software_categories_level2')</pre>			
etDefaultPrioMedium.groovy	Default values		ticketBinding = {			
			result[categoryEnumContext.key] = getAllValues(categoryEnumContext, FILLED) result[hardwareEnumContext.key] = getNoneValues(hardwareEnumContext, HIDDEN)			
			result[softwareEnumContext.key] = getNoneValues(softwareEnumContext, HIDDEN)			
			<pre>switch(categoryEnumContext.field?.value?.name) {</pre>			
			<pre>case 'hardware': result[hardwareEnumContext.key] = getAllValues(hardwareEnumContext, FILLED)</pre>			
			)			
			<pre>switch(categoryEnumContext.field?.value?.name) {</pre>			1
			<pre>case 'software':     result[softwareEnumContext.key] = getAllValues(softwareEnumContext, FILLED)</pre>			
			) return result			
			}			
			if (binding.variables.containsKey('ticket')) {			
			categoryEnumContext.field = ticket.getField(categoryEnumContext.key) hardwareEnumContext.field = ticket.getField(hardwareEnumContext.key)			
					,	•
C ≥ ⊗ ∩						

Fig. 13: ConSol\*CM Admin Tool - Dependent Enum Script

The *Dependent enum* script is assigned to the Custom Field Group where it is required.

Edit group	×
i <b>dit group</b> j Manage data and locales for group.	
Group details	
Name: helpdesk_standard	
For all queues:	
Dependent Enum Scripts	1
Assigned scripts	Available scripts
Assigned categoriesHardAndSoftware	Available 🔺
	TI II
Localized values	
Locale Va	lue
	pdesk standard
German Hel; Polish	pdesk standard
Polish	
	OK Cancel
	Cancel

Fig. 14: ConSol\*CM Admin Tool - Assign Dependent Enum Script to Custom Field Group

In the Web Client the engineer only sees the sub-list of the value selected in the first level list.

P	Printer does not	work				*
	Queue:	HelpDesk 1st Le	Assigned to:	Unassigned		
	Priority	nomal 💌	Module	misc [	-	
	Reaction time			Ask for feedb	ack	
	Category	Hardware 💌	hardware categories	Printer [	-	

Fig. 15: ConSol\*CM Web Client - Sub-list of Category Hardware

New Tick	et Problems with N	1S/Office				*
	Queue:	HelpDesk 1st Le	Assigned to:	Unassigned 💌		
	Priority	nomal 💌	Module	misc 💌		
	Reaction time			Ask for feedback		
	Category	Software 💌				Mfice 🗨
					categories	

Fig. 16: ConSol\*CM Web Client - Sub-list of Category Software

#### Scripts of Type E-Mail

Scripts of this type are used for several functionalities. Some of the scripts are part of the default system configuration and have to be modified according to the customer-specific system configuration. You can also add your own scripts.

# IMPORTANT INFORMATION Since ConSol\*CM version 6.9.4, there are two modes to receive incoming e-mails: ESB/Mule - this has also been available in all previous CM versions NIMH (New Incoming Mail Handler) - new in version 6.9.4 For all configurations/settings which are valid for both modes, no further notes are added. For all settings which vary depending on the mode, this will be explained in separate (i.e. ESB/Mule or NIMH specific) sections.

#### E-Mail Scripts for the Processing of Incoming E-Mails in ESB/Mule Mail Mode

When an e-mail is received by ConSol\*CM, it is processed by several scripts, see following figure.

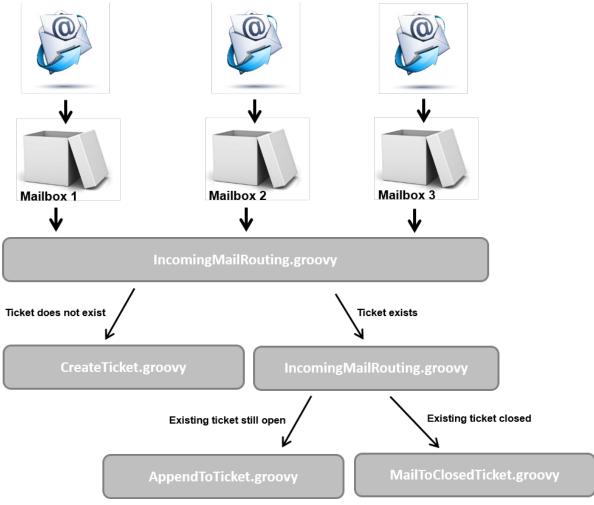


Fig. 17: ConSol\*CM Admin Tool - E-Mail Scripts (ESB/Mule Mail)

#### • IncomingMailRouting.groovy

Standard script. This is the first script that is executed when an e-mail comes in. Here, it is decided if a new ticket has to be created or if the e-mail concerns an existing open ticket (then *AppendToTicket. groovy* is executed) or if it concerns a closed ticket (then *MailToClosedTicket.groovy* is executed). This script does not require any changes to adapt it for a customer-specific environment.

#### CreateTicket.groovy

Standard script which is responsible for the creation of a ticket when an e-mail has been received in one of the ConSol\*CM-configured mailboxes (see section E-Mail for details). If the ticket subject does not match the regular expression for appending the e-mail to an existing ticket, this script is performed. All e-mails which are received by ConSol\*CM (and have not been assigned to an existing ticket) are processed here, no matter from which mailbox they have been collected. In the script, the default queue for incoming e-mails has to be defined, more values of Custom Fields can be defined (like e.g. the default priority for e-mail tickets). Or decisions can be made in which queue the new ticket should be created, depending on the TO-address or other parameters. So usually, this script has to be adapted heavily. Please ask a CM consultant for support concerning this task.

#### AppendToTicket.groovy

Standard script which is responsible for appending an e-mail to a ticket that already exists. The

assignment of the e-mail to the ticket is performed using the comparison between the ticket subject and the required regular expression. Please see section E-Mail for a detailed explanation of this context. Usually no changes are required for this script.

MailToClosedTicket.groovy

Standard script which is responsible for handling the e-mail when it concerns a closed ticket. The default system behavior is to create a new ticket for the customer (sender of the e-mail) and to create a reference to the old/closed ticket. So usually, no changes are required in this script.

#### E-Mail Scripts for the Processing of Incoming E-Mails in NIMH Mode

When an e-mail is received by ConSol\*CM, it is processed by several scripts, see following figure.

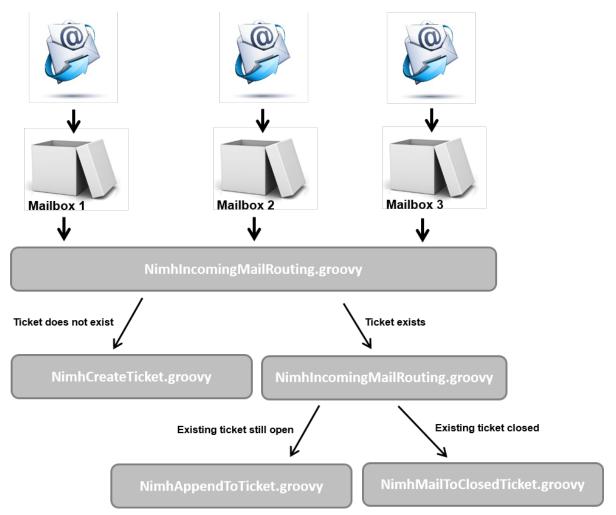


Fig. 18: ConSol\*CM Admin Tool - E-Mail Scripts (NIMH)

NimhIncomingMailRouting.groovy

Standard script. This is the first script that is executed when an e-mail comes in. Here, it is decided if a new ticket has to be created or if the e-mail concerns an existing open ticket (then *NimhAppendToTicket.groovy* is executed) or if it concerns a closed ticket (then *NimhMailToClosedTicket.groovy* is executed). This script does not require any changes to adapt it for a customer-specific environment.

NimhCreateTicket.groovy

Standard script which is responsible for the creation of a ticket when an e-mail has been received in one of the ConSol\*CM-configured mailboxes (see section E-Mail for details). If the ticket subject does

not match the regular expression for appending the e-mail to an existing ticket, this script is performed. All e-mails which are received by ConSol\*CM (and have not been assigned to an existing ticket) are processed here, no matter from which mailbox they have been collected. In the script, the default queue for incoming e-mails has to be defined, more values of Custom Fields can be defined (like e.g. the default priority for e-mail tickets). Or decisions can be made in which queue the new ticket should be created, depending on the TO-address or other parameters. So usually, this script has to be adapted heavily. Please ask a CM consultant for support concerning this task.

#### • NimhAppendToTicket.groovy

Standard script which is responsible for appending an e-mail to a ticket that already exists. The assignment of the e-mail to the ticket is performed using the comparison between the ticket subject and the required regular expression. Please see section E-Mail for a detailed explanation of this context. Usually no changes are required for this script.

#### • NimhMailToClosedTicket.groovy

Standard script which is responsible for handling the e-mail when it concerns a closed ticket. The default system behavior is to create a new ticket for the customer (sender of the e-mail) and to create a reference to the old/closed ticket. So usually, no changes are required in this script.

#### Differences between Scripts in ESB/Mule Mail and NIMH

When NIMH is enabled, other Groovy classes have to be used in the e-mail scripts than in ESB/Mule Mail mode. Please see the mapping in the table below.

Mule	NIMH
mailContextService	mailSupportService
msg	mailHolder
mailLog	mailLog
spring cm services	spring cm services
all places where <i>mailHolder</i> ist used	pipeContext (used as parameter in <i>mailSupportSer vice</i> invocations)

The steps you have to perform when you want to switch your ConSol\*CM system from ESB/Mule Mail mode to NIMH mode are described in section E-Mail - Switching from ESB/Mule Mail to NIMH.

#### E-Mail Scripts for Outgoing E-Mails

For every queue, an *E-mail* script can be configured. Please see section Queue Administration for an explanation how to configure this. An e-mail which is written from a ticket in this queue (automatically by the workflow or manually by an engineer) passes through this script before it leaves the ConSol\*CM system. So in this *E-mail* script you can change or set queue-specific settings for the outgoing e-mail. A common use case is the setting of a queue-specific REPLY-TO-address in order to use team-specific REPLY-TO-addresses.

An example of an outgoing *E-mail* script is the following script which is part of the CM default application:

#### ChangeOutgoingMail.groovy

Standard script that is not in operation but serves as a template for outgoing *E-mail* scripts. You might want to use them to configure queue-specific *E-mail* scripts.

Within the outgoing *E-mail* script, the Java object *mailEntry* is implicitly available as object *mail*. You have to set all required attributes for the outgoing e-mail using the *mail.setAttribute()* or *mail.setAttributes()* methods.

#### Example:

```
def queueReplyAddress = "serviceteam@mycompany.com"
    // you might also use system properties for the queue-specific e-mail addresses and fetch an
    // address using the configurationService!
    mail.setAttribute('Reply-to', queueReplyAddress)
```

#### Common e-mail attributes are:

- BCC
- From
- Reply-to
- To
- CC
- Subject

In case you would like to read a very detailed description of the e-mail format, please refer to RFC 5322.

When you work with the configuration of the REPLY-TO e-mail address, please note the following technical behavior of ConSol\*CM and adapt your system accordingly!

#### The technical background:

There are three potential REPLY-TO addresses which you deal with:

- The REPLY-TO address which is set with the system property *mail.reply.to*. If it is set, it will be displayed in the Ticket-E-Mail Editor in the Web Client. If it is really the effective REPLY-TO address in an e-mail depends on the configuration in the queue-specific outgoing e-mail script. See next topic.
- 2. The REPLY-TO address which is set in a queue-specific outgoing e-mail script. Since the outgoing e-mail script is the last instance which processes an outgoing e-mail, the REPLY-TO address set in this script will always be the effective REPLY-TO address which is used. In case the *mail.reply.to* property is set, it will not really be used (but it will be displayed in the Ticket E-Mail Editor which might cause some confusion! What that means for your system configuration is explained in the next section).
- 3. The e-mail address of the current engineer (the engineer who is logged in to the Web Client). This personal e-mail address is used as REPLY-TO address for e-mails from the Web Client if neither the *mail.reply.to* property is set nor a queue-specific outgoing e-mail script is configured.

In the Web Client, in the ticket history, the REPLY-TO address which was really used is always displayed for outgoing e-mails. So even in case there should be a difference between the address which was displayed in the Ticket E-Mail Editor (the *mail.reply.to* property) and the REPLY-TO address which was really used (the REPLY-TO in the queue-specific outgoing e-mail script), the effective address is displayed. This would be the one from the script in this case.

#### What we recommend:

A system REPLY-TO address should always be set! You can decide if you

• work with the REPLY-TO address in the queue-specific outgoing e-mail script

or

• use the *mail.reply.to* system property.

However, since the e-mail communication should take place via ConSol\*CM and not using personal e-mail addresses, one of the two system settings mentioned above should be used to prevent CM from using personal e-mail addresses as REPLY-TO. The latter would automatically lead to customer e-mails being sent to an engineer's personal e-mail account instead of CM.

#### What that means for your system configuration:

- 1. The simplest way to set a REPLY-TO address by using the *mail.reply.to* system property. It will be displayed in the Ticket E-Mail Editor and will be the effective REPLY-TO address.
- 2. If you work with queue-specific outgoing e-mail scripts, you have to configure a script for each queue! The *mail.reply.to* system property should then be left empty! You can
  - a. write queue-specific scripts which are only used in one queue (e.g. to set a teamspecific REPLY-TO address), e.g. *ChangeOutgoingMail.groovy\_Queue1, ChangeOutgoingMail.groovy\_Queue2, ... ChangeOutgoingMail.groovy\_Queue\_n.*
  - b. write a standard outgoing e-mail script which is configured for all queues, e.g. *ChangeOutgoingMail.groovy\_Queue\_standard*
  - c. combine a and b, i.e. to set a standard script for most queues and configure specific scripts for specific queues

#### What that means when you work with workflow scripts which send e-mails:

(a detailed explanation is provided in the ConSol\*CM Process Designer Manual.)

- Use the object and method *configurationService.getValue("cmweb-server-adapter", "mail. reply.to")* to retrieve the value of the system property and set it as REPLY-TO address in the outgoing e-mail.
- Use the Mail/object when the queue-specific script should be used: e.g. mail. useDefaultScript(). This will overwrite the mail.reply.to property! Hence, use either property or script.

If neither the system property nor the queue-specific outgoing e-mail script is used, i.e. when the REPLY-TO address is not set, usually the FROM address will be used as REPLY-TO by the e-mail client.

#### Scripts of Type Workflow

Scripts of that type are stored in the Admin Tool, because they are used in numerous workflow scripts, i.e. the code in the Admin Tool script is needed more than once in one or more workflow(s). It is easier, less error-prone, and less time-consuming to store the scripts at one central location (Admin Tool) and just reference them in the workflow(s) than to edit the same code at different locations in every workflow where it is used. Furthermore, during workflow development the Admin Tool script can be modified easily and the change is in operation at once whereas when editing a workflow it has to be deployed first.

Please see the *ConSol\*CM Process Designer Manual* for a detailed introduction to workflow programming. A short example will be provided here.

This code in a workflow activity will only reference the script, e.g.:

scriptExecutionService.execute(scriptProviderService.createDatabaseProvider
("initializeEscalationTriggers.groovy"))

#### In the Admin Tool, the respective script is stored:

CM6 Admin-Tool @ cm6-demo.int.consol.de					
File Views Help					
🕋 🗶 🔖 🍸 🔍 🚉 🗊	🔩 🚍 % 🧔 🚳 <> 🗳 📓 🌖				
Script and Template Administration					
Scripts Template					
Scripts	Source				
All script types 👻	import java.util.*  import com.consol.cmas.*				
Name Type	import con.consol.cmas.common.model.ticket.Ticket				
	import com.consol.cmas.core.*				
AppendToTicket.groovy E-mail ChangeOutgoingMail.groovy E-mail	import com.consol.cmas.core.server.service.*				
	import com.consol.cmas.common.model.util.*				
CreateTicket.groovy E-mail	higher com.consor.cmas.common.moder.dcri.				
CustomerXXDependentEnum Dependent enum					
IncomingMailRouting.groovy E-mail					
MailToClosedTicket.groovy E-mail	log.info("Executing STARTUP initializeEscalationTriggers.groovy ")				
MultipleChoiceDependentEnum Dependent enum					
dv Default values	def tic = workflowApi.getTicket()				
dv_overwrite Default values initializeExcalationTriggers.groovy Workflow					
	<pre>Date now = new Date() // in millisecs: // set initial value for trigger 1 to 1 h, trigger 2 to 2 hrs: def time_add = 60 * 60 * 1000L def time_add2 = 60 * 60 * 1000L * 2</pre>				
	<pre>def mycal = businessCalendarService.getByName("My_Kalenderl") def tic_create_date = tic.getCreationDate() def escal_date = BusinessCalendarUtil.getBusinessTime(now,time_add,mycal) def escal_date2 = BusinessCalendarUtil.getBusinessTime(now,time_add2,mycal)</pre>				
	<pre>if (wfl.equals("SD")) {     //Service Desk Triggers:     workflowApi.reinitializeTrigger("defaultScope/SD_GlobalScope/Eskalationstrigger +</pre>				
CM_Administration]					

Fig. 19: ConSol\*CM Admin Tool - Workflow Script

It is also possible to pass parameters (key-value pairs) to the Admin Tool script. This is explained in detail in the *ConSol\*CM Process Designer Manual*.

## PostActivityExecutionScript

For certain use cases it might be required to execute a script when a ticket has run through a workflow activity. You might want to use this, for example, to display another ticket in the Web Client GUI after the workflow activity has been executed. From a user's (engineer's) point of view, the Web Client GUI *jumps* to the next ticket. The latter can be a child ticket or another ticket in a list, depending on the use case.

The system behavior is defined in an Admin Tool script, the *PostActivityExecutionScript* (sometimes also called *Default Workflow Activity Script*). The name of the script has to be set in the system property *cmwebserver-adapter*, *postActivityExecutionScriptName*, see Appendix C (System Properties).

This script is executed after every **A** manual workflow activity. That means you have to insert all control mechanisms and *intelligence* into the script:

- After which activity should the script do something? (for all other activities, nothing will happen)
- What should happen?

Starting with CM version 6.10.2, CM can open one of four different page types (in *read* mode) coming from the PostActivityExecutionScript:

- a ticket page
- a company detail page
- a contact detail page
- a resource detail page

The script just has to provide the respective object as return value. The following code shows an example for each of the four types.

```
switch(activity.name){
    case 'defaultScope/Goto_ticket':
        return ticketService.getByName("SUP-11")
    case 'defaultScope/Goto_contact':
        return unitService.getById(123)
    case 'defaultScope/Goto_company':
        return unitService.getById(456)
    case 'defaultScope/Goto_resource':
        return resourceService.getById(890)
}
```

**Example:** Jump to the next ticket in a list.

	ando ann oci tei	pro unca contrato e marte	I		e.
11	cmweb-server-adapter	pagemapLockDurationInSeconds	60		L
11	cmweb-server-adapter	postActivityExecutionScriptName	postActivityExecutionHandler		L
11	cmweb-server-adapter	queuesExcludedFromGS			L

Fig. 20: ConSol\*CM Admin Tool - Property for Definition of postActivityExecutionScriptName

Scripts		Source*			
All script types		<ul> <li>import con.consol.</li> </ul>	cmas.common.model	.ticket.Ticket	
Name	Туре	Prijany izva maine	equest ticket to	open addreguese stehes at	
AppendToTicket.groovy				· · · · · · · · · · · · · · · ·	/jump_to_sub_request")) {
ChangeOutgoingMail.groovy		recurn findrifst	subkequestinatwee	dspata(ticket)	
CreateTicket.groovy		}			
CreateTicketAuto.groovy	E-mail		<u>person de serve</u>	nt tiskst	
ITA_GenerateStandardPackagesEnumList.groovy		if (activity.getNa	ume().equals("defa	ultScope/ready_to_provisi	.on/back_to_parent")) {
ITA_GenerateSubRequests.groovy			concercionoccorece	.ycdyTickcojcickco, add	,
ITA_PackageSelection.Groovy	Dependent enum	return relations	[0].getSourceTick	et()	
ITA_Request_DefaultValues	Default values	}			
ITA_UpdateSelectedPackages.groovy		L'eximu ann ann			1
ImportCSVtoENUM-SharpStellplatz.groovy	Workflow	if (activity getWe	we() emula("defe	ultScope/ready to provisi	on/next_subremuest")) (
ImportHardware.groovy					
ImportServices.groovy				CDYTICKEC(CICKEC, MULL, M	
IncomingMailRouting.groovy		return findfirst	SubRequestThatNee	usvata(parent)	Check after which workflow
IncomingMailRouting_old.groovy					activity there should be more
MailToClosedTicket.groovy					actions
ServicesHardwareLists.groovy	Dependent enum	//default: return	current ticket	Return the ticket	actions
calculatePriority.groovy		return ticket		Return the ticket	
deanHardwareList.groovy					
cleanServicesList.groovy		def Ticket findFin	stSubRequestThatN	eedsData(reqTicket) {	
deleteCustomersWithoutTickets.groovy	Workflow	relations = tick	retRelationService	.getByTicket(reqTicket, m	ull, null)
deleteCustomersWithoutTickets_old.groovy	Workflow	for (subRegRels	ation in relations	) (	
initializeEscalationTriggers.groovy		subReq = sub	RegRelation.getTa	rgetTicket()	
postActivityExecutionHandler					"defaultScope/user data needed")) {
sendEscalation2Mail.groovy		return sub			
setCFGroupVisibility.groovy	Workflow				
setInitialEnumsSD	Default values				
setMailbestaetigungenYes	Default values		Method	which should be executed, c	alled
setPrioDefault			from cor	le blocks above	
setPrioDefault HT	Default values	-111	nom coc	ie blocks above	
startupInitializationOfEscalationTriggers.groovy					

Fig. 21: ConSol\*CM Admin Tool - postActivityExecutionScript

The PostActivityExecutionScript also allows to *jump to* a unit page (i.e. a company page or a contact page) or to a resource page simply by returning the unit or resource within the script.

Please see the following example script:

```
switch(activity.name){
    case 'defaultScope/Goto_the_ticket':
        return ticketService.getByName("SUP-11")
    case 'defaultScope/Goto_the_contact':
        return unitService.getById(123)
    case 'defaultScope/Goto_the_company':
        return unitService.getById(456)
    case 'defaultScope/Goto_the_resource':
        return resourceService.getById(890)
}
```

Another **example** which also shows the Web Client behavior:

A Home	^	Scripts & Templates Administration	
Access and Roles	۲	Scripts Template	
Lists	۲	Scripts	Source
Tickets	۲	All script types	switch(activity.name)(
Customers	۲	Name Type A	<pre>case 'defaultScope/Service_Desk/New_ticket/Open_Page_of_Main_Contact':</pre>
Resources	۲	maxTicketGridSize	return main_cont
Global Configuration	۲	Clone Ticket.groovy Workflow	
Data Warehouse	۲	DisplayCustomerData.groovy Workflow CheckClosedChildTickets.groovy Workflow	
Services	۲	AppendToTicket.groovy E-mail	
🖌 E-Mail	۲	NimhAppendToTicket.groovy         E-mail           CreateTicket.groovy         E-mail	
<sup>e</sup> System	۲	ChangeOutgoingMail.groovy E-mail	
Scripts and Templates		MailSetReplyTo.groovy E-mail MailToClosedTicket.groovy E-mail	
tmport/Export		NimhIncomingMailRouting.groovy         E-mail           MailScriptServiceDesk         E-mail	
📌 License		MessageToEngineerRemove.groovy E-mail NimhMailToClosedTicket.groovy E-mail	
🔀 System Properties		NimhCreateTicket.groovy E-mail	
		IncomingMailRouting.groovy E-mail	(f avamla againt

Fig. 22: ConSol\*CM Admin Tool - PostActivityExecutionHandlerScript

#### The script:

```
switch(activity.name){
    case 'defaultScope/Service_Desk/New_ticket/Open_Page_of_Main_Contact':
    def main_cont = ticket.getMainContact()
        return main_cont
    // ( ... )
}
```

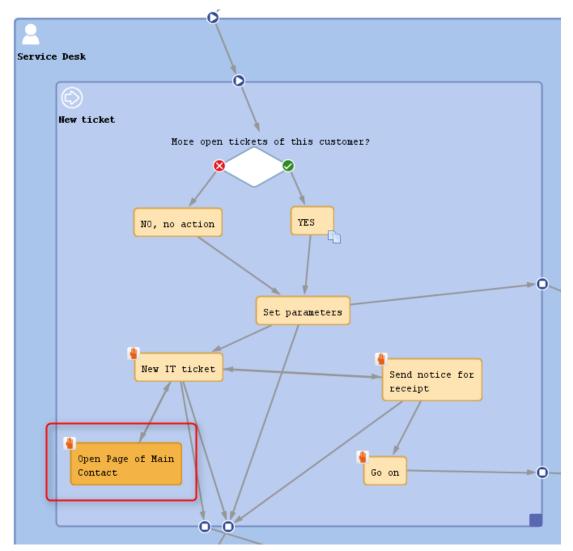


Fig. 23: ConSol\*CM Process Designer - Activity Which Will Be Controlled Using the PostActivityExecutionScript

	Ticket		Edit   C	lone	Print	Workflow activities
	100199	Problems with my PC ServiceDesk   New ticket Assigned to ServiceDesk, Susan   Open since 7/24/15 9:21 AM Priority high Desired deadline 7/24/15 4:00 PM Request Type Request Type TechnicalProblem				Work on ticket Send notice for receipt Acknowledge: E-Mail has been read Open Page of Main Contact Workspace Workspace is empty
1		Groups Conversations/Meetings Orders Open Customer Tickets on Create Date		Edit	t 👗	All your unsaved tasks are automatically listed in this workspace.
		Customers (1) Main		Add	~	Favorites
	@	Skywalker Luke ▼ Reseller email katja@consol.de phone 123 vip_person no CM/Track Login (LDAP) luke CM/Track Password *******				All Contacts HP printers HP Printer: 4712

Fig. 24: ConSol\*CM Web Client - Ticket with Workflow Activity Which Will Jump to Contact Page

Contact				Print	Activities
@	Skywalker Luke V Rese	eller	phone 123		(Re-)Check service status of the company
	vip_person no	Create new Help Desk ticket			
	CM/Track Login (LDAP) luke	CM/Track P	assword *******		
	MyNewSpaceCom		_		Workspace
		Inknown	Compan ity Alderaan	y number 999 zip 7777	Workspace is empty All your unsaved tasks are automatically listed in this workspace.
	Tickets (12)			~	(
	All tickets 💌				Favorites
				1 to 10 of 12	All Contacts
	⇔ Engineer	Main Customer	Name	Subject	HP printers
	ServiceDesk, Susan	💄 Minnie Mouse	00259	Login in ERP-System not possible!	HP Printer: 4712
	ServiceDesk, Susan	Skywalker,Lea	00286	New Invoice Feb 2015	
	Huber, Harald	💄 Peter Diermau	🌅 SUP-91	AT: NPE when copying roles	OpenTicketsAUSTR
	ServiceDesk, Susan	Skywalker,Luke	100263	Question about Order #4711	Service request
	ServiceDesk, Susan	Skywalker,Luke	6 100199	Problems with my PC	
		Skywalker,Luke	100302	Task - Child of Ticket 100263 : Bitte um Bestellung kümmern	
		Skywalker,Luke	100299-001	New Ticket due to Search Result for customerSkywalker	
		Skywalker,Luke	100267	Question concerning delivery July 2014	
		Skywalker,Luke	00307-001	New Ticket due to Search Result for customerSkywalker	
		Skywalker,Luke	100260	Sell a printer to each special end customer	
				1 to 10 of 12	

Fig. 25: ConSol\*CM Web Client - Contact Page Which Has Been Opened Directly from Ticket

# **38.2.2 Scripts for the Action Framework**

- Introduction
- Admin Tool Scripts for the Action Framework
  - Script Types
  - Script Return Values
  - Action Types
- Programming with the Action Framework
  - Open the Create Ticket Page
  - Open the Ticket Page in Display-Only Mode
  - Open the Ticket Page in Display-Only Mode and Show ACF Before
  - Open the Create Unit (Contact or Company) Page
  - Open a Unit (= Data Object, i.e. Contact or Company) Page in Display-Only Mode
  - Open a Create Resource Page
  - Open a Resource Page in Display-Only Mode
  - Open an URL
  - Display Result Message in Web Client: SUCCESS
  - Display Result Message in Web Client: FAILURE
  - Return Values and Return Messages
    - CM Standard Values for Return Messages
    - Use System-Specific Labels

## Introduction

The ConSol\*CM Action Framework offers the possibility to start actions which are not related to workflow activities, i.e. they can be started or triggered in another context, not only in a workflow context.

The Action Framework consists (as of CM version 6.10) of three components which are treated in the respective manual sections in detail.

- Unit Actions (Data Object Actions) Actions based on contact or company objects, see section Action Framework - Data Object Actions.
- **Resource Actions** Actions based on resource objects, see section CM.Resource Pool - Resource Actions.
- Search Actions

Actions which are based on the result set of a search, see section Search Actions.

In this section here, you will learn more about Action Framework-specific programming.

# Admin Tool Scripts for the Action Framework

## Script Types

Each action is based on an Admin Tool script as described in the sections mentioned above. For each Admin Tool script, the correct script type has to be set.

#### Information:

Please note that for each **action script**, a condition script *can* be defined. It has to be associated with the action script in the action definition in the Admin Tool. This **condition script** will be executed before the action script.

Thus, the action script will only be executed if either

• no condition script is defined

or

• the condition script has returned true

The following Action Framework-related script types are available:

- For Data Object Actions ( = Unit Actions):
  - Data object condition
  - Data object action
- For Resource Actions:
  - Resource condition
  - Resource action
- For Search Actions ( = Bulk Actions):
  - For actions based on ticket result lists:
    - Bulk ticket condition
    - Bulk ticket action
  - For actions based on data object (= unit) result lists, i.e. contact or company result lists:
    - Bulk data object condition
    - Bulk data object action
  - For actions based on resource result lists:
    - Bulk resource condition
    - Bulk resource action

#### **Script Return Values**

The return value of a condition script has to be either *true* or *false*.

The return value of a manual action script has to be one of the following PostActionTypes:

- An object where the object detail page is opened (e.g. a unit page).
- A create page for an object.
- An URL.
- A return status which is also displayed as message in the Web Client.

Please see the details in the following section.

## **Action Types**

An action can be of one of the following types:

- Automatic
  - Create
  - Update
  - Delete
  - Search
- Manual

## **Programming with the Action Framework**

One core component of programming scripts for manual actions in the ConSol\*CM Action Framework is the class **ActionScriptResultFactory**. An instance of this class is available as **actionScriptResultFactory** in each action script. The type of the returned PostActionScriptResult, i.e. the **PostActionType**, defines the step directly following the execution of a manual Action script. By working with the **PostActionType** you can implement the desired system behavior.

## **Open the Create Ticket Page**

- return actionScriptResultFactory.getPostAction(PostActionType.CREATE\_TICKET, ticket) Redirects to ticket create page with fields filled with ticket data.
- return actionScriptResultFactory.getPostAction(PostActionType.CREATE\_TICKET, ticket, unit) Redirects to ticket create page with fields filled with ticket data and existing unit as main contact.

#### Example:

```
import com.consol.cmas.core.server.service.action.PostActionType
import com.consol.cmas.common.model.ticket.Ticket
Ticket ticket = new Ticket();
ticket.setQueue(queueService.getByName("Helpdesk"))
ticket.setSubject("sample subject")
ticket.setSubject("sample subject")
ticket.set("queue_fields.string", "test")
ticket.set("queue_fields", "boolean", "true")
return actionScriptResultFactory.getPostAction(PostActionType.CREATE_TICKET, ticket)
//to additionally set main contact use
//return actionScriptResultFactory.getPostAction(PostActionType.CREATE_TICKET, ticket, unit)
```

## Open the Ticket Page in Display-Only Mode

 return actionScriptResultFactory.getPostAction(PostActionType.GOTO\_TICKET, ticket) Redirects to ticket page of given ticket.

#### Example:

```
Example for a Unit Action script (unit implicitly available)
import com.consol.cmas.core.server.service.action.PostActionType
import com.consol.cmas.common.model.ticket.Ticket
Ticket ticket = ticketService.getByContact(unit).iterator().next()
return actionScriptResultFactory.getPostAction(PostActionType.GOTO_TICKET, ticket)
```

#### Open the Ticket Page in Display-Only Mode and Show ACF Before

return actionScriptResultFactory.getPostAction(PostActionType.GOTO\_TICKET, ticket, activityControlFormExecutionContext)
 Redirects to ticket page of given ticket and shows given activity control form obtained via ActivityControlFormService.getExecutionContext(Ticket, String).

#### Example:

```
( ... )
def executionContext = activityFormDefinitionService.getExecutionContext(newtic, "defaultScope
/TaskInProgress/AcceptTask")
if (!executionContext) {
    return actionScriptResultFactory.getPostAction(PostActionType.FAILURE, "action.fail.wrong.
    activity")
}
// Modify entities from the execution context - not the original ones
// - since the user may still press cancel.
executionContext.ticket.add("SpecialTasks_Fields","Deadline", new Date());
return actionScriptResultFactory.getPostAction(PostActionType.GOTO_TICKET, newtic,
executionContext);
```

#### Information:

Please note that the implementation class for the bean *activityFormDefinitionService* is *ActivityControlFormService*. Please refer to the class documentation for details. Usage in scripts is done by the bean name, see script above.

#### Open the Create Unit (Contact or Company) Page

 return actionScriptResultFactory.getPostAction(PostActionType.CREATE\_UNIT, unit) Redirects to unit create page with fields filled with unit data.

#### Example:

```
Example for a Unit Action script (customer implicitly available)
import com.consol.cmas.common.model.customfield.Unit
import com.consol.cmas.core.server.service.action.PostActionType
Unit contact = new Unit("customer", unit.getCustomerGroup());
contact.set("firstname", "Luke");
contact.set("name", "Skywalker");
return actionScriptResultFactory.getPostAction(PostActionType.CREATE_UNIT, contact);
```

#### Open a Unit (= Data Object, i.e. Contact or Company) Page in Display-Only Mode

 return actionScriptResultFactory.getPostAction(PostActionType.GOTO\_UNIT, unit) Redirects to unit page of given unit.

#### Example:

```
Example for a Unit Action script (unit implicitly available)
import com.consol.cmas.common.model.customfield.Unit
import com.consol.cmas.core.server.service.action.PostActionType
Unit contact = unitService.getByCustomerGroup(unit.getCustomerGroup()).get(0)
return actionScriptResultFactory.getPostAction(PostActionType.GOTO_UNIT, contact)
```

#### **Open a Create Resource Page**

 return actionScriptResultFactory.getPostAction(PostActionType.CREATE\_RESOURCE, resource) Redirects to resource create page with fields filled with resource data.

#### Example:

```
import com.consol.cmas.common.model.resource.Resource
import com.consol.cmas.common.model.resource.meta.ResourceType
import com.consol.cmas.core.server.service.action.PostActionType
ResourceType type = resourceTypeService.getByName("resource type 1")
Resource resource = new Resource(type)
resource.setFieldValue("group1", "stringField1", "value1")
resource.setFieldValue("group2", "numberField1", 1L)
return actionScriptResultFactory.getPostAction(PostActionType.CREATE_RESOURCE, resource)
```

#### Open a Resource Page in Display-Only Mode

 return actionScriptResultFactory.getPostAction(PostActionType.GOTO\_RESOURCE, resource) Redirects to resource page of given resource.

Example:

```
import com.consol.cmas.common.model.resource.Resource
import com.consol.cmas.core.server.service.action.PostActionType
Resource resource = resourceService.getAll().iterator().next()
return actionScriptResultFactory.getPostAction(PostActionType.GOTO_RESOURCE, resource);
```

## Open an URL

 return actionScriptResultFactory.getPostAction(PostActionType.GOTO\_PAGE, "http://consol.de") Redirects to page of given URL.

#### Example:

```
import com.consol.cmas.core.server.service.action.PostActionType
return actionScriptResultFactory.getPostAction(PostActionType.GOTO_PAGE, "http://consol.de");
```

## **Display Result Message in Web Client: SUCCESS**

- return actionScriptResultFactory.getPostAction(PostActionType.SUCCESS, localizedLabelKey) Remains on the same page with green success feedback panel and a localized message:
  - action.result.success=Action succeed Also considers actionScriptResult.withRefreshContent() to reload page data.

For details, please refer to section Return Values and Return Messages.

#### **Display Result Message in Web Client: FAILURE**

- return actionScriptResultFactory.getPostAction(PostActionType.FAILURE, localizedLabelKey) Remains on the same page with red failure feedback panel and a localized message:
  - action.result.failure=Action failed Also considers actionScriptResult.withRefreshContent() to reload page data.

For details, please refer to section Return Values and Return Messages.

#### **Return Values and Return Messages**

To indicate the return value of a ConSol\*CM action for the engineer in the Web Client, you have to use one of two PostActionTypes:

• PostActionType.SUCCESS

The message will be displayed in green in the Web Client.

PostActionType.FAILURE

The message will be displayed in red in the Web Client.

You have to set a return value for every action script. It is not possible to end an action script without the return value (a runtime error will be thrown in that case).

Example for a positive feedback:

<pre>return actionScriptResultFactory.getPostAction(PostActionType.SUCCESS,</pre>	"cmweb.search.assigned").
withRefreshContent();	

Action succeed	Activities
Q Search	Assign all those tickets to me
Search criteria	Workspace
Engineer     'Service Desk, Sarah'       Please select     Image: Constraint of the select of the s	Workspace is empty All your unsaved tasks are automatically listed in this workspace.
Tickets DirectCustomers (DirCustCustomer) DirectCustomers (DirCustCompany)	Favorites
View as: 🗐 List 🔠 Grid	HP Printer: 4712
Search results (0)	OpenTicketsAUSTR
No search results	Service request

Fig. 1: ConSol\*CM Web Client - SUCCESS Message after Search (Result) Action

#### Example for a negative feedback:

T		
ł	return actionScriptResultFactory.getPostAction(PostActionType.FAILURE,	"cmweb.search.assigned").
ł	withRefreshContent();	
į.		

Action failed	Activities
Search	Assign all those tickets to me
Search criteria	Workspace
Engineer     'Service Desk, Sarah'       Please select     Image: Comparison of the select s	Workspace is empty All your unsaved tasks are automatically listed in this workspace.
Tickets DirectCustomers (DirCustCustomer) DirectCustomers (DirCustCompany)	Favorites
View as: 📃 List 🛛 🔠 Grid	HP Printer: 4712
Search results (0)	OpenTicketsAUSTR
No search results	Service request

Fig. 2: ConSol\*CM Web Client - FAILURE Message after Search (Result) Action

The text which is displayed (e.g. *Action succeeded* or *Action failed*) can be retrieved using one of two possible methods:

- Use a CM standard value which is defined in standard property files, see section CM Standard Values for Return Messages.
- Use a label which has been defined specifically for your CM system in the Labels Administration, see section Use System-Specific Labels.

## CM Standard Values for Return Messages

action.result.success=Action succeeded	
action.result.failure=Action failed	

## **Use System-Specific Labels**

You can define your own labels for the display of messages in the Web Client. See section Labels for a detailed explanation.

# **38.3 Admin Tool Templates**

- Introduction to Templates in the Admin Tool
- The Admin Tool Template Editor
- Working with Admin Tool Templates
  - System Templates
  - Templates for Definition of Customer Format in the Web Client
  - Ticket Assignment Templates
  - Password Reset Templates
    - Password Reset Template for Engineers in the Web Client
    - Password Reset Template for Customers Using CM.Track
  - Custom Defined Templates

# **38.3.1 Introduction to Templates in the Admin Tool**

In ConSol\*CM, several types of templates are used:

- E-mail templates are stored in one of the following places:
  - the Template Manager, see section The ConSol\*CM Template Manager
  - the *Templates* section of the Admin Tool. Details on that topic will be explained in the present chapter.
- Document templates are stored in
  - the Doc Template Manager (part of CM.Doc), see section CM.Doc
- Data representation templates are stored in
  - the Scripts & Templates Administration of the Admin Tool. They are used for:
    - the definition of customer templates, see section Templates for Customer Data
    - the definition of resource templates, see section Templates for Resource Data
- General templates are stored in
  - the *Scripts & Templates Administration* of the Admin Tool. They will be explained in the present chapter.

In this chapter, the general templates in the *Scripts & Templates Administration* of the Admin Tool will be explained.

Admin Tool templates are written according to the *FreeMarker* notation (see FreeMarker web site) and should only be edited by experienced ConSol\*CM consultants and administrators. A ConSol\*CM standard installation already contains system templates and some example templates which might help you as an administrator to define new templates for your special use cases.

# 38.3.2 The Admin Tool Template Editor

To work with templates, open the item *Scripts and Templates* in the navigation group *System* and switch to the *Templates* tab.

In the templates list, all templates are listed with:

• Name

Mandatory. A template is referenced by its name when it is referenced by other objects.

• Group

Optional. Groups help you sort the templates in the templates list. They do not have a technical implication.

To open a template in the editor panel, mark it in the list and open it by clicking on the edit button *A*. Each template must have a name, whereas the group name is optional.

If your system works with various languages, you can define each template for each language. Use the dropdown menu *Language* above the editor panel. The Web Client will display the template for the configured locale of the web browser. If there is no template for this language, the default language will be used. Each template always has to be defined for the default language.

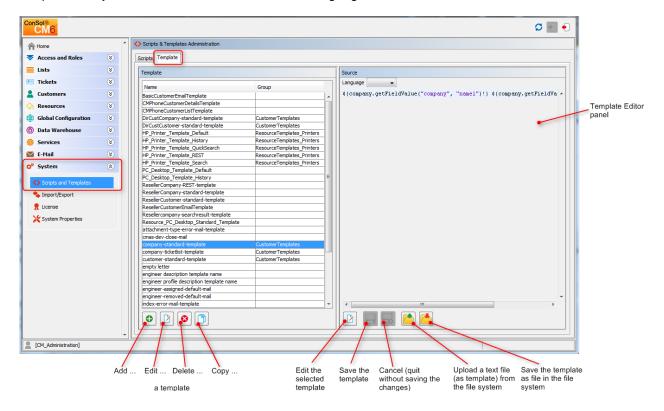


Fig. 1: ConSol\*CM Admin Tool - Template Editor

# **38.3.3 Working with Admin Tool Templates**

The Admin Tool templates represent a template pool. Each template can be referenced from different modules of the system and is always referenced by its name. In the following paragraphs, all modules where templates can be used are explained. Within a template the Data Object Group Fields, Resource Fields, and Custom Fields are referenced by group name and field name, e.g. the company name within the Data Object Group *ResellerCompany* will be referenced as shown in the following example.

\${ResellerCompany.getFieldValue("ResellerCompanyData","company\_name")!}

For a detailed explanation of the work with Custom Fields, please see section Custom Field Administration. Data Object Group Fields are explained in section Setting Up the Customer Data Model. Resource Fields are explained in section CM.Resource Pool - Setting Up the Basic Resource Model.



Do not use line breaks in template statements!

# **System Templates**

A default ConSol\*CM installation comes with several system templates. They are used in standard situations like error messages to an administrator. Please see the following list for an overview of the system templates:

#### • attachment-type-error-mail-template

An e-mail with this template is sent to the e-mail administrator (e-mail address given in system property *mail.process.error*) when the attachment type of an incoming or outgoing e-mail is not supported and thus the e-mail cannot be processed.

cmas-dev-close-mail

Not used. Removed from the standard installation in CM version 6.10.1.

- engineer description template name Template used to render the engineer label, e.g. ticket owner.
- engineer profile description template name Template used to render the label on a header of the page, next to logout button.
- index-error-mail-template Not used. Removed from the standard installation in CM version 6.10.1.
- password-reset-template
   Template for the body of the e-mail which is sent when a user requests a password reset (on login page).
- representation\_info\_email\_html All e-mails sent by CM to the represented engineer are also sent to the representing engineer (see *Global Permissions: Representation Permissions* in section Role Administration). The template is used to configure the text which is added to the forwarded e-mail.
- representation\_info\_email\_plain\_text Same as above, as plain text.

# **Templates for Definition of Customer Format in the Web Client**

The appearance of **customer data** (e.g. name, phone number, and room number or name and forename only) in different sections of the Web Client can be formatted using templates. The definition has to be made

for each data object (i.e. for each company definition and for each contact definition) so that specific templates can be used within each customer group. The configuration of templates for a data objects is explained in section Templates for Customer Data.

The same principle applies to the representation of **resource data** (if CM.Resource Pool is active in your CM system). For a detailed explanation, please refer to section Templates for Resource Data.

In the following example, the customer data within the *ResellerCustomer* data object should be represented in the standard template with first name and name.

ConSol CM6			¢	•
A Home	*	Scripts & Templates Administration		
Access and Roles	۲	Scripts Template		
Elists	۲	Template	Source	
Tickets	۲	Name Group	Language 📃 👻	
Lustomers	۲	HP_Printer_Template_QuickSearch ResourceTemplates	k#if ResellerCustomer.getFieldValue("ResellerCustomerData","customer_name")?has_content &&	Re 🔺
A Resources	۲	HP_Printer_Template_REST ResourceTemplates HP_Printer_Template_Search ResourceTemplates		
Global Configuration	۲	PC_Desktop_Template_Default		
💮 Data Warehouse	۲	PC_Desktop_Template_History ResellerCompany-REST-template		
🔅 Services	۲	ResellerCompany-standard-template ResellerCustomer-standard-template		
🗹 E-Mail	۲	ResellerCustomerEmailTemplate		
🗘 <sup>6</sup> System	۲	Resellercompany-searchresult-template Resource_PC_Desktop_Standard_Template		
Scripts and Templates		attachment-type-error-mail-template cmas-dev-close-mail		
🍫 Import/Export		company-standard-template CustomerTemplates		
👷 License		company-ticketlist-template CustomerTemplates customer-standard-template CustomerTemplates		
💥 System Properties		empty letter engineer description template name		-
		engineer profile description template name	<	•
[CM Administration]	-			

Fig. 2: ConSol\*CM Admin Tool - Example of a Customer Format Definition Template



	Workgroup tickets (16)
	AT NRE when copying roles Customer: Luke Skywalker
SUP-91	Assigned to: Huber, Harald

Fig. 3: ConSol\*CM Web Client - Example of a Customer Format Definition Template

## **Ticket Assignment Templates**

In the queue administration (see section Queue Administration), ticket-engineer-assignment templates can be selected. There are templates for the two use cases *assign* and *remove*.

- The *assign* template (*Assign*) is used as text template for an automatic e-mail, which is sent by the system to the (new) engineer when a ticket is assigned to the engineer.
- The *remove* template (*Unassign*) is used as text template for an automatic e-mail, which is sent by the system to the (old) engineer when a ticket has been removed from the engineer.

You have to write and save the templates here in the *Template* section first. Then they will be available in the drop-down menu in the *Ticket assignment templates* section of the queue administration (see section Queue Administration). You can define a name of your choice - we recommend to use a name which describes the use of the template, as shown in the following example.

ConSol® CM6			S 🔤 🕙
Home	^	Scripts & Templates Administration	
Access and Roles	۲	Scripts Template	
E Lists	۲	Template	Source
Tickets	۲	Name Group	Language 🗨
Lustomers	۲	ResellerCustomer-standard-template	Bubject: Ticket #\${ticket.name} assigned to you
ᢙ Resources	۲	ResellerCustomerEmailTemplate Resellercompany-searchresult-template	<#setting number format="0.######"/>
😩 Global Configuration	۲	Resource_PC_Desktop_Standard_Template	The ticket #\$(ticket.name)
⑦ Data Warehouse	۲	attachment-type-error-mail-template	"\${ticket.subject}"
🔅 Services	۲	company-standard-template CustomerTemplates	
💟 E-Mail	۲	company-ticketlist-template CustomerTemplates CustomerTemplates	has been assigned to you by <#if engineer_exec??>\$(engineer_exec.name)<#else>the workflow #i</th
💠 System	۲	empty letter engineer description template name	Please take care.
Scripts and Templates		engineer profile description template name	URL: http://localhost:8080/cm-client/ticket/name/\${ticket.name}
s Import/Export	_	engineer-assigned-default-mail	
🕈 License		index-error-mail-template	
System Properties		representation_info_email_html	
		representation_info_email_plain_text search-company-template	
	-		· · · · · · · · · · · · · · · · · · ·
[CM_Administration]			

Fig. 4: ConSol\*CM Admin Tool - Example of an E-Mail Template for Ticket Assignment to an Engineer

Text of the example template engineer-assigned-default-mail.

```
Subject: Ticket #${ticket.name} assigned to you
<#setting number_format="0.######"/>
The ticket #${ticket.name}
    "${ticket.subject}"
has been assigned to you by <#if engineer_exec??>${engineer_exec.name}<#else>the workflow</#if>
<#if engineer_old??>(former engineer: ${engineer_old.name})<#else>(no former engineer)</#if>
Please take care.
URL: http://localhost:8080/cm-client/ticket/name/${ticket.name}
```

Edit queue					23
dit queue					
i Please edit the queu					
Details					
Queue:	HelpDesk_1st_Level		Workflow:	helpdesk1	-
Prefix:			Calendar:		•
FAQ:			Enabled:		
Ticket assignment temp	lates				
Assign:	engineer-assigned-default-mail		Unassign:	engineer-removed-default-mail	•
E-Mail script:					
	Г	▼.			
Default values script:	[dv	•			
Other					
Description:					1
Quetem folde					
	omer groups Classes of text Projects	1			
Assigned A		Available 🔺			
feedback helpdesk_standard		dependent_enum faq	1		
qualification		numbers			
queue_fields (*) workaround		sales_standard			
workaround		4			
		J			
				Save	Cancel

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Fig. 5: ConSol\*CM Admin Tool - Configuration of a Ticket Assignment Template for a Queue

## **Password Reset Templates**

When a user has forgotten his password, he can request a new password using CM standard functionalities. The user might be an engineer who works with the Web Client or a customer who has a login to CM.Track. For both cases, the CM administrator has to configure CM in a way that an e-mail can be sent to the user who has to set a new password. This e-mail is based on a template which is stored in the Admin Tool, in the *Templates* section.

#### Password Reset Template for Engineers in the Web Client

When an engineer has forgotten his Web Client password, he can request a new password by using the link *Forgot your password* on the initial login page. An e-mail with a link to an URL where the engineer can set the new password is sent to the engineer.

#### Attention:

Please note that this can only work if a valid e-mail account is available for this engineer and if the respective value has been entered as e-mail address for the engineer in the engineer data!

The e-mail which is sent to the engineer is based on the template *password-reset-template*. This template name is mandatory - otherwise the password reset will not work. The template could look like the following example:

```
Subject: Password reset procedure
<#setting number_format="0.#######"/>
To reset your password please click the following link:
http://localhost:8888/cm-client/passwordChange?resetCode=${resetCode}
This link expires at ${expirationDate?string("yyyy.MM.dd HH:mm:ss")}.
```

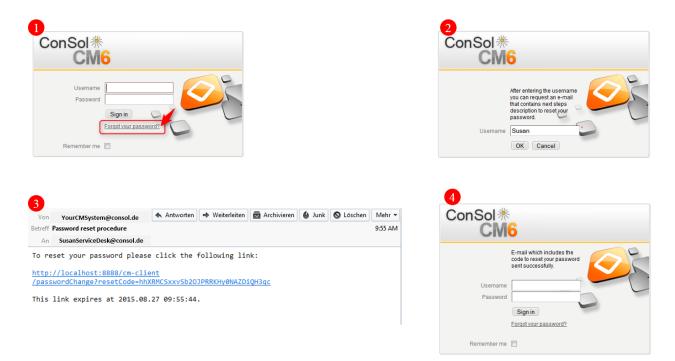


Fig. 6: ConSol\*CM Web Client - Password Reset by an Engineer



Please note that the password reset in the Web Client is only possible if the standard mode is used. It is not possible if LDAP or Kerberos authentication is in operation. See section Authentication Methods for Engineers in the Web Client for an explanation of all possible authentication modes.

#### **Password Reset Template for Customers Using CM.Track**

When a customer has forgotten his CM.Track password, he can request a new password by using the link *Forgot your password* on the initial login page. An e-mail with a link to an URL where the customer can set the new password is sent to the customer.

ì	2	Α	tt	er	nti	ο	n	

Please note that this can only work if a valid e-mail account is available for this customer and if the respective value has been entered as e-mail address for the customer in the respective Data Object Group Field.

The e-mail which is sent to the customer is based on the template *track-password-reset-template*. This template name is mandatory - otherwise the password reset will not work. The template has to be created/ added manually, it will not be present in the system by default.

The template should be formatted like the following example (you can add any text you would like to send to your customers, but please note the \$resetCode variables and the URL!):

Your Password Reset Link: http://cm6doku-cm1.int.consol.de:8280/cm-track/#track=set\_new\_password/resetCode-\${resetCode} (Reset Code: \${resetCode}) Valid 24 hours only, please visit before expiry!

As FROM-address for the e-mail to the customer, the administrator e-mail address is used.

ConSol CM TRACK	ConSol*CM TRACK	ConSol ** CM TRACK
login password login Forgot your password?	After entering the username you can request an e-mail that contains next steps description to reset your password. login luke reset cancel	Password reset request sent to your e-mail. Iogin
E-mail Your Password Reset Link: <u>http://myserver.de/cm-track/</u>		5 ConSol ** CM TRACK
<u>1h85bc37X3dy0ZqacT5poLllcH4ZRKTa</u> (Reset Code: 11 please visit before expiry!	h85bc37X3dy0ZqacT5poLllcH4ZRKTa) Valid 24 hours only,	New password: ••••••
		Set new password

Fig. 7: CM.Track - Password Reset by a Customer

Please note that the password reset in CM.Track is only possible when the DATABASE Mode is used. It is not possible when LDAP authentication is in operation. See section CM.Track: Authentication Modes for the Portal for an explanation of all possible authentication modes.

# **Custom Defined Templates**

A ConSol\*CM administrator or workflow developer can define any template that is required and store it in the *Scripts & Templates Administration*. When you use it in automatic e-mails which are sent by a workflow activity, you can always use the workflow API *renderTemplate()* method to reference a template. However, most e-mail templates should be managed using the Template Manager (see section The ConSol\*CM Template Manager). There are only very few use cases which might require that e-mail templates or parts of e-mail templates have to be stored in the *Scripts & Templates Administration* of the Admin Tool.

# **39 Deployment (Import/Export)**

- Introduction
- Scenarios
- Deployment (Import/Export) Using the Admin Tool
  - Export
  - Import
  - Workflow Deployment (for Deployment Error Recovery Only)

# **39.1 Introduction**

ConSol\*CM offers the possibility to export the system configuration with or without runtime data into a file and to import this file into another CM system. The transfer file is called a *scenario* (sometimes also called a *scene*). It can contain various data - details are explained in the following sections.

Usually a scenario with configuration data is used to transfer data from a test to a staging or production system.

Since CM works with transfer keys for all objects it is highly recommended to transfer test to staging or production environments by using a scenario and not 1 to implement the same functionalities in both systems. In case a transfer (export/import) is performed later on, there will be duplicate objects! Please read the detailed explanations below.

# **39.2 Scenarios**

A scenario is a file in a proprietary ConSol\*CM format (similar to *zip*, *jar* and *tar*) that contains the data of a ConSol\*CM installation. It can be exported from one CM system and imported into the same or another system. This can be very helpful e.g. when a test scenario is built on a test system which can then be transferred to a production server.

When an export file is created (see detailed explanation in sections below) the administrator can decide which data should be included.

A scenario will **always** contain:

- all customer-specific system properties,
   i.e. system properties where the module name starts with *custom*-
- all page customizations

A scenario **can** contain, depending on the selection of the administrator (see figure below):

- runtime data
- configuration data

A scenario will never contain:

• general (not customer-specific) system properties (e.g. mail server, LDAP directory etc.)

# 39.3 Deployment (Import/Export) Using the Admin Tool

In the Admin Tool, the deployments are managed using the navigation item *Import/Export* in the navigation group *System*. In this navigation item you can import or export scenarios (i.e. the whole configuration or part of it) in an application specific format. You usually do this to transfer data between different CM installations. A typical example is transfer of the configuration from a test system to a production system.

	ConSol* CM6				🞜 📰 🌖	
	A Home	*	http://export			
	Access and Roles	۲	Export			
	E Lists	۲	Export-Archive:	C:\Users\Administrator.DUESSELDORF\MyScenario_config_20150730		
	Tickets	۲			Export	Basic settings for
	Lustomers	۲				exporting a
	ᢙ Resources	۲			•	scenario
	Global Configuration	۲				
	⑦ Data Warehouse	۲	Import			
	🔅 Services	۲	Import-Archive:			
	E-Mail	۲	Mode:	Abort on error     Skip corrupt data     Force import of corrupt data		Basic settings for
	🗳 System	۲	- iouci	Delete existing data	-	importing a
	Scripts and Templates					scenario
	s Import/Export				Import	
	R License	_				
	🔀 System Properties					
			Workflow Deployr			
			worknow Deployr	ient	Transfer tickets	Manage ticket
l					Iranster tickets	transfer after workflow
					•	deployment error
1						in Process Design
		~				
	[CM_Administration]					



#### Warning:

The import of external data can modify or delete existing data irrecoverably. Although the user is prompted for confirmation at critical points during deployment, this cannot prevent erroneous handling. Use this function only if you are very sure what you are doing. In case of doubt please ask the ConSol\*CM support team or a ConSol\*CM consultant for assistance.

## 39.3.1 Export

#### • Export-Archive:

Enter path and name of the file you want to create. Alternatively, you can click on  $\succeq$  to open the file browser.

Click on Export afterwards to start the data export.

You will have to select the data that should be included in the export file (scenario):

Export configuration						
Export configuration i Please select the data you want to export.						
Selection of the data to be exported						
Runtime data						
All						
All without tickets						
Only customer data						
Configuration data						
✓ Engineers						
✓ Admin-Tool templates						
✓ Scripts						
✓ Templates						
✓ Word templates						
✓ Customer model						
✓ Queue related and other data						
OK Cancel						

Fig. 2: ConSol\*CM Admin Tool - Import/Export: Export Configuration

#### Runtime data

This refers to data that is stored as operating data, e.g. tickets, resource data and customer data.

• All

Ticket data and customer data is exported completely **and** the complete configuration is exported. When you select the check box *All*, all other check boxes are selected automatically.

#### • All without tickets

The complete installation beside the tickets is exported, i.e. the customer data **and** the complete configuration. When you select the check box *All without tickets*, all other check boxes except for *All* are selected automatically.

#### • Only customer data

Only customer data (i.e. the customer data model and the actual customer data) is exported. Nothing else. (The check box *Customer model* is checked automatically.)

#### • Configuration data

This refers only to the configuration in the Admin Tool, no runtime data is exported.

#### • All

The complete configuration is exported. When you select the check box *All*, all other check boxes under *Configuration data* are selected automatically.

#### • Engineers

Only the engineers with their data are exported. This also includes the roles the engineers have been assigned.

#### • Admin Tool templates

Only the Admin Tool templates (see section Admin Tool Templates for details) are exported.

#### Scripts

Only the Admin Tool scripts are exported (see section Admin Tool Scripts for details).

#### • Templates

Only the templates that are stored in the Template Manager (see section The ConSol\*CM Template Manager for details) are exported.

#### • Word templates

Only the MS Word templates or OpenOffice templates are exported, this is only relevant when CM.Doc is in operation (see section CM.Doc for details).

#### Customer model

Only the data object group fields that are used to define the customer model are exported. No runtime customer data is included.

#### • Queue related and other data

Only queue configuration and general configuration settings are exported (workflows, queues, custom fields, enum values, MLAs, roles, views, properties, ...), in short: everything which is not included above.

If you would like to export the complete configuration, select *All* in the *Configuration data* section. The export /import of subsets (e.g. templates only) is usually applied when selected data (e.g. from a test environment) has to be transferred to another (e.g. live) system.

# 39.3.2 Import

The general principle of ConSol\*CM scenario import is:

- If the check box *Delete existing data* has **not** been **selected**, the scenarios are **merged**, based on the following principles:
  - Data are only **added**, nothing is deleted.
  - If the imported scenario contains the **same field/parameter** as the original scenario, the value from the imported one **overwrites** the one of the original scenario.
    - **Example:** For the field *priority*, there is the annotation *position* = 0;2 in the imported scenario. The original scenario contains the value *position* = 2;2 for the field *priority*, i.e. in the resulting scenario after the import, the value for *position* is 0;2.
  - If the imported scenario contains **more parameters** than the original scenario, the parameters are **added** to the original one.

**Example:** In the imported scenario, there is the annotation *visibility* = *none* for the field *Person/D*. In the original scenario, the field *Person/D* is present, but does not have the annotation, i.e. in the resulting scenario after the import, the field *Person/D* will have the annotation *visibility* = *none* and will thus be invisible.

- If the imported scenario contains less data/parameters than the original one, the original data will be present in the resulting scenario. Nothing is deleted.
   Example: If the field *PersonID* in the imported scenario does no longer contain the annotation *visibility = none*, but the original scenario does contain the annotation, it will remain, i.e. in the resulting scenario the field *PersonID* is still invisible.
- Scripts and templates, the latest version (according to the time stamp) is used, no matter from which scenario.
- Objects are identified by an internal key (*transfer key*).

When an imported scenario contains an object with the same name but another transfer key, technically, these are two objects, and the new object will be added from the import to the original scenario (e.g. when a user *Mr. Miller* exists in both scenarios, there will be one user *Mr. Miller* and one user *Mr. Miller* (1) in the resulting scenario after the import.

To make sure you can transfer another import scenario from the same source (test system), you can delete the original *Mr. Miller* user and transfer the tickets to *Mr. Miller* (1), an operation that is supported by the CM Web Client. Then rename *Mr. Miller* (1) to *Mr. Miller*. Now, the *Mr. Miller* user has the transfer key that originated in the import scenario and during the next import, there will be no problem.

The general use case is: The transfer key is created by the ConSol\*CM system and allows the re-import and/or the update of the configuration data.

- If the check box *Delete existing data* has been **checked**, the entire system is deleted, i.e. **all** existing data are **deleted**. All data means:
  - Configuration data
  - Runtime data

That means when *Delete existing data* has been selected, it is not possible to preserve anything from the original scenario. Everything is deleted! Only system properties are **not** deleted.

The following parameters have to be set for an import operation:

• Import-Archive:

Enter path and file name of the archive from which the data shall be imported. Alternatively, you can click on <sup>E</sup> to open the file browser.

• Mode:

Here you can choose what the import shall do if an error occurs:

• Abort on error

This mode is recommended for production systems.

• Skip corrupt data

This mode is recommended for imports into test systems. It might even be reasonably applied to production systems, because an unexpected error can lead to a corrupt system, but the import continues even when an error appeared. The problem can be probably handled afterwards in a short time. A new import might take longer to perform.

**Example:** A referenced object is not found, e.g. during the import of a view which references a queue which cannot be found.

#### • Force import of corrupt data

Choose this mode only if you want to clone a system with corrupt data, e.g. on a development server or if the support team is doing an error analysis.

Click on Import afterwards to start the data import.

# **39.3.3 Workflow Deployment (for Deployment Error Recovery Only)**

Usually, all operations concerning workflow design and deployment are performed using the Process Designer. However, in case an error has occurred during workflow deployment, you can transfer the tickets that could not be transferred into the new workflow using the following options.

First select the queue(s), then choose the transfer mode:

• Remain at last activity

The ticket will try to stay at its position in the process:

- If the activity and scope have not been changed, i.e. no change in position for the ticket.
- If the activity is no longer present, i.e. the ticket goes as far back in the process as it has to find the last consistent position in the process.

#### • Restart process

The ticket goes back to the START node of the process/workflow.

Please read also the detailed explanation of the workflow deployment process in the *ConSol\*CM Process Designer Manual.* 

# **40 License Management**

- General Information about Licenses in ConSol\*CM
- Managing the ConSol\*CM License Using the Admin Tool

## 40.1 General Information about Licenses in ConSol\*CM

A ConSol\*CM license file is a text file which contains entries for several modules. For each module, the number of valid licenses is indicated. For example, the following excerpt of a license file shows the Web Client, REST section. Ten licenses have been purchased.

```
[CONCURRENT_USERS]
contractParty = Demo-Licence ConSol
products = WEB_CLIENT,REST
version = 6.9
expirationDate = 31.12.2015
licenses = 10
signature = XXX
```

ConSol\*CM works with concurrent users (sometimes also called floating licenses), i.e. the number of users who are logged in simultaneously is registered, no user names are checked. That means, the number of engineers who are managed in the Admin Tool (see section Engineer Administration) does not have to be identical to the number of Web Client licenses.

A license is consumed when the user logs in. The license is handed back to the server when the user session is terminated, i.e. when the user logs out or when the user session is terminated automatically by the server because the session timeout has been reached (see system property *cmas-core-server, server. session.timeout*, Appendix C (System Properties)).

# 40.2 Managing the ConSol\*CM License Using the Admin Tool

You have to import a valid license for your ConSol\*CM system in the navigation group *System*, navigation item *License*. You will receive a license for a test and/or a productive system when you have signed the software contracts with ConSol\*.

Please ask your consultant for details. The license is a plain text file. The license can be modified during CM operation, no system downtime is required.

#### Attention:

There is no *Back* button to undo changes with one click when you enter or delete text in the *Licence* field. If you accidentally changed parts of the license, close the Admin Tool **without** clicking *Save*. This will discard all changes you made to the license text. When you restart the Admin Tool afterwards, the license will be in the same condition as it was before you made the changes.

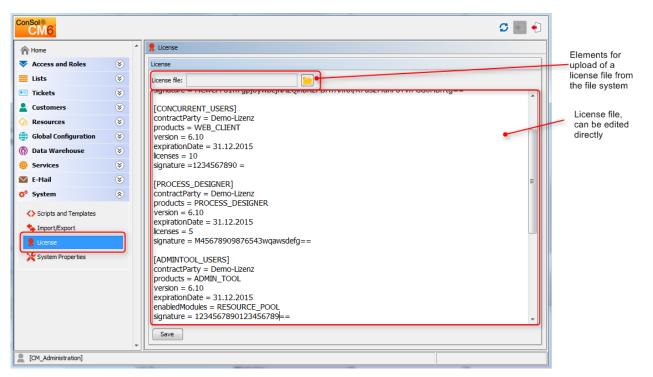


Fig. 1: ConSol\*CM Admin Tool - System: License

Choose one of the two ways to import your ConSol\*CM license file:

- Insert the entire text of the license file by copy and paste. In case an old license is present, just replace the entire text. Click on *Save*.
- Load the license using the file browser next to the field Licence file. Click on Save.

You should receive a message that the license has been imported into the system successfully. It is in operation at once, without further action.

# **41 System Properties**

- Introduction
- System Property Overview
- Setting System Properties
- Programming with System Properties

# **41.1 Introduction**

On the tab *System Properties* in the navigation group *System*, you can add, modify or delete system settings, so called *properties*, for the CM application. Properties are used to store, for example, values for the number of seconds for session timeout, for admin e-mail addresses or for the configuration of the search page size.

#### O NOT WORK ON THIS TAB UNLESS YOU KNOW EXACTLY WHAT YOU ARE DOING !!!

On this page, you have access to basic system setting called properties.

Do not modify, edit or delete any values on this page unless you know exactly what the impact will be

# 41.2 System Property Overview

A system property has the following parameters:

• Module

(mandatory) This indicates in which CM module the property will be used.

• Property (name)

(mandatory) The name of the property. By this name the property is referenced throughout the system.

Type

(mandatory) Data type of the property, i.e. of the value.

• String

A regular string field

• Password

A field which will contain a password and will therefore not be displayed in plain text.

• E-mail

A field which contains an e-mail address, i.e. it has to be formatted according to the standard e-mail format (<address>@<domain>)

Boolean

A Boolean (true/false) field

Integer

A whole number field (no points). Used, for example, for time intervals or number of restarts.

• Value field

The value of the property. Muss be set according to the given data type.

Description

(optional) A text description for the property.

In case you add company-specific properties which contain integers for time intervals, we strongly recommend to use the description to explain the unit of measurement since it makes a big difference if an escalation goes off within 5 minutes, 5 hours or five days!

#### • Restart required

Boolean field (checkbox) to indicate if a change of the system property will only become active after a system restart

Optional

Boolean field (checkbox) to indicate if the system property has to be present or is optional. The following behavior will be configured:

- optional = *true*:
  - The value of the property can be NULL.
  - The property can be deleted, e.g. using the Admin Tool.
- optional = *false*.
  - The value of the property cannot be NULL.
  - The property cannot be deleted, i.e. there must be a value in the value field.

CM6					Edit configuratio	n entry	
A Home	^	System Properties			i Please edit the	configuration entry	
Access and Roles	۲	Module: All modules					
Lists	۲	Module	Property	Value	Module:	sustom-servicedes	k
Tickets	۲	cmweb-server-adapter	defaultNumberOfCustomFieldsColumns	3	Property:	escalation.time.hig	h
Tickets	۲	cmweb-server-adapter	diffTrackingEnabled	true			
Customers	۲	cmweb-server-adapter	favoritesSizeLimit	10	Type:	Integer	
		cmweb-server-adapter	globalSearchResultSizeLimit	10	Value field:	4	
Resources	۲	cmweb-server-adapter	helpFilePath			-	
Global Configuration	۲	cmweb-server-adapter	hideTicketSubject	false	Description:		
Giobal Configuration		cmweb-server-adapter	mail.from				
⑦ Data Warehouse	۲	cmweb-server-adapter	mail.reply.to				
		cmweb-server-adapter	mailTemplateAboveQuotedText	false			
🔅 Services	۲	cmweb-server-adapter	maxSizePerPagemapInMegaBytes	15			
🔽 E-Mail	۲	cmweb-server-adapter	pagemapLockDurationInSeconds	60			
		cmweb-server-adapter	postActivityExecutionScriptName	postActivityExecutionH			
🗘 System	8	cmweb-server-adapter	queuesExcludedFromGS		Restart required:		
		cmweb-server-adapter	refreshTimeInCaseOfConcurrentRememberMeRe	. 5		_	
Scripts and Templates		cmweb-server-adapter	rememberMeLifetimeInMinutes	1440	Optional:	<b>V</b>	
		cmweb-server-adapter	searchPageSize	20			
🐴 Import/Export		cmweb-server-adapter	searchPageSizeOptions	10 20 30 40 50 75 10			
👷 License		cmweb-server-adapter	serverPoolingInterval	5			Save Cancel
		cmweb-server-adapter	supportEmail				
💥 System Properties		cmweb-server-adapter	themeOverlay				
		cmweb-server-adapter	ticketListRefreshIntervalInSeconds	100			
		cmweb-server-adapter	ticketListSizeLimit	100			
		cmweb-server-adapter	unitIndexSearchResultSizeLimit	5			
		cmweb-server-adapter	urlLogoutPath				
		cmweb-server-adapter	wicketAjaxRequestFleaderFilterEnabled	true			
		custom-servicedesk	escalation time.high	4			
		custom-servicedesk	escalation.time.low	20			
		custom-servicedesk	escalation.time.medium	10			
		custom-servicedesk	escalation.time.medium2	10			
		custom-web	base.url	http://cm6doku-cm1.int.	consol.de:8080	-	

Fig. 1: ConSol\*CM Admin Tool - System Properties

The system properties are managed in a table where three of the parameters of a property are displayed as columns:

• Module

Module name

- **Property** The name of he property.
- Value

The value of he property.

You can sort the table according to a column by clicking on the column header. Another click reverses the order.

## **41.3 Setting System Properties**

The values for properties are set in different ways. Properties can be ...

- filled automatically with default values by the CM system, e.g. *cmweb-server-adapter, ticketListRefreshIntervalInSeconds* is set to 180 seconds. You can modify the values when necessary.
- prepared by the system, i.e. the properties are in the list but they are not filled with the required values. For example, LDAP-related properties will only be filled (manually ba an administrator) when you configure the LDAP authentication.
- filled by Admin Tool configurations which you perform by using the graphical user interface of the Admin Tool. For example, when you enter mailbox names in the *E-Mail* configuration, the respective values will be entered into the property *cmas-esb-mail,mail.incoming.uri* (for an Mule/ESB system).
   In those cases, you should always use the graphical configuration and not edit the property directly!
- not set at all in a default installation. Then they have to be added manually, e.g. the activation of the TEF (Task Execution Framework) by adding the property *cmas-app-admin-tool, start.groovy.task. enabled* and setting its value to *true*.
- added to a system manually as customer-specific properties. If the module name starts with *custom*-, those properties are exported in a scenario (see section Deployment (Import/Export)). For example, you can define and add your own properties to manage escalation times. In this way, you can store the values here in the System Properties Management and an administrator can change the values without having any programming knowledge. In the script code where the properties are referenced, only the property name is used. This is explained in the following section.

## **41.4 Programming with System Properties**

To use a property in a Groovy script, i.e. to retrieve the property's value, use the following class and method: *configurationService.getValue(String pModule, String pProperty)*.

For example, to retrieve a specific escalation time use:

**def** mytime = configurationService.getValue("custom-servicedesk","escalation.time.medium2")

This will retrieve the value 10.

custom-serviceaesk	escalation.time.nign	C	14	
custom-servicedesk	escalation.time.medium2			
custom web	laace urt		-	femEdalay em1 int cancel day9090

Fig. 2: ConSol\*CM Admin Tool - Customer-Specific System Property

# 42 ConSol CM Administrator Manual 6.10.2 -Working with Text Templates

# 42.1 Working with Text Templates

Text templates are pre-defined texts which an engineer can open and either use as-is or modify. Text templates may be used for e-mails or ticket-comments where text, headers, and footers can be specified. Another example are documents which have to be edited using MS Word or OpenOffice.

In both cases, the templates do not offer only texts but certain data fields can also be pre-filled with data from the ticket, e.g. customer name or ticket subject.

ConSol\*CM includes two modules which provide text templates:

• The *Template Manager* for editing and managing e-mail and ticket-comment templates (see section The ConSol\*CM Template Manager)

and

• *CM.Doc* with the *Doc Template Manager* for editing and managing MS Word templates (see section CM.Doc).

# 42.2 The ConSol\*CM Template Manager

- Introduction to the Work with E-Mail and Ticket Text Templates
  - E-Mail Templates
    - Why E-Mail Templates?
    - E-Mails in ConSol\*CM
  - Ticket Text Templates
    - Why Ticket Text Templates?
    - Ticket Text Templates in ConSol\*CM
  - E-Mail and Ticket Text Templates in ConSol\*CM
    - E-Mail and Ticket Text Template Components
    - Storage and Management of E-Mail and Ticket Text Templates
      - E-Mail Templates
      - Ticket Text Templates
- Introduction to the Template Manager
- Working with the Template Manager
  - Basic Template Manager GUI: The Template Library
    - Filter
    - Context
    - List
  - Create a New Template
    - Create a New Letter
    - The Library of Markers
    - Create a New Include or Workflow Include
    - Create New Text Blocks
    - Create and Use a Script
    - Binding Templates to Queues or to Specific Parameters
      - Hard and Soft Binding
- Migrating Templates from CM Version 6.8 and Less to CM Version 6.9 and Up
- Page Customization for E-Mail Template Functionalities

# 42.2.1 Introduction to the Work with E-Mail and Ticket Text Templates

Using the *Template Manager*, two types of templates can be defined:

- E-mail templates for e-mails written from the ConSol\*CM system
  - manual e-mails (written by an engineer using the Ticket E-Mail Editor)
  - automatic e-mails initialized by the system (e.g. sent by a workflow script when a certain workflow activity is executed)
- Text templates for ticket texts (comments)
  - during ticket creation
  - during ticket editing

## **E-Mail Templates**

#### Why E-Mail Templates?

When a system works with e-mails, several criteria have to be considered. If all those requirements are met, e-mail templates are a very helpful tool in every-day working life.

- The e-mails have to have a strictly defined layout, usually according to a company's CD (corporate design).
- The texts have to follow the company's letter/text guidelines.
- Texts that are used very frequently have to be provided by templates in order to save time and to avoid typos and other errors while typing the text.
- Customer-, system-, and engineer-specific data have to be integrated into the text.
- The template management should be performed by an administrator and/or power user. No system configuration by the software company should be required.

ConSol\*CM provides the function set to take all those criteria into consideration.

#### E-Mails in ConSol\*CM

E-mails are used for core functionalities in ConSol\*CM. Those functionalities have been described in detail in section E-Mail, so here, only a short review is given.

ConSol\*CM can receive and send e-mails. Sending e-mails can serve various purposes:

• An engineer writes an e-mail directly from the ticket, using the Ticket E-Mail Editor.

This can be an e-mail to the customer, to a co-worker, or to any other person with a valid e-mail address. Often, there are standard texts which are used every day for several recipients. To avoid typing the same text over and over again, ConSol\*CM offers e-mail templates. These are text templates where parameters like customer name, ticket number or engineer name and phone number can be integrated. When the template is used, the system fills in the parameters automatically with the valid data from the current ticket. The engineer can add more text or modify the text as required, so e-mail templates are not static, but dynamic.

E-mails which are sent manually either do not use a template or are based on a template from the *Template Manager*. Templates from the *Script and Template Administration* of the Admin Tool are not available here.

#### • The system sends an e-mail automatically.

This can be an internal e-mail like a reminder for an engineer when the ticket has entered the escalation status or an internal e-mail to a supervisor when a ticket needs approval to be continued. Or it can be an external e-mail to the customer like a confirmation of receipt or a notice that a ticket has been solved. The e-mail is generated automatically based on the respective e-mail template. This can be an e-mail template from the *Template Manager* or from the *Script and Template Administration* of the Admin Tool.

## **Ticket Text Templates**

#### Why Ticket Text Templates?

Using ticket text templates, i.e. predefined text segments you can access when you create or edit a ticket, serves several purposes:

- You as ticket engineer save a lot of time by not typing the same text over and over again.
- You do not risk forgetting important points (e.g. in questions for a pre-qualification when you talk to your customer on the phone).
- You do not have to worry about typos.
- You do not have to look up ticket and/or customer data, because all data is integrated into the text automatically.

#### Ticket Text Templates in ConSol\*CM

Ticket text templates are defined very similar to e-mail templates. Only the *Used within* parameter is set in a different way when the template is created using the Template Manager.

Attention:

Technically, there is no difference between e-mail and ticket text templates! So for each template you as a template manager working with the Template Manager can decide if the template should be used as ticket text template, as e-mail template, or both.

### E-Mail and Ticket Text Templates in ConSol\*CM

#### E-Mail and Ticket Text Template Components

In e-mail and ticket text templates in ConSol\*CM you can use free text and all data that is available for a customer, an engineer, and/or the ticket. In section The Library of Markers all available components will be explained.

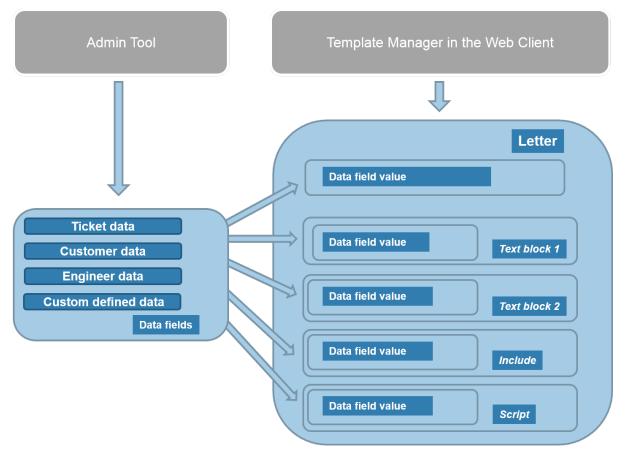


Fig. 1: ConSol\*CM - Availabe Components / Data for E-Mail Templates

Please refer to the *ConSol\*CM User Manual* section *Creating a New Ticket, Editing a Ticket,* and *Creating and Sending an E-Mail* for a detailed description how to use the ticket editing functionalities and the Ticket E-Mail Editor.

#### Storage and Management of E-Mail and Ticket Text Templates

#### **E-Mail Templates**

E-Mail templates are stored and managed at two different locations in ConSol\*CM:

- 1. In the Template Manager
- 2. In the *Script and Template Administration* of the Admin Tool (this will not be treated here, but in the respective section of this manual; see Admin Tool Templates)

#### **Ticket Text Templates**

Ticket text templates are stored and managed at two locations in ConSol\*CM:

- 1. In the Template Manager (here, ticket text templates are managed)
- 2. In CM.Doc (here, MS-Word documents can be stored for use with CM.Doc, see section CM.Doc)

## 42.2.2 Introduction to the Template Manager

The ConSol\*CM Template Manager is a Web Client-based tool for the creation and management of e-mail and ticket text templates. See section Work with the Template Manager.

remplate	s										N
	Template libr	ary									
	Filter										
	Active										
	For Choose	se One 💌									
	Used Choose within	se One 💌									
	Context 1. None	_									
	2. None						•				
	None	*									
	Group	Template	Language	Туре	None	None	Usage	Used within workflow	Used within email	Used within ticket create	Used within ticket edit
		Catalogue 1 0.0.1 -	en	Text Block			0	no	yes	yes	yes
	Rückfrage		en	Text Block			0	no	yes	yes	yes
	Rückfrage Rückfrage	Catalogue2 0.0.1 -	GII				0	no	yes	yes	yes
	-	Catalogue2 0.0.1 V Katalog PC 0.0.1 V	de	Text Block			U				
	Rückfrage			Text Block Text Block			0	no	yes	yes	yes
	Rückfrage Rückfrage	Katalog PC 0.0.1 👻	de						yes yes	yes yes	yes yes
	Rückfrage Rückfrage Vertrag	Katalog PC 0.0.1 V New offer 0.0.1 V	de de	Text Block			0	no			
	Rückfrage Rückfrage Vertrag Werbung	Katalog PC 0.0.1 ▼ New offer 0.0.1 ▼ New products 0.0.1 ▼	de de en	Text Block Text Block			0 0	no no	yes	yes	yes

Fig. 2: ConSol\*CM Web Client - Template Manager

Every user who has been assigned a role with the permission *Write template* can access the item *Manage templates* in the main menu (which opens the Template Manager).

ConSol CM6			Ç	•
A Home		es		
Access and Roles	۲	20 roles	Resource Types Permissions	Views
👷 Engineers			eue Permissions Customer Group Permissi Engineer Functions Global Permission	
Roles		e Global Pe	ermissions	
Views		untManagementReseller Adm	ninistrate	
A Engineer Functions		irackBasicCustomers	w Permissions	
Elists	۲	merManager_DirectCustomers	ad workflow	
Tickets	8	merManager_Partners	te workflow	
Lustomers	۲	st_Level_Role	oloy workflow	
ᢙ Resources	۲	ales_Role	e Permissions	
😩 Global Configuration	۲	upervisor	entation Permissions	
🕥 Data Warehouse	۲	Irce Manager, Products	nfigure representation	
🔅 Services	۲	ceDesk 🧧 🛛 Track Us	ser Permissions	
E-Mail	۲	All	ess tickets of the own company	
💠 System	۲	MyCustomerGroup Reseller		
		flow_Admin		
CM_Administration]				

Fig. 3: ConSol\*CM Admin Tool - Permissions for Role TemplateManager

#### Consulting Best Practice:

We recommend to create a role (*e.g. TemplateManager*) that has only the permission *Write template*, no queue permissions or other permissions are granted. Every user who should have access to the Template Manager can be given this role. That way, there is no merge between regular user permissions and Template Manager permissions and you can grant and retrieve the Template Manager permission in a very flexible way.

When the permission has been granted, the user has access to the main menu item Manage templates.



Fig. 4: ConSol\*CM Web Client - Main Menu with Template Manager Access

## 42.2.3 Working with the Template Manager

#### **Basic Template Manager GUI: The Template Library**

When you open the Template Manager, the Template library is displayed:

Template lib	rary									
Filter										
Active										
For queue Cho	ose One									
Used within Cho	ose One 💌									
Context										
1. None										
2. None	▼									
Group	Template	Language	Туре	None	None	Usage	Used within workflow	Used within email	Used within ticket create	Used within ticke
Vertrag	Ablehnung, Vertrag abgelaufen 0.0.1 👻	en	Letter			0	no	yes	no	no
Vertrag Vertrag	Ablehnung, Vertrag abgelaufen 0.0.1 💌 Annahme, Vertrag abgelaufen 0.0.1 💌	en de	Letter Letter			0	no no	yes yes	no no	no no
-								-		
Vertrag	Annahme, Vertrag abgelaufen 0.0.1 💌	de	Letter			0	no	yes	no	no
Vertrag allgemein	Annahme, Vertrag abgelaufen 0.0.1 💌 Begrüßung 0.0.1 👻	de de	Letter Include			0 0	no no	yes yes	no yes	no yes
Vertrag allgemein Rückfrage	Annahme, Vertrag abgelaufen 0.0.1 v Begrüßung 0.0.1 v Catalogue 1 0.0.1 v	de de en	Letter Include Text Block			0 0 0	no no no	yes yes yes	no yes yes	no yes yes
Vertrag allgemein Rückfrage Rückfrage	Annahme, Vertrag abgelaufen 0.0.1 v Begrüßung 0.0.1 v Catalogue 1 0.0.1 v Catalogue 2 0.0.1 v	de de en en	Letter Include Text Block Text Block			0 0 0	no no no	yes yes yes yes	no yes yes yes	no yes yes yes
Vertrag allgemein Rückfrage Rückfrage Rückfrage	Annahme, Vertrag abgelaufen 0.0.1 v Begrüßung 0.0.1 v Catalogue 1 0.0.1 v Catalogue 2 0.0.1 v Erinnerung 0.0.1 v	de de en en de	Letter Include Text Block Text Block Letter			0 0 0 0	no no no no	yes yes yes yes	no yes yes yes no	no yes yes no
Vertrag allgemein Rückfrage Rückfrage Rückfrage	Annahme, Vertrag abgelaufen 0.0.1 v Begrüßung 0.0.1 v Catalogue 1 0.0.1 v Catalogue 2 0.0.1 v Ernnerung 0.0.1 v Intiale Rückfrage 0.0.1 v	de de en en de de	Letter Include Text Block Text Block Letter Letter			0 0 0 0 0	no no no no no	yes yes yes yes yes yes	no yes yes yes no	no yes yes no no
Vertrag allgemein Rückfrage Rückfrage Rückfrage Rückfrage	Annahme, Vertrag abgelaufen 0.0.1 ¥ Begrüßung 0.0.1 ▼ Catalogue 1 0.0.1 ▼ Catalogue 2 0.0.1 ▼ Erinnerung 0.0.1 ▼ Initale Rückfrage 0.0.1 ▼ Katalog PC 0.0.1 ▼	de de en en de de de de	Letter Include Text Block Text Block Letter Letter Text Block			0 0 0 0 0 0	no no no no no	yes yes yes yes yes yes yes	no yes yes no no yes	no yes yes no no yes

Fig. 5: ConSol\*CM Web Client - Template Manager

A list of all existing templates is shown.

#### Filter

You can filter the displayed list entries by using the filters in the upper part of the page:

#### • Active

Only active templates are displayed (i.e. deactivated templates will not be displayed).

• For queue

Only templates which have been assigned to the selected queue will be displayed. Only one queue can be selected. The display of templates which have not been assigned to a certain queue will not be affected here. They will be displayed.

• Used within

Only the templates of the selected type will be displayed, i.e. e-mail, workflow, ticket texts (creation or editing). Only one type can be selected.

#### Context

This provides another kind of filter. Here you can select ticket data. For each selected criterion, one of the columns named *none* in the list will be named according to the selected parameter. For the templates where the selected Custom Fields are used, this will be indicated in the list.

#### List

The list contains the following columns. It can be sorted according to a column by clicking on the column header. Another click will reverse the display order.

#### • Group

The group of a template does not have any technical or functional implications, it is only used to order the list in a certain way, i.e. to group templates with a common context.

• Template

The template name. This is also used in workflows to indicate the required template and it is displayed in the Ticket E-Mail Editor or Ticket Comment Editor in the template selection.

• Language

The language that has been selected during creation of the template (can be modified). The web browser of an engineer will display the template according to the browser locale. So when you need a template in different languages, make sure to set this value correctly.

• Type

There are five different types of templates which will be explained in detail in the subsequent sections:

• Letter

This is the basic form of a template. *Letter* templates are offered in the Ticket E-Mail Editor or Ticket Comment Editor and can be used as workflow e-mail templates. All other template types are only sub-components of a *letter*.

• Include

This is a sub-component of a *letter* which can be used in *letters*. In this way, you can use the same text in several templates. A typical example is the signature of a company which is used in every other template. The signature should be defined as *include* and then be integrated in

all other (*letter*) templates where the signature is required. Thus, the template administrator has to maintain the signature at exactly one location and can be sure that it is used in every other template correctly.

Workflow Include

This is the same as an *include* but used only for workflows.

Text Block

This is also a sub-component of a *letter*. It can be checked or unchecked during the writing of e-mails, i.e. the text will be displayed or not. A good example is the first analysis in a help desk team where the same questions are sent to every customer. One text block can contain hardware questions, one software questions. Depending on the purpose of the e-mail, the engineer uses either one.

Script

This template type is only available for administrators (i.e. a user who logs into the Web Client using an administrator account). Here, *intelligent* templates can be constructed like a template that sets *Dear Sir* for a male and *Dear Madam* for a female customer, depending on the value of the field *salutation*.

#### • Context (here None)

Can be used to define dependencies or conditions (e.g. field values). Only when the condition is met the template is offered in the Web Client GUI, e.g. the template is only offered for tickets with high priority.

• Usage

Indicates how often the template is used.

Used within workflow

Boolean. A template can be marked as *workflow template*. Then it is not available in the Ticket E-Mail Editor or Ticket Comment Editor but can only be used by the workflow for automatic e-mails.

- Used within email Boolean. All templates which have been marked as *Available in Email* will be marked *yes*.
- Used within ticket create

Boolean. All templates which have been marked as Available in Ticket create will be marked yes.

• Used within ticket edit

Boolean. All templates which have been marked as Available in Ticket edit will be marked yes.

For every template you can select an operation by using the context menu:

ServiceDeskTemplates	Pre-qualify questions 0.0.1	<b>▼</b> e	n
general	Prequalify Template 0.0.1	Edit	
general	SalutationScript 0.0.1 💌	Disable	
allgemein	Signatur Company 0.0.1 🤜	Delete	
allgemein	Signatur standard (E-mai	Clone	
general	TEST 0.0.1 💌	Use as e-mail standard	
general	receipt_notice_ServiceDesk	Use as comment standard	

Fig. 6: ConSol\*CM Web Client - Template Manager: Context Menu of a Template

#### • Edit

Edit the template. The same functionalities as described for creating a new template are available.

#### Disable

(or Enable for disabled templates)

Only enabled (= active) templates are active and available in the system.

• Delete

Delete the template. This is not possible when the template is used by a workflow or when an *include* or *text block* is used in other templates (*letters*).

Clone

Create a copy of the template. A new name is required in this case.

Use as e-mail standard

(or **Unset standard** for the current standard template)

Only one template can be marked as standard e-mail template. This will be automatically inserted into any e-mail that is opened in the Ticket E-Mail Editor. It can then be removed by the engineer or used in the e-mail. Usually a signature or footer is defined as standard template.

#### • Use as comment standard

(or Unset standard for the current standard template)

Only one template can be marked as comment standard template. This will be automatically inserted into a comment that is opened in the Ticket Comment Editor. It can then be removed by the engineer or used for the comment.

Information:

A standard template must not contain text blocks or variables.

## **Create a New Template**

Here, an example for an e-mail template is shown. The same principle can be applied to ticket text templates.

#### **Create a New Letter**

To create a new template, click on the *New* link in the Template Manager. On the *New Template* page, you can enter all parameters for the new template. In our first example, a *letter* is created which serves as confirmation of receipt for the customer. It can be automatically sent from the workflow or be used in the Web Client.

ĺ	Template					
	De	etails				
		Title	receipt_notice_	Service	Desk	*
		Group	ServiceDeskTe	emplate	Add new group	
			0.0.1	_		
	L	.anguage	English			
		Active		_		
		Туре	Letter	-		
	A	vailable in	'Email'		<b>*</b>	
	Bo	ody				
	_					
	1	B I U	8 = 1		DIV (default) 🔻 Font Family 🔻 Font Size	▼ <u>A</u> ▼_ ▼
		$\mathbf{x}^2 \mathbf{x}_2$	= =   =	1	1 🖿 💷 🖤 🚽 📲 📲 💷	Ω 🔘 🖳
	1	Dear [sal	utation] [A	cad. t	le][Lastname],	
					t concerning [Subject]. It is treated with num	ber [Name].
	'	We will ge	et back to you	as so	on as possible.	
	1	[Signatu	r Company	(en)]		
		Library of	markers			
		Ticket		•	Begrüßung (de)	
		Engineer Additional p	aramatara	•	Signatur Company (en)	
		Additional p Includes	arameters	•		
		Text blocks		•		
		Workflow in	ncludes	. =		
	:	Scripts		• •	*	
					Add parameter Insert	

Fig. 7: ConSol\*CM Web Client - Create a New Template

• Title

The name of the template.

• Group

The group (see previous section). You can either use an existing group or create a new one.

Release

If you want to set up a versioning system for the e-mail templates, you can set the release, i.e. version, here.

• Language

Choose the language of the template. This can be important, if you work in an international team. ConSol\*CM can be used in as many languages as required, this can be configured using the Admin Tool and in the Process Designer. To make sure the e-mails are sent in the correct language, the corresponding locale has to be set here.

• Active

Select if the template should be active (= enabled) or inactive (disabled). This can be changed later, so you can design a template and work on it and set it *active* when you are finished.

#### • Type

Select the type (letter, include, text block, script) of the template. See previous section for explanation.

• Available in

#### • Workflow

Select if the template should be available in workflows (i.e. not available in the Ticket E-Mail Editor or in the Ticket Comment Editor).

• Email

Select if the template should be available in e-mails.

Ticket create

Select if the template should be available during ticket creation.

Ticket edit

Select if the template should be available when the ticket is edited.

#### • Body

Here you define the content of the template/letter. You can combine any free text and components of the *Library of Markers* (below the body, see section The Library of Markers for details). Write the text and select the desired element from the library by clicking on it and by pressing *Insert*.

#### • Binding

Here you can define one or more

- queue(s)
- context(s)

where the template should be available, see section Binding Templates to Queues or to Specific Parameters for details.

In the Web Client, i.e. in the Ticket E-Mail Editor, the template *receipt\_notice\_ServiceDesk* would have the following layout:

	E-Mail	Attachment	Time booking	
New E-m	ail			
	show Cc  show Bcc			
To:	"Pepper," <g.pepper@berkl< th=""><th>ey-consulting.com&gt;</th><th></th><th></th></g.pepper@berkl<>	ey-consulting.com>		
Reply-To:	cmdoku1@consol.de			
Subject:	Ticket (100262) Internet doe	s not work		
Template	receipt_notice_ServiceDe	sk 🔻		
rempiare				
Dear M	Irs Pepper,			<u> </u>
	e received your request ( r 100262.	concerning Internet do	es not work. It is treated wi	ith
We will		as possible.		
We will	get back to you as soon	as possible.		E
	get back to you as soon	as possible.		E
We will Best re	get back to you as soon	as possible.		E
Best re	get back to you as soon	as possible.		Ξ
Best re Susan	get back to you as soon gards, ServiceDesk	as possible.		E
Best re Susan  ConSol	get back to you as soon ogards,	as possible.		E
Best re Susan  ConSol Franzis 81669	get back to you as soon gards, ServiceDesk * Software GmbH kanerstraße 38 München	as possible.		Ξ
Best re Susan  ConSol Franzis 81669	get back to you as soon gards, <b>ServiceDesk</b> * Software GmbH kanerstraße 38	as possible.		E
Best re Susan  ConSol Franzis 81669	get back to you as soon gards, ServiceDesk * Software GmbH kanerstraße 38 München	as possible.		T
Best re Susan  ConSol Franzis 81669	get back to you as soon gards, ServiceDesk * Software GmbH kanerstraße 38 München	as possible.		-
Best re Susan  ConSol Franzis 81669	get back to you as soon gards, ServiceDesk * Software GmbH kanerstraße 38 München	as possible.		E Send Cancel

Fig. 8: ConSol\*CM Web Client - E-Mail Template in Ticket E-Mail Editor

#### The Library of Markers

The Library of Markers provides a collection of all data fields that are available in the system. These are:

• Default fields

Like *queue* or *engineer* with all corresponding data like *queue name* or *engineer forename* or *engineer lastname*.

- Ticket Custom Fields and/or Data Object Group Fields That have been designed specifically for the system like e.g. *customer service number*.
- Components of the Template Manager That are used in other components, e.g. *includes* or *workflow includes*.
- Scripts That have been defined by an administrator and can help provide content in a dynamic way.

The following table provides examples for fields that could be found in a system. The names displayed in the Library of Markers are the localized names of the Custom Fields resp. of the Data Object Group Fields.

If no localization is provided, the (technical) field name is displayed. If you would like to read the information about Custom Fields, please refer to chapter Custom Field Administration. For Data Object Group Fields (i. e. customer data), see section Setting Up the Customer Data Model.

Field Group or Main Component	Custom Field Resp. Data Object Group Field (Example)	Explanation
Customer data models		<entry all="" customer-<br="" for="" point="">specific fields&gt;</entry>
Customer data models	Customer groups	<entry all="" customer-<br="" for="" point="">specific fields of the selected customer group&gt;</entry>
<contact company="" or=""></contact>	Salutation	
	Academic title	
	Forename	
	Lastname	
	Phone	
	Email	
	<more depending="" fields="" on<br="">FlexCDM definition&gt;</more>	
Customer Group	Name of the customer group	
Queue	Name	The name of the queue where the ticket is being processed at the moment
Custom Fields for queue	All Custom Fields of Custom Field groups that have been assigned to the queue	
Ticket	ID	The internal ticket ID, not displayed in the Web Client GUI
	Name	The ticket name, the <i>ID</i> in the Web Client GUI
	Subject	
	Engineer	The current engineer who is assigned to the ticket. Can be <i>NU LL</i> (empty) if no engineer is set.
	Creation Date	Opening date of the ticket

Field Group or Main Component	Custom Field Resp. Data Object Group Field (Example)	Explanation
Engineer	Login	The login of the engineer who is currently logged into the system
	Firstname	First name, last name, e-mail of
	Lastname	the engineer, be sure that the
	Email	respective field has been filled in the engineer data, see chapter Engineer Administration for details about engineer management.
Includes	<all available="" includes=""></all>	
Text Blocks	<all available="" blocks="" text=""></all>	
Workflow Includes	<all available="" includes="" workflow=""></all>	
Scripts	<all available="" scripts=""></all>	

#### **Attention**:

In case customer-specific fields are used in a template, this template will only be offered when the ticket is assigned to a main customer from the respective customer group!

Since Data Object Group Fields differ between customer data models, it might be necessary to define a similar template for several customer groups.

By clicking on *Add parameter* you can define a field where the engineer has to fill in data at run-time. When you have defined the field, it will be available under *Additional parameters*.

B I <u>U</u> <del>S</del> ≡	= =		📃   DIV (default) 🔻 Font Family	<ul> <li>Font Size</li> </ul>	✓ <u>A</u>	~
$\mathbf{x}^2 \mathbf{x}_2 \mid \Xi \equiv \Xi \mid \blacksquare$	*		≰∎∎¥∋-∦‰€.	** 🎟 🖽	Ω 🥥 🗏	
						-
Dear [salutation] [/	ACad	. u	itie][Lastname],			
we have received you We will get back to yo			est concerning [Subject]. It is tre oon as possible.	ated with nu	mber [Name	e].
[Signatur Company	/ (en	)]				
						1:
Library of markers						le.
Ticket	Þ	•	Begrüßung (de)			1.
Ticket Engineer	•	*	Begrüßung (de) Signatur Company (en)		•	le.
Ticket Engineer Additional parameters		•				1.
Ticket Engineer Additional parameters Includes		•				
Ticket Engineer Additional parameters Includes Text blocks	•	• III			^	1:
Ticket Engineer Additional parameters Includes	•				^	1.

Fig. 9: ConSol\*CM Web Client - Template Manager: Add Parameter in Library of Markers

B <i>I</i> <u>U</u> <del>S</del>   ≣	壹 壹 目 DIV (default) マ Font Family マ Font Size マ <u>A</u> マ_	-
	: ∉   🖬 🖽 🖽 '¥ ∋+' 'π =, :'' 📾 🔠   Ω 🥯 属	_
A	• ##   🖽 🖽 📼 📼 I = 1, W, W = 48 3 . 🛲 000   \$\$\$ 🔗 📾	>
Dear [salutation] [/	Acad. title][Lastname],	
	ur request concerning [Subject]. It is treated with number [Name ou as soon as possible.	e].
We will call you back	at [CallBackDate]	
[Signatur Company	(cp)]	
[	(en)]	
[g,	( (en)]	
[	(en)]	
,	, (en)]	6
Library of markers	(en)]	
	▲ CallBackDate	- li
Library of markers	CallBackDate	1.
Library of markers Type of markers	CallBackDate	1.
Library of markers Type of markers Customer data models	CallBackDate	li
Library of markers Type of markers Customer data models Customer Group	CallBackDate	1
Library of markers Type of markers Customer data models Customer Group Queues	CallBackDate	
Library of markers Type of markers Customer data models Customer Group Queues Queue Custom Fields	CallBackDate	li
Library of markers Type of markers Customer data models Customer Group Queues Queue Custom Fields Ticket	CallBackDate	

Fig. 10: ConSol\*CM Web Client - Template Manager: Library of Markers after Adding Parameter

When the engineer opens the Ticket E-Mail Editor in the ticket and enters data in the field (here *CallBackDate*), the (new) data is automatically written into the field in the template.

Comment	E-Mail	Attachment	Time booking	
New E-ma				
	show Cc  show Bcc			
To:	" Pepper," <g.pepper@berkley< th=""><th>v-consulting.com&gt;</th><th></th><th></th></g.pepper@berkley<>	v-consulting.com>		
Reply-To:	cmdoku1@consol.de	, concentry in the second		
Subject:	Ticket (100262) Internet does	not work		
Template	receipt_notice_ServiceDes	ik 🔻		
	Additional paramotora			
	CallBackDate August 1, 2014	4		
Dear Mr	s Pepper,			Â
we have	received your reques	oncerning Internet doe	s not work. It is treated	with
	100262.			
We will	get back to you as soon	s possible.		=
we will d	all you back at August 1	, 2014.		
Best reg	ards,			
Susan	ServiceDesk			
	Software GmbH			
	anerstraße 38			
81669 M	lünchen			-

Fig. 11: ConSol\*CM Web Client - Ticket E-Mail Editor: Enter Data for New Parameter

#### Create a New Include or Workflow Include

An *include* is a template that cannot be selected by the engineer directly (in the Ticket E-Mail or Comment Editor) but a component which is integrated in other e-mail or ticket text templates, mostly in *letters*.

A standard use case for an *include* is the signature, so we will show you the corresponding example. In order to define the standard company signature, define a signature as *include* and integrate it into the standard company signature which is a *letter*.

lew Templa	e
De	ails
	Title Signature_Company *
	Group general Add new group
	Release 0.0.1 * + + + +
	anguage English
L	
	Type Include
ls \ Bo	Vorkflow
00	
1	I U S = = = DIV v Font Family Font Size A
X	°X,   Ξ Ξ   ≇ ╦   🗹 📰 💷 Ψ 🚽 🖓 🐜 🔩 🖆 🎟 🔤   Ω 🥥 🔍
	y Special ConSol* Company
4	anzlerstr. 8 00472 Düsseldorf 00472 Düsseldorf
	el: 0211/339903-100 ax: 0211/339903-111
	ttp://www.consol.de
	brary of markers
-	
	ustomer Group
	lueues Dubiast
	icket
	ingineer Creation date
	dditional parameters Escalation date
	Add parameter Insert
	OK Cancel

Fig. 12: ConSol\*CM Web Client - Template Manager: Signature Include

Template	
Details	
Title	Standard_Signature *
Group	general Add new group
Release	0.0.1 * + + +
Language	English
Active	
Туре	
ls Workflow Body	
200,	
BI	U S = = = DIV (default) v Font Family v Font Size v A v v
$\mathbf{X}^2$ $\mathbf{X}_2$	注注  律 律  🖬 🖽 🖼 判 🗄 売 指 福 副   Ω 🥥 🔍
[Signatu	re_Company (en)]
	li li

Fig. 13: ConSol\*CM Web Client - Template Manager: Standard Signature Letter

If you follow the example, two purposes can be met:

- The *Standard\_Signature* can be defined as e-mail standard. In this way it will automatically be displayed for every new e-mail. Of course, the engineer can change the template.
- The *Signature\_Company* can be used in any other template if required (compare image of the new template).

#### **Create New Text Blocks**

A *text block* is a template that cannot be selected by the engineer directly (in the Ticket E-Mail or Comment Editor) but a component which is integrated in other e-mail or ticket text templates, mostly in *letters*. Usually, several text blocks are offered in one *letter* so that the engineer can select which one(s) to use.

The following example shows how to use three *text blocks* to ask some initial analysis questions to the customer.

First, the *text blocks* are created:

Ne	w Templ	ate	
	I	Details	
		Title	Questions_Software_Browser *
		Group	Service Team Add new group
		Release	0.0.1 * ++++
		Language	English
		Active	
		Туре	Text Block
		3 WORKHOW	
	ł	Body	
		В <i>I</i> <u>U</u>	Set     Image: Set in the se
		X <sup>2</sup> X <sub>2</sub>	目 注   緯 淳   🖬 🗃 🗐 🏆 🚽 🕂 🐜 🤮 🎬 🗎   Ω 🥥 🔍
		Browser:	
		Version:	

Fig. 14: ConSol\*CM Web Client - Template Manager: Create First Text Block

New Templ	late			
I	Details			
	Title	Questions_Software_OS *		
	Group	Service Team Add new group		
	Release	0.0.1 * ++++		
	Language	English		
	Active			
	Туре	Text Block		
	ls Workflow			
-	Body			
	BIU	S = = = DIV ▼ Font Family ▼ Font Size ▼ <u>A</u> ▼ ▼		
	X <sup>2</sup> X <sub>2</sub>	Ξ 注   幸 幸   🖬 🗇 💷 ヅ 글・ボ 🐂 弐, 🕾 🎟 💷   Ω 🥯 🔍		
	Operating System:			
	Version:			
	Patch:			
	Further inf	ormation:		

Fig. 15: ConSol\*CM Web Client - Template Manager: Create Second Text Block

New Temp	late	
	Details	
	Title	Questions_Hardware *
	Group	Service Team Add new group
	Release	0.0.1 * ++++
	Language	English
	Active	
	Туре	Text Block
	ls Workflow <b>Body</b>	
	bouy	
	BIU	S     Image: S
	X <sup>2</sup> X <sub>2</sub>	目 注   緯 淳   🗹 🐨 💷 Ψ ∋+ 🖓 채 🎭 🕾 🎟 🕮   Ω 🥯 🔍
	PC or Lapt	op?
	Brand:	
	RAM size:	
	# CPUs:	
	Monitor bra	and:
	Monitor mo	odel:
		<b>•</b>

Fig. 16: ConSol\*CM Web Client - Template Manager: Create Third Text Block

Then the <i>letter</i> is created where the a	<i>text blocks</i> should be used:
-----------------------------------------------	------------------------------------

Details	
	Autor Antoin Frank
Title	Questions_Analysis_Error
Group	Service Team Add new group
Release	1.0.1 * + + +
Language E	English
Active	
Туре	.etter
Is Workflow	
Body	
	S       Image: S       Imag
	ation] [Acad. title] [Lastname],
-	
	he error in the ticket [Name] as fast as possible, please answer the following questions this email as reply.
	Hardware (en)]
	Software_OS (en)]
[Questions_	Software_Browser (en)]
Sincerely,	rery much in advance. Company (en)]
	h
library of ma	
Ticket	Questions_Hardware (en)
Engineer	Questions_Software_Browser (en)
Additional par	ameters Questions_Software_OS (en)
Includes	• =
Text blocks	
Workflow incl	udes
Contrato	

Fig. 17: ConSol\*CM Web Client - Template Manager: Create Letter for Text Blocks

In the Web Client, the engineer can then decide which text blocks to use and which ones to deactivate:

New E-n	New E-mail		
	show Cc   show Bcc		
To:	"Luke Skywalker" <ul> <li>duke@localhost&gt;</li> </ul>		
Subject:	Ticket (100003) Test 2		
Template	Questions_Analysis_Error 💌		
	Selected text blocks		
	Questions_Hardware		
	Questions_Software_OS		
	Questions_Software_Browser		
Quote	Select entries   Entries visible to the customer		
	U S = = = DIV V Font Family Font Size A .	1	
$\mathbf{X}^2$ $\mathbf{X}_2$	2   注 注   律 律   M II I		
Dear M	Mr Skywalker,	-	
	alyze the error in the ticket 100003 as fast as possible, please answer the following questions and send us this as reply.		
PC or	Laptop?		
Brand	:		
RAM s	ize:	=	
# CPU	ls:		
Monito	or brand:		
Monito	or model:		
Opera	ting System:		
Versio	in:		
Patch:			
Furthe	er information:		
Browse	er:		
Versio	in:		
		•	
		11.	

Fig. 18: ConSol\*CM Web Client - Ticket E-Mail Editor: All Text Blocks Selected

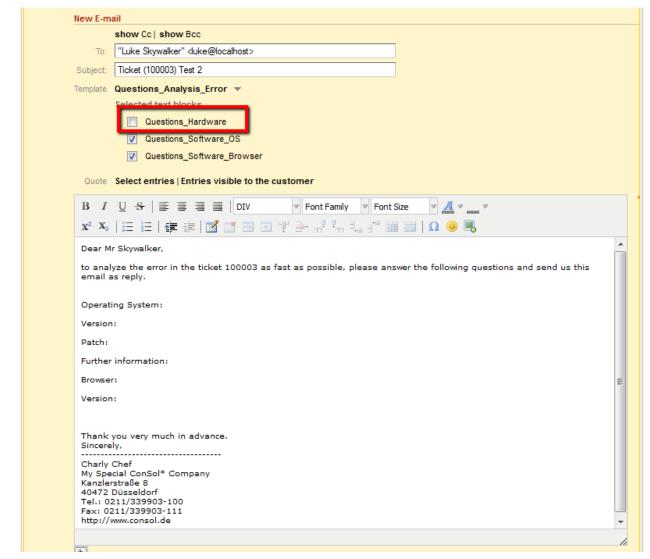


Fig. 19: ConSol\*CM Web Client - Ticket E-Mail Editor: One Text Block Deactivated

#### **Create and Use a Script**

Sometimes a system has to have a certain *intelligence* regarding the words and phrases used in e-mail templates, because they are not static but have to be adapted in a dynamic way. A standard example is the use of *Dear Sir* for male customers (salutation = "Mr") and *Dear Madam* for female customers (salutation = "Mrs").

Use cases like this can be covered using *scripts* in the Template Manager.

This can only be realized by a ConSol\*CM administrator. When you log into the Web Client as a regular user with template managing permissions, you can define all template types but no *scripts*. In order to be able to select *Script* as template type, you have to log in with an administrator account.

For information about the syntax that is used, please see the following web links:

- FreeMarker
- FreeMarker directives

Please note that in the standard Freemarker notation, angle brackets ( <> ) are used for statements. Here, in an HTML environment, this cannot work, and therefore, instead of angle brackets, square brackets ( [ ] ) have to be used.

#### An example *script* is the following:

Template	
Details	
Title	Salutation_Script_MyCustomerGroup *
Group	general Add new group
Release	0.0.1 * + + +
Language	English custom group-specific fields!
Active	
Туре	Script
Body	
[#assigr [/#if] [#if lastna [#if saluta [#if saluta [#elseif [#else][ \${lastnar	
	OK Cancel

Fig. 20: ConSol\*CM Web Client - Template Manager: Example Script for Salutation

Please keep in mind that ...

- the values of the fields are the technical values (in the example, the technical value of the field *salutation* is *mr*/*mrs*, the localized value for EN would be *Mr*/*Mrs*). Always use the technical values!
- the fields are the Custom Fields and Data Object Group Fields managed in the Admin Tool. Please refer to sections Custom Field Administration and Setting Up the Customer Data Model for details.

The *script* is then integrated into a *letter* template:

Template	
Details	
Title Info_MyCustomerGroup *	
Group general Add new group	
Release 0.0.1 * + + +	
Language English	
Active 🔽	
Type Letter	
Available in Email Temail	
Body	
B I U S I ≣ ≡ ≡ I DIV (default) ▼ Font Family ▼ Font Size ▼ A ▼ _ ▼	
x² x₂   Ξ Ξ   ≇ ≇   🗹 📰 💷 Ψ ∋+ <sup>1</sup> <sup>1</sup> ∃: 🖼 💷   Ω 🥥 尾	
[Salutation_Script_MyCustomerGroup (en)]	
thank you for using ConSol*CM.	
[Signatur Company (en)]	
Library of markers	
Ticket Salutation_Script_MyCustomerGroup (en)	
Engineer   SalutationScript (en)	
Additional parameters	
Text blocks	
Workflow includes	
Scripts	

Fig. 21: ConSol\*CM Web Client - Template Manager: Insert Script into Letter

In the Web Client, the e-mails are formatted as requested.

#### Example 1 (for Mrs):

Customers	
Main MyCustomer	
	*

Fig. 22: ConSol\*CM Web Client - E-Mails Formatted by Script (Customer Data, Example 1)

Comment	E-Mail	Attachment	Time boo	oking						
New E-ma										
	-	now Col show Boo								
To:	"Pepper," <g.pepper@berkle< th=""><th>y-consulting.com&gt;</th><th></th><th></th><th></th></g.pepper@berkle<>	y-consulting.com>								
Reply-To:	cmdoku1@consol.de									
Subject:	Ticket (100262) Internet does	not work								
Template	Info_MyCustomerGroup	•								
					*					
Dear M	rs. Pepper,									
thank y	ou for using ConSol*CM.									
Best re	gards,									
Susan	ServiceDesk									
	* Software GmbH kanerstraße 38									
	München									
Tel: 08	9 / 45841- / Fax: -111									

Fig. 23: ConSol\*CM Web Client - E-Mails Formatted by Script (E-Mail, Example 2)

#### Example 2 (for Mr):

Customers	
Main MyCustomer	
Mr Dieter	Macher *

Fig. 24: ConSol\*CM Web Client - E-Mails Formatted by Script (Customer Data, Example 1)

Comment	E-Mail	Attachment	Time boo	oking	
New E-mai					
	show Cc  show Bcc				
To:	" Macher," <macher@stem-ed< th=""><th>lv.de&gt;</th><th></th><th></th><th></th></macher@stem-ed<>	lv.de>			
Reply-To:	cmdoku1@consol.de				
Subject:	Ticket (100262) Internet does	not work			
Template	Info_MyCustomerGroup	-			
base Me	. Macher,				*
thank yo	ou for using ConSol*CM.				
Best reg	ards,				
Susan S	ServiceDesk				
	<sup>:</sup> Software GmbH anerstraße 38				
81669 M	lünchen				
Tel: 089	/ 45841- / Fax: -111				

Fig. 25: ConSol\*CM Web Client - E-Mails Formatted by Script (E-Mail, Example 2)

#### **Binding Templates to Queues or to Specific Parameters**

The section *Binding* is the last section of the *New Template* page of the Template Manager.

For every template you can decide if it should be displayed everywhere without any restrictions (i.e. in every queue and without regarding any parameters) or if it should be bound (= restricted) to specific criteria. This can be ...

- queues
- queue-specific parameters (e.g. display the template only when the priority *high* has been set for the ticket)

You can select queues and/or parameters by selecting a *context*, see the following pictures for examples. Use the "+" button to add more binding parameters or the "-" button to remove existing parameters.

customer		
Customer Group		
Queues	▶ =	
Custom fields for queue	•	
Ticket	•	
Engineer	•	
Additional parameters	<b>•</b>	
	Add parameter Insert	
context 1		soft
context 1 Queues is HelpDesk 1st Level ▼		soft

The template should only be displayed in the *Helpdesk 1st Level* queue:

Fig. 26: ConSol\*CM Web Client - Show Template for Specific Queue

The template should only be displayed in the Helpdesk 1st Level queue and only if the priority is high.

custor										• •		
	mer Gr	oup										
Queue										• =		
	m fields	s for	que	ue						•		
Ticket										•		
Engine										•		
Additi	onal pa	rame	ters	\$						-		
							Add paramete	r (	In	sert		
Binding							(					
DITUTIU												
context											s	oft
context 1	Queue		lelpi	Desk 1st Level 🔻							S	oft
context			lelpl	Desk 1st Level 💌							5	
context 1 2	Queue	Ŧ								×	-	
context 1 2	Queue: None	▼ ct bi	indi		•	*	Helpdesk priorities	•		low	-	
context 1 2	Queue: None Sele	▼ ct bi	indi	ng	•	-	Helpdesk priorities Department	•			-	
context 1 2	Queue: None Sele	▼ ct bi	indi	ing Dependent enum						low		
context 1	Queue: None Sele	▼ ct bi	indi	ng Dependent enum Feedback questions	►		Department	•		low normal	-	
context 1 2	Queue: None Sele	▼ ct bi	indi	ng Dependent enum Feedback questions Helpdesk standard	+		Department Priority	+		low normal		
context 1 2	Queue: None Sele	▼ ct bi	indi I I	ng Dependent enum Feedback questions Helpdesk standard Qualification	)  }  }		Department Priority Country	) 		low normal		
context 1 2	Queue: None Sele	▼ ct bi	indi	ing Dependent enum Feedback questions Helpdesk standard Qualification Sales standard	+ + +	111	Department Priority Country Enum	• •		low normal		

Fig. 27: ConSol\*CM Web Client - Display Template for Specific Queue and Priority

#### Hard and Soft Binding

When the template is only displayed in one (or more) selected queue(s) as shown in the example above, the template is *bound* to those queues or to any other selected (restricting) parameter. There are two types of binding:

#### • Hard binding

The check box *soft* is **not** checked:

The template is only displayed (offered in the Ticket E-Mail Editor or Ticket Comment Editor) in the selected queues or for the selected parameters. The engineer who works with the template cannot change this configuration.

#### • Soft binding

The check box *soft* is checked:

As default setting, the template is only displayed (offered in the Ticket E-Mail Editor or Ticket Comment Editor) in the selected queues or for the selected parameters. However, the engineer can change the display by clicking on the button *More templates*. Then all softly bound templates are displayed as well.

## 42.2.4 Migrating Templates from CM Version 6.8 and Less to CM Version 6.9 and Up

When a ConSol\*CM system is updated from a version 6.8 and less to a version 6.9 and up, the scripts in the Template Manager have to be checked and modified manually.

All parameters which refer to tickets and queues do not have to be changed. However, due to the new customer model, *FlexCDM*, the syntax for references to Data Object Group Fields has to be adapted.

## 42.2.5 Page Customization for E-Mail Template Functionalities

Please refer to section Page Customization to learn some details about how to adapt e-mail template parameters.

## 42.3 CM.Doc

- Introduction to CM.Doc
- Requirements for Using CM.Doc
- Availability of CM.Doc
- Configuring the ConSol\*CM System for CM.Doc
- Creating an Engineer Role with Permissions for the Doc Template Manager
- Creating MS Word Templates and Making Them Available
  - Creating MS Word Templates
  - Creating a New MS Word Template, Step 1: Creating the Template Object in the Template Library
    - Selection of the Data Object and Its Consequences
    - How to Control in Which Tickets the MS Word Template Will Be Offered
  - Creating a New MS Word Template, Step 2: Creating and Editing the Required MS Word Document
    - Details about ConSol\*CM Keys for the Mail Merge Fields
- Using MS Word Templates from within the Web Client
  - Creating a New MS Word Attachment Using a Word Template
  - Working with Existing MS Word Attachments
- Using CM.Doc with OpenOffice
  - Step 1: Activate CM.Doc in Your CM System
  - Step 2: Create the Role with the CM.Doc Access Permissions
  - Step 3: Create / Set System Properties

### 42.3.1 Introduction to CM.Doc

Even in companies where most processes are managed by IT applications, a great number of documents still have to be printed out or are required in *.doc* or *.pdf* format for other reasons. These can be for example:

- invoices
- contracts
- documents concerning the acceptance of IT systems
- orders

ConSol\*CM offers the add-on CM.Doc to print documents directly from the business management process. CM.Doc supports MS Word documents and (in CM versions 6.10.1 and up) OpenOffice documents

Templates guarantee that ...

- all documents of one type are identical (text and layout).
- all documents match the company's CD (corporate design).
- no engineer has to type the same text over and over again.

Data from the ticket can be integrated into the template automatically, these can be:

- ticket data (e.g. amount in an invoice, service level in a contract)
- customer data (name and address of the main customer (and of the company, if the main customer is a contact and belongs to a company), additional customers are NOT relevant in CM.Doc!)
- engineer data (name, phone number, e-mail address of the engineer who works on the case)

When CM.Doc is active in ConSol\*CM, the engineer can select the required MS Word template (or OpenOffice template) in the ticket. The document is opened in MS Word (OpenOffice) automatically with all required data fields already filled in. The engineer can then work on the document and save it. It is automatically attached (as a regular attachment) to the ticket and can be opened by users who have *read* access to the ticket and who have installed the required software (MS Word or OpenOffice) on their PCs.

With special adaptations implemented by the ConSol\*CM consulting team, the CM system can be extended in a way that *.docx* documents can also be converted to *.pdf* files in order to make sure no further changes can be made to the document.

### 42.3.2 Requirements for Using CM.Doc

On the PC or laptop, the following requirements have to be met to use CM.Doc:

- A JRE (Java Runtime Environment) for the web browser has to be installed, because CM.Doc is based on Java applets. For the supported Java versions, please refer to the current *System Requirements*.
- MS Word or OpenOffice has to be installed. For the supported MS Word and OpenOffice versions, please refer to the current *System Requirements*.

### 42.3.3 Availability of CM.Doc

CM.Doc is available in ConSol\*CM version 6.7 and higher and is part of the standard function set of the application.

## 42.3.4 Configuring the ConSol\*CM System for CM.Doc

If you want to activate CM.Doc in your ConSol\*CM system, the first step is to set the system property *cmweb-server-adapter*, *cmoffice.enabled* to *true*.

ConSol CM6							S		
A Home		*	💥 System Properties		Edit configur				x
Access and Roles	۲		Module: All modules		Edit configurati		entry		
E Lists	8		Module	Property 🔺	I Flease cuit u	e comgaration	enay		
Tickets	۲		cmas-core-security	admin.email					
Tickets	۲		cmas-core-security	admin.login	Module:	cmweb-serv	/er-adapter		-
Customers	۲		cmas-app-admin-tool	admin.tool.session.check	Property:	cmoffice.en	abled		-
<u> </u>	~		cmas-core-server	attachment.max.size	Property:	chlornice.en	ableu		_
Resources	۲		cmas-core-security	authentication.method	Type:	Boolean			-
Global Configuration	۲		cmas-dwh-server	autocommit.cf.changes	Value field:	true			=
(in allocal configuration			cmas-app-admin-tool	autocomplete.enabled	value field:	true	]		
💮 Data Warehouse	8		cmweb-server-adapter	automatic.booking.enabl	Description:				
the Country of			custom-web	base.url					
Services	۲		cmas-core-index-common	big.task.minimum.size					
E-Mail	۲		cmas-core-cache	cache-cluster-name					
			cmweb-server-adapter	checkUserOnlineInterval					
🔅 System	۲		cmas-core-shared	cluster.mode					
			cmas-setup-hibernate	cmas.dropSchemaBefore					
Scripts and Templates			cmweb-server-adapter	cmoffice.enabled	Restart require	d: 🔲			
<b>•</b> • • • •			cmweb-server-adapter	cmoffice.oo.path.0					
Nort/Export 🐪			cmweb-server-adapter	cmoffice.oo.path.1	Optional:				
👷 License			cmweb-server-adapter	cmoffice.oo.path.2					
			cmweb-server-adapter	cmoffice.oo.path.3	1				
💥 System Properties			cmweb-server-adapter	commentRequiredForTic			Save	Cance	4
			cmas-dwh-server	communication.chap el					
			cmas-core-server	config.data.version		31		_	
			cmas-dwh-server	connection.ractory.jndi.r	name	jms/Remote	ConnectionFactory		CIT.
			cmas-core-security	contract.authentication.m	nethod	DATABASE			
			cmas-core-security	contact.inherit.permission	ns.only.to.own.cust	true			
			cmweb-server-adapter	customizationVersion		6989a73c-d	448-11e4-a9e6-5bd8fac6c63d		
			cmas-core-shared	data.directory		/opt/cm_6.	10/cmas		
			cmweb-server-adapter	data.optimization		MINIFICATI	ION .		
			cmas-core-index-common	database.notification.en		false			
			cmas-core-index-common	database.notification.rec	delivery.delay.secon	ds 60			
			cmas-core-index-common	database.notification.rec	delivery.max.attemp	ts 60		-	
		-					· ·		
[CM_Administration]									

Fig. 1: ConSol\*CM Admin Tool - Configuration of System Property for CM.Doc

## 42.3.5 Creating an Engineer Role with Permissions for the Doc Template Manager

Only an engineer who has the permission *Write template* (see the following figure) can start the *Doc Template Manager* in the Web Client. So, as a second step, you have to create one or more role(s) with the respective permissions. For a detailed explanation about setting role permissions, please refer to section Role Administration.

ConSol <sup>®</sup>			🕫 🗐 🌖
A Home		V Roles	
Access and Roles	۲	Roles	20 roles Resource Types Permissions Views Oueue Permissions Customer Group Permissions
🏂 Engineers		Filter: All queues	Customer Group Permissions     Customer Group Permissions     Global Permissions
Roles		Name	Global Permissions
Y Views		AccountManagementReseller	Administrate
🐣 Engineer Functions		CM_Administration CM_TrackBasicCustomers	Workflow Permissions
	0	CustomerManagerMyCustomerGroup	Read workflow
Lists	8	CustomerManager_DirectCustomers CustomerManager_Partners	Write workflow
Tickets	۲	CustomerManager_Reseller	Deploy workflow
Lustomers	۲	HD_1st_Level_Role HD_2nd_Level_Role	Template Permissions
A Resources	۲	HD_Sales_Role	₩rite template
Global Configuration	۲	HD_Supervisor MarketingTeamleitung	Representation Permissions
🚯 Data Warehouse	۲	Resource Manager_Products ResourceManager_IT	Configure representation
🔅 Services	۲	ServiceDesk	Track User Permissions
💟 E-Mail	۲	TemplateManager TrackAll	Access tickets of the own company
🗳 System	۲	TrackMyCustomerGroup	
		TrackReseller Workflow_Admin	
CM_Administration]		]]	

Fig. 2: ConSol\*CM Admin Tool - Necessary Template Permissions

#### Consulting Best Practice:

We recommend to create a role (*e.g. TemplateManager*) that has only the permission *Write template*, no queue permissions or other permissions are granted. Every user who should have access to the Doc Template Manager can be given this role. In this way, there is no merge between regular user permissions and Word /Office template permissions and you can grant and retrieve the Word /Office template permission in a very flexible way.

However, the permission *Write template* also grants access to the Template Manager (for text templates, see section The ConSol CM Template Manager).

## 42.3.6 Creating MS Word Templates and Making Them Available

#### **Creating MS Word Templates**

As a third step, you have to create the MS Word templates. This is done using MS Word. Please create *.doc* or *.docx* files as templates, **not** *.dot* files!

The OpenOffice-specific configuration is explained in section Working with OpenOffice. However, most of the configuration steps are identical or very similar for MS Word and openOffice templates.

## Creating a New MS Word Template, Step 1: Creating the Template Object in the Template Library

As a fourth step, you have to fill in the requested data fields as *merge* fields in the MS Word template, i.e. you create a CM.Doc template from your regular MS Word document. This is done using the ConSol\*CM Web Client.

To perform steps three and four, log in to the Web Client and click on *Manage Word templates* in the main menu to open the *Doc Template Manager*.

	Logged in: §	Susan Service	Desk 🔸	_					
customer	Manage ten	nplates M	anage Word templ	ates Help					Reseller
	Word templa	ates		_					
	Ne	ew Word temp	late						
			lew template						
n			iroup Number 1						
			English						
		Queues	ServiceDesk'	<b>•</b>					
		Data object	Choose One		l. I				
	W	ord template	Durchsuchen Ke	ine Datei ausger	wählt.				
			OK Cancel						
	W	ord MailMerge	e fields						~
	St	now MailMerge	e fields available for	r a ticket					
:	Tic	cket name or sub	oject						
		Reset							
	Te	emplate library	1						~
	Li	st of template:	S						
		Name	Group	Language	Queues	Data object	Word template	Delete	
		Anfragen	Anfragen Gruppe	de	HelpDesk 1st Level	ResellerCustomer	Vorlage.doc	×	
		Test CM Office	Testgruppe	de	ServiceDesk	ResellerCustomer	Test CM Office Reseller Kundendaten.docx	×	

Fig. 3: ConSol\*CM Web Client - Doc Template Manager

The Doc Template Manager is opened.

Enter the following data for each new template, then click on OK:

• Name

The name of the (new) template. This will be displayed for engineers in the Web Client.

• Group

The name of the template group. This does not have any technical implications but serves as an easy-to-use parameter to sort the templates in the template list in the Doc Template Manager.

• Language

Select the required language. The languages that have been activated in the Admin Tool are offered.

Queues

Select the queues for which the template should be available.

• Data object

For the selection of the data object which should be used as reference object for customer data within the template. All data objects are offered, please see section Selection of the Data Object and Its Consequences for a detailed explanation about which data object you have to select.

#### • Word template

Use the file browser to select the .doc or .docs file that should serve as a template in the file system.

#### Selection of the Data Object and Its Consequences

In the form where you have to fill in all fields for an MS Word template, you have to select a data object, i.e. a customer object or a company object from your customer data model. If you are not familiar with the ConSol\*CM customer data model concept, please read section The CM Customer Data Model - FlexCDM fist.

In the drop-down menu Data object, the data objects are listed in the following format:

[localized name of the data object (localized name of the customer data model)]

For a data object to be listed in the drop-down menu, some conditions have to be met:

- 1. The customer data model with the respective data object has to be created in the Admin Tool
- 2. The customer data model has to be assigned to at least one customer group
- 3. The engineer who works on the Word templates has to have at least read access to at least one customer group with the respective customer data model

You have to select the data object which represents the main customer of the tickets. The MS Word template will be offered only in tickets which have main customers from a customer group with this customer data model. This means, if you want to use the same MS Word template text for two customer groups with two different customer data models, you have to create two ConSol\*CM MS Word templates, one for each customer data model. Of course, you can use the same MS Word template for two or more customer groups which all have the same customer data model.

If you try to assign a data object to an MS Word template which is not compatible with the selected queue (because the selected data model is not assigned to the selected queue), you will get an error message.

Please be aware that it makes only sense to select an object on company level, if for this customer data model the parameter *Company as customer* has been set.

#### Admin Tool

CM Web Client, Doc Template Manager

User attributes	
stomer groups Customer data model Data object actions Custo	
Customer data models	
Lee Company	Word templates
company	New Word template
🖃 🚨 customer	
- customer	Name New template
LirectCustomersModel	Group Number 1
DirCustCompany	
DirCustCompanyData     DirCustCustomer	Language English
DirCustCustomerData	Queues 'ServiceDesk'
ResellerModel	Data object Choose One
🚊 🛄 ResellerCompany	Choose One
🙃 ResellerCompanyData	Word template ResellerCustomer (ResellerModel)
ResellerCompany_ServiceContractData	ResellerCompany (ResellerModel)
ResellerCompanyInternalResp	Company (BasicModel)
ResellerCustomer	DirCustCustomer (DirectCustomersModel) DirCustCompany (DirectCustomersModel)
- 1 SimpleModel	Word MailMer MyCustomer (BasicModel)
SimpleCompany_CompanyFields1	Not offered because engineer do

Not offered because engineer does not have read permission to the customer groups with this model

#### Fig. 4: Selection of Data Object in Doc Template Manager

Please be aware that when you leave the *Data object* field empty, the MS Word template will theoretically be available for all customer groups, but there might be runtime errors in case the required fields are not found when the template is loaded. ConSol\*CM will display a message that field content is missing, and the fields will be filled with the string 'n/a'. However, we recommend to always select a data object to keep the system in order.

#### How to Control in Which Tickets the MS Word Template Will Be Offered

If the MS Word template is offered in a certain ticket (see section Using MS Word Templates from within the Web Client below) depends ob two parameters:

- the queue the template is only offered for ticket in the selected queue(s)
- the customer data model the template is only offered in tickets which have as main customer a customer object which is based on the selected data object

**Example** (we anticipate the use of MS Word templates in the Web Client, for details see section Using MS Word Templates from within the Web Client):

- First, the MS Word template is defined for the queue *Service Desk* and for the data object *ResellerCustomer* (first figure).
- In the Web Client the template can be used in a ticket which is in the queue *Service Desk* and which has as main customer an object of the *Reseller Customer* data object type (second figure).
- In the Web Client, the template cannot be used in a ticket which is in the queue *Service Desk* and which has as main customer of a data object which is NOT of the *Reseller Customer* data object type (third figure).

• In the Web Client, the template cannot be used in all tickets which are NOT in the queue Service Desk (not shown).

New Word ten	nplate
Name	New Invoice_template
Group	Group Number 1
Language	English
Queues	'ServiceDesk'
Data object	ResellerCustomer (Reseller
Word template	Durchsuchen_ Invoice Template.docx
	OK Cancel

Fig. 5: ConSol\*CM Web Client - Definition of an MS Word Template for One Queue and for a Certain Data Object

Ticket	Accept   Edit	Clone	Print
100267	Question concerning delivery July 2015 ServiceDesk   New ticket Unassigned   Open since 8/1/14 10:58 AM Priority high Module Resource Pool Ask for feedback no Desired deadline 8/12/14 12:00 AM		
	Groups	Edit	$\sim$
	Customers (1)	Add	
0	Main Skywalker,Luke Reseller		
	No additional engineer	Add	-
	No relations	Add	
	History Comment E-Mail Attachment	Time bo	oking
Со	Display communication  Sorting latest first  mment  Add Attachment		
	File Keine Datei ausgewählt Description + Add Cancel		
	Word template None		
	Templates		
8 montl s	All  All  All  All  All  All  All  All		
	• • • • •		
	Choose		

Fig. 6: ConSol\*CM Web Client - MS Word Template Offered Because of Queue and Customer Group

Ticket	Edit   Clone   Print
100245	Printer does not work ServiceDesk   Work in progress Assigned to ServiceDesk, Susan   Open since 3/19/14 2:58 PM Priority normal Module Web Client Ask for feedback no Desired deadline 4/14/14 12:00 AM Continent Europe Request Type Request Type Complaint
	Groups Edit A
	Conversations/Meetings Orders Open Customer Tickets on Create Date
	Customers (3) Add
	Main
<b>_</b>	Mia Skydiver MyCustomerGroup
	There are 2 more customers.
	Additional Engineers (1)
	Relations (1) Add 🗸
	History Comment E-Mail Attachment Time booking
Co	Display communication  orting latest first  mment E-Ma Attachment Add Attachment
	File Trobusterine Datei ausgewählt Description Add Cancel
	Templates
4 months	Testgruppe
	Choose

Fig. 7: ConSol\*CM Web Client - MS Word Template NOT Offered Because of Queue and Customer Group

## Creating a New MS Word Template, Step 2: Creating and Editing the Required MS Word Document

When you have filled in all fields and clicked on *Ok*, the new template appears in the *Template library*, *List of templates*. You can perform the following step directly after entering the new template data or you mark the template name (in the *Word template* column) you would like to edit in the list.

In the next step, *MailMerge* fields, which represent the fields of ticket and customer data, can be added to the template. Select a ticket which has all the requested fields by using the *Word MailMerge fields* section. Enter the ticket name or subject in the field under *Show MailMerge fields available for a ticket* and select the correct one from the search result list.

Show MailMerge fields	Show MailMerge fields available for a ticket						
Ticket name or subject	100267						
Reset	100267 Question concerning delivery July 2015						

Fig. 8: ConSol\*CM Web Client - Selection of a Ticket to See All Required Data Fields

All available *MailMerge* fields are displayed:

Word templates					
Edit Word	template				
	Name	lew Invoice_template			
		aroup Number 1			
	Language	English			
	Queues	ServiceDesk' 🔹			
	Data object	ResellerCustomer (Reseller 💌			
Download	Word template	voiceTemplate.docx			
	Word template	Durchsuchen Keine Datei ausgewählt.	]		
	(	OK Cancel			
Word Mai	IMerge fields				
Show Mail	Merge fields av	ailable for a ticket			
Available M	ailMerge fields fo	100267 Question concerning delivery July 20	15		
4 1- 00 - 6	-				440045 5 5
1 to 20 of Key	99				< 1 <u>2345</u>
			Group	Field	Value
	Company		Group	Field	Value
engineer	Company		Group	Field	Value
engineer	_Description		<u>Group</u>	Field	Value
engineer engineer engineer	Description		Group	Field	
engineer engineer engineer engineer	_Description _Division _Email		Group	Field	Value katja@consol.de
engineer engineer engineer engineer engineer	_Description _Division _Email _Fax		Group	Field	
engineer engineer engineer engineer engineer engineer	_Description _Division _Email _Fax _Firstname		Group	Field	katja@consol.de
engineer engineer engineer engineer engineer engineer engineer	_Description _Division _Email _Fax _Firstname _Function		Group	Field	katja@consol.de
engineer engineer engineer engineer engineer engineer engineer engineer	_Description _Division _Email _Fax _Firstname _Function _Lastname		Group	Field	katja@consol.de Susan
engineer engineer engineer engineer engineer engineer engineer	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login		Group	Field	katja@consol.de Susan ServiceDesk
engineer engineer engineer engineer engineer engineer engineer engineer	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile		Group	Field	katja@consol.de Susan ServiceDesk
engineer engineer engineer engineer engineer engineer engineer engineer engineer engineer	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone	conversation_date			katja@consol.de Susan ServiceDesk
engineer engineer engineer engineer engineer engineer engineer engineer engineer ticket_co	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone	conversation_date	Group conversation_data	Field conversation_date	katja@consol.de Susan ServiceDesk
engineer engineer engineer engineer engineer engineer engineer engineer engineer ticket_co ticket_Cr	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone niversation_data_ eationDate	conversation_date ields_CustomerTicketList_FieldSubject			katja@consol.de Susan ServiceDesk Susan
engineer engineer engineer engineer engineer engineer engineer engineer ticket_co ticket_Co	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone niversation_data_ eationDate		conversation_data CustomerTicketListFields	conversation_date	katja@consol.de Susan ServiceDesk Susan 8/1/14 10:58 AM
engineer engineer engineer engineer engineer engineer engineer engineer ticket_co ticket_Co ticket_Co	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone niversation_data_ eationDate	ields_CustomerTicketList_FieldSubject	conversation_data CustomerTicketListFields	conversation_date CustomerTicketList_FieldSubject	katja@consol.de Susan ServiceDesk Susan 8/1/14 10:58 AM
engineer engineer engineer engineer engineer engineer engineer engineer ticket_co ticket_Ct ticket_Ct ticket_Ct	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone eationDate ustomerTicketListfi stomerTicketListfi	ields_CustomerTicketList_FieldSubject ields_CustomerTicketList_FieldTicketldWithLin	conversation_data CustomerTicketListFields	conversation_date CustomerTicketList_FieldSubject	katja@consol.de Susan ServiceDesk Susan 8/1/14 10:58 AM
engineer engineer engineer engineer engineer engineer engineer engineer ticket_co ticket_CC ticket_CL ticket_En ticket_En	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone nversation_data eationDate istomerTicketListfi gineer_Company	ields_CustomerTicketList_FieldSubject ields_CustomerTicketList_FieldTicketldWithLin	conversation_data CustomerTicketListFields	conversation_date CustomerTicketList_FieldSubject	katja@consol.de Susan ServiceDesk Susan 8/1/14 10:58 AM
engineer engineer engineer engineer engineer engineer engineer engineer engineer ticket_co ticket_Co ticket_CL ticket_En ticket_En	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone nversation_data eationDate ustomerTicketListf istomerTicketListf gineer_Company gineer_Descriptio	ields_CustomerTicketList_FieldSubject ields_CustomerTicketList_FieldTicketldWithLin	conversation_data CustomerTicketListFields	conversation_date CustomerTicketList_FieldSubject	katja@consol.de Susan ServiceDesk Susan 8/1/14 10:58 AM
engineer engineer engineer engineer engineer engineer engineer engineer engineer ticket_co ticket_Co ticket_Co ticket_Co ticket_En ticket_En ticket_En	_Description _Division _Email _Fax _Firstname _Function _Lastname _Login _Mobile _Phone unversation_data_ eationDate ustomerTicketListf istomerTicketListf gineer_Company gineer_Description	ields_CustomerTicketList_FieldSubject ields_CustomerTicketList_FieldTicketldWithLin	conversation_data CustomerTicketListFields	conversation_date CustomerTicketList_FieldSubject	katja@consol.de Susan ServiceDesk Susan 8/1/14 10:58 AM

Fig. 9: ConSol\*CM Web Client - Show Available MailMerge Fields

The list contains the following columns:

- Key
  - The name of the field (this is the one you will have to use for the Merge Field later on)
- Group

This is set for customer data and for ticket data. For customer data, the data object group is shown (here, only the data object groups from the selected data object are offered), for ticket data, the Custom Field Group is shown.

• Field

This is set for customer data and for ticket data. For customer data, the data object group field name is shown (here, only the data object group fields from the selected data object are offered), for ticket data, the Custom Field name is shown.

• Value

The value of this field in the selected ticket. You do not have to use this in the Word template.

Open the MS Word template from the list in the *Template Library* or click on *Word template*, *Browse*... to open/download the Word document. In this document, go to the position where you want to insert the first field (in our example this will be the customer name). Use *Insert* -> *Quick parts* -> *Field* to insert the *MergeField*. Copy and paste the key of the Merge Field you need into the respective field (*Field properties*, *Field name*) in MS Word:

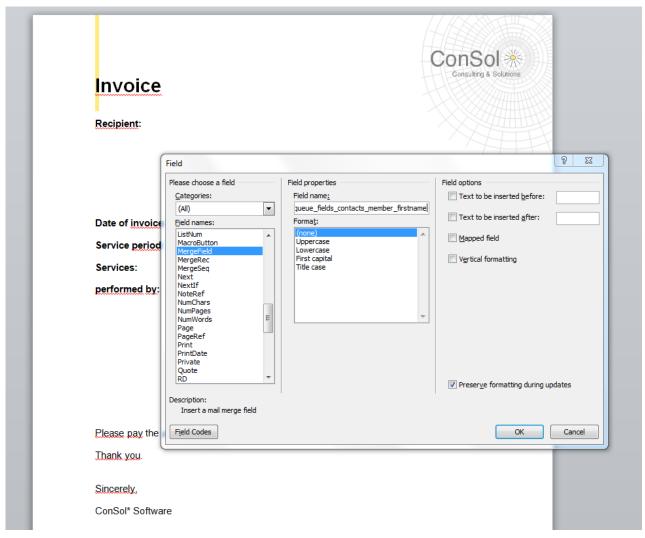


Fig. 10: MS Word - Insert MergeField into Document

Do this with all fields you would like to have pre-filled when the MS Word template is opened. In the end, your template might look like the example in the following figure.

You can use all fields which are offered in the ticket, i.e.

- Company fields (Data Object Group Fields from the selected data object if this is a company, or from the company of the selected data object if the selected object is a contact. The keys start with *ticket\_queue\_fields\_* and have a data object group name as Group)
- Contact fields (Data Object Group Fields from the selected data object if it is a contact, or from the contact of the selected data object if the selected data object is a company. The keys start with *ticket\_queue\_fields\_* and have a data object group name as Group)
- Ticket data fields (Custom Fields from the ticket, the respective keys start with *ticket\_* and have a Custom Field Group name as group)
- Engineer data (data concerning the current engineer of the ticket, the respective keys start with *ticket\_Engineer\_* and do not have Group and Field names)
- Engineer data (data from the engineer who is currently logged in, this must NOT be confused with the engineer of the ticket! The respective fields start with *engineer\_* and do not have Group and Field names.)

	ConSol Consulting & Solu
Invoice	
Recipient:	
<pre>«ticket_queue_fields_contacts_mem «ticket_queue_fields_contacts_mem</pre>	nber_comp» nber_comp»
«ticket_queue_fields_contacts_mem «ticket_queue_fields_contacts_mem	nber_cust», nber_fore»
Date of invoice: <please fill="" in=""></please>	
Service period: «ticket_CreationDat	te» to <please fill="" in=""></please>
Services: <please fill="" in=""></please>	
performed by: «ticket_Engineer_Fi	irstname» «ticket_Engineer_Lastname»
Please pay the amount of <please fill<="" td=""><td>l in&gt; according to the contract.</td></please>	l in> according to the contract.
Please pay the amount of <please fill="" td="" thank="" you.<=""><td>ll in&gt; according to the contract. ि (Strg) ▼</td></please>	ll in> according to the contract. ि (Strg) ▼

Fig. 11: MS Word Example Template

Save the Word document in the local file system and then upload it using the field *Update Word template*. This will store the template in the Doc Template Manager.

#### Details about ConSol\*CM Keys for the Mail Merge Fields

For customer data, there are always two keys for the same value, i.e. two keys which in the end retrieve the value from the same data object group field. You can always use either one, there is no difference as far as the behavior in the templates is concerned.

The two keys are:

- 1. A generic field, e.g., ticket\_queue\_fields\_contacts\_member\_companyReferenceField\_ company\_name
- A field which comes from the specific customer data model according to the following syntax: xxx\_ [data object]\_[data object group]\_[data object group field], e.g., ticket\_queue\_fields\_contacts\_member\_companyReferenceField\_ResellerCompany\_ResellerCompany \_company\_name

## 42.3.7 Using MS Word Templates from within the Web Client

#### Creating a New MS Word Attachment Using a Word Template

When MS Word templates are available for a queue, an engineer can use them by clicking on *Attachments* in the *History Section* of a ticket and by selecting the requested template. MS Word is started (if it is not already open) and a document based on the selected template is created. The document is opened, with all values/parameters filled-in at the correct positions. This might look like the example in the following figures.

	History				
	Display communicati	on 🔻 Sorting la	atest first 💌		
Con	nment	E-Mail	Attachment	Time booking	
	Add Attachment				
	File	Durchsuchen	Keine Datei ausgewählt		
	Description				
	Add Cancel				
	Word template				
	Templates	_		×	]
8 months a	All	New Invoid	ce_template (en)	*	
U HIOHAIS C	Group Number 1	•			
	MyNewgroup Testgruppe	• •			
	resigruppe	-			
		Ŧ		Ψ.	
				Choose	

Fig. 12: ConSol\*CM Web Client - MS Word Templates Available as Attachments

			ConSol Consulting & So
Invoice			H
Recipient: MyNewSpaceCompany, Alder	aan		
Luke, Skywalker			
Date of invoice: <please fill="" in=""></please>	>		
Service period: 8/1/14 10:58 A	AM to <please< td=""><td>fill in&gt;</td><td></td></please<>	fill in>	
Services: <please fill="" in=""></please>			
performed by:			
Please pay the amount of <ple< td=""><td>ease fill in&gt;</td><td>according to the co</td><td>ntract.</td></ple<>	ease fill in>	according to the co	ntract.
Thank you.			
Sincerely,			

Fig. 13: MS Word Example Document

The engineer can then edit the document if requested and save it. This will attach the new version of the document automatically to the ticket.

							Number per pa	age 10
Class	File type	Name	Description	Date	T	Added by	Action	
						,	Apply f     Clear f	

Fig. 14: ConSol\*CM Web Client - Newly Edited Word Document as Attachment at the Ticket

From here on, the work with the Word document is exactly the same as the work with regular Word (.doc, . docx) attachments. See next section.

#### Working with Existing MS Word Attachments

An engineer can also open an MS Word document which has been attached to the ticket. As an engineer, click on the attachment name. This will open the file in MS Word. Edit the document and save it. A new version of the document will be attached to the ticket automatically.

### 42.3.8 Using CM.Doc with OpenOffice

To work with CM.Doc using OpenOffice, perform the following steps:

#### Step 1: Activate CM.Doc in Your CM System

see section Configuring the ConSol\*CM System for CM.Doc.

#### Step 2: Create the Role with the CM.Doc Access Permissions

see section Creating an Engineer Role with Permissions for the Doc Template Manager.

#### Step 3: Create / Set System Properties

Set the following system property / properties in section System Properties, navigation group System.

The path to the OpenOffice main program directory: *cmweb-server-adapter*.cmoffice.oo.path.
 <NUMBER>

These properties are numbered (starting with 0) so that different path can be used to accommodate different OpenOffice installations on varying operating systems and different system configurations. So a possible list of properties and values for the path configuration would be:

- cmoffice.oo.path.O. C:\Program Files (x86)\openoffice\program
- cmoffice.oo.path. 1: /usr/lib/openoffice/program
- cmoffice.oo.path.2: /usr/lib64/openoffice/program

The handling of OpenOffice documents in the CM Web Client is identical to the handling of Microsoft Word documents. When preparing a document template with CM data in OpenOffice the basic handling also mirrors the procedure in Microsoft Office. So generally the detailed explanation in the sections above (starting in section Creating MS Word Templates and Making Them Available) applies here, too. When you want to add a field to the OpenOffice Template, the dialog "Fields" can be opened by selecting the menu entry "Insert" > "Fields" > "Other" and selecting the tab "Variables".

									Fields							×
									Doc	ument	Cross-references	Functions	DocInformation	Variables	Database	
									Iy	pe		Selection		<u>F</u> ormat		
										t variable		engineer_F		Text		
		D Example.or	dt - O	penOffice.org Writer						now variab DE field	ble	engineer_L ticket Nam		Formula Standard		
l				t F <u>o</u> rmat T <u>a</u> ble <u>T</u> ools	Wi	ndow Help	_			sert Form put field	ula	ticket_Subj	ect	-1234 -1234,12		
ŀ			-	Manual <u>B</u> reak	ABC		<b>1</b> 10 - 6	- 05		umber ran				-1.234		
	Ē	• 🛃 🔲		Fields •	1	Date	1910	SH 🗶		et page var now page v				-1.234,12 Additiona	l formats	
	9.	Default	æ	Special Character		Time	<b>B</b> <i>I</i>	U		ser Field						
	L			Formatting Mark			1 : • • 2 • :	- 3 -								
	_ [			Section	-	Page <u>C</u> ount	1 1									
			<u> </u>	Hyperlink	1	Subject			7							
	:					Title								📃 Invisi <u>b</u> l	e	
	Ħ			Header +	2	Author			Na	i <u>m</u> e		<u>V</u> alue				
	-			Footer +		Aution			tic	cket_Nam	e	ticketNam	2	<ul> <li>✓ ×</li> </ul>		
	-		a	Footnote/Endnote	1	Other Strg+F2	et Data									
	1		1	<u>C</u> aption			tet bate	•						nsert	Close	<u>H</u> elp
	7		À	Bookmar <u>k</u>		Ticke	et: I	ticket								
Ī	2		<b>\$</b> -	Cross-reference		Subje	ect: t	ticket								
	1		Е	Comment Strg+Alt+N		Engir	neer:	engir								
Т				Script												

Fig. 15: Creating a Doc Template Using OpenOffice

On this tab a CM field can be added by first selecting the Type *User Field* and the format *Text*. The next step is entering the field name taken from the column *Key* in the document template administration and putting it in the dialog field labeled *Name*. Add a useful value for recognizing the field in the document. Click on the arrow symbol to the right of the field *Value* so that the field shows in the middle list *Selection* and make sure it is selected there. Clicking on the "*Insert* button on the bottom right side of the dialog will insert the field into the document at the current cursor position. This has to be repeated for every field that should show up in the document.

## 43 Time Booking Using ConSol\*CM

- General Introduction to Time Booking Using ConSol\*CM
- Manual Time Bookings
  - Configuration of Manual Time Booking Using the Admin Tool
  - Manual Time Booking from a User's Point of View (Web Client)
  - Manual Time Bookings on the Engineer Profile Page
- Automatic Time Bookings (Available in CM Versions 6.9.4.2 and Up)
  - Introduction to Automatic Time Booking
  - Configuration of Automatic Time Booking
  - Automatic Time Bookings on the Engineer Profile Page
- DWH Reports
- Page Customization for Time Booking

# 43.1 General Introduction to Time Booking Using ConSol\*CM

In ConSol\*CM, working hours can be booked on tickets. There are two booking modes:

- 1. Manual bookings, see section Manual Time Bookings
- 2. Automatic bookings (available in CM versions 6.9.4.2 and up), see section Automatic Time Bookings

## 43.2 Manual Time Bookings

In ConSol\*CM, an engineer can book working hours on a ticket. Those working hours can then be reported.

Working hours are either booked on projects which have to be assigned to one or more queues or they are booked directly on tickets. For example, if your company plans to perform a migration from Windows 7 to Windows 8 clients and all the working hours should be registered for this migration project, the ConSol\*CM administrator has to create a migration project and assign it to all queues where tasks for this project might be completed. Then engineers can book times on the project and can see their own reports for the project. Additionally, a report over all time bookings, of all engineers, might be implemented using the DWH (data warehouse, see section Data Warehouse (DWH) Management).

## 43.2.1 Configuration of Manual Time Booking Using the Admin Tool

In order to enable engineers to book working hours on projects the ConSol\*CM administrator has to perform two steps using the Admin Tool:

- 1. Create the projects on the navigation item *Projects* (navigation group *Global Configuration*), see section Projects.
- 2. Assign one or more projects to the desired queues within the Queue Administration.

In the following example, three projects are created. Engineers in the *HelpDesk\_1st\_Leve*/queue should be able to book working hours on two of them. Thus, the two projects have to be assigned to the *HelpDesk\_1st\_Leve*/queue.

ConSol CM6			S 🔤 🗧
A Home		*	Projects
Access and Roles	۲		Projects
Eists	۲		Name
Tickets	۲		Project1_WindowsMigration
<b>2</b> Customers	۲		Project2_NewBPMSystem Project3_WebServerUpdate
A Resources	۲		ServiceProjekt
🖨 Global Configuration	۲		
🚳 Languages			
🚫 Labels			
(() Queues			
Projects			
Business Calendars			
<ol> <li>Classes Of Text</li> </ol>			
🕥 Data Warehouse	۲		
🔅 Services	۲		
🗹 E-Mail	۲		
🗬 System	۲		
[CM_Administration]		-	

Fig. 1: ConSol\*CM Admin Tool - Global Configuration: Management of Projects

Edit queue	(Version 6.10, up to 6.10	1.27			×
Edit queue i Please edit the queu	ie's data.				
Details					
Queue:	HelpDesk_1st_Level		Workflow:	helpdesk1	-
Prefix:			Calendar:	Standard	•
FAQ:			Enabled:		
Ticket assignment temp	olates				
Assign:	engineer-assigned-default-mail	•	Unassign:	engineer-removed-default-mail	<b>•</b>
Scripts	r				
E-Mail script:	MailSetReplyTo.groovy	▼ ]			
Default values script:					
Clone script:		<b>•</b>			
Other					
Description:					<b>•</b>
Custom fields Cust	omer groups Classes of text Projects				
Assigned 🔺		Available 🔺			
Project1_WindowsMi		Project3_WebSer	verUpdate		
Project2_NewBPMSys	stem	ServiceProjekt			
		J			
				Save	Cancel

Fig. 2: ConSol\*CM Admin Tool - Queue Administration: Assigning Projects to a Queue

## 43.2.2 Manual Time Booking from a User's Point of View (Web Client)

Please see the *ConSol\*CM User Manual* for a detailed explanation of the time booking feature. Here, only a short overview is provided.

The user (engineer) can book working hours on a ticket using two different modes:

1. Using the *Time booking* section in a **ticket** to book working hours directly to this ticket.

Ticket	Accept   Edit   Clone   Print	Display 💌
100520	Printer error HelpDesk 1st Level   Qualify Unassigned   Open since 11/19/13 1:26 PM Priority normal Reaction time 11/20/13 Ask for feedback no Country Germany	
	Customers	Add Hide
	Main customer	
e	Mr Luke Skywalker 💌 CustomerGroup luke@consol.de	
	ConSol* GmbH ▼ Company ConSol* GmbH Address Franziskanerstr. 38 81543 München No comment	
	Engineers	Add Hide
	No relations	Add Hide
	History Comment   E-Mail   Attachment -	Time booking
	Display communication 💌 Sorting latest first 💌	
Co	omment E-Mail Attachment Time booking	
	Add Time Booking Today's time bookings: 00:00	
	Starting from 1/13/14 hh:mm Duration 5	
	or Choose One	
	Project Choose One Description Description OK Car Project 1 WindowsMigration	
	Project 2 New ERP system	
▼ 19.11.13 13	Project2 NewERP system       3.26     #1 created by Harald Huber   Action        13:26 default class	
	3.26 #1 created by Harald Huber   Action 💌	
	Project2 NewERP system       3.26     #1 created by Harald Huber   Action        13:26 default class	

Fig. 3: ConSol\*CM Web Client - Time Booking in a Ticket

2. Using the *Time booking* section in the **engineer profile page** to book working hours on a selected ticket (only tickets where the engineer has performed certain activities and tickets owned by the engineer can be selected).

Engineer profile	
Password change	
Old password	
New password	
Repeat *	
OK Cancel	
UK	
Representation	
Engineers representing me	
Engineer	
Engineers represented by me	
General settings	
View criteria	
Priority Please choose	
OK	
Default Customer Group	
Reseller	
Default Queue	
Choose One	
Time booking	
-	
Add Time Booking	
Today's time 00:20	
bookings	
Ticket	
subject	
Display All tickets 4/10/15 Day Week Month	
100313 : Printer still does not work 100307 : Question about last invoice	<u>^</u>
100283 : Problem 1	=
Available 100296 : Login not possible 100263 : Question about Order #4711	
100286 : New Invoice Feb 2015	
100259 : Login in ERP-System not possible! 100314 : Service request #4711	-
Starting 4/10/15 hh:mm Duration Duration	
Project Choose One Comment Description	
OK Cancel New ticket search	
Day 4/10/15	
Time period Day <u>Week</u> <u>Month</u>	
Apr 10, 2015	🖣 <u>Today</u> 🕨
Time Duration Project Ticket	Comment
12:30 PM - 12:50 PM 00:20 ServiceProjekt #100313 Printer still does not work	
Total bookings (	on this day: 00:20

Fig. 4: ConSol\*CM Web Client - Time Booking in the Engineer Profile

## 43.2.3 Manual Time Bookings on the Engineer Profile Page

Engineers can see a list of their time bookings on the engineer profile page. An example is shown in the following figure.

Password change						
Old password		*				
New password		*				
		*				
Repeat password						
 	K Cance					
Representation						
Engineers representing me						
Engineer						
Engineers represente	ed by me					
General settings						
View criteria						
Priority Please choose	e	<b>•</b>				
ОК						
Default Customer Group						
Default Customer Gro	oup					
	oup					
Default Customer Gro	ыр					
Choose One	oup			Ade		
Choose One  Time booking				Ado		
Choose One  Time booking Day 2/5/14				Ado		
Choose One  Time booking Day 2/5/14 Time period Day We						
Choose One  Time booking Day 2/5/14 Time period Day We Feb 05, 2014	eek Month			▲ <u>Today</u> ▶		
Choose One  Time booking Day 2/5/14 Time period Day We		Project	Ticket			
Choose One  Time booking Day 2/5/14 Time period Day We Feb 05, 2014	eek Month	Project Project1 WindowsMigration	Ticket #SUP-80 Temporary files created during import/ex	▲ <u>Today</u> ▶		
Choose One  Time booking Day 2/5/14 Time period Day We Feb 05, 2014 Time	Duration	-	#SUP-80 Temporary files created during	Comment		
Choose One  Time booking Day 2/5/14 Time period Day We Feb 05, 2014 Time	Duration 00:04	-	#SUP-80 Temporary files created during import/ex #100424 without overwrite mode	Comment		
Choose One  Choose One	Duration 00:04 00:56	Project1 WindowsMigration	#SUP-80 Temporary files created during import/ex	Comment Fix for the problem		

Fig. 5: ConSol\*CM Web Client - Time Booking Report in the Engineer Profile

As an engineer, you can select if you would like to see the bookings for the current day, week, or month. In the *Day* view, the projects are indicated, in the *Week* and *Month* view, only the sum of the booked times per day/week is indicated.

# 43.3 Automatic Time Bookings (Available in CM Versions 6.9.4.2 and Up)

## 43.3.1 Introduction to Automatic Time Booking

If required, ConSol\*CM can be configured in a way that working hours are tracked and booked on tickets automatically. These bookings always refer to tickets and cannot be linked to projects.

The following times are registered:

- **Duration of work with the Rich Text Editor** Started when the Rich Text Editor is opened and stopped when the *Add* button is pressed.
- **Duration of creating a ticket** Started when *Create ticket* is selected and stopped when the *Create* button is pressed.

Time booking is suspended when a ticket is transferred to the workspace and continued when the ticket is brought back to the active work.

No times are booked on the ticket in case ...

- an operation is canceled
- the engineer logs out manually
- the engineer session is ended automatically

Times are always booked in minutes and always rounded up to the next minute.

### 43.3.2 Configuration of Automatic Time Booking

In order to enable this functionality in your CM system, set the system property *cmweb-server-adapter, automatic.booking.enabled* to *true*.

📔 New configurat	ion entry	23
New configuration	-	
j Please enter dat	a for new entry.	
Module:	cmweb-server-adapter	•
Property:	automatic.booking.enabled	
Type:	Boolean	•
Value field:	true	
Description:	Enables automatic time tracking	
	(editor and create)	
Restart required:		
Optional:		
	Save	

Fig. 6: ConSol\*CM Admin Tool - Set System Property to Switch On Automatic Time Booking

### 43.3.3 Automatic Time Bookings on the Engineer Profile Page

The engineer does not have to do anything in particular to work with automatic time booking. When he enters a comment in a ticket or creates a ticket, the time is booked on this ticket automatically and can be seen in the time booking report on the engineer profile page. An example is shown in the following figure.

Engineer profile  Password change  Old password  New password  Repeat password  OK Cancel  Representation	tomer group
Password change Old password New password Repeat password OK Cancel Representation	
Password change Old password New password Repeat password OK Cancel Representation	
Old password New password Repeat password OK Cancel Representation	
New password Repeat password OK Cancel Representation	
Repeat password OK Cancel	
OK Cancel Representation	
Engineers representing me	
Engineer	
Engineers represented by me	
General settings	
View criteria	
Priority Please choose	
OK	
Default Customer Group	
Choose One	
Default Queue	
Choose One	
Time booking	Add 🔺
Day 4/16/15	
Time period Day <u>Week Month</u>	
	Today
Total bookings on this	day: 00:00
Entering a comment in the ticket #100296	
Time booking	Add 🖍
Day 4/16/15	
Time period Day Week Month	
Apr 16, 2015	Today
Time Duration Project Ticket Comment	
1:31 PM - 1:33 PM 00:02 #100296 Login not possible Total bookings on this	s day: 00:02

Fig. 7: ConSol\*CM Web Client - Automatically Booked Time in Time Booking Report on Engineer Profile Page

## 43.4 DWH Reports

If your company would like to have reports on a more detailed level, the DWH provides a good basis. Reports can be developed that use the DWH data and provide e.g. the times booked on a certain project by all engineers.

## 43.5 Page Customization for Time Booking

In case the time booking feature is not required, you as an administrator can turn off the feature by using the *Page Customization*, see section Page Customization for details.

The following two parameters are relevant in this context:

- timeBookingSection
- timeBookingFeature

## 44 ConSol CM Administrator Manual 6.10.2 -Authentication Methods for Engineers in the CM Web Client

# 44.1 Authentication Methods for Engineers in the Web Client

For the authentication of engineers in the Web Client, you can configure one of the following three methods:

### 1. Standard

All user (engineer) data is kept in the ConSol\*CM database. User name and password are set on the Engineer Administration page, see section Engineer Administration.

#### 2. LDAP

The credentials are kept in an *LDAP* server. ConSol\*CM sends a request to this server for the engineer authentication, see section LDAP Authentication.

#### 3. Kerberos SSO

The credentials are taken from a valid session using *Kerberos*, see section Single Sign-On with ConSol\*CM Using Kerberos.

## 44.2 ConSol\*CM LDAP Authentication

- Introduction to ConSol\*CM LDAP Authentication
- Configuring the System to Enable LDAP Authentication
  - Configuring the System During Initial Set-Up
  - Switching the Authentication Mode to LDAP in a Running System
- Managing Engineer Accounts for LDAP Authentication
- Using LDAPS (LDAP over SSL)
  - Introduction
  - Preparations
  - LDAPS Configuration in the ConSol\*CM Admin Tool (System Properties)

## 44.2.1 Introduction to ConSol\*CM LDAP Authentication

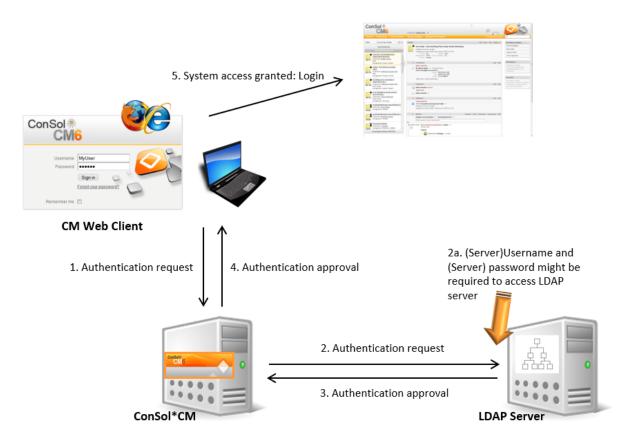
ConSol\*CM offers LDAP authentication for the Web Client as a standard feature, i.e. instead of managing the passwords for the ConSol\*CM engineers in the CM database, they can be retrieved from an LDAP server (like e.g. a *Microsoft Active Directory* server).

When engineers want to log in to the ConSol\*CM Web Client, they enter their user name and password and press *Enter*. Behind the scenes, the CM server sends a request with the engineer's user name and password and checks with the LDAP server if those credentials are correct.

When the credentials are correct, the approval is sent back to the CM server and the engineer is logged into the Web Client.

### Important information:

Please keep in mind that the LDAP connection is only used to authenticate the user (confirm the identity). The authorization (i.e. the assignment of access permissions in the system) is done via the *Engineer* and *Role Administration* in the Admin Tool. For every user who should work with the system as an engineer an engineer account has to be created in the engineer administration!



Please see also the following picture for an explanation of the CM authentication process using LDAP.

Fig. 1: ConSol\*CM LDAP Authentication Process

## 44.2.2 Configuring the System to Enable LDAP Authentication

There are two ways you can enable the ConSol\*CM system to use LDAP authentication:

- 1. Select *LDAP authentication* during system set-up and enter the requested parameters (system properties) after the set-up.
- 2. Set up the system with the regular authentication mechanism and switch to LDAP later on, i.e. enter all required system properties later on.

## Configuring the System During Initial Set-Up

During system set-up you can select LDAP as authentication mode. This will set the system property *cmas-core-security*, *authentication.method* (see below) to *LDAP*. No further parameters are entered. You have to set the LDAP parameters manually. Please see the subsequent section for an explanation.

					CM6 Setup
General Database Administrator	Scene Incoming E-mail	Outgoing E-mail	Index	Data Warehouse	
Administrator					
Please specify the login for a user with full administ	rative permissions.				
Login: admin					
Enter a password for the administrator.					
Password: •••••					
······					
Confirm password for administrator.					
Confirm password: •••••					
Please enter an administrator e-mail address to wh	ich arrar patifications will be car	.+			
E-mail: luke@localhost	ch error nouncations will be ser	it.			
Authentication can be done using the CM6 database	(internal) or through LDAP.				
Select authentication mode: LDAP -	(				
Enable Kerberos v5 single sign on authentication (p	eviously chosen authentication r	node will be used as f	fallback m	echanism).	
Kerberos v5 authentication: 🔲					
Previous Next					

Fig. 2: ConSol\*CM System Set-Up - Authentication Mode LDAP

## Switching the Authentication Mode to LDAP in a Running System

enua core acriver	actionmentamaxatize	100	
cmas-core-security	authentication.method	LDAP	
cmas-core-security	Idap.authentication	simple	
cmas-core-security	ldap.basedn	OU=accounts,DC=consol,DC=de	
cmas-core-security	Idap.initialcontextfactory	com.sun.jndi.ldap.LdapCtxFactory	
cmas-core-security	ldap.password		
cmas-core-security	ldap.providerurl	ldap://ldap.consol.de:389	
cmas-core-security	ldap.searchattr	uid	
cmas-core-security	ldap.userdn		

Fig. 3: ConSol\*CM Admin Tool - Properties for LDAP Authentication

Required values for LDAP authentication (they are set via *system properties*, please see Appendix C for an explanation):

authentication.method

LDAP

- Idap.authentication simple
- Idap.basedn

The DN (distinguished name) of the LDAP (sub-)tree where the required attributes are located.

• Idap.initialcontextfactory

The Java class name for the initial context factory of the LDAP implementation when using LDAP authentication. Usually should be *com.sun.jndi.ldap.LdapCtxFactory*.

#### Idap.password

Password for connecting to the LDAP server to look up users. Only needed if look-up cannot be done anonymously.

#### • Idap.userdn

LDAP user for connecting to LDAP server to look up users. Only needed if look-up cannot be done anonymously.

#### Attention:

A server user name/password pair might be required to access the LDAP server. If you are not sure, you might want to use an LDAP browser for a first check.

#### • Idap.providerurl

The complete URL for the LDAP server:

ldap://<HOSTNAME>:<LDAP PORT>

#### • Idap.searchattr

Search attribute for looking up LDAP entry connected to CM login, i.e. the attribute which is used as user name for the authentication.

## 44.2.3 Managing Engineer Accounts for LDAP Authentication

Use the Engineer Administration in the Admin Tool to configure the engineer accounts.

When LDAP is used as authentication method, it is not possible to set the ConSol\*CM password within the engineer administration. The pop-up window for engineer management provides the following fields which are relevant for LDAP authentication. Please refer to section Engineer Administration for details concerning the other (non LDAP-related) data fields.

Edit engineer	6 (A.A.	х
Edit engineer i Please edit the engineer's	data.	
Login:	Chef	
First name:	Charly	
Last name:	Chef	
E-mail:	chef@consol.de	
Position:	Chef	
Company:	ConSol* Software	
Division:	Delivery	
Description:	Super-Chef	
Phone:	1234	
Mobile:		
Fax:		
LDAP ID:		
Kerberos Principal Name:		
Track user:		
	Save	2

Fig. 4: ConSol\*CM Admin Tool - Engineer Administration

#### • Login

If no *LDAP ID* has been provided, this is used as the user name during the LDAP authentication process which is looked up in the LDAP directory in the *Idap.searchattr* node.

LDAP ID

If you would like to employ special user names in ConSol\*CM which are not identical to the values used in the LDAP directory you can fill in this field. During the LDAP authentication process, this LDAP ID is used as the user name which is looked up in the LDAP directory in the *Idap.searchattr* node.

## 44.2.4 Using LDAPS (LDAP over SSL)

## Introduction

Per default, when an LDAP client accesses an LDAP server, the information is transferred by default in clear text. In case you want the user name and password to be transferred to the LDAP server in encrypted form, you have to set-up the LDAP authentication using LDAPS.

## **Preparations**

You have to configure the CM server machine (Java) in a way that is can use certificates. One way to do this is described in the following section for a Linux machine.

1. Retrieve the certificate:

openssl s\_client -connect dc2.mydomain.com:ldaps

2. The answer will contain a section which starts with "---BEGIN CERTIFICATE " and ends with "END CERTIFICATE ---".

Copy this section to a file, e.g. /tmp/certificate2\_dc2\_mydomain\_com.txt

- 3. Import the certificate to the truststore of your machine, e.g. /home/mydirectory/mytruststore \$JAVA\_HOME/bin/keytool - import -alias <beliebig> -trustcacerts -keystore /home/mydirectory/mytruststore -file /tmp/certificate2\_dc2\_mydomain\_com.txt You have to enter (set) a password.
- 4. Enter the truststore in the CM config file in JAVA\_OPTS:
   -Djavax.net.ssl.trustStore= /home/mydirectory/mytruststore-Djavax.net.ssl.
   trustStorePassword=<see above>

## LDAPS Configuration in the ConSol\*CM Admin Tool (System Properties)

Configure the CM server as shown in the following example:

- cmas-core-security;ldap.authentication = simple
- cmas-core-security;ldap.basedn;DC = myDC,DC = myDC
- cmas-core-security;Idap.initialcontextfactory = com.sun.jndi.Idap.LdapCtxFactory
- cmas-core-security;ldap.password = myLDAPpw cmas-core-security;ldap.searchattr = sAMAccountName
- cmas-core-security;ldap.userdn = myLDAP\_UserDN

Depending on the LDAP server configuration, use one of the following values for the server URL:

- Standard LDAPs port cmas-core-security;ldap.providerurl = ldaps://dc2.mydomain.com:636
- LDAPs port Global Catalogue cmas-core-security;ldap.providerurl = ldaps://dc2.mydomain.com:3269

## 44.3 Single Sign-On with ConSol\*CM Using Kerberos

- Configuration of Kerberos Single Sign-On
  - Introduction
  - Requirements
- Setting Up the System
  - Domain Controller
    - Registering the ConSol\*CM Server Machine
    - Registering the ConSol\*CM Server User
    - Generating the keytab File
  - ConSol\*CM Server
    - Enabling Kerberos in ConSol\*CM
    - Configuring Kerberos
    - File keytab
  - Client Machine
    - Internet Explorer
    - Firefox
- Using the System
  - Single Sign-On from the User's Point of View
  - Multi Domains Single Sign-On
  - Mapping Kerberos User Name to Engineer Name
  - Starting and Stopping Kerberos Authentication

## 44.3.1 Configuration of Kerberos Single Sign-On

## Introduction

The *single sign-on* feature relating to ConSol\*CM allows users to authenticate against ConSol\*CM automatically with their *Windows* credentials.

This authentication mechanism ...

- works completely transparent, no user interaction (i.e. filling in login screen) is required,
- does not interfere with existing authentication mechanisms. If Kerberos authentication fails, whatever authentication mechanism was configured (e.g. LDAP or database authentication) is used.

The single sign-on feature is based on the *Kerberos V5* protocol, which is integrated in the *Windows Active Directory*. All information is encrypted using *RC4* and *HMAC*.

The web server works as a *non-Windows Kerberos service* and can be installed on any operating system /application server.

Client and web server use GSSAPI and SPNEGO to exchange authentication information.

This guide shows you how to set up single sign-on in a Windows (Active Directory) environment as this is the most common scenario for our customers.

## Requirements

For Kerberos-based single sign-on you need:

- Domain controller for the Windows domain
- ConSol\*CM server
- Windows clients

## 44.3.2 Setting Up the System

## **Domain Controller**

The first step is to configure the domain controller so that it knows the ConSol\*CM server. In our example the domain controller is called *win2003srv*, the domain is *CM6SSO.CONSOL.DE*.

## Registering the ConSol\*CM Server Machine

First, the ConSol\*CM server machine needs to be registered in the Active Directory of the domain controller. In our example it is the computer *xp1cm6*.

### Attention:

The radio button *Trust this computer for delegation to any service (Kerberos only)* must be activated!

? 🗙	? X
Delegation Location Managed By Dial-in General Operating System Member Of	General Operating System Member Of Delegation Location Managed By Dial-in
APP-TEST2-VIS	Delegation is a security-sensitive operation, which allows services to act on behalf of another user.
Computer name (pre- <u>W</u> indows 2000):         XP1DMB           DNS name:         xp1cm6.cm6sso.consol.de	Do not trust this computer for delegation     Trust this computer for delegation to any service (Kerberos only)     Trust this computer for delegation to specified services only     Use Kerberos only
Bole: Workstation or server Description:	<ul> <li>Use any authentication protocol</li> <li>Services to which this account can present delegated credentials;</li> </ul>
	Service Type User or Computer Port Service Name Dc
	Expanded Add Remove
OK Cancel Apply	OK Cancel Apply

Fig. 1: Registration of ConSol\*CM Server Machine

## Registering the ConSol\*CM Server User

Second, the user under which the ConSol\*CM server process will run, is created and registered in the Active Directory, in our example the user *tomcat*.

The following account options must be enabled:

- account is trusted for delegation
- no Kerberos pre-authentication needed

? 🗙					
Member Of         Dial-in         Environment         Sessions           Remote control         Terminal Services Profile         COM+           General         Address         Account         Profile         Telephones         Organization					
User logon name:					
HTTP/xp1cm6 @cm6sso.consol.de					
User logon name (pre- <u>W</u> indows 2000):					
CM6SSO\ tomcat					
Log On Io					
Agcount is locked out					
Account options:					
User must change password at next logon User cannot change password Password never expires Store password using reversible encryption					
Account expires					
• Never					
○ End of: Freitag , 14. März 2014					
OK Cancel <u>A</u> pply					

Fig. 2: Registration of ConSol\*CM Server User

## Generating the keytab File

On the domain controller the ConSol\*CM server is created as a new Kerberos service, additionally a Kerberos *keytab* file is generated. This file will be needed later on the ConSol\*CM server machine. This *keytab* file contains the shared secret key of the service.

C:\Programme\Support Tools>ktpass /out tomcat.keytab /ptype KRB5\_NT\_PRINCIPAL /princ HTTP /xplcm6.cm6sso.consol.de@CM6SSO.CONSOL.DE /pass consol.l23 /mapuser tomcat /crypto rc4-hmac-nt

#### Attention:

If *ktpass* is not available, the *Windows Server 2003 Support Tools* must be installed, available here.

## **ConSol\*CM Server**

Install ConSol\*CM as usual, then enable and configure Kerberos as described in the next steps.

## Enabling Kerberos in ConSol\*CM

If you do an initial set-up, you can choose whether Kerberos should be enabled. Please note that this is only a hint and additional configuration is needed (see next steps).

If your ConSol\*CM is already configured without Kerberos enabled, you can enable it in the Admin Tool by setting the property *cmas-core-security*, *kerberos.v5.enabled* to *true*. A server restart is required to activate the new setting.

## **Configuring Kerberos**

A ConSol\*CM server reads configuration parameters from the file *cm6-kerberos.properties* from the class path:

- Under JBoss this can be:
  - ../jboss/server/{domain}/conf/cm6-kerberos.properties
- Under WebLogic this can be:
  - ../{domain}/cm6-kerberos.properties

In case you have a cluster of more than one ConSol\*CM servers in operation, each server has to have a separate properties file.

Properties in this file should contain:

- Reference to a Kerberos config file (e.g. krb5.ini or krb5.conf)
- One or more service principal(s), i.e. reference to keytab file

#### Example for cm6-kerberos.properties:

```
# path to kerberos configuration
kerberos.config.location=C:\\conf\\krb5.ini
# one or more service principals (principal = path to keytab file)
HTTP/xplcm6.cm6sso.consol.de@CM6SSO.CONSOL.DE=C:\\conf\\tomcat.keytab
```

#### Example for krb5.ini:

```
[libdefaults]
  default_realm = CM6SSO.CONSOL.DE
  default_tkt_enctypes = rc4-hmac des-cbc-md5 des-cbc-crc des3-cbc-shal
  default_tgs_enctypes = rc4-hmac des-cbc-md5 des-cbc-crc des3-cbc-shal
[realms]
  CM6SSO.CONSOL.DE = {
    kdc = w2003srvcm6
    admin_server = w2003srvcm6:88
  }
[domain_realm]
  .w2003srvcm6 = CM6SSO.CONSOL.DE
  w2003srvcm6 = CM6SSO.CONSOL.DE
```

## File keytab

Copy the *keytab* file you generated on the domain controller to the location you specified in the *cm6-kerberos.properties* config file.

#### Attention:

You have to restart the ConSol\*CM server process!

## **Client Machine**

#### Internet Explorer

The *Internet Explorer* needs to be configured so that automatic login is enabled. By default, this is allowed in the *medium-low* security setting, which by default is set for the *local intranet zone*.

In detail, the following settings for login behavior are available.



Fig. 3: Internet Explorer Login Configuration

Settings and resulting behavior:

- Anonymous logon No single sign-on is possible, user will get ConSol\*CM login dialog.
- Automatic logon only in Intranet zone Single sign-on is performed automatically but only if the site is part of the local intranet zone.
- Automatic logon with current user name and password Single sign-on is performed automatically with current user credentials.
- Prompt for user name and password OS displays a login dialog, user can enter OS login information which is then used in Kerberos authentication.

## Firefox

In the default settings, *Firefox* does not support Kerberos single sign-on. To enable single sign-on, you have to add the URI of the ConSol\*CM Web Client in the Firefox configuration.

To do this:

- Open about:config.
- Add the web server to the property *network.automatic-ntlm-auth.trusted-uris* (for example *http://xp1cm6* if that is the URI).

You can set this property also on the file system. Open the file

C:\Dokumente und Einstellungen\[USER]\Anwendungsdaten\Mozilla\Firefox\Profiles\XYZ.default\prefs.js

and add/replace the following line:

```
user_pref("network.automatic-ntlm-auth.trusted-uris", "http://xplcm6");
```

#### **Attention:**

You have to restart Firefox after this change.

## 44.3.3 Using the System

## Single Sign-On from the User's Point of View

An engineer using single sign-on to log into ConSol\*CM will notice that ...

- no ConSol\*CM login screen is displayed,
- instead there may be (for a short time) an intermediate text screen (which is used to gather some client data via JavaScript) which immediately forwards the user to the ConSol\*CM Web Client main screen.

 $\times$ 

Here, a message is displayed:

You have been automatically logged in and a new session has been created for you.

It is still possible to login as another ConSol\*CM user by clicking on the logout button which will lead you to the login page or by explicitly using the *...../cm-client/login* URL.

## **Multi Domains Single Sign-On**

For each domain you will enable single sign-on, create a new domain/user and Kerberos principal and put all of them into the *cm6-kerberos.properties* file:

```
# path to kerberos configuration (think krb5.conf or krb5.ini)
kerberos.config.location=/etc/krb5.conf
# one or more service principals (principal = path to keytab file)
HTTP/cm6.consol.de@CONSOL.DE=/etc/krb5_consolde.keytab
HTTP/cm6.consol.de@CONSOL.PL=/etc/krb5_consolpl.keytab
```

## Mapping Kerberos User Name to Engineer Name

Using Kerberos-based single sign-on, the Kerberos principal (i.e. the user's OS login) has to be mapped to a ConSol\*CM engineer name.

By default, this mapping is done using one of the two following ways:

- Explicit mapping Take the principal name and try to find a ConSol\*CM engineer who has this principal stored as
  - Kerberos Principal Name. If such an engineer is found, this engineer is used.
- Mapping via regular expression

The regular expression defined in the *cmas-core-security*, *kerberos.v5.username.regexp* property is taken and applied to the principal. The result of this will be taken and a ConSol\*CM engineer with this login will be searched:

 First matching regular expression group (in brackets) will be used as engineer login name, e.g. the default property value (.\*)@. \*will convert Huber@cm6sso.consol.deto Huber.

If further customization is needed please refer to UsernameAdapter interface javadoc.

## **Starting and Stopping Kerberos Authentication**

Kerberos authentication can be started/stopped in the Admin Tool -> page *Configuration* -> tab *CM Services* -> *Kerberos v5 authentication provider*, see section CM Services.

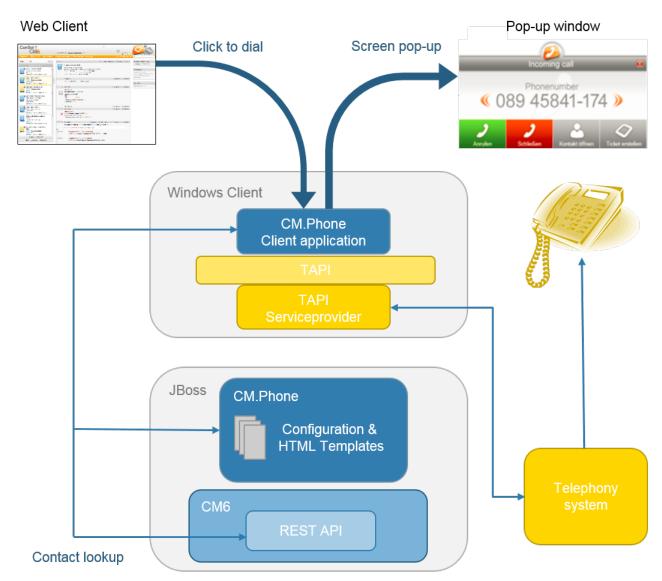
## 45 CTI with ConSol\*CM: CM.Phone

- Introduction to CM.Phone
  - Incoming Calls
  - Outgoing Calls
- CM.Phone Set-Up
  - System Requirements
  - Components Required for CM.Phone Set-Up
  - Installing CM.Phone on the Application Server
    - Basic CM.Phone Server Installation
    - Configuring CM.Phone on the Application Server
      - Configuring the Client Pop-Up Window
        - CallNotification.html
        - ContactData.html
        - ContactList.html
        - Links/Buttons within the Templates
      - Replacing the CM.Phone Pop-Up Window by a Custom Web Application
  - Installing CM.Phone on Each Windows Client
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  - Configure the Admin Tool Templates for Customer Data for Each Customer Group
  - Configure the Phone Number Format for Each Customer Group
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  - Change the Prefix for Outgoing Calls
- Troubleshooting
  - Logging
  - Registration as phone: protocol handler

## 45.1 Introduction to CM.Phone

CM.Phone is a distinct ConSol\*CM module which has to be licensed in addition to the core CM system.

CM.Phone is a Windows client application for integration of telephony systems using the *TAPI 3* protocol. TAPI is part of any Windows operating system and provides generic telephony functions. The CM.Phone client has to be installed on each Windows client which should use the CTI (Computer Telephony Integration) functionality with ConSol\*CM.





## 45.1.1 Incoming Calls

The CM.Phone client monitors the telephone handset (i.e. the selected TAPI device, *address* or *line*) for incoming calls. When an incoming call has been registered, a pop-up window is created, displaying the phone number of the caller. The CM customer database is searched for matches for this customer. If one or

more matches have been found, a customer list is offered for selection. Engineers can then decide if they want to create a ticket for the customer or if they want to have the customer page displayed. In case no corresponding customer data matches the phone number, just the calling number is displayed and the option *Create customer* is offered.

#### Attention:

Please note that a user can only see the customer data in the CM.Phone pop-up window which is allowed by the user's permissions. Others will be filtered out and will thus not be visible.

The pop-up window is based on *HTML* template files which are located in the CM.Phone folder on the CM server. These templates are loaded by the CM.Phone client application during startup. The information displayed in the pop-up window (data object group fields from the customer data model) can be customized by editing the template files (see section Configuring the Client Pop-Up Window).

The following options can be selected in the pop-up window, if exactly one customer matches in the CM database:

• Open customer

Opens the customer page (contact/company) in the Web Client (alternatively *Create customer* will be offered, if the caller is unknown in CM).

- Create ticket Opens the *Create ticket* page for this found (or new) customer in the Web Client.
- Call back

Will be available in case of a missed call.

Close

Closes the CM.Phone pop-up window.

In case, the customer is not yet present in the CM system, the caller's phone number will be used to fill-in the phone number field in the customer data (data object group fields) annotated as *dialable*. This will be done for new customers and newly created tickets. Should multiple fields be annotated as *dialable* the first one will be pre-filled. In case the user has access to multiple customer groups the respective *dialable* phone number fields of each customer group will be pre-filled.

## 45.1.2 Outgoing Calls

The engineer can start an outgoing call directly by clicking on a phone number (e.g. in the customer data) in a data object group field which has been annotated as *dialable*. The CM.Phone application is started automatically by the browser and the phone number is passed to the telephone system as a command line parameter. The CM.Phone application creates an outgoing call via TAPI and quits immediately.

## 45.2 CM.Phone Set-Up

## 45.2.1 System Requirements

Please refer to the *System Requirements* of the ConSol\*CM version which is installed in your environment for detailed information concerning server and client requirements for CM.Phone set-up.

## 45.2.2 Components Required for CM.Phone Set-Up

For CM.Phone set-up you, as an administrator, need:

- The license for CM.Phone, please ask your ConSol\*CM consultant.
- The CM.Phone . war file for deployment in the application server.
- A TAPI 3 driver in the telephone system.

## 45.2.3 Installing CM.Phone on the Application Server

## **Basic CM.Phone Server Installation**

The CM.Phone module is delivered as a *.war* package. The *.war* package is provided as folder (not as packed file), because in this way you can easily access the configuration files located in this path.

For the server installation, perform the following steps:

- 1. Copy the *cm-phone.war* folder to *<CM6 path>/server/cmas/deploy*.
- 2. Adapt the configuration as needed (see sections below).
- 3. Restart the application server.

To check if the application was deployed correctly, visit the web URI:

http://<CM server>:<CM port>/cm-phone/

You should see the welcome page of the application with the link to the CM.Phone installer download.

## **Configuring CM.Phone on the Application Server**

All application parameters are set in the file **cmphone-config.xml** which is located under *<CM6 path>* /server/cmas/deploy/cm-phone.war.

This file is loaded by the CM.Phone client application during start-up and each time the settings dialog is closed with *OK*.

However, this file should not be edited in order to configure the system. Please make sure that all configuration parameters are set using the Admin Tool.

## **Configuring the Client Pop-Up Window**

The contents of the pop-up window are based on the HTML templates in the following path: *<CM6 path>* /*server/cmas/deploy/cm-phone.war/templates*. The main directory contains the templates for the default language (of the client system!):

- CallNotification.html
- ContactData.html
- ContactList.html

For each additional language which should be supported, a folder with the name of the locale has to be created (e.g. *de* for *German*) which contains localized copies of the template files.

The templates are used to render the customer details in the pop-up window. Since every customer may want to see different information in the pop-up, the content can be adapted by editing the HTML files. The templates contain tags which are replaced with actual values by the client application during a call. Those templates are Admin Tool templates which have to be defined for each customer group, please see section Configure the Admin Tool Templates for Customer Data for Each Customer Group for details.

If required, you can change the names of the templates. You can use any file name you want for the three HTML files, just make sure you have entered the correct values in the *config* file.

## CallNotification.html

This is the first template which is displayed as soon as an incoming call is detected by the CM.Phone client. This window only displays the calling number since at this time there is no customer data available.

### Available tags:

• [phonenumber]

Phone number of the caller. **Example:** <h1>Phonenumber: [phonenumber]</h1>

- [calltime] Time of the call.
- [content]

This will show additional information within the pop-up window:

A *Loading* icon during the customer look-up or an error message if something went wrong during the look-up, e.g. wrong user name or password, etc.

### Attention:

These tags are case sensitive and must be lower case.

### ContactData.html

This will display the actual customer details if the look-up successfully found a matching customer for the phone number. In this template all data object group fields of the customer data model can be used as tags. This way, the displayed customer details can be adapted to any customer's need.

All tags from the CallNotification template are available (see above), plus the following tags:

## • [contact.id]

CM internal ID of the customer. This ID may be used to create additional links into the CM Web Client.

### • [contactContent]

Here, the customer data is filled in according to the template which is defined for each customer group in the Admin Tool under <CustomerGroupObject> -> Templates -> *CMPhone Customer Details* 

## ContactList.html

In case the look-up finds more than one customer for a phone number, the *ContactList* template is displayed in the pop-up window. For each found customer, a row is added in the customer table within the template.

Here, the contact data is filled in according to the template which is defined for each customer group in the Admin Tool under <CustomerGroupObject> -> Templates -> *CMPhone Customer List.* 

## Links/Buttons within the Templates

Four buttons are configured in the standard templates:

Close

Closes the pop-up window.

- Call Starts an outgoing phone call to the calling number.
- Open Customer Opens the customer in the Web Client.
- Create Ticket Opens the Web Client in the *Create ticket* page.

These buttons can also be customized within the templates. Buttons may be removed or additional buttons or links may be added as required. Each button refers to an HTML link.

For CM.Phone there are two types of links available:

### 1. External links

These links will open a browser window to display the page.

For example, the link *http://heldesk/cm-client/contact/[contact.id]* will open the Web Client and display the selected customer.

For these links, all data object group fields of the customer data may be used to create the URL. This way, additional functions may be added by creating a link to a customer-specific web application and by passing user data from CM as parameters, e.g.: *https://intranet.mycompany.de/index.php? id=234&id\_person=[customer.personid]*.

### 2. CM.Phone internal links

These links are only valid within the pop-up window.

Format: http://cmphone/<command>/?<parameter>

The following commands are available:

### a. contactdata

Displays the ContactData template for the selected customer.

Parameter: Contact Id This command is used in the ContactList template to allow the user to select and display a specific customer: http://cmphone/contactdata/?[contact.id] b. contactlist Displays the *ContactList* template. This command is used to allow the user to go back to the list of customers from the Customer Data page: http://cmphone/contactlist c. call Starts an outgoing phone call to the phone number of the customer: http://cmphone/call d. runcmd Starts a local application on the client PC. Parameter: Command line of the application This may be used for instance to start a database application and pass a user ID as a command line parameter, e.g. : http://cmphone/runcmd/?dbapp.exe +userid=[customer.userid] e. close Closes the pop-up window: http://cmphone/close

## Replacing the CM.Phone Pop-Up Window by a Custom Web Application

In case a customer does not want to use the pop-up window from CM.Phone but instead requires a custom web application to be opened for a phone call, this can be done by setting the *OnCallCmd* parameter in the *cmphone-config.xm*/file. If it is set to an external URL, a browser window will be opened with this URL for each phone call. The pop-up window will not be displayed.

## 45.2.4 Installing CM.Phone on Each Windows Client

The CM.Phone client application has to be installed locally on all client PCs that need CTI functionality. The set-up package has to be downloaded from the CM.Phone start page on the CM server.

#### Attention:

Administrator rights are needed on the client PC to install the CM.Phone application. The reason for this is the registration as *phone: protocol handler* which requires a registry key to be written.

For the client installation, perform the following steps:

1. Open the CM.Phone start page http://<CM6-URL>/cm-phone.

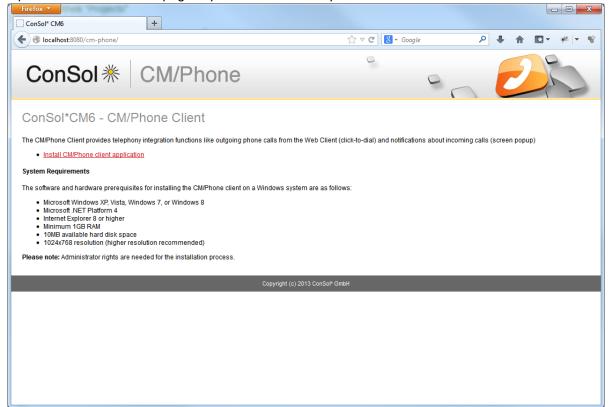


Fig. 2: ConSol\*CM.Phone - Client Set-Up (1)

2. Download and run the installation package CMPhoneSetup.msi.

븅 ConSol* CM/Phone	x
Welcome to the ConSol* CM/Phone Setup Wizard	
The installer will guide you through the steps required to install ConSol <sup>®</sup> CM/Phone on your computer.	
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any pottion of it, may result in severe c or criminal penalties, and will be prosecuted to the maximum extent possible under the law.	ivil
Cancel < Back Next >	

Fig. 3: ConSol\*CM.Phone - Client Set-Up (2)

3. Start the CM.Phone application. Start *All programs -> ConSol CM6 -> CM Phone.* After the first start it will display the configuration dialog:

🏶 CM/Phone Configuration 🛛 🗙
ConSol * CM/Phone
Select the telephony device to use for incoming and outgoing phone calls
Enter the CM6 address e.g. http://helpdesk.consol.com
CM6 URL
Enter your logon information
CM6 Username
CM6 Password
OK Cancel

Fig. 4: ConSol\*CM.Phone - Client Set-Up (3) Fill in the following fields:

• Line

Select the TAPI line which should be used.

• CM6 URL

Enter the URL of the CM system. The basic URL is required, e.g. http://myserver:8080.

- CM6 Username Your CM user name (the user has to have enough rights to search for data objects through CM REST API !).
- CM6 Password

Your CM password.

#### Information:

The configuration dialog can be opened anytime by opening the context menu of the CM. Phone notification icon in the task bar and selecting *Settings*....

## **Engineer Authentication Modes**

The ConSol\*CM CTI client will not work together with SSO authentication mode (see section Single Sign-On with ConSol\*CM Using Kerberos).

## 45.3 Configuration of CM.Phone in the Admin Tool

In the Admin Tool you have to perform the following steps to configure CM.Phone:

- Set the annotations for the data object group fields which contain phone numbers.
- Configure the Admin Tool templates for customer data for each customer group.
- Configure the phone number format for each customer group.
- Set the system properties.
- Optional: Change prefix for outgoing calls.

## 45.3.1 Set Annotations for Data Object Group Fields Containing Phone Numbers

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Actions	DirCustCustomer     DirCustCustomerData	phone3 short string phone4 short string
4 Roles		phone_label short string phonetype1 enum =
Relations	PartnersCompany     PartnersCompanyData	phonetype2 enum
Address Autocomplete	PartnersContact     PartnersContactData	phonetype3 enum phonetype4 enum
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🖨 Global Configuration		
🕥 Data Warehouse		
🔅 Services	Assigned annotations	Assigned annotations
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	unit is a contact true ticket contact rela	
		position 3;2 layout
		reportable true dwh
		visibility edit common
		- p-
[CM_Administration]		

Fig. 5: ConSol\*CM Admin Tool - Annotations for Data Object Group Fields with Phone Numbers

Contact	Dist	olay 🔻
@	Mr Max Mustermann  Gruppenleiter max.mustermann@consol.de Office 08945841100 Office 08945841100 Office 01627673232	
]	ConSol* GmbH Company ConSol* GmbH Address Franziskanerstr. 38 81543 München	

Fig. 6: ConSol\*CM Web Client - Dialable Number When Using CM.Phone

Two annotations are required for the data object group fields which contain phone numbers:

• dialable = *true* 

This configures the phone numbers as dialable links in the Web Client.

• field-indexed = *local* 

This makes the field searchable which is important for the customer look-up.

## 45.3.2 Configure the Admin Tool Templates for Customer Data for Each Customer Group

The customer data model configuration also allows for two more contexts/types of data object templates now:

- CMPhone customer details
- CMPhone customer list

They are used for defining how CM.Phone should render incoming call information. The first one is used for exactly one data object matching the phone number and the second one is used for multiple matches, so that the engineer has to select the correct customer.

You have to perform two steps:

- 1. Write the templates and store them in the *Script and Template Administration* of the Admin Tool.
- 2. Assign the templates to customer data models (User attributes tab Customer data model).

Access and Roles     Scripts     Template       Lists     Source       Tickets     Source       Name     Group	CM6		O	•
List  Customers	Home	*	Scripts & Templates Administration	
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Fig. 7: ConSol\*CM Admin Tool - Example Template for Rendering Customer Data for Display in CM.Phone

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A Home				-					
Access and Roles	۲		Customer data models						
Lists	۲				Name:	company		(	
Tickets	۲		Company	ſ					
TICKELS			company		Description:				
Customers	۲		💼 🛓 customer						
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-			DirCustCompany						
Data Models			DirCustCompanyData		Type:	Company		-	
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lesources	۲		ResellerCompany			Quick Search			
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-						Ticket search result			
⑦ Data Warehouse	۲		Reseller CompanyInternalResp	1		Ticket page Ticket list			
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			Assigned annotations			CMPhone customer details	CMPhoneCustomerDetailsTemplate	1	
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[CM_Administration]									

Fig. 8: ConSol\*CM Admin Tool - Assignment of CM.Phone Templates for Customer Data to Customer Groups

## 45.3.3 Configure the Phone Number Format for Each Customer Group

The format defined here is used to transform incoming numbers (from the respective customer group) to a common canonical form exchange format. The engineer can enter a phone number in any format with or without prefixes, e.g. as company internal number. To avoid problems with interpreting such numbers there is a dedicated configuration per customer group which is used when a user submits a phone number for a particular data object. The patterns/elements of the different formats which can be interpreted as a phone number in the fields marked as *dialable* can be defined in detail in the Admin Tool.

The navigation group *Customers*, navigation item *Customer Groups* has to be selected after logging in to the Admin Tool for this configuration. On the navigation item Customer groups the desired customer group has to be selected for editing. After clicking the *Edit* button below the list of customer groups the edit dialog opens which now contains a new tab titled *CMPhone*.

On the *CMPhone* tab of the *Edit customer group* dialog there are fields in which you can enter phone number prefixes for different scopes and number patterns for several phone number types.

The fields for configuration values are:

#### • Country prefix

The international country prefix for extending national phone numbers, without prefixes like "0" or "+". Such a prefix is not allowed here!

The country prefix is required in order to check if an outgoing call is going to be performed within the same country or not. Several phone providers do not handle canonical (so theoretically correct) numbers for domestic calls. Therefore the country prefix has to be cut-off from the number in such cases.

#### • Area prefix

The local city/area prefix for extending local phone numbers. Please note that this also does not include general prefixes like "0" or "1", so the entry for Munich in Germany would be *89*, not *089*.

#### • Company prefix

The phone number of the company as used in (local) calls without extensions. Adding an extension number to this prefix would allow a local call from outside the company to this extension.

#### Subscriber pattern

This regular expression (RegEx) describes a number pattern used to identify if the number provided is a full subscriber number (eventually including an extension) which would allow for a local call.

#### Internal pattern

The regular expression (RegEx) in this field defines the pattern to classify extensions, if only a phone extension is entered.

#### Mobile pattern

This regular expression (RegEx) is used to identify a number entered as a mobile/cell phone number in the country, which would be valid to make a national call to a mobile phone.

For example, for all numbers (12, 33990312, 21133990312) from above points the result should be always the full canonical number: 4921133990312. For mobile numbers also a country prefix will be added, so the

result will be: 49600289906. If the engineer enters a full number starting with "+" or "0" then the configuration is skipped - CM assumes no number conversion is required.

ConSol CM6						
				Edit customer group		
A Home	*	Lastomer Groups		Edit customer group		
Access and Roles	۲	Customer groups		i Please edit the customer group data.		
🗮 Lists	۲	Filter:	All customer data models			
Tickets	۲	Name 🔺	Customer data model	Name: MyCustomerGroup		
Customers	۲	DirectCustomers	DirectCustomersModel			
		MyCustomerGroup	BasicModel	Customer data model: BasicModel		
La Customer Groups		OurPartnerCompanies	PartnersModel	Automatic Actions Manual Actions Search Actions CMPhone		
		Reseller	ResellerModel	Automatic Actions Manual Actions Search Actions		
Data Models     Actions				Fallback Phone Number Configuration		
Actions				Country prefix: 49		
A Roles				Area prefix: 211		
Relations				Company prefix: 339903		
Address Autocomplete						
				Subscriber pattern: \d{7}		
ᢙ Resources	۲			Internal pattern: \d{3}		
🜐 Global Configuration	۲			Mobile pattern: \d{9}		
⑦ Data Warehouse	۲					
🔅 Services	۲					
🗹 E-Mail	۲					
🗳 System	۲					
				Save Cancel		
				Fallback Phone Number Configuration		
				Country prefix: 49		
				Area prefix: 211		
				Company prefix: 339903		
				Subscriber pattern: \d{7}		
				Internal nattern: 14/3		
		0		Mobile pattern: \d{9}		
	-					
CM_Administration]						

Fig. 9: ConSol\*CM Admin Tool - Configuration of Phone Number Formats for a Customer Group

These prefix values are defaults for extending phone numbers which are not fully qualified. They can always be overridden by entering a fully qualified phone number.

The patterns are used to guess the type of a phone number which is not fully qualified. The guessed type determines its use and necessary additions for connecting a call. For this purpose, after removing unnecessary characters, a number is checked, if it is already fully qualified. Otherwise it is matched against these patterns. For exactly one match, a valid number is constructed and used. If two matches are area code and mobile number these are combined with the country prefix for a valid number to be dialed. In all other cases the supplied original number cannot be used for making a connection.

## 45.3.4 Set the System Properties

There are three new properties with relevance for CM.Phone in CM to be set in the Admin Tool. The correct configuration for these is essential for proper usage of phone numbers for connection calls. The properties are elements of the module *cmas-core-server*.

#### local.country.prefix

This is the local country code. The value is an international country code like *49* for Germany, for example. Default value is *49*.

#### • internal.line.access.prefix

This is a prefix that the company's telephony system asks for outside lines, if required. So, if a O or a O needs to be dialed in order to make a call to any number outside the company, this value needs to be configured here. Default value is O.

#### • external.line.access.prefix

This is the general prefix to dial before an area code to get a long-distance connection in the country. For example, in Germany it is a  $\partial$  that needs to be prepended to the area code. Default value is  $\partial$ .

These properties are all optional, so they have to be added manually, if needed.

## 45.3.5 Change the Prefix for Outgoing Calls

Inis step is optional!

Usually the prefix *phone:* is set before the number for outgoing calls for interaction with the TAPI. If another prefix (e.g. *tel*:) is required, this can be configured in the *Windows Registry*. Please ask your CM consultant for advice.

## 45.4 Troubleshooting

## 45.4.1 Logging

For debugging purposes, a log file may be activated on the client. In order to do this, the log configuration file *log4net.xm*/in the installation path of the client, usually *<Program Files*>*IConSo/ICMPhone*, has to be configured.

Since most users do not have *write* access to the *Program Files* directory, the log file path has to be set to a folder that is writable for the user, e.g.:

#### Notes:

- Special characters and/or whitespace do not have to be masked.
- Use the following to write the log file into the user's home directory:

<file value="\${USERPROFILE}\phone.log" />

## 45.4.2 Registration as phone: protocol handler

If the client application cannot be installed by the users themselves because of insufficient access rights, the application may be distributed by an administrator employing a software distribution system. In that case, the application needs to be registered on the client as *phone: protocol handler* by creating the appropriate registry keys:

[HKEY\_CLASSES\_ROOT\phone]
 Please make sure to set the space in URL Protocol, otherwise it will not work.

- [HKEY\_CLASSES\_ROOT\phone\DefaultIcon] @="C:\\Program Files (x86)\\ConSol\\CMPhone\\cmphone.ico"
- [HKEY\_CLASSES\_ROOT\phone\shell]
- [HKEY\_CLASSES\_ROOT\phone\shell\open]
- [HKEY\_CLASSES\_ROOT\phone\shell\open\command]
   @="C:\\Program Files (x86)\\ConSol\\CMPhone\\cmphone.exe" (example)

# 46 ConSol CM Administrator Manual 6.10.2 - The Customer Portal - CM.Track

## 46.1 The Customer Portal: CM.Track

The portal CM.Track allows customers to log in to the ConSol\*CM system. Like the CM Web Client, CM. Track is a web-based application, i.e. the customer only needs a standard web browser for access to the portal.

Technically, the data for CM.Track is retrieved using a REST (Representational State Transfer, see Appendix B (Glossary)) API.

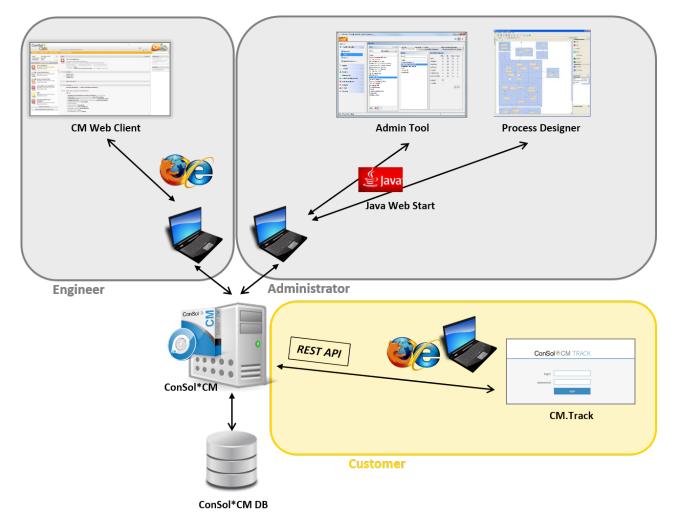


Fig. 1: ConSol\*CM System Architecture with CM.Track

In a standard environment, a customer can perform the following operations via CM.Track:

- See a list of his tickets.
- See a list of all tickets of his company (if this has been configured).
- Add comments and/or attachments to a ticket.
- Open/Create a new ticket.
- Search the FAQs for solutions.

See the following sections for topics which concern CM.Track:

- General system access to CM.Track for customers: See section System Access for CM.Track Users (Customers).
- Customer authentication modes: See section CM.Track: Authentication Modes for the Portal.
- Using the portal for FAQs: See section FAQs in CM.Track.

# 46.2 System Access for CM.Track Users (Customers)

- Precondition
- CM.Track Technical Background
- General Principle of System Access via CM.Track
- Defining the User Profiles/Access Permissions for CM.Track
- Defining the Data Object Group Fields for CM.Track Login and Password
- Granting Access to CM.Track for Customers
- Customer Login to the System
- Extended Customer Permissions to See Company Tickets
- Configure CM.Track for Password Reset by Customers

In the following chapter, you will find detailed information about how to configure your ConSol\*CM system to grant access to CM.Track (the ConSol\*CM portal) to your customers.

#### Information:

CM.Track is a ConSol\*CM Add-on which has to be purchased separately.

Please note that for every CM.Track user (i.e. user profile) a ConSol\*CM license is required. Since numerous customers can log in to CM.Track using one user profile, you do not need a CM license for every customer.

# 46.2.1 Precondition

Technically, CM.Track is part of every default shipment of ConSol\*CM, so there are no new files that have to be deployed. However, the default function set is rather rudimentary and the pages have a rather plain layout. In order to use CM.Track as a powerful portal for customer access to the system, the layout should be adapted to a company's CD (corporate design) which is called *Skinning*. The forms and lists which are displayed for the customer might be modified and/or extended. Please contact our consulting team or your account manager if you would like to adjust CM.Track for your company in an optimal way.

# 46.2.2 CM.Track Technical Background

The portal CM.Track is based on the *RESTAP*/of ConSol\*CM. Please refer to the separate document *ConSol\*CM REST API Documentation* for details.

# 46.2.3 General Principle of System Access via CM.Track

A customer who wants to or should have access to your ConSol\*CM system using the portal CM.Track has to have a login and a password. Both can be initially provided by the engineer who edits the customer data using the CM Web Client, or the values can be imported automatically into the database.

The fields for the login and password of customers are data object group fields which are defined like any other data object group field and which have special annotations. If you are not familiar with data object group fields, please refer to section Data Object Group Field Management and GUI Design.

The access permissions of the customer are defined by assigning a user profile to the customer's account. The user profiles are managed by the ConSol\*CM administrator using the Admin-Tool.

# 46.2.4 Defining the User Profiles/Access Permissions for CM. Track

As one of the first steps you have to define user profiles, i.e. profiles of access permissions to CM.Track. A CM.Track user profile is defined like a regular engineer (please see section Engineer Administration for details), but is marked as *Track*.

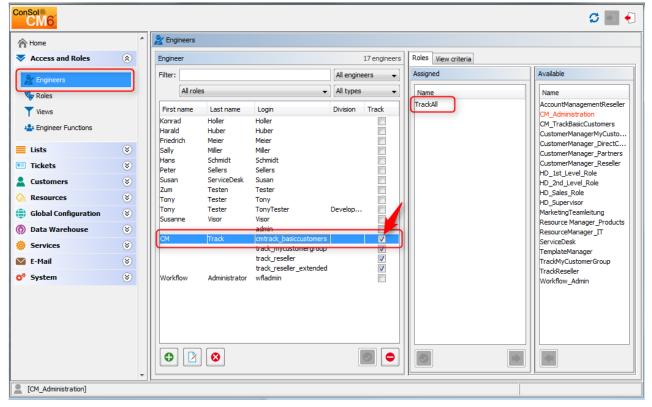


Fig. 1: ConSol\*CM Admin Tool - CM.Track: User Profile Name

The user profile is assigned to one or more roles to define the access permissions to queues and customer groups. For example you can set up a user profile (engineer) TrackAll that has the role *TrackAll*. This role has read/write/append permissions to the queues *Helpdesk\_2nd\_Level* and *ServiceDesk*. For a detailed introduction to role administration, please refer to section Role Administration.

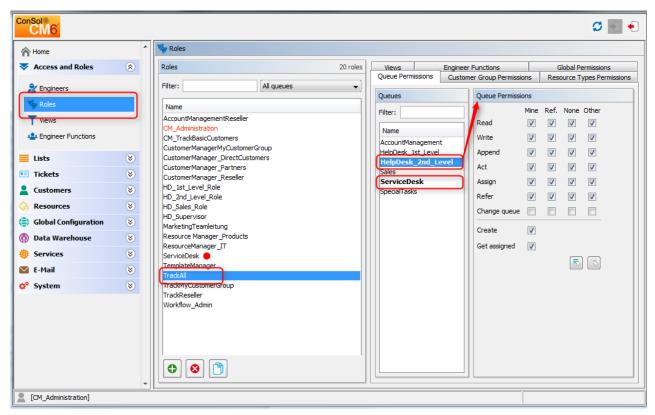


Fig. 2: ConSol\*CM Admin Tool - CM.Track: User Profile - Role

In this way, a customer with the CM.Track user profile TrackAll can only see and add comments to tickets from those queues. Another user profile might have access to *Sales* tickets and/or to an *FAQ* queue.

# 46.2.5 Defining the Data Object Group Fields for CM.Track Login and Password

The fields for login and password for a customer are regular data object group fields on contact level. Please see section Setting Up the Customer Data Model for an introduction to data object group field management and GUI configuration for customer data.

Edit the fields which contain the customer data (if there are two levels: **not** the company level, but the contact level!):

• One field for the login has to be created, annotation *username = true*.

ConSol CM6						S 🗐 🜖
A Home	*	Bata Models				
Access and Roles	۲	Customer data models		Data object group fields		
Lists	* *	DirectCustomersModel     DirCustCompany     DirCustCompanyData	•	Filter:		
Lustomers	8	-DirCustCustomer DirCustCustomerData		Name customer_name	Type short string	
Customer Groups  Data Models  Actions  Relations  Address Autocomplete		PartnersModel     PartnersCompany     PartnersCompanyData     PartnersContact     PartnersContactData     PartnersContactData     ResellerCompany     ResellerCompanyData     ResellerCompany_ServiceConi     ResellerCom		forename email phone wip_person mtrack_reseller_login antrack_reseller_password	short string string boolean string string string	
Resources	8	-ResellerCustomer		Assigned annotations           Name         Value         Annotation group		
<ul> <li>Global Configuration</li> <li>Data Warehouse</li> </ul>	*			field indexed Idapid	transitive true	Annotation group indexing contact authentication
Services	8	Assigned annotations		username	true	contact authentication
E-Mail	*	show-labels-in-edit true lay	vout			
[CM Administration]	•		yout			

Fig. 3: ConSol\*CM Admin Tool - CM.Track: Annotation for Login

• One field for the password has to be created, annotation *password = true*. The annotation *text-type = password* guarantees that only stars/dots are displayed in the Web Client, not the plain text password.

Name	Туре				
customer_name	short stri	ing			
forename	short stri	ing			
email	string				
phone	string				
vip_person	boolean	boolean			
cmtrack_reseller_log cmtrack_reseller_pa	gin string	string			
	is				
Assigned annotation	s Value	Annotation group			
Assigned annotation Name	s Value true	contact authentication			
Assigned annotation	s Value				

Fig. 4: ConSol\*CM Admin Tool - CM.Track: Annotation for Password

# 46.2.6 Granting Access to CM.Track for Customers

The engineer who works with the Web Client can then assign a user name, initial password, and a CM. Track user profile to every customer who should have access to the portal CM.Track.

	Customers		Add	Hid
	Main ResellerCustomer			
@	Skywalker	Luke		
	katja@consol.de	123		
	vip_person			
	luke	•••••		
	Track user 💌			
	track_mycustomergr	oup		
	track_reseller_extend	ded		
	Track, CM			

Fig. 5: ConSol\*CM Web Client - CM.Track Users

# 46.2.7 Customer Login to the System

Then customers can log in to the system and see their tickets. Please refer to the *ConSol\*CM User Manual*, section *CM. Track* for a detailed explanation on how to work with ConSol\*CM as a customer.

Technically, there are two ways for the user authentication:

- simple authentication
- LDAP authentication

Please refer to section CM.Track: Authentication Modes for the Portal for details.

# ConSol<sup></sup><sup></sup> CM TRACK

login	luke
password	•••••
	login

Fig. 6: ConSol\*CM.Track - Customer Login

ConSol <sup>*</sup> CM TRACK							
My tickets New ticket	Logout						
Scope	Ticket name	Creation date	Queue	Subject			
Work in progress	100260	05.05.2014 15:07	ServiceDesk	Sell a printer to each special end customer			
New ticket	100259	02.05.2014 15:36	ServiceDesk	Login in ERP-System not possible!			

Fig. 7: ConSol\*CM.Track - Ticket List

# 46.2.8 Extended Customer Permissions to See Company Tickets

In some cases it might be required that customers log in to the ConSol\*CM portal CM.Track and have to have access not only to their personal tickets but to all tickets of their company. In this case, the role for the CM.Track user (user profile) should be assigned the right *Access tickets of the own company* under *Track User Permissions*. Please refer to the section Role Administration for a detailed explanation.

# 46.2.9 Configure CM.Track for Password Reset by Customers

Starting with CM version 6.10.0, CM.Track can be configured to offer a hyperlink for customers where a customer can reset his password. This is based on the *track-password-reset-template*. Please refer to section Password Reset Template for Customers Using CM.Track for a detailed explanation.

The password reset in CM.Track is only possible when the DATABASE Mode is used. It is not possible when LDAP authentication is in operation. See section CM.Track: Authentication Modes for the Portal for an explanation of all possible authentication modes.

# 46.3 CM.Track: Authentication Modes for the Portal

- Introduction to Authentication Modes in CM.Track
- Definition of the CM.Track Authentication Mode
- DATABASE Authentication Mode
  - System Property for DATABASE Authentication Mode
  - Data Object Group Fields for Contact Login
- LDAP Authentication Mode
  - System Property for LDAP Authentication Mode
  - System Properties Defining the LDAP Server(s)
  - Data Object Group Field for Contact Login
- Mixed Authentication Mode
  - System Property for Mixed Authentication Mode
  - System Properties Defining the LDAP Server(s)
  - Data Object Group Field for Contact Login
- Logging of LDAP Login Attempts in CM.Track
- Using LDAPs for Authentication

# 46.3.1 Introduction to Authentication Modes in CM.Track

Customers who log in to the ConSol\*CM portal (CM.Track) use their login and password. Both are Data Object Group Fields in the contact data.

There are three possible authentication modes:

- Against the ConSol\*CM database. This is called Database Mode.
- Against an LDAP server. This is called LDAP Mode.
- Against an LDAP server and the ConSol\*CM database. The order can be configured. This is called *Mixed Mode*.

# 46.3.2 Definition of the CM.Track Authentication Mode

The authentication mode is determined by the system property *cmas-core-security, contact.authentication. method.* A change of this property does not require a server restart and is propagated to all cluster nodes.

The possible values (see also section Appendix C (System Properties)) and their respective system behaviors are:

### • DATABASE

Attempting a database login, if the unit has a database password, i.e. the login and password are stored in the CM database and are thus managed by the CM engineers or indirectly by the customers themselves when they reset their password. The customer can reset his password, see section Admin Tool Templates, Password Reset Template for Customers Using CM.Track.

### • LDAP

Trying authentication using the available LDAP server(s), if an LDAP ID is provided, i.e. the password is stored in the LDAP directory and cannot be changed via ConSol\*CM, neither by the customer nor by an engineer.

### • LDAP, DATABASE

First attempt is authentication using the available LDAP server(s), if an LDAP ID is provided. On failure trying a database login, if the unit (customer) has a database password.

### • DATABASE,LDAP

First attempt is a database login, if the unit (customer) has a database password. On failure trying authentication using the available LDAP server(s), if an LDAP ID is provided.

The values are case insensitive, commas and whitespace are ignored.

# 46.3.3 DATABASE Authentication Mode

# System Property for DATABASE Authentication Mode

Set the system property *cmas-core-security, contact.authentication.method* to *DATABASE* (this is the default value).

# Data Object Group Fields for Contact Login

Two Data Object Group Fields for the contact data are required:

- Login
- Password

Please see section System Access for CM.Track Users (Customers) for a detailed explanation.

# 46.3.4 LDAP Authentication Mode

# System Property for LDAP Authentication Mode

Set the system property cmas-core-security, contact.authentication.method to LDAP.

# System Properties Defining the LDAP Server(s)

The LDAP servers can be defined using the following configuration properties from the module *cmas-core*security.

{name} is a string that you can choose to distinguish LDAP servers. It always has to be set, even if only one LDAP server is configured. You should use a simple string for the {name}, which does not contain any keywords like *internal* or *external* and which does not contain special characters.

### • Idap.initialcontextfactory

This is an already existing global property. If it is not set, *com.sun.jndi.ldap.LdapCtxFactory* is being used as a value.

Idap.contact.{name}.providerurl
The property value is the address of the LDAP server in the form *ldap[s]://host:port*.
Idap.contact.{name}.userdn

# The value is the user DN used to look up the contact DN by the LDAP ID. An anonymous account is used, in case the value is not set.

### Idap.contact.{name}.password

The property contains the password to look up the contact DN by the LDAP ID. An anonymous account is used, in case the value is not set.

Idap.contact.{name}.basedn
 This represents the base path to search for the contact DN by the LDAP ID, e.g. *ou=accounts, dc=consol, dc=de*.

### • Idap.contact.{name}.searchattr

The property value stands for the attribute to search for the contact DN by the LDAP ID, e.g. uid.

A change of any of the above configuration properties does not require a server restart and is propagated to all cluster nodes. The use of the placeholder {name} allows to define several different LDAP servers.

Authentication attempts against LDAP servers are made until first success, where the server order is determined by their {name} values (ascending alphabetical order of the values).

# Data Object Group Field for Contact Login

In case LDAP Mode should be used, besides the annotation *username* = *true*, the Data Object Group Field which is used for the CM.Track user name (login) has to have an additional annotation:

Idapid

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A Home	*	Data Models						
Access and Roles	۲	Customer data models	s		Data object gro	oup fields		
Eists	۲	BasicModel		•	Filter:			
Tickets	۲	🖃 🛄 company	anv					
Customers	۲	🖃 💄 customer			Name		Type	
		Eustor			phone_label phonetype1		short string enum	^
Lestomer Groups		DirectCustom		-	phonetype1 phonetype2		enum	
Data Models			stCompanyData	E	phonetype3		enum	
-		DirCustCuston			phonetype4		enum	
Actions			stCustomerData		preparer		boolean	
A Roles		📄 🙎 PartnersMode	el		robinson			
-		PartnersComp	any		vip_label short string		-	
Relations			ersCompanyDat	ta	vip boolean			=
Address Autocomplete		PartnersConta			cmtrack_label		short string	
			ersContactData		cmtrack_login		short string	J
A Resources	۲	ResellerModel		-	cmtrack_passv	lora	short string	<b>T</b>
Global Configuration	*				0	<ul> <li></li> <li></li></ul>	·	
() Data Warehouse	۲							
Services	8	Assigned annotations			Assigned annot	ations		
Services		Name A	Value	Annotation group	Name 🔺	Value		Annotation group
🗹 E-Mail	۲		false		field indexed	transitive	ir	ndexing
💠 System	۲		taise true	layout layout	Idapid	true		contact authentication
V System	V		true	ticket contact relat	position	14;0		ayout
		unicis a contact	uue	ucket contact relat	username	true	-	ontact authentication
					visibility	edit	o	ommon
	-				I J			
[CM Administration]	•							

Fig. 1: ConSol\*CM Admin Tool - Data Object Group Field for LDAP Authentication of CM.Track users

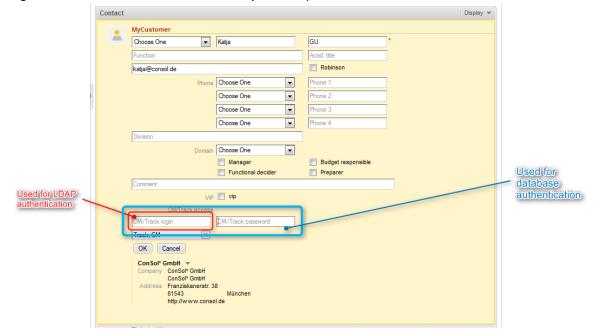


Fig. 2: ConSol\*CM Web Client - Field (Red) for LDAP ID in Contact Data

## 46.3.5 Mixed Authentication Mode

### System Property for Mixed Authentication Mode

Set the system property *cmas-core-security*, *contact.authentication.method* depending on the desired order of authentication instances:

- LDAP, DATABASE
- DATABASE,LDAP

The CM system will first contact the instance which is mentioned first, than the second one. For example, when the contact authentication method is set to *LDAP,DATABASE* and the customer (contact) uses the password which is only valid in the database, the login will succeed.

In server.log the following message will be displayed:

```
LDAP login failed: [LDAP: error code 49 - Invalid Credentials]; nested exception is javax.
naming.AuthenticationException: [LDAP: error code 49 - Invalid Credentials]
```

### System Properties Defining the LDAP Server(s)

See respective paragraph in section LDAP Authentication Mode: LDAP Servers.

### Data Object Group Field for Contact Login

See respective paragraph in sections LDAP Authentication Mode: LDAP ID

# 46.3.6 Logging of LDAP Login Attempts in CM.Track

All LDAP errors encountered are logged without a stack trace using loggers with the following prefix:

• com.consol.cmas.core.security.contact

The stack trace of LDAP errors is not logged because failed login attempts on the first LDAP server would clutter logs if a following login on the second LDAP server succeeded.

# 46.3.7 Using LDAPs for Authentication

The LDAPs authentication for CM.Track follows the same principle as using LDAPs for the authentication in the CM Web Client. Please refer to section LDAP Authentication in the CM Web Client, LDAPS.

# 46.4 FAQs in CM.Track

- Introduction to FAQs in CM.Track
- Configuring the ConSol\*CM System to Allow FAQ Search in CM.Track
- FAQ Search in CM.Track from a Customer's Point of View
- More Complex Solutions for Managing FAQs
  - Using Two FAQ Queues: FAQ Management and Active FAQs
  - Setting Up Two (or More) Parallel FAQ Environments Using Track Users

# 46.4.1 Introduction to FAQs in CM.Track

If you use CM.Track as a portal where your customers can access their tickets or the tickets of their company, you might consider offering an FAQ (Frequently Asked Questions) search to this clientele. This has proven very helpful in help desk or service desk environments where customers can check if the problem they face has occurred before and if there is a solution already. Only if they do not find any help, they will contact the service desk and/or open a new ticket. This saves time for both customer and service team. It might also be employed in other environments where you would like to offer this service.

According to ConSol\*CM standard, every FAQ is treated as a ticket. The queue(s) which should be available as FAQ queue(s) via CM.Track have to be defined as special FAQ queues, because usually customers are allowed to see only their own tickets or tickets from their company, but FAQ tickets do not belong to any specific customer. They can be accessed by every customer who logs in with a user profile that has access to the FAQ queue(s). Here, only read access has to be granted.

# 46.4.2 Configuring the ConSol\*CM System to Allow FAQ Search in CM.Track

As a first step you have to create an FAQ workflow (please see the *ConSol\*CM Process Designer Manual* for details) and create an FAQ queue that is marked as a queue for frequently asked questions (check box *FAQ*).

Edit queue		X		
Edit queue i Please edit the queu	ie's data.			
Details				
Queue:	Frequently_Asked_Questions	🗑 Workflow: FAQ_WFL 👻		
Prefix:		Calendar:		
FAQ:		Enabled: 🔽		
Ticket assignment tem	lates			
Assign:		Unassign:		
Scripts				
E-Mail script:				
Default values script:				
Other Description:	omer groups Classes of text Projects			
Assigned A		Available 🔺		
faq		dependent_enum		
feedback		numbers		
helpdesk_standard		sales_standard		
qualification queue_fields (*)		-		
workaround				
		Save Cancel		

Fig. 1: ConSol\*CM Admin Tool - Queue Administration

Then a role has to be defined which can access the FAQ queue in read-only mode. Please keep in mind that this role also needs read access to the customer group under which you have located the FAQ queue tickets.

ConSol CM6							ç	) 💽 🗧
A Home	*	V Roles						
V Access and Roles	۲	Roles 21 roles	Resource Types Permissions	Views	Engineer Function			ermissions
≳ Engineers		Filter: All gueues	Queue Permissions		Customer	Group Per	missions	
	_		Queues		Queue Permission	s		
Noles		Name	Filter:		м	line Ref.	None Oth	er
Views		AccountManagementReseller CM Administration	Name		Read [	<b>v</b>	<b>V</b>	
🖴 Engineer Functions		CM_TrackBasicCustomers	AccountManagement		Write [			]
Eists	8	CustomerManagerMyCustomerGroup CustomerManager_DirectCustomers	FAQs_active		Append [			
Tickets	8	CustomerManager_Partners	HelpDesk_1st_Level HelpDesk_2nd_Level		Act [			
-		CustomerManager_Reseller HD 1st Level Role	Sales		Assign [			
Customers	8	HD_2nd_Level_Role	ServiceDesk SpecialTasks		Refer [			
Resources	۲	HD_Sales_Role HD_Supervisor	bpcourtana					
Global Configuration	۲	MarketingTeamleitung				-		
💮 Data Warehouse	۲	Resource Manager_Products						
🔅 Services	۲	ResourceManager_IT ServiceDesk		Get assigned			_	
🗹 E-Mail	۲	TemplateManager					5	
💣 System	8	TrackAll TrackMyCustomerGroup						
		TrackReseller						
		Track_FAQ Workflow_Admin						
	+							
[CM_Administration]		11						

Fig. 2: ConSol\*CM Admin Tool - Role Administration

Then this new role has to be assigned to the user (profile) which is used as CM.Track access user (see section System Access for CM.Track Users (Customers)).

ConSol CM6								S 🗐 🌖
A Home	•	2 Engineers						
Access and Roles	۲	Engineer				18 engineers	Roles View criteria	
Sec. Engineers		Filter:			All engir	neers 👻	Assigned	Available
🍫 Roles	_	All role	2S		<ul> <li>All type</li> </ul>	s 🔻	Name	Name
Yiews		First name	Last name	Login	Division	Track	Track_FAQ	AccountManagementReseller CM Administration
Legineer Functions		Konrad Harald Friedrich	Holler Huber Meier	Holler Huber Meier				CM_TrackBasicCustomers CustomerManagerMyCusto
🗮 Lists	۲	Sally	Miller	Miller				CustomerManager_DirectCu CustomerManager_Partners
💷 Tickets	۲	Hans Peter	Schmidt Sellers	Schmidt Sellers				CustomerManager_Reseller HD_1st_Level_Role
Lustomers	۲	Susan Zum	ServiceDesk Testen	Susan Tester				HD_2nd_Level_Role
ᢙ Resources	۲	Tony	Tester	Tony				HD_Sales_Role HD_Supervisor
😩 Global Configuration	۲	Tony Susanne	Tester Visor	TonyTester Visor	Develop			MarketingTeamleitung
🕥 Data Warehouse	۲			admin				Resource Manager_Products ResourceManager_IT
🔅 Services	۲	Track	Track User for FAQs	cmtrack_basiccusto track_faq				ServiceDesk TemplateManager
💟 E-Mail	۲			track_mycustomerg track_reseller		<ul> <li>✓</li> <li>✓</li> </ul>		TrackAll
<b>o⁰</b> System	8	Workflow	Administrator	track_reseller_exte				TraddMyCustomerGroup TradkReseller Workflow_Admin
	-	0						
[CM_Administration]								

Fig. 3: ConSol\*CM Admin Tool - Engineer Administration

# 46.4.3 FAQ Search in CM.Track from a Customer's Point of View

A customer can search the FAQ queue using a search pattern. A list with the search results is displayed. By opening one ticket from the list, the fields of the tickets are displayed. This might be a solution as in the following example or other service information.

ConSol*CM TRACK								
My tickets New	ticket FAQ I	₋ogout						
FAQ								
Queue: Service_FAQ	Queue: Service_FAQ -							
Pattern: solved								
Search								
Scope	Ticket name	Creation date	Queue	Subject				
New ticket	100214	24.06.2015 16:35	Service_FAQ	Printer makes weird noises - solved				
New ticket	FAQ-100213	24.06.2015 16:21	Service_FAQ	Printer does not work - solved				

Fig. 4: ConSol\*CM.Track - Example for FAQ Search (1)

ConSol * CM TRACK								
My tickets	New tick	ket FAQ	Logout					
Ticket def	Ticket details							
	Ticket	100214						
1	Subject	Printer makes	weird noise	s - solved				
Creatio	on date	24.06.2015 16	35					
	Scope	New tick	et					
	Priority	normal						
	24.06.2015 16:35 Printer makes squeaky noises while printing.							
	e lived insi n can be re	ide the printer. eplacing the to		hem to a new home fixed the problem.				

Fig. 5: ConSol\*CM.Track - Example for FAQ Search (2)

# **46.4.4 More Complex Solutions for Managing FAQs**

### Using Two FAQ Queues: FAQ Management and Active FAQs

Instead of using only one FAQ queue, two queues might be used. One can be an FAQ management queue where tickets can be placed manually or be transferred from help or service desk queues. An FAQ manager checks the FAQ and edits the ticket if required. Then the ticket is placed in the queue for active FAQs. Here it can be accessed by customers. After a certain period of time or when the FAQ manager decides the FAQ should no longer be available, it is transferred back to the FAQ management queue. It can be re-activated or closed.

### Setting Up Two (or More) Parallel FAQ Environments Using Track Users

By creating more than one FAQ queue (or a pair of FAQ queues) and creating the respective CM.Track user profiles, it is possible to provide FAQs for different customer groups. For example, for one customer group technical help desk questions and answers are offered whereas for the other customer group support

and update information is provided. Of course, there can also be a CM.Track user profile which has access to both FAQ environments.

# 47 ConSol CM Administrator Manual 6.10.2 -System Architecture

# **47.1 System Architecture**

ConSol\*CM is a Java EE application. It can be operated as

• CM-only system, see section System Overview (CM-Only System)

or as

• CM system with reporting infrastructure, see section Infrastructure of a CM System with DWH

# 47.2 System Overview (CM-Only System)

- System Architecture
  - Introduction to ConSol\*CM System Architecture
  - Basic System Architecture
    - CM Database
  - Components for E-Mail Interactions
  - System Architecture with Reporting Infrastructure
- Short Overview of the File Structure
  - ConSol\*CM Data Directory
  - JBoss 5 Application Server File Structure
  - JBoss 7 Application Server File Structure
  - Oracle WebLogic Application Server File Structure
  - Log Files
    - Log File Types
    - Log File Structure
  - Indexer
- LDAP Authentication

# 47.2.1 System Architecture

### Introduction to ConSol\*CM System Architecture

ConSol\*CM is a *Java EE* (Java Enterprise Edition) application that can be run in a standard application server on Unix/Linux or Windows systems. JBoss and Oracle WebLogic are supported.

In this chapter, a short overview of the ConSol\*CM system architecture will be provided. For a detailed description of the system, please refer to the *ConSol\*CM Operations Manual* and the *ConSol\*CM Set-Up Manual*.

A detailed list of supported application servers, database systems, and other systems is given in the current *System Requirements*.

# **Basic System Architecture**

ConSol\*CM is a Java EE application which is based on the classical three-tier architecture. The ConSol\*CM server is deployed in an application server and accesses a relational database. Two web interfaces are available as client interfaces: the standard interface is the ConSol\*CM Web Client which is used by the engineers to work on the tickets. Another web client is the ConSol\*CM portal, CM.Track. This provides access to the system for customers who might want to know some basic facts about the status of their tickets. The two Java applications which are used to configure ConSol\*CM are the Admin Tool and the Process Designer. Both can be downloaded from the ConSol\*CM start page using Java Web Start (JWS). For a couple of years now, JWS has been part of every Java edition, so no specific download is required on the PCs or Laptops you want to use to administer the system. On the contrary - you can do this from every

regular web client with a supported web browser. Please make sure that the versions of all components which are used in your company meet the system requirements.

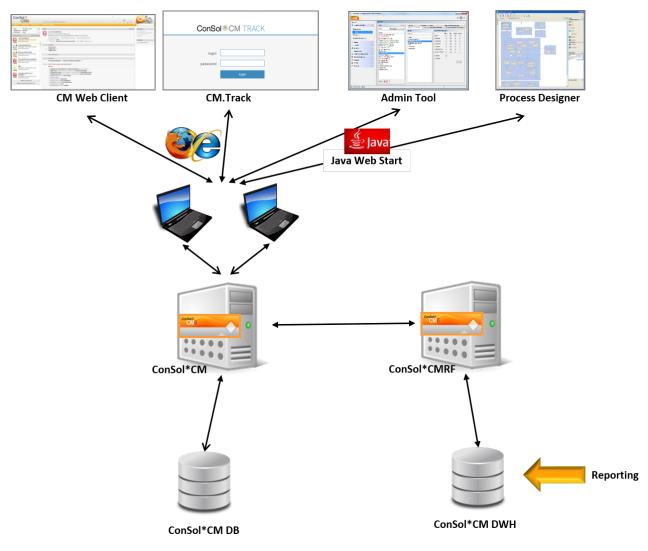


Fig. 1: ConSol\*CM - Basic System Architecture

### **CM** Database

The ConSol\*CM Database (CM DB) is a relational database which can be operated as Oracle, MSSQL Server or MySQL system (please see *ConSol\*CM System Requirements* for details).

Oracle

One database scheme with one database user is used by CM.

• MS SQL

One database scheme with one database user is used by CM.

• MySQL

One database with one database user is used by CM.

### **Components for E-Mail Interactions**

One of the core functionalities of ConSol\*CM is the integration with mail servers. This allows CM to send and to receive e-mails. For the engineer this means, new tickets can easily be opened via e-mail and the entire communication about a case is located in the respective ticket, including all incoming and outgoing e-mails.

In order to receive e-mails, ConSol\*CM connects to a mail server and retrieves e-mails from one or more mailbox(es). CM reacts like a regular e-mail client (e.g. Thunderbird, MS-Outlook) and uses standard e-mail protocols like IMAP or POP3. In case you want to use the secure version, IMAPs and POPs are also supported. In this case, the required certificates have to be placed on the server.

In order to send e-mails, ConSol\*CM uses an SMTP server.

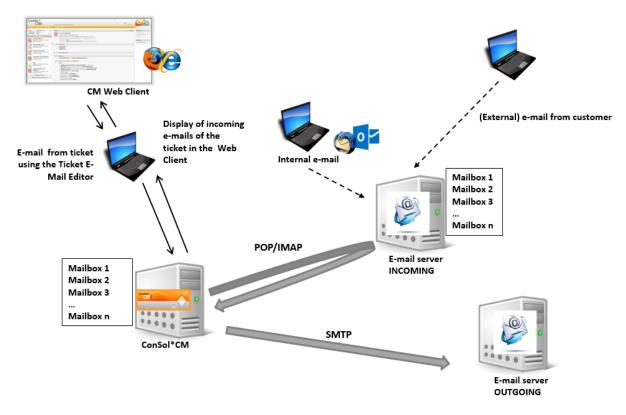


Fig. 2: ConSol\*CM - E-Mail Server Interactions

### System Architecture with Reporting Infrastructure

This is explained in section Infrastructure of a CM System with DWH.

## 47.2.2 Short Overview of the File Structure

Most of the data concerning the configuration and operation of ConSol\*CM is stored in the ConSol\*CM database. However, some data is saved in the file system in the data directory that has been entered during system set-up.

### **ConSol\*CM Data Directory**

The following figure and list show examples from a Windows and a Linux system:

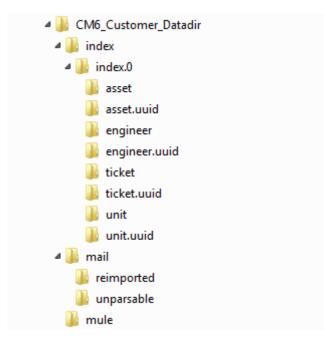


Fig. 3: ConSol\*CM - Data Directory (Windows)

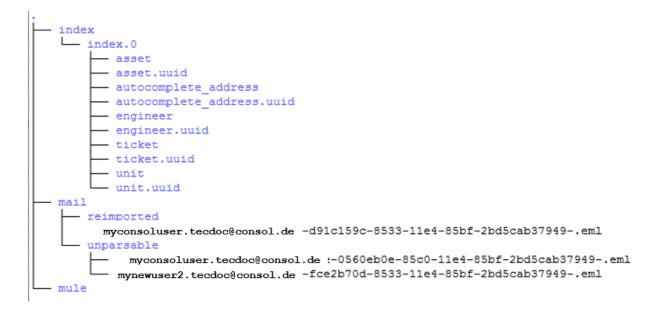


Fig. 4: ConSol\*CM - Data Directory (Linux)

#### **Example directories:**

• index

This is the directory where all the indexes are stored (see also section Search Configuration and Indexer Management). Be sure to include it into your daily file system back-up.

• index.0

In this directory, there is a subdirectory for each required index.

• mail

This directory is only relevant when the system is operated in Mule/ESB mode. In case NIMH is used, all data is stored in the database. In this directory, files that are relevant for incoming e-mails are stored.

• reimported

In this directory, e-mails are stored that had been stored in the *unparsable* directory and could then be re-imported by a manual action of the administrator.

• unparsable

In this directory, incoming e-mails that cannot be processed by the system are stored. They are listed under *E-Mail Backups* in the Admin Tool, see section E-Mail Backups.

• mule

This is a directory which might be used for *Mule* (internal *ESB*) data.

### **JBoss 5 Application Server File Structure**

The following directories are available in a JBoss 5 installation of ConSol\*CM:

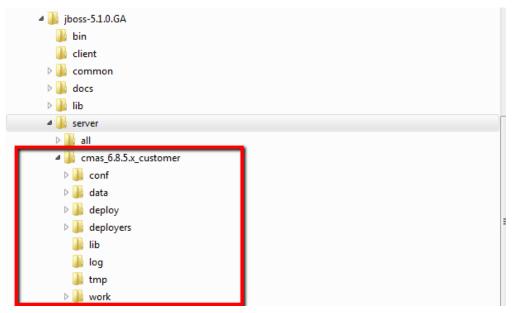


Fig. 5: ConSol\*CM - File Structure in a JBoss Application Server

### Example directories:

- conf
  - Configuration data, e.g.:
    - jboss-log4j
      - Log file configuration
- data

Data for operation, e.g. tx-operation keys

• deploy

Deployed data and configuration data:

- cm6.ear
  - Core application, .ear file
- **cm-track.war** Application file for the portal ConSol\*CM.Track
- cmDb-ds
  - Database connection configuration
- deployers
  - Additional deployed application data
- lib

Application-specific libraries, e.g.:

- mysql connector
  - In case you use MySQL as a database system.
- log
  - Log files, see section Log Files.
- tmp

Temporary data

• work

Work directory with a working copy of the application server files. Can be emptied, e.g. for error analysis and/or fixing.

# **JBoss 7 Application Server File Structure**

The following directories are available in a JBoss installation of ConSol\*CM:

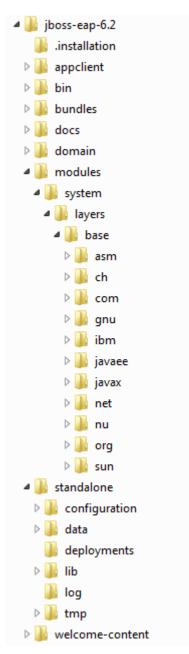


Fig. 6: ConSol\*CM - File Structure in a JBoss 7 System

### Example directories:

• modules\system\layers\base

Subfolders contain the JDBC drivers:

- com\microsoft\sqlserver\jdbc\main\sqljdbc4.jar (MS SQL)
- oracle\jdbc\main\ojdbc6-11.2.0.3.jar (Oracle)
- com\mysql\jdbc\main\ (MySQL JDBC driver destination, must be installed manually)
- standalone

Configuration in single-server environments:

• configuration

Configuration of the DB connection and logging in the file cm6.xm/

data

Data for operation, e.g. tx-operation keys

- deployments Deployed applications, for example *cm6.ear* and *cm-track.war*
- log

Log files, see section Log Files.

• tmp

Temporary data and also working copy of the application server files. Can be emptied, e.g. for error analysis and/or fixing.

• domain

Configuration in domain environments

configuration

Configuration of the DB connection and logging in the file domain.xml

servers/<server-name>/log
 Log files

# **Oracle WebLogic Application Server File Structure**

In an Oracle WebLogic environment, ConSol\*CM is installed as a separate domain. ConSol\*CM as well as CMRF are *managed servers*. Please see the *ConSol\*CM Operations Manual* for details.

Here, only some directories are explained. If you want to administer ConSol\*CM as a WebLogic application, please refer to the *ConSol\*CM Operations Manual* and to general Weblogic tutorials.

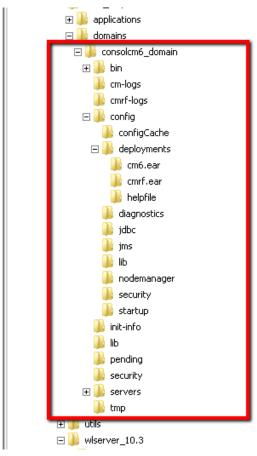


Fig. 7: ConSol\*CM - File Structure in an Oracle WebLogic Application Server

### Example directories:

• bin

Start/stop scripts

- cm-logs All log files except for *cmrf.log*
- cmrf-logs
  - cmrf.log file
    - Log messages for the CMRF (ConSol\*CM Reporting Framework)
- config

Configuration files

deployments

Deployed applications, i.e. here: ConSol\*CM and CMRF as directories

# Log Files

The logging behavior can be configured by editing the file(s)

• log4j.xml

(in JBoss 5, where Log4J is used as logging framework)

- cm6.xml and/or cm6-cmrf.xml (in JBoss 7 standalone, where the built-in logging module of JBoss 7 is used)
- domain.xml, tag <subsystem xmlns="urn:jboss:domain:logging:1.3">
   (in JBoss 7 in domain mode, where the built-in logging module of JBoss 7 is used)

### Log File Types

The following log files are used:

• boot.log

Messages concerning system start-up (e.g. the Java version is indicated).

• cmrf.log

Messages concerning CMRF (ConSol\*CM Reporting Framework), i.e. messages that concern the data transfer operations from the ConSol\*CM database to the CMRF database (DWH). This is done using *JMS* (Java Messaging Service).

cmweb.log

Messages concerning the ConSol\*CM Web Client.

• ctx.log

Contains messages of the Spring Framework.

• errors.log

Contains only messages that have at least the log level ERROR.

• esb.log

Contains messages of the *Mule Framework* (Mule is the internal ESB that is used for the processing of incoming e-mails).

• index.log

Messages concerning the Indexer.

• mail.log

Contains messages of the e-mail subsystem.

• operationtimes.log

Only used when it has been enabled. Contains times of requests in order to identify possible performance bottlenecks.

server.log

The general log file that contains all messages, as default setting at least with log level *INFO*. It is recommended to use the *DailyRollingFileAppender* in order to prevent the file system from filling up.

session.log

Contains messages about logins (session starts) and session timeouts of ConSol\*CM users.

sql.log

Contains log entries about SQL statements coming from hibernate if it is set to *DEBUG* level (by default it is set to *INFO*).

### • support\_libs\_errors.log

Contains errors which are thrown by support libs but are properly handled by the CM application (this method keeps the *server.log* clean).

### • timer-manager.log

Contains additional log messages written in log level *DEBUG* when workflow timers are activated or deactivated. Information about the escalation date is logged, too.

• tx.log

Contains Spring Framework transactions related log messages.

### • workflow.log

Information about activated/reinitialized/deactivated timers is logged with level *INFO* and all debug output related to the workflow engine is written to this dedicated file.

### Log File Structure

In the default configuration, log file entries have the following syntax:

```
Date Timestamp Loglevel [Logger] Message
```

Example for a log file entry (successful start of ConSol\*CM in JBoss):

```
2012-11-06 14:22:12,685 INFO [e.coyote.httpl1.Httpl1Protocol] Starting Coyote HTTP/1.1 on http-
0.0.0.0-8080
```

The components of the message:

• Date:

November 6th, 2012

- Timestamp: 14:22:12
- Loglevel: INFO
- Logger:

e.coyote.http11.Http11Protocol

Name of a Java class, not complete (only last 30 characters), the real name would be *org.apache. coyote.http11.HttpProtocol.* 

• Message: Starting Coyote HTTP/1.1 on http-0.0.0.0-8080

Simple messages and messages that concern a successful operation often comprise only one line.

When errors occur (log level *ERROR*), you might find stack traces. Please approach one of our ConSol\*CM consultants or our ConSol\*CM support team for help.

### Indexer

In order to perform effective searches in the database, CM builds an index for each Custom Field, Data Object Group Field, and Resource Group Field which should be included in a search. Furthermore, the engineer data, the ticket comments and the attachments are indexed per default. The indexes are stored on the file system! Please refer to the section about the data directory for an explanation of the index directory structure and read the detailed introduction to the entire topic in the section Search Configuration and Indexer Management.

# 47.2.3 LDAP Authentication

As standard feature, ConSol\*CM can use LDAP authentication in the Web Client and/or in the portal (CM. Track). Depending on the configuration of your LDAP server (e.g MS Active Directory), a user name and password might be required to establish the LDAP connection. All LDAP parameters are stored as ConSol\*CM system properties.

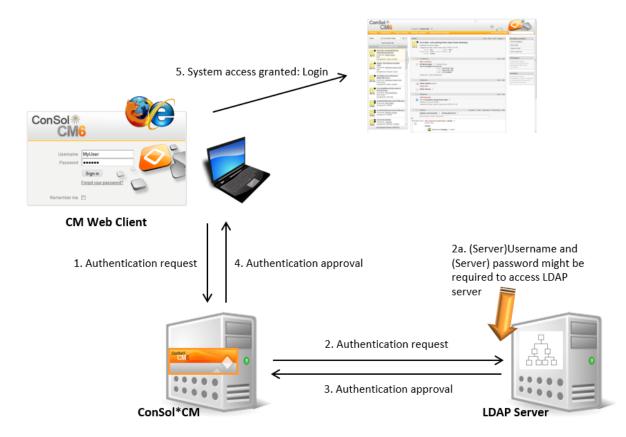


Fig. 8: ConSol\*CM - LDAP Authenication (Web Client)

# 47.3 Infrastructure of a CM System with DWH

In order to allow Business Intelligence (BI) tools or other applications to build specific reports, OLAP cubes and other analyses, ConSol\*CM provides a data warehouse (DWH) as one of the standard components. The DWH is a separate database (or database scheme, see below). The DWH is filled by a Java EE application called *ConSol\*CM Reporting Framework* (CMRF).

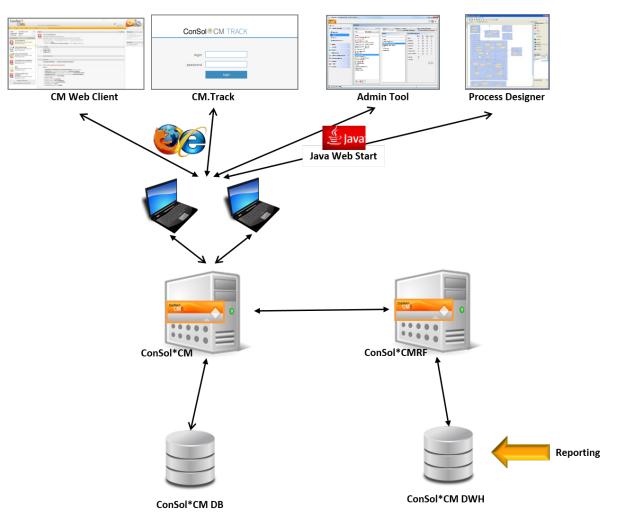
Thus, the ConSol\*CM standard function set comprises two components which enable reporting:

• **CMRF** (ConSol\*CM Reporting Framework)

This is a Java EE application which synchronizes the ConSol\*CM database with the ConSol\*CM data warehouse (DWH). The CMRF can be deployed into the same application server as the core CM or it can be run on a separate application server. We recommend to use two application servers in case you work with JBoss systems and one application server in case you use Oracle Web Logic. The synchronization of CM data with the DWH can be based on JMS (Java Messaging Service) queues or on direct messaging. For a detailed explanation, please refer to the *ConSol\*CM Operations Manual* 

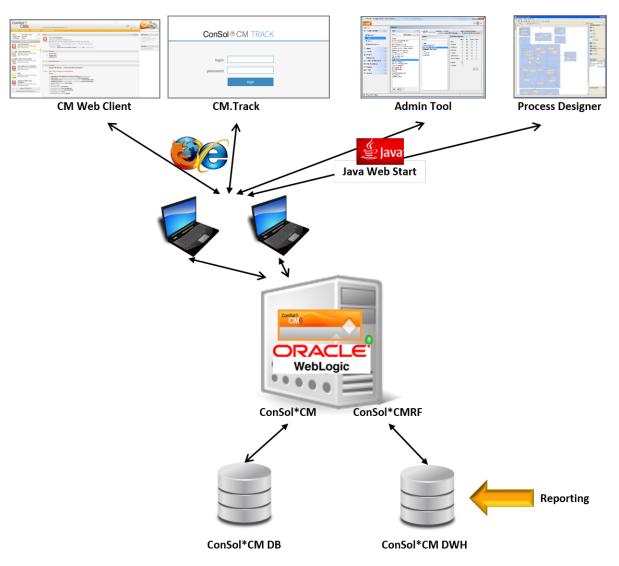
• **DWH** (data warehouse)

The ConSol\*CM DWH is a relational database which can be operated as Oracle, MSSQL Server or MySQL system (please see *ConSol\*CM System Requirements* for details). It stores the integrated /pre-processed data from the ConSol\*CM database.



### Separate application servers for ConSol\*CM and CMRF (*standalone mode*):

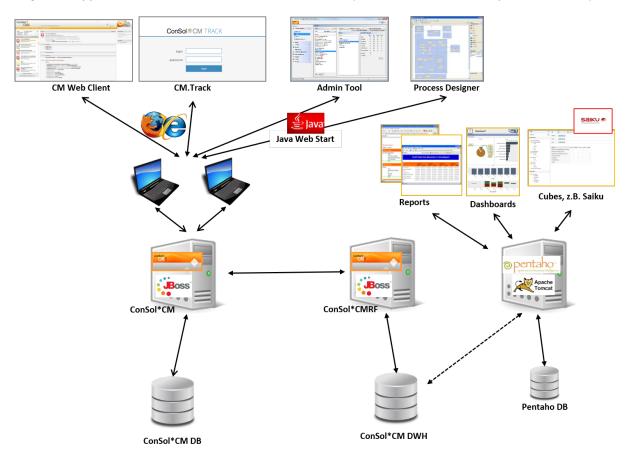
Fig. 1: ConSol\*CM - Infrastructure with CMRF and DWH (2 Servers)



### One application server for ConSol\*CM and CMRF (overlay mode, example Oracle WebLogic):

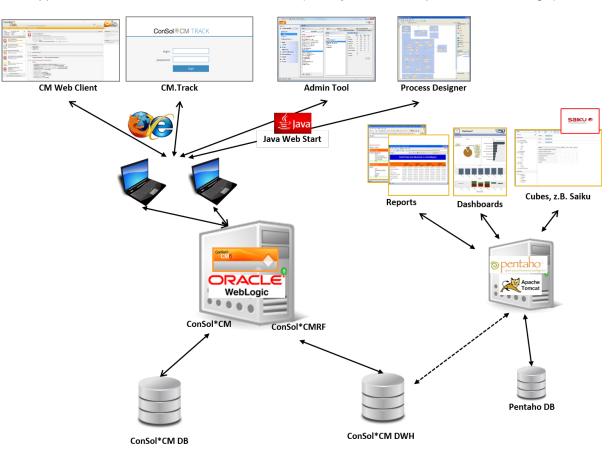
Fig. 2: ConSol\*CM - Infrastructure with CMRF and DWH (1 Server)

When the DWH has been established, *BI* (Business Intelligence) applications can be used to create reports, data cubes, and other reporting output formats. Please see the following example with Pentaho<sup>TM</sup> BI Suite.



Separate application servers for ConSol\*CM and CMRF (*standalone mode*, example: both JBoss):

Fig. 3: ConSol\*CM - Reporting Infrastructure (2 Servers, Both JBoss)



**One** application server for ConSol\*CM and CMRF (*overlay mode*, example: Oracle WebLogic):

Fig. 4: ConSol\*CM - Reporting Infrastructure (1 Server, WebLogic)

### 47.3.1 DWH Database

#### Oracle

One database scheme with one database user is used by the DWH.

#### **MS SQL**

One database scheme with one database user is used by the DWH.

#### **MySQL**

One database with one database user is used by the DWH.

# 48 Appendix A - List of Annotations (up to Version 6.10.2)

- Alphabetical List of Field Annotations
- Alphabetical List of Group Annotations

## **48.1 Alphabetical List of Field Annotations**

	Name	Annotation Type	Description	Values	Comment
Α	accuracy	validation	For date fields, to define the level of detail displayed.	date (default)	Show date without time.
				date-time	Show date with time.
				only-time	Show only time, no date.
В	boolean-type	component- type	Definition of the layout of a boolean field.	check box (default)	Field that can be checked (set to <i>false</i> by default).
				radio	2 radio buttons (yes/no) for selection (only one can be active).
				select	Drop-down field with 2 values (yes /no).
С	colspan	layout	Defines how many columns are reserved for the field in the layout.	<number></number>	Number of columns.
	contact search result column	search-result	Identifies whether the field should be presented in the search result by default.	true	Remove the annotation if the field should not be visible by default. Since CM version 6.1.3.

	Name	Annotation Type	Description	Values	Comment
			Deprecated! Do not use!		(Replaced by order-in-result, contact search result column is obsolete!)
	contains contacts	ticket contact relation type	Used only for list field definition, indicates that it can hold unit references to units annotated as contacts.	true / false	Value type is boolean. Necessary to distinguish if the list is shown with the contact (true) or with the ticket (false).
D	dialable	phone commander (CM.Phone)	Defines a field with a phone number.	true	Used with CM. Phone only. Marks a phone number as automatically dialable for outgoing calls for the CTI system.
	dwh-no-history- fi eld		Annotation used to indicate that field will not be historized in DWH	true / false	Since version 6.10.2.0.
E	email	validation	Used for e- mail addresses to check if the format is correct, i.e. if <name>@<do main&gt; has been entered.</do </name>	true	May be used with <i>string</i> Custom Fields. Remove the annotation if the format should not be checked.
	enum field with ticket color	ticket display	Defines the background	true / false	The field has to exist within <i>E</i>

	Name	Annotation Type	Description	Values	Comment
			color of the ticket icon for ticket list and ticket.		<i>num</i> <i>Administration</i> where lists, values, and colors are defined.
	enum-in- search-type	component- type	Defines whether an <i>enu</i> <i>m</i> field used in a search accepts search over multiple values.	single (default) / multiple	Accepts search over multiple values if value <i>multiple</i> is set.
	enum-type	component- type	Layout definition of list display.	select (default)	Drop-down list for selection.
				radio	List of radio buttons to select (only one option can be active)
				autocomplete	Drop-down list for selection where the field is an input field used to filter the list.
F	field-group	layout	Allows grouping of fields in <i>view</i> mode. Annotation is ignored in <i>edit</i> mode.	<string></string>	To group fields the same <i>string</i> value has to be set in the annotation of each field. Two or more Custom Fields are bound when they share the same value of this

Name	Annotation Type	Description	Values	Comment
				annotation. The group of coupled Custom Fields is shown only if all of them have values set.
field indexed	indexing	Used to indicate that a database index will be created for this field.	transitive (default)	All data is displayed (ticket and customer).
			unit	Used for customer data. Only the unit and the parent unit (i.e. company) is given as a search result, no tickets are provided.
			local	Used for customer data. Only the unit is given as a search result, no company and no tickets are displayed.
			not indexed	Field is not indexed.
fieldsize	layout	Displayed field size within ticket layout.	<rows>;<cols></cols></rows>	For <i>string</i> Custom Fields with annotation <i>text-type</i> and value <i>textarea</i> . <rows></rows>

Name	Annotation Type	Description	Values	Comment
				defines the number of displayed rows and <cols> defines the number of characters displayed per row. Used only for layout purposes.</cols>
			<number></number>	For <i>enum</i> Custom Fields. Defines how many values are directly visible in the list box. Used only for layout purposes.
format	validation	Used to check the correct format of date fields.	<date format=""></date>	The pattern for the date is based on <i>Simpl</i> <i>eDateFormat</i> , e.g. dd.mm. yyyyy. Remember to set the proper <i>c</i> <i>olspan</i> when you want to add hours /minutes. See h ttp://docs. oracle.com /javase/6/docs /api/java/text /SimpleDateFor mat.html for date format reference.

	Name	Annotation Type	Description	Values	Comment
G	groupable	cmweb- common	Enables grouping in the ticket list.	true	Used only with enum Custom Fields. Remove the annotation if you want to disable grouping.
	label-group	layout	Indicates a group of fields along with its descriptive label in <i>view</i> mode. Annotation is ignored in <i>edit</i> mode.	<string></string>	Indicates a group of Custom Fields along with its descriptive label. The annotation is used in <i>present</i> <i>ation</i> mode, ignored in <i>edit</i> mode. The group can have exactly one label (a Custom Field of type <i>string</i> with assigned additional annotation <i>text</i> - <i>type</i> with value <i>label</i> ). The label is shown when at least one Custom Field from its group has a value set. All fields with the same label value are grouped and displayed under this label.

Name	Annotation Type	Description	Values	Comment
				The annotation <i>label-group</i> has to be assigned to the label, too.
label-in-view	layout	Shows Custom Field value as a label in <i>view</i> mode. Annotation is ignored in <i>edit</i> mode.	true	Remove the annotation if the label should not be visible in <i>view</i> <i>mode</i> .
Idapid	contact authentication	Used in a Data Object Group of type <i>custom</i> <i>er</i> , for the Data Object Group Field which contains the LDAP ID for CM.Track authentication.		Indicates that this field will be used as an LDAP ID in the authentication process. Data type <i>string</i> is required. Since the definition is made on customer group level, the LDAP authentication can be run in mixed mode. I. e. use LDAP for some customer groups and regular authentication for other customer groups.
leave-trailing- zeros	common		true / false	Remaining zeros of the

	Name	Annotation Type	Description	Values	Comment
			Used for the display of fixed point numbers.		fractional part are not cut off when value is <i>tr</i> <i>ue</i> .
	list-type	component- type	Disables the <i>ad d</i> and/or <i>delete</i> options for Custom Fields of type <i>list</i> or <i>st ruct</i> .	fixed-size	It is not possible to add or delete fields /rows.
				non-shrinkable	It is not possible to delete fields /rows.
				non-growable	It is not possible to add fields/rows.
Μ	matches	validation	Checks if input of <i>string</i> Custom Fields matches the given RegEx.	<string></string>	May be used with <i>string</i> Custom Fields.
	maxLength	validation	Defines the maximum length of input for <i>string</i> Custom Fields.	<number></number>	May be used with <i>string</i> Custom Fields.
	maxValue	validation	Defines the maximum value for <i>numb</i> <i>er</i> Custom Fields.	<number></number>	May be used with <i>number</i> Custom Fields, i.e. <i>number</i> and <i>fixed-point</i> <i>number</i> .
	minLength	validation	Defines the minimum length of input for <i>string</i> Custom Fields.	<number></number>	May be used with <i>string</i> Custom Fields.

	Name	Annotation Type	Description	Values	Comment
	minValue	validation	Defines the minimum value for <i>number</i> Custom Fields.	<number></number>	May be used with <i>number</i> Custom Fields, i.e. <i>number</i> and <i>fixed-point</i> <i>number</i> .
N	no-history-field	performance	Indicates that a single Custom Field should not be historized. Overwrites the group annotation <i>no-</i> <i>history</i> .	true / faise	Annotation is active if value is set to <i>true</i> . For fields that should be stored but not be visible in history use annotation <i>visib</i> <i>ility</i> <i>configuration</i> . In CM versions up to 6.10.2, the DWH transfer of a field history is also controlled by this annotation. Starting with CM version 6.10.2, use the annotation <i>dwh</i> <i>-no-history-field</i> for this.
0	order-in-result	layout	Shows field as a column in the search result list at given position.	<number></number>	The columns are sorted in ascending order. Since CM version 6.0.1
Ρ	password	contact authentication	Indicates that this field will be used as a	<string></string>	Used for CM. Track.

	Name	Annotation Type	Description	Values	Comment
			password in the authentication process.		
	position	layout	Defines the position of a field within a grid layout.	<number>; <number></number></number>	Values define <i>r</i> <i>ow</i> and <i>column</i> (row;column), numbering starts at 0;0. If no values are set, the Custom Field will take the next free grid cell.
			Defines the position of a field within a list (struct).	0; <number></number>	Only the <i>colum</i> <i>n</i> value is used, the <i>row</i> value is ignored.
R	readonly	common	Used to indicate that the Custom Field cannot be modified.	true / false	Field is read only if value is set to <i>true</i> . Lack of value or any value except <i>false</i> is also treated as <i>true</i> .
	reportable	dwh	Indicates that the field is reportable and that it should be transferred to the DWH.	true / false	Field is reportable if value is set to <i>tr</i> <i>ue</i> .
	required	validation	Indicates that this is a required field.	true / false	Field is required if value is set to <i>tr</i> <i>ue</i> . The user cannot save the ticket

	Name	Annotation Type	Description	Values	Comment
					without having entered a value in a required field. In the Web Client, required fields are marked by a red asterisk.
	rowspan	layout	Indicates how many rows within the layout are occupied by this field.	<number></number>	Number of rows.
S	sortable	cmweb- common	Used to enable sorting of the ticket list.	true	Used for Custom Fields of type <i>date</i> or of type <i>enum.</i> Remove the annotation if you want to disable sorting. For <i>enum</i> fields: Works only if order index is set for all values of the <i>enum</i> field.
	show-label-in- edit	layout	Whether Custom Field or Data Object Group Field should be displayed in <i>edi</i> <i>t</i> mode with label.	true / false	Since version 6.9.4
	show-label-in- view	layout	Whether Custom Field or Data Object	true / false	Since version 6.9.4

	Name	Annotation Type	Description	Values	Comment
			Group Field should be displayed in <i>vie</i> <i>w</i> mode with label		
	show-tooltip	layout	Whether Custom Field or Data Object Group Field should be displayed with tooltip.	true / false	Since version 6.9.4
	show- watermark	layout	Whether Custom Field or Data Object Group Field should be displayed with watermark.	true / false	Since version 6.9.4
т	text-type	component- type	Defines the possible types of a <i>string</i> field.	text (default)	Single-line input field.
				textarea	Multi-line input field.
				password	Input field for passwords. Password will be displayed as ******* in <i>vie</i> <i>w</i> mode.
				label	Input will be displayed as a label, i.e. the field is displayed only, no input is possible.
				url	

	Name	Annotation Type	Description	Values	Comment
					Input will be displayed as a hyperlink in <i>vie</i> <i>w</i> mode. String has to match a specific URL pattern: "^((?:mailto\: (?: (?:ht f)tps?)\://) 1\S+)(?: (?:\ )? (.*))?\$" Example: "http://consol. de ConSol*"
	ticket-list- colspan	layout	Defines how many columns are occupied by the field in the ticket list box.	<number></number>	Number of columns.
	ticket-list- position	layout	Defines the position of the field in the ticket list box.	<number>; <number></number></number>	Values define <i>r</i> <i>ow</i> and <i>column</i> (row;column), numbering starts at 0;0.
	ticket-list- rowspan	layout	Defines how many rows are occupied by the field in the ticket list box.	<number></number>	Number of rows.
U	username	contact authentification	Indicates that this field will be used as a login name in the authentication process.	true / false	Used for CM. Track.
v	visibility	common		edit	

Name	Annotation Type	Description	Values	Comment
		Defines when the field is visible.		Field will be displayed in <i>edi</i> <i>t</i> mode.
			view	Field will be displayed in <i>vie</i> <i>w</i> mode.
			none	Field is not visible.
				If any other or no value is set the field will always be visible.
visibility configuration	visibility	Indicates the visibility of this field in history.	on every level	Field is shown on every level of history.
			2nd level and 3rd level	Field is shown only on the 2nd and the 3rd level of history.
			only 3rd level	Field is shown only on the 3rd level of history.

# 48.2 Alphabetical List of Group Annotations

	Name	Annotation Type	Description	Values	Comment
Α	auto-open- group	layout	The group will be opened initially. More than one value can be entered as comma- or semicolon- separated list (can be used for the customer annotation).	ticket:create	Group is opened initially when a new ticket is created.
				customer: create	Group is opened initially when a new customer is created.
				customer:view	Group is opened when the customer (contact or company) page is opened.
D	dwh-no-history		Annotation used to indicate that all fields in group will not be historized in DWH	true / false	Since version 6.10.2.0
G	group-visibility	common	Defines the default visibility of a Custom Field Group.	true / false	The annotation can be overwritten on field level.
Ν	no-history	performance		true / false	

Name	Annotation Type	Description	Values	Comment
		Indicates that all Custom Fields belonging to this group will not be historized.		Used to         indicate that all         Custom Fields         that belong to         this group         should not be         historized.         Possible         values are true         if this         annotation         should be         active or false         which is the         same like         removing the         annotation.         Use this         annotation if         you want to         prevent history         for all/many         fields in a         group. If you         only want to         prevent         historization         for a single         /some field(s),         use the         annotation no-         history-field on         field level.         In CM versions         up to 6.10.2,         the DWH         transfer of a         field history is         also controlled         by this         annotation.
				Starting with

	Name	Annotation Type	Description	Values	Comment
					CM version 6.10.2, use the annotation <i>dwh</i> <i>-no-history</i> for this.
R	reportable group	dwh	Indicates that all Custom Fields belonging to this group are reportable and should be transferred to CMRF.	true / false	A value has to be set. Annotation is active if value is set to <i>true</i> .
S	show-contact- in-ticket-list		Obsolete! Use page customization! accordionTicke tList. mainCustomer DescriptionVisi ble={true, false}	obsolete	
	show-in-group- section	layout	Defines that a Custom Field Group is displayed in the <i>Groups</i> section (as tab).	true / false	Without this annotation the group is shown in the non- tabbed ticket data or contact section.
	show-labels-in- edit	layout	Whether Custom Fields or Data Object Group Fields in this group should be displayed in <i>edi</i> <i>t</i> mode with labels.	true / false	Since version 6.9.4

	Name	Annotation Type	Description	Values	Comment
	show-labels-in- view	layout	Whether Custom Fields or Data Object Group Fields in this group should be displayed in <i>vie</i> <i>w</i> mode with labels.	true / false	Since version 6.9.4
	show-tooltips	layout	Whether Custom Fields or Data Object Group Fields in this group should be displayed with tooltips.	true / false	Since version 6.9.4
	show- watermarks	layout	Whether Custom Fields or Data Object Group Fields in this group should be displayed with watermarks.	true / false	Since version 6.9.4
U	unit is a contact <i>deprecated</i>	ticket contact relation		true/false	Removed in version 6.9.0.

## 49 Appendix B - Glossary

	Term	Explanation
Α	Access Permissions	Permissions of an engineer to view or make changes to tickets in the Web Client. Access permissions are always assigned to a group, never to single engineers/users.
	ACIM	Activity item - entry in the history section of a ticket (e.g. comment, e-mail, attachment, time booking entry).
	Action Framework	ConSol*CM module which enables CM to perform actions for specific objects. The Action Framework comprises Search Actions, Unit Actions and Resource Actions.
	AD	Microsoft Active Directory - an LDAP-based directory service for Microsoft Windows domain networks.
	Additional customer	Customer (contact or company) besides the main customer, e.g. an employee of the company. For additional customers, customer roles can be assigned.
	Admin Tool	ConSol*CM component, graphical application to configure and manage a ConSol*CM system. Uses Java Web Start.
В	BI	Business Intelligence - methods, technologies, and architectures to transform data into useful information for business purposes.
C	CFEL	Custom Field Expression Language - Java classes and

Term	Explanation
	methods of the ConSol*CM API to access data in Custom Fields and Data Object Group Fields.
CMDB	ConSol*CM Database - the working database of the CM system.
CMRF	ConSol*CM Reporting Framework - a JEE application which synchronizes data between the ConSol*CM database and the DWH.
CM.Doc	A standard module of ConSol*CM which enables the engineer via ConSol*CM Web Client to work with MS Word documents pre-filled with ConSol*CM ticket or customer parameters.
CM.Track	ConSol*CM web portal - provides customer access to the ConSol*CM system.
CM.Resource Pool	A ConSol*CM module which is available in CM versions 6.10.1 and up. Enables CM to store objects of several types in the CM database as resources.
Company	A data object of type <i>company</i> . Often this is a real company or an institution, but it can also be something else, like a machine or a ship.
Contact	A data object of type <i>contact.</i> Often this is the person who has a question or service request, but it can also be something else, like a machine or a product.
СТІ	Computer Telephony Integration - a description for any

	Term	Explanation
		technology that allows interactions on a telephone and a computer to be integrated or coordinated.
	Customer	General term for customer objects in ConSol*CM. A customer can be a contact or a company. Technically, a customer is a data object. The respective Java class is <i>Unit</i> .
	Custom Field	A field where ticket data (e.g. priority, software module, etc.) can be stored.
	Custom Field Group	A group of Custom Fields where ticket data can be stored.
D	Data object	A customer (a contact or a company). Former <i>Unit</i> .
	Data Object Group	A group of fields where data for customers (contact or company) can be stored. Similar to Custom Field Group for ticket data.
	Data Object Group Field	A field where data for customers (contact or company) can be stored. Similar to Custom Field for ticket data.
	DWH	Data Warehouse - ConSol*CM database used for reporting and data analysis.
E	Engineer	User who has a login to the Web Client and who has to manage the tasks defined in the tickets.
	ESB	Enterprise Service Bus - a software architecture used for communication between mutually interacting software applications in a service-oriented architecture (SOA).
	ERP system	

	Term	Explanation
		Enterprise Resource Planning - often used for this type of enterprise management software.
	ETL	Extract Transform Load - extracts data from one source (this can be a database or another source), transforms it, and loads it into a database, e.g. a data warehouse.
F	FlexCDM	Flexible Customer Data Model - the customer data model which has been introduced in ConSol*CM in version 6.9. For each customer group, a specific customer data model can be defined.
G	GUI	Graphical User Interface
I	IMAP	Internet Message Access Protocol - Internet standard protocol to access e-mail on a remote e-mail server. Can be used as plain IMAP or as secure IMAP (IMAPs). In the latter case the proper certificates are required.
J	Java EE	Java Enterprise Edition
	JMS	Java Message Service - Java EE component used to send messages between JMS clients.
	JRE	Java Runtime Environment. Provides a Java Virtual Machine for Clients.
к	KPI	Key Performance Indicator - parameter used for performance measurement for companies, projects etc.
L	LDAP	

	Term	Explanation
		Lightweight Directory Access Protocol - application protocol to access and maintain directory information over an IP network.
	LDAPS	LDAP over SSL
Μ	Mailbox	Destination to which e-mail messages are delivered. Mailboxes are managed on an e- mail server. ConSol*CM can access one or more separate mailboxes to retrieve e-mails.
	Main customer	The customer who is the main customer of a ticket. Starting with ConSol*CM version 6.9, this can be either a contact or a company.
	Mule	An open source Java-based Enterprise Service Bus (ESB).
Ν	NIMH	New Incoming Mail Handler - module for retrieving incoming e- mails, new in version 6.9.4.
Р	PCDS	Page Customization Definition Section
	Pentaho	Pentaho <sup>TM</sup> is a business intelligence (BI) suite which is available as open source version and as enterprise edition.
	POP	Post Office Protocol - Internet standard protocol to retrieve e- mails from a remote server via TCP/IP. Can be used as plain POP or as secure POP (POPs). In the latter case the proper certificates are required.
	Portal	CM.Track - provides customer access to ConSol*CM.
	Process Designer	

	Term	Explanation
		ConSol*CM component used to design, develop, and deploy workflows.
Q	Queue	Comprises tickets from the same domain and makes sure that all tickets of this domain are treated in the same way. A queue always has one workflow. Access rights and other parameters are defined based on queues.
R	RDBMS	Relational Database Management System - e.g. Oracle <sup>®</sup> , MS SQL Server <sup>®</sup> , MySQL.
	Resource	An object in the Resource Pool
	Resource Action	Part of the Action Framework. Action which is based on a resource object.
	Resource Field	A field where resource data (e.g. inventory number, model, etc.) can be stored.
	Resource Field Group	A group of fields where data for resources can be stored. Similar to Custom Field Group for ticket data.
	REST	Representational State Transfer - a method to transfer data via a network, based on HTTP.
	Role	Defines the access permissions and views of an engineer.
S	Script	Program written for a special run- time environment that can interpret and automate the execution of tasks. In ConSol*CM, scripts are stored in

	Term	Explanation
		the Admin Tool and are stored as scripts for activities in workflows.
	Search Action	Part of the Action Framework. Action which is based on the result set of a search.
	SMTP	Simple Message Transfer Protocol - standard protocol to send e-mails.
Т	ΤΑΡΙ	Telephony Application Programming Interface - a Microsoft Windows API, which provides computer telephony integration and enables PCs running Microsoft Windows to use telephone services.
	TEF	Task Execution Framework - a ConSol*CM module which can execute tasks asynchronously. A new feature as of version 6.9.4.
	Template	Pre-formatted example concerning layout, text, and/or data, e.g. for e-mails or CM.Doc.
	Ticket	Incident, service case, or other request of an internal or external customer. A ticket is the object which runs through the process (defined by the workflow).
U	Unit Action	Part of the Action Framework. Action which is based on a customer object, i.e. on a contact or company object.
V	View	A selection of tickets based on scopes from one or from different workflows, assigned to a role and visible in the ticket list of the ConSol*CM Web Client.
w	Workflow	

Term	Explanation
	Models a process that should be managed using ConSol*CM step by step.

## **50 Appendix C - System Properties**

The lists provide explanation for all available ConSol\*CM system properties. You can define system properties in the Admin Tool, in the navigation group *System*, navigation item System Properties.

- System Properties Ordered by Module
- System Properties Ordered by Property Name

## **50.1 System Properties Ordered by Module**

Module	Property	Explanation
cmas-app-admin-tool	admin.tool.session.check. interval	Description: Admin Tool inactive (ended) sessions check time interval (in seconds) <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 30 <i>Since:</i> 6.7.5
cmas-app-admin-tool	autocomplete.enabled	Description: If the flag is missing or its value is <i>false</i> , then the <i>Auto</i> <i>complete address</i> navigation item is hidden in Admin Tool. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.9.2.0
cmas-app-admin-tool	delete.ticket.enabled	Description: Controls if the menu entry Delete is displayed in the context menu in the Admin Tool for the ticket list in ticket administration <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.9.4.0
cmas-app-admin-tool	start.groovy.task.enabled	<i>Description:</i> For being able to run Admin Tool scripts of type <i>Ta</i> <i>sk</i> in the Admin Tool (navigation group <i>Services</i> , navigation item <i>T</i> <i>ask Execution</i> ). It is required to enable the 'Start task' button which is hidden by default. This is done by setting this system

Module	Property	Explanation
		property to true <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.9.4.0
cmas-core-cache	cache-cluster-name	Description: JBoss cache cluster name <i>Type:</i> String <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 635a6de1-629a- 4129-8299-2d98633310f0 <i>Since:</i> 6.4.0
cmas-core-cache	eviction.event.queue.size	Description: Type: Integer Restart required: Yes System: Yes Optional: No Example value: 200000 Since: 6.4.0
cmas-core-cache	eviction.max.nodes	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100000 <i>Since:</i> 6.4.0
cmas-core-cache	eviction.wakeup.interval	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3000 <i>Since:</i> 6.4.0
cmas-core-index-common	big.task.minimum.size	<i>Description:</i> How many parts task at least should have to be handled by Indexer with low priority.

Module	Property	Explanation
		<i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15 (default) <i>Since:</i> 6.8.3
cmas-core-index-common	database.notification.enabled	Description: Indicates whether index update database notification channel should be used instead of jms. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.8.4.7
cmas-core-index-common	database.notification.redelivery. delay.seconds	Description: In case of index update database notification channel, indicates notification redelivery delay when exception occurs. Type: Integer Restart required: No System: Yes Optional: No Example value: 60 Since: 6.8.4.7
cmas-core-index-common	database.notification.redelivery. max.attempts	Description: In case of index update database notification channel, indicates maximum redelivery attempts when exception occurs. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.8.4.7
cmweb-server-adapter	diffTrackingEnabled	<i>Description:</i> Defines if parallel editing of a ticket by different engineers should be possible.

Module	Property	Explanation
		Default <i>true</i> <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> <i>Optional:</i> <i>Example value:</i> true <i>Since:</i> 6.10.1
cmas-core-index-common	disable.admin.task.auto.commit	<i>Description:</i> All tasks created for index update will be automatically executed right after creation. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.1
cmas-core-index-common	index.attachment	<i>Description:</i> Describes if content of attachments is indexed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.4.3
cmas-core-index-common	index.history	<i>Description:</i> Describes if unit and ticket history are indexed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.1.0
cmas-core-index-common	index.status	<i>Description:</i> Status of the Indexer, possible values RED, YELLOW, GREEN, will be displayed in the Admin Tool. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> GREEN <i>Since:</i> 6.6.1
cmas-core-index-common	index.task.worker.threads	<i>Description:</i> How many threads will be used to execute batch index tasks (synchronization, administrative, and repair tasks). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) (we recommend to use a value not larger than 2) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	index.version.current	Description: Holds information about current (possibly old) index version. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) <i>Since:</i> 6.7.0
cmas-core-index-common	index.version.newest	Description: Holds information about which index version is considered newest. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) <i>Since:</i> 6.7.0
cmas-core-index-common	indexed.assets.per.thread.in. memory	<i>Description:</i> How many assets should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> 200 (default) <i>Since:</i> 6.8.0
cmas-core-index-common	indexed.engineers.per.thread.in. memory	Description: How many engineers should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 300 (default) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	indexed.resources.per.thread.in. memory	Description: How many resources should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 200 (default) <i>Since:</i> 6.10.0.0
cmas-core-index-common	indexed.tickets.per.thread.in. memory	<i>Description:</i> How many tickets should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100 (default) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	indexed.units.per.thread.in. memory	<i>Description:</i> How many units should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> 200 (default) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	synchronize.master.address	Description: Value of -Dcmas. http.host.port informing how to connect to indexing master server. Default null. Since 6.6.17 this value is configurable in set- up to designate initial indexing master server. Please note that changing this value is only allowed when all cluster nodes index changes receivers are stopped. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 127.0.0.1:80 <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.master.security. token	Description: The password for accessing the index snapshot via URL, e.g. for index synchronization or for back-ups. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> token <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.master.security.user	<i>Description:</i> The user name for accessing the index snapshot via URL, e.g. for index synchronization or for back-ups. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> user <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.master.timeout. minutes	<i>Description:</i> How much time master server may constantly fail

Module	Property	Explanation
		until new master gets elected with index fix procedure. Default 5. Since 6.6.17 this value is configurable in set-up where zero means that master server will never change (failover mechanism is off). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.megabits.per. second	Description: How much bandwidth can master server consume to transfer index changes to all slave servers. Default 85. Please do not use all available bandwidth to transfer index changes between hosts. This will most probably partition cluster as some subsystems will not be able to communicate. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 85 <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.sleep.millis	<i>Description:</i> How often each slave server polls master server for index changes. Default 1000. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1000 <i>Since:</i> 6.6.0
cmas-core-security	admin.email	<i>Description:</i> The e-mail address of the ConSol*CM administrator. The value which you have entered during system set-up is

Module	Property	Explanation
		used initially. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0
cmas-core-security	admin.login	<i>Description:</i> The name of the ConSol*CM administrator. The value which you have entered during system set-up is used initially. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> admin <i>Since:</i> 6.0
cmas-core-security	authentication.method	Description: User authentication method (internal CM database or LDAP authentication). Allowed values are LDAP or DATABASE. Type: String Restart required: No System: Yes Optional: No Example value: DATABASE Since: 6.0
cmas-core-security	contact.authentication.method	Description: Indicates contact authentication method, where possible values are DATABASE or LDAP or LDAP, DATABASE or DATABASE, LDAP. Type: String Restart required: No System: Yes Optional: No Since: 6.9.3.0
cmas-core-security	contact.inherit.permissions.only. to.own.customer.group	<i>Description:</i> Indicates whether authenticated contact inherits all

Module	Property	Explanation
		customer group permissions from representing engineer (false) or only permission to own customer group (true). <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Since:</i> 6.9.2.3
cmas-core-security	kerberos.v5.enabled	Description: Flag which indicates whether SSO via Kerberos is enabled. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false (default if Kerberos has not been enabled during system set-up) <i>Since:</i> 6.2.0
cmas-core-security	kerberos.v5.username.regex	Description: Regular expression used for mapping Kerberos principal to CM user login. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> (.*)@.* <i>Since:</i> 6.2.0
cmas-core-security	ldap.authentication	Description: Authentication method used when using LDAP authentication. <i>Type:</i> String <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> simple <i>Since:</i> 6.0
cmas-core-security	ldap.basedn	<i>Description:</i> Base DN used for looking up LDAP user accounts when using LDAP authentication.

Module	Property	Explanation
		<i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> ou=accounts, dc=consol,dc=de <i>Since:</i> 6.0
cmas-core-security	ldap.contact.name.basedn	Description: Base path to search for contact DN by LDAP ID (e.g. ou=accounts,dc=consol,dc=de). Type: String Restart required: No System: No Optional: Yes Since: 6.9.3.0
cmas-core-security	ldap.contact.name.password	Description: Password to look up contact DN by LDAP ID. If not set, anonymous account is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	ldap.contact.name.providerurl	Description: Address of the LDAP server (Idap[s]://host:port). Type: String Restart required: No System: No Optional: Yes Since: 6.9.3.0
cmas-core-security	ldap.contact.name.searchattr	Description: Attribute to search for contact DN by LDAP ID (e.g. uid). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	Idap.contact.name.userdn	<i>Description:</i> User DN to look up contact DN by LDAP ID. If not set, anonymous account is used.

Module	Property	Explanation
		<i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	Idap.initialcontextfactory	Description: Class name for initial context factory of LDAP implementation when using LDAP authentication. If it is not set, com.sun.jndi.Idap. LdapCtxFactory is being used as a value. <i>Type:</i> String <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> com.sun.jndi. Idap.LdapCtxFactory <i>Since:</i> 6.0
cmas-core-security	ldap.password	<i>Description:</i> Password for connecting to LDAP to look up users (when using LDAP authentication). Only needed if look-up cannot be done anonymously. <i>Type:</i> Password <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2
cmas-core-security	ldap.providerurl	Description: LDAP provider (when using LDAP authentication). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Idap://Idap. consol.de:389 <i>Since:</i> 6.0
cmas-core-security	ldap.searchattr	

Module	Property	Explanation
		Description: Search attribute for looking up LDAP entry connected to CM login. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> uid <i>Since:</i> 6.0
cmas-core-security	ldap.userdn	Description: LDAP user for connecting to LDAP to look up users (when using LDAP authentication). Only needed if look-up cannot be done anonymously. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2
cmas-core-security	policy.password.age	Description: Defines (in days) how old the password may be. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 5500 (15 years, default) <i>Since:</i> 6.10.1.0
cmas-core-security	policy.password.pattern	Description: Defines password pattern <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> "^. 3,\$" (default) <i>Since:</i> 6.10.1.0
cmas-core-security	policy.rotation.ratio	<i>Description:</i> Defines how often password may repeat. E.g. in set to X means that new password

Module	Property	Explanation
		cannot be present among X last user's passwords. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 1 (default) <i>Since:</i> 6.10.1.0
cmas-core-security	policy.username.case.sensitive	Description: Defines whether user name is case-sensitive Type: Boolean Restart required: No System: No Optional: Yes Example value: true (default) Since: 6.10.1.0
cmas-core-server	attachment.allowed.types	<i>Description:</i> Comma-separated list of allowed filename extensions (if no value defined, all file extensions are allowed). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> txt,zip,doc <i>Since:</i> 6.5.0
cmas-core-server	attachment.max.size	<i>Description:</i> Maximum attachment size in MB <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100 <i>Since:</i> 6.4.0
cmas-core-server	config.data.version	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 11 <i>Since:</i> 6.0

Module	Property	Explanation
cmas-core-server	defaultCommentClassName	<i>Description:</i> Default text class name for comments <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> <i>Since:</i> 6.3.0
cmas-core-server	defaultIncommingMailClassNam e	<i>Description:</i> Default text class name for incoming e-mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> <i>Since:</i> 6.3.0
cmas-core-server	defaultOutgoingMailClassName	<i>Description:</i> Default text class name for outgoing e-mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> <i>Since:</i> 6.3.0
cmas-core-server	fetchSize.strategy	Description: Strategy selected to set fetch size on jdbc result sets. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> FetchSizePageBasedStrategy, FetchSizeThresholdStrategy, FetchSizeFixedStrategy <i>Since:</i> 6.8.4.1
cmas-core-server	fetchSize.strategy. FetchSizeFixedStrategy.value	<i>Description:</i> Sets fetch size value if selected strategy to set fetch size is <i>FetchSizeFixedStrat</i> <i>egy.</i> <i>Type:</i> Integer <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 150 <i>Since:</i> 6.8.4.1
cmas-core-server	fetchSize.strategy. FetchSizePageBasedStrategy. limit	Description: Sets maximum fetch size value if selected strategy to set fetch size is <i>FetchSizePageB</i> asedStrategy. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 10000 <i>Since:</i> 6.8.4.1
cmas-core-server	fetchSize.strategy. FetchSizeThresholdStrategy. value	Description: Sets fetch size threshold border values if selected strategy to set fetch size is FetchSizeThresholdStrate gy. Type: Integer Restart required: No System: Yes Optional: Yes Example value: 150,300,600,1000 Since: 6.8.4.1
cmas-core-server	last.config.change	Description: Random UUID created during last change in config. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 2573c7b7-2bf5- 47ff-b5a2-bad31951a266 <i>Since:</i> 6.1.0, 6.2.1
cmas-core-server	Idap.certificate.basedn	<i>Description:</i> Base DN for certificates location in LDAP tree. If not provided, <i>cmas-core-</i> <i>security</i> , <i>Idap.basedn</i> is taken. <i>Type:</i> String

Module	Property	Explanation
		Restart required: No System: Yes Optional: Yes Example value: ou=accounts, dc=consol,dc=de Since: 6.8.4
cmas-core-server	ldap.certificate.content.attribute	Description: LDAP attribute name used where certificate data is stored in LDAP tree. Default value is: usercertificate. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> usercertificate <i>Since:</i> 6.8.4
cmas-core-server	ldap.certificate.password	Description: LDAP Certificates manager password. If not set, cm as-core-security, Idap.password is taken. Type: String Restart required: No System: Yes Optional: Yes Since: 6.8.4
cmas-core-server	Idap.certificate.providerurl	Description: LDAP Certificates provider URL. If not set, <i>cmas</i> - <i>core-security</i> , <i>Idap.providerurl</i> is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> Idap://Idap. consol.de:389 <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.searchattr	<i>Description:</i> LDAP attribute name used to search for certificate in LDAP tree. Default value is: mail. <i>Type:</i> String

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> mail <i>Since:</i> 6.8.4
cmas-core-server	ldap.certificate.userdn	Description: LDAP Certificates manager DN. If not set, <i>cmas</i> - core-security, Idap.userdn is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.8.4
cmas-core-server	mail.encryption	Description: If property is set to <i>tr</i> ue, the encrypt check box in the Ticket E-Mail Editor is checked by default. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true (default = false) <i>Since:</i> 6.8.4.0
cmas-core-server	mail.notification.engineerChange	Description: Flag if notification e- mail should be sent when engineer of ticket is changed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.1.0
cmas-core-server	mail.notification.sender	<i>Description: From</i> address for notification e-mails when engineer of ticket is changed. If not set, <i>cmas-core-security, admi</i> <i>n.email</i> is used instead. <i>Type:</i> String <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> cm6notification@cm6installation <i>Since:</i> 6.6.3
cmas-core-server	mail.smtp.email	Description: SMTP e-mail URL for outgoing e-mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> smtp://mail. consol.de:25 <i>Since:</i> 6.0
cmas-core-server	mail.smtp.envelopesender	Description: E-mail address used as sender in SMTP envelope. If not set, the FROM- address of the e-mail is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> mysender@mydomain.com <i>Since:</i> 6.5.7
cmas-core-server	max.licences.perUser	Description: Sets maximum licenses single user can use (e.g logging in from different browsers). By default this value is not restricted. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 10 <i>Since:</i> 6.8.4.5
cmas-core-server	monitoring.engineer.login	<i>Description:</i> Login of monitoring engineer. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> nagios <i>Since:</i> 6.9.3.0
cmas-core-server	monitoring.unit.login	Description: Login of monitoring unit. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> nagios <i>Since:</i> 6.9.3.0
cmas-core-server	nimh.enabled	Description: Enables NIMH service. Must be suffixed with nodeid in cluster e.g. nimh. enabled.NODEID = true <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.9.4.0
cmas-core-server	resource.replace.batchSize	Description: Describes number of objects to be processed in resource replace action. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.10.0.0
cmas-core-server	resource.replace.timeout	<i>Description:</i> Transaction timeout (seconds) of resource replacement action step. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 120 <i>Since:</i> 6.10.0.0
cmas-core-server	script.logging.threshold.seconds	<i>Description:</i> Describes time in seconds which when exceeded

Module	Property	Explanation
		during script execution, generates warn in logs. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10 (default) <i>Since:</i> 6.10.1.0
cmas-core-server	server.session.archive.reaper. interval	<i>Description:</i> Server archived sessions' reaper interval (in seconds) <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.7.1
cmas-core-server	server.session.archive.timeout	<i>Description:</i> Server sessions archive validity timeout (in days). After this time session info is removed from db. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 31 <i>Since:</i> 6.7.1
cmas-core-server	server.session.reaper.interval	Description: Server inactive (ended) sessions' reaper interval (in seconds) <i>Type:</i> Integer <i>Restart required:</i> Only Session Service <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.6.1, 6.7.1
cmas-core-server	server.session.timeout	<i>Description:</i> Server session timeout (in seconds) for connected clients. Each client can overwrite this timeout with

Module	Property	Explanation
		custom value using its ID (ADMIN_TOOL, WEB_CLIENT, WORKFLOW_EDITOR, TRACK (before 6.8 please use PORTER), ETL, REST) appended to property name, e.g. server.session.timeout. ADMIN_TOOL <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1800 <i>Since:</i> 6.6.1, 6.7.1
cmas-core-server	skip.wfl.transfer.cleanup	<i>Description:</i> If set to true skips workflow cleanup after transfer. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false (default) <i>Since:</i> 6.9.4.1
cmas-core-server	tickets.delete.size	Description: Property that defines a number of tickets deleted per transaction. By default it is set to 10. <i>Type:</i> Integer <i>Restart required:</i> Only Session Service <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 <i>Since:</i> 6.8.1
cmas-core-server	ticket.delete.timeout	<i>Description:</i> Transaction timeout (in seconds) for deleting tickets. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.1.3

Module	Property	Explanation
cmas-core-server	unit.replace.batchSize	<i>Description:</i> Describes number of objects to be processed in unit replace action. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.8.2
cmas-core-server	unit.replace.timeout	Description: Transaction timeout (seconds) of unit replacement action step. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 120 <i>Since:</i> 6.8.2
cmas-core-server	unused.content.remover.cluster. node.id	Description: Value of a <i>cmas.</i> <i>clusternode.id</i> designating node which will remove unused ticket attachments and unit content entries. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 1 (assuming cluster node started with -Dcmas. clusternode.id=1 parameter) <i>Since:</i> 6.9.0.0
cmas-core-server	unused.content.remover.enabled	<i>Description:</i> Flag whether unused ticket attachments and unit content entries removal should take place. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.9.0.0

Module	Property	Explanation
cmas-core-server	unused.content.remover.polling. minutes	<i>Description:</i> How often unused ticket attachments and unit content entries should be checked for removal. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15 <i>Since:</i> 6.9.0.0
cmas-core-server	unused.content.remover.ttl. minutes	Description: Minimum interval after which unused ticket attachments and unit content entries can be removed. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1440 <i>Since:</i> 6.9.0.0
cmas-core-server	warmup.executor.enabled	<i>Description:</i> Flag whether server should asynchronously warm up during startup (e.g. fill some of internal caches) <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.9.4.2
cmas-core-shared	cluster.mode	<i>Description:</i> Flag if CMAS is running in cluster. <i>Type:</i> Boolean <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.1.0
cmas-core-shared	data.directory	<i>Description:</i> Directory for CMAS data (e.g. index) <i>Type:</i> String

Module	Property	Explanation
		Restart required: No System: Yes Optional: No Example value: C: \Users\user\cmas Since: 6.0
cmas-dwh-server	autocommit.cf.changes	<i>Description:</i> <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.7.0
cmas-dwh-server	batch-commit-interval	Description: Number of objects in a JMS message. Higher value means better transfer performance and bigger memory usage. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 100 <i>Since:</i> 6.0.0
cmas-dwh-server	communication.channel	Description: Communication channel. Possible values are DIRECT (database communication channel, default value since 6.9.4.1), JMS (default value before 6.9.4.1). Before 6.9.4.1 it has to be manually added. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> DIRECT <i>Since:</i> 6.8.5.0
cmas-dwh-server	dwh.mode	<i>Description:</i> Current mode of DWH data transfer. Possible values are <i>OFF</i> , <i>ADMIN</i> , <i>LIVE</i>

Module	Property	Explanation
		<i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> OFF <i>Since:</i> 6.0.1
cmas-dwh-server	ignore-queues	Description: By adding a comma separated list of queue names it is configured that tickets of these queues are not transferred to the DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> QueueName1, QueueName2,QueueName3 <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	is.cmrf.alive	Description: As a starting point time of sending last message to CMRF should be used. If response from CMRF is not received after value (in seconds) it should create a DWH operation status with error message that CMRF is down. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1200 <i>Since:</i> 6.7.0
cmas-dwh-server	java.naming.factory.initial	Description: Factory class for DWH context factory. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> org.jnp. interfaces.NamingContextFactory <i>Since:</i> 6.0.1

Module	Property	Explanation
cmas-dwh-server	java.naming.factory.url.pkgs	Description: Type: String Restart required: No System: Yes Optional: No Example value: org.jboss. naming:org.jnp.interfaces Since: 6.0.1
cmas-dwh-server	java.naming.provider.url	<i>Description:</i> URL of naming provider. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> localhost <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.description	<i>Description:</i> Text for error e- mails from DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Error occurred <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.from	<i>Description:</i> FROM-address for error e-mails from DWH <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.subject	Description: Subject for error e- mails from DWH <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Error occurred <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.to	<i>Description:</i> TO-address for error e-mails from DWH

Module	Property	Explanation
		<i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. description	Description: Text for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished successfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. from	<i>Description:</i> FROM-address for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. subject	Description: Subject for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished successfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. to	<i>Description:</i> TO-address for e- mails from DWH when transfer finished successfully. <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully. description	Description: Text for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished unsuccessfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.from	Description: FROM-address for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.subject	Description: Subject for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished unsuccessfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.to	<i>Description:</i> TO-address for e- mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0.1

Module	Property	Explanation
cmas-dwh-server	notification.host	Description: E-mail (SMTP) server hostname for sending DWH e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> mail.consol.de <i>Since:</i> 6.1.0
cmas-dwh-server	notification.password	<i>Description:</i> Password for sending DWH e-mails (optional). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.0
cmas-dwh-server	notification.port	<i>Description:</i> SMTP port for sending DWH e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 25 <i>Since:</i> 6.1.0
cmas-dwh-server	notification.protocol	Description: The protocol used for sending e-mails from DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> pop3\
cmas-dwh-server	notification.username	<i>Description:</i> (SMTP) User name for sending DWH e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> myuser <i>Since:</i> 6.1.0
cmas-dwh-server	skip-ticket	<i>Description:</i> Tickets are not transferred during transfer

Module	Property	Explanation
		/update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-ticket-history	Description: History of ticket is not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-unit	Description: Units are not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-unit-history	Description: History of unit is not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	split.history	<i>Description:</i> Changes the SQL that fetches the history for the tickets during DWH transfer not

Module	Property	Explanation
		to all tickets at once but only for one ticket per SQL. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.8.0
cmas-dwh-server	unit.transfer.order	Description: Define in which order Data Object Groups should be transferred to the DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value: company;</i> <i>customer</i> <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-esb-core	esb.directory	Description: Directory used by ESB (Mule) <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> C: \Users\user\cmas\mule <i>Since:</i> 6.0
cmas-esb-mail	mail.attachments.validation.info. sender	<i>Description:</i> Sets FROM-header of attachments type error notification e-mail. As a default the e-mail address of the administrator which you have entered during system set-up is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> admin@consolcm.com <i>Since:</i> 6.7.5
cmas-esb-mail	mail.attachments.validation.info. subject	<i>Description:</i> Sets subject of attachments type error notification e-mail. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> E-mail was not processed because its attachments were rejected!!! <i>Since:</i> 6.7.5
cmas-esb-mail	mail.callname.pattern	Description: Regular expression for subject of incoming e-mails. Available as TICKET_NAME_PATTERN_FO RMAT in incoming e-mail scripts. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> .*?Ticket\s+\ ((\S+)\).* <i>Since:</i> 6.0
cmas-esb-mail	mail.cluster.node.id	Description: Only the node whose mail.cluster.node.id equals cmas.clusternode.id will start the Mule ESB e-mail services. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> unspecified <i>Since:</i> 6.6.5
cmas-esb-mail	mail.db.archive	<i>Description:</i> If property is set to <i>tr</i> <i>ue</i> , incoming e-mails are archived in the database. <i>Type:</i> Boolean

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false (default) <i>Since:</i> 6.8.5.5
cmas-esb-mail	mail.delete.read	Description: Determines whether CM deletes messages fetched via IMAP(S). Setting value to <i>true</i> will cause deletion of messages after fetching. Default is to not delete messages fetched via IMAP(S). Note: Messages fetched via POP3(S) will always be deleted. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.7.3
cmas-esb-mail	mail.incoming.uri	Description: URL for incoming e- mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> pop3://cm- incoming-user: password@localhost:10110 <i>Since:</i> 6.0

Module	Property	Explanation
		added, CM establishes a test connection during mailbox set-up. That way it is not possible to enter wrong values.
cmas-esb-mail	mail.max.restarts	Description: Maximum number of e-mail service restarts before giving up <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.0
cmas-esb-mail	mail.mime.strict	<i>Description:</i> If set to <i>false</i> , e-mail addresses are not parsed for strict MIME compliance. Default is <i>true</i> , which means check for strict MIME compliance. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.17, 6.7.3
cmas-esb-mail	mail.mule.service	Description: FROM-address for e-mails sent by Mule service <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0
cmas-esb-mail	mail.polling.interval	<i>Description:</i> E-mail polling interval in ms. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> 60000 <i>Since:</i> 6.0
cmas-esb-mail	mail.process.error	Description: TO-address for error e-mails from Mule. As a default the e-mail address of the administrator which you have entered during system set-up is used. <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0
cmas-esb-mail	mail.process.retry.attempts	<i>Description:</i> Number of retries when processing e-mail <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.0.2
cmas-esb-mail	mail.process.timeout	Description: E-mail processing timeout in seconds. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.1.3
cmas-esb-mail	mail.redelivery.retry.count	Description: Indicates the number of retries of re-delivering an e-mail from the CM system. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.1.0

Module	Property	Explanation
cmas-nimh	filesystem.polling.threads. number	<i>Description:</i> Number of threads started for db e-mails' queue polling. Default: 1 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.polling.threads. shutdown.timeout.seconds	<i>Description:</i> Waiting time after the shutdown signal. When the timeout reached, thread will be terminated. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.polling.threads. watchdog.interval.seconds	<i>Description:</i> Watchdog thread interval. Default: 30 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.enabled	Description: With this property service thread related to given poller can be disabled. Default: true <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.interval.seconds	<i>Description:</i> Default interval for polling mailboxes. Default: 60 seconds <i>Type:</i> Integer

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.polling.folder	Description: Polling folder location which will be scanned for e-mails in the format of eml files. Default: "mail" subdir of cmas data directory <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> c://cmas//mail <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.timeout.seconds	<i>Description:</i> After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 120 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.transaction. timeout.seconds	<i>Description:</i> Default transaction timeout for e-mail fetching transactions. Should be correlated with number of messages fetched at once. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.1.connection.host	Host (server) for first configured mailbox. Will overwrite the

Module	Property	Explanation
		default parameter <i>mailbox.</i> default.connection.host
cmas-nimh	mailbox.1.connection.password	Password for first configured mailbox. Will overwrite the default parameter <i>mailbox. default.connection.password</i>
cmas-nimh	mailbox.1.connection.port	Port for first configured mailbox. Will overwrite the default parameter <i>mailbox.default.</i> <i>connection.port</i>
cmas-nimh	mailbox.1.connection.protocol	Protocol (e.g., IMAP or POP3) for first configured mailbox. Will overwrite the default parameter <i>mailbox.default.connection.</i> <i>protocol</i>
cmas-nimh	mailbox.1.connection.username	User name for first configured mailbox. Will overwrite the default parameter <i>mailbox. default.connection.username</i>
cmas-nimh	mailbox.2.connection.host	Host (server) for second configured mailbox. Will overwrite the default parameter <i>mailbox.default.connection.host</i>
cmas-nimh	mailbox.2.connection.password	Password for second configured mailbox. Will overwrite the default parameter <i>mailbox.</i> <i>default.connection.password</i>
cmas-nimh	mailbox.2.connection.port	Port for second configured mailbox. Will overwrite the default parameter <i>mailbox.</i> <i>default.connection.port</i>
cmas-nimh	mailbox.2.connection.protocol	Protocol (e.g., IMAP or POP3) for second configured mailbox. Will overwrite the default parameter <i>mailbox.default.</i> <i>connection.protocol</i>
cmas-nimh	mailbox.2.connection.username	User name for second configured mailbox. Will

Module	Property	Explanation
		overwrite the default parameter <i>mailbox.default.connection.</i> username
	ox properties, the following principle i Int.connection.port). If no mailbox-spe	
cmas-nimh	mailbox.default.connection.host	<i>Description:</i> Host (server name) of a given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10.10.1.157 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. password	Description: Password for given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> consol <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection.port	Description: Port for a given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 143 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. protocol	<i>Description:</i> Poller's protocol e.g: IMAP or POP3. No default value <i>Type:</i> String <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> imap <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. username	<i>Description:</i> User name for a given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> username <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. debug	<i>Description:</i> Example javax.mail property - allows for more detailed javax.mail session debugging <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. imap.timeout	Description: Example javax.mail property <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 120 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. mime.address.strict	<i>Description:</i> Example javax.mail property - counterpart of the old mule mail.mime.strict, allows to set not so strict e-mail header parsing <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. pop3.timeout	Description: Example javax.mail property. <i>Type:</i> <i>Restart required:</i> <i>System:</i> <i>Optional:</i> <i>Example value:</i> <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.delete.read. messages	Description: This defines whether messages should be removed from the mailbox after processing. For IMAP protocol messages are marked as SEEN by default. For POP3 protocol, when flag is set to true the message is removed, otherwise remains on server and will result in infinite reads. Default: false. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.enabled	<i>Description:</i> With this property service thread related to given poller can be disabled. Default: true <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.interval. seconds	<i>Description:</i> Default interval for polling mailboxes. Default: 60 seconds <i>Type:</i> Integer

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.max. message.size	<i>Description:</i> Maximum size of e- mail messages in bytes. Messages with a size greater than the value of this property can be processed from the Admin Tool. Default set to 10Mb : 10485760 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10485760 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.max. messages.per.run	<i>Description:</i> Number of messages fetched at once from mailbox. Must be correlated with transaction timeout. Default set to: 20 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.timeout. seconds	Description: After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 120 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh		

Module	Property	Explanation
	mailbox.default.task.transaction. timeout.seconds	<i>Description:</i> Default transaction timeout for e-mail fetching transactions. Should be correlated with number of messages fetched at once. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.polling.threads.mail.log. enabled	Description: Enables e-mail logging which is especially crucial in cluster environment (used as semaphore there) <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true (default) <i>Since:</i> 6.9.4.1
cmas-nimh	mailbox.polling.threads.number	<i>Description:</i> Number of threads for accessing mailboxes. Default: 1 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 1 <i>Since:</i> 6.4.0
cmas-nimh	queue.polling.threads.number	<i>Description:</i> Number of threads started for e-mails' queue polling. Default: 1 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 1 <i>Since:</i> 6.4.0
cmas-nimh		

Module	Property	Explanation
	queue.polling.threads.shutdown. timeout.seconds	<i>Description:</i> Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	queue.polling.threads.watchdog. interval.seconds	<i>Description:</i> Watchdog thread interval. Default: 30 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 30 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.error.pause.seconds	Description: Maximum number of seconds, the queue poller waits after infrastructure (e.g. database) error. Default 180 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 180 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.interval.seconds	<i>Description:</i> Main mails' queue polling thread interval. Default: 15 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 15 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.max.retries	<i>Description:</i> Maximum number of e-mail processing retries after an exception. When reached, the e-mail is moved to the e-mail

Module	Property	Explanation
		archive. This e-mail can be rescheduled again using NIMH API (or the Admin Tool). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.timeout.seconds	<i>Description:</i> After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 600 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 600 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.transaction.timeout. seconds	Description: Transaction timeout for mail processing in the pipe. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh-extension	mail.attachments.validation.info. sender	Description: Sets FROM-header of attachments type error notification mail <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> admin@mail.com <i>Since:</i> 6.7.5

Module	Property	Explanation
		mail.attachments. validation.info.sender
cmas-nimh-extension	mail.attachments.validation.info. subject	Description: Sets subject of attachments type error notification mail. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Mail was not processed because its attachments were rejected!!! <i>Since:</i> 6.7.5
cmas-nimh-extension	mail.db.archive	Description: If property is set to true, incoming emails are archived in the database. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false (default) <i>Since:</i> 6.8.5.5
cmas-nimh-extension	mail.error.from.address	This is an equivalent to the old <i>cmas-esb-mail, mail.mule.service</i>

Module	Property	Explanation
cmas-nimh-extension	mail.error.to.address	This is an equivalent to the old <i>cmas-esb-mail,</i> <i>mail.process.error</i>
cmas-nimh-extension	mail.mule.service	Description: FROM-address for mails sent by Mule service. <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.4.0
cmas-nimh-extension	mail.on.error	Description: When set true an error mail is sent to the above configured address in case email message could not be processed. Default: false <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.4.0
cmas-nimh-extension	mail.process.error	Description: TO-address for error mails from Mule. <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.4.0
cmas-nimh-extension	mail.ticketname.pattern	<i>Description:</i> <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> .*?Ticket\s+\

Module	Property	Explanation
		((\S+)\).* <i>Since:</i> 6.4.0
cmas-setup-hibernate	hibernate.dialect	Description: The dialect used by hibernate. Usually set during initial set-up (depending on the database system). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> org.hibernate. dialect.MySQL5InnoDBDialect <i>Since:</i> 6.0
cmas-setup-hibernate	cmas.dropSchemaBeforeSetup	<i>Description:</i> Flag if schema is to be (was) dropped during setup <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.0
cmas-setup-manager	initialized	Description: Flag if CMAS is         initialized. If this value is missing         or not true, set-up will be         performed.         Type: Boolean         Restart required: No         System: Yes         Optional: No         Example value: true         Since: 6.0 <ul> <li>Be careful with using this property!!! When you set the value to false, e, the ConSol*CM server will perform the system set-up at the next start, i.e. all data</li> </ul>

Module	Property	Explanation
		of the existing system is lost, including system properties!!!
cmas-setup-scene	scene	Description: Scene file which was imported during set-up (can be empty). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> vfszip:/P:/dist /target/jboss/server/cmas/deploy /cm-dist-6.5.1-SNAPSHOT.ear /APP-INF/lib/dist-scene-6.5.1- SNAPSHOT.jar/META-INF/cmas /scenes/helpdesk-sales_scene. jar/ <i>Since:</i> 6.0
cmas-workflow-engine	jobExecutor.adminMail	Description: E-mail address which will get notified about job execution problems (when retry counter is exceeded). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> admin@consol. de <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.idleInterval.seconds	Description: Determines how often job executor thread will look for new jobs to execute. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 5 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.jobMaxRetries	<i>Description: Type:</i> Integer

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 5 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor. jobMaxRetriesReachedSubject	Description: Type: String Restart required: No System: Yes Optional: Yes Example value: Job maximum retries reached. Job was removed!!! (default) Since: 6.8.0
cmas-workflow-engine	jobExecutor.lockTimeout. seconds	Description: How long the job can be locked (marked for execution) by job executor. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 360 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.lockingLimit	<i>Description:</i> Number of jobs locked at once (marked for execution) by job executor thread <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 10 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.mailFrom	<i>Description:</i> E-mail which will be set as FROM-header during admin notifications. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> jobexecutor@consol.de <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.maxInactivityInterval. minutes	Description: Number of minutes of allowed job executor inactivity (e.g. when it is blocked by long timer execution). After this time executors threads are restarted. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes. Default value is set to 30 minutes <i>Example value:</i> 15 (default) <i>Since:</i> 6.9.2.0
cmas-workflow-engine	jobExecutor.threads	Description: Number of job execution threads. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 1 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.timerRetryInterval. seconds	Description: Determines how long job executor thread will wait after job execution error. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 10 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.txTimeout.seconds	<i>Description:</i> Transaction timeout used for job execution. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 60 (default) <i>Since:</i> 6.8.0
cmweb-server-adapter	automatic.booking.enabled	

Module	Property	Explanation
		Description: If enabled, time spend on creating comment /email will be measured and automatic time booking will be added. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.9.4.2
cmweb-server-adapter	checkUserOnlineIntervalInSecon ds	<i>Description:</i> The interval in seconds to check which users are online (default 180sec = 3min). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 180 <i>Since:</i> 6.0
cmweb-server-adapter	cmoffice.enabled	<i>Description:</i> Flag if CM.Doc (former CM/Office) is enabled. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.4.0
cmweb-server-adapter	commentRequiredForTicketCreat ion	<i>Description:</i> Flag if comment is a required field for ticket creation. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true (default) <i>Since:</i> 6.2.0
cmweb-server-adapter	customizationVersion	<i>Description: Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> cd58453e-f3cc- 4538-8030-d15e8796a4a7 <i>Since:</i> 6.5.0
cmweb-server-adapter	data.optimization	Description: Defines optimization to be applied on response data. So far, the following values are supported (for setting more than one value, separate values by ' '): <i>MINIFICATION</i> and <i>COMPR</i> <i>ESSION</i> . MINIFICATION minifies HTML data by e.g. stripping whitespaces and comments. COMPRESSION applies gzip compression to HTTP response. (Note: If you are running in cluster mode and want to test different configurations in parallel, you can set different values for each cluster node by specifying property data.optimization. <i>nodeld</i> to override default property.) <i>Type:</i> String <i>Restart required:</i> COMPRESSION can be switched on/off without restart, MINIFICATION requires restart. <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> MINIFICATION COMPRESSION
cmweb-server-adapter	defaultContentEntryClassName	<i>Description:</i> Default text class for new ACIMs. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> default_class <i>Since:</i> 6.3.0
cmweb-server-adapter	defaultNumberOfCustomFieldsC olumns	<i>Description:</i> Default number of columns for Custom Fields.

Module	Property	Explanation
		<i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.2.0
cmweb-server-adapter	diffTrackingEnabled	Description: Defines if parallel editing of a ticket by different engineers should be possible. Default <i>true</i> <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> <i>Optional:</i> <i>Example value:</i> true <i>Since:</i> 6.10.1
cmweb-server-adapter	favoritesSizeLimit	<i>Description:</i> Maximum number of items in Favorites list. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 <i>Since:</i> 6.0
cmweb-server-adapter	globalSearchResultSizeLimit	<i>Description:</i> Maximum number of items in Quick Search result. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 <i>Since:</i> 6.0
cmweb-server-adapter	helpFilePath	<i>Description:</i> URL for online help. If not empty, <i>Help</i> button is displayed in Web Client. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> http://www. consol.de <i>Since:</i> 6.2.1
cmweb-server-adapter	hideTicketSubject	<i>Description:</i> If set to <i>true</i> , ticket subject is hidden. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.2.1
cmweb-server-adapter	mail.from	Description: Use this address if set instead of engineer e-mail address during e-mail conversation. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2
cmweb-server-adapter	mail.reply.to	Description: When set, Web         Client will display REPLY-TO-         field on e-mail send, prefilled         with this value. <i>Type:</i> String         Restart required: No         System: Yes         Optional: Yes         Since: 6.0.1         Please see also         section Queue         Administration.         When you set the         REPLY-TO-address in         the outgoing e-mail         script, the mail.reply.to         system property must         not be set (because it         would overwrite the         configured value)! That

Module	Property	Explanation
		means when you use one outgoing e-mail script for a queue you have to define outgoing e-mail scripts for all queues because the <i>ma</i> <i>il.reply.to</i> property can no longer be used.
cmweb-server-adapter	mailTemplateAboveQuotedText	Description: Indicates behavior of e-mail template in the Ticket E- Mail Editor when another e-mail is quoted, i.e. forwarded or replied to. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.2.4
cmweb-server-adapter	maxSizePerPagemapInMegaByt es	<i>Description:</i> Maximum size (in MB) for each Wicket pagemap. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15 <i>Since:</i> 6.3.5
cmweb-server-adapter	pagemapLockDurationInSeconds	<i>Description:</i> Number of seconds to pass before pagemap is considered to be locked for too long. <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.7.3
cmweb-server-adapter	postActivityExecutionScriptName	<i>Description:</i> Defines the name for the script which should be executed after every workflow

Module	Property	Explanation
		activity, see section PostActivityE xecutionScript. If no script should be executed, leave the value empty. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> postActivityExecutionHandler <i>Since:</i> 6.2.0
cmweb-server-adapter	queuesExcludedFromGS	Description: Comma-separated list of queue names which are excluded from Quick Search. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0
cmweb-server-adapter	rememberMeLifetimeInMinutes	<i>Description:</i> Lifetime for <i>rememb</i> <i>er me</i> in minutes. <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1440 <i>Since:</i> 6.0
cmweb-server-adapter	request.scope.transaction	Description: It allows to disable request scope transaction. By default one transaction is used per request. Setting this property to false there will cause one transaction per service method invocation. Type: Boolean Restart required: Yes System: Yes Optional: Yes Example value: true Since: 6.8.1
cmweb-server-adapter	searchPageSize	

Module	Property	Explanation
		<i>Description:</i> Default page size for search results. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 20 <i>Since:</i> 6.0
cmweb-server-adapter	searchPageSizeOptions	<i>Description:</i> Options for page size for search results. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 20 30 40 50 75 100 <i>Since:</i> 6.0
cmweb-server-adapter	serverPoolingInterval	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.1.0
cmweb-server-adapter	supportEmail	<i>Description:</i> <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0
cmweb-server-adapter	themeOverlay	<i>Description:</i> Name of used theme overlay <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> kyoEUR <i>Since:</i> 6.0
cmweb-server-adapter	ticketListRefreshIntervalInSecon ds	<i>Description:</i> Refresh interval for ticket list (in seconds). <i>Type:</i> Integer

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 180 <i>Since:</i> 6.0
cmweb-server-adapter	ticketListSizeLimit	Description: Maximum number of tickets in ticket list. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100 <i>Since:</i> 6.0
cmweb-server-adapter	unitIndexSearchResultSizeLimit	Description: Maximum number of units in unit search result (e.g. when searching for contact). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.0
cmweb-server-adapter	urlLogoutPath	Description: URL which is used when user logs out. (If no value is set, logout leads to login- mask.) <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> http://intranet. consol.de <i>Since:</i> 6.3.1
cmweb-server-adapter	webSessionTimeoutInMinutes	<i>Description:</i> Session timeout in minutes. <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 180 <i>Removed in:</i> 6.7.1

Module	Property	Explanation
		<i>Replaced by:</i> cmas-core-server, server.session.timeout
cmweb-server-adapter	wicketAjaxRequestHeaderFilterE nabled	<i>Description:</i> This enables filter for Wicket AJAX requests, coming from stale pages with Wicket 1.4 scripting (CM pre- 6.8.0), after update to CM6 post- 6.8.0. <i>Type:</i> Boolean <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.8.1
cmas-workflow-jbpm	fetchLock.interval	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5000 <i>Removed in:</i> 6.8.0
cmas-workflow-jbpm	fetchLock.timeout	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15000 <i>Removed in:</i> 6.8.0
cmas-workflow-jbpm	jobExecutor.idleInterval	Description: Type: Integer Restart required: No System: Yes Optional: No Example value: 45000 Removed in: 6.8.0 Replaced by: jobExecutor. idleInterval.seconds
cmas-workflow-jbpm	jobExecutor. jobExecuteRetryNumber	<i>Description: Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> 5 <i>Removed in:</i> 6.8.0 <i>Replaced by:</i> jobExecutor. jobMaxRetries
cmas-workflow-jbpm	jobExecutor.timerRetryInterval	Description: Type: Integer Restart required: No System: Yes Optional: No Example value: 10000 Removed in: 6.8.0 Replaced by: jobExecutor. timerRetryInterval.seconds
cmas-workflow-jbpm	mail.sender.address	Description: FROM-address for e-mails from the workflow engine. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@conso. de <i>Removed in:</i> 6.8.0 <i>Replaced by:</i> jobExecutor. mailFrom
cmas-workflow-jbpm	outdated.lock.age	Description: Type: Integer Restart required: No System: Yes Optional: No Example value: 60000 Removed in: 6.8.0 Replaced by: cmas-workflow- engine, jobExecutor.lockTimeout. seconds
cmas-workflow-jbpm	refreshTimeInCaseOfConcurrent RememberMeRequests	<i>Description:</i> It sets the refresh time (in seconds) after which page will be reloaded in case of concurrent <i>remember me</i> requests. This feature prevents one user from occupying many

Module	Property	Explanation
		licenses. Please increase that time if sessions are still occupying. <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 5 <i>Since:</i> 6.8.2

## **50.2 System Properties Ordered by Property Name**

Module	Property	Explanation
cmas-core-security	admin.email	Description: The e-mail address of the ConSol*CM administrator. The value which you have entered during system set-up is used initially. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0
cmas-core-security	admin.login	Description: The name of the ConSol*CM administrator. The value which you have entered during system set-up is used initially. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> admin <i>Since:</i> 6.0
cmas-app-admin-tool	admin.tool.session.check. interval	Description: Admin Tool inactive (ended) sessions check time interval (in seconds) <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 30 <i>Since:</i> 6.7.5
cmas-core-server	attachment.allowed.types	<i>Description:</i> Comma-separated list of allowed filename extensions (if no value defined, all file extensions are allowed). <i>Type:</i> String <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> txt,zip,doc <i>Since:</i> 6.5.0
cmas-core-server	attachment.max.size	<i>Description:</i> Maximum attachment size in MB <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100 <i>Since:</i> 6.4.0
cmas-core-security	authentication.method	Description: User authentication method (internal CM database or LDAP authentication). Allowed values are LDAP or DATABASE. Type: String Restart required: No System: Yes Optional: No Example value: DATABASE Since: 6.0
cmas-dwh-server	autocommit.cf.changes	<i>Description:</i> <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.7.0
cmas-app-admin-tool	autocomplete.enabled	<i>Description:</i> If the flag is missing or its value is <i>false</i> , then the <i>Auto</i> <i>complete address</i> navigation item is hidden in Admin Tool. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.9.2.0
cmweb-server-adapter	automatic.booking.enabled	<i>Description:</i> If enabled, time spend on creating comment

Module	Property	Explanation
		/email will be measured and automatic time booking will be added. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.9.4.2
cmas-dwh-server	batch-commit-interval	<i>Description:</i> Number of objects in a JMS message. Higher value means better transfer performance and bigger memory usage. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 100 <i>Since:</i> 6.0.0
cmas-core-index-common	big.task.minimum.size	Description: How many parts task at least should have to be handled by Indexer with low priority. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15 (default) <i>Since:</i> 6.8.3
cmas-core-cache	cache-cluster-name	<i>Description:</i> JBoss cache cluster name <i>Type:</i> String <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 635a6de1-629a- 4129-8299-2d98633310f0 <i>Since:</i> 6.4.0
cmweb-server-adapter	checkUserOnlineIntervalInSecon ds	<i>Description:</i> The interval in seconds to check which users

Module	Property	Explanation
		are online (default 180sec = 3min). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 180 <i>Since:</i> 6.0
cmas-core-shared	cluster.mode	<i>Description:</i> Flag if CMAS is running in cluster. <i>Type:</i> Boolean <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.1.0
cmas-setup-hibernate	cmas.dropSchemaBeforeSetup	<i>Description:</i> Flag if schema is to be (was) dropped during setup <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.0
cmweb-server-adapter	cmoffice.enabled	<i>Description:</i> Flag if CM.Doc (former CM/Office) is enabled. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.4.0
cmweb-server-adapter	commentRequiredForTicketCreat ion	Description: Flag if comment is a required field for ticket creation. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true (default) <i>Since:</i> 6.2.0
cmas-dwh-server	communication.channel	

Module	Property	Explanation
		Description: Communication channel. Possible values are DIRECT (database communication channel, default value since 6.9.4.1), JMS (default value before 6.9.4.1). Before 6.9.4.1 it has to be manually added. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> DIRECT <i>Since:</i> 6.8.5.0
cmas-core-server	config.data.version	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 11 <i>Since:</i> 6.0
cmas-core-security	contact.authentication.method	Description: Indicates contact authentication method, where possible values are DATABASE or LDAP or LDAP, DATABASE or DATABASE, LDAP. Type: String Restart required: No System: Yes Optional: No Since: 6.9.3.0
cmas-core-security	contact.inherit.permissions.only. to.own.customer.group	Description: Indicates whether authenticated contact inherits all customer group permissions from representing engineer (false) or only permission to own customer group (true). <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Since:</i> 6.9.2.3

Module	Property	Explanation
cmweb-server-adapter	customizationVersion	Description: Type: String Restart required: No System: Yes Optional: No Example value: cd58453e-f3cc- 4538-8030-d15e8796a4a7 Since: 6.5.0
cmas-core-shared	data.directory	Description: Directory for CMAS data (e.g. index) <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> C: \Users\user\cmas <i>Since:</i> 6.0
cmweb-server-adapter	data.optimization	Description: Defines optimization to be applied on response data. So far, the following values are supported (for setting more than one value, separate values by ' '): <i>MINIFICATION</i> and <i>COMPR</i> <i>ESSION</i> . MINIFICATION minifies HTML data by e.g. stripping whitespaces and comments. COMPRESSION applies gzip compression to HTTP response. (Note: If you are running in cluster mode and want to test different configurations in parallel, you can set different values for each cluster node by specifying property data.optimization. <i>nodeld</i> to override default property.) <i>Type:</i> String <i>Restart required:</i> COMPRESSION can be switched on/off without restart, MINIFICATION requires restart. <i>System:</i> Yes <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> MINIFICATION COMPRESSION
cmas-core-index-common	database.notification.enabled	Description: Indicates whether index update database notification channel should be used instead of jms. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.8.4.7
cmas-core-index-common	database.notification.redelivery. delay.seconds	Description: In case of index update database notification channel, indicates notification redelivery delay when exception occurs. Type: Integer Restart required: No System: Yes Optional: No Example value: 60 Since: 6.8.4.7
cmas-core-index-common	database.notification.redelivery. max.attempts	Description: In case of index update database notification channel, indicates maximum redelivery attempts when exception occurs. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.8.4.7
cmas-core-server	defaultCommentClassName	<i>Description:</i> Default text class name for comments <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> <i>Since:</i> 6.3.0
cmweb-server-adapter	defaultContentEntryClassName	<i>Description:</i> Default text class for new ACIMs <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> default_class <i>Since:</i> 6.3.0
cmas-core-server	defaultIncommingMailClassNam e	<i>Description:</i> Default text class name for incoming e-mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> <i>Since:</i> 6.3.0
cmweb-server-adapter	defaultNumberOfCustomFieldsC olumns	<i>Description:</i> Default number of columns for Custom Fields. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.2.0
cmas-core-server	defaultOutgoingMailClassName	Description: Default text class name for outgoing e-mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> <i>Since:</i> 6.3.0
cmas-app-admin-tool	delete.ticket.enabled	<i>Description:</i> Controls if the menu entry Delete is displayed in the context menu in the AT for the ticket list in ticket administration <i>Type:</i> Boolean <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.9.4.0
cmas-core-index-common	disable.admin.task.auto.commit	Description: All tasks created for index update will be automatically executed right after creation. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.1
cmas-dwh-server	dwh.mode	Description: Current mode of DWH data transfer. Possible values are OFF, ADMIN, LIVE Type: String Restart required: No System: Yes Optional: No Example value: OFF Since: 6.0.1
cmas-esb-core	esb.directory	Description: Directory used by ESB (Mule) Type: String Restart required: No System: Yes Optional: No Example value: C: \Users\user\cmas\mule Since: 6.0
cmas-core-cache	eviction.event.queue.size	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 200000 <i>Since:</i> 6.4.0
cmas-core-cache	eviction.max.nodes	

Module	Property	Explanation
		<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100000 <i>Since:</i> 6.4.0
cmas-core-cache	eviction.wakeup.interval	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3000 <i>Since:</i> 6.4.0
cmweb-server-adapter	favoritesSizeLimit	<i>Description:</i> Maximum number of items in Favorites list <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 <i>Since:</i> 6.0
cmas-workflow-jbpm	fetchLock.interval	Description: Type: Integer Restart required: No System: Yes Optional: No Example value: 5000 Removed in: 6.8.0
cmas-workflow-jbpm	fetchLock.timeout	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15000 <i>Removed in:</i> 6.8.0
cmas-core-server	fetchSize.strategy	<i>Description:</i> Strategy selected to set fetch size on jdbc result sets. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> FetchSizePageBasedStrategy, FetchSizeThresholdStrategy, FetchSizeFixedStrategy <i>Since:</i> 6.8.4.1
cmas-core-server	fetchSize.strategy. FetchSizeFixedStrategy.value	<i>Description:</i> Sets fetch size value if selected strategy to set fetch size is <i>FetchSizeFixedStrat</i> <i>egy.</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 150 <i>Since:</i> 6.8.4.1
cmas-core-server	fetchSize.strategy. FetchSizePageBasedStrategy. limit	<i>Description:</i> Sets maximum fetch size value if selected strategy to set fetch size is <i>FetchSizePageB</i> <i>asedStrategy.</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 10000 <i>Since:</i> 6.8.4.1
cmas-core-server	fetchSize.strategy. FetchSizeThresholdStrategy. value	<i>Description:</i> Sets fetch size threshold border values if selected strategy to set fetch size is <i>FetchSizeThresholdStrate</i> <i>gy.</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 150,300,600,1000 <i>Since:</i> 6.8.4.1
cmas-nimh	filesystem.polling.threads. number	<i>Description:</i> Number of threads started for db mails' queue polling. Default: 1

Module	Property	Explanation
		<i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.polling.threads. shutdown.timeout.seconds	<i>Description:</i> Waiting time after the shutdown signal. When the timeout reached, thread will be terminated. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.polling.threads. watchdog.interval.seconds	<i>Description:</i> Watchdog thread interval. Default: 30 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.enabled	Description: With this property service thread related to given poller can be disabled. Default: true <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.interval.seconds	<i>Description:</i> Default interval for polling mailboxes. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.polling.folder	Description: Polling folder location which will be scanned for emails in the format of eml files. Default: "mail" subdir of cmas data directory <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> c://cmas//mail <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.timeout.seconds	<i>Description:</i> After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 120 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.transaction. timeout.seconds	Description: Default transaction timeout for mail fetching transactions. Should be correlated with number of messages fetched at once. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmweb-server-adapter	globalSearchResultSizeLimit	<i>Description:</i> Maximum number of items in Quick Search result. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> 10 <i>Since:</i> 6.0
cmweb-server-adapter	helpFilePath	Description: URL for online help. If not empty, <i>Help</i> button is displayed in Web Client. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> http://www. consol.de <i>Since:</i> 6.2.1
cmas-setup-hibernate	hibernate.dialect	Description: The dialect used by hibernate. Usually set during initial set-up (depending on the database system). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> org.hibernate. dialect.MySQL5InnoDBDialect <i>Since:</i> 6.0
cmweb-server-adapter	hideTicketSubject	Description: If set to <i>true</i> , ticket subject is hidden. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.2.1
cmas-dwh-server	ignore-queues	Description: By adding a comma separated list of queue names it is configured that tickets of these queues are not transferred to the DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> QueueName1, QueueName2,QueueName3 <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-core-index-common	index.attachment	<i>Description:</i> Describes if content of attachments is indexed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.4.3
cmas-core-index-common	index.history	<i>Description:</i> Describes if unit and ticket history are indexed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.1.0
cmas-core-index-common	index.status	Description: Status of the Indexer, possible values RED, YELLOW, GREEN, will be displayed in the Admin Tool. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> GREEN <i>Since:</i> 6.6.1
cmas-core-index-common	index.task.worker.threads	<i>Description:</i> How many threads will be used to execute batch index tasks (synchronization, administrative, and repair tasks). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) (we

Module	Property	Explanation
		recommend to use a value not larger than 2) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	index.version.current	Description: Holds information about current (possibly old) index version. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) <i>Since:</i> 6.7.0
cmas-core-index-common	index.version.newest	Description: Holds information about which index version is considered newest. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) <i>Since:</i> 6.7.0
cmas-core-index-common	indexed.assets.per.thread.in. memory	Description: How many assets should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 200 (default) <i>Since:</i> 6.8.0
cmas-core-index-common	indexed.engineers.per.thread.in. memory	Description: How many engineers should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 300 (default) <i>Since:</i> 6.6.14, 6.7.3

Module	Property	Explanation
cmas-core-index-common	indexed.tickets.per.thread.in. memory	<i>Description:</i> How many tickets should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100 (default) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	indexed.units.per.thread.in. memory	Description: How many units should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 200 (default) <i>Since:</i> 6.6.14, 6.7.3
cmas-setup-manager	tup-manager initialized	<i>Description:</i> Flag if CMAS is initialized. If this value is missing or not <i>true</i> , set-up will be performed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.0
		Be careful with using this property!!! When you set the value to fals <i>e</i> , the ConSol*CM server will perform the system set-up at the next start, i.e. all data of the existing system is lost, including system properties!!!

cmas-dwh-server	is.cmrf.alive	<i>Description:</i> As a starting point time of sending last message to CMRF should be used. If response from CMRF is not received after value (in seconds) it should create a DWH operation status with error message that CMRF is down. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1200 <i>Since:</i> 6.7.0
cmas-dwh-server	java.naming.factory.initial	Description: Factory class for DWH context factory. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> org.jnp. interfaces.NamingContextFactory <i>Since:</i> 6.0.1
cmas-dwh-server	java.naming.factory.url.pkgs	Description: Type: String Restart required: No System: Yes Optional: No Example value: org.jboss. naming:org.jnp.interfaces Since: 6.0.1
cmas-dwh-server	java.naming.provider.url	Description: URL of naming provider <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> localhost <i>Since:</i> 6.0.1
cmas-workflow-engine	jobExecutor.adminMail	<i>Description:</i> E-mail address which will get notified about job

Module	Property	Explanation
		execution problems (when retry counter is exceeded). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> admin@consol. de <i>Since:</i> 6.8.0
cmas-workflow-jbpm	jobExecutor.idleInterval	Description: Type: Integer Restart required: No System: Yes Optional: No Example value: 45000 Removed in: 6.8.0 Replaced by: jobExecutor. idleInterval.seconds
cmas-workflow-engine	jobExecutor.idleInterval.seconds	Description: Determines how often job executor thread will look for new jobs to execute. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 5 (default) <i>Since:</i> 6.8.0
cmas-workflow-jbpm	jobExecutor. jobExecuteRetryNumber	Description: Type: Integer Restart required: No System: Yes Optional: No Example value: 5 Removed in: 6.8.0 Replaced by: jobExecutor. jobMaxRetries
cmas-workflow-engine	jobExecutor.jobMaxRetries	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> 5 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor. jobMaxRetriesReachedSubject	Description: Type: String Restart required: No System: Yes Optional: Yes Example value: Job maximum retries reached. Job was removed!!! (default) Since: 6.8.0
cmas-workflow-engine	jobExecutor.lockingLimit	<i>Description:</i> Number of jobs locked at once (marked for execution) by job executor thread <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 10 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.lockTimeout. seconds	Description: How long the job can be locked (marked for execution) by job executor. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 360 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.mailFrom	Description: E-mail which will be set as FROM-header during admin notifications. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> jobexecutor@consol.de <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.maxInactivityInterval. minutes	<i>Description:</i> Number of minutes of allowed job executor inactivity

Module	Property	Explanation
		(e.g. when it is blocked by long timer execution). After this time executors threads are restarted. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes. Default value is set to 30 minutes <i>Example value:</i> 15 (default) <i>Since:</i> 6.9.2.0
cmas-workflow-engine	jobExecutor.threads	<i>Description:</i> Number of job execution threads <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 1 (default) <i>Since:</i> 6.8.0
cmas-workflow-jbpm	jobExecutor.timerRetryInterval	Description: Type: Integer Restart required: No System: Yes Optional: No Example value: 10000 Removed in: 6.8.0 Replaced by: jobExecutor. timerRetryInterval.seconds
cmas-workflow-engine	jobExecutor.timerRetryInterval. seconds	Description: Determines how long job executor thread will wait after job execution error. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 10 (default) <i>Since:</i> 6.8.0
cmas-workflow-engine	jobExecutor.txTimeout.seconds	<i>Description:</i> Transaction timeout used for job execution <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> 60 (default) <i>Since:</i> 6.8.0
cmas-core-security	kerberos.v5.enabled	Description: Flag which indicates whether SSO via Kerberos is enabled. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false (default if Kerberos has not been enabled during system set-up) <i>Since:</i> 6.2.0
cmas-core-security	kerberos.v5.username.regex	Description: Regular expression used for mapping Kerberos principal to CM user login. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> (.*)@.* <i>Since:</i> 6.2.0
cmas-core-server	last.config.change	Description: Random UUID created during last change in config <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 2573c7b7-2bf5- 47ff-b5a2-bad31951a266 <i>Since:</i> 6.1.0, 6.2.1
cmas-core-security	Idap.authentication	<i>Description:</i> Authentication method used when using LDAP authentication. <i>Type:</i> String <i>Restart required:</i> Yes <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> simple <i>Since:</i> 6.0
cmas-core-security	ldap.basedn	Description: Base DN used for looking up LDAP user accounts when using LDAP authentication. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> ou=accounts, dc=consol,dc=de <i>Since:</i> 6.0
cmas-core-server	Idap.certificate.basedn	Description: Base DN for certificates location in LDAP tree. If not provided, <i>cmas-core-</i> <i>security, Idap.basedn</i> is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> ou=accounts, dc=consol,dc=de <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.content.attribute	Description: LDAP attribute name used where certificate data is stored in LDAP tree. Default value is: usercertificate. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> usercertificate <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.password	<i>Description:</i> LDAP Certificates manager password. If not set, <i>cm</i> <i>as-core-security, Idap.password</i> is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.providerurl	Description: LDAP Certificates provider URL. If not set, <i>cmas</i> - core-security, Idap.providerur/ is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> Idap://myserver. consol.de:389 <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.searchattr	Description: LDAP attribute name used to search for certificate in LDAP tree. Default value is: mail. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> mail <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.userdn	Description: LDAP Certificates manager DN. If not set, <i>cmas</i> - core-security, Idap.userdn is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.8.4
cmas-core-security	Idap.contact.name.basedn	Description: Base path to search for contact DN by LDAP ID (e.g. ou=accounts,dc=consol,dc=de). Type: String Restart required: No System: No Optional: Yes Since: 6.9.3.0
cmas-core-security	ldap.contact.name.password	

Module	Property	Explanation
		Description: Password to look up contact DN by LDAP ID. If not set, anonymous account is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	ldap.contact.name.providerurl	<i>Description:</i> Address of the LDAP server (Idap[s]://host:port). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	ldap.contact.name.searchattr	Description: Attribute to search for contact DN by LDAP ID (e.g. uid). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	ldap.contact.name.userdn	Description: User DN to look up contact DN by LDAP ID. If not set, anonymous account is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	Idap.initialcontextfactory	<i>Description:</i> Class name for initial context factory of LDAP implementation when using LDAP authentication. If it is not set, com.sun.jndi.ldap. LdapCtxFactory is being used as a value. <i>Type:</i> String <i>Restart required:</i> Yes <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> com.sun.jndi. Idap.LdapCtxFactory <i>Since:</i> 6.0
cmas-core-security	ldap.password	Description: Password for connecting to LDAP to look up users (when using LDAP authentication). Only needed if look-up cannot be done anonymously. <i>Type:</i> Password <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2
cmas-core-security	ldap.providerurl	Description: LDAP provider (when using LDAP authentication). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Idap://Idap. consol.de:389 <i>Since:</i> 6.0
cmas-core-security	ldap.searchattr	Description: Search attribute for looking up LDAP entry connected to CM6 login. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> uid <i>Since:</i> 6.0
cmas-core-security	ldap.userdn	<i>Description:</i> LDAP user for connecting to LDAP to look up users (when using LDAP authentication). Only needed if look-up cannot be done anonymously. <i>Type:</i> String

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2
cmas-esb-mail	mail.attachments.validation.info. sender	<i>Description:</i> Sets FROM-header of attachments type error notification e-mail. As a default the e-mail address of the administrator which you have entered during system set-up is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> admin@consolcm.com <i>Since:</i> 6.7.5
cmas-nimh-extension	mail.attachments.validation.info. sender	Description: Sets FROM-headerof attachments type errornotification mail <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> YesOptional: NoExample value: admin@mail.comSince: 6.7.5Image: This is an equivalent to the old cmas-esb-mail, mail.attachments. validation.info.sender
cmas-esb-mail	mail.attachments.validation.info. subject	Description: Sets subject of attachments type error notification e-mail. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> E-mail was not

Module	Property	Explanation
		processed because its attachments were rejected!!! <i>Since:</i> 6.7.5
cmas-nimh-extension	mail.attachments.validation.info. subject	Description: Sets subject of attachments type error notification mail <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Mail was not processed because its attachments were rejected!!! 
cmas-esb-mail	mail.callname.pattern	Description: Regular expression for subject of incoming e-mails. Available as TICKET_NAME_PATTERN_FO RMAT in incoming e-mail scripts. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> .*?Ticket\s+\ ((\S+)\).* <i>Since:</i> 6.0
cmas-esb-mail	mail.cluster.node.id	<i>Description:</i> Only the node whose mail.cluster.node.id equals cmas.clusternode.id will start the Mule ESB mail services. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> unspecified <i>Since:</i> 6.6.5
cmas-esb-mail	mail.db.archive	<i>Description:</i> If property is set to <i>tr</i> <i>ue</i> , incoming e-mails are archived in the database. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false (default) <i>Since:</i> 6.8.5.5
cmas-nimh-extension	nas-nimh-extension mail.db.archive	<i>Description:</i> If property is set to true, incoming emails are archived in the database <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false (default) <i>Since:</i> 6.8.5.5
		This is an equivalent to the old <i>cmas-esb-mail,</i> <i>mail.db.archive</i>
cmas-esb-mail	mail.delete.read	Description: Determines whether CM deletes messages fetched via IMAP(S). Setting value to <i>true</i> will cause deletion of messages after fetching. Default is to not delete messages fetched via IMAP(S). Note: Messages fetched via POP3(S) will always be deleted. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.7.3

Module	Property	Explanation
cmas-core-server	mail.encryption	Description: If property is set to <i>tr</i> ue, the encrypt check box in the Ticket E-Mail Editor is checked by default. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true (default = false) <i>Since:</i> 6.8.4.0
cmas-nimh-extension	mail.error.from.address	This is an equivalent to the old <i>cmas-esb-mail</i> , <i>mail.mule.service</i>
cmas-nimh-extension	mail.error.to.address	This is an equivalent to the old <i>cmas-esb-mail,</i> <i>mail.process.error</i>
cmweb-server-adapter	mail.from	Description: Use this address if set instead of engineer e-mail address during e-mail conversation. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2
cmas-esb-mail	mail.incoming.uri	<i>Description:</i> URL for incoming e- mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> pop3://cm-

Module	Property	Explanation
		incoming-user: password@localhost:10110 <i>Since:</i> 6.0 This value should not be edited here using the system properties pop-up window, but the
		mailboxes should be configured using the navigation item E-mail. Using this standard feature all entries are controlled - i.e. for each mailbox which is added, CM establishes a test connection during mailbox set-up. That way it is not possible to enter wrong values.
cmas-esb-mail	mail.max.restarts	Description: Maximum number of mail service restarts before giving up <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.0
cmas-esb-mail	mail.mime.strict	<i>Description:</i> If set to <i>false</i> , e-mail addresses are not parsed for strict MIME compliance. Default is <i>true</i> , which means check for strict MIME compliance. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.17, 6.7.3
cmas-esb-mail	mail.mule.service	Description: FROM-address for e-mails sent by Mule service <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0
cmas-nimh-extension	mail.mule.service	Description: FROM-address for mails sent by Mule service <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.4.0
cmas-core-server	mail.notification.engineerChange	<i>Description:</i> Flag if notification e- mail should be sent when engineer of ticket is changed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.1.0
cmas-core-server	mail.notification.sender	<i>Description: From</i> address for notification e-mails when engineer of ticket is changed. If not set, <i>cmas-core-security, admi</i> <i>n.email</i> is used instead. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> cm6notification@cm6installation <i>Since:</i> 6.6.3
cmas-nimh-extension	mail.on.error	<i>Description:</i> When set true an error mail is sent to the above configured address in case email message could not be processed. Default: false <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.4.0
cmas-esb-mail	mail.polling.interval	<i>Description:</i> Mail polling interval in ms <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60000 <i>Since:</i> 6.0
cmas-esb-mail	mail.process.error	Description: TO-address for error e-mails from Mule. As a default the e-mail address of the administrator which you have entered during system set-up is used. <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0
cmas-nimh-extension	mail.process.error	<i>Description:</i> TO-address for error mails from Mule <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> myuser@consol. de <i>Since:</i> 6.4.0
cmas-esb-mail	mail.process.retry.attempts	<i>Description:</i> Number of retries when processing e-mail <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.0.2
cmas-esb-mail	mail.process.timeout	<i>Description:</i> Mail processing timeout in seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.1.3
cmas-esb-mail	mail.redelivery.retry.count	Description: Indicates the number of retries of re-delivering an e-mail from the CM system. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.1.0
cmweb-server-adapter	mail.reply.to	Description: When set, Web Client will display REPLY-TO- field on e-mail send, prefilled with this value. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
		<ul> <li>Please see also section Queue Administration.</li> </ul>

Module	Property	Explanation
		When you set the REPLY-TO-address in the outgoing e-mail script, the <i>mail.reply.to</i> system property must not be set (because it would overwrite the configured value)! That means when you use one outgoing e-mail script for a queue you have to define outgoing e-mail scripts for all queues because the <i>ma</i> <i>il.reply.to</i> property can no longer be used.
cmas-workflow-jbpm	mail.sender.address	Description: FROM-address for e-mails from the workflow engine <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Removed in:</i> 6.8.0 <i>Replaced by:</i> jobExecutor. mailFrom
cmas-core-server	mail.smtp.email	Description: SMTP e-mail URL for outgoing e-mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> smtp://myserver. consol.de:25 <i>Since:</i> 6.0
cmas-core-server	mail.smtp.envelopesender	<i>Description:</i> E-mail address used as sender in SMTP envelope. If not set, the FROM- address of the e-mail is used.

Module	Property	Explanation
		<i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> mysender@mydomain.com <i>Since:</i> 6.5.7
cmas-nimh-extension	mail.ticketname.pattern	Description: Type: String Restart required: No System: Yes Optional: No Example value: .*?Ticket\s+\ ((\S+)\).* Since: 6.4.0
cmas-nimh	mailbox.1.connection.host	Host (server) for first configured mailbox. Will overwrite the default parameter <i>mailbox.</i> <i>default.connection.host</i>
cmas-nimh	mailbox.1.connection.password	Password for first configured mailbox. Will overwrite the default parameter <i>mailbox.</i> <i>default.connection.password</i>
cmas-nimh	mailbox.1.connection.port	Port for first configured mailbox. Will overwrite the default parameter <i>mailbox.default.</i> <i>connection.port</i>
cmas-nimh	mailbox.1.connection.protocol	Protocol (e.g., IMAP or POP3) for first configured mailbox. Will overwrite the default parameter <i>mailbox.default.connection.</i> <i>protocol</i>
cmas-nimh	mailbox.1.connection.username	User name for first configured mailbox. Will overwrite the default parameter <i>mailbox.</i> <i>default.connection.username</i>
cmas-nimh	mailbox.2.connection.host	Host (server) for second configured mailbox. Will overwrite the default parameter <i>mailbox.default.connection.host</i>

Module	Property	Explanation
cmas-nimh	mailbox.2.connection.password	Password for second configured mailbox. Will overwrite the default parameter <i>mailbox.</i> <i>default.connection.password</i>
cmas-nimh	mailbox.2.connection.port	Port for second configured mailbox. Will overwrite the default parameter <i>mailbox.</i> <i>default.connection.port</i>
cmas-nimh	mailbox.2.connection.protocol	Protocol (e.g., IMAP or POP3) for second configured mailbox. Will overwrite the default parameter <i>mailbox.default.</i> <i>connection.protocol</i>
cmas-nimh	mailbox.2.connection.username	User name for second configured mailbox. Will overwrite the default parameter <i>mailbox.default.connection.</i> <i>username</i>
	x properties, the following principle It.connection.port). If no mailbox-spe	
cmas-nimh	mailbox.default.connection.host	<i>Description:</i> Host (server name) of a given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10.10.1.157 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. password	Description: Password for given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> consol <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection.port	Description: Port for a given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 143 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. protocol	Description: Poller's protocol e.g: IMAP or POP3. No default value <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> imap <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. username	Description: User name for a given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> username <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. debug	Description: Example javax.mail property - allows for more detailed javax.mail session debugging <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. imap.timeout	<i>Description:</i> Example javax.mail property <i>Type:</i> Integer

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 120 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. mime.address.strict	Description: Example javax.mail property - counterpart of the old mule mail.mime.strict, allows to set not so strict mail header parsing <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. pop3.timeout	<i>Description:</i> Example javax.mail property. <i>Type:</i> <i>Restart required:</i> <i>System:</i> <i>Optional:</i> <i>Example value:</i> <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.delete.read. messages	Description: This defines whether messages should be removed from the mailbox after processing. For IMAP protocol messages are marked as SEEN by default. For POP3 protocol, when flag is set to true the message is removed, otherwise remains on server and will result in infinite reads. Default: false. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.enabled	

Module	Property	Explanation
		Description: With this property service thread related to given poller can be disabled. Default: true <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.interval. seconds	<i>Description:</i> Default interval for polling mailboxes. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.max. message.size	<i>Description:</i> Maximum size of e- mail messages in bytes. Messages with a size greater than the value of this property can be processed from the Admin Tool. Default set to 10Mb : 10485760 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10485760 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.max. messages.per.run	<i>Description:</i> Number of messages fetched at once from mailbox. Must be correlated with transaction timeout. Default set to: 20 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.timeout. seconds	<i>Description:</i> After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 120 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.transaction. timeout.seconds	Description: Default transaction timeout for mail fetching transactions. Should be correlated with number of messages fetched at once. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.polling.threads.mail.log. enabled	Description: Enables mail logging which is especially crucial in cluster environment (used as semaphore there) Type: String Restart required: No System: No Optional: Yes Example value: true (default) Since: 6.9.4.1
cmas-nimh	mailbox.polling.threads.number	<i>Description:</i> Number of threads for accessing mailboxes. Default: 1 <i>Type:</i> Integer <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 1 <i>Since:</i> 6.4.0
cmweb-server-adapter	mailTemplateAboveQuotedText	Description: Indicates behavior of e-mail template in the Ticket E- Mail Editor when another e-mail is quoted, i.e. forwarded or replied to. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.2.4
cmas-core-server	max.licences.perUser	Description: Sets maximum licenses single user can use (e.g logging in from different browsers). By default this value is not restricted. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 10 <i>Since:</i> 6.8.4.5
cmweb-server-adapter	maxSizePerPagemapInMegaByt es	Description: Maximum size (in MB) for each Wicket pagemap <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15 <i>Since:</i> 6.3.5
cmas-core-server	monitoring.engineer.login	<i>Description:</i> Login of monitoring engineer <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> nagios <i>Since:</i> 6.9.3.0
cmas-core-server	monitoring.unit.login	Description: Login of monitoring unit <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> nagios <i>Since:</i> 6.9.3.0
cmas-core-server	nimh.enabled	<i>Description:</i> Enables NIMH service. Must be suffixed with nodeid in cluster e.g. nimh. enabled.NODEID = true <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.9.4.0
cmas-dwh-server	notification.error.description	Description: Text for error e- mails from DWH <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Error occurred <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.from	<i>Description:</i> FROM-address for error e-mails from DWH <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.subject	<i>Description:</i> Subject for error e- mails from DWH <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> Error occurred <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.to	<i>Description:</i> TO-address for error e-mails from DWH <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. description	Description: Text for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished successfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. from	Description: FROM-address for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. subject	Description: Subject for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished successfully <i>Since:</i> 6.0.1
cmas-dwh-server		

Module	Property	Explanation
	notification.finished_successfully. to	<i>Description:</i> TO-address for e- mails from DWH when transfer finished successfully. <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully. description	Description: Text for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished unsuccessfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.from	<i>Description:</i> FROM-address for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.subject	Description: Subject for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished unsuccessfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.to	<i>Description:</i> TO-address for e- mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String

Module	Property	Explanation
		Restart required: No System: Yes Optional: No Example value: myuser@consol. de Since: 6.0.1
cmas-dwh-server	notification.host	Description: Mail (SMTP) server hostname for sending DWH e- mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> myserver.consol. de <i>Since:</i> 6.1.0
cmas-dwh-server	notification.password	Description: Password for sending DWH e-mails (optional) <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.0
cmas-dwh-server	notification.port	Description: SMTP port for sending DWH e-mails <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 25 <i>Since:</i> 6.1.0
cmas-dwh-server	notification.protocol	Description: The protocol used for sending e-mails from DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> pop3\
cmas-dwh-server	notification.username	<i>Description:</i> (SMTP) User name for sending DWH e-mails <i>Type:</i> String

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> maz <i>Since:</i> 6.1.0
cmas-workflow-jbpm	outdated.lock.age	Description: Type: Integer Restart required: No System: Yes Optional: No Example value: 60000 Removed in: 6.8.0 Replaced by: cmas-workflow- engine, jobExecutor.lockTimeout. seconds
cmweb-server-adapter	pagemapLockDurationInSeconds	Description: Number of seconds to pass before pagemap is considered to be locked for too long. <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.7.3
cmweb-server-adapter	postActivityExecutionScriptName	Description: Defines the name for the script which should be executed after every workflow activity, see section PostActivityE xecutionScript. If no script should be executed, leave the value empty. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> postActivityExecutionHandler <i>Since:</i> 6.2.0
cmas-nimh	queue.polling.threads.number	<i>Description:</i> Number of threads started for mails' queue polling.

Module	Property	Explanation
		Default: 1 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 1 <i>Since:</i> 6.4.0
cmas-nimh	queue.polling.threads.shutdown. timeout.seconds	<i>Description:</i> Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	queue.polling.threads.watchdog. interval.seconds	<i>Description:</i> Watchdog thread interval. Default: 30 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 30 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.error.pause.seconds	Description: Maximum number of seconds, the queue poller waits after infrastructure (e.g. database) error. Default 180 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 180 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.interval.seconds	<i>Description:</i> Main mails' queue polling thread interval. Default: 15 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> 15 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.max.retries	<i>Description:</i> Maximum number of e-mail processing retries after an exception. When reached, the e-mail is moved to the e-mail archive. This e-mail can be rescheduled again using NIMH API (or the Admin Tool). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.timeout.seconds	<i>Description:</i> After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 600 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 600 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.transaction.timeout. seconds	<i>Description:</i> Transaction timeout for mail processing in the pipe. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmweb-server-adapter	queuesExcludedFromGS	<i>Description:</i> Comma-separated list of queue names which are excluded from Quick Search. <i>Type:</i> String <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0
cmas-workflow-jbpm	refreshTimeInCaseOfConcurrent RememberMeRequests	Description: It sets the refresh time (in seconds) after which page will be reloaded in case of concurrent <i>remember me</i> requests. This feature prevents one user from occupying many licenses. Please increase that time if sessions are still occupying. <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 5 <i>Since:</i> 6.8.2
cmweb-server-adapter	rememberMeLifetimeInMinutes	<i>Description:</i> Lifetime for <i>rememb</i> <i>er me</i> in minutes <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1440 <i>Since:</i> 6.0
cmweb-server-adapter	request.scope.transaction	<i>Description:</i> It allows to disable request scope transaction. By default one transaction is used per request. Setting this property to <i>false</i> there will cause one transaction per service method invocation. <i>Type:</i> Boolean <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.8.1
cmas-setup-scene	scene	<i>Description:</i> Scene file which was imported during set-up (can

Module	Property	Explanation
		be empty). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> vfszip:/P:/dist /target/jboss/server/cmas/deploy /cm-dist-6.5.1-SNAPSHOT.ear /APP-INF/lib/dist-scene-6.5.1- SNAPSHOT.jar/META-INF/cmas /scenes/helpdesk-sales_scene. jar/ <i>Since:</i> 6.0
cmweb-server-adapter	searchPageSize	<i>Description:</i> Default page size for search results <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 20 <i>Since:</i> 6.0
cmweb-server-adapter	searchPageSizeOptions	<i>Description:</i> Options for page size for search results <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 20 30 40 50 75 100 <i>Since:</i> 6.0
cmas-core-server	server.session.archive.reaper. interval	Description: Server archived sessions' reaper interval (in seconds) <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.7.1
cmas-core-server	server.session.archive.timeout	<i>Description:</i> Server sessions archive validity timeout (in days).

Module	Property	Explanation
		After this time session info is removed from db. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 31 <i>Since:</i> 6.7.1
cmas-core-server	server.session.reaper.interval	<i>Description:</i> Server inactive (ended) sessions' reaper interval (in seconds) <i>Type:</i> Integer <i>Restart required:</i> Only Session Service <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.6.1, 6.7.1
cmas-core-server	server.session.timeout	Description: Server sessiontimeout (in seconds) forconnected clients. Each clientcan overwrite this timeout withcustom value using its ID(ADMIN_TOOL, WEB_CLIENT,WORKFLOW_EDITOR, TRACK(before 6.8 please usePORTER), ETL, REST)appended to property name, e.g.server.session.timeout.ADMIN_TOOL <i>Type:</i> IntegerRestart required: NoSystem: YesOptional: NoExample value: 1800Since: 6.6.1, 6.7.1
cmweb-server-adapter	serverPoolingInterval	<i>Description:</i> <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.1.0
cmas-dwh-server	skip-ticket	Description: Tickets are not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-ticket-history	Description: History of ticket is not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-unit	Description: Units are not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-unit-history	<i>Description:</i> History of unit is not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false

Module	Property	Explanation
		<i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-core-server	skip.wfl.transfer.cleanup	<i>Description:</i> If set to true skips workflow cleanup after transfer <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false (default) <i>Since:</i> 6.9.4.1
cmas-dwh-server	split.history	Description: Changes the SQL that fetches the history for the tickets during DWH transfer not to all tickets at once but only for one ticket per SQL. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.8.0
cmas-app-admin-tool	start.groovy.task.enabled	Description: For being able to run Admin Tool scripts of type <i>Ta</i> <i>sk</i> in the Admin Tool (navigation group <i>Services</i> , navigation item <i>T</i> <i>ask Execution</i> ). It is required to enable the 'Start task' button which is hidden by default. This is done by setting this system property to true <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true <i>Since:</i> 6.9.4.0
cmweb-server-adapter	supportEmail	<i>Description: Type:</i> String <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0
cmas-core-index-common	synchronize.master.address	Description: Value of -Dcmas. http.host.port informing how to connect to indexing master server. Default null. Since 6.6.17 this value is configurable in set- up to designate initial indexing master server. Please note that changing this value is only allowed when all cluster nodes index changes receivers are stopped. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 127.0.0.1:80 <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.master.security. token	<i>Description:</i> The password for accessing the index snapshot via URL, e.g. for index synchronization or for back-ups. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> token <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.master.security.user	<i>Description:</i> The user name for accessing the index snapshot via URL, e.g. for index synchronization or for back-ups. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> user <i>Since:</i> 6.6.0
cmas-core-index-common		

Module	Property	Explanation
	synchronize.master.timeout. minutes	<i>Description:</i> How much time master server may constantly fail until new master gets elected with index fix procedure. Default 5. Since 6.6.17 this value is configurable in set-up where zero means that master server will never change (failover mechanism is off). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.megabits.per. second	Description: How muchbandwidth can master serverconsume to transfer indexchanges to all slave servers.Default 85. Please do not use allavailable bandwidth to transferindex changes between hosts.This will most probably partitioncluster as some subsystems willnot be able to communicate. <i>Type:</i> IntegerRestart required: NoSystem: YesOptional: NoExample value: 85Since: 6.6.0
cmas-core-index-common	synchronize.sleep.millis	<i>Description:</i> How often each slave server polls master server for index changes. Default 1000. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1000 <i>Since:</i> 6.6.0
cmweb-server-adapter	themeOverlay	<i>Description:</i> Name of used theme overlay

Module	Property	Explanation
		<i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> kyoEUR <i>Since:</i> 6.0
cmas-core-server	ticket.delete.timeout	<i>Description:</i> Transaction timeout (in seconds) for deleting tickets <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.1.3
cmweb-server-adapter	ticketListRefreshIntervalInSecon ds	<i>Description:</i> Refresh interval for ticket list (in seconds) <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 180 <i>Since:</i> 6.0
cmweb-server-adapter	ticketListSizeLimit	<i>Description:</i> Maximum number of tickets in ticket list <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100 <i>Since:</i> 6.0
cmas-core-server	tickets.delete.size	Description: Property that defines a number of tickets deleted per transaction. By default it is set to 10. <i>Type:</i> Integer <i>Restart required:</i> Only Session Service <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 <i>Since:</i> 6.8.1

Module	Property	Explanation
cmas-core-server	unit.replace.batchSize	<i>Description:</i> Describes number of objects to be processed in unit replace action. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.8.2
cmas-core-server	unit.replace.timeout	<i>Description:</i> Transaction timeout (seconds) of unit replacement action step. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 120 <i>Since:</i> 6.8.2
cmas-dwh-server	unit.transfer.order	Description: Define in which order Data Object Groups should be transferred to the DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value: company;</i> <i>customer</i> <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmweb-server-adapter	unitIndexSearchResultSizeLimit	Description: Maximum number of units in unit search result (e.g. when searching for contact) <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.0
cmas-core-server	unused.content.remover.cluster. node.id	<i>Description:</i> Value of a <i>cmas. clusternode.id</i> designating node

Module	Property	Explanation
		which will remove unused ticket attachments and unit content entries. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 1 (assuming cluster node started with -Dcmas. clusternode.id=1 parameter) <i>Since:</i> 6.9.0.0
cmas-core-server	unused.content.remover.enabled	Description: Flag whether unused ticket attachments and unit content entries removal should take place. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.9.0.0
cmas-core-server	unused.content.remover.polling. minutes	Description: How often unused ticket attachments and unit content entries should be checked for removal. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15 <i>Since:</i> 6.9.0.0
cmas-core-server	unused.content.remover.ttl. minutes	Description: Minimum interval after which unused ticket attachments and unit content entries can be removed. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1440 <i>Since:</i> 6.9.0.0

Module	Property	Explanation
cmweb-server-adapter	urlLogoutPath	Description: URL which is used when user logs out. (If no value is set, logout leads to login- mask.) <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> http://intranet. consol.de <i>Since:</i> 6.3.1
cmas-core-server	warmup.executor.enabled	Description: Flag whether server should asynchronously warm up during startup (e.g. fill some of internal caches) <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.9.4.2
cmweb-server-adapter	webSessionTimeoutInMinutes	Description: Session timeout in minutes Type: Integer Restart required: Yes System: Yes Optional: No Example value: 180 Removed in: 6.7.1 Replaced by: cmas-core-server, server.session.timeout
cmweb-server-adapter	wicketAjaxRequestHeaderFilterE nabled	<i>Description:</i> This enables filter for Wicket AJAX requests, coming from stale pages with Wicket 1.4 scripting (CM6 pre- 6.8.0), after update to CM6 post- 6.8.0. <i>Type:</i> Boolean <i>Restart required:</i> Yes <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.8.1

## 51 Appendix D (Important System Properties, Ordered by Area of Application)

- CMRF & DWH Configuration
- Indexer & Search Configuration
  - Indexer
  - Search Results
- LDAP Configuration
  - LDAP Configuration (If LDAP Is Used as Authentication Mode in the CM Web Client)
  - LDAP Configuration (If LDAP Is Used as Authentication Mode in CM.Track)
- E-Mail Configuration
  - Outgoing E-Mail
  - Incoming E-Mail
    - Settings for ESB/Mule
    - Settings for NIMH
    - Mapping of Former Mule and New NIMH Properties
    - Attachments for Incoming E-Mails
  - E-Mail Encryption (Outgoing and Incoming)
- Activity Interval Configuration

### 51.1 CMRF & DWH Configuration

Module	Property	Explanation
cmas-dwh-server	autocommit.cf.changes	<i>Description:</i> <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.7.0
cmas-dwh-server	batch-commit-interval	<i>Description:</i> Number of objects in a JMS message. Higher value means better transfer performance and bigger memory usage. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 100 <i>Since:</i> 6.0.0
cmas-dwh-server	communication.channel	Description: Communication channel. Possible values are D/R ECT (database communication channel, default value since 6.9.4.1), J//S (default value before 6.9.4.1). Before 6.9.4.1 it has to be manually added. Type: String Restart required: No System: Yes Optional: No Example value: DIRECT Since: 6.8.5.0
cmas-dwh-server	dwh.mode	<i>Description:</i> Current mode of DWH data transfer. Possible values are <i>OFF</i> , <i>ADMIN</i> , <i>LIVE</i> . <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> OFF <i>Since:</i> 6.0.1
cmas-dwh-server	ignore-queues	Description: By adding a comma separated list of queue names it is configured that tickets of these queues are not transferred to the DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> QueueName1, QueueName2,QueueName3 <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	is.cmrf.alive	<i>Description:</i> As a starting point time of sending last message to CMRF should be used. If response from CMRF is not received after value (in seconds) it should create a DWH operation status with error message that CMRF is down. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1200 <i>Since:</i> 6.7.0
cmas-dwh-server	java.naming.factory.initial	Description: Factory class for DWH context factory. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> org.jnp. interfaces.NamingContextFactory <i>Since:</i> 6.0.1
cmas-dwh-server	java.naming.factory.url.pkgs	<i>Description: Type:</i> String <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> org.jboss. naming:org.jnp.interfaces <i>Since:</i> 6.0.1
cmas-dwh-server	java.naming.provider.url	Description: URL of naming provider. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> localhost <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.description	Description: Text for error e- mails from DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Error occurred <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.from	Description: FROM-address for error e-mails from DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.subject	Description: Subject for error e- mails from DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Error occurred <i>Since:</i> 6.0.1
cmas-dwh-server	notification.error.to	<i>Description:</i> TO-address for error e-mails from DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. description	Description: Text for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished successfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. from	<i>Description:</i> FROM-address for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. subject	Description: Subject for e-mails from DWH when transfer finished successfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished successfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification.finished_successfully. to	<i>Description:</i> TO-address for e- mails from DWH when transfer finished successfully. <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0.1

Module	Property	Explanation
cmas-dwh-server	notification. finished_unsuccessfully. description	Description: Text for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished unsuccessfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.from	Description: FROM-address for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.subject	Description: Subject for e-mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Transfer finished unsuccessfully <i>Since:</i> 6.0.1
cmas-dwh-server	notification. finished_unsuccessfully.to	Description: TO-address for e- mails from DWH when transfer finished unsuccessfully. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0.1
cmas-dwh-server	notification.host	<i>Description:</i> E-mail (SMTP) server hostname for sending DWH e-mails.

Module	Property	Explanation
		<i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> mail.consol.de <i>Since:</i> 6.1.0
cmas-dwh-server	notification.password	<i>Description:</i> Password for sending DWH e-mails (optional). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.0
cmas-dwh-server	notification.port	Description: SMTP port for sending DWH e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 25 <i>Since:</i> 6.1.0
cmas-dwh-server	notification.protocol	Description: The protocol used for sending e-mails from DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> pop3\
cmas-dwh-server	notification.username	Description: (SMTP) User name for sending DWH e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> myuser <i>Since:</i> 6.1.0
cmas-dwh-server	skip-ticket	<i>Description:</i> Tickets are not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-ticket-history	Description: History of ticket is not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-unit	Description: Units are not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	skip-unit-history	Description: History of unit is not transferred during transfer /update. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1
cmas-dwh-server	split.history	<i>Description:</i> Changes the SQL that fetches the history for the tickets during DWH transfer, not to all tickets at once but only for one ticket per SQL. <i>Type:</i> Boolean

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.8.0
cmas-dwh-server	unit.transfer.order	Description: Define in which order Data Object Groups should be transferred to the DWH. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value: company;</i> <i>customer</i> <i>Since:</i> 6.6.19 <i>Removed in:</i> 6.8.1

### 51.2 Indexer & Search Configuration

#### 51.2.1 Indexer

Module	Property	Explanation
cmas-core-index-common	big.task.minimum.size	<i>Description:</i> How many parts a task at least should have to be handled by the Indexer with low priority. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 15 (default) <i>Since:</i> 6.8.3
cmas-core-index-common	database.notification.enabled	Description: Indicates whether index update database notification channel should be used instead of JMS. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.8.4.7
cmas-core-index-common	database.notification.redelivery. delay.seconds	Description: In case of index update database notification channel, indicates notification redelivery delay when exception occurs. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.8.4.7
cmas-core-index-common	database.notification.redelivery. max.attempts	<i>Description:</i> In case of index update database notification channel, indicates maximum

Module	Property	Explanation
		redelivery attempts when exception occurs. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60 <i>Since:</i> 6.8.4.7
cmas-core-index-common	disable.admin.task.auto.commit	<i>Description:</i> All tasks created for index update will be executed automatically right after creation. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.1
cmas-core-index-common	index.attachment	<i>Description:</i> Describes if content of attachments is indexed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.4.3
cmas-core-index-common	index.history	<i>Description:</i> Describes if unit and ticket history are indexed. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.1.0
cmas-core-index-common	index.status	Description: Status of the Indexer (possible values RED, YELLOW, GREEN) will be displayed in the Admin Tool. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> GREEN <i>Since:</i> 6.6.1
cmas-core-index-common	index.task.worker.threads	<i>Description:</i> How many threads will be used to execute batch index tasks (synchronization, administrative, and repair tasks). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) (we recommend to use a value not larger than 2) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	index.version.current	Description: Holds information about current (possibly old) index version. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) <i>Since:</i> 6.7.0
cmas-core-index-common	index.version.newest	Description: Holds information about which index version is considered newest. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1 (default) <i>Since:</i> 6.7.0
cmas-core-index-common	indexed.assets.per.thread.in. memory	<i>Description:</i> How many assets should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes

Module	Property	Explanation
		<i>Optional:</i> No <i>Example value:</i> 200 (default) <i>Since:</i> 6.8.0
cmas-core-index-common	indexed.engineers.per.thread.in. memory	Description: How many engineers should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 300 (default) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	indexed.tickets.per.thread.in. memory	Description: How many tickets should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100 (default) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	indexed.units.per.thread.in. memory	Description: How many units should be loaded into memory at once during indexing per one thread. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 200 (default) <i>Since:</i> 6.6.14, 6.7.3
cmas-core-index-common	synchronize.master.address	<i>Description:</i> Value of <i>-Dcmas.</i> <i>http.host.port</i> informing how to connect to the indexing master server. Default null. Since 6.6.17 this value is configurable in set- up to designate the initial indexing master server. Please note that changing this value is

Module	Property	Explanation
		only allowed when all cluster nodes index changes receivers are stopped. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> 127.0.0.1:80 <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.master.security. token	<i>Description:</i> The password for accessing the index snapshot via URL, e.g. for index synchronization or for back-ups. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> token <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.master.security.user	<i>Description:</i> The user name for accessing the index snapshot via URL, e.g. for index synchronization or for back-ups. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> user <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.master.timeout. minutes	<i>Description:</i> How much time master server may constantly fail until new master gets elected with index fix procedure. Default 5. Since 6.6.17 this value is configurable in set-up where zero means that master server will never change (fail-over mechanism is off). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> 5 <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.megabits.per. second	Description: How much bandwidth can master server consume to transfer index changes to all slave servers. Default 85. Please do not use all available bandwidth to transfer index changes between hosts. This will most probably partition the cluster as some subsystems will not be able to communicate. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 85 <i>Since:</i> 6.6.0
cmas-core-index-common	synchronize.sleep.millis	<i>Description:</i> How often each slave server polls the master server for index changes. Default 1000. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1000 <i>Since:</i> 6.6.0

### 51.2.2 Search Results

Module	Property	Explanation
cmweb-server-adapter	globalSearchResultSizeLimit	<i>Description:</i> Maximum number of items in Quick Search result. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 <i>Since:</i> 6.0

Module	Property	Explanation
cmweb-server-adapter	unitIndexSearchResultSizeLimit	Description: Maximum number of units in unit search result (e.g. when searching for contacts). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 5 <i>Since:</i> 6.0
cmweb-server-adapter	searchPageSize	<i>Description:</i> Default page size for search results. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 20 <i>Since:</i> 6.0
cmweb-server-adapter	searchPageSizeOptions	<i>Description:</i> Options for page size for search results. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 10 20 30 40 50 75 100 <i>Since:</i> 6.0

### **51.3 LDAP Configuration**

## 51.3.1 LDAP Configuration (If LDAP Is Used as Authentication Mode in the CM Web Client)

LDAP parameters apply only if the authentication mode for the CM Web Client has been set to LDAP.

Module	Property	Explanation
cmas-core-security	authentication.method	Description: User authentication method (internal CM database or LDAP authentication). Allowed values are LDAP or DATABASE. Type: String Restart required: No System: Yes Optional: No Example value: DATABASE Since: 6.0

Module	Property	Explanation
cmas-core-security	ldap.authentication	Description: Authentication method used when using LDAP authentication. <i>Type:</i> String <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> simple <i>Since:</i> 6.0
cmas-core-security	ldap.basedn	Description: Base DN used for looking up LDAP user accounts when using LDAP authentication. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> ou=accounts, dc=consol,dc=de <i>Since:</i> 6.0
cmas-core-security	Idap.initialcontextfactory	

Module	Property	Explanation
		Description: Class name for initial context factory of LDAP implementation when using LDAP authentication. If it is not set, com.sun.jndi.ldap. LdapCtxFactory is being used as a value. Type: String Restart required: Yes System: Yes Optional: No Example value: com.sun.jndi. Idap.LdapCtxFactory Since: 6.0
cmas-core-security	ldap.password	<i>Description:</i> Password for connecting to LDAP to look up users (when using LDAP authentication). Only needed if look-up cannot be done anonymously. <i>Type:</i> Password <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2
cmas-core-security	ldap.providerurl	Description: LDAP provider (when using LDAP authentication). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Idap://Idap. consol.de:389 <i>Since:</i> 6.0
cmas-core-security	ldap.searchattr	<i>Description:</i> Search attribute for looking up LDAP entry connected to CM login. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> uid <i>Since:</i> 6.0
cmas-core-security	ldap.userdn	Description: LDAP user for connecting to LDAP to look up users (when using LDAP authentication). Only needed if look-up cannot be done anonymously. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2

# 51.3.2 LDAP Configuration (If LDAP Is Used as Authentication Mode in CM.Track)

LDAP parameters apply only if the authentication mode for CM.Track has been set to LDAP.

Module	Property	Explanation
cmas-core-security	contact.authentication.method	Description: Indicates contact authentication method, where possible values are DATABASE or LDAP or LDAP, DATABASE or DATABASE, LDAP. Type: String Restart required: No System: Yes Optional: No Since: 6.9.3.0

Module	Property	Explanation
cmas-core-security	ldap.contact.name.basedn	<i>Description:</i> Base path to search for contact DN by LDAP ID (e.g. ou=accounts,dc=consol,dc=de). <i>Type:</i> String <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	Idap.contact.name.password	Description: Password to look up contact DN by LDAP ID. If not set, anonymous account is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	ldap.contact.name.providerurl	<i>Description:</i> Address of the LDAP server (ldap[s]://host:port). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	Idap.contact.name.searchattr	Description: Attribute to search for contact DN by LDAP ID (e.g. uid). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	Idap.contact.name.userdn	Description: User DN to look up contact DN by LDAP ID. If not set, anonymous account is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Since:</i> 6.9.3.0
cmas-core-security	Idap.initialcontextfactory	<i>Description:</i> Class name for initial context factory of LDAP implementation when using LDAP authentication. If it is not set, <i>com.sun.jndi.ldap.</i> <i>LdapCtxFactory</i> is being used as a value.

Module	Property	Explanation
		<i>Type:</i> String <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> com.sun.jndi. Idap.LdapCtxFactory <i>Since:</i> 6.0

### **51.4 E-Mail Configuration**

### 51.4.1 Outgoing E-Mail

Independent of incoming e-mail mode (ESB/Mule and NIMH).

Module	Property	Explanation
cmas-core-server	mail.smtp.email	Description: SMTP e-mail URL for outgoing e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> smtp://mail. consol.de:25 <i>Since:</i> 6.0
cmas-core-server	mail.smtp.envelopesender	Description: E-mail address used as sender in SMTP envelope. If not set, the FROM- address of the e-mail is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> mysender@mydomain.com <i>Since:</i> 6.5.7

Module	Property	Explanation
cmweb-server-adapter	mail.from	<i>Description:</i> Use this address if set instead of engineer e-mail address during e-mail conversation. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.1.2
cmweb-server-adapter	mail.reply.to	<i>Description:</i> When set, Web Client will display REPLY-TO-

Module	Property	Explanation
		field on e-mail sent, prefilled with this value. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.0.1
		Please see also section Queue Administration. When you set the REPLY-TO-address in the outgoing e-mail script, the mail.reply.to system property must not be set (because it would overwrite the configured value)! That means when you use one outgoing e-mail script for a queue you have to define outgoing e-mail scripts for all queues because the ma il.reply.to property can no longer be used.
cmweb-server-adapter	mailTemplateAboveQuotedText	Description: Indicates behavior of e-mail template in the Ticket E- Mail Editor when another e-mail is quoted, i.e. forwarded or replied to. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.2.4

Module	Property	Explanation
cmas-workflow-jbpm	mail.sender.address	Description: FROM-address for e-mails from the workflow engine. <i>Type:</i> String Restart required: No System: Yes Optional: No Example value: myuser@consol. de Removed in: 6.8.0 Replaced by: jobExecutor. mailFrom

### 51.4.2 Incoming E-Mail

#### Settings for ESB/Mule

Module	Property	Explanation
cmas-esb-core	esb.directory	Description: Directory used by ESB (Mule). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> C: \Users\user\cmas\mule <i>Since:</i> 6.0
cmas-esb-mail	mail.attachments.validation.info. sender	<i>Description:</i> Sets FROM-header of attachments type error notification e-mail. As a default the e-mail address of the administrator which you have entered during system set-up is used. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> admin@consolcm.com <i>Since:</i> 6.7.5
cmas-esb-mail	mail.attachments.validation.info. subject	Description: Sets subject of attachments type error notification e-mail. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> E-mail was not processed because its attachments were rejected!!! <i>Since:</i> 6.7.5
cmas-esb-mail	mail.callname.pattern	Description: Regular expression for subject of incoming e-mails. Available as TICKET_NAME_PATTERN_FO RMAT in incoming e-mail scripts. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> .*?Ticket\s+\ ((\S+)\).* <i>Since:</i> 6.0
cmas-esb-mail	mail.cluster.node.id	<i>Description:</i> Only the node whose mail.cluster.node.id equals cmas.clusternode.id will start the Mule ESB mail services. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> unspecified <i>Since:</i> 6.6.5
cmas-esb-mail	mail.db.archive	<i>Description:</i> If property is set to <i>tr</i> <i>ue</i> , incoming e-mails are archived in the database. <i>Type:</i> Boolean <i>Restart required:</i> No

Module	Property	Explanation
		<i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false (default) <i>Since:</i> 6.8.5.5
cmas-esb-mail	mail.delete.read	<i>Description:</i> Determines whether CM deletes messages fetched via IMAP(S). Setting value to <i>true</i> will cause deletion of messages after fetching. Default is to not delete messages fetched via IMAP(S). Note: Messages fetched via POP3(S) will always be deleted. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> true <i>Since:</i> 6.7.3
cmas-esb-mail	mail.encryption	Description: If property is set to tr ue, the encrypt check box in the Ticket E-Mail Editor is checked by default. Type: Boolean Restart required: No System: Yes Optional: No Example value: true (default = false) Since: 6.8.4.0
cmas-esb-mail	mail.incoming.uri	Description: URL for incoming e- mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> pop3://cm- incoming-user: password@localhost:10110 <i>Since:</i> 6.0

Module	Property	Explanation
		This value should not be edited here using the system properties pop-up window, but the mailboxes should be configured using the navigation item E-mail. Using this standard feature all entries are controlled - i.e. for each mailbox which is added, CM establishes a test connection during mailbox set-up. That way it is not possible to enter wrong values.
cmas-esb-mail	mail.max.restarts	Description: Maximum number of e-mail service restarts before giving up. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.0
cmas-esb-mail	mail.mime.strict	<i>Description:</i> If set to <i>false</i> , e-mail addresses are not parsed for strict MIME compliance. Default is <i>true</i> , which means check for strict MIME compliance. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> false <i>Since:</i> 6.6.17, 6.7.3
cmas-esb-mail	mail.mule.service	<i>Description:</i> FROM-address for e-mails sent by Mule service. <i>Type:</i> EMail

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0
cmas-esb-mail	mail.polling.interval	<i>Description:</i> Mail polling interval in ms. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 60000 <i>Since:</i> 6.0
cmas-esb-mail	mail.process.error	Description: TO-address for error e-mails from Mule. As a default the e-mail address of the administrator which you have entered during system set-up is used. <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.0
cmas-esb-mail	mail.process.retry.attempts	<i>Description:</i> Number of retries when processing e-mail. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.0.2
cmas-esb-mail	mail.process.timeout	<i>Description:</i> Mail processing timeout in seconds. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No

Module	Property	Explanation
		<i>Example value:</i> 60 <i>Since:</i> 6.1.3
cmas-esb-mail	mail.redelivery.retry.count	Description: Indicates the number of retries of re-delivering an e-mail from the CM system. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 3 <i>Since:</i> 6.1.0

# **Settings for NIMH**

Those settings apply if NIMH is enabled (and therefore ESB/Mule is disabled):

Module	Property	Explanation
cmas-core-server	nimh.enabled	Description: Enables NIMH service. Must be suffixed with nodeid in cluster, e.g. nimh. enabled.NODEID = true Type: Boolean Restart required: No System: No Optional: Yes Example value: true Since: 6.9.4.0

Module	Property	Explanation
cmas-nimh	filesystem.polling.threads. number	<i>Description:</i> Number of threads started for db e-mails' queue polling. Default: 1 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.polling.threads. shutdown.timeout.seconds	<i>Description:</i> Waiting time after the shutdown signal. When the

Module	Property	Explanation
		timeout is reached, thread will be terminated. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.polling.threads. watchdog.interval.seconds	<i>Description:</i> Watchdog thread interval. Default: 30 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.enabled	Description: With this property service thread related to given poller can be disabled. Default: true Type: Boolean Restart required: No System: No Optional: Yes Example value: true Since: 6.4.0
cmas-nimh	filesystem.task.interval.seconds	Description: Default interval for polling mailboxes. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.polling.folder	<i>Description:</i> Polling folder location which will be scanned for e-mails in the format of <i>eml</i> files. Default: "mail" subdir of cmas data directory. <i>Type:</i> String

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> c://cmas//mail <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.timeout.seconds	<i>Description:</i> After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 120 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	filesystem.task.transaction. timeout.seconds	<i>Description:</i> Default transaction timeout for e-mail fetching transactions. Should be correlated with number of messages fetched at once. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.1.connection.host	Host (server) for first configured mailbox. Will overwrite the default parameter <i>mailbox.</i> <i>default.connection.host</i> .
cmas-nimh	mailbox.1.connection.password	Password for first configured mailbox. Will overwrite the default parameter <i>mailbox. default.connection.password.</i>
cmas-nimh	mailbox.1.connection.port	Port for first configured mailbox. Will overwrite the default parameter <i>mailbox.default.</i> <i>connection.port.</i>

Module	Property	Explanation
cmas-nimh	mailbox.1.connection.protocol	Protocol (e.g. IMAP or POP3) for first configured mailbox. Will overwrite the default parameter <i>mailbox.default.connection.</i> <i>protocol.</i>
cmas-nimh	mailbox.1.connection.username	User name for first configured mailbox. Will overwrite the default parameter <i>mailbox. default.connection.username</i> .
cmas-nimh	mailbox.2.connection.host	Host (server) for second configured mailbox. Will overwrite the default parameter <i>mailbox.default.connection.host</i> .
cmas-nimh	mailbox.2.connection.password	Password for second configured mailbox. Will overwrite the default parameter <i>mailbox. default.connection.password</i> .
cmas-nimh	mailbox.2.connection.port	Port for second configured mailbox. Will overwrite the default parameter <i>mailbox. default.connection.port.</i>
cmas-nimh	mailbox.2.connection.protocol	Protocol (e.g., IMAP or POP3) for second configured mailbox. Will overwrite the default parameter <i>mailbox.default.</i> <i>connection.protocol.</i>
cmas-nimh	mailbox.2.connection.username	User name for second configured mailbox. Will overwrite the default parameter <i>mailbox. default. connection.</i> <i>username.</i>
<ul> <li>For all NIMH-related mailbox properties, the following principle is used: A default property is defined (e.g. <i>mailbox.default.connection.port</i>). If no mailbox-specific value is configured, this default value will be used.</li> </ul>		
cmas-nimh	mailbox.default.connection.host	<i>Description:</i> Host (server name) of a given mailbox from which

Module	Property	Explanation
		the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10.10.1.157 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. password	Description: Password for given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> consol <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection.port	Description: Port for a given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 143 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. protocol	Description: Poller's protocol, e. g: IMAP or POP3. No default value. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> imap <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.connection. username	<i>Description:</i> User name for a given mailbox from which the poller reads e-mails. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> username <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. debug	Description: Example javax.mail property. Allows for more detailed javax.mail session debugging. Type: Boolean Restart required: No System: No Optional: Yes Example value: true Since: 6.4.0
cmas-nimh	mailbox.default.session.mail. imap.timeout	Description: Example javax.mail property. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 120 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.session.mail. mime.address.strict	Description: Example javax.mail property. Counterpart of the old Mule mail.mime.strict, allows to set not so strict mail header parsing. Type: Boolean Restart required: No System: No Optional: Yes Example value: true Since: 6.4.0
cmas-nimh	mailbox.default.session.mail. pop3.timeout	Description: Example javax.mail property. <i>Type:</i> <i>Restart required:</i> <i>System:</i> <i>Optional:</i> <i>Example value:</i> <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.delete.read. messages	<i>Description:</i> This defines whether messages should be removed from the mailbox after

Module	Property	Explanation
		processing. For IMAP protocol messages are marked as <i>SEEN</i> by default. For POP3 protocol, if flag is set to true, the message is removed, otherwise remains on server and will result in infinite reads. Default: false. <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.enabled	Description: With this property service thread related to given poller can be disabled. Default: tr ue.Type: Boolean Restart required: No System: No Optional: Yes Example value: false Since: 6.4.0
cmas-nimh	mailbox.default.task.interval. seconds	Description: Default interval for polling mailboxes. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.max. message.size	<i>Description:</i> Maximum size of e- mail messages in bytes. Messages with a size larger than the value of this property cannot be processed by the Admin Tool. Default set to 10 MB: 10485760 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes

Module	Property	Explanation
		<i>Example value:</i> 10485760 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.max. messages.per.run	<i>Description:</i> Number of messages fetched at once from mailbox. Must be correlated with transaction timeout. Default set to: 20 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.timeout. seconds	Description: After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 120 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.default.task.transaction. timeout.seconds	Description: Default transaction timeout for e-mail fetching transactions. Should be correlated with number of messages fetched at once. Default: 60 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	mailbox.polling.threads.mail.log. enabled	<i>Description:</i> Enables e-mail logging which is especially crucial in cluster environments (used as semaphore there). <i>Type:</i> String

Module	Property	Explanation
		<i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> true (default) <i>Sin</i> <i>ce:</i> 6.9.4.1
cmas-nimh	mailbox.polling.threads.number	<i>Description:</i> Number of threads for accessing mailboxes. Default: 1 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 1 <i>Since:</i> 6.4.0
cmas-nimh	queue.polling.threads.number	Description: Number of threads started for e-mails' queue polling. Default: 1 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 1 <i>Since:</i> 6.4.0
cmas-nimh	queue.polling.threads.shutdown. timeout.seconds	<i>Description:</i> Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh	queue.polling.threads.watchdog. interval.seconds	<i>Description:</i> Watchdog thread interval. Default: 30 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 30 <i>Since:</i> 6.4.0

Module	Property	Explanation
cmas-nimh	queue.task.error.pause.seconds	Description: Maximum number of seconds, the queue poller waits after infrastructure (e.g. database) error. Default 180 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 180 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.interval.seconds	<i>Description:</i> Main e-mails' queue polling thread interval. Default: 15 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 15 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.max.retries	Description: Maximum number of e-mail processing retries after an exception. When reached, the e-mail is moved to the e-mail archive. This e-mail can be rescheduled again using the NIMH API (or the Admin Tool). <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 10 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.timeout.seconds	<i>Description:</i> After this time (of inactivity) the service thread is considered as damaged and automatically restarted. Default: 600 seconds <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No

Module	Property	Explanation
		<i>Optional:</i> Yes <i>Example value:</i> 600 <i>Since:</i> 6.4.0
cmas-nimh	queue.task.transaction.timeout. seconds	<i>Description:</i> Transaction timeout for e-mail processing in the pipe. Default: 60 <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> 60 <i>Since:</i> 6.4.0
cmas-nimh-extension	mail.attachments.validation.info. sender	Description: Sets FROM-header         of attachments type error         notification e-mail. <i>Type:</i> String         Restart required: No         System: Yes         Optional: No         Example value: admin@mail.com         Since: 6.7.5         Image: This is an equivalent to the old cmas-esb-mail, mail.attachments. validation.info.sender
cmas-nimh-extension	mail.attachments.validation.info. subject	Description: Sets subject of attachments type error notification e-mail. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> Mail was not processed because its attachments were rejected!!! <i>Since:</i> 6.7.5

Module	Property	Explanation
		This is an equivalent to the old <i>cmas-esb-mail,</i> <i>mail.attachments.</i> <i>validation.info.subject</i>
cmas-nimh-extension	mail.db.archive	Description: If property is set to <i>tr</i> ue, incoming emails are archived in the database <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> false (default) <i>Since:</i> 6.8.5.5
		the old <i>cmas-esb-mail</i> , <i>mail.db.archive</i>
cmas-nimh-extension	mail.error.from.address	This is an equivalent to the old <i>cmas-esb-mail</i> , <i>mail.mule.service</i>
cmas-nimh-extension	mail.error.to.address	
		This is an equivalent to the old <i>cmas-esb-mail</i> , <i>mail.process.error</i>
cmas-nimh-extension	mail.mule.service	Description: FROM-address for e-mails sent by Mule service. <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol.

Module	Property	Explanation
		de <i>Since:</i> 6.4.0
cmas-nimh-extension	mail.on.error	<i>Description:</i> If set to <i>true</i> an error e-mail is sent to the above configured address in case the e- mail message could not be processed. Default: false <i>Type:</i> Boolean <i>Restart required:</i> No <i>System:</i> No <i>Optional:</i> Yes <i>Example value:</i> false <i>Since:</i> 6.4.0
cmas-nimh-extension	mail.process.error	<i>Description:</i> TO-address for error e-mails from Mule. <i>Type:</i> EMail <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> myuser@consol. de <i>Since:</i> 6.4.0
cmas-nimh-extension	mail.ticketname.pattern	Description: Type: String Restart required: No System: Yes Optional: No Example value: .*?Ticket\s+\ ((\S+)\).* Since: 6.4.0

# Mapping of Former Mule and New NIMH Properties

Mule property	NIMH property
cmas-esb-mail, mail.delete.read	cmas-nimh, mailbox.default.task.delete.read. messages
cmas-esb-mail, mail.polling.interval	cmas-nimh, mailbox.default.task.interval.seconds
cmas-esb-mail, mail.process.retry.attempts	cmas-nimh, queue.task.max.retries

Mule property	NIMH property
cmas-esb-mail, mail.mime.strict	cmas-nimh, mailbox.default.session.mail.mime. address.strict
cmas-esb-mail, mail.encryption	cmas-core-server, mail.encryption (moved to core server properties)
cmas-esb-mail, mail.callname.pattern	cmas-nimh-extension, mail.ticketname.pattern
cmas-esb-mail, mail.attachments.validation. info.sender	cmas-nimh-extension, mail.attachments.validation. info.sender
cmas-esb-mail, mail.attachments.validation. info.subject	cmas-nimh-extension, mail.attachments.validation. info.subject
cmas-esb-mail, mail.db.archive	cmas-nimh-extension, mail.db.archive
cmas-esb-mail, mail.mule.service	cmas-nimh-extension, mail.error.from.address
cmas-esb-mail, mail.process.error	cmas-nimh-extension, mail.error.to.address

# **Attachments for Incoming E-Mails**

These settings apply to Mule/ESB and NIMH.

Module	Property	Explanation
cmas-core-server	attachment.allowed.types	Description: Comma-separated list of allowed filename extensions (if no value defined, all file extensions are allowed). <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> txt,zip,doc <i>Since:</i> 6.5.0
cmas-core-server	attachment.max.size	<i>Description:</i> Maximum attachment size in MB. <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 100 <i>Since:</i> 6.4.0

# 51.4.3 E-Mail Encryption (Outgoing and Incoming)

These settings only apply if e-mail encryption is active (true). This is valid for ESB Mail and NIMH.

Module	Property	Explanation
cmas-core-server	mail.encryption	Description: If property is set to tr ue, the encrypt check box in the Ticket E-Mail Editor is checked by default. Type: Boolean Restart required: No System: Yes Optional: No Example value: true (default = false) Since: 6.8.4.0

In case certificates are stored in an LDAP directory, the following settings have to be made:

Module	Property	Explanation
cmas-core-server	ldap.certificate.basedn	Description: Base DN for certificates location in LDAP tree. If not provided, <i>cmas-core-</i> security, Idap.basedn is taken. <i>Type:</i> String Restart required: No System: Yes Optional: Yes Example value: ou=accounts, dc=consol,dc=de Since: 6.8.4
cmas-core-server	Idap.certificate.content.attribute	Description: LDAP attribute name used where certificate data is stored in LDAP tree. Default value is <i>usercertificate</i> . <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> usercertificate <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.password	<i>Description:</i> LDAP certificates manager password. If not set, <i>cm</i>

Module	Property	Explanation
		<i>as-core-security, Idap.password</i> is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.providerurl	Description: LDAP certificates provider URL. If not set, <i>cmas</i> - <i>core-security, Idap.providerurl</i> is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> Idap://Idap. consol.de:389 <i>Since:</i> 6.8.4
cmas-core-server	Idap.certificate.searchattr	Description: LDAP attribute name used to search for certificate in LDAP tree. Default value is <i>mail</i> . <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Example value:</i> mail <i>Since:</i> 6.8.4
cmas-core-server	ldap.certificate.userdn	Description: LDAP certificates manager DN. If not set, <i>cmas</i> - core-security, Idap.userdn is taken. <i>Type:</i> String <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> Yes <i>Since:</i> 6.8.4

Module	Property	Explanation
cmas-app-admin-tool	admin.tool.session.check. interval	<i>Description:</i> Admin Tool inactive (ended) sessions check time interval (in seconds). <i>Type:</i> Integer <i>Restart required:</i> Yes <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 30 <i>Since:</i> 6.7.5
cmas-core-server	server.session.timeout	Description: Server session timeout (in seconds) for connected clients. Each client can overwrite this timeout with custom value using its ID (ADMIN_TOOL, WEB_CLIENT, WORKFLOW_EDITOR, TRACK (before 6.8 please use PORTER), ETL, REST) appended to property name, e.g. server.session.timeout. ADMIN_TOOL <i>Type:</i> Integer <i>Restart required:</i> No <i>System:</i> Yes <i>Optional:</i> No <i>Example value:</i> 1800 <i>Since:</i> 6.6.1, 6.7.1

#### Detailed explanation for the Admin Tool:

- server.session.timeout.ADMIN\_TOOL
   Defines the time interval how long the server considers a session valid while there is no activity from the Admin Tool holding the session. The Admin Tool is not aware of this value, it only suffers having an invalid session, if the last activity has been longer in the past.
- *admin.tool.session.check.interval* Defines the time between two checks done by the Admin Tool, if the server still considers its session valid.

For example, if *admin.tool.session.check.interval* = 60 the Admin Tool queries the server every minute if its session is still active/valid. In case *server.session.timeout.ADMIN\_TOOL* = 600 the Admin Tool will get the response that the session is now invalid after ten minutes of inactivity.

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