ConSol Software GmbH

ConSol CM Operations Manual

Version 6.12.0

Contents

A - Introduction

This section provides general information about the content and structure of this manual as well as an introduction to ConSol CM.

This chapter discusses the following:

A.1 ConSol CM for business process management

ConSol CM is a process management platform, especially suited for use as customer service software.

Using ConSol CM you can control and steer business processes with a strong focus on human communication and interaction as required in all fields of customer service management. Well-known examples of huge ConSol CM systems comprise customer service desks, RMA processes, after sales services, call centers and support centers as well as claim and complaint management environments. You can also set up customer portals, including FAQ areas, using ConSol CM. Basically, every business process that is in operation in a company can be modeled and brought to life with ConSol CM.

ConSol CM also provides the functionality to cover adaptive case management. In this way, you can decide, if you would like to design and live a strictly controlled business process or if a rather high level of flexibility is required. You might also combine both concepts, depending on the team or department who work with the process.

Figure 1: *Overview of potential fields of use of the BPM software ConSol CM*

Using ConSol CM, you can handle all components which are relevant in business processes to represent and control your company's processes in an optimal way. ConSol CM is used in various different industries and branches ranging from insurances and banks over fashion designing companies to producers of ticket vending machines or car washes. The flexible process designing mechanism and workflow engine provide a perfect basis for the modeling and controlling of business processes, especially customer service processes, of different kinds.

A.2 List of manuals

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.

- **DWH Manual**
  A detailed explanation of the ConSol CM data warehouse (DWH) concept, the database schema and a list of all table structures.

- **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.

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

- **Setup Manual**
  A technical description for ConSol CM setup in different IT environments. For expert CM administrators.

- **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.

- **User Manual**
  An introduction to the ConSol CM Web Client for end users.

A.3 TecDoc server

For detailed information about all aspects of ConSol CM, please see also our **tecdoc server**, available at https://tecdoc.consol.de. You find there:

- All **ConSol CM manuals**
  The ConSol CM manuals for several target groups in English and in German

- The **release notes** for each ConSol CM version
  Detailed Release Notes documents which explain every new feature of every ConSol CM version

- The **system requirements**
  An overview of the required hardware, middleware, and software prerequisites which are required to install ConSol CM

- The **feature presentations**
  Not too technical presentations which provide an overview of the features of new ConSol CM versions

A.4 About this manual

A.4.1 Before you read this manual

When you read this manual, we suppose that your company uses ConSol CM. A server environment has been set up and is up and running. It is your responsibility to operate ConSol CM.

> (i) Please contact the ConSol CM support or your ConSol CM consultant for information about operating ConSol CM in a cluster.

A.4.2 Manual structure

This manual contains all you need to know to operate ConSol CM in a single-server environment. It consists of six sections:

- Introduction

  This section provides an introduction to using ConSol CM for business process management and general information about this manual.

- System Architecture

  This section contains information about the system architecture.

- Operating ConSol CM

  This section describes the most common tasks for operating ConSol CM, for example the file system structure, starting and stopping the application, and logging. In addition, email, index and LDAP functionalities are covered in this section.

- Operating the Data Warehouse

  This section explains the different aspects of operating the ConSol CM Data Warehouse (DWH).

- Advanced Topics

  This section describes some advanced operation topics, such as system fine-tuning, troubleshooting and monitoring. In addition generic topics affecting the overall system, as license management, operating CM behind a proxy, backups, system updates and the release process, are described.

A.4.3 Variables used for standard path values

The following variables are used for paths in this manual:

- **<JBOSS_HOME>**
  Refers to the home directory of the JBoss application sever where ConSol CM is installed. Set as environment variable of the operating system.

- **<JBOSS_CMRF_HOME>**
  Refers to the home directory of the JBoss application sever where CMRF is installed. Set as environment variable of the operating system.

- **<WEBLOGIC_HOME>**
  Refers to the home directory of the WebLogic application server.

- **<CMAS_DATADIR>**
  Refers to the data directory of ConSol CM which is defined during system setup. This is not an environment variable of the operation system but a CM system property (cmas-core-shared, data.directory).

- **<ENGINEER_HOME_DIR>**
  Refers to the home directory of the engineer. On windows systems, this is often to be found under `C:\users\<USERNAME>`, on Linux systems in `/home/<USERNAME>`.

- **<DB_HOME>**
  Refers to the home directory of the database (MySQL, Oracle or Microsoft SQL).

A.5 Layout explanations

The following icons and colors are used to emphasize and highlight information:

> ⓘ This is an additional information.

> ⚠ This is an important note. Be careful here!

> ⚠ This is a warning!

> ⓘ This is a recommendation from our in-the-field consultants.

A.6 Legal notice

Since we would like to provide a manual for you which helps you manage your CM system, but which also provides additional information about connected topics, we have inserted external links into the manual. In this way, you can get some background information about a topic if you like. This can help you better understand the required CM configuration. Despite careful review, we assume no liability for the content of those external links. The operators of sites linked to are exclusively responsible for their content.

A.7 Gender disclaimer

As far as possible, ConSol CM manuals are written gender-neutral and often address the user with "you". When the phrasing "The user .... he ..." is used, this is always to be considered to refer to both, the feminine as well as the masculine form.

A.8 Copyright

© 2019 ConSol Consulting & Solutions Software GmbH - All rights are reserved.

A.9 System components of ConSol CM

ConSol CM comprises different client applications. Depending on your roles and tasks in your company you will use one or more of those applications.
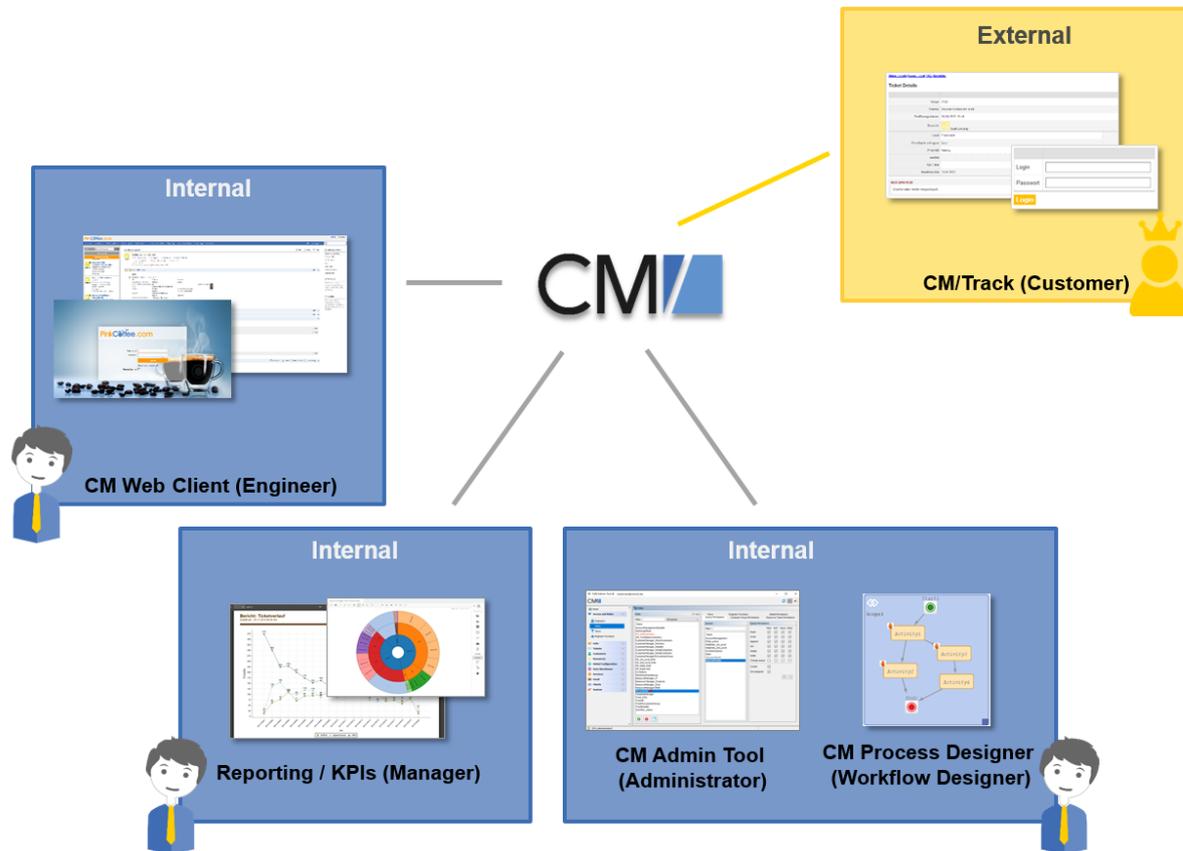
Figure 2: *ConSol CM system components*

- **Web Client**
  The primary access point 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. With this module, you can offer portal access to the tickets for your customers. Moreover, your FAQs can be made available via the web.

- **Admin Tool**
  For all system configuration tasks. As an administrator, you will primarily work with this tool. This tool is used to define the system setup. All settings (apart from workflows) are configured using the Admin Tool, and access to it is restricted to admin users.

- **Process Designer**
  For the workflow design and implementation. As a workflow developer you will primarily 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 an isolated application but can be easily integrated into your company's IT infrastructure, e.g. using Web Services and/or an Enterprise Service Bus (ESB) or the ConSol CM Webhook interface.

B - System Architecture

This section provides information about all components which form a functioning ConSol CM system and some interesting facts about the architecture of the application itself.

Topic	Chapter
ConSol CM system (CM-only or with reporting infra-structure)	Architecture of a CM System
ConSol CM application	Architecture of the ConSol CM Application

B.1 Architecture of a CM System

B.1.1 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.

> ⓘ A detailed list of supported operation systems, application servers, database systems, and other systems, as well as storage and CPU requirements is given in the current *System Requirements*.

B.1.2 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). JWS is a component of every recent Java edition, so no extra installation 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.
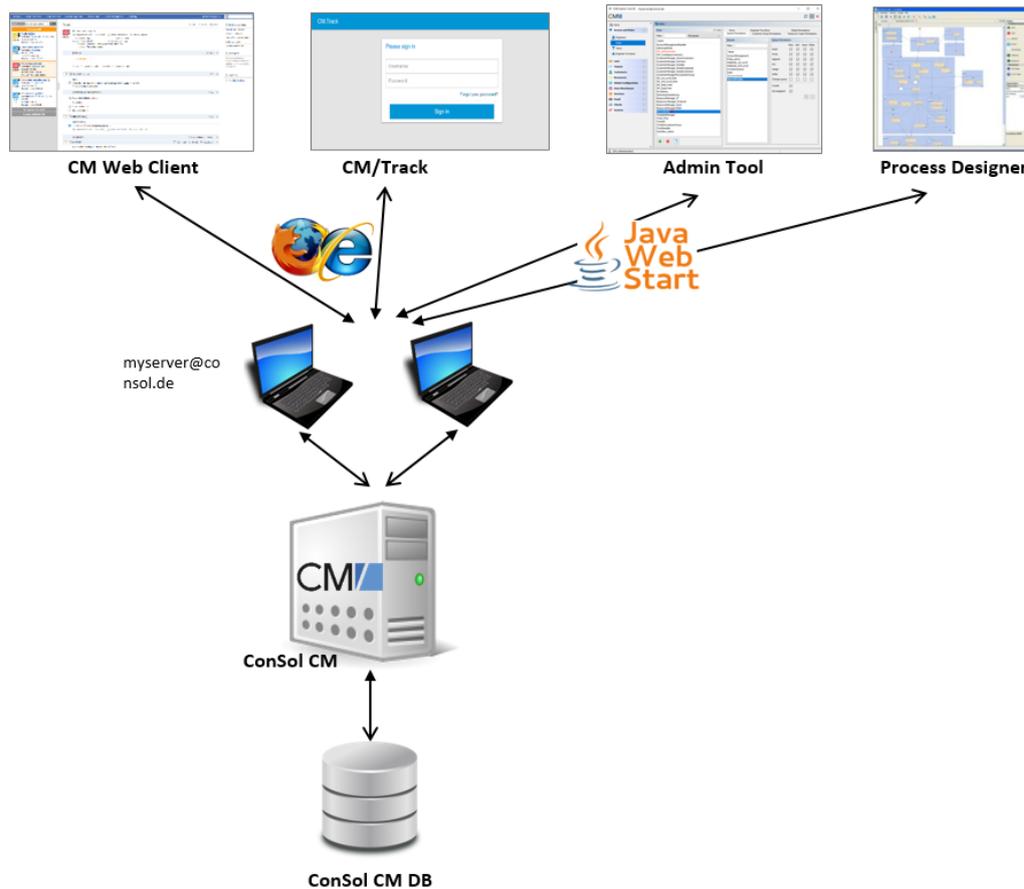
Figure 3: *ConSol CM - Basic system architecture*

B.1.2.1 CM Database

The ConSol CM database (CM DB) is a relational database which can be operated as Oracle, Microsoft SQL Server or MySQL system.

> (i) A detailed list of supported operation systems, application servers, database systems, and other systems, as well as storage and CPU requirements is given in the current *System Requirements*.

- **Oracle**
  One database schema with one database user is used by ConSol CM.

- **Microsoft SQL**
  One database schema with one database user is used by ConSol CM.

- **MySQL**
  One database with one database user is used by ConSol CM.

B.1.3 System Architecture with Reporting Infrastructure

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 its 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).

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 (overlay mode) or it can be run on a separate application server (standalone mode). The synchronization of CM data with the DWH is based on direct messaging. For a detailed explanation, please refer to section *Operating the Data Warehouse*.

- **DWH** (data warehouse)

  The ConSol CM DWH is a relational database which can be operated as Oracle, Microsoft SQL Server, or MySQL system. It stores the integrated/pre-processed data from the ConSol CM database. For the configuration of the database connection, please refer to the *ConSol CM Setup Manual,* section *Setting Up the Database for CMRF/ DWH*.

> (i) A detailed list of supported operation systems, application servers, database systems, and other systems, as well as storage and CPU requirements is given in the current *System Requirements*.

Separate application servers for ConSol CM and CMRF (standalone mode):
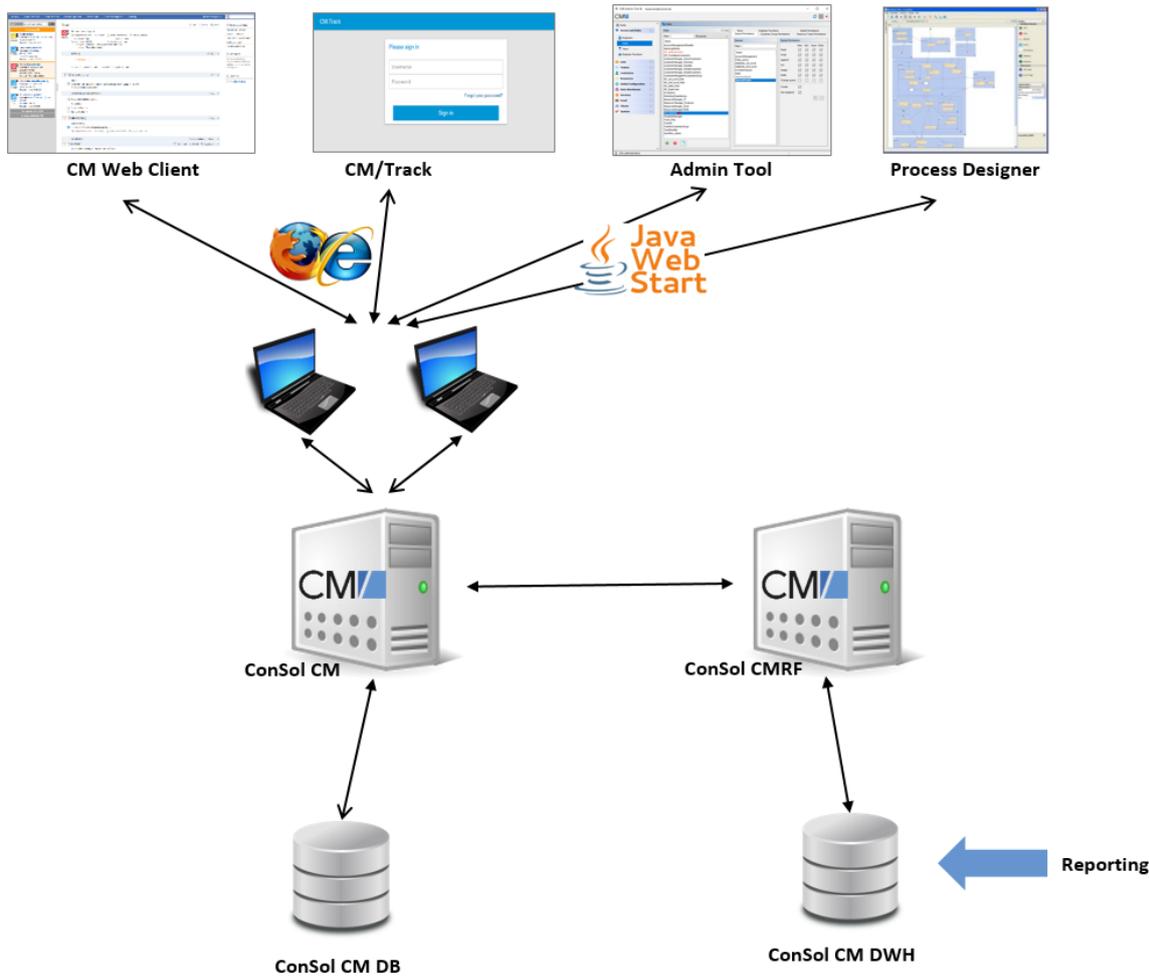
Figure 4: *ConSol CM - Infrastructure with CMRF and DWH (2 servers)*

One application server for ConSol CM and CMRF (overlay mode):
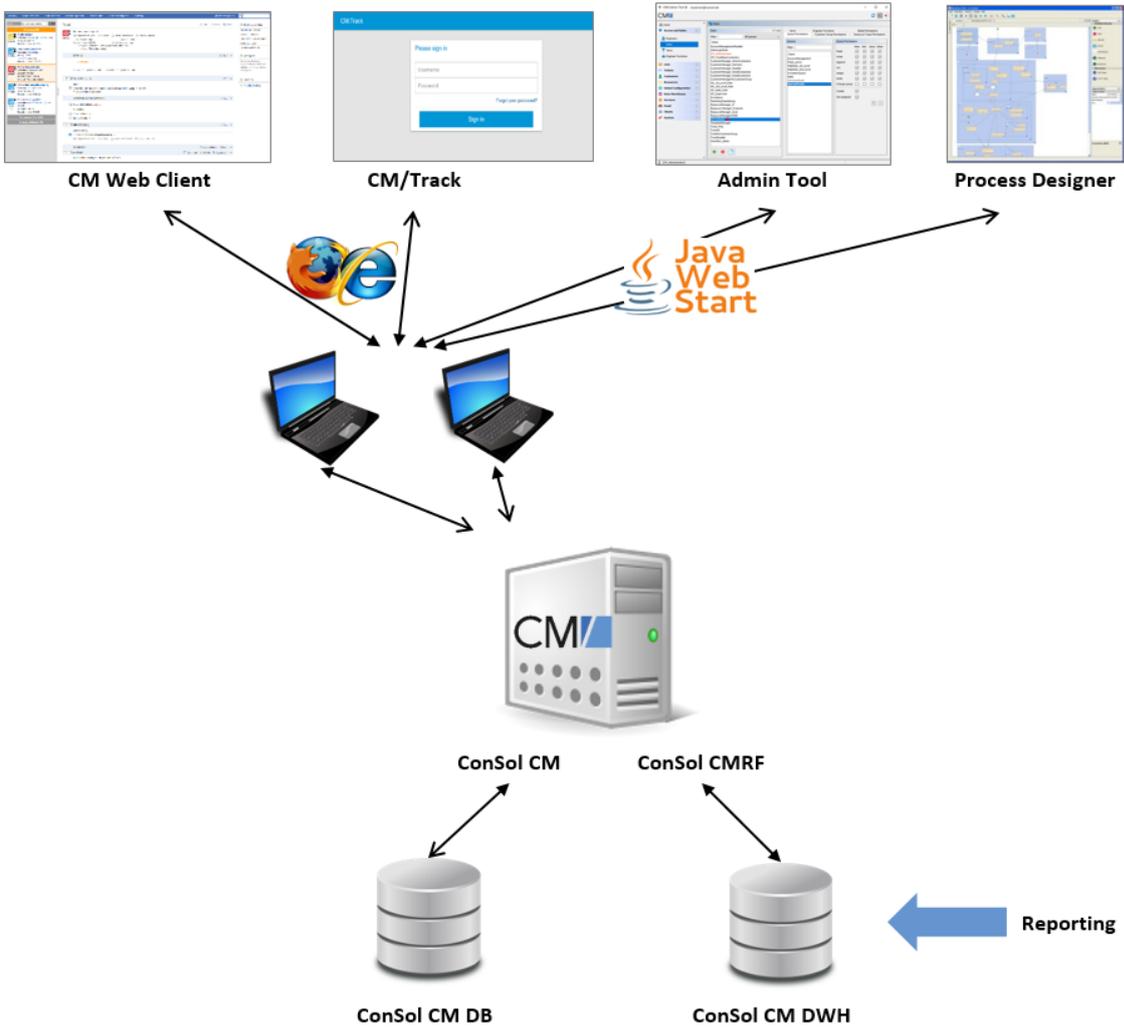
Figure 5: *ConSol CM - Infrastructure with CMRF and DWH (1 server)*

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 the Pentaho^{TM} BI Suite.

For DWH Management from an operator's point of view, please refer to section Operating the Data Warehouse.

Separate application servers for ConSol CM and CMRF (standalone mode):
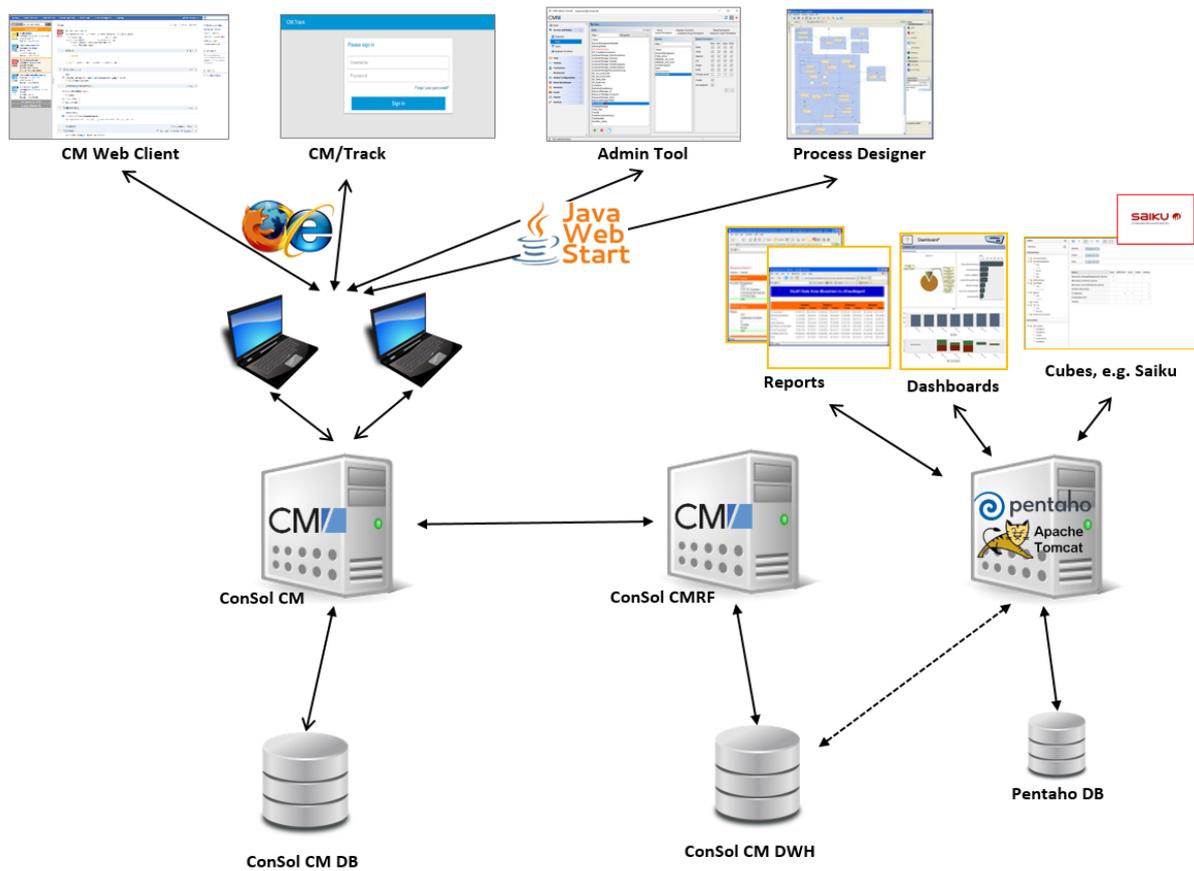
Figure 6: *ConSol CM - Reporting infrastructure (2 servers)*

One application server for ConSol CM and CMRF (overlay mode):
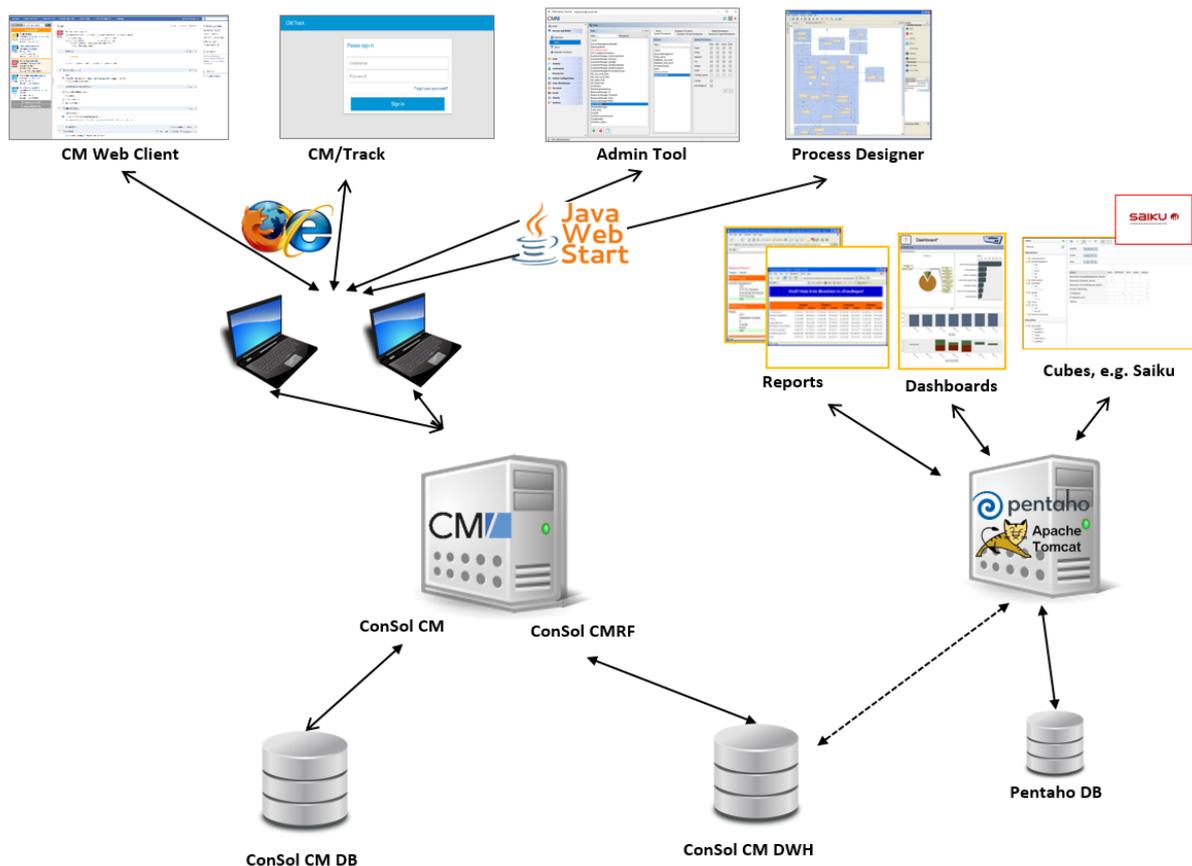
Figure 7: *ConSol CM - Reporting infrastructure (1 server)*

B.1.3.1 DWH Database

- **Oracle**
  One database scheme with one database user is used by the DWH.

- **Microsoft 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.

B.1.4 Components for Email Interactions

One of the core functionalities of ConSol CM is integration with mail servers. This allows ConSol CM to send and to receive emails. For the engineer, this means new tickets can easily be opened via email and the entire communication regarding a case is located in the respective ticket, including all incoming and outgoing emails.

In order to receive emails, ConSol CM connects to a mail server and retrieves emails from one or more mailboxes. ConSol CM acts like a regular email client (e.g., Thunderbird, Microsoft Outlook) and uses standard email protocols like IMAP or POP3. If you want to use the secure version, IMAPs and POPs are also supported, in which case the required certificates have to be installed on the server. For a detailed explanation about how to send encrypted emails with CM, please refer to the *ConSol CM Administrator Manual*, section *Email Encryption*.

> ⓘ Please note that you might be dealing with different types of certificates here.
>
> A certificate which is required to establish the connection between CM and an email server usually has to be placed in the key store of the application server.
>
> Certificates which are required to encrypt emails which are written by the CM engineers using the Web Client have to be managed using the Admin Tool. This is explained in great detail in the *ConSol CM Administrator Manual,* section *Email Encryption*.

In order to send emails, ConSol CM uses an SMTP server.
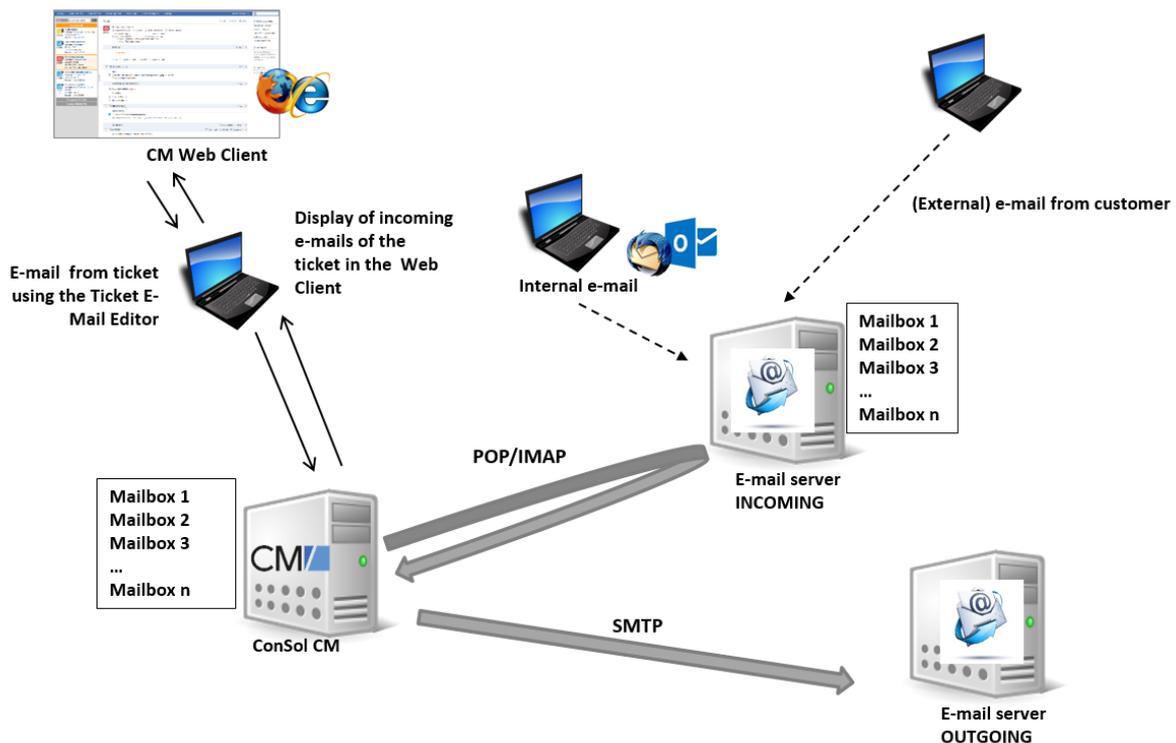
Figure 8: *ConSol CM - Mail server interactions*

Please see also the explanations in the section Email.

B.1.5 Indexer

In order to perform effective searches in the database, ConSol CM builds an index for each ticket field, customer field, and resource field which should be included in a search. Furthermore, the engineer data, the ticket comments and the attachments are indexed by default. The indexes are stored in the file system. Please refer to the section File System Structure for an explanation of the index directory structure, and read the detailed introduction to the entire topic in the section ConSol CM Indexer. The section Operating the Indexer of the current manual treats the topic from a system operator's point of view.

B.1.6 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., Microsoft 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.
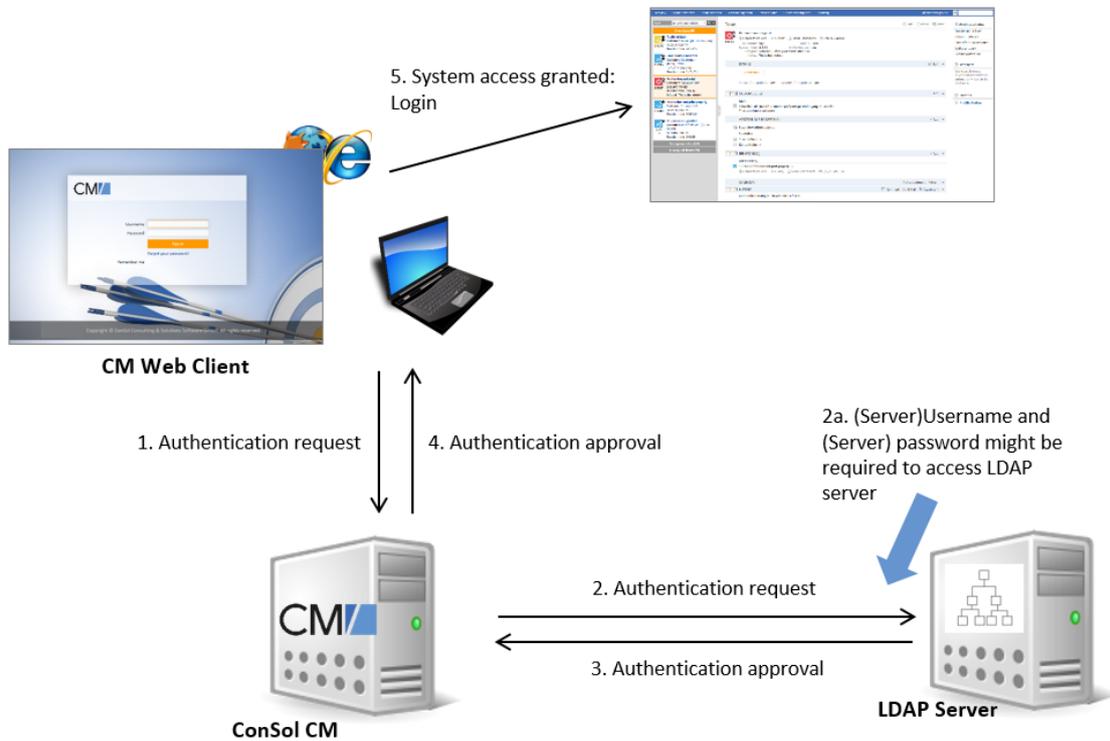
Figure 9: *ConSol CM - LDAP authentication (Web Client)*

B.2 Architecture of the ConSol CM Application

ConSol CM is a Java EE application based on a classical three-tier architecture.
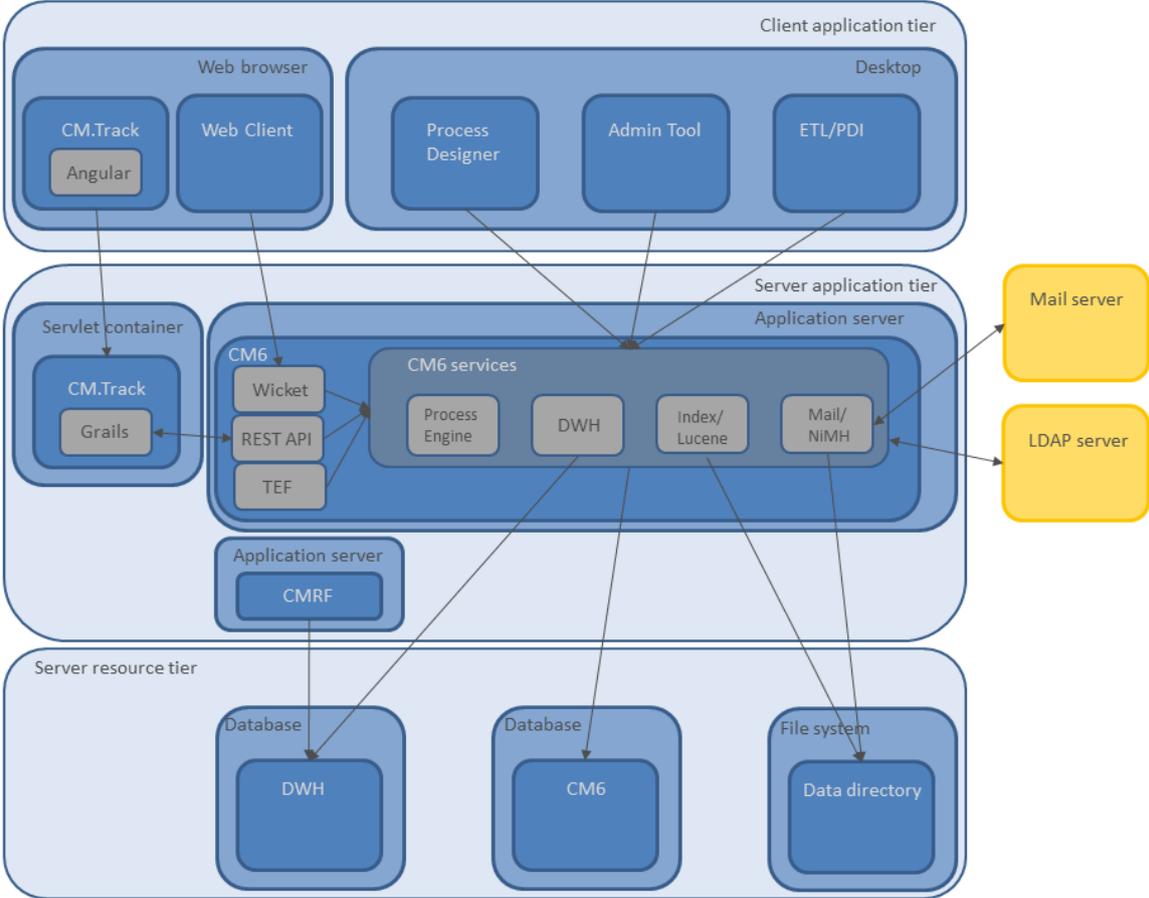
Figure 10: *ConSol CM application architecture*

C - Operating ConSol CM

This section provides information about common tasks concerning the operation of ConSol CM.

- File System Structure
- Starting Up and Shutting Down the Application Server
- Logging and Log Files
- ConSol CM Indexer
- Email
- Introduction to LDAP Authentication

C.1 File System Structure

This chapter describes the file system structure of the application server and the ConSol CM application.

C.1.1 Server

C.1.1.1 ConSol CM Data Directory

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 entered during system setup.

Important directories:

- *index*

  This is the directory where all the indexes are stored (see also section ConSol CM Indexer). Be sure to include it into your regular file system backup.

  > (i) Please note that you cannot just include the index directory in your daily CM backup! Rather you have to use the indexer-specific backup (and restore). Please refer to section Backup and Recovery of the Index.

  - **index.0**
    In this directory, there is a subdirectory for each required index.

> (i) In case units (customer objects) could not be imported during a scene import, there might be .tmp files in the data directory.
>
> Example:

```
-rw-rw-r-- 1                9 Aug 12 16:12 skippedData8260413663331457480.tmp
-rw-rw-r-- 1                9 Aug 13 09:34 skippedData3491415283536838584.tmp
-rw-rw-r-- 1                9 Aug 13 10:30 skippedData13112645567017858763.tmp
-rw-rw-r-- 1                9 Aug 13 11:24 skippedData65177487609575702024.tmp
-rw-rw-r-- 1                9 Aug 13 13:48 skippedData5320447598835774270.tmp
-rw-rw-r-- 1                9 Aug 13 15:05 skippedData48270286694685189877.tmp
-rw-rw-r-- 1                9 Aug 17 10:00 skippedData64903969948302181442.tmp
-rw-rw-r-- 1                9 Aug 25 15:09 skippedData74107761055560129337.tmp
-rw-rw-r-- 1                9 Sep 16 11:13 skippedData41078473958001839516.tmp
-rw-rw-r-- 1                9 Sep 22 17:35 skippedData72674756772904114234.tmp
-rw-rw-r-- 1                9 Sep 23 11:34 skippedData16421194314474300752.tmp
-rw-rw-r-- 1                9 Sep 23 11:38 skippedData14531862296325724377.tmp
```

C.1.1.2 JBoss EAP 6.4 / 7.1.4 Application Server File Structure

In an JBoss EAP installation the following directories are relevant for ConSol CM, among others:

- **modules\system\layers\base**
  Subfolders contain the JDBC drivers:

  - com\microsoft\sqlserver\jdbc\main\sqljdbc4.jar
    (Microsoft 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 standalone environments:

    - **configuration**
Configuration of the DB connection and logging in the file `cm6.xml` or `cm6-cmrf.xml`

    - **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. When JBoss is stopped, it can be emptied, e.g. for error analysis and/or fixing.

- **domain**
Configuration in domain (i.e. multi-server) environments

    - **configuration**
Configuration of the DB connection and logging in the file `domain.xml`

    - **servers/<server-name>**/log
Log files

C.1.1.3 Oracle WebLogic Application Server File Structure

In an Oracle WebLogic environment, ConSol CM is installed as a separate domain. ConSol CM and CMRF are *managed servers*.

Here, only some directories are explained. If you want to administer ConSol CM as a WebLogic application, please also refer to general Weblogic tutorials.

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

Please refer to the section Logging and Log Files.

C.1.2 Client

- **<ENGINEER_HOME_DIR>\.cmas\wfeditorR1\var\log**
  The log output of the Process Designer is written to this file. This is only relevant for engineers who work with the Process Designer.

- **<JAVA_CLIENT_DIR>**
  The directory where the temporary Java cache is stored. This is used, e.g., for the .jnlp downloads of the Admin Tool and the Process Designer application.

C.2 Starting Up and Shutting Down the Application Server

C.2.1 Introduction

ConSol CM can be run on Linux and on Windows systems and is implemented for JBoss and Oracle WebLogic application servers.

> ⓘ A detailed list of supported operation systems, application servers, database systems, and other systems, as well as storage and CPU requirements is given in the current *System Requirements*.

When you deal with starting/stopping ConSol CM, there are two levels which have to be taken into consideration:

1. The basic start/stop (command line) commands which are - in the end - adapted start/stop commands of the respective application server.

2. The integration of these commands into an environment which allows automatic system start/stop, e.g., writing an *init.d* or *systemd* script for a Linux system or configuring CM as a service on a Windows system.

The start and stop scripts (2) are documented in detail in the *ConSol CM Setup Manual*. Here in the current manual, we assume, that you have a ConSol CM system which is up and running and that the application server has to be (re-)started/stopped for some reason. Information is provided about the simple command line parameters which can be used to start/stop the system and about how to work with the start scripts.

> ⓘ In case there is a severe database problem and the RDBMS has to be restarted, stop the ConSol CM system first, then wait until the database system is available again, and then start the ConSol CM application server.

You can find the start and stop commands in the section of the respective application server:

- JBoss
- WebLogic

CM/ is a registered trademark of ConSol Consulting & Solutions Software GmbH

C.2.2 JBoss

This section describes how to start and stop the JBoss application server.

> ⓘ The following section applies to JBoss EAP 6.4 or 7.1.4.

C.2.2.1 JBoss on Windows

Starting JBoss on Windows

Run the following command to start the JBoss server. Alternatively you can configure JBoss to run as a service. Please see the *ConSol CM Setup Manual* for details.

```
<JBOSS_HOME>\bin\standalone.bat --server-config=cm6.xml -b=<CM_HOST_IP>
```

The `server-config` file is:

- **cm6.xml**
  in a CM-only installation
- **cm6-cmrf.xml**
  in a CM environment with CMRF/DWH

Shutting Down JBoss on Windows

Run the following command to stop the JBoss server. Alternatively you can put it into the configuration of the Windows service.

```
<JBOSS_HOME>\bin\jboss-cli.bat --connect --command=:shutdown
```

C.2.2.2 JBoss on Linux

Starting JBoss on Linux

Run the following command to start the JBoss server. Alternatively you can put it into a start script (usually *init.d* or *systemd*). Please see the *ConSol CM Setup Manual* for details.

```
<JBOSS_HOME>/bin/standalone.sh --server-config=cm6.xml -b=<CM_HOST_IP>
```

The `server-config` file is:

- **cm6.xml**
  in a CM-only installation
- **cm6-cmrf.xml**
  in a CM environment with CMRF/DWH

Shutting Down JBoss on Linux

Run the following command to stop the JBoss server. Alternatively you can put it into a stop script (usually *init.d* or *systemd*). Please see the *ConSol CM Setup Manual* for details.

```
<JBOSS_HOME>\bin\jboss-cli.sh --connect --command=:shutdown
```

C.2.2.3 General Configuration

- In case `-b=localhost` or `-b=127.0.0.1` is set as parameter, ConSol CM is only accessible from the same server, where JBoss is running.

- Enter the network IP or the network name to make ConSol CM accessible from outside the sever. In this case ConSol CM URL is not accessible from the inside using the localhost URL.

- If you enter `-b=0.0.0.0` the server is accessible from the outside and inside using the server URL or using the localhost URL (take care of all required security-related precautions!).

The following JAVA_OPTS settings are used by default when setting up a new ConSol CM system.

Default memory configuration for JBoss 6.4 on Java 8 (Xms and Xmx should be set to the same value):

- -Xms4g -Xmx4g -XX:MaxMetaspaceSize=512m

> (i) These parameters are starting parameters for production systems. Depending on the size of the system it might be necessary to adjust them. The following factors are important in this context:
>
> - number of concurrent users
> - amount of tickets, customers, resources
> - amount and size of emails
> - amount and size of attachments
> - size of the index
>
> As an administrator, you need to check the Java heap size and the garbage collection activity using tools like jconsole or jvisualvm. If the heap size is higher than 80 - 90% of the maximum value and the garbage collection runs frequently, you need to increase the memory allocation (Xmx).

The list includes the officially supported default parameters for JBoss 6.4. They should be suitable for most installations.

- -verbose:gc
- -XX:+PrintGCDetails
- -XX:+PrintGCDateStamps
- -XX:+UseGCLogFileRotation
- -XX:NumberOfGCLogFiles=5
- -XX:GCLogFileSize=3M
- -XX:-TraceClassUnloading
- -XX:+UseCompressedOops
- -Djava.net.preferIPv4Stack=true
- -Djboss.modules.policy-permissions=true
- -Djboss.modules.system.pkgs=$JBOSS_MODULES_SYSTEM_PKGS

Depending on the individual usage of the ConSol CM system, some additional settings might be needed. The following list includes settings which are used on some systems. As these settings are not officially supported, please contact your ConSol CM consultant or the ConSol CM support before using them in your production environment.

- -server

- org.apache.tomcat.util.http.Parameters.MAX_COUNT=6000

- org.apache.coyote.http11.Http11Protocol.MAX_HEADER_SIZE=65535

- org.apache.tomcat.util.http.MimeHeaders.MAX_COUNT=200

- com.arjuna.ats.arjuna.allowMultipleLastResources=true

- -Dhttp://apache.org/xml/features/nonvalidating/load-external-dtd=false
  Prevent cross-scripting attacks

- -Djboss.platform.mbeanserver
  Enable the JMX bean server

- -Djgroups.marshalling.compatible=true
  Use old JGroups protocol instead of newer one

- -Dorg.jboss.resolver.warning=true
  Warning when an XML entity is defined as SYSTEM and the protocol is not `file://` or
  `vfsfile://`

- -Dserialization.jboss=false
  Disable JBoss serialization and use standard Java serialization instead

- -Dsun.rmi.dgc.client.gcInterval=3600000

- -XX:+UseParallelOldGC
  Use the old garbage collection or any better matching garbage collection depending on your
  requirements.

- -XX:+HeapDumpOnOutOfMemoryError

- -XX:HeapDumpPath=/some/path
  Use a path, you cannot use a file here

- -Xloggc:some/path/based/on/JbossRoot/log/gc-%t.log

- -XX:ReservedCodeCacheSize=150m

- -XX:CompressedClassSpaceSize=128m

When the server is started the following message is displayed in the `server.log` file:

```
2017-10-02 09:12:17,180 INFO [e.coyote.http11.Http11Protocol] [-] JBWEB003001:
 Coyote HTTP/1.1 initializing on : http-0.0.0.0:8480
2017-10-02 09:12:17,193 INFO [e.coyote.http11.Http11Protocol] [-] JBWEB003000:
 Coyote HTTP/1.1 starting on: http-0.0.0.0:8480
2017-10-02 09:12:18,148 INFO [ org.jboss.as.remoting] [-] JBAS017100: Listening on
 127.0.0.1:10399
2017-10-02 09:12:21,034 INFO [ org.jboss.as.remoting] [-] JBAS017100: Listening on
 0.0.0.0:4847
```

C.2.3 WebLogic

There are three servers which have to be started:

- Node Manager
- Admin Server
- Managed Server

C.2.3.1 Node Manager

Start the WebLogic Node Manager with:

```
<WEBLOGIC_HOME>/user_projects/domains/<WL_DOMAIN>/bin/startNodeManager.sh
```

Code example 1: *Linux*

```
<WEBLOGIC_HOME>\user_projects\domains\<WL_DOMAIN>\bin\startNodeManager.cmd
```

Code example 2: *Windows*

C.2.3.2 Admin Server

During startup, the WebLogic server prompts for the admin user name and password.

If you chose *production mode* during the setup and you do not want to type the WebLogic admin user and password during Admin Server startup, do the following:

Linux

1. Go to the domain folder (chosen during setup) and edit the Admin Server start file

   `<WEBLOGIC_HOME>/user_projects/domains/<WEBLOGIC_DOMAIN>/startWebLogic.sh`

2. Add the two lines beginning with export and replace <ADMIN_USER> and <ADMIN_PASSWORD> with the administrator user name and password which were set during the install-ation.

   ```
   #!/bin/sh
   # WARNING: This file is created by the Configuration Wizard.
   # Any changes to this script may be lost when adding extensions to this
     configuration.
   export WLS_USER=<ADMIN_USER>
   export WLS_PW=<ADMIN_PASSWORD>
   DOMAIN_HOME="<WEBLOGIC_HOME>/user_projects/domains/<WEBLOGIC_DOMAIN>"
   ${DOMAIN_HOME}/bin/startWebLogic.sh $*
   ```

   > ⓘ Note that changes in this file can be overwritten by the WebLogic Configuration Wiz-ard. Back up this file before using the Configuration Wizard.

3. Go to the directory of `startWeblogic.sh` (`<WEBLOGIC_HOME>/user_`

projects/domains/<WEBLOGIC_DOMAIN>/startWebLogic.sh). Start the Admin Server

```
sh startWebLogic.sh
```

Windows

1. Search domain folder (chosen during setup) and edit Admin Server start file

   <WEBLOGIC_HOME>\user_projects\domains\<WEBLOGIC_DOMAIN>\startWebLogic.cmd

2. Add the following two lines below the line with SETLOCAL, and replace <ADMIN_USER> and <ADMIN_PASSWORD> with the administrator user name and password which were set during the installation.

```
set WLS_USER=<ADMIN_USER>
set WLS_PW=<ADMIN_PASSWORD>
```

> (i) Note that changes in this file can be overwritten by the WebLogic Configuration Wizard. Back up this file before using the Configuration Wizard. This is a password in plain text! This should not be used in production environments!

3. Start the Admin Server with:

```
<WEBLOGIC_HOME>\user_projects\domains\<WEBLOGIC_DOMAIN>\startWebLogic.cmd
```

C.2.3.3 Managed Server

1. Log in to the WebLogic Administration Console with the following URL:

```
http://localhost:7001/console
```

   You have to enter the user name and password.

2. Go to *Environment -> Servers* and select the *Control* tab.

3. Select the checkbox of the managed server running CM (by default *CM_ManagedServer_1*) and click *Start* to start the server. Confirm the server start with *Yes*. The server status changes to *STARTING*.

C.3 Logging and Log Files

C.3.1 Introduction

Log files are the main information source for the administrator about the activities of the system and potential problems of the system. The administrator should have a look at the log files on a regular basis. There may be problems that do not appear on the user interface, but are reported in the log file. Log files can also be an important component in System Monitoring.

The standard path for the log files is:

- **JBoss**: <JBOSS_HOME>/standalone/log
- **WebLogic**: <WEBLOGIC_HOME>\user_projects\domains\<WEBLOGIC_DOMAIN>\cm-logs

C.3.2 Log Files

The location of the log files and the logging behavior can be configured in the respective .xml files:

- **log4j.xml**
  (in WebLogic, where *Log4J* is used as logging framework)
- **cm6.xml** or **cm6-cmrf.xml**
  (in JBoss EAP 6.4 / 7.1.4 standalone, where the built-in logging module of JBoss is used)
- **domain.xml**, tag <subsystem xmlns="urn:jboss:domain:logging:1.3">
  (in JBoss EAP 6.4 / 7.1.4 in domain mode, where the built-in logging module of JBoss is used)

> (i) **Remark concerning Microsoft Windows systems:**
>
> On a Microsoft Windows system the application server holds a file system lock on the current log file. In consequence it is not possible to open the file with the usual on board editor word-pad.exe, which itself wants to place a lock. You have to create a copy to open it in WordPad. We recommend to use a third party editor which does not place locks on the edited files.

C.3.3 Log File Types

The following log files are used:

- **access.log**
  Access to and usage of the Web Client is logged. In the current configuration, a separate `access.log` file is written every day.

> **ⓘ Config info: How to activate the access.log**
>
> In a default installation, the following lines in the configuration file, cm6.xml or cm6-cmrf.xml, are commented out. By commenting them in, you can start access logging in your ConSol CM system.
>
> ```
> <subsystem xmlns="urn:jboss:domain:web:1.5" default-
>   virtualserver="default-host" native="false">
>     <connector name="http" protocol="HTTP/1.1" scheme="http"
>      socketbinding="http"/>
>     <virtual-server name="default-host" enable-welcome-root="false">
>         <alias name="localhost"/>
>           <!--<access-log pattern='%h %l %u %t %r %s %b %{Referer}i %
>           {User-Agent}i %S %T'>-->
>             <!--<directory path="./" relative-
>              to="jboss.server.log.dir"/>-->
>         <!--</access-log>-->
>     </virtual-server>
> </subsystem>
> ```

- **cmrf.log**
  Messages pertaining to CMRF (ConSol CM Reporting Framework), i.e., messages regarding the data transfer operations from the ConSol CM database to the CMRF database (DWH).

- **cmweb.log**
  Messages pertaining to the ConSol CM Web Client.

- **ctx.log**
  Contains messages from the Spring Framework.

- **errors.log**
  Contains only messages that have at least the log level ERROR.

- **index.log**
  Messages pertaining to the Indexer.

- **mail.log**
  Contains log messages from the email subsystem.

- **operationtimes.log**
  Only used when it has been enabled. Contains timing information for requests in order to identify possible performance bottlenecks.

> ℹ **Config info: How to produce good output in operationtimes.log**
>
> In order to produce concise and informative output in this log file, the respective ConSol CM module has to be run in DEBUG mode. Please see configuration examples in the following code snippets.
>
> JBoss configuration:
>
> ```xml
> <!-- JBoss7, add these parts to your cm6.xml or cm6-cmrf.xml file -->
> <size-rotating-file-handler name="OPERATION_TIMES" autoflush="true">
>     <file relative-to="jboss.server.log.dir"
>      path="operationtimes.log"/>
>     <append value="true"/>
>     <rotate-size value="300m"/>
>     <max-backup-index value="6"/>
>     <formatter>
>        <pattern-formatter pattern="%d %-5.5p [%30.-30c] [%X{username}-%X
>          {sessionId}] %m%n"/>
>     </formatter>
> </size-rotating-file-handler>
>
> <logger
>  category="com.consol.cmweb.client.webapp.timemeasure.log.Log4jOperati
>  onLogger">
>     <level name="DEBUG"/>
>     <handlers>
>        <handler name="OPERATION_TIMES"/>
>     </handlers>
> </logger>
> ```

> **ⓘ** Oracle Weblogic Server configuration:
>
> ```xml
> <!-- Oracle WLS -->
> <appender name="OPERATION_TIMES" class="
>  org.apache.log4j.RollingFileAppender">
>    <errorHandler class="
>     org.apache.log4j.helpers.OnlyOnceErrorHandler"/>
>    <param name="File" value=" @DOMAIN_HOME/cm-
>     logs/operationtimes.log"/>
>    <param name="Append" value="true"/> <param name="MaxFileSize"
>     value="500MB"/>
>    <param name="MaxBackupIndex" value="6"/>
>    <layout class="org.apache.log4j.PatternLayout">
>        <param name="ConversionPattern" value="%m\n"/>
>    </layout>
> </appender>
>
> <logger
>  name="com.consol.cmweb.client.webapp.timemeasure.log.Log4jOperationLo
>  gger">
>    <level value="DEBUG"/> <appender-ref ref="OPERATION_TIMES"/>
> </logger>
> ```

- **operationtimes-db.log**
  Contains information about database access times of atomic operations in order to identify possible performance bottlenecks. This logging is configured using the ConSol CM system properties cmas-core-server, dao.log.threshold.milliseconds and cmas-core-server, dao.log.username.

> ⓘ **Config info: How to activate operationtimes-db.log after an update to 6.11.1.0**
> Insert the following line into the configuration file `cm6.xml` or `cm6-cmrf.xml` at the correct locations. If you are not familiar with the logging configuration, ask your
> CM consultant for help!
>
> ```
> <subsystem xmlns="urn:jboss:domain:logging:1.5">
> [...]
> <size-rotating-file-handler name="DAO_OPERATIONS_LOG"
>   autoflush="true">
>     <level name="DEBUG"/>
>     <formatter>
>        <pattern-formatter pattern="%d %-5.5p [%30.-30c] [%X{context}-%X
>          {sessionId}] %m%n"/>
>     </formatter>
>     <file relative-to="jboss.server.log.dir" path="operationtimes-
>      db.log"/>
>     <rotate-size value="300m"/>
>     <max-backup-index value="6"/>
>     <append value="true"/>
> </size-rotating-file-handler>
> [...]
> <logger
>   category="com.consol.cmas.core.server.service.aspect.DaoMetricsAspec
>   t" use-parent-handlers="false">
> <level name="TRACE"/>
>     <handlers>
>        <handler name="DAO_OPERATIONS_LOG"/>
>     </handlers>
> </logger>
> ```

- **server.log**
  The general log file that contains all messages, by default, with at least 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 ConSol 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.

- **unit-deletion.log**
  Contains information regarding the deletion of customers.

- **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.

C.3.3.1 Admin Tool-Specific Log Files

Two log files report information which are specific for the Admin Tool. The CM logging configuration might have to be adapted during a system update from a CM version lower than 6.11 to 6.11.

- **audit.log**
  Available in ConSol CM versions 6.11 and up. In new 6.11 installations, the log file will be present automatically. If a system is updated from a CM version lower than 6.11, the respective configuration for the logger has to be entered into the configuration file (`cm6.xml` or `cm6-cmrf.xml`). Please see config info #1.

  - Reports login/logout operation and all operations which have been made using the Admin Tool:

    - configuration changes

    - creation of new objects

    - deletion of objects

    - reopening of tickets

  - Reports login/logout operation and operations which have been performed using the Process Designer, e.g.,

    - deployment of a workflow

- **transfer.log**
  Available in ConSol CM versions 6.11 and up. In new 6.11 installations, the log file will be present automatically. If a system is updated from a CM version lower than 6.11, the respective configuration for the logger has to be entered into the configuration file (`cm6.xml` or `cm6-cmrf.xml`). Please see config info #2.

  - Reports information about export / import of scenarios.

> ⓘ **Config info #1: How to integrate audit.log into the CM configuration. Only required for updates from CM version older than 6.11 to 6.11.**
>
> Insert the following line into the configuration file `cm6.xml` or `cm6-cmrf.xml` at the correct locations. If you are not familiar with the logging configuration, ask your CM consultant for help!
>
> ```xml
> <size-rotating-file-handler name="AUDIT" autoflush="true">
>    <file relative-to="jboss.server.log.dir" path="audit.log"/>
>    <append value="true"/>
>    <rotate-size value="300m"/>
>    <max-backup-index value="6"/>
>    <formatter>
>       <pattern-formatter pattern="%d %-5.5p [%30.-30c] [%X{username}-%X
>         {context}-%X{sessionId}] %m%n"/>
>    </formatter>
>
>
> </size-rotating-file-handler>
> <logger
>  category="com.consol.cmas.core.server.history.method.MethodExecutionJourna
>  lAspect" use-parent-handlers="false">
>    <level name="TRACE"/>
>    <handlers>
>       <handler name="AUDIT"/>
>    </handlers>
> </logger>
> ```

> ⓘ **Config info #2: How to integrate transfer.log into the CM configuration. Only required for updates from CM version older than 6.11 to 6.11.**
>
> Insert the following line into the configuration file `cm6.xml` or `cm6-cmrf.xml` at the correct locations. If you are not familiar with the logging configuration, ask your CM consultant for help!
>
> ```xml
> <size-rotating-file-handler name="TRANSFER_FILE" autoflush="true">
>    <file relative-to="jboss.server.log.dir" path="transfer.log"/>
>    <append value="true"/>
>    <rotate-size value="300m"/>
>    <max-backup-index value="6"/>
>    <formatter>
>       <pattern-formatter pattern="%d %-5.5p [%X{username}-%X{context}-%X
>         {sessionId}] %m%n"/>
>    </formatter>
> </size-rotating-file-handler>
>
>
> <logger category="TRANSFER" use-parent-handlers="false">
>    <level name="INFO"/>
>    <handlers>
>       <handler name="TRANSFER_FILE"/>
>    </handlers>
> </logger>
> ```

C.3.4 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):

```
2017-10-11 13:52:44,526 INFO [reemarker.FreeMarkerConfigurer] [-]
  ClassTemplateLoader for Spring macros added to FreeMarker configuration
```

The components of the message:

- **Date:**
  October 11th, 2017

- **Timestamp:**
  13:52:44

- **Loglevel:**
  INFO

- **Logger:**
  reemarker.FreeMarkerConfigurer
  Name of a Java class, not complete (only last 30 characters), the real name would be Free-marker.FreeMarkerConfigurer

- **Message:**
  ClassTemplateLoader for Spring macros added to FreeMarker configuration

Simple messages, and those reporting a successful operation, often have only one line.

When errors are reported (log level ERROR), you might find stack traces in the logs. Please contact one of our **ConSol CM** consultants or our **ConSol CM** support team for help.

C.3.5 Using Log Levels for Troubleshooting

Sometimes, the pre-defined error levels of the entries in a log file do not produce helpful output, i.e., the information you receive from the log file is not sufficient to help you find the error cause. In this case, you can modify the error level of one or more loggers, e.g., to "DEBUG".

Please note that in scripts the debug mode has to be switched on explicitly, i.e., the correct code is required, see section Logging DEBUG Messages.

Do not forget to turn the error level back to "INFO" after the error analysis, otherwise your log files might get too big and might fill up the server hard disk.

> (i) **Log4j:**
>
> Note that changing the log level does not require a server restart. The change in the log4j configuration only takes some minutes to become active.

C.3.6 Using Logging in Scripts

The following statements can be used to write log information to the `server.log` file. This works in workflow scripts as well as in Admin Tool scripts.

```
println 'This is my debug message.'
```

```
println("This is my debug message.")
```

```
log.info("This is my debug message.")
```

```
log.info "This is my debug message."
```

> ⚠️ In a WebLogic system, usually the `log.info` statement has to be used. The `println` might not work.

> ℹ️ Please note that we recommend to work with the log methods instead of `println`, because
> - the log level can be defined. Besides `log.info`, you might want to use `log.warn`, `log.error` or other levels.
> - the name of the script which produces the entry is written into the log file. This does not happen if you work with `println`.

C.3.6.1 Logging DEBUG Messages

"DEBUG" messages will only appear in the log file when the *log4j* configuration is changed. When logging "DEBUG" messages, make sure to check whether debugging is switched on to avoid unnecessary operations:

```
if (log.isDebugEnabled()) {
   log.debug("Processing ticket ${ticket.name}")
}
```

C.3.7 Configuring the Log Files in JBoss

> (i) The following section applies to JBoss EAP 6.4 or 7.1.4.

In JBoss, the configuration of the logging subsystem is done in one of the following files, depending on the infrastructure of your CM system:

- **ConSol CM only:**
  <JBOSS_HOME>standalone/configuration/cm6.xml

- **ConSol CM with CMRF/DWH:**
  <JBOSS_HOME>standalone/configuration/cm6-cmrf.xml

Usually, you do not have to change any log settings as ConSol CM comes with a pre-configured logging subsystem. However, if you really want to change settings: a good introduction into the JBoss EAP logging system is provided on the Red Hat page about JBoss EAP (see The Logging Subsystem).

For configuring the logging behavior, the following section of the config file is relevant:

```
<subsystem xmlns="urn:jboss:domain:logging:1.3">
```

Within the section of this subsystem, the file handlers are defined, each in a separate subsection. Size-rotating file handlers are used with six copies by default.

Here are two examples (`server.log` and `cmweb.log`):

```
<size-rotating-file-handler name="FILE" autoflush="true">
   <file relative-to="jboss.server.log.dir" path="server.log"/>
   <append value="true"/>
   <level name="INFO"/>
   <rotate-size value="300m"/>
   <max-backup-index value="6"/>
   <formatter>
     <pattern-formatter pattern="%d %-5.5p [%30.-30c] [%X{username}-%X{sessionId}]
       %m%n"/>
   </formatter>
</size-rotating-file-handler>

<size-rotating-file-handler name="CMWEB_FILE" autoflush="true">
   <file relative-to="jboss.server.log.dir" path="cmweb.log"/>
   <append value="true"/>
   <rotate-size value="300m"/>
   <max-backup-index value="6"/>
   <formatter>
     <pattern-formatter pattern="%d %-5.5p [%30.-30c] [%X{username}-%X{sessionId}]
       %m%n"/>
   </formatter>
</size-rotating-file-handler>
```

If you ...

- want to change the size of the single log files:
  → Change the value (in MB) of the parameter `rotate-size value`.

- want to change the pattern for the log file entries:
  → Change the `pattern-formatter pattern`.

- want to change the number of copies (versions) which are saved:
  → Change the value of the parameter `max-backup-index value`.

In the logger section, the target file and log level for each logger are configured, for example:

```
<logger category="com.consol.cmrf">
   <level name="INFO"/>
   <handlers>
      <handler name="CMRF_FILE"/>
      <handler name="ERROR_FILE"/>
   </handlers>
</logger>
```

This means, the logger for classes belonging to `com.consol.cmrf` writes into two files: `CMRF-FILE` and `ERROR_FILE`. Both have been defined in the subsystem, file handler section above.

If you ...

- want to debug a certain module:
  → Change the log level from "INFO", e.g., to "DEBUG" for debugging. Do not forget to set it back to "INFO" afterwards to avoid writing too many log lines in standard operation mode.

C.3.8 Configuring the Log Files Using Log4j (WebLogic)

The logging functionality in ConSol CM (WebLogic) is based on *log4j*, a logging framework which is run as a project by the Apache foundation. For detailed information, please refer to the original website under log4j.

The main configuration file of *log4j* is an XML-based text file which is stored under the following path in the application server directory:

- <WEBLOGIC_HOME>\domains\<WEBLOGIC_DOMAIN>\log4j.xml

C.3.8.1 Structure of Log4j XML File

Appender Section

In the first section, appenders are defined, i.e., the handles which are used for writing the log files, e.g.:

```xml
<!-- File appender for the server log -->
<appender name="FILE" class="org.apache.log4j.RollingFileAppender">
    <errorHandler class="org.apache.log4j.helpers.OnlyOnceErrorHandler"/>
    <param name="File" value="$/home/weblogic/user_projects/domains/consolcm6_
      domain/cm-logs/server.log"/>
    <param name="datePattern" value="'_'dd-MM-yyyy'.log'" />
    <param name="Append" value="true"/>
    <param name="Threshold" value="INFO"/>
    <param name="MaxFileSize" value="300MB"/>
    <param name="MaxBackupIndex" value="6"/>
    <layout class="org.apache.log4j.PatternLayout">
        <param name="ConversionPattern" value="%d{ISO8601} %-5.5p [%-30.30c] [%X
          {username}-%X{sessionId}] %m\n"/>
    </layout>
</appender>
```

Some parameters are very important here:

- **appender name="FILE"**
  The name of the appender is the reference which is used in other sections of the configuration file.

- **class="org.apache.log4j.RollingFileAppender"**
  The class defines the behavior of the appender. A rolling file appender includes the implementation of a simple round-robin mechanism for log files, so that the unlimited growth of the server log is prevented. An alternative value might be
  org.apache.log4j.DailyRollingFileAppender, which back ups automatically the file at the end of the day and starts a new file for the next day.

- **param name="File" value="$/home/weblogic/user_projects/domains/consolcm6_ domain/cm-logs/server.log"**
  The location and name of the log file.

- **param name="datePattern" value="'_'dd-MM-yyyy'.log'"**
  Determines the pattern that is used to name the daily backup files (required only for DailyRollingFileAppender).

- **param name="Threshold" value="INFO"**
  This is the log level, possible levels are "TRACE", "DEBUG", "INFO", "WARN", "ERROR", "ALL", or "OFF".

- **param name="MaxFileSize" value="300MB"**
  The maximum file size for this log file. When this limit has been reached, a new log file is started (required only for `RollingFileAppender`).

- **param name="MaxBackupIndex" value="6"**
  The maximum number of log files of this type that is kept during the round-robin process. In the example, the 7th log file would be the oldest and would be deleted (required only for `RollingFileAppender`).

ConSol CM-Specific Section <!-- CM -->

In the following, CM-specific log parameters are defined. The first part of the section consists of `<logger\>` paragraphs. Simplified we may say that the `logger name` defines the input channel and the `appender-ref` defines the output channel of the defined log entries.

Some definitions contain a name which indicates a node in the Java class hierarchy. In this case, the definitions (often: the log level) are valid for all log definitions of subclasses/packages in the class hierarchy and can be overwritten by more specific entries for one or more sublevels.

- **logger name="org.hibernate"**
  The following definitions are valid for all subclasses and packages of `org.hibernate`:

  ```
  <logger name="org.hibernate">
     <level value="INFO"/>
  </logger>
  ```

- **logger name="org.hibernate.util"**
  For the subclass/package `org.hibernate.util` the parameter of `org.hibernate` is overwritten.

  ```
  <logger name="org.hibernate.util">
     <level value="ERROR"/>
  </logger>
  ```

Another example:

```
<!-- CM/Web -->
   <logger name="com.consol.cmweb">
     <level value="INFO"/>
     <appender-ref ref="CMWEB_FILE"/>
     <appender-ref ref="ERROR_FILE"/>
   </logger>
```

- **<!-- CM/Web -->**
  The explanation of the section.

- **logger name="com.consol.cmweb"**
  The name of the Java packages for which this logger is defined.

- **appender-ref ref="CMWEB_FILE"**
  An appender to which the log messages should be written. The appender has been defined in the previous section.

- **appender-ref ref="ERROR_FILE"**
  Another appender to which the log messages should be written. The appender has been defined in the previous section.

In the following sections of the *log4j* configuration file, highly specific ConSol CM logging parameters are defined. If you would like to work with this parameters, please ask a ConSol CM consultant for help.

C.4 ConSol CM Indexer

C.4.1 Introduction

ConSol CM stores most of its data in a relational database. In order to improve the performance of search operations, **ConSol CM** uses **Apache Lucene** indices. For each data field that should serve as search criterion, an index is created. The ConSol CM module which creates and manages the indices is called the **CM Indexer**. The indexes are stored on the file system, in a subdirectory of the data directory that was indicated during system setup. The path of the data directory is stored as a CM system property: cmas-core-shared, data.directory.

C.4.2 Indexer Data Directory

The data directory is specified during system setup. All subdirectories are created automatically by ConSol CM. Please also see section ConSol CM Data Directory.

Please make sure that …

- the data directory is always available for the ConSol CM server system if it was created on another server and is linked to (or mounted on) the application server.
- the data directory provides enough space for storing indexes.

If the index directory should be corrupted or the index is not available, it can be rebuilt or repaired. Please see the following sections for details.

C.4.3 Indexer Services

For indexing, two ConSol CM services are important:

- **Index changes notifier**
  This service creates messages in the persistent store with notifications when changes occur that concern the index.
  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 (cmas-core-index-common, index.status) to "RED", i.e., signal that index needs full synchronization. Please see also section Checking the Status of the Indexer.

- **Index changes receiver**
  The behavior of this service differs depending on the type of node it is running on:
    - On a master node, the *index changes receiver* loads tickets and creates the respective Lucene documents.
    - On a slave node (possible in a cluster only), it polls the master indexing server via http to download the Lucene files with the indexed data.
    - In any case, this service reads the persistent store and starts the update of the Indexer. Stopping *index changes receiver* is safe. After restart it will pick up all of the missing changes from the persistent store.

The services can be started/stopped using the Admin Tool. For details, please refer to the *ConSol CM Administrator Manual*, section *Services*.

C.4.4 System Properties for the Indexer

There are several system properties which are used to configure the indexer. Please see Indexer for a list of the most important ones.

C.4.5 Indexer Update

> ℹ️ This section describes the use of the indexer in a single-server environment. Please contact the ConSol CM support or your ConSol CM consultant for information about the indexer in a cluster.
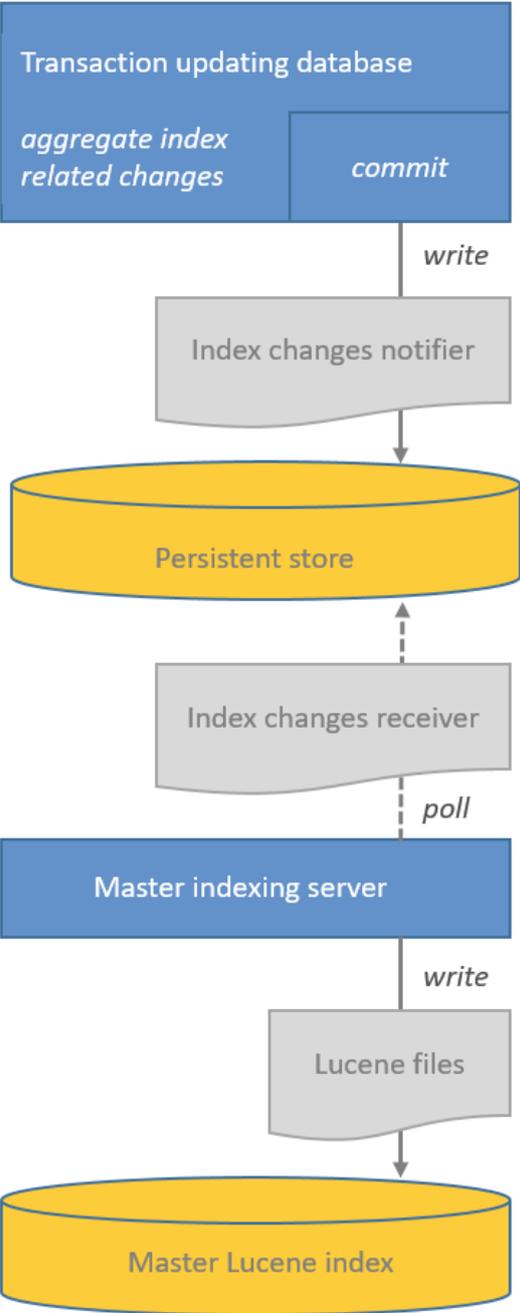
Figure 11: *Indexer architecture in a single-server environment*

C.4.5.1 Changes which Require Index Updates

There are two kind of changes relevant for the indexer:

- **Operative changes**

  These are changes to the following content:

  - **Data field values:** values of fields (ticket, customer and resource fields) which are configured for indexing using the `field-indexed` annotation

  - **Engineer data:** email, first name, last name

  - **Ticket data:** attachments (unless configured otherwise), creation date, engineer, history, name, queue, referenced engineers, subject, view

  The index is automatically updated (triggered by the service `Index changes notifier`) when these changes are carried out.

- **Administrative changes**

  These are changes of certain configuration parameters:

  - scopes

  - queues

  - enum values

  - ticket functions

  - ticket engineers

  - supported locales

  - roles

  - `field-indexed` annotation of ticket, customer or resource fields

  The processing of administrative changes depends on the option *No automatic commit of administrative changes*:

  - If it is not checked, the changes are processed automatically.

  - If it is checked, the changes are stored in the table `cmas_index_administrative_task` for deferred processing. Processing can be started by clicking the *Commit administrative changes* button in the Admin Tool.

> (i) **For experienced administrators only:**
>
> The operation *Commit administrative changes* can also be executed using the ConSol CM MBean `consol.cmas.admin.global.core.indexManagement`, method `commitAdministrativeChanges()`. You can use graphical tools like JConsole or use a command, e.g. with REST and Jolokia. If you need help with this topic, please ask your ConSol CM consultant.

The indexer stores entities which require an index update in a persistent store. Starting from ConSol CM version 6.12.0, the database table `cmas_index_update_serialized` is used as a persistent store.

C.4.5.2 Indexer Update Principle (Single-Server Environments)

The `Index changes receiver` on the **indexing server** polls the persistent store for new entries. If there are new entries, indexer tasks are created in the tables `cmas_index_update_task` and `cmas_index_update_part`. The indexing server then executes the tasks from `cmas_index_update_task` and `cmas_index_batch_update_task`. In this way, the index is updated.

On the indexing server, administrative tasks are stored in the database table `cmas_index_administrative_task`.

ⓘ Please note that data in the index is always synchronized with the ConSol CM database, i.e. during an index update no data is deleted/removed from the index files. The index is fully usable during the synchronization process, i.e. the search operations (Detailed Search as well as Quick Search) can be used with their full functionality and the complete data set. Changes made after the synchronization was started are immediately reflected in the index, because these data have a higher priority than the data which is synchronized due to an index update triggered manually using the Admin Tool.

When an admin has started the index update manually (*Synchronize index*), all other index tasks are removed, before this update starts.

C.4.5.3 Failure of Update Task

Failed execution of the `cmas_index_update_task` will create a new task `cmas_index_update_task` with type `REPAIR`. Such task will wait for the administrator to run via the Admin Tool, navigation group *Services*, navigation item *Index -> Repair index*. Repair task existence will set the "YELLOW" index status configuration property. This can also be used for monitoring of the Indexer, please see section Checking the Status of the Indexer.

C.4.6 Operating the Indexer

> (i) This section describes the use of the indexer in a single-server environment. Please contact the ConSol CM support or your ConSol CM consultant for information about the indexer in a cluster.

C.4.6.1 Indexer Directory Structure

The data directory is set using the CM system property cmas-core-shared, data.directory. Please see section ConSol CM Data Directory for information about the structure and content of the index directory.

C.4.6.2 Monitoring the Indexer

This is treated in the section Checking the Status of the Indexer.

C.4.6.3 Backup and Recovery of the Index

All ConSol CM indices are stored on the file system. However, you cannot just go ahead and copy the files and directories during system operation, because this might lead to inconsistent states (e.g., .lock files are used). That means, in order to make a backup of the CM indices, you have to follow some basic principles. Here we offer you a backup concept.

Index Backup

The correct way is to use the following HTTP request using basic authentication for global admin:

```
wget http://${indexing.master.host:port}/index/snapshot --user ${admin} --password
  ${password} -Obackup.jar
```

This will download the full index into a backup.jar file. The received full snapshot will have the timestamp of the moment when the command was executed. Please see the following code block for an example of the file content.

```
unzip -l backup.jar
Archive:  backup.jar
  Length      Date      Time    Name
---------  ---------- ----- ----
      158  2012-08-23 11:09  META-INF/...
     7739  2012-08-23 11:09  ticket/_82.fdt
      280  2012-08-23 11:09  ticket/segments_7y
    12293  2012-08-23 11:09  ticket/_82.frq
      123  2012-08-23 11:09  ticket/_82.nrm
    10577  2012-08-23 11:09  ticket/_82.prx
    21624  2012-08-23 11:09  ticket/_82.tis
     1366  2012-08-23 11:09  ticket/_82.fnm
      956  2012-08-23 11:09  ticket/_82.fdx
      308  2012-08-23 11:09  ticket/_82.tii
           2012-08-23 11:09  unit/...
           2012-08-23 11:09  engineer/...
---------                    -------
    84070                    49 files
```

Index Restore

In order to recover/restore, e.g., a corrupted ticket index you have to:

- Stop the CM master indexing server (the CM server has to be stopped, not only the Indexer services).

- Clean the master indexing server directory `<CMAS_DATADIR>/index/index.${number}/ticket/`.

- Clean the master indexing server directory `<CMAS_DATADIR>/index/index.${number}/ticket.uuid/`.

- Unpack the `backup.jar/ticket/*` files into the master indexing server directory `<CMAS_DATADIR>/index/index.${number}/ticket/`.

- Restart the CM master indexing server (the CM server has to be restarted, not only the Indexer services).

In a cluster environment, the master indexing server will automatically synchronize the recovered index with the slave nodes.

In order to update the index for the data which has been generated during the time of the backup, use the Admin Tool, navigation group *Services*, navigation item *Index -> Synchronize index*.

C.5 Email

C.5.1 Introduction to Emails in ConSol CM

Sending and receiving emails is one of the core functionalities of **ConSol CM**. The application interacts with one or more mail servers to fetch emails and send emails.

The following sections provide information about the following email-related topics:

- Short Overview of Components Relevant for Mailing
- Fine-Tuning CM Mailing

The monitoring of email functionalities is described in Monitoring Email Functionalities.

For a detailed introduction into email functionalities in ConSol CM and information regarding the initial configuration of the email functionalities, please refer to the *ConSol CM Administrator Manual*, section *Email*.

C.5.2 Management of Email Functionalities

> (i) This section describes emailing in a single-server environment. Please contact the ConSol CM support or your ConSol CM consultant for information about emailing in a cluster.

> (i) Starting from ConSol CM version 6.11, only NIMH is available for mailing. If you are not sure in which mode CM is running, check the CM system property cmas-core-server, nimh.enabled. If it is set to "true", your system is running in NIMH mode, if it is set to "false", your system is running in Mule/ESB mode. For information regarding Mule/ESB, please refer to a previous version of this manual.

C.5.2.1 Short Overview of Components Relevant for Mailing

In order to run smoothly, the following modules of ConSol CM have to be taken into consideration on a server:

- email has to be fetched
- email has to be sent

> (i) The email configuration is explained in detail in the *ConSol CM Administrator Manual*, section *Email*.

The CM system properties which are relevant are summarized in the appendix Important System Properties - Ordered by Area of Application, Email Configuration.

Fetching Emails

- **Service:**
  The NIMH service is active (see Admin Tool, navigation group *Services*, navigation item *CM Services*).

- **Scripts:**
  The mailing scripts with the NIMH extension are active (e.g., `NIMHCreateTicket.groovy`), see Admin Tool, navigation group *System*, navigation item *Scripts*.

- **Data:**
  Emails which cannot be processed are stored in the database table `cmas_nimh_archived_mail`.

Sending Emails

When the CM server is started, the module which can send emails using the SMTP server is started as well. Sending out emails is always active when the following two conditions are met:

- CM is up and running.
- A correct value has been set for the SMTP server (CM system property cmas-core-server, mail.smtp.email).

C.5.2.2 Fine-Tuning CM Mailing

Changing Administrator Email Addresses

This is explained in detail in the *ConSol CM Administrator Manual, Appendix E - Administrator and Notification Email Addresses*.

Changing Mailing Parameters

Location of the Mailing Parameters

The basic mailing parameters are changed using the Admin Tool, navigation group *Email*, navigation item *Email*. In case you would like to set some specific values which cannot be reached using the standard graphical Admin Tool interface, you can work with CM system properties (see Admin Tool, navigation group *System*, navigation item *System Properties*. The CM system properties which are relevant are summarized in appendix Important System Properties - Ordered by Area of Application, Email Configuration. Some properties which are used quite often are mentioned here as examples.

Example 1: Changing the Maximum Size of Email Attachments

System property cmas-core-server, attachment.max.size. This sets the maximum attachment size, in MB.

This is a validation property of the ConSol CM API. It controls the size of attachments at tickets, units, and resources. It also controls the size of **incoming** (not outgoing!) email attachments.

Example 2: Narrowing Down the File Types Which Are Allowed as Attachments

System property cmas-core-server, attachment.allowed.types. This is a comma-separated list of allowed file name extensions. If no value is defined, all file extensions are allowed.

Example 3: Deciding whether Emails Should be Deleted from the Mail Server

As far as the mail server is concerned, ConSol CM is just a regular email client fetching emails using a standard mail protocol: IMAP(S) or POP3(S). Depending on the mail server configuration and on the ConSol CM system property cmas-nimh, mailbox.default.task.delete.read.messages, emails are deleted from the mailbox on the mail server after CM has picked them up. The default setting is that emails are not deleted after fetching them (value "false"). To delete emails on the mail server after ConSol CM has fetched them, set the property to "true".

> (i) If you do not want ConSol CM to delete emails from the mail server, please make sure to monitor the mailboxes to avoid a data overflow and server or performance problems.

C.5.2.3 Monitoring Email Functionalities

See section Monitoring Email Functionalities.

C.6 Introduction to LDAP Authentication

C.6.1 Introduction to LDAP Authentication for the Web Client

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 ConSol 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 ConSol CM server sends a request with the engineer's user name and password and asks the LDAP server whether those credentials are correct.

If the credentials are correct, the approval is sent back to the ConSol CM server and the engineer is logged into the Web Client.

> (i) 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.

Figure 12: *ConSol CM - LDAP authentication process*

Please see LDAP Authentication for Engineers in the Web Client for more detailed information.

C.6.2 Introduction to LDAP Authentication for CM/Track

ConSol CM offers LDAP authentication for CM/Track as a standard feature, i.e., instead of managing the passwords for the ConSol CM customers in the ConSol CM database, they can be retrieved from an LDAP server (like e.g., a *Microsoft Active Directory* server).

When customers want to log in to CM/Track, they enter their user name and password and press *Enter*. Behind the scenes, the ConSol CM server sends a request with the customer's user name and password and asks the LDAP server whether those credentials are correct.

If the credentials are correct, the approval is sent back to the ConSol CM server and the customer is logged into CM/Track.

> ⓘ Please keep in mind that the LDAP connection is only used to authenticate the customer (confirm the identity). The authorization (i.e., the assignment of access permissions in the system) is done via the assignment of a CM/Track user profile in the Web Client. The CM/Track user profiles are managed in the engineer and role administration in the Admin Tool.

Please see also the following picture for an explanation of the CM/Track authentication process using LDAP.

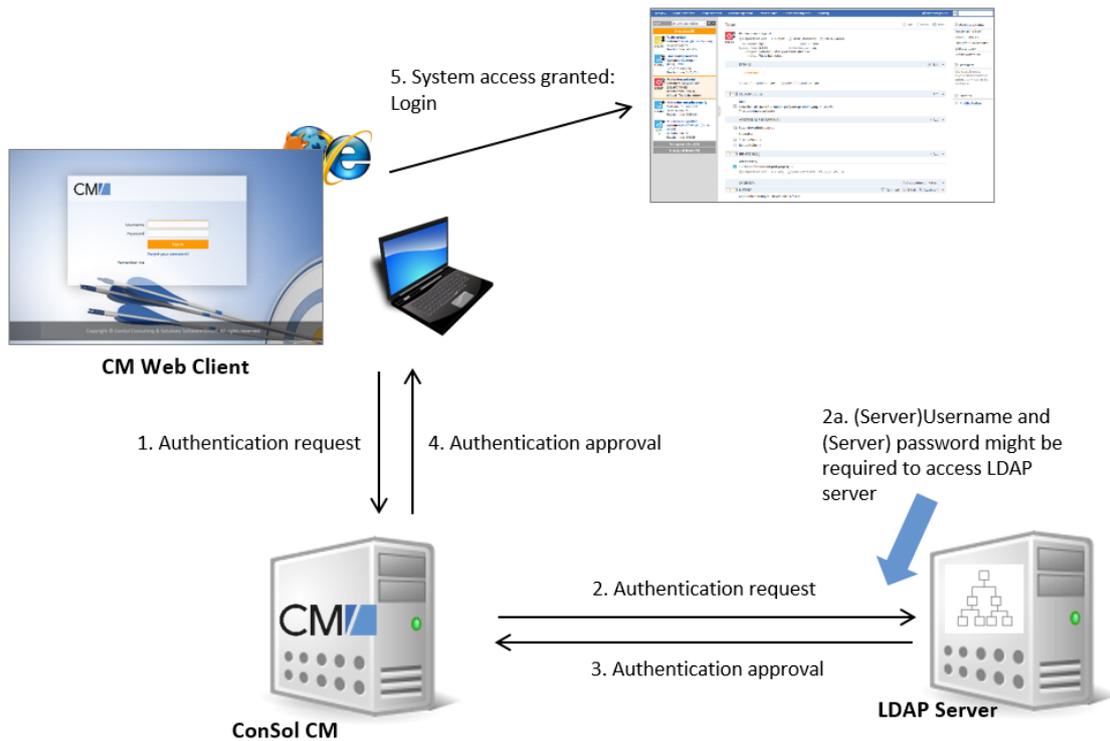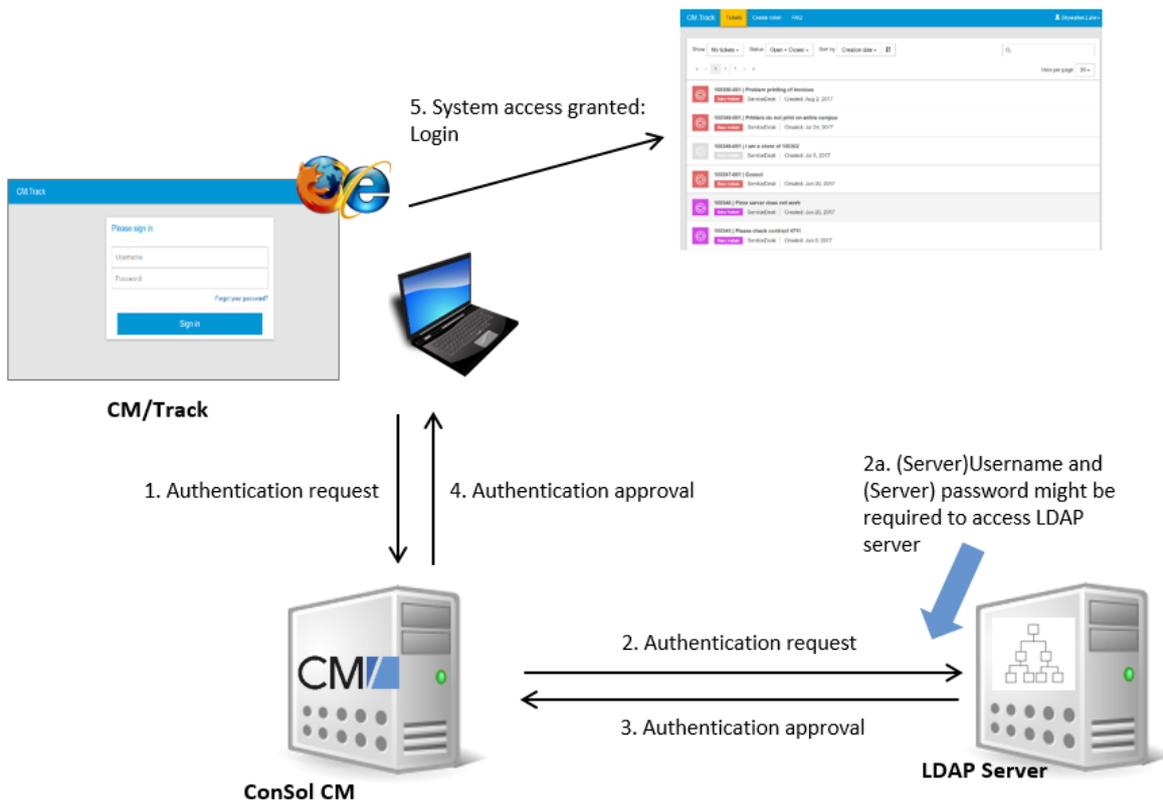Figure 13: *ConSol CM - LDAP authentication process for CM/Track*

CM/ is a registered trademark of ConSol Consulting & Solutions Software GmbH

C.6.3 LDAP Authentication for Engineers in the Web Client

C.6.3.1 Configuring LDAP Authentication

There are two ways you can enable the ConSol CM system to use LDAP authentication for engineers in the Web Client:

- Select LDAP authentication during system setup and enter the requested parameters (system properties) after the setup.

- 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 LDAP During Initial Setup

During system setup you can select *LDAP* as the authentication mode on the *Administrator* screen (third step). 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 next section for an explanation.

Switching the Authentication Mode to LDAP in a Running System

To switch the authentication method to LDAP, you have to set the required values in the system properties (navigation group *System*, navigation item *System Properties*):

- authentication.method
  LDAP

- ldap.authentication
  simple

- ldap.basedn
  The DN (distinguished name) of the LDAP (sub-)tree where the required attributes are located.

- ldap.initialcontextfactory
  The Java class name for the initial context factory of the LDAP implementation when using LDAP authentication. Should usually be `com.sun.jndi.ldap.LdapCtxFactory`.

- ldap.password
  Password for connecting to the LDAP server to look up users. Only needed if look-up cannot be done anonymously.

- ldap.userdn
  LDAP user for connecting to the LDAP server to look up users. Only needed if look-up cannot be done anonymously.

> ⚠ 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 to confirm.

- ldap.providerurl
  The complete URL for the LDAP server:

```
ldap://<HOSTNAME>:<LDAP PORT>
```

- ldap.searchattr
  Search attribute for looking up the LDAP entry connected to the CM login, i.e., the attribute which is used as user name for the authentication.

C.6.3.2 Using LDAPS (LDAP over SSL)

Introduction

Per default, when an LDAP client accesses an LDAP server, the information is transferred 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 can use certificates. One way to do this for a Linux environment is described in the following section.

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 <arbitrary> -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 ConSol 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 ConSol CM server as shown in the following example:

- cmas-core-security, ldap.authentication = simple
- cmas-core-security, ldap.basedn = OU=myOU,DC=myDC
- cmas-core-security, ldap.initialcontextfactory = com.sun.jndi.ldap.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

C.6.4 LDAP Authentication for Customers in CM/Track

C.6.4.1 Configuring LDAP Authentication

LDAP authentication is activated by setting the system property cmas-core-security, contact.authentication.method to "LDAP".

Then you have to set the required values in the system properties (navigation group *System*, navigation item *System Properties*).

The LDAP servers can be defined using the following system properties from the module `cmas-core-security`.

{name} is a string that you can choose to distinguish LDAP servers. It must always be set, even if only one LDAP server is configured. You should use a simple string for the {name}, not containing any keywords, like *internal* or *external*, and which does not contain special characters.

- cmas-core-security, contact.authentication.method
  LDAP

- ldap.contact.{name}.providerurl
  The property value is the address of the LDAP server in the form *ldap[s]://host:port*.

- ldap.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 if the value is not set.

- ldap.contact.{name}.password
  The property contains the password to look up the contact DN by the LDAP ID. An anonymous account is used if the value is not set.

- ldap.contact.{name}.basedn
  This represents the base path to search for the contact DN by the LDAP ID, e.g., "ou=accounts,dc=mycompany,dc=de".

- ldap.contact.{name}.searchattr
  The property value stands for the attribute to search for the contact DN by the LDAP ID, e.g., "uid".

Initially, these system properties might not be present in your CM system. Just add them manually. Changes to any of the above system properties do not require a server restart and are propagated to all cluster nodes. The use of the placeholder {name} allows configurations to define several different LDAP servers.

- ldap.initialcontextfactory
  This is a predefined global property. If it is not set, "com.sun.jndi.ldap.LdapCtxFactory" is used as its value.

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).

Mixed Authentication Mode

Set the system property cmas-core-security, contact.authentication.method depending on the desired order of authentication instances:

- **LDAP,DATABASE:**
  First attempt authentication using the available LDAP server(s), if an LDAP ID is provided. On failure, try a database login if the customer has a database password.

- **DATABASE,LDAP:**
  First attempt a database login if the customer has a database password. On failure try authentication using the available LDAP server(s) if an LDAP ID is provided.

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]
```

C.6.4.2 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.

C.6.4.3 Using LDAPS (LDAP over SSL)

Introduction

Per default, when an LDAP client accesses an LDAP server, the information is transferred 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 can use certificates. One way to do this for a Linux environment is described in the following section.

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 <arbitrary> -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 ConSol 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 ConSol CM server as shown in the following example:

- cmas-core-security, ldap.authentication = simple
- cmas-core-security, ldap.contact.name.basedn = OU=myOU,DC=myDC
- cmas-core-security, ldap.initialcontextfactory = com.sun.jndi.ldap.LdapCtxFactory
- cmas-core-security, ldap.contact.name.password = myLDAPpw
- cmas-core-security, ldap.contact.name.searchattr= sAMAccountName
- cmas-core-security, ldap.contact.name.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.contact.name.providerurl = ldaps://dc2.mydomain.com:636
- **LDAPs port Global Catalogue**
  cmas-core-security, ldap.contact.name.providerurl = ldaps://dc2.mydomain.com:3269

D - Operating the Data Warehouse

This chapter discusses the following:

D.1 Introduction

If the BI/reporting functionality is active in your CM infrastructure, you will have to take care of two main components:

- The ConSol CM Reporting Framework (CMRF)
- The ConSol CM Data Warehouse (DWH)

A short overview of a system with reporting functionalities is provided in the current manual in section System Architecture with Reporting Infrastructure. In case you need to know technical details about the CMRF/DWH setup, please read the respective sections in the *ConSol CM Setup Manual*.

CMRF/DWH administration using the Admin Tool is explained in great detail in the *ConSol CM Administrator Manual*, section *Data Warehouse (DWH) Management*. In order to understand reporting in CM, we recommend to read this section first.

A quite detailed explanation of all processes of CM/CMRF/DWH synchronisation is provided in the current manual, in section CM / CMRF / DWH Synchronization.

D.2 Short Overview of CM Components Relevant for Reporting

D.2.1 Basic Principle

The ConSol CM database and the DWH are two separate databases (or database schemes, depending on the RDBMS flavor). The CMRF, a Java EE application, is responsible for transferring the required data. This is based on entries, made by CMRF, in control tables of the DWH database. Please read the *ConSol CM Administrator Manual*, section *Data Warehouse (DWH) Management*, subsection *TransferMode* for a detailed explanation.

In order to run smoothly, the following components have to be up and running:

1. The CM server has to run and to write data into the CM database.
2. The CMRF has to run and has to have access to the DWH database (scheme).
3. The DWH mode has to be set to one of the following values:
   a. **ADMIN**
      This means that there is no automatic transfer of data from CM to the DWH. The administrator has to start the transfer manually.
   b. **LIVE**
      This means that the transfer of data from CM to the DWH is performed automatically, on-the-fly.

D.2.2 DWH-Specific Log Files

In order to read the DWH-specific log files, you can either access the file system of the server directly (see section Logging and Log Files) or you can use the Admin Tool. For the latter, open the navigation group *Data Warehouse*, navigation item *DWH Configuration and Logs*. Click the Log button to open the `cmrf.log` file in the main panel:

You can also check the original log file under the following path:

- **JBoss (single server):**

```
<JBOSS_HOME>/standalone/log/cmrf.log
```

- **WebLogic:**

```
<WEBLOGIC_HOME>\user_projects\domains\<WEBLOGIC_DOMAIN>\cmrf-logs\cmrf.log
```

Please note that these are the standard paths. In ConSol CM, e.g., **Log4J** is used (for WebLogic). They may be configured to use different paths in the `log4j.xml` file. A detailed description of CM logging and log files is provided in the section Logging and Log Files.

Usually the log file and/or log panel entries give good hints regarding the initial reason for a transfer failure. If you run into a problem you cannot resolve and you have a maintenance contract with ConSol, please contact our support team.

D.2.3 Open DWH Tasks

Use the Admin Tool to see open DWH tasks. They will be displayed in the navigation group *Data Warehouse*, navigation item *Tasks*. In the CM database, the tasks are listed in the table `cmas_dwh_task`.

In the list of DWH tasks, you will find entries (one entry per 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.

- ticket field, customer field, or resource field annotations have been set to *reportable = true* and the checkbox *Automatic commit of administrative changes* has not been checked.

You can mark a task in the list and execute it manually.

If the checkbox *Automatic commit of administrative changes* has been checked, the tasks will be run automatically by the system.

D.3 CM / CMRF / DWH Synchronization

This chapter discusses the following:

D.3.1 Introduction

As a CM operator or administrator, you might have to solve problems with the Data Warehouse (DWH) in case the synchronization from the CM database to the DWH does not run smoothly. This is why we provide detailed information about the DWH synchronization process, so you can base your error analysis and troubleshooting on this information.

Please also read the *ConSol CM Administrator Manual*, section *Using CM for Reporting - Data Warehouse (DWH) Management* for a detailed introduction to the CMRF/DWH administration. In the current section, we assume that you know how to administer the DWH.

D.3.2 Intention when Using a DWH

A DWH provides several advantages, the most prominent ones are:

- no need to use the production database for reporting, thus avoiding performance decrease
- a database schema and table structure which is optimized for reporting-typical database queries

A detailed introduction to this topic is provided in the *ConSol CM DWH Manual*.

D.3.3 ConSol CM System Architecture with CMRF and DWH

This is explained in detail in section System Architecture with Reporting Infrastructure.

D.3.4 Synchronization Mechanism

This chapter discusses the following:

- Synchronization Mode

- Synchronization Mechanism

- Components Involved in Transfer

    - Tables in the CM Database (or Database Schema)

    - Tables in the DWH (Database or Database Schema)

    - CM Processes and Services

D.3.4.1 Synchronization Mode

There are three different values for the synchronization mode for transferring data from ConSol CM to a DWH database. This is the value of the CM system property cmas-dwh-server, dwh.mode.

- **OFF**
  No data transfer to the DWH.

- **LIVE**
  In this mode, every change that is submitted to the ConSol CM database is immediately synchronized with the DWH.

- **ADMIN**
  In this mode, the administrator has to trigger the synchronization manually.

> (i) Always use the graphical configuration in the Admin Tool (navigation group *Data Warehouse*, navigation item *DWH Administration*, button *Configuration*) to set the synchronization mode! Setting it directly in the CM system properties does not work!

D.3.4.2 Components Involved in Transfer
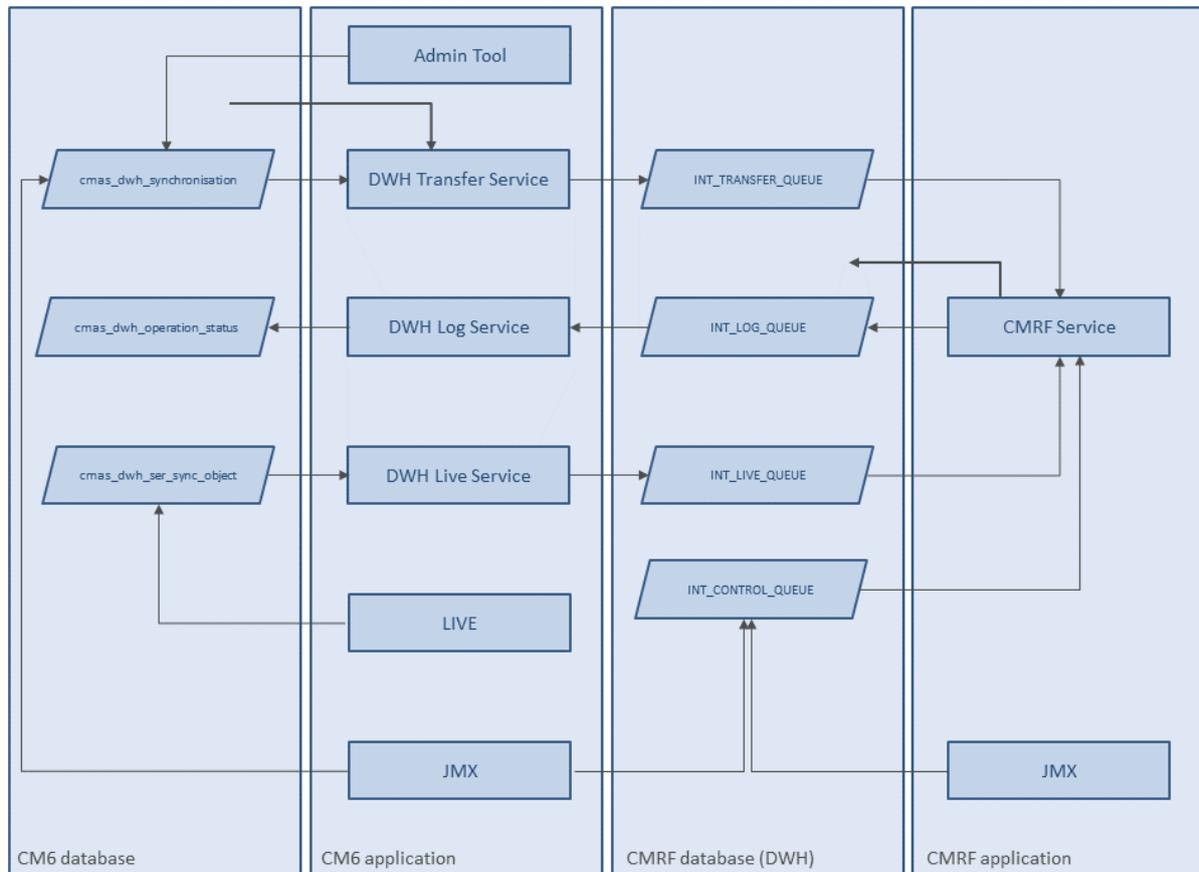
Figure 14: *Services and tables involved in CM/CMRF/DWH data transfer (DIRECT mode)*

Tables in the CM Database (or Database Schema)

- **cmas_dwh_operation_status**
  The DWH log service writes into this table to document the DWH status.
  These are the info and error log entries which you can also find in the log file `cmrf.log`.
  You can also see these entries in the Data Warehouse part of Admin Tool when you select the logs.

- **cmas_dwh_ser_sync_object**
  This table is only used in LIVE mode. CM inserts an entry into this table for a transaction which was performed in the CM database. The entry contains a serialized package which needs to be sent to CMRF. The DWH live service reads from this table. See details below.

- **cmas_dwh_synchronization**
  When a DWH operation is performed using the Admin Tool (see details below), an entry is created in this table. The column `type` contains one of the possible values: INITIALIZATION, REINITIALIZATION, TRANSFER, UPDATE, TASK. The DWH transfer service reads from this table. See details below. Starting with version 6.11 you can see the entries also in the Admin tool (navigation group *Data Warehouse*, navigation item *Administration*).

- **cmas_dwh_task**
  An entry in this database is created when an annotation which is relevant for DWH transfer has been changed, e.g. `reportable group`, `reportable`, `dwh-no-history`, `dwh-no-history-field`.

Tasks listed in this table are visible in the Admin Tool (navigation group *Data Warehouse*, navigation item *Tasks*). When a task is started (automatically or manually), a new entry in `cmas_dwh_synchronization` is created. When the data has been processed successfully, the entry from `cmas_dwh_task` is deleted.

Tables in the DWH (Database or Database Schema)

- **INT_CONTROL_QUEUE**
  INT_CONTROL_QUEUE is used to control the processing in CMRF. Two actions are available: *pause* and *resume*. Only the JMX components write into INT_CONTROL_QUEUE. Only the CMRF service reads and deletes entries from INT_CONTROL_QUEUE. It is done during processing of other data (e.g. transfer). The CMRF service pauses processing after *pause* action and continues after *resume* action.

- **INT_LIVE_QUEUE**
  The DWH live service writes serialized packages into this table. CMRF reads from this table to process the LIVE data.

- **INT_TRANSFER_QUEUE**
  The DWH Transfer Service writes serialized packages into this table. CMRF reads from this table to process the TRANSFER data.

- **INT_LOG_QUEUE**
  This table is used for log entries written by the CMRF. Based on those entries, the DWH log service creates entries in the table `cmas_dwh_operation_status`. See section DWH Log Service.

- **hlp_parameter**
  This table is not directly involved in CM/CMRF/DWH transfer but provides some useful information. The most important value in this context are

  - the `parameter_name last_data_transfer`. The timestamp of the end of the last DHW update or transfer in the local time of the CMRF server.

  - the `parameter_name dwh_status`. The possible values are explained in the following table.

Value of dwh_status (ID)	Description of the value	Explanation
0	DWH uninitialized	This is the status after application startup, when DWH sees that DB has not been initialized (e.g. no entries in static data). This is a theoretical value, because when DWH is uninitialized, the DWH does not yet exist.
1	DWH waiting for initial transfer	DWH waiting for initial transfer (ID=1) is set during (re)initialization. This is the status after DWH application startup when DWH sees that there has not been a data transfer yet. When action transfer sends transfer messages, DWH switches to status *DWH: data transfer in progress* (ID=2).

Value of dwh_status (ID)	Description of the value	Explanation
2	DWH: data transfer in progress	CMRF is still working on transfer messages. In this status, DWH ignores all incoming non-transfer messages. There may have been problems with the transmission. DWH enters this state when action transfer is executed. It remains in this state until either a fatal error occurs (then state is switched to *DWH: data transfer finished unsuccessfully* (ID=3)) or all transfer messages have been handled (in which case the subsequent status is either (*DWH: data transfer finished unsuccessfully* (ID=3) when there where errors, or *DWH operational* (ID=4) when there were no errors).
3	DWH: data transfer finished unsuccessfully	All data transfer messages have been handled, however, there were some errors.
4	DWH operational	DWH is operational and will handle all incoming update messages from CM. This status is reached when all data transfers or updates have finished successfully.

- **hlp_transfer_error**:
  Keeps a copy of the error message from exceptions of CMRF Live Mode since the last REINITIALIZE. Here you can look up the `object_uid` for which the exception occurred.

- **int_parameter**:
  This table show technical details about the data transfer applied on the DWH database.
    - live-serial-number: the last applied serial number during live mode.
    - live-error: Boolean. If "false" than live mode did not abort.
    - last-success-id: epoch time stamp in milliseconds of last successful live mode update
    - last-success-live-id: epoch time stamp in milliseconds of last successful live update in of operation *transfer* or *update*. Note: this value can be lower than last-success-id, when a transfer or update task is executing.

CM Processes and Services

The following processes and services are relevant for the CMDB-DWH data transfer. The details are explained in the following sections.

- DWH Transfer Service
- CMRF Service
- DWH Log Service
- CM in LIVE Mode
- DWH Live Service

D.3.5 Synchronization Procedures

This chapter discusses the following:

- Operations Triggered Using the Admin Tool
    - Admin Tool: Initialize Button (without Delete existing data)
    - Admin Tool: Initialize Button (with Delete existing data)
    - Admin Tool: Transfer Button
    - Admin Tool: Update Button
    - Admin Tool: Enabling LIVE Mode (OFF/ADMIN -> LIVE)
    - Admin Tool: Run tasks Button
- Operations Performed by CM and by DWH Services
    - DWH Transfer Service
    - CMRF Service
    - DWH Log Service
    - CM in LIVE Mode
    - DWH Live Service
- Operations via JMX
    - JMX (CM)
    - JMX (CMRF)

The synchronization process can be started by a manual action, i.e. when the administrator clicks on a button in the Admin Tool, starting a DWH action, or the sync process can be triggered automatically in LIVE mode. Please compare the figure in section Components Involved in Transfer explaining all parts of the synchronization processes.

> (i) You can use the DWH monitor of the Admin Tool (navigation item *Monitor* in the navigation group *Data Warehouse*) to get an overview of the current DWH status including some statistics. For more information, please see the DWH chapter in the *ConSol CM Administrator Manual*.

D.3.5.1 Operations Triggered Using the Admin Tool

(i) A DWH operation which is performed synchronously using the Admin Tool does not do any-thing but create a task and write one entry into the CM table `cmas_dwh_synchronization`! Starting with version 6.11 the tasks are also shown in the *Actions* table in the Admin Tool (nav-igation group *Data Warehouse*, navigation item *Administration*). But it can still take up to some minutes until the action is displayed in the table, even when using the refresh button.

Actions in this table are executed according to the timestamp of their creation in ascending order.

So please note that if you press a button several times, a new entry in `cmas_dwh_synchronization` is created with each click! The respective operations will then have to be executed one after another, ordered by the timestamp of their creation. Thus, there is the risk of accumulating DWH operations which might decrease CM performance considerably and might produce unwanted results.

Please wait until you see the result of an operation -- the Admin Tool is only blocked before version 6.11 -- and **do not** create a pipeline of pending operations which might interfere with one another. Starting with version 6.11. you have the *Delete* icon to delete such duplicate tasks, when they are still in state NEW.

Example: The admin clicks on *Initialize,* nothing happens (because the system is working behind the scenes preparing the initialization). The admin clicks on *Update*. Nothing hap-pens. The admin clicks on *Initialize* again …

What will happen?

Three entries have been created in the CM table `cmas_dwh_synchronization`. (1) "INITIALIZE", (2) "UPDATE", (3) "INITIALIZE"

The initialization (1) is performed. When this is done, the respective entry is deleted from `cmas_dwh_synchronization`.

The update (2) is performed. When this is done, the respective entry is deleted from `cmas_dwh_synchronization`.

Now you could start work with the DWH, but …

The next initialization (3) is performed. When this is done, the respective entry is deleted from `cmas_dwh_synchronization`.

The DWH is now in a non-operable state, and a transfer or update is required.

Admin Tool: *Initialize* Button (without *Delete existing data*)

A new entry in `cmas_dwh_synchronization` is created using the following values (all other fields are ini-tially set to NULL and filled in when required in the process):

- type = 'INITIALIZATION'
- dwh_status = 'NEW', cmrf_status = 'NEW'
- next_serial_number = 0
- creation_date = <current date>

The initialization is then processed in another thread (by DWH transfer service). The Admin Tool will be unblocked when the processing of the initialization is finished in CM (`cmas_dwh_synchronization.dwh_status`='SUCCESS'|'ERROR').

Admin Tool: *Initialize* Button (with *Delete existing data*)

A new entry in `cmas_dwh_synchronization` is created using the following values (all other fields are initially set to NULL and filled in when required in the process):

- type = 'REINITIALIZATION'
- dwh_status = 'NEW', cmrf_status = 'NEW'
- next_serial_number = 0
- creation_date = <current date>

The reinitialization is then processed in another thread (by DWH transfer service). The Admin Tool will be unblocked when the processing of the reinitialization is finished in CM (`cmas_dwh_synchronization.dwh_status`='SUCCESS'|'ERROR')

Admin Tool: *Transfer* Button

A new entry in `cmas_dwh_synchronization` is created using the following values (all other fields are initially set to NULL and filled in when required in the process):

- type = 'TRANSFER'
- dwh_status = 'NEW', cmrf_status = 'NEW'
- next_serial_number = 0
- creation_date = <current date>
- cmrf_cache_size = <cache size from AT GUI or 10000 as default>
- cmrf_retry:count = <value from AT GUI or 1 as default>
- ignore_ticket_history = 0, ignore_tickets = 0, ignore_unit_history = 0, ignore_units = 0
- package_size = <value from AT GUI or 1000 as default>
- retry_count = <value from AT GUI or 1 as default>
- executor comment = <comment from AT GUI or empty>

The transfer is then processed in another thread (by DWH transfer service). The Admin Tool will be unblocked when the processing of the transfer is finished in CM (`cmas_dwh_synchronization.dwh_status`='SUCCESS'|'ERROR').

> ⚠ Important: The transfer will delete all data in DWH. But this is not done not very efficiently. If you want to reinitialize the DWH you should run *Initialize with Overwrite* first.

Admin Tool: *Update* Button

A new entry in `cmas_dwh_synchronization` is created using the following values (all other fields are initially set to NULL and filled in when required in the process):

- type = 'UPDATE'
- dwh_status = 'NEW', cmrf_status='NEW'
- next_serial_number = 0
- creation_date = <current date>
- cmrf_cache_size = <cache size from AT GUI or 10000 as default>
- cmrf_retry:count = <value from AT GUI or 1 as default>

- ignore_ticket_history = 0, ignore_tickets = 0, ignore_unit_history = 0, ignore_units = 0
- package_size = <value from AT GUI or 1000 as default>
- retry_count = <value from AT GUI or 1 as default>
- executor comment = <comment from AT GUI or empty>

The update is then processed in another thread (by DWH transfer service).

The Admin Tool will be unblocked when the processing of the update is finished in CM (dwh_status-='SUCCESS'|'ERROR').

> (i) The DWH Update can also be started via command line or script. In this case you have to use a tool which can access the ConSol CM MBeans via command line, e.g. *Twiddle* for JBoss. The MBean to use is `consol.cmas.global.dwh.synchronizationService`. The command (method) is `update`.
>
> The following command line shows an example command with Twiddle. Twiddle as standalone installation.
>
> ```
> $TWIDDLE_STANDALONE_HOME/bin/twiddle.sh -s service:jmx:remoting-
>   jmx://127.0.0.1:9999 invoke
>   consol.cmas:type=admin,topic=global,name=dwh.synchronizationService update
> ```
>
> Please note that the CM package size, the CMRF cache size, and the retry counts cannot be set using the MBean. The default values will be used.

Please see also section JMX (CM).

Admin Tool: Enabling LIVE Mode (OFF/ADMIN -> LIVE)

When the synchronization mode is set to LIVE using the Admin Tool (navigation group *Data Warehouse*, navigation item *Administration*, *Configuration* button) the CM system property cmas-dwh-server, live.start is created and set to the current date.

If an update is needed, a new entry in `cmas_dwh_synchronization` is created using the following values (all other fields are initially set to NULL and filled in when required in the process)

- type = 'UPDATE'
- to_date = <current date + value of property cmas-dwh-server, time.buffer>
- executor_comment_ = 'Live mode automatic update'
- retry_count = 3
- dwh_status = 'NEW', cmrf_status = 'NEW'
- next_serial_number = 0
- creation_date = <current date>

The update is then processed in another thread (by DWH transfer service).

Admin Tool: *Run tasks* Button

This button is available/active if there are tasks which have not yet been performed. They are stored in the CM table `cmas_dwh_task` and are displayed in the Admin Tool (navigation group *Data Warehouse*, navigation item *DWH Tasks*).

Admin Tool

Database (example: MySQL)

Figure 15: *Pending DWH tasks in Admin Tool and in CM database*

When the admin has clicked the *Run task* button, a new entry in `cmas_dwh_synchronization` is created for each selected task using the following values (all other fields are initially set to NULL and filled in when required in the process):

- type = 'TASK'
- executor_comment_ = 'AT-TASK executed manually
- reference_id = <id of the task>
- dwh_status = 'NEW', cmrf_status='NEW'
- next_serial_number = 0
- creation_date = <current date>
  type = 'TASK'

The tasks are then processed in another thread (by DWH transfer service). The execution status of such tasks is also visible in the Admin Tool (navigation group *Data Warehouse*, navigation item *Administration*).

A task can also be started automatically if the option *Automatic commit of administrative changes* is enabled.

D.3.5.2 Operations Performed by CM and by DWH Services

DWH Transfer Service

The DWH transfer service works in the same way in ADMIN and LIVE mode.

The DWH transfer service reads entries from the CM table `cmas_dwh_synchronization` (with `dwh_status` = "NEW" or "ACTIVE") and executes the respective jobs in the order of the timestamp of the entry (in ascending order). The service inserts serialized packages into the `INT_TRANSFER_QUEUE`. `cmas_dwh_synchronization.dwh_status` is changed during processing ("NEW" -> "ACTIVE" ->

"SUCCESS | ERROR"). `dwh_status` is set to "ACTIVE" when the entry is processed (only one entry can be active). `dwh_status` is set to "SUCCESS" if the processing is finished successfully. `dwh_status` is set to "ERROR" if the processing is not finished successfully.

During the ACTIVE period, the DWH transfer service inserts serialized packages into the `INT_TRANSFER_QUEUE`. The package size taken from `cmas_dwh_synchronization.package_size`, which the is set when setting the *CM package size* via the Admin Tool GUI. When this value is not set, the CM system property cmas-dwh-server, batch-commit-interval is used (1000 if the property is not set). This is for example the case when a job was created via the JMX operations.

Each package has a serial number. When a package has been written to the `INT_TRANSFER_QUEUE`, the value of the next serial number (`cmas_dwh_synchronization.next_serial_number`) is incremented.

Processing of one entry:

1. The entry is read from `cmas_dwh_synchronization` (`dwh_status` = "ACTIVE" | "NEW")

2. If `dwh_status` = "NEW", `dwh_status` is updated (`dwh_status` = "ACTIVE")

3. Data are sent to CMRF in packages.

4. Each package has a serial number.

    a. Sending of one package:

        i. A portion of data is read from the CM database (table `cmas_dwh_synchronization`).

        ii. The package is created.

        iii. The serialized package is inserted into the `INT_TRANSFER_QUEUE`. The value of the next serial number (`cmas_dwh_synchronization.next_serial_number`) is incremented. The progress of the processing (`cmas_dwh_synchronization.position`) is updated. These operations are done in one transaction.

5. Processing in CM is finished, `cmas_dwh_synchronization.dwh_status` is updated (`dwh_status` = "SUCCESS" | "ERROR").

Error handling:

After an exception the processing will be continued from the point where it was stopped (`cmas_dwh_synchronization.position`) if:

- the DWH transfer service is stopped

- a database failure is detected

- the exception is recoverable (CM system property cmas-dwh-server, recoverable.exceptions, see also FAQ about recoverable exceptions)

- retry is configured (`cmas_dwh_synchronization.retry_count` > 0, 1 is used if not set)

- it is an error (e.g. OutOfMemoryError) - in this case the DWH transfer service is stopped

Otherwise the processing will not be continued (`dwh_status` = "ERROR").

CMRF Service

CMRF reads and processes TRANSFER data (types *INITIALIZATION*, *REINITIALIZATION*, *TRANSFER*, *UPDATE*, *TASK*), LIVE data and CONTROL data (*pause* and *resume*). TRANSFER data have a higher priority than LIVE data. LIVE data are processed only if there are no TRANSFER data available.

- TRANSFER data are read from the INT_TRANSFER_QUEUE.

- LIVE data are read from the INT_LIVE_QUEUE.

- CONTROL data are read from the INT_CONTROL_QUEUE.

TRANSFER Data

When the DWH Transfer Service has written entries into the INT_TRANSFER _QUEUE, the CMRF service can process these entries (CMRF service will also process other entries, this is treated below). The processing of each initialization/reinitialization/transfer/update/task is split into multiple transactions. The current state of the processing is saved in the database at the end of each transaction.

The performance and memory usage can be influenced by the cache size parameter. The cache size is taken from `cmas_dwh_synchronization.cmrf_cache_size`, which the is set when using the *CMRF cache size* via the Admin Tool GUI. When this value is not set, 10000 is used. This is for example the case, when a job was created via the JMX operations.

After restart the state of the processing is loaded from the database and the processing is continued.

A package (BLOB entry in the `data` column) of the INT_TRANSFER_QUEUE table contains the new/modified object (e.g. engineer, unit, resource) in total, i.e. "The ticket <Number> now looks like this: <modified ticket data>".

Error handling:

After an exception the processing will be continued from the point where it was stopped if:

- a database failure is detected - in this case processing is paused
- the exception is recoverable (system property cmas-dwh-server, recoverable.exceptions)
- it is an error (e.g. OutOfMemoryError)
- retry is configured (`cmas_dwh_synchronization.cmrf_retry_count` > 0, 1 is used if not set)

Otherwise the processing will be not continued but the remaining packages are extracted from the table and discarded.

LIVE Data

When the DWH live service has written entries into the INT_LIVE _QUEUE, the CMRF service can process these entries.

Error handling:

The entries which causes the abort together with the error message is logged in `hlp_transfer_errors`.

CONTROL Data

Pause and *resume* entries written by a JMX into the INT_CONTROL_QUEUE are read by the CMRF service. They pause and resume the CMRF service.

DWH Log Service

The DWH log service works in the same way in ADMIN and LIVE mode.

The DWH log service is responsible for providing log information to CM administrators (e.g., in the Admin Tool). The service reads serialized packages from INT_LOG_QUEUE and writes them into the CM table `cmas_dwh_log`. Entries in this table can be displayed in the Admin Tool in the navigation group *Data Warehouse*, navigation item *Administration*. Select an action from the *Actions* table and open the log entries for this action using the *Log* button. The messages which are displayed are the entries in the `cmas_dwh_log` table, column `operation_message`.
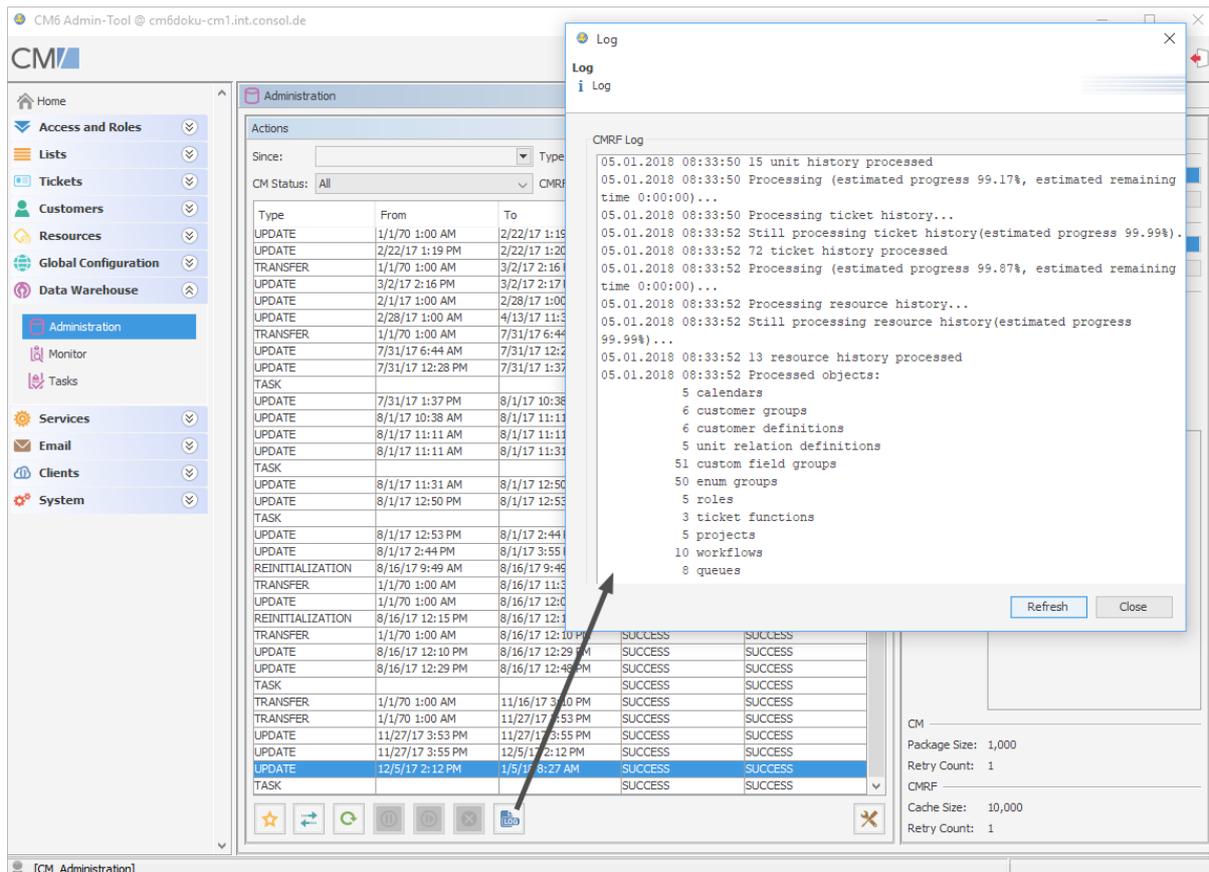
Figure 16: *DWH log entries in Admin Tool*

One iteration (transaction):

1. Log entries are read and deleted from the INT_LOG_QUEUE.

2. A new entry in `cmas_dwh_log` is created for each log entry.

3. The CM system property `last.success.live.timestamp` is updated for each LIVE log

4. `cmas_dwh_synchronization.cmrf_status` is updated for each log entry except for LIVE log.

> (i) If any error should occur and you need to find out more details about the possible cause, you can increase the log level in the ConSol CM configuration file `cm6-cmrf.xml`. Please see Logging and Log Files for details.

CM in LIVE Mode

If LIVE mode is enabled and CMRF needs to be informed about changes done in a CM transaction, CM writes entries into the table `cmas_dwh_ser_sync_object`, one entry for each CM transaction which has been performed (e.g., a ticket field has been changed). The entry is written at the end of the transaction, before the *commit* operation is executed. Each entry contains a serialized package which needs to be sent to CMRF. The respective information will then be forwarded to CMRF by the DWH live service, see next section.

DWH Live Service

The DWH live service is only active if the synchronization mode is set to "LIVE" (i.e. if the CM system property cmas-dwh-server, live.start is set) and if all data older than the date of the property `live.start` were already sent to CMRF. If LIVE mode is not enabled and there is no data in `cmas_dwh_ ser_sync_object`, the property `live.start` is deleted.

The DWH live service controls the just-in-time DWH update, i.e. it is responsible for sending inform- ation about changes of reportable data fields and data field groups in CM to CMRF. To do this, the DWH live service reads entries from the CM table `cmas_dwh_ser_sync_object` and inserts the respect- ive serialized packages into the `INT_LIVE_QUEUE` in the DWH.

One iteration (transaction):

1. Packages are read from `cmas_dwh_ser_sync_object` (max. 100, in order of creation).

2. The property `live.serial.number` is read.

3. A serial number is set for each package.

4. The packages are deleted from `cmas_dwh_ser_sync_object`.

5. The property `live.serial.number` is updated.

6. The serialized packages are inserted into `INT_LIVE_QUEUE`.

Packages from `INT_LIVE_QUEUE` will then be processed by DWH transfer service.

D.3.5.3 Operations via JMX

JMX (CM)

- consol.cmas:type=admin,topic=global,name=dwh.synchronizationService
  Can start transfer and update - a new entry in `cmas_dwh_synchronization` is created.
  CM package size, the CMRF cache size, and the retry counts cannot be set using the MBean.
  The default values will be used.

- consol.cmas:name=cmrf.control
  can pause and resume processing in CMRF - a new entry in `INT_CONTROL_QUEUE` is created

JMX (CMRF)

- consol.cmrf:name=cmrf.control
  Can pause and resume processing in CMRF - a new entry in `INT_CONTROL_QUEUE` is created

D.4 FAQs and Tips for Troubleshooting

This chapter discusses the following:

D.4.1 Question #1: DWH Tasks

How can I delete tasks from the DWH Tasks list in the Admin Tool when the tasks have been performed but are still visible in the list? How do I know if the tasks are really finished?

The task is deleted from the "current task" list automatically when the processing in CMRF is finished successfully.

Starting with ConSol CM version 6.11 you can monitor the status of processing for each task in the tasks view in the Admin Tool (navigation group *Data Warehouse*, navigation item *Administration*). It is finished when *Status CMRF* is SUCCESS or ERROR.

```
select cmas_dwh_task.id, cmas_dwh_task.status, cmas_dwh_synchronization.dwh_status,
  cmas_dwh_synchronization.cmrf_status from cmas_dwh_task left join cmas_dwh_
  synchronization on cmas_dwh_task.id=cmas_dwh_synchronization.reference_id;
```

Since version 6.11 there is also the *Delete* button available in the Admin Tool. When should/can I use it?

Delete can be used if operation is not started yet (status: NEW). It is not available for active (ACTIVE), paused (PAUSED) or finished (SUCCESS, ERROR) operations.

For example, if someone accidentally started two transfers, the first one is processed and cannot be deleted, but the second one can be deleted.

D.4.2 Question #2: DWH update time

On large installations, a DWH update can take quite long. What can I do to reduce the time?

Prior to version 6.11, the runtime can be optimize via the CM system property cmas-dwh-server, batch-commit-interval. The default value is 10. We recommend to start with a value of 150. However, the optimum chunk size depends on the system performance. If the system has enough RAM, the value can be 1000 or even more. This will speed up the transfer considerably.

With version 6.11 the DWH transfer and DWH update options the CM package size and CMRF cache size are introduced. For recommendations see section *Parameters for Transfer and Update Operations* in chapter *Data Warehouse (DWH) Management* of the *ConSol CM Administrator Manual*.

When the SQL queries are especially show the following messages can be found in the log files:

- Slow CM queries. In this case you see the following in the CM file `server.log`:

```
2016-10-14 10:40:56,303 INFO [Thread-timerFactory]
  [rvice.impl.TransferServiceImpl] Still waiting on messages...
2016-10-14 10:55:56,394 INFO [Thread-timerFactory]
  [rvice.impl.TransferServiceImpl] Still waiting on messages...
```

- Slow insert operations in the DWH. In this case you see the following in the file `cmrf.log`:

```
2017-03-20 10:23:46,757 INFO [rvice.impl.TransferServiceImpl] Still
  processing unit history(estimated progress 0%, estimated remaining time
  40:23:10)...
2017-03-20 10:24:46,757 INFO [rvice.impl.TransferServiceImpl] Still
  processing unit history(estimated progress 0%, estimated remaining time
  41:23:10)...
```

Special case Oracle

Especially during large data imports when the tables size is significantly extended or during the transfer when the DWH tables are empty, there can be SQL performance problems in Oracle due to stale or missing table statistics. Also when the DWH update is not normally used, the DWH update time can also be significantly degraded.

It is likely that the runtimes of the actions are significantly reduced by forcing an update of the table statistics on the whole CM and CMRF schema. For example, you can use the following command for the schema `CM6`:

```
exec DBMS_STATS.GATHER_SCHEMA_STATS('CM6', OPTIONS => 'GATHER')
```

With the standard Oracles statistics setting, this creates histograms statistics which are needed for the specific DWH update SQLs, which can let the optimizer find a better execution plan. You may need to repeat several times, as the different objects have different SQLs. If the data volume is very large, this can still take several hours.

D.4.3 Question #3: Performance issues during fixing DWH live mode

The DWH update after an abort can take very long. Can it be speed up?

Aborts of the DWH live mode with the error message *An error occurred. Update is needed. Live packages will be processed again after update.* can be fixed by a DWH update. When the last DWH update was months ago or never this update can take days or even weeks.

To prevent such long DWH update times in case of unexpected errors, it is recommended to regularly execute the DWH update, e.g. every night or a least once a week. The DWH update always retransmits all changes since the last DWH update or transfer. This can be done as described in section *DWH Synchronization During System Operation* in the *ConSol CM Administrator Manual*.

You can see when the last change was transferred via the Admin Tool. Open the task view in the Admin Tool (navigation group *Data Warehouse*, navigation item *Administration*) and check the date in the *End* column of the newest task with type "UPDATE" or "TRANSFER". Alternatively you can use monitoring as described in section CMRF / DWH Monitoring.

With version 6.11. the advanced configuration can be used to speed up the update. But this can also lead to a corrupt DWH. If you want to use this feature, you must consult a ConSol representative to check if this is really applicable for your situation.

D.4.4 Question #4: Live mode specialties

When the DWH had to be recovered from a full back-up by a database administrator, how can I restart the automatic transfer in live mode without starting with reinitialization and full transfer?

Probably it will cause an ERROR in the log file: *An error occurred. Update is needed. Live packages will be processed again after update.* and many WARNINGs like this: *Update is needed. Live packages will be processed again after update.('from' date must be equal or lesser than X, 'to' date must be equal or greater than Y.*

Solution:

1. Execute the following command:

```
update cmas_dwh_synchronization set cmrf_status='ERROR' where to_date > X;
```

2. Run the update (*Update* button in the Admin Tool).

D.4.5 Question #5: Manual submission of tasks in live mode

When the option *Automatic commit of administrative changes* is not active and I submit a task manually (using the GUI of the Admin Tool), which consequences does this have in live mode?

A task is created automatically when a configuration change has been submitted (e.g. set a ticket field from reportable = "false" to reportable = "true"). A new entry is created in the table cmas_dwh_task, and the task is displayed in the list of DWH tasks in the Admin Tool. When you click on *Run task* in the Admin Tool, a new entry is created in the table cmas_dwh_synchronization. The DWH transfer service reads the data from cmas_dwh_synchronization and writes chunks into INT_TRANSFER_QUEUE in the DWH. The CMRF service reads this data and also reads the live data from INT_LIVE_QUEUE. Since for CMRF, the TRANSFER data have a higher priority than the LIVE data, the TRANSFER data is processed first, i.e. the new data which results from the configuration change is processed first. Then the LIVE data processing is continued.

D.4.6 Question #6: RecoverableExceptions

How can I prevent the transfer to stop when an error occurs?

The property `recoverable.exections` basically takes a comma-separated list of Java classes as value. All exceptions which are mentioned in the list will not cause the abortion of the DWH transfer, but CM/CMRF will continue the transfer and ignore the respective exceptions. As one value (or even the only value) in the list, you can provide the Java class name of an exception and add a '+' at the end. Then all exceptions which inherit from this class will be ignored. Example: `java.lang.Exception+`. In this case, all exceptions will be ignored, because `java.lang.Exception` is the parent class of all exceptions in Java. A regular expression can be provided as optional parameter. The RegEx is applied to the message of the exception as filter.

> (i) The following characters need to be escaped in RegEx:
>
> - `,` -> `\,`
> - `:` -> `\:`
> - `\` -> `\\`

Example value: java.sql.SQLRecoverableException,java.lang.RuntimeException+:.*T.{1\,2}T.*

Please note that the value for recoverable exceptions has to be set at two locations:

- For CM: as ConSol CM system parameter, using the Admin Tool: cmas-dwh-server, recoverable.exceptions.
- For CMRF: as -D Java system property at CMRF startup: `-Dcmrf.recoverable.exceptions=`.

Starting with version 6.11 you can also set a large number of retries.

D.4.7 Question #7: Debug level for CMRF

How can I increase the debug level for CMRF during troubleshooting?

For a detailed explanation of the CM log files, please read section Logging and Log Files.

The debug level for CMRF can be changed in the CM/CMRF config file

- JBoss: `<JBOSS_HOME>/standalone/configuration/cmrf.xml`

- WebLogic: `<DOMAIN_HOME>\domains\<WEBLOGIC_DOMAIN>\log4j.xml`

```
<logger category="com.consol.cmrf">
   <level name="INFO"/>
   <handlers>
      <handler name="CMRF_FILE"/>
      <handler name="ERROR_FILE"/>
   </handlers>
</logger>
```

For example, you can change the level from the default INFO to WARNING (to reduce the number of messages) or DEBUG (to get more information).

How can I increase the debug level for the DWH Transfer Service?

You can set debug level in the CM config file

- JBoss: `<JBOSS_HOME>/standalone/configuration/cm6.xml`

- WebLogic: `<DOMAIN_HOME>\domains\<WEBLOGIC_DOMAIN>\log4j.xml`

```
<logger category="com.consol.cmas.dwh">
 <level name="DEBUG"/>
 </logger>
```

If more detailed logs are needed, you can set trace level in the CM config file:

```
<logger category="com.consol.cmas.dwh">
 <level name="TRACE"/>
 </logger>
```

D.4.8 Question #8: DWH database size is increasing faster than CM database using Oracle databases

By initialize with the option *delete existing data*, the existing DWH tables are deleted and recreated. In Oracle by default the tables are not deleted, but kept in the recycle bin.

To free the data space you must purge the deleted tables from the recycle bin. For details consult the Oracle database documentation. You can also disable recycle bin for the whole Oracle database instance, but than you lose the ability to recover easily from tables dropped unintentionally.

D.4.9 Question #9: CMRF is not further updated after database connection failure

The live mode is not updating anymore, after a database connection error has been logged. How can I resume the live mode?

The live mode is broken. You need to restart the CMRF, either by restarting the application server or just restarting the service via the MBean, and perform a DWH update to re-enable the live mode.

A DWH task is not updating DWH table anymore, after a database connection error has been logged. How can I resume the live mode?

In the task view the *CM Progress* is still working, but the *CMRF Progress* is not changing anymore.

After restarting the CMRF, either by restarting the application or just restarting the service via the MBean, the task processing is resumed. The processing cannot be resumed by clicking the button *Resume* in the Admin Tool.

D.4.10 Question #10: Report SQLs on DWH which have been working before throw SQL errors or fields are empty

Users who receive or use reports based on the DWH database complain that fields are missing or empty in the reports. When can this happen?

After some changes in the customer data model the table structures can be changed in the DWH database. Details on the DWH database structure and how the data in the DWH can be configured is documented in the *ConSol CM DWH Manual* in chapter *ConSol CM DWH Dynamic Tables / Custom Data Models*.

Additionally DWH tables structures may change also due to CM core version updates. For this refer to the *ConSol CM Release Notes*.

D.4.11 Question #11: DWH live mode is active, but updates are missing in DWH

Why are the latest changes in a ticket are not visible in the DWH?

The live mode runs asynchronously. So it can take several minutes or longer depending on the update volume until the updates are applied to the DWH database. Even if there are only few changes there is delay, as the CMRF only checks for updates in certain intervals.

The thread which sends live data from CM to CMRF sleeps 1 minute if there is nothing to send. The thread which processes live data in CMRF sleeps 10 seconds if queues are empty.

It you need live reports you must implement them using the production database. Live reports can be implemented in CM by using the detailed search, tickets list and CM dashboard functionality.

What if after a scene update changes are missing in DWH?

During scene update not all changed are replicated by the live mode to the DWH database. Hence it is recommended to set the DWH mode to "ADMIN" before the Update and change it back to "LIVE" after the scene import was successful.

Especially you must not update CM tables directly, as in addition to potential problem in the CM, these changes are not seen by the live mode and can also be missed by the DWH update.

After as scene update with delete data the old tickets, units and resources are deleted in the CM but are still in DWH. How are they deleted in the DWH?

The *delete data* option in the scene does neither lead to a deletion of these objects in the DWH by DWH live mode nor does the task *Update*. You need to reinitialize the DWH via task *Initialize* with *Delete existing data* and create a task of type *Transfer*.

E - Advanced Topics

This section provides information regarding the advanced aspects of operating ConSol CM as well as topics affecting the overall CM system.

- License Management

- System Fine Tuning

- Troubleshooting FAQs

- System Monitoring

- Data Backup and Recovery

- Operating ConSol CM Behind a Proxy (e.g., Apache HTTPD)

- System Update (Minor Version)

- Release Process

E.1 License Management

E.1.1 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 ConSol CM Web Client, CONCURRENT_USERS section. Ten licenses have been purchased.

```
[CONCURRENT_USERS]
contractParty = Demo-Licence ConSol
products = WEB_CLIENT,REST
version = 6.10
expirationDate = 31.12.2016
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* in the *ConSol CM Administrator Manual*) 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).

E.1.2 Sections of a License File

A ConSol CM license file can contain the following sections. All licenses are **concurrent** licenses, see explanation above.

- [ADMINTOOL_USERS]
  The number of users who can log in to the CM Admin Tool.

- [CONCURRENT_USERS]
  The number of CM engineers who can log in to the Web Client

- [PROCESS_DESIGNER]
  The number of users who can log in to the CM Process Designer

- [TRACK]
  The number of customers who can log in to the portal CM/Track

- [TRACK_USERS]
  The number of user profiles for the portal CM/Track. This is the number of engineers who are marked as *Track* in the Engineer Administration.

- [REST_USERS]
  The number of users who can access the REST API. The number of TRACK_USERS is not included in this number (CM/Track also uses the REST API.)
  CM/Phone will also consume REST licenses, one license per client (PC/laptop) where CM/Phone is installed and active.

E.1.3 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 respective software contracts with ConSol. If the license has expired or will expire soon, you can import a new license file. Of course the Admin Tool will always start, even if the license has expired. In the Web Client, in CM/Track, and in the Process Designer, the login is not possible when the license has expired.

Please ask your consultant for details. The license is a plain text file. The license can be modified during ConSol CM operation, no system downtime is required.

> ⚠ There is no *Back* button to undo changes with one click when you enter or delete text in the *License* field. If you accidentally change 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.
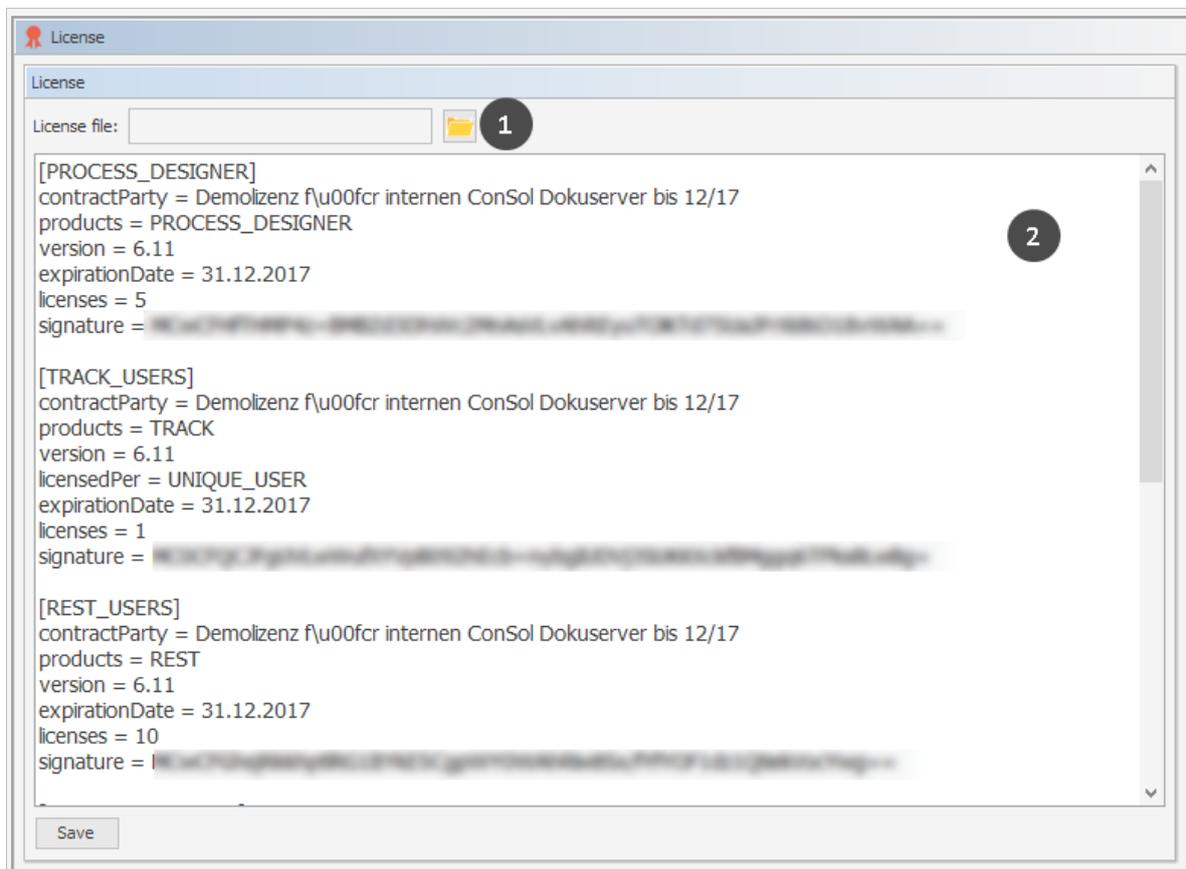
Figure 17: *ConSol CM Admin Tool - System, License*

Choose one of these two ways to import your ConSol CM license file:

- Load the license using the file browser next to the field *License file*. Click on *Save* (1).

- Insert the entire text of the license file via copy and paste. In case an old license is present, just replace the entire text. Click on *Save* (2).

You should receive a message that the license has been imported into the system successfully. It goes into effect immediately, without further action.

E.1.4 Control of Consumed Licenses

E.1.4.1 Control of Consumed Licenses Using Log Files

When an engineer session in the Web Client has started, the following line is printed into the `server.log` file (example with demo user):

```
2016-07-14 10:01:17,943 INFO [sessionTimeoutEngineerLogger] [-] New session for
  engineer: Susan has started. Session id: 24vb62d4-4999-11e6-9076-3756a64ecac4
```

When an engineer has logged out, the following line is printed into the `server.log` file (example with demo user):

```
2016-07-14 10:06:25,315 INFO [sessionTimeoutEngineerLogger] [Susan-24db62d4-4999-
  11e6-9076-3714a64ecac4] Session of engineer: Susan has ended. Reason: logout.
  Session id: 24db62d4-4999-11e6-9076-3714a64ecac4
```

When a session has been automatically finished because of the timeout, the following line is printed into the `server.log` file (example with demo user):

```
2016-07-14 09:35:32,303 INFO [ sessionTimeoutEngineerLogger] [-] Session of
  engineer: Susan has ended. Reason: timeout. Session id: 52b46c0f-4991-11e6-9076-
  3714a64ecac4
```

Please note that in the log files, it is not possible to distinguish Web Client and Admin Tool sessions, but you can distinguish the login names and "filter" for non-admin users.

E.1.4.2 Control of Consumed Licenses Using Database Queries

The sessions are saved in the CM database table `cmas_user_session`. Thus, you can find out how many users are logged in using the following statements.

```
SELECT count(auth_username) FROM cmas_user_session WHERE end_date = 0 and session_
  source = 'WEB_CLIENT';
```

Code example 3: *Web Client sessions, CM version 6.10*

```
select count(*) from cmas_user_session where end_date = 0 and session_type =
  'CUSTOMER';
```

Code example 4: *CM/Track sessions, CM version 6.10*

> (i) The monitoring user will not consume a license! See section Configuring the Monitoring User for details.

CM/ is a registered trademark of ConSol Consulting & Solutions Software GmbH

E.1.5 Expert Information about Accessing Content of CM Licenses

The content of CM licenses can also be queried using the MBean `licenseDeployer`. This MBean offers three methods:

- getRemainingDays
- deployLicence
- getLicenseInfo

If you are interested in using this feature and would like to have support implementing a system which uses the MBean access, e.g., to set up monitoring for your CM system, please contact your CM consultant.

The following figure shows an example using the JConsole.
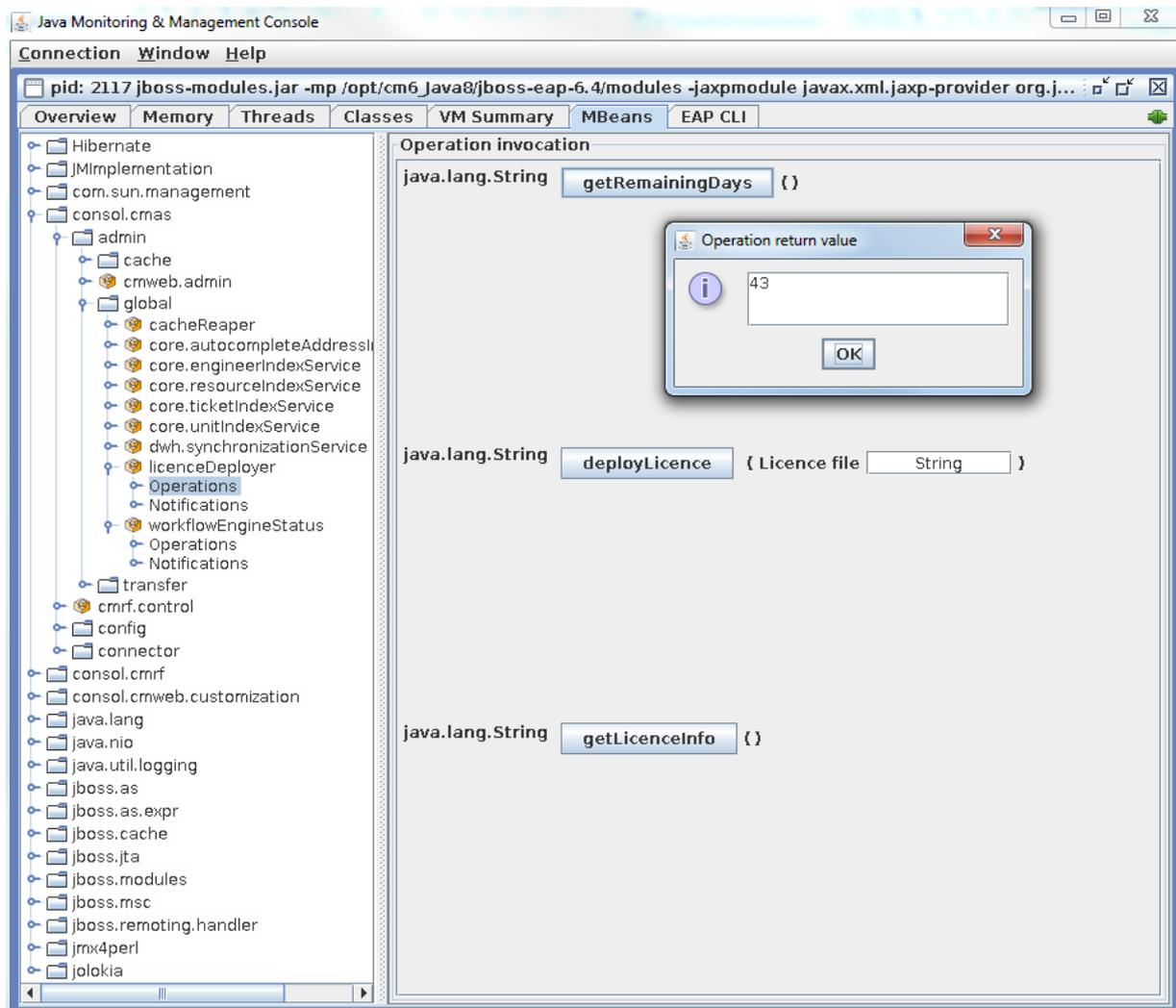
Figure 18: *Retrieving the remaining days of a CM license using the JConsole*

> (i) In case you have purchased a CM license with a limited period of validity, we recommend to set up a monitoring for the license which sends a notification a certain time before the license expires.

CM/ is a registered trademark of ConSol Consulting & Solutions Software GmbH

E.2 System Fine Tuning

This chapter discusses the following:

There might be situations where you are informed by CM users that the system does not perform as well as desired. In this section, we provide information about some parameters which you can use to fine-tune a CM system. Of course, every CM instance is a highly specific and unique system which is configured exactly for the requirements of your company. Therefore it is not possible to document every parameter for each and every use case. However, we hope you can find some important information in the current chapter and get some ideas about how to improve the performance of your ConSol CM system.

E.2.1 Java Tuning

E.2.1.1 Start the ConSol CM Server with More RAM Space

The CM server is too slow but the machine has enough RAM space? Make sure, CM can use enough of this space.

In order to modify the size of the JVM (Java Virtual Machine) memory allocation pool modify the respective line of the application server start in the configuration file of the application server.

Examples:

- **Windows with JBoss:**
  <JBOSS_HOME>\bin\standalone.conf.bat

- **Windows with Oracle WebLogic:**
  <WEBLOGIC_HOME>\user_projects\domains\<WEBLOGIC_DOMAIN>\cre-ateAdminServerService.cmd

The flag Xmx specifies the maximum memory allocation pool for a Java Virtual Machine (JVM), while Xms specifies the initial memory allocation pool, e.g.:

```
set "JAVA_OPTS=-Xms4g -Xmx4g -XX:MaxMetaspaceSize=512m"
```

Code example 5: *Java memory settings*

The following JAVA_OPTS settings are used by default when setting up a new ConSol CM system.

Default memory configuration for JBoss 6.4 on Java 8 (Xms and Xmx should be set to the same value):

- -Xms4g -Xmx4g -XX:MaxMetaspaceSize=512m

> (i) These parameters are starting parameters for production systems. Depending on the size of the system it might be necessary to adjust them. The following factors are important in this context:
>
> - number of concurrent users
> - amount of tickets, customers, resources
> - amount and size of emails
> - amount and size of attachments
> - size of the index
>
> As an administrator, you need to check the Java heap size and the garbage collection activity using tools like jconsole or jvisualvm. If the heap size is higher than 80 - 90% of the maximum value and the garbage collection runs frequently, you need to increase the memory alloc-ation (Xmx).

The list includes the officially supported default parameters for JBoss 6.4. They should be suitable for most installations.

- -verbose:gc
- -XX:+PrintGCDetails
- -XX:+PrintGCDateStamps

- -XX:+UseGCLogFileRotation
- -XX:NumberOfGCLogFiles=5
- -XX:GCLogFileSize=3M
- -XX:-TraceClassUnloading
- -XX:+UseCompressedOops
- -Djava.net.preferIPv4Stack=true
- -Djboss.modules.policy-permissions=true
- -Djboss.modules.system.pkgs=$JBOSS_MODULES_SYSTEM_PKGS

Depending on the individual usage of the ConSol CM system, some additional settings might be needed. The following list includes settings which are used on some systems. As these settings are not officially supported, please contact your ConSol CM consultant or the ConSol CM support before using them in your production environment.

- -server
- org.apache.tomcat.util.http.Parameters.MAX_COUNT=6000
- org.apache.coyote.http11.Http11Protocol.MAX_HEADER_SIZE=65535
- org.apache.tomcat.util.http.MimeHeaders.MAX_COUNT=200
- com.arjuna.ats.arjuna.allowMultipleLastResources=true
- -Dhttp://apache.org/xml/features/nonvalidating/load-external-dtd=false
  Prevent cross-scripting attacks
- -Djboss.platform.mbeanserver
  Enable the JMX bean server
- -Djgroups.marshalling.compatible=true
  Use old JGroups protocol instead of newer one
- -Dorg.jboss.resolver.warning=true
  Warning when an XML entity is defined as SYSTEM and the protocol is not `file://` or `vfsfile://`
- -Dserialization.jboss=false
  Disable JBoss serialization and use standard Java serialization instead
- -Dsun.rmi.dgc.client.gcInterval=3600000
- -XX:+UseParallelOldGC
  Use the old garbage collection or any better matching garbage collection depending on your requirements.
- -XX:+HeapDumpOnOutOfMemoryError
- -XX:HeapDumpPath=/some/path
  Use a path, you cannot use a file here
- -Xloggc:some/path/based/on/JbossRoot/log/gc-%t.log
- -XX:ReservedCodeCacheSize=150m
- -XX:CompressedClassSpaceSize=128m

Explanation:

- Start the application server with initial heap size of approx. 4 GB.

```
-Xms4G
```

- The maximum heap size for the application sever is also approx. 4 GB.

```
-Xmx4G
```

- The maximum space for the permanent space where compiled Java classes, methods and other required objects are stored during operation and never de-allocated. If this space is too small, even after a full garbage collection, an out of memory error will be thrown and the JVM will crash.

```
-XX:MaxMetaspaceSize=512m
```

- Activates garbage collector logging. Writes one line for each young generation `gc` and for each full `gc`. With the `PrintGCDateStamps` option, each line starts with the absolute timestamp.

```
-verbose:gc -XX:+PrintGCDateStamps -XX:+PrintGCDetails -
  XX:+UseGCLogFileRotation -XX:NumberOfGCLogFiles=5 -XX:GCLogFileSize=3M
```

> ⓘ If you want to know more about Java Garbage Collection, you might want to look at this web site: Java Garbage Collection Basics, By Oracle (last checked January 2018).

A detailed explanation of ConSol CM start scripts is provided in the *ConSol CM Setup Manual*.

E.2.2 CM Tuning

These are examples taken from the most common FQAs (Frequently Asked Questions) concerning system properties in our consulting team. Please find a complete list of all system properties with detailed explanations in section System Properties.

E.2.2.1 Change Duration of Web Client Sessions

Do the Web Client sessions terminate too quickly and users (CM engineers) complain about being logged out while they did not actively work with CM only for a short time?

You can modify the session interval, after which CM terminates the engineer sessions automatically by modifying the CM system property cmas-core-server, server.session.timeout (indicated in milliseconds).

> ⓘ Please keep in mind that ConSol CM works with concurrent user licenses. Every engineer session consumes one license, and each session which is not terminated might prevent another engineer from logging in if no more license is available.

E.2.2.2 Mailing

Mailbox Full?

Users complain that no emails are received? You have checked the mailbox on the mail server, but all messages are present in the correct inbox?

If a mailbox which is configured as in-box for ConSol CM (for details, please refer to the *ConSol CM Administrator Manual*, section *Email*) contains a very large number of e-mails which are marked as "SEEN", this might cause a problem. When fetching the new e-mails, CM first has to retrieve a list of all emails in the mailbox to filter "SEEN" and new emails in the second step. When the first check takes longer than the polling interval (system property cmas-nimh, queue.task.interval.seconds), there might be a deadlock situation and no emails can be fetched anymore.

As a solution you can of course increase the polling interval, but we recommend to clean-up the mailbox instead. Do not keep too many "SEEN" messages in the mailbox if it is not absolutely indispensable.

Change Mail Polling Interval

Users complain that emails which have been received by the mail server and are located in the inbox are not transferred to CM in the required time?

Check the CM system property cmas-nimh, queue.task.interval.seconds. The value of this system property defines the interval for the check of the main mail poller.

Managing the Maximum Attachment Size

Did an email come in and create a ticket but the file which was originally attached to the e-mail was not attached to the ticket?

Then the maximum size which is allowed for attachments might be too small. You can increase the value of the CM system property cmas-core-server, attachment.max.size. This is a validation property of the CM API. It controls the size of attachments at tickets, at units, and at resources. It also controls the size of **incoming** (not outgoing!) email attachments.

> (i) Do not set the allowed attachment size too large! Especially when the CM system property cmas-core-index-common, index.attachment is set to "true", the system performance might decrease, because the Indexer needs a lot of time to index all the very large attachments.

E.2.2.3 Search / Indexer

The Engineers Complain That the Search Is Extremely Slow?

You might increase the number of threads the Indexer is running by increasing the value of the CM system property cmas-core-index-common, index.task.worker.threads. The default value is "1". If you increase the value, do not set the value to a number higher than the number of CPU cores of the machine.

Of course there should always be enough space for the indexes on the hard drive and there should be enough RAM for a smooth operation of the Indexer without too many swap operations.

E.2.2.4 Database-Related Parameters

The engineers complain that CM in general is very slow?

One bottleneck can be the database access. You might want to increase the number of database connections in the connection pool. You can modify the size of the pool by setting the minimum and maximum pool size in the configuration file

- **JBoss:**

  ...<JBOSS_HOME>\standalone\configuration\cm6.xml

  Look for the tags `<min-pool-size>` and `<max-pool-size>`, e.g.:

```
...

<pool>
   <min-pool-size>5</min-pool-size>
   <max-pool-size>200</max-pool-size>
   <prefill>true</prefill>
</pool>

...
```

- **WebLogic:**

  Use the Administration Console to modify the database connection pools.

E.3 Troubleshooting FAQs

This chapter discusses the following:

E.3.1 Introduction

When you are reading this chapter, CM has a problem, presumably one which you could not solve right off hand. In order to help you perform systematic error analysis, a checklist is provided.

Also in this section, some cases which can appear in practice with CM are covered. Of course, there are a lot more possible scenarios in customer-specific systems. Please call the ConSol CM support team (+49-89-45841-150) in case you need more help than the one we can provide in this manual. To make the support process as fast and as efficient as possible, we recommend to prepare the files and information listed in section What to Provide for the CM Support Team.

E.3.2 General Checklist

If a CM error occurs and you do not have any idea what could be the cause, you can follow the checklist. Please keep in mind that there are a lot of collaborating systems (e.g., mail server, database server) which can be the source of the error, since CM is integrated into the IT landscape and is no standalone system.

1. As a first step, always check the entries in the log files. The `server.log` file reports everything which happens in CM and should be the first entry point for troubleshooting. Maybe the reason for the error becomes obvious from this file. Search for `ERROR` in the log file.

2. Check the application server:
   a. Is the application server up and running? With enough RAM and CPU? If CM is performing badly, not enough RAM or CPU power (or the respective configuration for the application server) can be the cause.
   b. Does the application server have enough disc space? The Indexer needs enough disc space to be able to work correctly. (You can also quickly check the Indexer status).

3. Check the database server:
   a. Is the database server of the CM database up and running?
   b. Can CM connect without errors and without timeout to the database server?

4. Check the mail server (if mailing problems have occurred)
   a. Is the mail server up and running? Is the email fetched by CM?
   b. For explanations of some special error scenarios, please see section Problems with Mailing.

5. If LDAP authentication is involved: Check the LDAP server.

   a. Is the LDAP server up and running? Has there be a change in directory structure on the LDAP server?

   b. For explanations of some special error scenarios, please see section Problems with LDAP Authentication.

E.3.3 What to Provide for the CM Support Team

If you call ConSol CM support, it is of great help and will speed up the support process if you prepare the following data:

- An exact history and description of what was done.
  Were there changes of the CM configuration using the Admin Tool? Were there changes in the workflows? Is it a problem with end user operation of the Web Client (CM Web Client or CM/Track)? What exactly was done when the problem occurred? To help with providing valuable information, we recommend to write a CM administrator log where everything which has been changed is documented.

- The log files.
  The most important file (in most cases) is the `server.log` file. You can also prepare a compressed archive (`.zip`, `.tar`, etc.) with all log files to send it to the ConSol support team.

- Exact information about all applications which are used with the exact version (e.g., operating system, web browser, Java version, database system, application server flavor and version).

E.3.4 Some Error Scenarios and Their Solution

E.3.4.1 Problems with Mailing

An Email Has Been Sent, but No Ticket Is Created?

- The person (or system) who (which) receives the mail error emails (configured in the CM system property cmas-nimh-extension, mail.error.to.address) should have received an email with an excerpt of the `mail.log` file. This can provide hints for a quick analysis.

- Which protocol is used? POP? IMAP? Check if the emails on the mail server are marked as *read*. CM fetches only emails which are marked *unread*.

- Is there an email backup? See *ConSol CM Administrator Manual*, section *Email Backups* for explanations. If a script which processes the incoming emails (see *ConSol CM Administrator Manual*, section *Scripts of Type Email*) does not work, CM can fetch the email and stores it in the CM database, but cannot import it into a ticket. To find out why, you can, for example

  - check the `mail.log` file

  - increase the debug level for mail logging (see section Logging and Log Files) and add some statements like the following into the script:

    ```
    if (mailLog.isDebugEnabled()) {
       mailLog.debug("This is my info about the incoming message or
         something else $msg")
    }
    ```

  - check the `mail.log` file again, there should be a more verbose output.

- Check if the Indexer is running and if the status is *GREEN*. When a ticket should be created, in most cases the index is used to find the correct customer (contact/company) for the ticket. Thus, when the Indexer has problems, there might be also problems with creating new tickets even though there is no connection between the problems at the first glance. You can quickly check the Indexer status).
- Check the CM system property cmas-nimh, queue.task.interval.seconds, which defines the time intervals in which CM fetches emails from the mail server. Maybe it is just too early and a new ticket could not have been created yet?

E.3.4.2 Problems with LDAP Authentication

The Engineers Cannot Log In?

Is a password required to contact the LDAP server? Check the login to the LDAP server with the correct port using an LDAP browser.

Have any LDAP parameters which are set as CM system properties changed during the last hour/day? Check if all parameters are still valid. For detailed information refer to LDAP Authentication for Engineers in the Web Client.

Only One Engineer Cannot Log In?

Has the password been changed?

Is the engineer still present in the engineer administration in CM?

E.3.4.3 Problems with Kerberos Authentication

Since Kerberos is a highly complex topic, only some basic checks can be recommended.

The Engineers Cannot Log In?

Does the CM application server (e.g., JBoss) run as the system user which has been used for registering the CM service in the Windows domain (Kerberos realm)? The user has to be identical.

Do all servers in the domain use the same system time? Since Kerberos tickets are based - besides others - on time stamps, it is indispensable that all servers work with the same system time (no more than five minutes delta for most systems).

E.3.4.4 Problems with CMRF/DWH

For troubleshooting CMRF and DWH database related problems refer to section FAQs and Tips for Troubleshooting.

E.3.4.5 Problems with Web Clients (End Users: Engineers, Customers)

Most problems with the CM Web Client might be tasks for the CM administrators. However, you as an CM operator might also receive notifications about problems when CM engineers cannot work with the Web Client. We recommend to ask the engineers to always provide the exact message which is displayed in the Web Client with the exact timestamp. This makes it easier to find the respective lines in the log files. Furthermore they should provide information about:

- which browser they use
- in which version
- on which operating system
- the Java version

Thus, in a very first step, you can check if the components are supported by the current CM version.

> (i) A detailed list of supported operation systems, application servers, database systems, and other systems, as well as storage and CPU requirements is given in the current *System Requirements*.

E.3.4.6 Problems with the Search / Indexer

The searches in the ConSol CM system are based on indices created by the CM Indexer. The indices are stored on the file system, in the data directory which has been configured during system setup and which is stored in the CM system property cmas-core-shared, data.directory.

A detailed introduction to the Indexer principle is provided in ConSol CM Indexer. Please read also the *ConSol CM Administrator Manual*, section *Search Configuration and Indexer Management* in order to learn details about how to manage the CM Indexer.

Problems with the Indexer can show various symptoms, for example:

- The search does not work at all (e.g., you enter a word in the Quick Search and nothing happens).

- Incoming emails are not processed correctly (because in the email scripts a search for existing contacts/companies is performed. If this does not work, the entire script fails).

- Newly created objects (e.g., contacts, tickets, ticket data) cannot be found in the search, even though the data fields have the annotation `field-indexed` (usually set to "transitive").

In those cases, you should - as a first step - always check if the Indexer works correctly. If there are unsolvable problems, you can recreate (synchronize) the index completely. If the index has only to be repaired, please take a look at the section in the *ConSol CM Administrator Manual* to see how to manage this.

Checklist for Problems with the Indexer

Checking the Indexer Status

There are two ways to check the Indexer status. They are both aimed at finding out if the status is "GREEN", "YELLOW", or "RED". This is the value of the CM system property cmas-core-index-common, index.status.

You can retrieve the value by one of the following methods:

- **Use the Admin Tool**
  In the navigation group *System*, navigation item *System Properties* you can check the value.

- **Use database access**
  In the table `cmas_configuration` look for `property_` = `indexer.status` and check the column `value_`.

Recreating the Index

If the index is corrupt, the files have been destroyed, or there are unsolvable problems with the Indexer you can completely recreate the index using one of two methods:

- **Use the Admin Tool**
  Open the navigation group *Services*, navigation item *Index* and select *Synchronize index*.

- **Use tools which access the MBeans**
  For example, you can use tools like Jolokia or twiddle (e.g., for JBoss) or *JConsole* (for JBoss) for graphic access. The MBeans of the Indexer offer the method `recreateIndex` which can be used to synchronize the entire index for the respective type of objects:

  - **Engineers:**
    core.engineerIndexService

  - **Resources:**
    core.resourceIndexService

  - **Tickets:**
    core.ticketIndexService

  - **Units (i.e., contacts and companies):**
    core.unitIndexService

> ⓘ Synchronizing the index completely might take a while in a large CM system (up to several hours), so please make sure you have planned this task for a time when CM search does not have to be available!

E.4 System Monitoring

This chapter discusses the following:

E.4.1 Introduction

In this section, we explain how to monitor a ConSol CM system using monitoring tools, i.e. how to integrate *ConSol CM* into a professional IT infrastructure where numerous systems are managed. Some checks can also be done manually using the Admin Tool, e.g. checking the DWH status using the DWH Monitor, but this is not the scope of this section. For explanations concerning those topics, please refer to the *ConSol CM Administrator Manual*.

You can use four "hooks" to monitor ConSol CM applications:

1. Check the **server process of the Java EE application**, i.e., the JBoss or WebLogic server process.

2. Check the **login of a monitoring ("dummy") user into the CM web clients**, i.e., the regular Web Client and the CM/Track client.

3. The **status of the Indexer** can be found out by controlling the file system and by retrieving a database parameter.

4. **Log file** monitoring.

> ⓘ Please contact the ConSol CM support or your ConSol CM consultant for information about monitoring ConSol CM in a cluster.

E.4.2 System Monitoring Reports

Starting with ConSol CM version 6.11.2.2, monitoring information can be retrieved using the health check endpoint. The monitoring reports contain information about the configuration of ConSol CM and the operational status of the system components.

Two reports are provided:

- full report: `<CM URL>/health/report`
- short report: `<CM URL>/health/check`

The information is retrieved in JSON format. Some sections contain a status (SUCCESS, WARNING) with a description.

The following information is retrieved:

- **Workflow engine**
  number of job execution threads, number of jobs (active, running, locked, delayed, under retry), transaction timeout, locking limit, timestamp of the latest job execution

- **Database**
  name, version and hibernate dialect, status and speed of test connection, number of available and used connections (only available for JBoss application servers)

- **Hardware**
  total and available memory and disk space, number of processors, CPU usage, system load, time since last boot (in seconds)

- **Server information**
  ConSol CM version, Java version, JavaMail version, status of the SMTP connection

- **Server events**
  number of cluster members, timestamp and response to test calls

- **Email system**
  mailbox ID, number of queued emails, timestamp of the last connection and processed email, ID of the last processed email

- **DWH information**
  mode, status, date of last transfer, live mode status, date of last live message, statistics

- **License information**
  number of available and currently used licenses for each license pool

E.4.3 Monitoring Tools

You can use a monitoring tool or application of your choice to control the CM systems. We recommend using a Nagios®-based solution. If you would like to get support on that topic, read the ConSol Monitoring page or ask your CM consultant.

E.4.4 Monitoring the ConSol CM Server Process

ConSol CM is a Java EE application, hence you can monitor the application server process. You can

- Monitor the basic process parameters like CPU usage, see section Using Beans to Monitor Some Basic Parameters

- Monitor the CM functionality (is login possible?). See the following section.

E.4.4.1 JMX Monitoring Using Jolokia

You can use Jolokia to monitor application servers, e.g., memory usage and garbage collection, and you can also check ConSol CM functionalities. As a basis, you have to deploy the file `jolokia.war` into the application server. Please ask your ConSol CM consultant for support if you would like to use this option.

E.4.5 Monitoring the Login into the CM Clients (CM Web Client and CM/Track), End-to-End Tests

The default port for the CM web server is `8080`. That means, after a CM installation, you can reach the ConSol CM start page under `http(s)://<Server>:8080`. The CM Web Client can be reached under `http(s)://<Server>:8080/client/login`. Of course, if the port has been modified (e.g., by using a port offset), the ports in the monitoring scripts have to be adapted accordingly.

In order to check the client login, you have to create a monitoring user, e.g., `nagios` in the CM system. This user is created like a regular system user. Use the Admin Tool for this operation. For a detailed introduction to user, i.e., engineer administration, please refer to the *ConSol CM Administrator Manual*, section *Engineer Administration*.

E.4.5.1 Configuring the Monitoring User

Starting with CM version 6.9.3, there is the option to configure a user (engineer/unit) for monitoring CM operations. This user can access each client exactly once using one session. This login will not consume a license. The session created will be marked as monitoring session. The user must independently have proper permissions to perform the tasks required for monitoring. These could include usage of the Admin Tool.

Two configurations have to be performed:

- **For the check of the Web Client:**
  Create an engineer and enter his login name in the system property cmas.core.server,

monitoring.engineer.login.

- **For the check of CM/Track:**
  Create a contact, assign a CM/Track user profile to him (see section *CM/Track* in the *ConSol CM Administrator Manual*), and enter his login name into the system property cmas.core.server, monitoring.unit.login.

E.4.5.2 Web Client Monitoring Principle

1. Check the login
   For the login, the username and password have to be submitted using an HTML POST request.

2. E.g., call the CM main page

You might want to use the ConSol CM Nagios plugin (a PERL script for Nagios servers) to check the Web Client. Please ask your ConSol CM consultant for more information.

E.4.5.3 Monitoring CM in a Cluster

In a cluster which consists of a load balancer and several CM servers, we recommend to check the login into each of the CM servers as well as the login via load balancer.

E.4.5.4 URL /logout for Automation Purposes

The URL for logging out of the Web Client is:

```
http://<CM_SERVER>/cm-client/logout/
```

This URL eases automation use cases like monitoring that require login and logout to the Web Client. It provides a robust way to log out of an automated Web Client session again not to unnecessarily consume licenses for monitoring.

E.4.6 Using Beans to Monitor Some Basic Parameters

To monitor basic application server parameters, e.g., Heap, CPU usage or used memory, you can use tools which directly access the JBeans of the application server. As a default in JBoss, use *JConsole*.
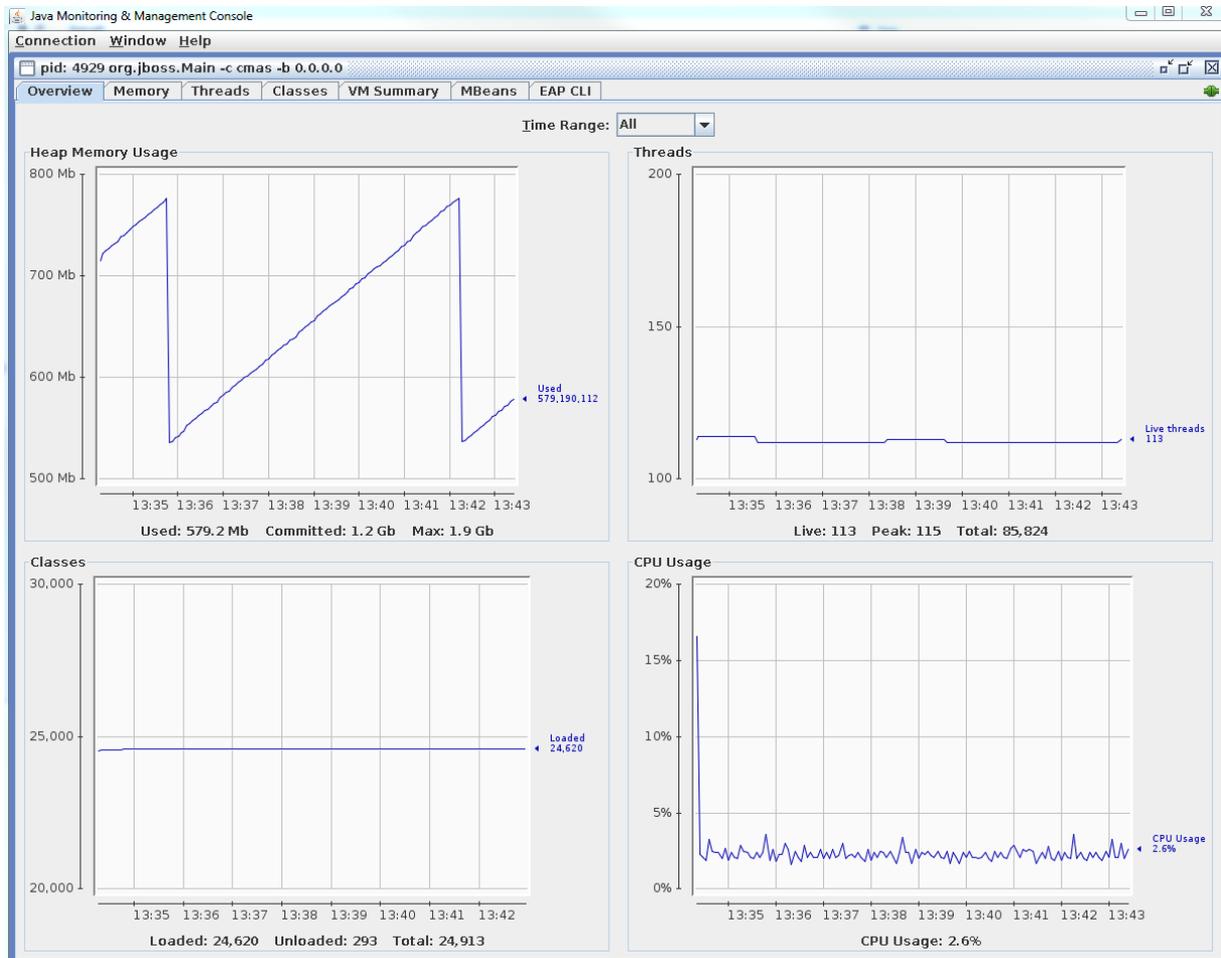
Figure 19: *JConsole - Checking Basic Runtime Values for a JBoss CM Server*

In order to integrate this monitoring into a larger IT environment, you could use, e.g., Jolokia to receive HTML output from the request to the JBeans. This can be inserted into your monitoring environment, e.g., into Nagios using a Perl script.

E.4.7 Checking the Status of the Indexer

In order to perform effective searches, ConSol CM creates an index for each data field which is either marked as indexed by default or which has been marked as indexed by an administrator. A detailed introduction to the search and Indexer is provided in section ConSol CM Indexer. The indices are stored in the file system, the Indexer status is represented by a system property (cmas-core-index-common, index.status).

E.4.7.1 Checking the Indexer File System

The index is located in the data CM directory which has been configured during setup, subdirectory `index`. You should ...

- control the disk space on this file system.

- control if the file system is available, in case it is mounted from another server.

- control if the synchronization between master and slave servers works in case you work in a server cluster environment.

E.4.7.2 Checking the Indexer Status in the Database

In order to control the Indexer status manually, start the Admin Tool and open the navigation group *Services*, navigation item *Index*. A detailed explanation is given in the *ConSol CM Administrator Manual*, section *Search Configuration and Indexer Management*.

To control the status using a monitoring tool, you can check the table `cmas_configuration`. The system property cmas-core-index-common, index.status should be "GREEN".

```
mysql> select * from cmas_configuration where property_ = 'index.status';
+-----------------------+--------------+--------+--------------+----------+--------+---------+----------+
| module_               | property_    | type_  | description_ | restart_ | value_ | system_ | optional_ |
+-----------------------+--------------+--------+--------------+----------+--------+---------+----------+
| cmas-core-index-common | index.status | STRING | NULL         | N        | GREEN  | Y       | N        |
+-----------------------+--------------+--------+--------------+----------+--------+---------+----------+
1 row in set (0.00 sec)
```

Figure 20: *Checking the Indexer status using database access*

This property can also be seen in the Admin Tool, navigation group *System*, navigation item *System Properties*.

In case the status is "YELLOW" or "RED", you have to use the Admin Tool to rebuild, repair, or refresh the index.

E.4.8 Monitoring the Log Files

For a detailed description of CM log files, please read section Logging and Log Files.

E.4.8.1 Tags to Monitor

Files and Tags Which Should Be Monitored

The most important log file is `server.log`. However, all log files should be controlled. In the file `error.log`, only errors are reported, so this might also be a good hook for your log file monitoring.

All entries of type `ERROR` should be analyzed. Please take all possible use cases into consideration to configure which entries should really trigger a system alarm. For example, there might be log entries labeled as ERROR which occur rather often and only show that an access denied event has occurred. So at this point, the monitoring tool has to be adapted in a very specific way for each CM system.

E.4.9 Monitoring Email Functionalities

E.4.9.1 Error Email Configuration

The first step in monitoring email functionalities of ConSol CM is configuring the correct TO addresses for error emails which concern the CM mailing subsystem. This is explained in detail in section Administrator and Notification Email Addresses.

Of course, you can configure TO addresses which belong to a ticketing system (e.g., ConSol CM, incident queue). In this way, you can be sure to get a notification when an e-mail error occurs.

E.4.9.2 Log File Control

Additionally, you can scan the specific log file, to be found in the following path:

- **JBoss (single server):**

  ```
  <JBOSS_HOME>/standalone/log/mail.log
  ```

- **WebLogic:**

  ```
  <WEBLOGIC_HOME>\user_projects\domains\<WEBLOGIC_DOMAIN>\cmrf-logs\mail.log
  ```

E.4.9.3 Control of Undeliverable Emails

Emails which were fetched by CM but could not be processed further, are stored in the database table `cmas_nimh_archived_mail`. In the Admin Tool, these email backups are listed under navigation group *Email*, navigation item *Email Backups*. In a well-maintained system, this table should be empty.

Emails which could not be saved to the database, e.g., due to their size, are saved in the file system (subfolder `/mail/unstorable` of the ConSol CM data directory) instead. The administrator receives an email notification.

A detailed explanation is provided in the *ConSol CM Administrator Manual*, section *Email Backups*.

E.4.10 CMRF / DWH Monitoring

You can carry out the following steps to monitor the CMRF / DWH:

- Check the value of `hlp_parameter.dwh_status`. It should be 4 (*DWH operational*). For the explanation of all states see Tables in the DWH (Database or Database Schema).

- For the live mode, you can get the point in time of the DWH as a timestamp in epoch milliseconds by using the following command:

```
select * from int_parameter where name ='last-success-live-id';
```

- Check the `cmrf.log` file for entries which contain "ERROR" (maybe also "WARNING").

- You can check if the automatic execution of DWH tasks is active via the CM system property cmas-dwh-server, autocommit.cf.changes.

The CM database (table `cmas_dwh_synchronization`) and the log files (`server.log`, `cmrf.log`) are the best source of information about status and progress. Starting with version 6.11 you can also see the status of the DWH jobs in the task list in the CM Admin tool (navigation group *Data Warehouse*, navigation item *Administration*) and the general status of the DWH in the DWH Monitor (navigation group *Data Warehouse*, navigation item *Monitor*).

- CM database:
    - The table `cmas_dwh_synchronization` contains information about each operation.
        - The column `dwh_status` contains the status of the processing in CM:
            - NEW - first status after creation
            - ACTIVE - data is sent to CMRF
            - SUCCESS - sending of data to CMRF has been finished successfully
            - ERROR - sending of data to CMRF has been finished unsuccessfully
        - The column `cmrf_status` contains the status of the processing in CMRF:
            - NEW - first status after creation
            - ACTIVE - data is processed in CMRF
            - SUCCESS - processing of data has been finished successfully
            - ERROR - processing of data has been finished unsuccessfully
- Log files:
    - server.log (search for: `dwh-transfer-service`, `dwh-live-service`, `dwh-log-service`)
    - cmrf.log

E.5 Data Backup and Recovery

This chapter discusses the following:

E.5.1 Introduction

ConSol CM is a Java EE application with a classic three-tier architecture. Therefore, in general all standard mechanisms for data backup and restore of a Java EE application server with a database connection apply. Some specific information about ConSol CM is explained in this section.

The following table shows which items you need to take into account for your backup and recovery strategy.

Item	Description
CM database	The ConSol CM database needs to be backed up using the standard mechanisms, see Backup and Recovery of the ConSol CM Database.
CM configuration	The configuration of ConSol CM, also called a scenario, can be backed up separately. See Backup and Recovery of the ConSol CM Configuration.
CM index	The index of ConSol CM is saved on the file system, see Backup and Recovery of the Index.
DWH database	The DWH database can either be recreated based on the data in the CM database, or backed up using standard database backup mechanisms. See Backup and Recovery of the ConSol CM Configuration.

E.5.2 Backup and Recovery of the ConSol CM Database

The standard database backup and recovery mechanisms apply to the ConSol CM database.

> ⚠️ Carry out tests to check if the backup procedure works and if you are able to restore the database.

E.5.3 Backup and Recovery of the ConSol CM Configuration

In addition to a database backup on database level, ConSol CM also allows to export and back up a so called **scenario** using the Admin Tool. Depending on the export parameters, this scenario contains either the complete system configuration (Admin Tool configuration and workflows) or only a part of this configuration. It is also possible to include runtime data (tickets, customers, and resources) in the export. Nevertheless, this should not be done when exporting large environments, as this is only intended for transferring small amounts of data, as test tickets and customers. Therefore, a scenario export does not replace a database backup.

Usually, a scenario is used to transfer data from a test environment to a staging or production environment. But you can also use it to back up the complete configuration of the (production) system. In case the recovery of a database backup fails, you will then have the possibility to quickly restore the configuration. Nevertheless, tickets, customers, and resources will not be available afterwards.

A scenario does not contain the values of CM system properties which are not in a customer-specific module, e.g., the mail server and LDAP configuration is not be exported. A detailed explanation about which parameters are exported in a scenario is provided in the *ConSol CM Administrator Manual*, chapter *Deployment (Import / Export)*.

Therefore, ConSol recommends the following: Export a scenario of the production environment on a regular basis and save it on a share which is included in the backup system. In order to save the values of the CM system properties, either use a simplified solution and store a screenshot of the Admin Tool values or export the table `cmas_configuration` of the ConSol CM database.

Please also refer to the *ConSol CM Administrator Manual*, chapter *Deployment (Import / Export)* for further details and background information about working with scenarios.

E.5.4 Backup and Recovery of the Index

This is explained in detail in section Backup and Recovery of the Index.

E.5.5 Backup of the DWH and Recovery of a Completely Damaged DWH Database

The ConSol CM DWH (Data Warehouse) is filled by the CMRF (ConSol CM Reporting Framework) either triggered manually by an administrator (in *ADMIN* mode) or on-the-fly in *LIVE* mode. For a detailed explanation, please refer to Operating the Data Warehouse. In case the DWH is corrupt or has to be restored for other reasons, the DWH can be re-built completely using the Admin Tool, DWH Configuration, *Initialize* with the option *Delete existing data* enabled. This recreates the complete database scheme. Afterwards, use *Transfer* for the initial filling of the DWH. However, this method has a rather great impact on the live operation of the DWH (i.e., a downtime which might extend to some hours or even days) and should only be used if the DWH cannot be updated using the *Update* option.

It depends on the size of the DWH if it makes sense to include the DWH in the regular database backup. If the DWH is large, it should be part of the regular database backup, because a complete recreation would take too long to be compatible with every-day reporting requirements. For a rather

small DWH, it might be easier and quicker to restore it using the recreation as explained in the pre-
vious paragraph. Since configuration, infrastructure, and performance are highly system-specific,
please to talk to your ConSol CM consultant to discuss which is the best solution for your company.

E.6 Operating ConSol CM Behind a Proxy (e.g., Apache HTTPD)

E.6.1 Introduction

In some cases, it might be required to operate ConSol CM behind a proxy server. Two common scenarios are:

1. The Web Client and CM/Track should be available through the proxy, but external access through the proxy to the Admin Tool and to the Process Designer should be blocked. This is explained in section ConSol CM Behind a Proxy, Blocking Admin Tool and Process Designer.

2. All clients, i.e. Web Client, CM/Track, Admin Tool, and Process Designer should be available through the proxy. This is explained in section ConSol CM Behind a Proxy, Allowing Access to Admin Tool and Process Designer.

E.6.2 ConSol CM Behind a Proxy, Blocking Admin Tool and Process Designer

E.6.2.1 Basic Principle

This section provides information about how to operate ConSol CM behind a proxy server (e.g. Microsoft IIS or Apache HTTPD). This might be relevant in a security context, e.g. when you have to set security regulations concerning system access over the internet. You might have to

grant access

- for your engineers to the Web Client (URL http://<yourcm6server>/cm-client)

- for your customers to CM/Track (URL http://<yourcm6server>/restapi) and if CM/Track is deployed in the CM JBoss also URL http://<yourcm6server>/cm-track)

but to

block access

- to the Admin Tool and

- to the Process Designer.

The solution is based on the principle shown in the following picture.
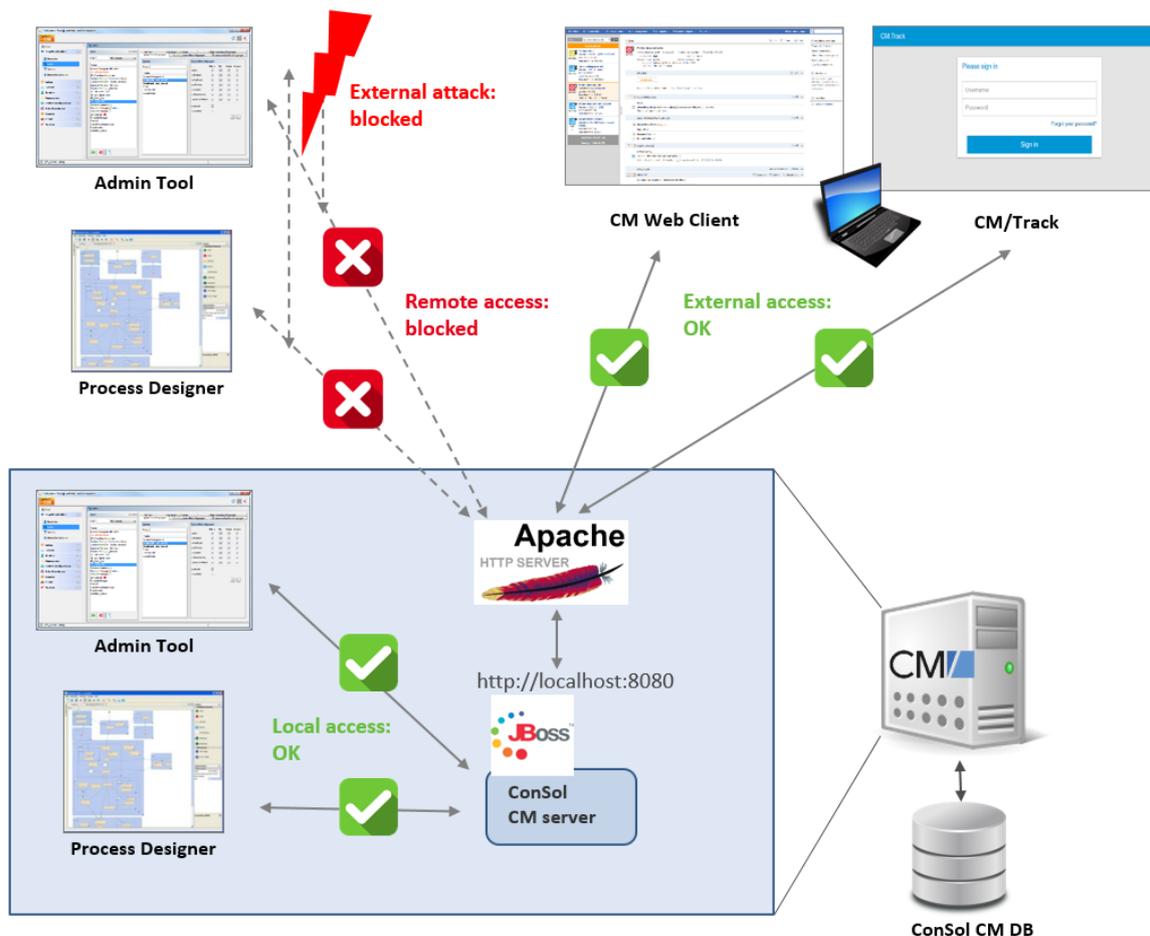
Figure 21: *Operating ConSol CM behind a proxy server (here Apache HTTP server)*

E.6.2.2 Hide Some CM URLs Behind an Apache Proxy Server (= Whitelist Only Dedicated Applications)

This section demonstrates how to allow only certain URLs/paths/applications to be accessible through the proxy. This will hide all other addresses.

The solution is based on an Apache HTTPD version 2.4 and assumes:

- that the JBoss bind address (-b parameter) has been set to "127.0.0.1" so it will only allow connections from the local machine
- that the Apache HTTPD and the JBoss reside on the same machine (applicable for most CM installations except clustered environments)

Perform the following steps:

- Install the Apache HTTP server
- Activate the proxy modules
- Add the proxy rules
- Test your installation

Install the Apache HTTP Server

Since Windows binaries (ZIP archive with EXE files) are not directly available on the Apache homepage, we recommend to download the binary files from the Apache Haus.

Activate the Proxy Modules

In `<APACHE_HOME>/conf/httpd.conf` you need to un-comment the following proxy modules to activate proxy functionality:

```
LoadModule proxy_module modules/mod_proxy.so
LoadModule rewrite_module modules/mod_rewrite.so
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
# LoadModule proxy_http_module modules/mod_proxy_http.so # if you want to use http
  backend
```

Add the Proxy Rules

Add the following section at the end of the `<APACHE_HOME>/conf/httpd.conf` file.

Best Practice is to use AJP as backend protocol.

```
<IfModule proxy_ajp_module>
   ProxyPass /cm-client ajp://localhost:8009/cm-client disablereuse=on
   ProxyPassReverse /cm-client ajp://localhost:8009/cm-client
   ProxyPass /restapi ajp://localhost:8009/restapi disablereuse=on
   ProxyPassReverse /restapi ajp://localhost:8009/restapi
   # If CM/Track is deployed on the JBoss directly, you might want to enable the
    following lines as well
   ProxyPass /cm-track ajp://localhost:8009/cm-track disablereuse=on
   ProxyPassReverse /cm-track ajp://localhost:8009/cm-track
</IfModule>
```

Set `disablereuse=on` to force `mod_proxy` to close connections to its backend after using it. Otherwise you could get issues with things being loaded with delay or not loaded at all, especially in situations with a firewall between Apache and JBoss.

Alternative with rewrite rule, allows easier access as http://<yourcm6server>/

```
RewriteEngine on
RewriteRule ^/$ /cm-client/ [R,L]
RewriteRule ^/cm-client$ /cm-client/ [R,L]
ProxyPass /cm-client/ ajp://localhost:8009/cm-client/ disablereuse=on
ProxyPassReverse /cm-client ajp://localhost:8009/cm-client
```

Test Your Installation

Client Test

Once these modifications are complete, start the httpd (e.g.: execute `httpd.exe` located in the `bin/` directory) and start the CM JBoss.

Now you should be able to access:

```
http://<yourcm6server>/cm-client/login
```

which should display the regular ConSol CM login page.

Figure 22: *ConSol CM login page*

Accessing

```
http://<yourcm6server>/admin/cm-admin-tool.jnlp
```

should just result in a HTTP 404 (Page not found).

REST API Test

Basically do the same to test the proxy rule for the ConSol CM REST API.

```
http://localhost/restapi/echo/client
```

This call should display some JSON string:

```
{"Accept-Language":"de,en-
 US;q=0.7,en;q=0.3","Accept":"text/html,application/xhtml+xml,application/xml;q=0.
 9,*/* ;q=0.8"}
```

Installing Apache HTTPD as Windows Service

On Windows machines, you might want to run the Apache HTTPD as a service.

The following command needs to be run with administrator permissions in order to install the Apache HTTPD as a Windows service:

```
D:\work\Apache24\bin>httpd.exe -k install
```

It will result in the following output:

```
Installing the 'Apache2.4' service
The 'Apache2.4' service is successfully installed.
Testing httpd.conf....
Errors reported here must be corrected before the service can be started.
D:\work\Apache24\bin>
```

Please make sure that the start mode of this service is "automatic" (same as the JBoss service!)

E.6.3 ConSol CM Behind a Proxy, Allowing Access to Admin Tool and Process Designer

E.6.3.1 Adding AJP Support to JBoss EAP

In case you want to operate ConSol CM behind a proxy server and want to explicitly allow access to the Admin Tool and to the Process Designer, you have to enable AJP in the JBoss installation.

By default, JBoss EAP does not enable the AJP connector. If you want your CM installation to provide AJP, you need to do perform the steps for your JBoss EAP version.

JBoss EAP 6.4

1. Modify your CM configuration file, e.g.:

   ```
   <JBOSS_HOME>/standalone/configuration/cm6.xml
   ```

2. Find the part for the connectors, which usually looks like the following:

   ```
   <subsystem xmlns="urn:jboss:domain:web:1.5" default-virtual-server="default-
     host" native="false">
     <connector name="http" protocol="HTTP/1.1" scheme="http" socket-
       binding="http"/>
     <virtual-server name="default-host" enable-welcome-root="false">
       <alias name="localhost"/>
     </virtual-server>
   </subsystem>
   ```

3. Add the following line to the `<subsystem>` element:

   ```
   <connector name="ajp" protocol="AJP/1.3" scheme="http" socket-binding="ajp"/>
   ```

   So the final element looks like this:

```
<subsystem xmlns="urn:jboss:domain:web:1.5" default-virtual-server="default-
  host" native="false">
  <connector name="http" protocol="HTTP/1.1" scheme="http" socket-
    binding="http"/>
  <connector name="ajp" protocol="AJP/1.3" scheme="http" socket-
    binding="ajp"/>
  <virtual-server name="default-host" enable-welcome-root="false">
    <alias name="localhost"/>
  </virtual-server>
</subsystem>
```

4. By default, AJP uses port 8009. In order to change this port, scan the configuration file for an entry like this:

```
<socket-binding name="ajp" port="8009"/>
```

Modify it according to your needs.

JBoss EAP 7.1.4

1. Modify your CM configuration file, e.g.:

```
<JBOSS_HOME>/standalone/configuration/cm6.xml
```

2. Find the part for the connectors, which usually looks like the following:

```
<subsystem xmlns="urn:jboss:domain:undertow:4.0" default-virtual-
  host="default-host">
  <buffer-cache name="default"/>
  <server name="default-server">
    <http-listener name="default" socket-binding="http" redirect-
      socket="https" enable-http2="true"/>
    <host name="default-host" alias="localhost">
      <location name="/" handler="welcome-content"/>
      <filter-ref name="server-header"/>
      <filter-ref name="x-powered-by-header"/>
      <http-invoker security-realm="ApplicationRealm"/>
    </host>
  </server>
  [...]
</subsystem>
```

3. Add the following line to the `<server name>` element:

```
<ajp-listener name="ajp" socket-binding="ajp" scheme="http"/>
```

So the final element looks like this:

CM/ is a registered trademark of ConSol Consulting & Solutions Software GmbH

```
<subsystem xmlns="urn:jboss:domain:undertow:4.0" default-virtual-
 host="default-host">
  <buffer-cache name="default"/>
  <server name="default-server">
    <http-listener name="default" socket-binding="http" redirect-
     socket="https" enable-http2="true"/>
    <ajp-listener name="ajp" socket-binding="ajp" scheme="http"/>
    <host name="default-host" alias="localhost">
       <location name="/" handler="welcome-content"/>
       <filter-ref name="server-header"/>
       <filter-ref name="x-powered-by-header"/>
       <http-invoker security-realm="ApplicationRealm"/>
    </host>
  </server>
  [...]
</subsystem>
```

4. By default, AJP uses port 8009. In order to change this port, scan the configuration file for an entry like this:

```
<socket-binding name="ajp" port="8009"/>
```

Modify it according to your needs.

E.7 System Update (Minor Version)

This chapter discusses the following:

E.7.1 Introduction: Types of CM Installations

For ConSol CM, there are two types of installations/instances. Depending on which type of installation you operate in your company, you can perform a system update yourself or not.

- **Case 1: Standard**
  You have a standard configuration, i.e., the complete customizing has been performed using standard CM tools (Admin Tool configuration, Process Designer for workflows). Neither the `.ear` files for CM and CMRF, nor the `.war` file for CM/Track have been modified. In this case, you can perform the update yourself as described in the following sections.

- **Case 2: Custom**
  You have a customized ConSol CM system, i.e., files within either the `cm6.ear`, the `cmrf.ear`, and/or files within the `cm-track.war` have been modified and a new `.ear/.war` file has been built. Then a custom-specific development project is managed at ConSol's and you should ask your technical ConSol CM consultant for support.

E.7.2 Updating a ConSol CM Standard Installation (for Case 1)

The following paragraphs list all the steps you have to perform in case of a CM update.

E.7.2.1 Information about the Update

As a first step, please read all the *Release Notes* which cover the versions between source version (which is currently installed on your system) and target version (which you want to install now). The first sections of each *Release Notes* document deal with the required steps in case of a system update. Follow the instructions provided in these sections.

In some cases, it might be required to adapt the CM system to a new version, e.g., to modify scripts when Groovy methods of the CM API have become obsolete. A hint about these changes will be provided in the *Release Notes*. Please ask your ConSol CM consultant for help and prepare everything which is required **before** the update starts!

E.7.2.2 Getting the Required Files

Depending on the components you have installed in your CM system, the following files are required for an update. Please ask the ConSol support team or your ConSol CM consultant to get the files of the new CM version. If your company has a maintenance contract with ConSol, you can download the required files from the ConSol ftp server.

1. For every installation:
   the **CM .ear file**:
   dist-package-ear-<CM_VERSION>.ear, e.g. `dist-package-ear-6.11.2.2.ear`

2. If DWH/CMRF are installed:
   the **CMRF .ear file**
   cmrf-package-ear-<CM_VERSION>.ear, e.g. `cmrf-package-ear-6.11.2.2.ear`

3. If CM/Track V2 is installed:
   the **new .war file** for a web container:
   cmtrack-v2-distribution-<CM_VERSION.war>, e.g., `cmtrack-v2-distribution-6.11.2.2.war`

4. If ETL is used (e.g., for import of customer or engineer data into the CM database):
   the **CM ETL package**:
   etl-package-distribution-<CM_VERSION>-kettle.zip, e.g., `etl-package-distribution-6.11.2.2-kettle.zip`

E.7.2.3 Perform the Update

> (i) Please note that if you perform an update, you have to perform the version-specific actions (mentioned in the first sections of each *Release Notes* document) for all versions between source and target version.

1. Shutdown the ConSol CM system.

2. Do everything that is necessary according to **all** *ConSol CM Release Notes* between the source and the target version, in ascending order.

3. Deploy the new CM `.ear` and `.war` files.

4. Restart the CM system.

CM/ is a registered trademark of ConSol Consulting & Solutions Software GmbH

E.8 Release Process

This chapter discusses the following:

E.8.1 Introduction

This section treats the deployment of a new ConSol CM configuration, not CM updates! For information about how to perform CM updates, please read section System Update (Minor Version).

Most larger ConSol CM systems are not only run on one server, but there are two or more servers, like:

- Development server (DEV)
- Test server (TEST)
- Staging server (STAGE)
- Production server (PROD)

In general IT infrastructure terminology, one of those servers is called a *tier*. Thus, the example above would describe the classical 4-tier deployment architecture. Usually, the design and development of new custom-specific features and configurations is performed on the development (DEV) server and then moved to the test server (TEST) for QA. When the responsible persons have given their approval, the configuration can be moved to the staging server (STAGE) for complete tests and then be deployed in the production environment (PROD).

This implies that it is possible to move an entire CM configuration from one server to another one. For this purpose CM works with so called *scenarios*. A scenario contains the entire configuration of a CM system and can also contain runtime data. However, it is definitely not recommended to use a scenario to transport runtime data except for test environments. To be able to work correctly and efficiently with scenarios, as a CM operator and/or administrator you have to know the technical details about scenarios. They are explained in the *ConSol CM Administrator Manual* in section *Deployment (Import/Export)*. Please read this section, before you start working with scenario exports/imports! Here in this manual, we will assume that you know how to export and import scenarios and how to control exactly which data should be transferred.

E.8.2 Deployment Pipeline

Here, we assume, that only new functionalities should be implemented and no update will be performed. **All involved CM servers run exactly the same CM version**.

All servers (DEV-TEST-STAGE-PROD) are separate systems. There are no shared machines, databases, or file systems.

> ⚠ **GOLDEN RULE FOR CHANGES**
>
> When changes have to be made, do NEVER EVER perform those changes on STAGE or PROD! You might cause undesired side effects and might hamper the entire deployment, maintenance, and support processes.
>
> A change always has to start on DEV (or in some cases on TEST). This includes major changes like the deployment of new workflows as well as minor changes like creating a new engineer account.

E.8.2.1 Development Server (DEV)

When new functionalities should be developed, new workflows should be implemented, or new configurations should be performed into the running CM system, a scenario from the production environment should be imported. Then new functionalities, configurations, and worflows can be implemented on this server. The server might even be a local machine of a developer or consultant.

Regarding the database and operating system: In practice they might differ from the middleware which is used in test-staging-production, e.g., as developer database, often MySQL is used even though in production Oracle or Microsoft SQL is used. Please be aware of the fact that a three-tier Java EE application might behave in a different way on different RDBMS. That is why we recommend to use identical RDBMS on DEV, TEST, STAGE, and PROD.

There are two ways to get back to the basic starting point in case you have reached a stage with your CM scenario which requires a new start:

- Work with a VM and store a snapshot which you can use to start anew.
- Work with the PROD scenario and import this again for a new start. In this case you have to start with an empty database, ask your CM consultant for help.

E.8.2.2 Test Server (TEST)

The test server has exactly the same parameters as the production server. A new deployment cycle starts with an exact copy (scenario) of the production server.

> ⓘ Make sure there are no emails sent from the TEST server to real persons except for the team involved in testing!

There are two ways of moving new content from DEV to TEST:

- Export the scenario (configuration only, complete or partial, depending on the requirements) from DEV and import this scenario on TEST.
- Implement exactly the same functionalities on TEST which you have implemented on DEV.

Then go ahead and test all functionalities, e.g., with the project stakeholders and with key users. There should always be a list of test cases, often derived from the list of use cases which have been defined in the requirements and specification process.

If all functionalities have been tested positive, the responsible persons give their approval and the scenario can be moved to staging.

During the tests on TEST, there might be some errors or some requirements might change. In those cases, the way goes back to DEV. When everything has been implemented in the new version, the DEV scenario can again be moved to TEST.

> ⚠ Make sure the mailboxes are configured correctly. It is absolutely imperative to avoid that TEST and STAGE fetch emails from the same email accounts.

E.8.2.3 Staging Server (STAGE)

The STAGE sever (sometimes also called *integration server*) is an identical copy of the PROD environment. The TEST scenario will be exported from TEST and imported on STAGE for final tests prior to the Go Live on PROD. All parameters and interfaces have to be exactly the same as in PROD. In this way, all CM core functionalities as well as system imports or other interactions with other IT systems can be tested. All changes which have been performed on TEST (e.g., implementation of ETL scripts, special flavors of CM as customer project, or specifically customized versions of CM/Track) have to be implemented on STAGE. The STAGE has to be tested under the same conditions as the PROD server will face, e.g., with the same number of concurrent users and the same amount of transferred data.

If this is possible, we recommend to transfer a snapshot of production data (via database export/import) into the STAGE CM database to be able to test with real data. This means:

- The scenario originates from the TEST environment.
- The data originates from the PROD environment.

> ⓘ Make sure there are no emails sent from the STAGE server to real persons except for the team involved in testing.

On STAGE, also performance tests have to be done. For example, it is possible that on TEST, your CM runs perfectly well, with only 10 users. When you move to STAGE, there are 100 users and a bottleneck in database access becomes obvious. This means: Not only functional but also non-functional requirements have to be taken into consideration on STAGE!

If everything on STAGE has been tested positive and the responsible persons have given their approval, the scenario can be exported for import on PROD.

> ⚠ Make sure the mailboxes are configured correctly. It is absolutely imperative to avoid that STAGE and PROD fetch emails from the same email accounts.

E.8.2.4 Production Server (PROD)

> ⓘ A deployment of a new CM scenario will imply a certain downtime of the system. Plan the CM Go Live in advance in order to avoid undesired side-effects in your every-day business process.

The PROD environment, also called *live environment*, is the environment which is used to work with in real business life.

On Go Live day, the scenario from STAGE has to be imported on PROD and all other adaptations have to be performed, e.g., implementation of ETL scripts, special flavors of CM as customer project, or specifically customized versions of CM/Track.

F - Appendix

This section contains several appendices:

- System Properties
- Administrator and Notification Email Addresses
- Trademarks
- Glossary

F.1 System Properties

The following chapter provides detailed information about the system properties used in ConSol CM.

- Alphabetical List of System Properties
- List of System Properties by Module
- List of System Properties by Area

F.1.1 Alphabetical List of System Properties

This chapter describes the following properties:

access.token.signing.key

- **Module**: cmas-auth-server
- **Description**: Determines the secret shared between the authorization server and all client applications using OAuth2, e.g. CM/Archive. The value of this property needs to match the value of *archive.oauth2.access.token.signing.key* in the configuration file of CM/Archive.
- **Type**: password
- **Restart required**: yes
- **System**: no
- **Optional**: no
- **Example value**: my_password
- **Since**: 6.11.2.0

admin.email

- **Module**: cmas-core-security
- **Description**: The email address of the ConSol CM administrator. The value which you entered during system set-up is used initially.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0

admin.login

- **Module**: cmas-core-security
- **Description**: The name of the ConSol CM administrator. The value which you entered during system set-up is used initially.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: admin
- **Since**: 6.0

admin.tool.consumed.licences.check.interval

- **Module**: cmas-app-admin-tool
- **Description**: Sets the interval (in seconds) to monitor the number of consumed licenses.
- **Type**: integer
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.11.0.0

admin.tool.consumed.licences.pool.name

- **Module**: cmas-app-admin-tool
- **Description**: Sets the license pool name to monitor the number of consumed licenses.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: CONCURRENT_USERS (default value)
- **Since**: 6.11.0.0

admin.tool.session.check.interval

- **Module**: cmas-app-admin-tool
- **Description**: Configures the time interval (in seconds) in which the system checks for inactive (ended) Admin Tool sessions.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 30
- **Since**: 6.7.5

archive.uri

- **Module**: cmas-archive-core-server
- **Description**: Sets the URL from which the CM/Archive application can be accessed
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: <server_url>:8090
- **Since**: 6.11.2.0

attachment.allowed.types

- **Module**: cmas-core-server
- **Description**: Comma-separated list of allowed file name extensions (if no value is defined, all file extensions are allowed).
- **Type**: string

- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: txt,zip,doc
- **Since**: 6.5.0

attachment.max.size

- **Module**: cmas-core-server
- **Description**: Maximum attachment size, in MB. This is a validation property of the CM API. It controls the size of attachments at tickets, units, and resources. It also controls the size of incoming (not outgoing!) email attachments. The value of this property needs to be aligned with the respective setting in the application server configuration.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 100 (default value)
- **Since**: 6.4.0

attachment.type.hints

- **Module**: cmas-core-server
- **Description**: Allows you to assign MIME types to not yet officially supported file extensions, so these file extensions can be detected correctly.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 7z:application/x-7z-compressed, zip:application/zip, wav:audio/x-wav
- **Since**: 6.11.2.0

attachment.upload.timeout

- **Module**: cmweb-server-adapter
- **Description**: Defines the transaction timeout in minutes for adding attachments to a ticket, resource or customer. Counts the time for the upload of all attachments of one transaction. When the timeout occurs, all files which have been temporarily stored on the server are deleted. No file is uploaded.
- **Type**: Integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: 3
- **Since**: 6.10.5.3

authentication.method

- **Module**: cmas-core-security
- **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

autocommit.cf.changes

- **Module**: cmas-dwh-server
- **Description**: Defines whether DWH tasks which result from configurational changes on ticket fields are executed automatically without manual interaction in the Admin Tool. Can be also set in the Admin Tool in the navigation item *DWH*. The default and recommended value is "false".
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false (default value)
- **Since**: 6.7.0

autocomplete.enabled

- **Module**: cmas-app-admin-tool
- **Description**: If the flag is missing or its value is "false", then the *Autocomplete address* navigation item is hidden in Admin Tool.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.2.0

automatic.booking.enabled

- **Module**: cmweb-server-adapter
- **Description**: If enabled, time spend on creating comment/email will be measured and automatic time booking will be added.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.2

batch-commit-interval

- **Module**: cmas-dwh-server
- **Description**: Number of objects in a DWH message. Larger values mean better transfer performance at the cost of higher memory usage.
  Starting with ConSol CM version 6.11, this property is only used if the package size of a DWH operation is not set. This can only happen when the command is directly addressed to the Java MBean `consol.cmas.global.dwh.synchronizationService`, e.g. using the `update()` method. When a DWH operation is started using the Admin Tool, there is always a value for the package size. If not explicitly set, the default value of 1000 is used as value for `batch.commit.interval`.
- **Default value**: 1000
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 100
- **Since**: 6.0.0

big.task.minimum.size

- **Module**: cmas-core-index-common
- **Description**: Indicates the minimum size of index task (in parts, each part has 100 entities) to qualify this task as a big one. Big tasks have a lower priority than normal tasks.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 15 (default value)
- **Since**: 6.8.3

cache-cluster-name

- **Module**: cmas-core-cache
- **Description**: JBoss cache cluster name.
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 635a6de1-629a-4129-8299-2d98633310f0
- **Since**: 6.4.0

calendar.csv.dateFormat

- **Module**: cmas-core-server
- **Description**: Format of the date given in the csv file containing the list of holidays.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: dd/MM/yyyy
- **Since**: 6.9.3.2

calendar.csv.separator

- **Module**: cmas-core-server
- **Description**: Separator used in the csv file containing the list of holidays.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: ,
- **Since**: 6.9.3.2

checkUserOnlineIntervalInSeconds

- **Module**: cmweb-server-adapter
- **Description**: The interval in seconds to check which users are online (default 180sec = 3min).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 180

- **Since**: 6.0
- **Removed in**: 6.5 / 6.11.0.1

client.archive.access.token.validity.seconds

- **Module**: cmas-auth-server
- **Description**: Determines the validity period in seconds of the access token required for using CM/Archive.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 43200 (default value)
- **Since**: 6.11.2.0

client.archive.enabled

- **Module**: cmas-auth-server
- **Description**: Determines if CM/Archive is enabled ("true") or disabled ("false").
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: false
- **Since**: 6.11.2.0
- **Removed in**: 6.11.2.2

client.archive.refresh.token.validity.seconds

- **Module**: cmas-auth-server
- **Description**: Determines the validity period in seconds of the refresh token required for obtaining new access tokens for CM/Archive.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 2592000 (default value)
- **Since**: 6.11.2.0

client.archive.secret

- **Module**: cmas-auth-server
- **Description**: Determines the secret shared between the authorization server and CM/Archive. The value of the property needs to match the value of *archive.oauth2.client.secret* in the configuration file of CM/Archive.
- **Type**: password
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: my_password
- **Since**: 6.11.2.0

client.was.access.token.validity.seconds

- **Module**: cmas-auth-server
- **Description**: Determines the validity period in seconds of the access token required for using the Web Admin Suite.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 43200 (default value)
- **Since**: 6.12.0.0

client.was.refresh.token.validity.seconds

- **Module**: cmas-auth-server
- **Description**: Determines the validity period in seconds of the refresh token required for obtaining new access tokens for the Web Admin Suite.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 2592000 (default value)
- **Since**: 6.12.0.0

client.was.secret

- **Module**: cmas-auth-server
- **Description**: Determines the secret shared between the authorization server and the Web Admin Suite.
- **Type**: password
- **Restart required**: no

- **System**: no
- **Optional**: no
- **Example value**: my_password
- **Since**: 6.12.0.0

cluster.mode

- **Module**: cmas-core-shared
- **Description**: Specifies whether ConSol CM is running in a cluster.
- **Type**: boolean
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.1.0

cluster.unicast

- **Module**: cmas-core-shared
- **Description**: Flag to activate jgroups unicast mode for ConSol CM clusters (as opposed to the default multicast mode causing problems in some data center environments). If set to "true", remember to set the JVM start parameters: `jgroups.bind.port`, `jgroups.bind.address` and `jgroups.initial_hosts`.
- **Type**: boolean
- **Restart required**: yes
- **System**: yes
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.11.0.0
- **Removed in**: 6.12.0.0

cmas.dropSchemaBeforeSetup

- **Module**: cmas-setup-hibernate
- **Description**: Flag if schema is to be (was) dropped during setup
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.0

cmoffice.enabled

- **Module**: cmweb-server-adapter
- **Description**: Flag if CM/Doc (former CM/Office) is enabled.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.4.0

cmoffice.oo.path.NUMBER

- **Module**: cmweb-server-adapter
- **Description**: Possible location of the OpenOffice installation. The properties are numbered starting with 0.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: c:\Program Files (x86)\LibreOffice 3.6\program
- **Since**: 6.10.1.0
- **Removed in**: 6.12.0.0

cmoffice.strict.versioning.enabled

- **Module**: cmweb-server-adapter
- **Description**: Controls if the SAVE operation in Microsoft Word / OpenOffice documents creates a new attachment ("true") or overwrites the existing attachment ("false"). This concerns the behavior within one session using the text editing program. If the program is stopped, the overwrite mechanism will not work anymore.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.10.5.4

cmoffice.websocket.port

- **Module**: cmweb-server-adapter
- **Description**: Determines the port on which the CM/Doc application should be started and connected to.
- **Type**: integer

- **Restart required**: no

- **System**: no

- **Optional**: yes

- **Example value**: 30333

- **Since**: 6.12.0.0

comment.authors.disabled

- **Module**: cmas-restapi-core

- **Description**: Disables the display of the content's author via REST API.

- **Type**: boolean

- **Restart required**: no

- **System**: no

- **Optional**: yes

- **Example value**: false (default value)

- **Since**: 6.11.0

commentRequiredForTicketCreation

- **Module**: cmweb-server-adapter

- **Description**: Flag if the comment is a required field for ticket creation.

- **Type**: boolean

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: true (default value)

- **Since**: 6.2.0

communication.channel

- **Module**: cmas-dwh-server

- **Description**: Communication channel. Only possible value since CM version 6.11.0.0: DIRECT

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: DIRECT

- **Since**: 6.8.5.0

- **Removed in**: 6.11.0.0 (DIRECT mode is the only available mode and is set automatically)

config.data.version

- **Module**: cmas-core-server
- **Description**: The internal version number of the current system configuration. This property is maintained internally, please do not change it unless advised by ConSol.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 11
- **Since**: 6.0

config.import.global.transaction.enabled

- **Module**: cmas-core-server
- **Description**: Flag deciding whether configuration (without localizations) should be imported within a single transaction.
- **Type**: Boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.11.1.0

connection.release.mode

- **Module**: cmas-setup-hibernate
- **Description**: Describes the JEE connection handling strategy for transactions. If set to "AFTER_ TRANSACTION", the connection will be cached during the transaction and released at the end. If set to "AFTER_STATEMENT", the connection will be released to the pool after each statement execution. Please do not change the default here unless advised by ConSol.
- **Type**: string
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: AFTER_STATEMENT (default for JEE environment)
- **Since**: 6.0

contact.authentication.method

- **Module**: cmas-core-security
- **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

- **Example value**: LDAP

- **Since**: 6.9.3.0

contact.inherit.permissions.only.to.own.customer.group

- **Module**: cmas-core-security

- **Description**: Indicates whether an authenticated contact inherits all customer group per-missions from the CM/Track user profile ("false") or only has permissions to his own customer group ("true").

- **Type**: boolean

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: false

- **Since**: 6.9.2.3

csrf.domain.allow.none

- **Module**: cmas-restapi-core

- **Description**: Determines whether empty `Origin/Referer` headers are accepted. By default, the property is set to "false", so that existing REST requests without `Origin/Referer` headers work.

- **Type**: boolean

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: false (default value)

- **Since**: 6.11.2.2

csrf.domain.white.list

- **Module**: cmas-restapi-core

- **Description**: The list of domains (separated with "|") which are allowed in `Origin/Referer` headers and will not be blocked by the CSRF (cross-site request forgery) filter. By default, the property is empty so that cross-site requests are blocked.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: https://example.com:80 | http://www.consol.de:8080

- **Since**: 6.11.2.2

csrf.domain.white.list

- **Module**: cmweb-server-adapter
- **Description**: The list of domains (separated with "|") which are allowed and will not be checked by CSRF (cross-site request forgery) filter
- **Type**: String
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: example.com | consol.de
- **Since**: 6.10.7.0

csrf.request.filter.enabled

- **Module**: cmas-restapi-core
- **Description**: It allows to disable the CSRF (cross-site request forgery) request filter for the REST API.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.11.2.2

csrf.request.filter.enabled

- **Module**: cmweb-server-adapter
- **Description**: It allows to disable CSRF (Cross-site request forgery) request filter
- **Type**: Boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.10.7.0

customfield.content.file.max.size

- **Module**: cmas-core-server
- **Description**: Determines the maximum size in MB of the images which can be added as content of rich text fields.
- **Type**: integer
- **Restart required**: no
- **System**: yes

- **Optional**: yes
- **Example value**: 10
- **Since**: 6.11.2.2

customizationVersion

- **Module**: cmweb-server-adapter
- **Description**: UID representing the latest web customization version. Used only internally, please do not change the value.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: cd58453e-f3cc-4538-8030-d15e8796a4a7
- **Since**: 6.5.0

dao.log.threshold.milliseconds

- **Module**: cmas-core-server
- **Description**: Used to configure database operation times logging. DAO methods whose execution takes longer than the time set in this property (in milliseconds) are logged.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 500 (default value)
- **Since**: 6.11.1.0

dao.log.username

- **Module**: cmas-core-server
- **Description**: Used to configure database operation times logging. The execution of DAO methods which are related to the user name stated in this property is logged. Only one user name can be provided. The value is empty by default.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: webadmin
- **Since**: 6.11.1.0

data.directory

- **Module**: cmas-core-shared
- **Description**: Directory for ConSol CM data (e.g., index)
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: C:\Users\user\cmas
- **Since**: 6.0

data.optimization

- **Module**: cmweb-server-adapter
- **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 '|'): MINIFICATION and COMPRESSION. 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.nodeId` to override default property.)
- **Type**: string
- **Restart required**: COMPRESSION can be switched on/off without restart, MINIFICATION requires restart.
- **System**: yes
- **Optional**: yes
- **Example value**: MINIFICATION|COMPRESSION

database.notification.enabled

- **Module**: cmas-core-index-common
- **Description**: Indicates whether the notification channel "database" should be used for index updates instead of JMS. The default value is "true."
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.8.4.7
- **Removed in**: 6.12.0.0

database.notification.redelivery.delay.seconds

- **Module**: cmas-core-index-common
- **Description**: If the notification channel "database" is used for index updates, this property indicates the delay for notification redelivery when an exception occurs.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.8.4.7

database.notification.redelivery.max.attempts

- **Module**: cmas-core-index-common
- **Description**: In case of index update database notification channel, indicates maximum redelivery attempts when an exception occurs.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.8.4.7

defaultAttachmentEntryClassName

- **Module**: cmweb-server-adapter
- **Description**: The default content entry class used to classify an attachment if no other class was set explicitly.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: DefaultTextElement
- **Since**: 6.9.2.0

defaultCommentClassName

- **Module**: cmas-core-server
- **Description**: Name of the default text class for comments.
- **Type**: string
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: default_class
- **Since**: 6.3.0

defaultContentEntryClassName

- **Module**: cmweb-server-adapter
- **Description**: Default text class for new ACIMs.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: default_class
- **Since**: 6.3.0

defaultIncommingMailClassName

- **Module**: cmas-core-server
- **Description**: Name of the default text class for incoming emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: default_class
- **Since**: 6.3.0

defaultNumberOfCustomFieldsColumns

- **Module**: cmweb-server-adapter
- **Description**: Default number of columns for ticket fields.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 3
- **Since**: 6.2.0

defaultOutgoingMailClassName

- **Module**: cmas-core-server
- **Description**: Name of the default text class for outgoing emails.
- **Type**: string
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: default_class
- **Since**: 6.3.0

delete.ticket.enabled

- **Module**: cmas-app-admin-tool
- **Description**: Controls if the menu entry *Delete* is displayed in the context menu in the Admin Tool for the ticket list in the ticket administration.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.0

diffTrackingEnabled

- **Module**: cmweb-server-adapter
- **Description**: Removed in ConSol CM version 6.11.
  Defines if parallel editing of a ticket by different engineers should be possible.
  "false": Previous way of handling changes when editing a ticket. If the ticket has been changed in the meantime, the current engineer will not be able to submit his changes without being forced to reload the page before submitting.
  "true": New changes handling mode. If the ticket has been changed, this will not block the submission of other changes anymore. If the part of the ticket that was changed was exactly the part that is changed by the submitting engineer, then an information message will be displayed, but the ticket change will be persisted/stored anyway.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true (default)
- **Since**: 6.10.1
- **Removed in**: 6.11.0

diffTrackingEnabledForUnitAndResource

- **Module**: cmweb-server-adapter
- **Description**: Enables the prevention of concurrent modifications on units / resources.
- **Type**: boolean
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: 3
- **Since**: 6.11.0.0

diff.tracking.disabled

- **Module**: cmas-restapi-core
- **Description**: Fallback property for disabling diff tracking for CM/Track, which is history-based so it can be heavy.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.10.5.6

disable.admin.task.auto.commit

- **Module**: cmas-core-index-common
- **Description**: All tasks created for index update will be automatically executed right after creation.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.1

domain.map.for.client.config.<DOMAIN_NAME>

- **Module**: cmas-restapi-core
- **Description**: Enables mapping multiple instances of CM/Track to a specific domain. DOMAIN_NAME is the name of the client configuration in the Admin Tool (if your CM/Track configuration is called "trackV2customized", the name of the property is `domain.map.for.client.config.trackV2customized`). You can provide several URLs separated by a comma.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: https://www.consol.de, https://www.consol.com
- **Since**: 6.10.7.0

dwh.administration.refresh.interval.seconds

- **Module**: cmas-app-admin-tool
- **Description**: Internal DWH property, not to be changed manually. This property is used to set the interval for refreshing the list of actions in the Admin Tool, section *Data Warehouse -> Administration -> Actions*.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.11.0.1

dwh.mode

- **Module**: cmas-dwh-server
- **Description**: Current mode for 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

engineer.description.cache.enabled

- **Module**: cmas-core-server
- **Description**: Defines whether user descriptions are cached. The default value is "true", please do not change it unless advised by ConSol.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.11.0

engineer.description.mode

- **Module**: cmas-core-server
- **Description**: Defines whether user names in the ticket history are taken from the database or dynamically rendered using templates. The default value "DYNAMIC" is a bit more costly from the performance perspective, while "PROTOCOL" is faster but returns historical names which might be outdated. Use "PROTOCOL" if you have lots of history entries from many different users.

- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: PROTOCOL
- **Since**: 6.11.0

engineer.description.template.name

- **Module**: cmas-core-server
- **Description**: Defines the name of the template which is used to render engineer names for display in the Web Client. The template has to be stored in the *Templates* section of the Admin Tool.
- **Type**: String
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: engineer description template name (default value)
- **Since**: 6.11.0

eviction.event.queue.size

- **Module**: cmas-core-cache
- **Description**: The size of the queue holding cache events. The default value is 200000. It is recommended to increase the value slightly (up to 400000) on systems with high traffic or load.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 200000 (default value)
- **Since**: 6.4.0

eviction.lifeSpan

- **Module**: cmas-core-cache
- **Description**: Sets the interval (in milliseconds) for cache entry validity. When this time is elapsed, the entry is removed from the cache.
- **Type**: integer
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: 86400000 (default value)
- **Since**: 6.11.1.0

eviction.max.nodes

- **Module**: cmas-core-cache
- **Description**: Sets the maximum size of internal caches. The default value is 100000. Increasing it will lead to higher memory consumption and is not recommended unless explicitly advised by ConSol.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 100000 (default value)
- **Since**: 6.4.0

eviction.strategy

- **Module**: cmas-core-cache
- **Description**: Determines the cache eviction strategy. Please see the Infinispan documentation for details.
- **Type**: string
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: LRU, LIRS (default value)
- **Since**: 6.11.1.0

eviction.wakeup.interval

- **Module**: cmas-core-cache
- **Description**: Sets the interval (in milliseconds) between two cache queue event processing cycles. The default value is 3000. It is recommended to decrease it (minimum is 1500) on systems with high traffic or load.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 3000 (default value)
- **Since**: 6.4.0

expert.mode

- **Module**: cmas-core-shared
- **Description**: Switches expert mode on/off thereby unblocking/blocking expert features. For example, the CM system property `initialized` is only available in the expert mode.
- **Type**: boolean

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.0

external.line.access.prefix

- **Module**: cmas-core-server
- **Description**: General prefix to dial before an area code. Set for each customer group separately.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 411
- **Since**: 6.9.3.0

favoritesSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of items in Favorites list.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10
- **Since**: 6.0

fetchLock.interval

- **Module**: cmas-workflow-jbpm
- **Description**:
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5000
- **Removed in**: 6.8.0

fetchSize.strategy

- **Module**: cmas-core-server
- **Description**: Strategy for selecting the fetch size on JDBC result sets.

- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: FetchSizePageBasedStrategy, FetchSizeThresholdStrategy, FetchSizeFixedStrategy
- **Since**: 6.8.4.1

fetchSize.strategy.FetchSizeFixedStrategy.value

- **Module**: cmas-core-server
- **Description**: Sets fetch size value if the selected strategy to set the fetch size is `FetchSizeFixedStrategy`.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 150
- **Since**: 6.8.4.1

fetchSize.strategy.FetchSizePageBasedStrategy.limit

- **Module**: cmas-core-server
- **Description**: Sets maximum fetch size value if the selected strategy to set the fetch size is `FetchSizePageBasedStrategy`.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 10000
- **Since**: 6.8.4.1

fetchSize.strategy.FetchSizeThresholdStrategy.value

- **Module**: cmas-core-server
- **Description**: Sets fetch size threshold border values if the selected strategy to set the fetch size is `FetchSizeThresholdStrategy`.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 150,300,600,1000
- **Since**: 6.8.4.1

filesystem.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads started for database emails' queue polling. The default value is 1
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.4.0

filesystem.polling.threads.shutdown.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

filesystem.polling.threads.watchdog.interval.seconds

- **Module**: cmas-nimh
- **Description**: Determines the interval in seconds to execute the watchdog which checks the activity of the threads of the file system poller.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.4.0

filesystem.task.enabled

- **Module**: cmas-nimh
- **Description**: With this property the service thread related to a given poller can be disabled.
- **Type**: boolean
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.4.0

filesystem.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Default interval for polling mailboxes in seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

filesystem.task.polling.folder

- **Module**: cmas-nimh
- **Description**: Polling folder location which will be scanned for emails in the format of eml files. The default value is the `mail` subdirectory of the ConSol CM data directory
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: c://cmas//mail
- **Since**: 6.4.0

filesystem.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time (of inactivity) the service thread is considered damaged and automatically restarted. Default: 120 seconds
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

filesystem.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Default transaction timeout (in seconds) for email fetching transactions. Should be correlated with number of messages fetched at once.

- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

forward.mails.to.representatives

- **Module**: cmweb-server-adapter
- **Description**: Determines if emails which are manually sent from the Web Client are also sent to representing engineers. The default value of the property is "false", meaning that this kind of emails are not forwarded to the representing engineer. Set the property to "true" if you want to restore the previous behavior, i.e., all emails which are sent to the represented engineer are automatically forwarded to the representing engineer. Please take into account that this might not be desired if the same person is an engineer and a customer in the CM system.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: false (default value)
- **Since**: 6.11.1.7

> ⓘ This property only configures the handling of manually sent emails. The handling of automatically sent emails depends on the used Java method.

globalSearchResultSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of items in Quick Search result.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10
- **Since**: 6.0

heartbeat

- **Module**: cmas-core-server
- **Description**: Timestamp that indicates if an instance of the application is connected to the database schema.
- **Type**: integer

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1234567899
- **Since**: 6.10.5.3

helpFilePath

- **Module**: cmweb-server-adapter
- **Description**: URL for online help. If not empty, the *Help* link is displayed in the Web Client.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: http://www.consol.de
- **Since**: 6.2.1

hibernate.dialect

- **Module**: cmas-setup-hibernate
- **Description**: The dialect used by hibernate. Usually set during initial set-up (depending on the database system).
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: org.hibernate.dialect.MySQL5InnoDBDialect
- **Since**: 6.0

hideTicketSubject

- **Module**: cmweb-server-adapter
- **Description**: If set to "true", the ticket subject is hidden.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.2.1

ignore-queues

- **Module**: cmas-dwh-server
- **Description**: A comma-separated list of queue names which are not not transferred to the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: QueueName1,QueueName2,QueueName3
- **Since**: 6.6.19
- **Removed in**: 6.8.1

index.attachment

- **Module**: cmas-core-index-common
- **Description**: Specifies whether the content of attachments is indexed.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.4.3

index.history

- **Module**: cmas-core-index-common
- **Description**: Specifies whether unit and ticket history are indexed.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.1.0
- **Removed in**: 6.11.0

index.status

- **Module**: cmas-core-index-common
- **Description**: Status of the Indexer, possible values RED, YELLOW, GREEN, will be displayed in the Admin Tool.
- **Type**: string
- **Restart required**: no

- **System**: yes
- **Optional**: no
- **Example value**: GREEN
- **Since**: 6.6.1

index.task.worker.threads

- **Module**: cmas-core-index-common
- **Description**: How many threads will be used to execute index tasks (synchronization, administrative and repair tasks). We recommend to use a value not larger than 2.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.6.14, 6.7.3. Since 6.8.0 and exclusively in 6.6.21 also normal (live) index updates are affected by this property.

index.version.current

- **Module**: cmas-core-index-common
- **Description**: Holds information about the current (possibly old) index version.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.7.0

index.version.newest

- **Module**: cmas-core-index-common
- **Description**: Holds information about which index version is considered newest.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.7.0

indexed.assets.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many assets should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.8.0

indexed.engineers.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many engineers should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 300 (default value)
- **Since**: 6.6.14, 6.7.3

indexed.resources.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many resources should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.10.0.0

indexed.tickets.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many tickets should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: 100 (default value)
- **Since**: 6.6.14, 6.7.3

indexed.units.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many units should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.6.14, 6.7.3

initialized

- **Module**: cmas-setup-manager
- **Description**: Flag if ConSol CM is initialized. If this value is missing or not "true", the setup will be performed. Starting with ConSol CM version 6.11, this property is only available in expert mode.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.0

> ⚠ Be careful with using this property! When you set the value to "false", the ConSol CM server will perform the system setup at the next start, i.e. all data of the existing system is lost, including system properties!

internal.line.access.prefix

- **Module**: cmas-core-server
- **Description**: Prefix that the company's telephony system requires for outside lines. Set for each customer group separately.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: 199
- **Since**: 6.9.3.0

is.cmrf.alive

- **Module**: cmas-dwh-server
- **Description**: As a starting point, the time the last message was sent to CMRF should be used. If a response from CMRF is not received after the set value (in seconds), it should create a DWH operation status with an error message indicating that CMRF is down.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1200
- **Since**: 6.7.0

java.naming.factory.initial

- **Module**: cmas-dwh-server
- **Description**: Factory class for the DWH context factory.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: org.jnp.interfaces.NamingContextFactory
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

java.naming.factory.url.pkgs

- **Module**: cmas-dwh-server
- **Description**:
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: org.jboss.naming:org.jnp.interfaces
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

java.naming.provider.url

- **Module**: cmas-dwh-server
- **Description**: URL of naming provider.

- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: localhost
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

jobExecutor.adminMail

- **Module**: cmas-workflow-engine
- **Description**: Email address which will get notified about job execution problems (when retry counter is exceeded).
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: admin@consol.de
- **Since**: 6.8.0

jobExecutor.idleInterval

- **Module**: cmas-workflow-jbpm
- **Description**:
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 45000
- **Removed in**: 6.8.0
- **Replaced by**: jobExecutor.idleInterval.seconds

jobExecutor.idleInterval.seconds

- **Module**: cmas-workflow-engine
- **Description**: Determines how often the job executor thread will look for new jobs to execute.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 45 (default value up to CM version 6.10.5.2. The default value for CM versions

6.10.5.3 and up is 5)

- **Since**: 6.8.0

jobExecutor.jobExecuteRetryNumber

- **Module**: cmas-workflow-jbpm
- **Description**:
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5
- **Removed in**: 6.8.0
- **Replaced by**: jobExecutor.jobMaxRetries

jobExecutor.jobMaxRetries

- **Module**: cmas-workflow-engine
- **Description**: Controls the number of retry attempts the job executor will do before declaring a job as failed.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 5 (default value)
- **Since**: 6.8.0

jobExecutor.jobMaxRetriesReachedSubject

- **Module**: cmas-workflow-engine
- **Description**: The subject used in the notification mail which administrators receive about failed job executors.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: Job maximum retries reached. Job was removed!!! (default value)
- **Since**: 6.8.0

jobExecutor.lockingLimit

- **Module**: cmas-workflow-engine
- **Description**: Number of jobs locked at once (marked for execution) by the job executor thread.
- **Type**: integer

- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 5 (default value since CM version 6.10.5.3)
- **Since**: 6.8.0

jobExecutor.lockTimeout.seconds

- **Module**: cmas-workflow-engine
- **Description**: Determines how long the job can be locked (marked for execution) by the job executor.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 360 (default value)
- **Since**: 6.8.0

jobExecutor.mailFrom

- **Module**: cmas-workflow-engine
- **Description**: Email address which will be set as From header for notifications to the administrator.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: jobexecutor@consol.de
- **Since**: 6.8.0

jobExecutor.maxInactivityInterval.minutes

- **Module**: cmas-workflow-engine
- **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.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.9.2.0

jobExecutor.threads

- **Module**: cmas-workflow-engine
- **Description**: Number of job execution threads.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.8.0

jobExecutor.timerRetryInterval

- **Module**: cmas-workflow-jbpm
- **Description**:
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10000
- **Removed in**: 6.8.0
- **Replaced by**: jobExecutor.timerRetryInterval.seconds

jobExecutor.timerRetryInterval.seconds

- **Module**: cmas-workflow-engine
- **Description**: Determines how long the job executor thread will wait after job execution error.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 10 (default up to CM version 6.10.5.2. The default value for CM versions 6.10.5.3 and up is 30)
- **Since**: 6.8.0

jobExecutor.txTimeout.seconds

- **Module**: cmas-workflow-engine
- **Description**: Transaction timeout used for job execution.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: 60 (default value)
- **Since**: 6.8.0

kerberos.v5.enabled

- **Module**: cmas-core-security
- **Description**: Indicates whether SSO via Kerberos is enabled.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false (default value if Kerberos was not enabled during system setup)
- **Since**: 6.2.0

kerberos.v5.username.regex

- **Module**: cmas-core-security
- **Description**: Regular expression used for mapping Kerberos principals to CM user login names.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: (.*)@.*
- **Since**: 6.2.0

last.config.change

- **Module**: cmas-core-server
- **Description**: Random UUID created during the last configuration change. This is a value maintained internally, please do not change it unless advised by ConSol.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 2573c7b7-2bf5-47ff-b5a2-bad31951a266
- **Since**: 6.1.0, 6.2.1

last.config.change.templates

- **Module**: cmas-core-server
- **Description**: Random UUID created during the last change in templates. This is a value maintained internally, please do not change it unless advised by ConSol.
- **Type**: string
- **Restart required**: no

- **System**: yes
- **Optional**: no
- **Example value**: 2573c7c7-2af5-4eff-b9c2-bad31951a266
- **Since**: 6.10.5.0

last.ping.timestamp

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property shows the status of CMRF and is filled automatically by the CMRF. It contains the date of the last response on the ping from the ConSol CM server to the CMRF.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 32323214
- **Since**: 6.11.0.1

ldap.authentication

- **Module**: cmas-core-security
- **Description**: Authentication method used when using LDAP authentication. Possible values are "anonymous" and "simple".
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: simple (default value)
- **Since**: 6.0

ldap.basedn

- **Module**: cmas-core-security
- **Description**: Base DN used for looking up LDAP user accounts when using LDAP authentication.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: ou=accounts,dc=consol,dc=de
- **Since**: 6.0

ldap.certificate.basedn

- **Module**: cmas-core-server
- **Description**: Base DN for certificates location in the LDAP tree. If not provided, `cmas-core-security, ldap.basedn` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: ou=accounts,dc=consol,dc=de
- **Since**: 6.8.4

ldap.certificate.content.attribute

- **Module**: cmas-core-server
- **Description**: LDAP attribute name used where certificate data is stored in the LDAP tree.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: usercertificate (default value)
- **Since**: 6.8.4

ldap.certificate.password

- **Module**: cmas-core-server
- **Description**: LDAP Certificates manager password. If not set, `cmas-core-security, ldap.password` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.8.4

ldap.certificate.providerurl

- **Module**: cmas-core-server
- **Description**: LDAP Certificates provider URL. If not set, `cmas-core-security, ldap.providerurl` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: ldap://ldap.consol.de:389
- **Since**: 6.8.4

ldap.certificate.searchattr

- **Module**: cmas-core-server
- **Description**: LDAP attribute name used to search for certificate in the LDAP tree.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: mail (default value)
- **Since**: 6.8.4

ldap.certificate.userdn

- **Module**: cmas-core-server
- **Description**: LDAP Certificates manager DN. If not set, `cmas-core-security, ldap.userdn` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.8.4

ldap.contact.name.basedn

- **Module**: cmas-core-security
- **Description**: Base path to search for contact DN by LDAP ID.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: ou=accounts,dc=consol,dc=de
- **Since**: 6.9.3.0

ldap.contact.name.password

- **Module**: cmas-core-security
- **Description**: Password to look up contact DN by LDAP ID. If not set, the anonymous account is used.
- **Type**: string
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Since**: 6.9.3.0

ldap.contact.name.providerurl

- **Module**: cmas-core-security
- **Description**: Address of the LDAP server (ldap[s]://host:port).
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: ldap://ldap.consol.de:389
- **Since**: 6.9.3.0

ldap.contact.name.searchattr

- **Module**: cmas-core-security
- **Description**: Attribute to search for contact DN by LDAP ID.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: uid
- **Since**: 6.9.3.0

ldap.contact.name.userdn

- **Module**: cmas-core-security
- **Description**: User DN to look up contact DN by LDAP ID. If not set, the anonymous account is used.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Since**: 6.9.3.0

ldap.initialcontextfactory

- **Module**: cmas-core-security
- **Description**: Class name for the initial context factory of the LDAP implementation when using LDAP authentication. If it is not set, `com.sun.jndi.ldap.LdapCtxFactory` is used.
- **Type**: string
- **Restart required**: yes
- **System**: yes

- **Optional**: no
- **Example value**: com.sun.jndi.ldap.LdapCtxFactory
- **Since**: 6.0

ldap.password

- **Module**: cmas-core-security
- **Description**: Password for connecting to LDAP to look up users when using LDAP authentication. Only needed if look-up cannot be performed anonymously.
- **Type**: password
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.1.2

ldap.providerurl

- **Module**: cmas-core-security
- **Description**: LDAP provider when using LDAP authentication.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: ldap://myserver.consol.de:389
- **Since**: 6.0

ldap.searchattr

- **Module**: cmas-core-security
- **Description**: Search attribute for looking up LDAP entry associated with a CM login.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: uid
- **Since**: 6.0

ldap.userdn

- **Module**: cmas-core-security
- **Description**: LDAP user for connecting to LDAP to look up users when using LDAP authentication. Only needed if look-up cannot be performed anonymously.
- **Type**: string
- **Restart required**: no

- **System**: yes
- **Optional**: yes
- **Since**: 6.1.2

live.start

- **Module**: cmas-dwh-server
- **Description**: When the DWH synchronization mode is set to LIVE using the Admin Tool (navigation group *Data Warehouse*, navigation item *Administration*, *Configuration* button), this property is created and set to the current date.
  If LIVE mode is not enabled and there is no data in `cmas_dwh_ser_sync_object`, the property `live.start` is deleted.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes (automatically added in DWH "LIVE" mode)
- **Example value**: 15028802377645
- **Since**: 6.7.0

local.country.prefix

- **Module**: cmas-core-server
- **Description**: Prefix of the local country code. Set for each customer group separately.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 48
- **Since**: 6.9.3.0

mail.attachments.validation.info.sender

- **Module**: cmas-nimh-extension
- **Description**: Sets the From header for error notification emails which are sent when the validation of the attachment type fails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: admin@mail.com
- **Since**: 6.7.5

mail.attachments.validation.info.subject

- **Module**: cmas-nimh-extension
- **Description**: Sets the subject for error notification emails which are sent when the validation of the attachment type fails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Email was not processed because its attachments were rejected!
- **Since**: 6.7.5

mail.db.archive

- **Module**: cmas-nimh-extension
- **Description**: If property is set to "true", incoming emails are archived in the database.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.8.5.5

mail.encryption

- **Module**: cmas-core-server
- **Description**: If the property is set to "true", the encrypt checkbox in the Ticket Email Editor is checked by default. The default value of the property is "false".
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.8.4.0

mail.error.from.address

- **Module**: cmas-nimh-extension
- **Description**: From address for error emails from NIMH
- **Type**: email
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: myuser@consol.de
- **Since**: 6.4.0

mail.error.to.address

- **Module**: cmas-nimh-extension
- **Description**: To address for error emails from NIMH. As a default the email address of the administrator which you have entered during system setup is used.
- **Type**: email
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.4.0

mail.from

- **Module**: cmweb-server-adapter
- **Description**: This email address is used instead of the engineer's email address during email conversations.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: consolcm@example.com
- **Since**: 6.1.2

mail.notification.engineerChange

- **Module**: cmas-core-server
- **Description**: Determines whether notification emails should be sent when the engineer of a ticket is changed.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.1.0

mail.notification.sender

- **Module**: cmas-core-server
- **Description**: From address for notification emails when the engineer of a ticket is changed. If not set, `cmas-core-security, admin.email` is used instead.

- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: cm6notification@cm6installation
- **Since**: 6.6.3

mail.on.error

- **Module**: cmas-nimh-extension
- **Description**: If set to "true" an error email is sent to the above configured address in case the email message could not be processed.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default)
- **Since**: 6.4.0

mail.redelivery.retry.count

- **Module**: cmas-core-server
- **Description**: Number of redelivery attempts of an outgoing email.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 3
- **Since**: 6.1.0

mail.reply.to

- **Module**: cmweb-server-adapter
- **Description**: When set, the Ticket Email Editor in the Web Client displays a Reply-To field pre-filled with this value.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: consolcm@example.com
- **Since**: 6.0.1

mail.sender.address

- **Module**: cmas-workflow-jbpm
- **Description**: From address for emails from the workflow engine.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Removed in**: 6.8.0
- **Replaced by**: jobExecutor.mailFrom

mail.smtp.email

- **Module**: cmas-core-server
- **Description**: SMTP email URL for outgoing emails
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: smtp://mail.mydomain.com:25
- **Since**: 6.0

mail.smtp.email.password

- **Module**: cmas-core-server
- **Description**: SMTP password for outgoing email communication. If this property is set, it takes precedence over the value from the SMTP URL.
- **Type**: password
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: password
- **Since**: 6.11.2.2

mail.smtp.email.user

- **Module**: cmas-core-server
- **Description**: SMTP user name for outgoing email communication. If this property is set, it takes precedence over the value from the SMTP URL.
- **Type**: string
- **Restart required**: no
- **System**: yes

- **Optional**: yes
- **Example value**: myuser
- **Since**: 6.11.2.2

mail.smtp.envelopesender

- **Module**: cmas-core-server
- **Description**: Email address used as sender in SMTP envelope. If not set, the From address of the email is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: mysender@mydomain.com
- **Since**: 6.5.7

mail.smtp.tls.enabled

- **Module**: cmas-core-server
- **Description**: Activates SMTP via SSL/TLS (SMTPS) for sending emails from the Web Client and scripts. The default value is "false". If it is set to "true", SMTPS is activated for sending emails.
- **Type**: boolean
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.11.1.6

mail.ticketname.pattern

- **Module**: cmas-nimh-extension
- **Description**: Regular expression pattern used to identify the ticket name in the subject of incoming mails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: .*?Ticket\s+\(((\S+)\).*
- **Since**: 6.4.0

mailbox.<NUMBER>.name

- **Module**: cmas-nimh
- **Description**: Identifier (name) of the mailbox.

- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: myEmailAccount
- **Since**: 6.11.2.0

mailbox.1.connection.host

- **Module**: cmas-nimh
- **Description**: Host (server) for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.host`.

mailbox.1.connection.password

- **Module**: cmas-nimh
- **Description**: Password for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.password`.

mailbox.1.connection.port

- **Module**: cmas-nimh
- **Description**: Port for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.port`.

mailbox.1.connection.protocol

- **Module**: cmas-nimh
- **Description**: Protocol (e.g., IMAP or POP3) for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.protocol`.

mailbox.1.connection.username

- **Module**: cmas-nimh
- **Description**: User name for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.username`.

mailbox.2.connection.host

- **Module**: cmas-nimh
- **Description**: Host (server) for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.host`.

mailbox.2.connection.password

- **Module**: cmas-nimh
- **Description**: Password for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.password`.

mailbox.2.connection.port

- **Module**: cmas-nimh
- **Description**: Port for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.port`.

mailbox.2.connection.protocol

- **Module**: cmas-nimh
- **Description**: Protocol (e.g., IMAP or POP3) for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.protocol`.

mailbox.2.connection.username

- **Module**: cmas-nimh
- **Description**: User name for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.username`.

> ⓘ For all NIMH-related mailbox properties, the following principle is used: a default property is defined (e.g. `mailbox.default.connection.port`). If no mailbox-specific value is configured, this default value will be used.

mailbox.default.connection.host

- **Module**: cmas-nimh
- **Description**: Host (server name) of a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10.10.1.157
- **Since**: 6.4.0

mailbox.default.connection.password

- **Module**: cmas-nimh
- **Description**: Password for given mailbox from which the poller reads emails.
- **Type**: password
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: consol
- **Since**: 6.4.0

mailbox.default.connection.port

- **Module**: cmas-nimh
- **Description**: Port for a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 143
- **Since**: 6.4.0

mailbox.default.connection.protocol

- **Module**: cmas-nimh
- **Description**: Poller's protocol e.g., IMAP or POP3. No default value
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: imap
- **Since**: 6.4.0

mailbox.default.connection.username

- **Module**: cmas-nimh
- **Description**: User name for a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: username
- **Since**: 6.4.0

mailbox.default.session.mail.debug

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Allows for more detailed JavaMail session debugging.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: true
- **Since**: 6.4.0

mailbox.default.session.mail.mime.address.strict

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Counterpart of the old `mule mail.mime.strict`, allows to set not so strict email header parsing.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.4.0

mailbox.default.session.mail.<PROTOCOL>.connectiontimeout

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the connection timeout in milliseconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 3000
- **Since**: 6.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.fetchsize

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the size of partial fetch in bytes for the indicated protocol.
  For IMAP systems: in CM versions 6.10.7.0 and up, the value of
  `mailbox.default.session.mail.imap.fetchsize` is set to 1048576 (equals 1 MB) during the initial setup of a ConSol CM system. During an update of an existing ConSol CM system, the value of the property is left unchanged, if the property is already present. In case the property is not yet present, it is added with the default value.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1048576
- **Since**: 6.9.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.partialfetch

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines whether the protocol's partial fetch capability should be used.
  For IMAP systems: in CM versions 6.10.7.0 and up, the value of
  `mailbox.default.session.mail.imap.partialfetch` is set to "false" during the initial setup of a ConSol CM system. During an update of an existing ConSol CM system, the value of the property is left unchanged, if the property is already present. In case the property is not yet present, it is added with the default value.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.timeout

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the I/O timeout in milliseconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 120 for IMAP(S) and 3000 for POP3(S)
- **Since**: 6.4.0 (IMAP and POP3), 6.11.2.0 (IMAPS and POP3S)

mailbox.default.task.delete.read.messages

- **Module**: cmas-nimh
- **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.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.4.0

mailbox.default.task.enabled

- **Module**: cmas-nimh
- **Description**: With this property, the service thread related to the given poller can be disabled.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.4.0

mailbox.default.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Default interval for polling mailboxes in seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mailbox.default.task.max.message.size

- **Module**: cmas-nimh
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10485760 (default value, 10 MB)
- **Since**: 6.4.0

mailbox.default.task.max.messages.per.run

- **Module**: cmas-nimh
- **Description**: Number of messages fetched at once from mailbox. Must be correlated with transaction timeout. The default value is 20
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

mailbox.default.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time (of inactivity) the service thread is considered damaged and automatically restarted. The default value is 120 seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

mailbox.default.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Default transaction timeout (in seconds) for email fetching transactions. Should be correlated with number of messages fetched at once.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mailbox.polling.threads.mail.log.enabled

- **Module**: cmas-nimh
- **Description**: Enables email logging which is especially crucial in cluster environment (used as semaphore there)
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.9.4.1

mailbox.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads for accessing mailboxes.
- **Type**: integer
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.4.0

mailSender.executionInterval.seconds

- **Module**: cmas-core-server
- **Description**: Determines the period in seconds before the system checks if there are new emails to be sent.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.12.0.0

mailSender.lockingLimit

- **Module**: cmas-core-server
- **Description**: Determines the number of emails fetched from the database for sending in a single transaction.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1
- **Since**: 6.12.0.0

mailSender.lockTimeout.seconds

- **Module**: cmas-core-server
- **Description**: Determines the period in seconds before a locked email is released for another lock.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 199
- **Since**: 6.12.0.0

mailSender.maxAttempts

- **Module**: cmas-core-server
- **Description**: Determines the maximum number of attempts, including the first attempt, before an email is removed.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 3
- **Since**: 6.12.0.0

mailSender.nodeId

- **Module**: cmas-core-server
- **Description**: Determines the ID of the node on which the thread for sending emails is started (only in clustered environments). If the value is "all" or no value is provided, the threads are started on every node.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: all
- **Since**: 6.12.0.0

mailSender.retryInterval.seconds

- **Module**: cmas-core-server
- **Description**: Determines the period in seconds before another attempt to send an email is made, if the previous attempt failed.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.12.0.0

mailSender.threads.number

- **Module**: cmas-core-server
- **Description**: Determines the number of threads for sending emails.
- **Type**: integer
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: 1
- **Since**: 6.12.0.0

mailSender.txTimeout.seconds

- **Module**: cmas-core-server
- **Description**: Determines the transaction timeout for sending emails in seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.12.0.0

mailTemplateAboveQuotedText

- **Module**: cmweb-server-adapter
- **Description**: Determines the behavior of the email template in the Ticket Email Editor when another email is quoted, i.e. forwarded or replied to. Often used to place the signature correctly.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.2.4

max.licences.perUser

- **Module**: cmas-core-server
- **Description**: Sets the maximum number of licenses which a single user can use (e.g., logging in from different browsers). By default this value is not restricted.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.8.4.5

maxSizePerPagemapInMegaBytes

- **Module**: cmweb-server-adapter

- **Description**: The parameter defines the size (in MB) of the file which is created by the Wicket framework per user session. i.e. for each engineer which is currently logged in. The file is used to save pages during the running session. When the defined size limit has been reached and new entries are added, the oldest entries are removed. In the Web Client, due to this behavior, an engineer who works with an "old" page will be redirected to the *Overview*/Start page (usually the dashboard page) when the "old" page is removed from the file.
So in case engineers who work with a great number of open tabs in ConSol CM and complain about being redirected to the *Overview* page, it might be useful to increase this parameter. In large systems, you could use e.g. a value of 45 or 50. Since this is the size of the file which is saved on disk, the maximum value depends on the available disk space, however, a value which is too large is not recommended either.

- **Type**: integer

- **Restart required**: yes

- **System**: yes

- **Optional**: no

- **Example value**: 15

- **Since**: 6.3.5

monitoring.engineer.login

- **Module**: cmas-core-server

- **Description**: Login of monitoring engineer.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: nagios

- **Since**: 6.9.3.0

monitoring.unit.login

- **Module**: cmas-core-server

- **Description**: Login of monitoring unit.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: nagios

- **Since**: 6.9.3.0

nimh.enabled

- **Module**: cmas-core-server
- **Description**: Enables the NIMH service. Must be suffixed with the cluster node ID, e.g., `nimh.enabled.NODEID` = "true".
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false
- **Since**: 6.9.4.0

notification.error.description

- **Module**: cmas-dwh-server
- **Description**: Text for error emails from the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Error occurred
- **Since**: 6.0.1

notification.error.from

- **Module**: cmas-dwh-server
- **Description**: From address for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.error.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: Error occurred
- **Since**: 6.0.1

notification.error.to

- **Module**: cmas-dwh-server
- **Description**: To address for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_successfully.description

- **Module**: cmas-dwh-server
- **Description**: Text for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished successfully
- **Since**: 6.0.1

notification.finished_successfully.from

- **Module**: cmas-dwh-server
- **Description**: From address for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_successfully.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: Transfer finished successfully
- **Since**: 6.0.1

notification.finished_successfully.to

- **Module**: cmas-dwh-server
- **Description**: To address for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_unsuccessfully.description

- **Module**: cmas-dwh-server
- **Description**: Text for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished unsuccessfully
- **Since**: 6.0.1

notification.finished_unsuccessfully.from

- **Module**: cmas-dwh-server
- **Description**: From address for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_unsuccessfully.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no

- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished unsuccessfully
- **Since**: 6.0.1

notification.finished_unsuccessfully.to

- **Module**: cmas-dwh-server
- **Description**: To address for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.host

- **Module**: cmas-dwh-server
- **Description**: Email (SMTP) server hostname for sending DWH emails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myserver.consol.de
- **Since**: 6.0.1

notification.password

- **Module**: cmas-dwh-server
- **Description**: Password for sending DWH emails (optional).
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.0.1

notification.port

- **Module**: cmas-dwh-server
- **Description**: SMTP port for sending DWH emails.
- **Type**: string
- **Restart required**: no

- **System**: yes
- **Optional**: yes
- **Example value**: 25
- **Since**: 6.0.1

notification.protocol

- **Module**: cmas-dwh-server
- **Description**: The protocol used for sending emails from the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: pop3

notification.tls.enabled

- **Module**: cmas-dwh-server
- **Description**: Activates SMTP via SSL/TLS (SMTPS) for sending notification emails from the DWH. The default value is "false". If it is set to "true", SMTPS is activated for sending notifications from the DWH.
- **Type**: string
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.11.1.6

notification.username

- **Module**: cmas-dwh-server
- **Description**: (SMTP) user name for sending DWH emails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser
- **Since**: 6.0.1

notifications.enabled

- **Module**: cmas-web-notifications
- **Description**: Determines whether the notifications feature is enabled ("true") or disabled ("false"). The default value is "true" for ConSol CM systems running on JBoss application servers, and "false" for ConSol CM systems running on WebLogic application servers.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: true
- **Since**: 6.12.0.0

number.of.tasks

- **Module**: cmas-core-server
- **Description**: Number of threads to use by the Task Execution Framework (TEF).
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1
- **Since**: 6.9.4.0

outdated.lock.age

- **Module**: cmas-workflow-jbpm
- **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

pagemapLockDurationInSeconds

- **Module**: cmweb-server-adapter
- **Description**: Number of seconds to pass before pagemap is considered to be locked for too long.
- **Type**: integer
- **Restart required**: yes

- **System**: yes
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.7.3

password.reset.mail.from

- **Module**: cmas-core-security
- **Description**: The `From` address for the email which is sent to a customer who requests a new password (using the *Forgot your password?* link) in CM/Track and to an engineer who requests a new password (using the *Forgot your password?* link) in the Web Client.
- **Type**: String
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: mypwreset@consol.de
- **Since**: 6.11.0.1

policy.password.age

- **Module**: cmas-core-security
- **Description**: Maximum validity period, in number of days, example "183" (6 months), default value: "5500" (= 15 years, i.e., no password change enforced).
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 5500 (15 years, default value)
- **Since**: 6.10.1.0

policy.password.pattern

- **Module**: cmas-core-security
- **Description**: RegEx pattern for the password, default value: "^.3,$" (at least 3 characters).
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: "^.3,$" (default value)
- **Since**: 6.10.1.0

policy.rotation.ratio

- **Module**: cmas-core-security
- **Description**: Defines how often passwords may repeat. For example, setting the value to X means that the new password cannot be present among the user's X previous passwords.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.10.1.0

policy.track.username.case.sensitive

- **Module**: cmas-core-security
- **Description**: Defines whether customer (user) names in CM/Track are treated case-sensitive on login.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.11.0.0

policy.username.case.sensitive

- **Module**: cmas-core-security
- **Description**: Defines whether user names are case-sensitive.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.10.1.0

postActivityExecutionScriptName

- **Module**: cmweb-server-adapter
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: postActivityExecutionHandler
- **Since**: 6.2.0

queue.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads started for polling the email queue in the database.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.4.0

queue.polling.threads.shutdown.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

queue.polling.threads.watchdog.interval.seconds

- **Module**: cmas-nimh
- **Description**: Determines the interval in seconds to execute the watchdog which checks the activity of the threads of the email queue poller.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.4.0

queue.task.error.pause.seconds

- **Module**: cmas-nimh
- **Description**: Maximum number of seconds, the queue poller waits after infrastructure (e.g. database) error.
- **Type**: integer

- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 180 (default value)
- **Since**: 6.4.0

queue.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Main emails' queue polling thread interval.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 15 (default value)
- **Since**: 6.4.0

queue.task.max.retries

- **Module**: cmas-nimh
- **Description**: Maximum number of email processing retries after an exception. When reached, the email is moved to the email archive. This email can be rescheduled again using NIMH API (or the Admin Tool).
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.4.0

queue.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time of inactivity (in seconds), the service thread is considered damaged and automatically restarted.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 600 (default value)
- **Since**: 6.4.0

queue.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Transaction timeout for email processing in the pipe.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

queuesExcludedFromGS

- **Module**: cmweb-server-adapter
- **Description**: Comma-separated list of queue names which are excluded from Quick Search.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: Helpdesk,FAQ
- **Since**: 6.0

recent.items.cleanup.cluster.node.id

- **Module**: cmas-core-server
- **Description**: Value of a `-Dcmas.clusternode.id` designating the node which will clean up recent items.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1 (assuming the cluster node started with `-Dcmas.clusternode.id=1` parameter)
- **Since**: 6.11.0.1

recent.items.cleanup.interval.minutes

- **Module**: cmas-core-server
- **Description**: Controls the time interval (in minutes) in which recent items should be checked for removal.
- **Type**: integer
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: 60
- **Since**: 6.11.0.1

recent.items.max.per.engineer

- **Module**: cmas-core-server
- **Description**: Maximum number of preserved recent items per engineer while cleaning up (older recent items will be deleted).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 500
- **Since**: 6.11.0.1

recent.items.persistence.enabled

- **Module**: cmas-core-server
- **Description**: Enables persistence of recent items. If the property is set to "false", it prevents storing new recent items. If a recently visited widget (`recentlyVisitedWidget`) is used on a dashboard, this property needs to be set to "true". Otherwise, you can set it to "false" to save system resources.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.11.1.0

recoverable.exceptions

- **Module**: cmas-dwh-server
- **Description**: Comma-separated list of exception definitions: CLASS[+][:REGEX]. The exceptions included in the list do not stop CM from sending to the CMRF process, but force it to try again. If optional '+' after CLASS is present, classes which extend CLASS are matched.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: java.sql.SQLRecoverableException,java.lang.RuntimeException+:.*T.1\,2T.*
- **Since**: 6.8.4.6

refreshTimeInCaseOfConcurrentRememberMeRequests

- **Module**: cmas-workflow-jbpm
- **Description**: It sets the refresh time (in seconds) after which the page will be reloaded in case of concurrent remember me requests. This feature prevents one user from occupying many licenses. Please increase that time if sessions are still occupying.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: yes
- **Example value**: 5
- **Since**: 6.8.2

rememberMeLifetimeInMinutes

- **Module**: cmweb-server-adapter
- **Description**: Lifetime for *remember me* in minutes.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 1440
- **Since**: 6.0

request.scope.transaction

- **Module**: cmweb-server-adapter
- **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

resetCode.expirationPeriod

- **Module**: cmas-core-security
- **Description**: Defines the expiration period for the link when resetting the password in CM/Track.
- **Type**: Integer
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: 86400000 (default value, 24 hours)
- **Since**: 6.10.1

resource.replace.batchSize

- **Module**: cmas-core-server
- **Description**: Defines the number of objects to be processed in a resource replace action.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5
- **Since**: 6.10.0.0

resource.replace.timeout

- **Module**: cmas-core-server
- **Description**: Transaction timeout (in seconds) of a resource replacement action step.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 120
- **Since**: 6.10.0.0

scene

- **Module**: cmas-setup-scene
- **Description**: Scene file which was imported during setup (can be empty).
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 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/
- **Since**: 6.0

script.evict.unused.after.hours

- **Module**: cmas-core-server
- **Description**: Determines the number of hours for which unused scripts remain in the cache. After this time, the compiled class of the script is removed. The ConSol CM server checks for scripts to evict every hour.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 24 (default)
- **Since**: 6.11.1.14

script.logging.threshold.seconds

- **Module**: cmas-core-server
- **Description**: When this time, in seconds, is exceeded during script execution, a warning is emitted in the logs.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10 (default)
- **Since**: 6.10.1.0

script.validation.interval.seconds

- **Module**: cmas-app-admin-tool
- **Description**: Interval in seconds between two code checks in the Admin Tool or the Process Designer code editor
- **Type**: Integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.11.0.1

searchPageSize

- **Module**: cmweb-server-adapter
- **Description**: Default page size for search results.
- **Type**: integer
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: 20
- **Since**: 6.0

searchPageSizeOptions

- **Module**: cmweb-server-adapter
- **Description**: Options for the page size for search results.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10|20|30|40|50|75|100
- **Since**: 6.0

security.fields.customer.exposure.check.enabled

- **Module**: cmas-restapi-core
- **Description**: Enables customer exposure annotation checks for ticket fields.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.10.5.4

security.restrict.unit.access.to.own.data

- **Module**: cmas-restapi-core
- **Description**: If set to "true", an additional check is performed when a user logs in as a customer using the REST API, e.g. CM/Track. When requesting customer data, only the company of the user or other contacts of the user's company are returned. If set to "false", no additional security check is performed and the former security rules apply.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true (default value)
- **Since**: 6.9.2.14

serial.mods.tracking.enabled

- **Module**: cmas-core-server
- **Description**: Low level technical flag deciding whether serial diff tracking for entities is enabled. If enabled, there will be no `StackOverflow` error in case a dependency between two entities (for example engineer and ticket) causes an infinite loop first and then as a result, the Stack-Overflow. The property must be added to the configuration manually. It will not be added to a system configuration during setup or update.

> ⚠ Please enable the restricted ticket change behavior described in this section only when advised by a ConSol representative! It is a low level technical flag with intricate consequences for system behavior and thus should not be used without thorough scrutiny.

- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.10.7.0, 6.11.0.5

server.instance.task.crash.period.seconds

- **Module**: cmas-core-server
- **Description**: Determines the period (in seconds) for detecting live and crashed ConSol CM server instances.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 15 (default value)
- **Since**: 6.11.1.6

server.instance.task.period.seconds

- **Module**: cmas-core-server
- **Description**: Determines the interval (in seconds) between repeated task executions. The task will be executed repeatedly with the given number of seconds between each execution.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 5 (default value)
- **Since**: 6.11.1.6

server.session.archive.reaper.interval

- **Module**: cmas-core-server
- **Description**: Determines the interval (in seconds) when the reaper for archived server sessions is executed, refers to the database table `cmas_user_session`.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.7.1

server.session.archive.timeout

- **Module**: cmas-core-server
- **Description**: Server sessions archive validity timeout (in days). After this time session info is removed from the database (refers to the database table `cmas_user_session`).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 3 or 7
- **Since**: 6.7.1

server.session.reaper.interval

- **Module**: cmas-core-server
- **Description**: Determines the interval (in seconds) when the reaper for inactive (ended) server sessions is executed, refers to the database table `cmas_user_session`.
- **Type**: integer
- **Restart required**: only Session Service
- **System**: yes
- **Optional**: no
- **Example value**: 10800 (3 hours)
- **Since**: 6.6.1, 6.7.1

server.session.timeout

- **Module**: cmas-core-server
- **Description**: Server session timeout (in seconds) for connected clients (database table `cmas_user_session`). 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`.
Please see also the Page Customization attributes *updateTimeServerSessionActivityEnabled* and *updateTimeServerSessionActivity*, both of type *cmApplicationCustomization*.

- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1800
- **Since**: 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.

serverPoolingInterval

- **Module**: cmweb-server-adapter
- **Description**: Defines the time in seconds for pooling server to invalidate caches on the web layer.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5
- **Since**: 6.1.0

skip-ticket

- **Module**: cmas-dwh-server
- **Description**: Tickets are not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false

- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-ticket-history

- **Module**: cmas-dwh-server
- **Description**: History of ticket is not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-unit

- **Module**: cmas-dwh-server
- **Description**: Units are not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-unit-history

- **Module**: cmas-dwh-server
- **Description**: History of unit is not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip.wfl.transfer.cleanup

- **Module**: cmas-core-server
- **Description**: If set to "true", skips workflow cleanup after transfer.

- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.9.4.1

skip.wfl.transfer.translations.cleanup

- **Module**: cmas-core-server
- **Description**: Enables skipping the cleanup of localized properties of removed workflow elements.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.10.5.5

split.history

- **Module**: cmas-dwh-server
- **Description**: Changes the SQL that fetches the history for the tickets during DWH transfer so that the history is not fetched for all tickets at once but only for one ticket per SQL.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: false
- **Since**: 6.8.0

start.groovy.task.enabled

- **Module**: cmas-app-admin-tool
- **Description**: For being able to run Admin Tool scripts of type *Task* in the Admin Tool (navigation group *Services*, navigation item *Task Execution*). It is required to enable the *Start task* button, which is hidden by default. This is done by setting this system property to "true".
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.0

statistics.calendar

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.client.group

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.contact.role

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.content.entry

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.content.entry.class

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.content.entry.history

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.customer.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.engineer

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.enum.group

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.field.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.group.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.locale

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.localized.property

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.mla

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.project

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.queue

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource.group

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource.history

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource.relation.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource.type

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.ticket

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.ticket.function

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.ticket.history

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.time.booking

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.timestamp

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.unit

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.unit.history

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.unit.relation.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.workflow

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

strict.utf.bmp.enabled

- **Module**: cmas-core-server
- **Description**: In ConSol CM versions lower than 6.10.6, incoming emails with a subject line containing four-byte UTF8 characters could not be handled by some installations using the MySQL database engine. The reason is the encoding/collation configuration of the database using a

two-byte BMP (Basic Multilingual Plane) 0 plane which cannot be changed in some installations for technical reasons. Other database engines were unaffected. Emails with this encoding could not be imported into the system at all in CM versions lower than 6.10.6. In order to accommodate this issue this system property for configuration is available.

Setting it to "true" will filter out all four-byte UTF8 characters before any database interaction, so the problems mentioned above will not occur.

The property value is "true" by default for MySQL databases, and "false" for any other database where it should not be necessary at all. Change it for a MySQL database only, if the settings positively will support four-byte characters.

- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.10.6.0

supportEmail

- **Module**: cmweb-server-adapter
- **Description**:
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.0
- **Removed in**: 6.11.0.1

synchronize.archive.timeout.minutes

- **Module**: cmas-core-index-common
- **Description**: Determines the time period in minutes during which index updates are archived. The default value of this property is "60" for clustered environments and "0" for non-clustered environments. If the master node is switched, the new master can recover missing data in case it had not been fully synchronized with the previous master indexing server at the moment of switch.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.12.0.0

synchronize.master.address

- **Module**: cmas-core-index-common
- **Description**: Value of `-Dcmas.http.host.port` specifying how to connect to the indexing master server. The default value is null. Since 6.6.17 this value is configurable in set-up to designate the initial indexing master server. Since 6.12.0.0 it is possible to switch the node acting as master node by entering the address of the new master node. The index updates are archived for the time configured in the property `cmas-core-index-common`, `synchronize.archive.timeout.minutes`, so the new master can recover missing data in case it had not been fully synchronized with the previous master indexing server at the moment of switch.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 127.0.0.1:80
- **Since**: 6.6.0

synchronize.master.security.token

- **Module**: cmas-core-index-common
- **Description**: The password for accessing the index snapshot via URL, e.g., for index synchronization or for backups.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: token
- **Since**: 6.6.0

synchronize.master.security.user

- **Module**: cmas-core-index-common
- **Description**: The user name for accessing the index snapshot via URL, e.g., for index synchronization or for backups.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: user
- **Since**: 6.6.0

synchronize.master.timeout.minutes

- **Module**: cmas-core-index-common
- **Description**: Determines how long the master server may continually fail until a new master gets elected. Since 6.6.17, this value is configurable in setup, where 0 means that master server will never change (failover is disabled).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5 (default value)
- **Since**: 6.6.0

synchronize.megabits.per.second

- **Module**: cmas-core-index-common
- **Description**: Determines how much bandwidth the master server may consume when transferring index changes to all slave servers. Do not use all available bandwidth to transfer index changes between hosts, as doing so will most probably partition the cluster due to some subsystems being unable to communicate.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 85 (default value)
- **Since**: 6.6.0

synchronize.sleep.millis

- **Module**: cmas-core-index-common
- **Description**: Determines how often each slave server polls the master server for index changes.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1000 (default value)
- **Since**: 6.6.0

task.execution.interval.seconds

- **Module**: cmas-core-server
- **Description**: Time in seconds between the end of an accomplished task in the TEF (Task Execution Framework) and the start of the next task.
- **Type**: Integer

- **Restart required**: no

- **System**: no

- **Optional**: no

- **Example value**: 5

- **Since**: 6.9.4.0

task.execution.node.id

- **Module**: cmas-core-server

- **Description**: Only relevant in clustered environments. The ID of the node where scripts of the TEF (Task Execution Framework) will be executed. This applies to both scripts called from the workflow and scripts called manually using the Admin Tool. The Admin Tool can be started from any node.

- **Type**: Integer

- **Restart required**: no

- **System**: no

- **Optional**: no

- **Example value**: 2

- **Since**: 6.11.0.1

task.panel.refresh.interval.seconds

- **Module**: cmas-app-admin-tool

- **Description**: Time in seconds after which the task list (in the Admin Tool) of the Task Execution Framework is refreshed.

- **Type**: Integer

- **Restart required**: no

- **System**: no

- **Optional**: no

- **Example value**: 10

- **Since**: 6.10.5.3 (not added automatically during update from versions prior to 6.10.5.3!)

themeOverlay

- **Module**: cmweb-server-adapter

- **Description**: Name of the folder containing the skin used to customize the layout of the Web Client.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: consolINT

- **Since**: 6.0, functionality changed in 6.11.2.0

ticket.delete.timeout

- **Module**: cmas-core-server
- **Description**: Transaction timeout (in seconds) for deleting tickets.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.1.3

ticket.from.incoming.message.accepted.links

- **Module**: cmas-core-server
- **Description**: List of domains to which links in incoming emails and links in comments added via REST API are clickable in the ticket history. Regular expressions can be used to specify the allowed URLs. It is possible to add several URLs by using a whitespace as delimiter. The URL must start with one of the allowed protocols (http, https, ftp, ftps, file, mailto). All other links are removed, i.e., the link is displayed in the ticket history as text but it cannot be clicked. If the property is left empty, all links are removed. The regular expression `.+` can be used to allow all domains.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: https://.*\.consol\.de (allows links to "https://<any>.consol.de")
- **Since**: 6.11.1.7

> ⚠ Please note that whitelisting domains might make ConSol CM vulnerable to cross-site scripting and other attacks. Choose the domains you whitelist carefully!

ticketListRefreshIntervalInSeconds

- **Module**: cmweb-server-adapter
- **Description**: Refresh interval for the ticket list (in seconds).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 180
- **Since**: 6.0

ticketListSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of tickets in ticket list.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 100
- **Since**: 6.0

tickets.delete.size

- **Module**: cmas-core-server
- **Description**: Defines the number of tickets deleted per transaction.
- **Type**: integer
- **Restart required**: only Session Service
- **System**: yes
- **Optional**: no
- **Example value**: 10 (default value)
- **Since**: 6.8.1

time.buffer

- **Module**: cmas-dwh-server
- **Description**: Number of minutes to extend date of start live mode.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 5
- **Since**: 6.8.1.11

transaction.timeout.minutes

- **Module**: cmas-core-server
- **Description**: Sets the transaction timeout for the task execution service, i.e., one run of a task must finish before this timeout is reached. The changes are visible only for new tasks, the execution of which started after the configuration change.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: 10*60 (10 hours - default value)
- **Since**: 6.10

ttl.days

- **Module**: cmas-web-notifications
- **Description**: Determines the time (in days) after which unpinned notifications are removed.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 15
- **Since**: 6.12.0.0

tx.read.only.mode.enabled

- **Module**: cmweb-server-adapter
- **Description**: Enables read-only transactions for faster page loading. This transactional behavior was introduced in 6.11.0, and this property acts as a safety guard to restore the old behaviors. Do not change this value unless facing tx problems and advised by ConSol.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.11

unit.description.mode

- **Module**: cmas-core-server
- **Description**: Defines whether unit (contact) descriptions in the ticket history are taken from the database or dynamically rendered using templates. The value, "DYNAMIC", is a bit more costly from the performance perspective, while "PROTOCOL" is faster but returns historical names which might be outdated. Use "PROTOCOL" if you have lots of history entries from many different units. This is also the default value in CM versions 6.11.1.1 and up. In CM versions up to 6.11.1.0, "DYNAMIC" is the default.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: PROTOCOL
- **Since**: 6.11.0

unit.replace.batchSize

- **Module**: cmas-core-server
- **Description**: Defines the number of objects to be processed in a unit replace action.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5
- **Since**: 6.8.2

unit.replace.timeout

- **Module**: cmas-core-server
- **Description**: Transaction timeout (in seconds) of a unit replacement action step.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 120
- **Since**: 6.8.2

unit.transfer.order

- **Module**: cmas-dwh-server
- **Description**: Defines in which order customer field groups should be transferred to the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: company;customer
- **Since**: 6.6.19
- **Removed in**: 6.8.1

unitIndexSearchResultSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of units in unit search result (e.g. when searching for contact).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: 5
- **Since**: 6.0

unused.content.remover.cluster.node.id

- **Module**: cmas-core-server
- **Description**: Value of a `cmas.clusternode.id` designating which node will remove unused ticket attachments and unit content entries.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1 (assuming cluster node started with the parameter `-Dcmas.clusternode.id=1`)
- **Since**: 6.9.0.0

unused.content.remover.enabled

- **Module**: cmas-core-server
- **Description**: Specifies whether a removal of unused ticket attachments and unit content entries should take place.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.9.0.0

unused.content.remover.polling.minutes

- **Module**: cmas-core-server
- **Description**: Determines how often unused ticket attachments and unit content entries should be checked for removal.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 15
- **Since**: 6.9.0.0

unused.content.remover.ttl.minutes

- **Module**: cmas-core-server
- **Description**: Minimum interval, in minutes, after which unused ticket attachments and unit content entries can be removed.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1440
- **Since**: 6.9.0.0

update.6.11.0.0.sleep

- **Module**: cmas-setup-hibernate
- **Description**: Helper property for the update preparation scripts introduced in context of CM database refactoring in version 6.11. This is an optional setting allowing a delay (in milliseconds) after each loop iteration of the preparation scripts. Setting the delay should lower the database load, for example during working hours. This property may be removed after the update preparation tasks finish.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.0, for use in 6.10.5.x

update.6.11.0.0.timezone

- **Module**: cmas-setup-hibernate
- **Description**: Helper property for the ticket history migration (the new way of counting history groups). Since 6.11.0.0 the groups are constant (2h time span), but before 6.11.0.0 groups were not constant and depended on the customer's time zone. Migration scripts use an old algorithm to calculate groups and therefore need information about the time zone. The property should be set to the timezone which is most commonly used by the customers. If the property is not set, the default server time zone is used (`TimeZone.getDefault()`). The property should be set before updating to 6.11.0.0 and will be removed automatically after migration. The list of accepted timezones can be found for example here: http://joda-time.-sourceforge.net/timezones.html.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: Europe/Berlin
- **Since**: 6.11.0.0, for use before updating to this version

urlLogoutPath

- **Module**: cmweb-server-adapter
- **Description**: URL which is opened when the user logs out. There are three configuration possibilities:
    - Empty value: The user is redirected to the login page.
    - <CM URL>/cm-client/logout: The user is redirected to the logout page, which includes a link to log in again.
    - Any URL: The user is redirected to the given URL outside ConSol CM.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: https://mycmserver/cm-client/logout
- **Since**: 6.3.1, behavior changed in 6.11.2.0

voCacheEnabled

- **Module**: cmweb-server-adapter
- **Description**: This property enables additional caching for the Web Client, voCaching, of complete objects, thus improving performance.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: true
- **Since**: 6.11.1.0

> (i) **Notes:**
>
>   - Since ConSol CM version 6.11.1.1, the default value is "true" for non-clustered envir-onments. The value is set to "true" automatically during the setup or update of ConSol CM 6.11.1.1.
>
>   - When voCaching is enabled and lazy loading is used for folding ticket history entries, once the engineer unfolded an entry, he cannot fold it again by reloading the page or opening the ticket from the workspace.
>
>   - When using the dynamic mode for displaying engineer and customer names in the ticket history (as configured in the system properties cmas-core-server, engineer.description.mode and cmas-core-server, unit.description.mode), the new version of the engineer and/or customer name is only displayed after the ticket has been changed.
>
>   - This system property is ignored for clustered environments (environments with cmas-core-shared, cluster.mode set to "true"). In clustered environments, voCaching is always disabled to avoid problems that changes made to objects on one node are not visible on the other nodes.

warmup.executor.enabled

- **Module**: cmas-core-server
- **Description**: Specifies whether the server should asynchronously warm up during startup (e.g., fill some of the internal caches).
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.9.4.2

webSessionTimeoutInMinutes

- **Module**: cmweb-server-adapter
- **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

wfl.sticky.transfer.disabled

- **Module**: cmas-core-server
- **Description**: Enables using preserved original names of workflow elements.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false
- **Since**: 6.10.1.0

wicketAjaxRequestHeaderFilterEnabled

- **Module**: cmweb-server-adapter
- **Description**: 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.
- **Type**: boolean
- **Restart required**: yes
- **System**: yes
- **Optional**: yes
- **Example value**: false
- **Since**: 6.8.1

workflow.deploy.cache.eviction.disabled

- **Module**: cmas-core-server
- **Description**: Determines if the infinispan cache should be cleared after deployment ("true") or not ("false"). If the property is set to "true", all mappings are removed from the cache.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.11.1.4

X-Frame-Options

- **Module**: cmweb-server-http-headers
- **Description**: Example property to illustrate the configuration of HTTP headers. In this case the delivered HTTP header contains the field *X-Frame-Options* with the value "SAMEORIGIN".

  Each property in the module `cmweb-server-http-headers` represents one header field. The property name/key identifies the response header field and the value of the property is the field value sent in this header.

> ⚠ Please be aware that additional HTTP response headers must be correctly defined with the exact spelling as officially specified! Please note also that the correct interpretation and application of these headers is fully in the realm and responsibility of the client browser which requested the page!

- **Type**: string

- **Restart required**: no

- **System**: no

- **Optional**: yes

- **Example value**: SAMEORIGIN

- **Since**: 6.10.8

F.1.2 List of System Properties by Module

This chapter lists the system properties included in the following modules.

- cmas-app-admin-tool (module)
- cmas-archive-core-server (module)
- cmas-auth-server (module)
- cmas-core-cache (module)
- cmas-core-index-common (module)
- cmas-core-security (module)
- cmas-core-server (module)
- cmas-core-shared (module)
- cmas-dwh-server (module)
- cmas-nimh (module)
- cmas-nimh-extension (module)
- cmas-restapi-core (module)
- cmas-restapi-http-headers (module)
- cmas-setup-hibernate (module)
- cmas-setup-manager (module)
- cmas-setup-scene (module)
- cmas-web-notifications (module)
- cmas-workflow-engine (module)
- cmas-workflow-jbpm (module)
- cmweb-server-http-headers (module)
- cmweb-server-adapter (module)

F.1.2.1 cmas-app-admin-tool (module)

admin.tool.consumed.licences.check.interval

- **Module**: cmas-app-admin-tool
- **Description**: Sets the interval (in seconds) to monitor the number of consumed licenses.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.11.0.0

admin.tool.consumed.licences.pool.name

- **Module**: cmas-app-admin-tool
- **Description**: Sets the license pool name to monitor the number of consumed licenses.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: CONCURRENT_USERS (default value)
- **Since**: 6.11.0.0

admin.tool.session.check.interval

- **Module**: cmas-app-admin-tool
- **Description**: Configures the time interval (in seconds) in which the system checks for inactive (ended) Admin Tool sessions.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 30
- **Since**: 6.7.5

autocomplete.enabled

- **Module**: cmas-app-admin-tool
- **Description**: If the flag is missing or its value is "false", then the *Autocomplete address* navigation item is hidden in Admin Tool.
- **Type**: boolean
- **Restart required**: no
- **System**: yes

- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.2.0

delete.ticket.enabled

- **Module**: cmas-app-admin-tool
- **Description**: Controls if the menu entry *Delete* is displayed in the context menu in the Admin Tool for the ticket list in the ticket administration.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.0

dwh.administration.refresh.interval.seconds

- **Module**: cmas-app-admin-tool
- **Description**: Internal DWH property, not to be changed manually. This property is used to set the interval for refreshing the list of actions in the Admin Tool, section *Data Warehouse -> Administration -> Actions*.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.11.0.1

script.validation.interval.seconds

- **Module**: cmas-app-admin-tool
- **Description**: Interval in seconds between two code checks in the Admin Tool or the Process Designer code editor
- **Type**: Integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.11.0.1

start.groovy.task.enabled

- **Module**: cmas-app-admin-tool
- **Description**: For being able to run Admin Tool scripts of type *Task* in the Admin Tool (navigation group *Services*, navigation item *Task Execution*). It is required to enable the *Start task* button, which is hidden by default. This is done by setting this system property to "true".
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.0

task.panel.refresh.interval.seconds

- **Module**: cmas-app-admin-tool
- **Description**: Time in seconds after which the task list (in the Admin Tool) of the Task Execution Framework is refreshed.
- **Type**: Integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 10
- **Since**: 6.10.5.3 (not added automatically during update from versions prior to 6.10.5.3!)

F.1.2.2 cmas-archive-core-server (module)

archive.uri

- **Module**: cmas-archive-core-server
- **Description**: Sets the URL from which the CM/Archive application can be accessed
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: <server_url>:8090
- **Since**: 6.11.2.0

F.1.2.3 cmas-auth-server (module)

access.token.signing.key

- **Module**: cmas-auth-server
- **Description**: Determines the secret shared between the authorization server and all client applications using OAuth2, e.g. CM/Archive. The value of this property needs to match the value of *archive.oauth2.access.token.signing.key* in the configuration file of CM/Archive.
- **Type**: password
- **Restart required**: yes
- **System**: no
- **Optional**: no
- **Example value**: my_password
- **Since**: 6.11.2.0

client.archive.access.token.validity.seconds

- **Module**: cmas-auth-server
- **Description**: Determines the validity period in seconds of the access token required for using CM/Archive.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 43200 (default value)
- **Since**: 6.11.2.0

client.archive.enabled

- **Module**: cmas-auth-server
- **Description**: Determines if CM/Archive is enabled ("true") or disabled ("false").
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: false
- **Since**: 6.11.2.0
- **Removed in**: 6.11.2.2

client.archive.refresh.token.validity.seconds

- **Module**: cmas-auth-server
- **Description**: Determines the validity period in seconds of the refresh token required for obtaining new access tokens for CM/Archive.
- **Type**: integer

- **Restart required**: no

- **System**: no

- **Optional**: no

- **Example value**: 2592000 (default value)

- **Since**: 6.11.2.0

client.archive.secret

- **Module**: cmas-auth-server

- **Description**: Determines the secret shared between the authorization server and CM/Archive. The value of the property needs to match the value of *archive.oauth2.client.secret* in the configuration file of CM/Archive.

- **Type**: password

- **Restart required**: no

- **System**: no

- **Optional**: no

- **Example value**: my_password

- **Since**: 6.11.2.0

client.was.access.token.validity.seconds

- **Module**: cmas-auth-server

- **Description**: Determines the validity period in seconds of the access token required for using the Web Admin Suite.

- **Type**: integer

- **Restart required**: no

- **System**: no

- **Optional**: no

- **Example value**: 43200 (default value)

- **Since**: 6.12.0.0

client.was.refresh.token.validity.seconds

- **Module**: cmas-auth-server

- **Description**: Determines the validity period in seconds of the refresh token required for obtaining new access tokens for the Web Admin Suite.

- **Type**: integer

- **Restart required**: no

- **System**: no

- **Optional**: no

- **Example value**: 2592000 (default value)

- **Since**: 6.12.0.0

client.was.secret

- **Module**: cmas-auth-server
- **Description**: Determines the secret shared between the authorization server and the Web Admin Suite.
- **Type**: password
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: my_password
- **Since**: 6.12.0.0

F.1.2.4 cmas-core-cache (module)

cache-cluster-name

- **Module**: cmas-core-cache
- **Description**: JBoss cache cluster name.
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 635a6de1-629a-4129-8299-2d98633310f0
- **Since**: 6.4.0

eviction.event.queue.size

- **Module**: cmas-core-cache
- **Description**: The size of the queue holding cache events. The default value is 200000. It is recommended to increase the value slightly (up to 400000) on systems with high traffic or load.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 200000 (default value)
- **Since**: 6.4.0

eviction.lifeSpan

- **Module**: cmas-core-cache
- **Description**: Sets the interval (in milliseconds) for cache entry validity. When this time is elapsed, the entry is removed from the cache.
- **Type**: integer
- **Restart required**: yes
- **System**: no

- **Optional**: yes
- **Example value**: 86400000 (default value)
- **Since**: 6.11.1.0

eviction.max.nodes

- **Module**: cmas-core-cache
- **Description**: Sets the maximum size of internal caches. The default value is 100000. Increasing it will lead to higher memory consumption and is not recommended unless explicitly advised by ConSol.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 100000 (default value)
- **Since**: 6.4.0

eviction.strategy

- **Module**: cmas-core-cache
- **Description**: Determines the cache eviction strategy. Please see the Infinispan documentation for details.
- **Type**: string
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: LRU, LIRS (default value)
- **Since**: 6.11.1.0

eviction.wakeup.interval

- **Module**: cmas-core-cache
- **Description**: Sets the interval (in milliseconds) between two cache queue event processing cycles. The default value is 3000. It is recommended to decrease it (minimum is 1500) on systems with high traffic or load.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 3000 (default value)
- **Since**: 6.4.0

F.1.2.5 cmas-core-index-common (module)

big.task.minimum.size

- **Module**: cmas-core-index-common
- **Description**: Indicates the minimum size of index task (in parts, each part has 100 entities) to qualify this task as a big one. Big tasks have a lower priority than normal tasks.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 15 (default value)
- **Since**: 6.8.3

database.notification.enabled

- **Module**: cmas-core-index-common
- **Description**: Indicates whether the notification channel "database" should be used for index updates instead of JMS. The default value is "true."
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.8.4.7
- **Removed in**: 6.12.0.0

database.notification.redelivery.delay.seconds

- **Module**: cmas-core-index-common
- **Description**: If the notification channel "database" is used for index updates, this property indicates the delay for notification redelivery when an exception occurs.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.8.4.7

database.notification.redelivery.max.attempts

- **Module**: cmas-core-index-common
- **Description**: In case of index update database notification channel, indicates maximum redelivery attempts when an exception occurs.
- **Type**: integer

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.8.4.7

disable.admin.task.auto.commit

- **Module**: cmas-core-index-common
- **Description**: All tasks created for index update will be automatically executed right after creation.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.1

index.attachment

- **Module**: cmas-core-index-common
- **Description**: Specifies whether the content of attachments is indexed.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.4.3

index.history

- **Module**: cmas-core-index-common
- **Description**: Specifies whether unit and ticket history are indexed.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.1.0
- **Removed in**: 6.11.0

index.status

- **Module**: cmas-core-index-common
- **Description**: Status of the Indexer, possible values RED, YELLOW, GREEN, will be displayed in the Admin Tool.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: GREEN
- **Since**: 6.6.1

index.task.worker.threads

- **Module**: cmas-core-index-common
- **Description**: How many threads will be used to execute index tasks (synchronization, administrative and repair tasks). We recommend to use a value not larger than 2.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.6.14, 6.7.3. Since 6.8.0 and exclusively in 6.6.21 also normal (live) index updates are affected by this property.

index.version.current

- **Module**: cmas-core-index-common
- **Description**: Holds information about the current (possibly old) index version.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.7.0

index.version.newest

- **Module**: cmas-core-index-common
- **Description**: Holds information about which index version is considered newest.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: 1 (default value)
- **Since**: 6.7.0

indexed.assets.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many assets should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.8.0

indexed.engineers.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many engineers should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 300 (default value)
- **Since**: 6.6.14, 6.7.3

indexed.resources.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many resources should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.10.0.0

indexed.tickets.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many tickets should be loaded into memory at once, per thread, during indexing.
- **Type**: integer

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 100 (default value)
- **Since**: 6.6.14, 6.7.3

indexed.units.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many units should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.6.14, 6.7.3

synchronize.archive.timeout.minutes

- **Module**: cmas-core-index-common
- **Description**: Determines the time period in minutes during which index updates are archived. The default value of this property is "60" for clustered environments and "0" for non-clustered environments. If the master node is switched, the new master can recover missing data in case it had not been fully synchronized with the previous master indexing server at the moment of switch.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.12.0.0

synchronize.master.address

- **Module**: cmas-core-index-common
- **Description**: Value of `-Dcmas.http.host.port` specifying how to connect to the indexing master server. The default value is null. Since 6.6.17 this value is configurable in set-up to designate the initial indexing master server. Since 6.12.0.0 it is possible to switch the node acting as master node by entering the address of the new master node. The index updates are archived for the time configured in the property `cmas-core-index-common`, `synchronize.archive.timeout.minutes`, so the new master can recover missing data in case it had not been fully synchronized with the previous master indexing server at the moment of switch.
- **Type**: integer

- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 127.0.0.1:80
- **Since**: 6.6.0

synchronize.master.security.token

- **Module**: cmas-core-index-common
- **Description**: The password for accessing the index snapshot via URL, e.g., for index synchronization or for backups.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: token
- **Since**: 6.6.0

synchronize.master.security.user

- **Module**: cmas-core-index-common
- **Description**: The user name for accessing the index snapshot via URL, e.g., for index synchronization or for backups.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: user
- **Since**: 6.6.0

synchronize.master.timeout.minutes

- **Module**: cmas-core-index-common
- **Description**: Determines how long the master server may continually fail until a new master gets elected. Since 6.6.17, this value is configurable in setup, where 0 means that master server will never change (failover is disabled).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5 (default value)
- **Since**: 6.6.0

synchronize.megabits.per.second

- **Module**: cmas-core-index-common
- **Description**: Determines how much bandwidth the master server may consume when transferring index changes to all slave servers. Do not use all available bandwidth to transfer index changes between hosts, as doing so will most probably partition the cluster due to some subsystems being unable to communicate.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 85 (default value)
- **Since**: 6.6.0

synchronize.sleep.millis

- **Module**: cmas-core-index-common
- **Description**: Determines how often each slave server polls the master server for index changes.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1000 (default value)
- **Since**: 6.6.0

F.1.2.6 cmas-core-security (module)

admin.email

- **Module**: cmas-core-security
- **Description**: The email address of the ConSol CM administrator. The value which you entered during system set-up is used initially.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0

admin.login

- **Module**: cmas-core-security
- **Description**: The name of the ConSol CM administrator. The value which you entered during system set-up is used initially.
- **Type**: string

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: admin
- **Since**: 6.0

authentication.method

- **Module**: cmas-core-security
- **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

contact.authentication.method

- **Module**: cmas-core-security
- **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
- **Example value**: LDAP
- **Since**: 6.9.3.0

contact.inherit.permissions.only.to.own.customer.group

- **Module**: cmas-core-security
- **Description**: Indicates whether an authenticated contact inherits all customer group permissions from the CM/Track user profile ("false") or only has permissions to his own customer group ("true").
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.9.2.3

kerberos.v5.enabled

- **Module**: cmas-core-security
- **Description**: Indicates whether SSO via Kerberos is enabled.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false (default value if Kerberos was not enabled during system setup)
- **Since**: 6.2.0

kerberos.v5.username.regex

- **Module**: cmas-core-security
- **Description**: Regular expression used for mapping Kerberos principals to CM user login names.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: (.*)@.*
- **Since**: 6.2.0

ldap.authentication

- **Module**: cmas-core-security
- **Description**: Authentication method used when using LDAP authentication. Possible values are "anonymous" and "simple".
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: simple (default value)
- **Since**: 6.0

ldap.basedn

- **Module**: cmas-core-security
- **Description**: Base DN used for looking up LDAP user accounts when using LDAP authentication.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: ou=accounts,dc=consol,dc=de
- **Since**: 6.0

ldap.contact.name.basedn

- **Module**: cmas-core-security
- **Description**: Base path to search for contact DN by LDAP ID.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: ou=accounts,dc=consol,dc=de
- **Since**: 6.9.3.0

ldap.contact.name.password

- **Module**: cmas-core-security
- **Description**: Password to look up contact DN by LDAP ID. If not set, the anonymous account is used.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Since**: 6.9.3.0

ldap.contact.name.providerurl

- **Module**: cmas-core-security
- **Description**: Address of the LDAP server (ldap[s]://host:port).
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: ldap://ldap.consol.de:389
- **Since**: 6.9.3.0

ldap.contact.name.searchattr

- **Module**: cmas-core-security
- **Description**: Attribute to search for contact DN by LDAP ID.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: uid
- **Since**: 6.9.3.0

ldap.contact.name.userdn

- **Module**: cmas-core-security
- **Description**: User DN to look up contact DN by LDAP ID. If not set, the anonymous account is used.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Since**: 6.9.3.0

ldap.initialcontextfactory

- **Module**: cmas-core-security
- **Description**: Class name for the initial context factory of the LDAP implementation when using LDAP authentication. If it is not set, `com.sun.jndi.ldap.LdapCtxFactory` is used.
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: com.sun.jndi.ldap.LdapCtxFactory
- **Since**: 6.0

ldap.password

- **Module**: cmas-core-security
- **Description**: Password for connecting to LDAP to look up users when using LDAP authentication. Only needed if look-up cannot be performed anonymously.
- **Type**: password
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.1.2

ldap.providerurl

- **Module**: cmas-core-security
- **Description**: LDAP provider when using LDAP authentication.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: ldap://myserver.consol.de:389
- **Since**: 6.0

ldap.searchattr

- **Module**: cmas-core-security
- **Description**: Search attribute for looking up LDAP entry associated with a CM login.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: uid
- **Since**: 6.0

ldap.userdn

- **Module**: cmas-core-security
- **Description**: LDAP user for connecting to LDAP to look up users when using LDAP authentication. Only needed if look-up cannot be performed anonymously.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.1.2

password.reset.mail.from

- **Module**: cmas-core-security
- **Description**: The From address for the email which is sent to a customer who requests a new password (using the *Forgot your password?* link) in CM/Track and to an engineer who requests a new password (using the *Forgot your password?* link) in the Web Client.
- **Type**: String
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: mypwreset@consol.de
- **Since**: 6.11.0.1

policy.password.age

- **Module**: cmas-core-security
- **Description**: Maximum validity period, in number of days, example "183" (6 months), default value: "5500" (= 15 years, i.e., no password change enforced).
- **Type**: integer
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: 5500 (15 years, default value)
- **Since**: 6.10.1.0

policy.password.pattern

- **Module**: cmas-core-security
- **Description**: RegEx pattern for the password, default value: "^.3,$" (at least 3 characters).
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: "^.3,$" (default value)
- **Since**: 6.10.1.0

policy.rotation.ratio

- **Module**: cmas-core-security
- **Description**: Defines how often passwords may repeat. For example, setting the value to X means that the new password cannot be present among the user's X previous passwords.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.10.1.0

policy.username.case.sensitive

- **Module**: cmas-core-security
- **Description**: Defines whether user names are case-sensitive.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.10.1.0

policy.track.username.case.sensitive

- **Module**: cmas-core-security
- **Description**: Defines whether customer (user) names in CM/Track are treated case-sensitive on login.

- **Type**: boolean

- **Restart required**: no

- **System**: no

- **Optional**: yes

- **Example value**: true (default value)

- **Since**: 6.11.0.0

resetCode.expirationPeriod

- **Module**: cmas-core-security

- **Description**: Defines the expiration period for the link when resetting the password in CM/Track.

- **Type**: Integer

- **Restart required**: no

- **System**: no

- **Optional**: yes

- **Example value**: 86400000 (default value, 24 hours)

- **Since**: 6.10.1

F.1.2.7 cmas-core-server (module)

attachment.allowed.types

- **Module**: cmas-core-server

- **Description**: Comma-separated list of allowed file name extensions (if no value is defined, all file extensions are allowed).

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: txt,zip,doc

- **Since**: 6.5.0

attachment.max.size

- **Module**: cmas-core-server

- **Description**: Maximum attachment size, in MB. This is a validation property of the CM API. It controls the size of attachments at tickets, units, and resources. It also controls the size of incoming (not outgoing!) email attachments. The value of this property needs to be aligned with the respective setting in the application server configuration.

- **Type**: integer

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: 100 (default value)
- **Since**: 6.4.0

attachment.type.hints

- **Module**: cmas-core-server
- **Description**: Allows you to assign MIME types to not yet officially supported file extensions, so these file extensions can be detected correctly.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 7z:application/x-7z-compressed, zip:application/zip, wav:audio/x-wav
- **Since**: 6.11.2.0

calendar.csv.dateFormat

- **Module**: cmas-core-server
- **Description**: Format of the date given in the csv file containing the list of holidays.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: dd/MM/yyyy
- **Since**: 6.9.3.2

calendar.csv.separator

- **Module**: cmas-core-server
- **Description**: Separator used in the csv file containing the list of holidays.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: ,
- **Since**: 6.9.3.2

config.data.version

- **Module**: cmas-core-server
- **Description**: The internal version number of the current system configuration. This property is maintained internally, please do not change it unless advised by ConSol.
- **Type**: integer
- **Restart required**: no

- **System**: yes
- **Optional**: no
- **Example value**: 11
- **Since**: 6.0

config.import.global.transaction.enabled

- **Module**: cmas-core-server
- **Description**: Flag deciding whether configuration (without localizations) should be imported within a single transaction.
- **Type**: Boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.11.1.0

customfield.content.file.max.size

- **Module**: cmas-core-server
- **Description**: Determines the maximum size in MB of the images which can be added as content of rich text fields.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.11.2.2

dao.log.threshold.milliseconds

- **Module**: cmas-core-server
- **Description**: Used to configure database operation times logging. DAO methods whose execution takes longer than the time set in this property (in milliseconds) are logged.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 500 (default value)
- **Since**: 6.11.1.0

dao.log.username

- **Module**: cmas-core-server
- **Description**: Used to configure database operation times logging. The execution of DAO methods which are related to the user name stated in this property is logged. Only one user name can be provided. The value is empty by default.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: webadmin
- **Since**: 6.11.1.0

defaultCommentClassName

- **Module**: cmas-core-server
- **Description**: Name of the default text class for comments.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: default_class
- **Since**: 6.3.0

defaultIncommingMailClassName

- **Module**: cmas-core-server
- **Description**: Name of the default text class for incoming emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: default_class
- **Since**: 6.3.0

defaultOutgoingMailClassName

- **Module**: cmas-core-server
- **Description**: Name of the default text class for outgoing emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: default_class
- **Since**: 6.3.0

engineer.description.cache.enabled

- **Module**: cmas-core-server
- **Description**: Defines whether user descriptions are cached. The default value is "true", please do not change it unless advised by ConSol.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.11.0

engineer.description.mode

- **Module**: cmas-core-server
- **Description**: Defines whether user names in the ticket history are taken from the database or dynamically rendered using templates. The default value "DYNAMIC" is a bit more costly from the performance perspective, while "PROTOCOL" is faster but returns historical names which might be outdated. Use "PROTOCOL" if you have lots of history entries from many different users.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: PROTOCOL
- **Since**: 6.11.0

engineer.description.template.name

- **Module**: cmas-core-server
- **Description**: Defines the name of the template which is used to render engineer names for display in the Web Client. The template has to be stored in the *Templates* section of the Admin Tool.
- **Type**: String
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: engineer description template name (default value)
- **Since**: 6.11.0

external.line.access.prefix

- **Module**: cmas-core-server
- **Description**: General prefix to dial before an area code. Set for each customer group separately.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 411
- **Since**: 6.9.3.0

fetchSize.strategy

- **Module**: cmas-core-server
- **Description**: Strategy for selecting the fetch size on JDBC result sets.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: FetchSizePageBasedStrategy, FetchSizeThresholdStrategy, FetchSizeFixedStrategy
- **Since**: 6.8.4.1

fetchSize.strategy.FetchSizeFixedStrategy.value

- **Module**: cmas-core-server
- **Description**: Sets fetch size value if the selected strategy to set the fetch size is `FetchSizeFixedStrategy`.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 150
- **Since**: 6.8.4.1

fetchSize.strategy.FetchSizePageBasedStrategy.limit

- **Module**: cmas-core-server
- **Description**: Sets maximum fetch size value if the selected strategy to set the fetch size is `FetchSizePageBasedStrategy`.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: 10000
- **Since**: 6.8.4.1

fetchSize.strategy.FetchSizeThresholdStrategy.value

- **Module**: cmas-core-server
- **Description**: Sets fetch size threshold border values if the selected strategy to set the fetch size is `FetchSizeThresholdStrategy`.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 150,300,600,1000
- **Since**: 6.8.4.1

heartbeat

- **Module**: cmas-core-server
- **Description**: Timestamp that indicates if an instance of the application is connected to the database schema.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1234567899
- **Since**: 6.10.5.3

internal.line.access.prefix

- **Module**: cmas-core-server
- **Description**: Prefix that the company's telephony system requires for outside lines. Set for each customer group separately.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 199
- **Since**: 6.9.3.0

last.config.change

- **Module**: cmas-core-server
- **Description**: Random UUID created during the last configuration change. This is a value maintained internally, please do not change it unless advised by ConSol.
- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: 2573c7b7-2bf5-47ff-b5a2-bad31951a266

- **Since**: 6.1.0, 6.2.1

last.config.change.templates

- **Module**: cmas-core-server

- **Description**: Random UUID created during the last change in templates. This is a value maintained internally, please do not change it unless advised by ConSol.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: 2573c7c7-2af5-4eff-b9c2-bad31951a266

- **Since**: 6.10.5.0

ldap.certificate.basedn

- **Module**: cmas-core-server

- **Description**: Base DN for certificates location in the LDAP tree. If not provided, `cmas-core-security, ldap.basedn` is used.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: ou=accounts,dc=consol,dc=de

- **Since**: 6.8.4

ldap.certificate.content.attribute

- **Module**: cmas-core-server

- **Description**: LDAP attribute name used where certificate data is stored in the LDAP tree.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: usercertificate (default value)

- **Since**: 6.8.4

ldap.certificate.password

- **Module**: cmas-core-server
- **Description**: LDAP Certificates manager password. If not set, `cmas-core-security, ldap.password` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.8.4

ldap.certificate.providerurl

- **Module**: cmas-core-server
- **Description**: LDAP Certificates provider URL. If not set, `cmas-core-security, ldap.providerurl` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: ldap://ldap.consol.de:389
- **Since**: 6.8.4

ldap.certificate.searchattr

- **Module**: cmas-core-server
- **Description**: LDAP attribute name used to search for certificate in the LDAP tree.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: mail (default value)
- **Since**: 6.8.4

ldap.certificate.userdn

- **Module**: cmas-core-server
- **Description**: LDAP Certificates manager DN. If not set, `cmas-core-security, ldap.userdn` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.8.4

local.country.prefix

- **Module**: cmas-core-server
- **Description**: Prefix of the local country code. Set for each customer group separately.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 48
- **Since**: 6.9.3.0

mail.encryption

- **Module**: cmas-core-server
- **Description**: If the property is set to "true", the encrypt checkbox in the Ticket Email Editor is checked by default. The default value of the property is "false".
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.8.4.0

mail.notification.engineerChange

- **Module**: cmas-core-server
- **Description**: Determines whether notification emails should be sent when the engineer of a ticket is changed.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.1.0

mail.notification.sender

- **Module**: cmas-core-server
- **Description**: From address for notification emails when the engineer of a ticket is changed. If not set, `cmas-core-security, admin.email` is used instead.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: cm6notification@cm6installation
- **Since**: 6.6.3

mail.redelivery.retry.count

- **Module**: cmas-core-server
- **Description**: Number of redelivery attempts of an outgoing email.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 3
- **Since**: 6.1.0

mail.smtp.email

- **Module**: cmas-core-server
- **Description**: SMTP email URL for outgoing emails
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: smtp://mail.mydomain.com:25
- **Since**: 6.0

mail.smtp.email.password

- **Module**: cmas-core-server
- **Description**: SMTP password for outgoing email communication. If this property is set, it takes precedence over the value from the SMTP URL.
- **Type**: password
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: password
- **Since**: 6.11.2.2

mail.smtp.email.user

- **Module**: cmas-core-server
- **Description**: SMTP user name for outgoing email communication. If this property is set, it takes precedence over the value from the SMTP URL.
- **Type**: string
- **Restart required**: no

- **System**: yes
- **Optional**: yes
- **Example value**: myuser
- **Since**: 6.11.2.2

mail.smtp.envelopesender

- **Module**: cmas-core-server
- **Description**: Email address used as sender in SMTP envelope. If not set, the From address of the email is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: mysender@mydomain.com
- **Since**: 6.5.7

mail.smtp.tls.enabled

- **Module**: cmas-core-server
- **Description**: Activates SMTP via SSL/TLS (SMTPS) for sending emails from the Web Client and scripts. The default value is "false". If it is set to "true", SMTPS is activated for sending emails.
- **Type**: boolean
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.11.1.6

mailSender.executionInterval.seconds

- **Module**: cmas-core-server
- **Description**: Determines the period in seconds before the system checks if there are new emails to be sent.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.12.0.0

mailSender.lockingLimit

- **Module**: cmas-core-server
- **Description**: Determines the number of emails fetched from the database for sending in a single transaction.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1
- **Since**: 6.12.0.0

mailSender.lockTimeout.seconds

- **Module**: cmas-core-server
- **Description**: Determines the period in seconds before a locked email is released for another lock.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 199
- **Since**: 6.12.0.0

mailSender.maxAttempts

- **Module**: cmas-core-server
- **Description**: Determines the maximum number of attempts, including the first attempt, before an email is removed.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 3
- **Since**: 6.12.0.0

mailSender.nodeId

- **Module**: cmas-core-server
- **Description**: Determines the ID of the node on which the thread for sending emails is started (only in clustered environments). If the value is "all" or no value is provided, the threads are started on every node.
- **Type**: string
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: all
- **Since**: 6.12.0.0

mailSender.retryInterval.seconds

- **Module**: cmas-core-server
- **Description**: Determines the period in seconds before another attempt to send an email is made, if the previous attempt failed.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.12.0.0

mailSender.threads.number

- **Module**: cmas-core-server
- **Description**: Determines the number of threads for sending emails.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1
- **Since**: 6.12.0.0

mailSender.txTimeout.seconds

- **Module**: cmas-core-server
- **Description**: Determines the transaction timeout for sending emails in seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.12.0.0

max.licences.perUser

- **Module**: cmas-core-server
- **Description**: Sets the maximum number of licenses which a single user can use (e.g., logging in from different browsers). By default this value is not restricted.
- **Type**: integer

- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.8.4.5

monitoring.engineer.login

- **Module**: cmas-core-server
- **Description**: Login of monitoring engineer.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: nagios
- **Since**: 6.9.3.0

monitoring.unit.login

- **Module**: cmas-core-server
- **Description**: Login of monitoring unit.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: nagios
- **Since**: 6.9.3.0

nimh.enabled

- **Module**: cmas-core-server
- **Description**: Enables the NIMH service. Must be suffixed with the cluster node ID, e.g., `nimh.enabled.NODEID` = "true".
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false
- **Since**: 6.9.4.0

number.of.tasks

- **Module**: cmas-core-server
- **Description**: Number of threads to use by the Task Execution Framework (TEF).

- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1
- **Since**: 6.9.4.0

recent.items.cleanup.cluster.node.id

- **Module**: cmas-core-server
- **Description**: Value of a `-Dcmas.clusternode.id` designating the node which will clean up recent items.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1 (assuming the cluster node started with `-Dcmas.clusternode.id=1` parameter)
- **Since**: 6.11.0.1

recent.items.cleanup.interval.minutes

- **Module**: cmas-core-server
- **Description**: Controls the time interval (in minutes) in which recent items should be checked for removal.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.11.0.1

recent.items.max.per.engineer

- **Module**: cmas-core-server
- **Description**: Maximum number of preserved recent items per engineer while cleaning up (older recent items will be deleted).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 500
- **Since**: 6.11.0.1

recent.items.persistence.enabled

- **Module**: cmas-core-server
- **Description**: Enables persistence of recent items. If the property is set to "false", it prevents storing new recent items. If a recently visited widget (`recentlyVisitedWidget`) is used on a dashboard, this property needs to be set to "true". Otherwise, you can set it to "false" to save system resources.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.11.1.0

resource.replace.batchSize

- **Module**: cmas-core-server
- **Description**: Defines the number of objects to be processed in a resource replace action.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5
- **Since**: 6.10.0.0

resource.replace.timeout

- **Module**: cmas-core-server
- **Description**: Transaction timeout (in seconds) of a resource replacement action step.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 120
- **Since**: 6.10.0.0

script.evict.unused.after.hours

- **Module**: cmas-core-server
- **Description**: Determines the number of hours for which unused scripts remain in the cache. After this time, the compiled class of the script is removed. The ConSol CM server checks for scripts to evict every hour.
- **Type**: integer
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: 24 (default)
- **Since**: 6.11.1.14

script.logging.threshold.seconds

- **Module**: cmas-core-server
- **Description**: When this time, in seconds, is exceeded during script execution, a warning is emitted in the logs.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10 (default)
- **Since**: 6.10.1.0

serial.mods.tracking.enabled

- **Module**: cmas-core-server
- **Description**: Low level technical flag deciding whether serial diff tracking for entities is enabled. If enabled, there will be no `StackOverflow` error in case a dependency between two entities (for example engineer and ticket) causes an infinite loop first and then as a result, the StackOverflow. The property must be added to the configuration manually. It will not be added to a system configuration during setup or update.

  > ⚠ Please enable the restricted ticket change behavior described in this section only when advised by a ConSol representative! It is a low level technical flag with intricate consequences for system behavior and thus should not be used without thorough scrutiny.

- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.10.7.0, 6.11.0.5

server.instance.task.crash.period.seconds

- **Module**: cmas-core-server
- **Description**: Determines the period (in seconds) for detecting live and crashed ConSol CM server instances.
- **Type**: integer
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: 15 (default value)
- **Since**: 6.11.1.6

server.instance.task.period.seconds

- **Module**: cmas-core-server
- **Description**: Determines the interval (in seconds) between repeated task executions. The task will be executed repeatedly with the given number of seconds between each execution.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 5 (default value)
- **Since**: 6.11.1.6

server.session.archive.reaper.interval

- **Module**: cmas-core-server
- **Description**: Determines the interval (in seconds) when the reaper for archived server sessions is executed, refers to the database table `cmas_user_session`.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.7.1

server.session.archive.timeout

- **Module**: cmas-core-server
- **Description**: Server sessions archive validity timeout (in days). After this time session info is removed from the database (refers to the database table `cmas_user_session`).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 3 or 7
- **Since**: 6.7.1

server.session.reaper.interval

- **Module**: cmas-core-server
- **Description**: Determines the interval (in seconds) when the reaper for inactive (ended) server sessions is executed, refers to the database table `cmas_user_session`.

- **Type**: integer
- **Restart required**: only Session Service
- **System**: yes
- **Optional**: no
- **Example value**: 10800 (3 hours)
- **Since**: 6.6.1, 6.7.1

server.session.timeout

- **Module**: cmas-core-server
- **Description**: Server session timeout (in seconds) for connected clients (database table `cmas_user_session`). 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`.
  Please see also the Page Customization attributes *updateTimeServerSessionActivityEnabled* and *updateTimeServerSessionActivity*, both of type *cmApplicationCustomization*.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1800
- **Since**: 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.

skip.wfl.transfer.cleanup

- **Module**: cmas-core-server
- **Description**: If set to "true", skips workflow cleanup after transfer.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.9.4.1

skip.wfl.transfer.translations.cleanup

- **Module**: cmas-core-server
- **Description**: Enables skipping the cleanup of localized properties of removed workflow elements.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.10.5.5

strict.utf.bmp.enabled

- **Module**: cmas-core-server
- **Description**: In ConSol CM versions lower than 6.10.6, incoming emails with a subject line containing four-byte UTF8 characters could not be handled by some installations using the MySQL database engine. The reason is the encoding/collation configuration of the database using a two-byte BMP (Basic Multilingual Plane) 0 plane which cannot be changed in some installations for technical reasons. Other database engines were unaffected. Emails with this encoding could not be imported into the system at all in CM versions lower than 6.10.6. In order to accommodate this issue this system property for configuration is available.
Setting it to "true" will filter out all four-byte UTF8 characters before any database interaction, so the problems mentioned above will not occur.
The property value is "true" by default for MySQL databases, and "false" for any other database where it should not be necessary at all. Change it for a MySQL database only, if the settings positively will support four-byte characters.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.10.6.0

task.execution.interval.seconds

- **Module**: cmas-core-server
- **Description**: Time in seconds between the end of an accomplished task in the TEF (Task Execution Framework) and the start of the next task.
- **Type**: Integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 5
- **Since**: 6.9.4.0

task.execution.node.id

- **Module**: cmas-core-server
- **Description**: Only relevant in clustered environments. The ID of the node where scripts of the TEF (Task Execution Framework) will be executed. This applies to both scripts called from the workflow and scripts called manually using the Admin Tool. The Admin Tool can be started from any node.
- **Type**: Integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 2
- **Since**: 6.11.0.1

tickets.delete.size

- **Module**: cmas-core-server
- **Description**: Defines the number of tickets deleted per transaction.
- **Type**: integer
- **Restart required**: only Session Service
- **System**: yes
- **Optional**: no
- **Example value**: 10 (default value)
- **Since**: 6.8.1

ticket.delete.timeout

- **Module**: cmas-core-server
- **Description**: Transaction timeout (in seconds) for deleting tickets.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.1.3

ticket.from.incoming.message.accepted.links

- **Module**: cmas-core-server
- **Description**: List of domains to which links in incoming emails and links in comments added via REST API are clickable in the ticket history. Regular expressions can be used to specify the allowed URLs. It is possible to add several URLs by using a whitespace as delimiter. The URL must start with one of the allowed protocols (http, https, ftp, ftps, file, mailto). All other

links are removed, i.e., the link is displayed in the ticket history as text but it cannot be clicked. If the property is left empty, all links are removed. The regular expression `.+` can be used to allow all domains.

- **Type**: string

- **Restart required**: no

- **System**: no

- **Optional**: no

- **Example value**: https://.*\.consol\.de (allows links to "https://<any>.consol.de")

- **Since**: 6.11.1.7

> ⚠ Please note that whitelisting domains might make ConSol CM vulnerable to cross-site scripting and other attacks. Choose the domains you whitelist carefully!

transaction.timeout.minutes

- **Module**: cmas-core-server

- **Description**: Sets the transaction timeout for the task execution service, i.e., one run of a task must finish before this timeout is reached. The changes are visible only for new tasks, the execution of which started after the configuration change.

- **Type**: integer

- **Restart required**: no

- **System**: no

- **Optional**: yes

- **Example value**: 10*60 (10 hours - default value)

- **Since**: 6.10

unit.description.mode

- **Module**: cmas-core-server

- **Description**: Defines whether unit (contact) descriptions in the ticket history are taken from the database or dynamically rendered using templates. The value, "DYNAMIC", is a bit more costly from the performance perspective, while "PROTOCOL" is faster but returns historical names which might be outdated. Use "PROTOCOL" if you have lots of history entries from many different units. This is also the default value in CM versions 6.11.1.1 and up. In CM versions up to 6.11.1.0, "DYNAMIC" is the default.

- **Type**: string

- **Restart required**: no

- **System**: no

- **Optional**: yes

- **Example value**: PROTOCOL

- **Since**: 6.11.0

unit.replace.batchSize

- **Module**: cmas-core-server
- **Description**: Defines the number of objects to be processed in a unit replace action.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5
- **Since**: 6.8.2

unit.replace.timeout

- **Module**: cmas-core-server
- **Description**: Transaction timeout (in seconds) of a unit replacement action step.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 120
- **Since**: 6.8.2

unused.content.remover.cluster.node.id

- **Module**: cmas-core-server
- **Description**: Value of a `cmas.clusternode.id` designating which node will remove unused ticket attachments and unit content entries.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1 (assuming cluster node started with the parameter `-Dcmas.clusternode.id=1`)
- **Since**: 6.9.0.0

unused.content.remover.enabled

- **Module**: cmas-core-server
- **Description**: Specifies whether a removal of unused ticket attachments and unit content entries should take place.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: true
- **Since**: 6.9.0.0

unused.content.remover.polling.minutes

- **Module**: cmas-core-server
- **Description**: Determines how often unused ticket attachments and unit content entries should be checked for removal.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 15
- **Since**: 6.9.0.0

unused.content.remover.ttl.minutes

- **Module**: cmas-core-server
- **Description**: Minimum interval, in minutes, after which unused ticket attachments and unit content entries can be removed.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1440
- **Since**: 6.9.0.0

warmup.executor.enabled

- **Module**: cmas-core-server
- **Description**: Specifies whether the server should asynchronously warm up during startup (e.g., fill some of the internal caches).
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.9.4.2

wfl.sticky.transfer.disabled

- **Module**: cmas-core-server
- **Description**: Enables using preserved original names of workflow elements.
- **Type**: boolean
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: false
- **Since**: 6.10.1.0

workflow.deploy.cache.eviction.disabled

- **Module**: cmas-core-server
- **Description**: Determines if the infinispan cache should be cleared after deployment ("true") or not ("false"). If the property is set to "true", all mappings are removed from the cache.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.11.1.4

F.1.2.8 cmas-core-shared (module)

cluster.mode

- **Module**: cmas-core-shared
- **Description**: Specifies whether ConSol CM is running in a cluster.
- **Type**: boolean
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.1.0

cluster.unicast

- **Module**: cmas-core-shared
- **Description**: Flag to activate jgroups unicast mode for ConSol CM clusters (as opposed to the default multicast mode causing problems in some data center environments). If set to "true", remember to set the JVM start parameters: `jgroups.bind.port`, `jgroups.bind.address` and `jgroups.initial_hosts`.
- **Type**: boolean
- **Restart required**: yes
- **System**: yes
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.11.0.0
- **Removed in**: 6.12.0.0

data.directory

- **Module**: cmas-core-shared
- **Description**: Directory for ConSol CM data (e.g., index)
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: C:\Users\user\cmas
- **Since**: 6.0

expert.mode

- **Module**: cmas-core-shared
- **Description**: Switches expert mode on/off thereby unblocking/blocking expert features. For example, the CM system property `initialized` is only available in the expert mode.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.0

F.1.2.9 cmas-dwh-server (module)

autocommit.cf.changes

- **Module**: cmas-dwh-server
- **Description**: Defines whether DWH tasks which result from configurational changes on ticket fields are executed automatically without manual interaction in the Admin Tool. Can be also set in the Admin Tool in the navigation item *DWH*. The default and recommended value is "false".
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false (default value)
- **Since**: 6.7.0

batch-commit-interval

- **Module**: cmas-dwh-server
- **Description**: Number of objects in a DWH message. Larger values mean better transfer performance at the cost of higher memory usage.
  Starting with ConSol CM version 6.11, this property is only used if the package size of a DWH operation is not set. This can only happen when the command is directly addressed to

the Java MBean `consol.cmas.global.dwh.synchronizationService`, e.g. using the `update()` method. When a DWH operation is started using the Admin Tool, there is always a value for the package size. If not explicitly set, the default value of 1000 is used as value for `batch.commit.interval`.

- **Default value**: 1000
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 100
- **Since**: 6.0.0

communication.channel

- **Module**: cmas-dwh-server
- **Description**: Communication channel. Only possible value since CM version 6.11.0.0: DIRECT
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: DIRECT
- **Since**: 6.8.5.0
- **Removed in**: 6.11.0.0 (DIRECT mode is the only available mode and is set automatically)

dwh.mode

- **Module**: cmas-dwh-server
- **Description**: Current mode for 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

ignore-queues

- **Module**: cmas-dwh-server
- **Description**: A comma-separated list of queue names which are not not transferred to the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes

- **Optional**: yes
- **Example value**: QueueName1,QueueName2,QueueName3
- **Since**: 6.6.19
- **Removed in**: 6.8.1

is.cmrf.alive

- **Module**: cmas-dwh-server
- **Description**: As a starting point, the time the last message was sent to CMRF should be used. If a response from CMRF is not received after the set value (in seconds), it should create a DWH operation status with an error message indicating that CMRF is down.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1200
- **Since**: 6.7.0

java.naming.factory.initial

- **Module**: cmas-dwh-server
- **Description**: Factory class for the DWH context factory.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: org.jnp.interfaces.NamingContextFactory
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

java.naming.factory.url.pkgs

- **Module**: cmas-dwh-server
- **Description**:
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: org.jboss.naming:org.jnp.interfaces
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

java.naming.provider.url

- **Module**: cmas-dwh-server
- **Description**: URL of naming provider.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: localhost
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

last.ping.timestamp

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property shows the status of CMRF and is filled automatically by the CMRF. It contains the date of the last response on the ping from the ConSol CM server to the CMRF.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 32323214
- **Since**: 6.11.0.1

live.start

- **Module**: cmas-dwh-server
- **Description**: When the DWH synchronization mode is set to LIVE using the Admin Tool (navigation group *Data Warehouse*, navigation item *Administration*, *Configuration* button), this property is created and set to the current date.
  If LIVE mode is not enabled and there is no data in `cmas_dwh_ser_sync_object`, the property `live.start` is deleted.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes (automatically added in DWH "LIVE" mode)
- **Example value**: 15028802377645
- **Since**: 6.7.0

notification.error.description

- **Module**: cmas-dwh-server
- **Description**: Text for error emails from the DWH.
- **Type**: string

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Error occurred
- **Since**: 6.0.1

notification.error.from

- **Module**: cmas-dwh-server
- **Description**: From address for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.error.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Error occurred
- **Since**: 6.0.1

notification.error.to

- **Module**: cmas-dwh-server
- **Description**: To address for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_successfully.description

- **Module**: cmas-dwh-server
- **Description**: Text for emails from the DWH when a transfer finishes successfully.
- **Type**: string

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished successfully
- **Since**: 6.0.1

notification.finished_successfully.from

- **Module**: cmas-dwh-server
- **Description**: From address for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_successfully.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished successfully
- **Since**: 6.0.1

notification.finished_successfully.to

- **Module**: cmas-dwh-server
- **Description**: To address for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_unsuccessfully.description

- **Module**: cmas-dwh-server
- **Description**: Text for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished unsuccessfully
- **Since**: 6.0.1

notification.finished_unsuccessfully.from

- **Module**: cmas-dwh-server
- **Description**: From address for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_unsuccessfully.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished unsuccessfully
- **Since**: 6.0.1

notification.finished_unsuccessfully.to

- **Module**: cmas-dwh-server
- **Description**: To address for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.host

- **Module**: cmas-dwh-server
- **Description**: Email (SMTP) server hostname for sending DWH emails.
- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: myserver.consol.de

- **Since**: 6.0.1

notification.password

- **Module**: cmas-dwh-server

- **Description**: Password for sending DWH emails (optional).

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Since**: 6.0.1

notification.port

- **Module**: cmas-dwh-server

- **Description**: SMTP port for sending DWH emails.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: 25

- **Since**: 6.0.1

notification.protocol

- **Module**: cmas-dwh-server

- **Description**: The protocol used for sending emails from the DWH.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: pop3

notification.tls.enabled

- **Module**: cmas-dwh-server

- **Description**: Activates SMTP via SSL/TLS (SMTPS) for sending notification emails from the DWH. The default value is "false". If it is set to "true", SMTPS is activated for sending notifications from the DWH.

- **Type**: string

- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.11.1.6

notification.username

- **Module**: cmas-dwh-server
- **Description**: (SMTP) user name for sending DWH emails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser
- **Since**: 6.0.1

recoverable.exceptions

- **Module**: cmas-dwh-server
- **Description**: Comma-separated list of exception definitions: CLASS[+][:REGEX]. The exceptions included in the list do not stop CM from sending to the CMRF process, but force it to try again. If optional '+' after CLASS is present, classes which extend CLASS are matched.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: java.sql.SQLRecoverableException,java.lang.RuntimeException+:.*T.1\,2T.*
- **Since**: 6.8.4.6

skip-ticket

- **Module**: cmas-dwh-server
- **Description**: Tickets are not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-ticket-history

- **Module**: cmas-dwh-server
- **Description**: History of ticket is not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-unit

- **Module**: cmas-dwh-server
- **Description**: Units are not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-unit-history

- **Module**: cmas-dwh-server
- **Description**: History of unit is not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

split.history

- **Module**: cmas-dwh-server
- **Description**: Changes the SQL that fetches the history for the tickets during DWH transfer so that the history is not fetched for all tickets at once but only for one ticket per SQL.
- **Type**: boolean
- **Restart required**: no

- **System**: yes
- **Optional**: yes
- **Example value**: false
- **Since**: 6.8.0

statistics.calendar

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.client.group

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.contact.role

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.content.entry

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.content.entry.class

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.content.entry.history

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.customer.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.

- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.engineer

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.enum.group

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.field.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: 0
- **Since**: 6.11.0.1

statistics.group.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.locale

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.localized.property

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.mla

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.project

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.queue

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.

- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource.group

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource.history

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource.relation.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: 0
- **Since**: 6.11.0.1

statistics.resource.type

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.ticket

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.ticket.function

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.ticket.history

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.time.booking

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.timestamp

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.unit

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled auto-matically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.

- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.unit.history

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.unit.relation.definition

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.1

statistics.workflow

- **Module**: cmas-dwh-server
- **Description**: Internal DWH property, not to be changed manually. This property is filled automatically by the CMRF to store statistical data from the DWH. This data is displayed in the Admin Tool, section *Data Warehouse -> Monitor -> CMRF Statistics*.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: 0
- **Since**: 6.11.0.1

time.buffer

- **Module**: cmas-dwh-server
- **Description**: Number of minutes to extend date of start live mode.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 5
- **Since**: 6.8.1.11

unit.transfer.order

- **Module**: cmas-dwh-server
- **Description**: Defines in which order customer field groups should be transferred to the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: company;customer
- **Since**: 6.6.19
- **Removed in**: 6.8.1

F.1.2.10 cmas-nimh (module)

filesystem.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads started for database emails' queue polling. The default value is 1
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.4.0

filesystem.polling.threads.shutdown.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated.

- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

filesystem.polling.threads.watchdog.interval.seconds

- **Module**: cmas-nimh
- **Description**: Determines the interval in seconds to execute the watchdog which checks the activity of the threads of the file system poller.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.4.0

filesystem.task.enabled

- **Module**: cmas-nimh
- **Description**: With this property the service thread related to a given poller can be disabled.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.4.0

filesystem.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Default interval for polling mailboxes in seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

filesystem.task.polling.folder

- **Module**: cmas-nimh
- **Description**: Polling folder location which will be scanned for emails in the format of eml files. The default value is the `mail` subdirectory of the ConSol CM data directory
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: c://cmas//mail
- **Since**: 6.4.0

filesystem.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time (of inactivity) the service thread is considered damaged and auto- matically restarted. Default: 120 seconds
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

filesystem.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Default transaction timeout (in seconds) for email fetching transactions. Should be correlated with number of messages fetched at once.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mailbox.<NUMBER>.name

- **Module**: cmas-nimh
- **Description**: Identifier (name) of the mailbox.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: myEmailAccount
- **Since**: 6.11.2.0

mailbox.1.connection.host

- **Module**: cmas-nimh
- **Description**: Host (server) for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.host`.

mailbox.1.connection.password

- **Module**: cmas-nimh
- **Description**: Password for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.password`.

mailbox.1.connection.port

- **Module**: cmas-nimh
- **Description**: Port for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.port`.

mailbox.1.connection.protocol

- **Module**: cmas-nimh
- **Description**: Protocol (e.g., IMAP or POP3) for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.protocol`.

mailbox.1.connection.username

- **Module**: cmas-nimh
- **Description**: User name for first configured mailbox. Will overwrite the default parameter `mailbox.default.connection.username`.

mailbox.2.connection.host

- **Module**: cmas-nimh
- **Description**: Host (server) for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.host`.

mailbox.2.connection.password

- **Module**: cmas-nimh
- **Description**: Password for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.password`.

mailbox.2.connection.port

- **Module**: cmas-nimh
- **Description**: Port for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.port`.

mailbox.2.connection.protocol

- **Module**: cmas-nimh
- **Description**: Protocol (e.g., IMAP or POP3) for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.protocol`.

mailbox.2.connection.username

- **Module**: cmas-nimh
- **Description**: User name for second configured mailbox. Will overwrite the default parameter `mailbox.default.connection.username`.

> (i) For all NIMH-related mailbox properties, the following principle is used: a default property is defined (e.g. `mailbox.default.connection.port`). If no mailbox-specific value is configured, this default value will be used.

mailbox.default.connection.host

- **Module**: cmas-nimh
- **Description**: Host (server name) of a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10.10.1.157
- **Since**: 6.4.0

mailbox.default.connection.password

- **Module**: cmas-nimh
- **Description**: Password for given mailbox from which the poller reads emails.
- **Type**: password
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: consol
- **Since**: 6.4.0

mailbox.default.connection.port

- **Module**: cmas-nimh
- **Description**: Port for a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: 143
- **Since**: 6.4.0

mailbox.default.connection.protocol

- **Module**: cmas-nimh
- **Description**: Poller's protocol e.g., IMAP or POP3. No default value
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: imap
- **Since**: 6.4.0

mailbox.default.connection.username

- **Module**: cmas-nimh
- **Description**: User name for a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: username
- **Since**: 6.4.0

mailbox.default.session.mail.debug

- **Module**: cmas-nimh
- **Description**: JavaMail property, see [JavaMail API documentation](#) for further information. Allows for more detailed JavaMail session debugging.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.4.0

mailbox.default.session.mail.mime.address.strict

- **Module**: cmas-nimh
- **Description**: JavaMail property, see [JavaMail API documentation](#) for further information. Counterpart of the old `mule mail.mime.strict`, allows to set not so strict email header parsing.
- **Type**: boolean
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.4.0

mailbox.default.session.mail.<PROTOCOL>.connectiontimeout

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the connection timeout in milliseconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 3000
- **Since**: 6.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.fetchsize

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the size of partial fetch in bytes for the indicated protocol.
  For IMAP systems: in CM versions 6.10.7.0 and up, the value of
  `mailbox.default.session.mail.imap.fetchsize` is set to 1048576 (equals 1 MB) during the initial setup of a ConSol CM system. During an update of an existing ConSol CM system, the value of the property is left unchanged, if the property is already present. In case the property is not yet present, it is added with the default value.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1048576
- **Since**: 6.9.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.partialfetch

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines whether the protocol's partial fetch capability should be used.
  For IMAP systems: in CM versions 6.10.7.0 and up, the value of
  `mailbox.default.session.mail.imap.partialfetch` is set to "false" during the initial setup of a ConSol CM system. During an update of an existing ConSol CM system, the value of the property is left unchanged, if the property is already present. In case the property is not yet present, it is added with the default value.
- **Type**: boolean
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.timeout

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the I/O timeout in milliseconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 120 for IMAP(S) and 3000 for POP3(S)
- **Since**: 6.4.0 (IMAP and POP3), 6.11.2.0 (IMAPS and POP3S)

mailbox.default.task.delete.read.messages

- **Module**: cmas-nimh
- **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.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.4.0

mailbox.default.task.enabled

- **Module**: cmas-nimh
- **Description**: With this property, the service thread related to the given poller can be disabled.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.4.0

mailbox.default.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Default interval for polling mailboxes in seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mailbox.default.task.max.message.size

- **Module**: cmas-nimh
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10485760 (default value, 10 MB)
- **Since**: 6.4.0

mailbox.default.task.max.messages.per.run

- **Module**: cmas-nimh
- **Description**: Number of messages fetched at once from mailbox. Must be correlated with transaction timeout. The default value is 20
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

mailbox.default.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time (of inactivity) the service thread is considered damaged and automatically restarted. The default value is 120 seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

mailbox.default.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Default transaction timeout (in seconds) for email fetching transactions. Should be correlated with number of messages fetched at once.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mailbox.polling.threads.mail.log.enabled

- **Module**: cmas-nimh
- **Description**: Enables email logging which is especially crucial in cluster environment (used as semaphore there)
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.9.4.1

mailbox.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads for accessing mailboxes.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.4.0

queue.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads started for polling the email queue in the database.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: 1 (default value)
- **Since**: 6.4.0

queue.polling.threads.shutdown.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

queue.polling.threads.watchdog.interval.seconds

- **Module**: cmas-nimh
- **Description**: Determines the interval in seconds to execute the watchdog which checks the activity of the threads of the email queue poller.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.4.0

queue.task.error.pause.seconds

- **Module**: cmas-nimh
- **Description**: Maximum number of seconds, the queue poller waits after infrastructure (e.g. database) error.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 180 (default value)
- **Since**: 6.4.0

queue.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Main emails' queue polling thread interval.
- **Type**: integer
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: 15 (default value)
- **Since**: 6.4.0

queue.task.max.retries

- **Module**: cmas-nimh
- **Description**: Maximum number of email processing retries after an exception. When reached, the email is moved to the email archive. This email can be rescheduled again using NIMH API (or the Admin Tool).
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.4.0

queue.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time of inactivity (in seconds), the service thread is considered damaged and automatically restarted.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 600 (default value)
- **Since**: 6.4.0

queue.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Transaction timeout for email processing in the pipe.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

F.1.2.11 cmas-nimh-extension (module)

mail.attachments.validation.info.sender

- **Module**: cmas-nimh-extension
- **Description**: Sets the From header for error notification emails which are sent when the validation of the attachment type fails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: admin@mail.com
- **Since**: 6.7.5

mail.attachments.validation.info.subject

- **Module**: cmas-nimh-extension
- **Description**: Sets the subject for error notification emails which are sent when the validation of the attachment type fails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Email was not processed because its attachments were rejected!
- **Since**: 6.7.5

mail.db.archive

- **Module**: cmas-nimh-extension
- **Description**: If property is set to "true", incoming emails are archived in the database.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.8.5.5

mail.error.from.address

- **Module**: cmas-nimh-extension
- **Description**: From address for error emails from NIMH
- **Type**: email
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.4.0

mail.error.to.address

- **Module**: cmas-nimh-extension
- **Description**: To address for error emails from NIMH. As a default the email address of the administrator which you have entered during system setup is used.
- **Type**: email
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.4.0

mail.on.error

- **Module**: cmas-nimh-extension
- **Description**: If set to "true" an error email is sent to the above configured address in case the email message could not be processed.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default)
- **Since**: 6.4.0

mail.ticketname.pattern

- **Module**: cmas-nimh-extension
- **Description**: Regular expression pattern used to identify the ticket name in the subject of incoming mails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: .*?Ticket\s+\(((\S+)\).*
- **Since**: 6.4.0

F.1.2.12 cmas-restapi-core (module)

comment.authors.disabled

- **Module**: cmas-restapi-core
- **Description**: Disables the display of the content's author via REST API.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.11.0

csrf.domain.allow.none

- **Module**: cmas-restapi-core
- **Description**: Determines whether empty `Origin/Referer` headers are accepted. By default, the property is set to "false", so that existing REST requests without `Origin/Referer` headers work.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false (default value)
- **Since**: 6.11.2.2

csrf.domain.white.list

- **Module**: cmas-restapi-core
- **Description**: The list of domains (separated with "|") which are allowed in `Origin/Referer` headers and will not be blocked by the CSRF (cross-site request forgery) filter. By default, the property is empty so that cross-site requests are blocked.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: https://example.com:80 | http://www.consol.de:8080
- **Since**: 6.11.2.2

csrf.request.filter.enabled

- **Module**: cmas-restapi-core
- **Description**: It allows to disable the CSRF (cross-site request forgery) request filter for the REST API.
- **Type**: boolean
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.11.2.2

diff.tracking.disabled

- **Module**: cmas-restapi-core
- **Description**: Fallback property for disabling diff tracking for CM/Track, which is history-based so it can be heavy.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.10.5.6

domain.map.for.client.config.<DOMAIN_NAME>

- **Module**: cmas-restapi-core
- **Description**: Enables mapping multiple instances of CM/Track to a specific domain. DOMAIN_ NAME is the name of the client configuration in the Admin Tool (if your CM/Track configuration is called "trackV2customized", the name of the property is `domain.map.for.client.config.trackV2customized`). You can provide several URLs separated by a comma.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: https://www.consol.de, https://www.consol.com
- **Since**: 6.10.7.0

security.fields.customer.exposure.check.enabled

- **Module**: cmas-restapi-core
- **Description**: Enables customer exposure annotation checks for ticket fields.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.10.5.4

security.restrict.unit.access.to.own.data

- **Module**: cmas-restapi-core
- **Description**: If set to "true", an additional check is performed when a user logs in as a customer using the REST API, e.g. CM/Track. When requesting customer data, only the company of the user or other contacts of the user's company are returned. If set to "false", no additional security check is performed and the former security rules apply.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true (default value)
- **Since**: 6.9.2.14

F.1.2.13 cmas-restapi-http-headers (module)

This module contains properties which represent header fields which should be sent with REST API requests and responses.

Each property in the module `cmas-restapi-http-headers` represents one header field. The property name/key identifies the HTTP header field and the value of the property is the field value sent in this header.

Please be aware that additional HTTP response headers must be correctly defined with the exact spelling as officially specified. Please note also that the correct interpretation and application of these headers is fully in the realm and responsibility of the HTTP client.

For example, if you add the property `Access-Control-Allow-Origin` with the value "http://www.example.com" to the `cmas-restapi-http-headers` module, REST API requests from *http://www.example.com* can be allowed in your domain even if the general policy is to allow only requests from the same domain.

As there are no default values for the headers in this module, the module is not displayed when creating the first property in it. The module name needs to be typed in manually in this case.

F.1.2.14 cmas-setup-hibernate (module)

cmas.dropSchemaBeforeSetup

- **Module**: cmas-setup-hibernate
- **Description**: Flag if schema is to be (was) dropped during setup
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.0

connection.release.mode

- **Module**: cmas-setup-hibernate
- **Description**: Describes the JEE connection handling strategy for transactions. If set to "AFTER_TRANSACTION", the connection will be cached during the transaction and released at the end. If set to "AFTER_STATEMENT", the connection will be released to the pool after each statement execution. Please do not change the default here unless advised by ConSol.
- **Type**: string
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: AFTER_STATEMENT (default for JEE environment)
- **Since**: 6.0

hibernate.dialect

- **Module**: cmas-setup-hibernate
- **Description**: The dialect used by hibernate. Usually set during initial set-up (depending on the database system).
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: org.hibernate.dialect.MySQL5InnoDBDialect
- **Since**: 6.0

update.6.11.0.0.sleep

- **Module**: cmas-setup-hibernate
- **Description**: Helper property for the update preparation scripts introduced in context of CM database refactoring in version 6.11. This is an optional setting allowing a delay (in milliseconds) after each loop iteration of the preparation scripts. Setting the delay should lower the database load, for example during working hours. This property may be removed after the update preparation tasks finish.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 0
- **Since**: 6.11.0.0, for use in 6.10.5.x

update.6.11.0.0.timezone

- **Module**: cmas-setup-hibernate
- **Description**: Helper property for the ticket history migration (the new way of counting history groups). Since 6.11.0.0 the groups are constant (2h time span), but before 6.11.0.0 groups were not constant and depended on the customer's time zone. Migration scripts use an old algorithm to calculate groups and therefore need information about the time zone. The property should be set to the timezone which is most commonly used by the customers. If the property is not set, the default server time zone is used (`TimeZone.getDefault()`). The property should be set before updating to 6.11.0.0 and will be removed automatically after migration. The list of accepted timezones can be found for example here: http://joda-time.-sourceforge.net/timezones.html.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: Europe/Berlin
- **Since**: 6.11.0.0, for use before updating to this version

F.1.2.15 cmas-setup-manager (module)

initialized

- **Module**: cmas-setup-manager
- **Description**: Flag if ConSol CM is initialized. If this value is missing or not "true", the setup will be performed. Starting with ConSol CM version 6.11, this property is only available in expert mode.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.0

> ⚠ Be careful with using this property! When you set the value to "false", the ConSol CM server will perform the system setup at the next start, i.e. all data of the existing system is lost, including system properties!

F.1.2.16 cmas-setup-scene (module)

scene

- **Module**: cmas-setup-scene
- **Description**: Scene file which was imported during setup (can be empty).
- **Type**: string
- **Restart required**: no

- **System**: yes
- **Optional**: no
- **Example value**: 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/
- **Since**: 6.0

F.1.2.17 cmas-web-notifications (module)

notifications.enabled

- **Module**: cmas-web-notifications
- **Description**: Determines whether the notifications feature is enabled ("true") or disabled ("false"). The default value is "true" for ConSol CM systems running on JBoss application servers, and "false" for ConSol CM systems running on WebLogic application servers.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: true
- **Since**: 6.12.0.0

ttl.days

- **Module**: cmas-web-notifications
- **Description**: Determines the time (in days) after which unpinned notifications are removed.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: 15
- **Since**: 6.12.0.0

F.1.2.18 cmas-workflow-engine (module)

jobExecutor.adminMail

- **Module**: cmas-workflow-engine
- **Description**: Email address which will get notified about job execution problems (when retry counter is exceeded).
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: admin@consol.de
- **Since**: 6.8.0

jobExecutor.idleInterval.seconds

- **Module**: cmas-workflow-engine
- **Description**: Determines how often the job executor thread will look for new jobs to execute.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 45 (default value up to CM version 6.10.5.2. The default value for CM versions 6.10.5.3 and up is 5)
- **Since**: 6.8.0

jobExecutor.jobMaxRetries

- **Module**: cmas-workflow-engine
- **Description**: Controls the number of retry attempts the job executor will do before declaring a job as failed.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 5 (default value)
- **Since**: 6.8.0

jobExecutor.jobMaxRetriesReachedSubject

- **Module**: cmas-workflow-engine
- **Description**: The subject used in the notification mail which administrators receive about failed job executors.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: Job maximum retries reached. Job was removed!!! (default value)
- **Since**: 6.8.0

jobExecutor.lockingLimit

- **Module**: cmas-workflow-engine
- **Description**: Number of jobs locked at once (marked for execution) by the job executor thread.
- **Type**: integer
- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: 5 (default value since CM version 6.10.5.3)

- **Since**: 6.8.0

jobExecutor.lockTimeout.seconds

- **Module**: cmas-workflow-engine

- **Description**: Determines how long the job can be locked (marked for execution) by the job executor.

- **Type**: integer

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: 360 (default value)

- **Since**: 6.8.0

jobExecutor.mailFrom

- **Module**: cmas-workflow-engine

- **Description**: Email address which will be set as From header for notifications to the administrator.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: jobexecutor@consol.de

- **Since**: 6.8.0

jobExecutor.maxInactivityInterval.minutes

- **Module**: cmas-workflow-engine

- **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.

- **Type**: integer

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: 30 (default value)

- **Since**: 6.9.2.0

jobExecutor.threads

- **Module**: cmas-workflow-engine

- **Description**: Number of job execution threads.

- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.8.0

jobExecutor.timerRetryInterval.seconds

- **Module**: cmas-workflow-engine
- **Description**: Determines how long the job executor thread will wait after job execution error.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 10 (default up to CM version 6.10.5.2. The default value for CM versions 6.10.5.3 and up is 30)
- **Since**: 6.8.0

jobExecutor.txTimeout.seconds

- **Module**: cmas-workflow-engine
- **Description**: Transaction timeout used for job execution.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.8.0

F.1.2.19 cmas-workflow-jbpm (module)

fetchLock.interval

- **Module**: cmas-workflow-jbpm
- **Description**:
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5000
- **Removed in**: 6.8.0

jobExecutor.idleInterval

- **Module**: cmas-workflow-jbpm
- **Description**:
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 45000
- **Removed in**: 6.8.0
- **Replaced by**: jobExecutor.idleInterval.seconds

jobExecutor.jobExecuteRetryNumber

- **Module**: cmas-workflow-jbpm
- **Description**:
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5
- **Removed in**: 6.8.0
- **Replaced by**: jobExecutor.jobMaxRetries

jobExecutor.timerRetryInterval

- **Module**: cmas-workflow-jbpm
- **Description**:
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10000
- **Removed in**: 6.8.0
- **Replaced by**: jobExecutor.timerRetryInterval.seconds

mail.sender.address

- **Module**: cmas-workflow-jbpm
- **Description**: From address for emails from the workflow engine.
- **Type**: string
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: myuser@consol.de
- **Removed in**: 6.8.0
- **Replaced by**: jobExecutor.mailFrom

outdated.lock.age

- **Module**: cmas-workflow-jbpm
- **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

refreshTimeInCaseOfConcurrentRememberMeRequests

- **Module**: cmas-workflow-jbpm
- **Description**: It sets the refresh time (in seconds) after which the page will be reloaded in case of concurrent remember me requests. This feature prevents one user from occupying many licenses. Please increase that time if sessions are still occupying.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: yes
- **Example value**: 5
- **Since**: 6.8.2

F.1.2.20 cmweb-server-http-headers (module)

X-Frame-Options

- **Module**: cmweb-server-http-headers
- **Description**: Example property to illustrate the configuration of HTTP headers. In this case the delivered HTTP header contains the field *X-Frame-Options* with the value "SAMEORIGIN".

  Each property in the module `cmweb-server-http-headers` represents one header field. The property name/key identifies the response header field and the value of the property is the field value sent in this header.

> ⚠ Please be aware that additional HTTP response headers must be correctly defined with the exact spelling as officially specified! Please note also that the correct interpretation and application of these headers is fully in the realm and responsibility of the client browser which requested the page!

- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: SAMEORIGIN
- **Since**: 6.10.8

F.1.2.21 cmweb-server-adapter (module)

attachment.upload.timeout

- **Module**: cmweb-server-adapter
- **Description**: Defines the transaction timeout in minutes for adding attachments to a ticket, resource or customer. Counts the time for the upload of all attachments of one transaction. When the timeout occurs, all files which have been temporarily stored on the server are deleted. No file is uploaded.
- **Type**: Integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 3
- **Since**: 6.10.5.3

automatic.booking.enabled

- **Module**: cmweb-server-adapter
- **Description**: If enabled, time spend on creating comment/email will be measured and automatic time booking will be added.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.2

checkUserOnlineIntervalInSeconds

- **Module**: cmweb-server-adapter
- **Description**: The interval in seconds to check which users are online (default 180sec = 3min).

- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 180
- **Since**: 6.0
- **Removed in**: 6.5 / 6.11.0.1

cmoffice.enabled

- **Module**: cmweb-server-adapter
- **Description**: Flag if CM/Doc (former CM/Office) is enabled.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.4.0

cmoffice.oo.path.NUMBER

- **Module**: cmweb-server-adapter
- **Description**: Possible location of the OpenOffice installation. The properties are numbered starting with 0.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: c:\Program Files (x86)\LibreOffice 3.6\program
- **Since**: 6.10.1.0
- **Removed in**: 6.12.0.0

cmoffice.strict.versioning.enabled

- **Module**: cmweb-server-adapter
- **Description**: Controls if the SAVE operation in Microsoft Word / OpenOffice documents creates a new attachment ("true") or overwrites the existing attachment ("false"). This concerns the behavior within one session using the text editing program. If the program is stopped, the overwrite mechanism will not work anymore.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: true
- **Since**: 6.10.5.4

cmoffice.websocket.port

- **Module**: cmweb-server-adapter
- **Description**: Determines the port on which the CM/Doc application should be started and connected to.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 30333
- **Since**: 6.12.0.0

commentRequiredForTicketCreation

- **Module**: cmweb-server-adapter
- **Description**: Flag if the comment is a required field for ticket creation.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true (default value)
- **Since**: 6.2.0

csrf.domain.white.list

- **Module**: cmweb-server-adapter
- **Description**: The list of domains (separated with "|") which are allowed and will not be checked by CSRF (cross-site request forgery) filter
- **Type**: String
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: example.com | consol.de
- **Since**: 6.10.7.0

csrf.request.filter.enabled

- **Module**: cmweb-server-adapter
- **Description**: It allows to disable CSRF (Cross-site request forgery) request filter
- **Type**: Boolean
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.10.7.0

customizationVersion

- **Module**: cmweb-server-adapter
- **Description**: UID representing the latest web customization version. Used only internally, please do not change the value.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: cd58453e-f3cc-4538-8030-d15e8796a4a7
- **Since**: 6.5.0

data.optimization

- **Module**: cmweb-server-adapter
- **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 '|'): MINIFICATION and COMPRESSION. 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.nodeId` to override default property.)
- **Type**: string
- **Restart required**: COMPRESSION can be switched on/off without restart, MINIFICATION requires restart.
- **System**: yes
- **Optional**: yes
- **Example value**: MINIFICATION|COMPRESSION

defaultAttachmentEntryClassName

- **Module**: cmweb-server-adapter
- **Description**: The default content entry class used to classify an attachment if no other class was set explicitly.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: DefaultTextElement
- **Since**: 6.9.2.0

defaultContentEntryClassName

- **Module**: cmweb-server-adapter
- **Description**: Default text class for new ACIMs.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: default_class
- **Since**: 6.3.0

defaultNumberOfCustomFieldsColumns

- **Module**: cmweb-server-adapter
- **Description**: Default number of columns for ticket fields.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 3
- **Since**: 6.2.0

diffTrackingEnabled

- **Module**: cmweb-server-adapter
- **Description**: Removed in ConSol CM version 6.11.
  Defines if parallel editing of a ticket by different engineers should be possible.
  "false": Previous way of handling changes when editing a ticket. If the ticket has been changed in the meantime, the current engineer will not be able to submit his changes without being forced to reload the page before submitting.
  "true": New changes handling mode. If the ticket has been changed, this will not block the submission of other changes anymore. If the part of the ticket that was changed was exactly the part that is changed by the submitting engineer, then an information message will be displayed, but the ticket change will be persisted/stored anyway.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true (default)
- **Since**: 6.10.1
- **Removed in**: 6.11.0

diffTrackingEnabledForUnitAndResource

- **Module**: cmweb-server-adapter
- **Description**: Enables the prevention of concurrent modifications on units / resources.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 3
- **Since**: 6.11.0.0

favoritesSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of items in Favorites list.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10
- **Since**: 6.0

forward.mails.to.representatives

- **Module**: cmweb-server-adapter
- **Description**: Determines if emails which are manually sent from the Web Client are also sent to representing engineers. The default value of the property is "false", meaning that this kind of emails are not forwarded to the representing engineer. Set the property to "true" if you want to restore the previous behavior, i.e., all emails which are sent to the represented engineer are automatically forwarded to the representing engineer. Please take into account that this might not be desired if the same person is an engineer and a customer in the CM system.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: no
- **Example value**: false (default value)
- **Since**: 6.11.1.7

> ⓘ This property only configures the handling of manually sent emails. The handling of automatically sent emails depends on the used Java method.

globalSearchResultSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of items in Quick Search result.

- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10
- **Since**: 6.0

helpFilePath

- **Module**: cmweb-server-adapter
- **Description**: URL for online help. If not empty, the *Help* link is displayed in the Web Client.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: http://www.consol.de
- **Since**: 6.2.1

hideTicketSubject

- **Module**: cmweb-server-adapter
- **Description**: If set to "true", the ticket subject is hidden.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.2.1

mail.from

- **Module**: cmweb-server-adapter
- **Description**: This email address is used instead of the engineer's email address during email conversations.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: consolcm@example.com
- **Since**: 6.1.2

mail.reply.to

- **Module**: cmweb-server-adapter
- **Description**: When set, the Ticket Email Editor in the Web Client displays a Reply-To field pre-filled with this value.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: consolcm@example.com
- **Since**: 6.0.1

mailTemplateAboveQuotedText

- **Module**: cmweb-server-adapter
- **Description**: Determines the behavior of the email template in the Ticket Email Editor when another email is quoted, i.e. forwarded or replied to. Often used to place the signature correctly.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.2.4

maxSizePerPagemapInMegaBytes

- **Module**: cmweb-server-adapter
- **Description**: The parameter defines the size (in MB) of the file which is created by the Wicket framework per user session. i.e. for each engineer which is currently logged in. The file is used to save pages during the running session. When the defined size limit has been reached and new entries are added, the oldest entries are removed. In the Web Client, due to this behavior, an engineer who works with an "old" page will be redirected to the *Overview*/Start page (usually the dashboard page) when the "old" page is removed from the file.
So in case engineers who work with a great number of open tabs in ConSol CM and complain about being redirected to the *Overview* page, it might be useful to increase this parameter. In large systems, you could use e.g. a value of 45 or 50. Since this is the size of the file which is saved on disk, the maximum value depends on the available disk space, however, a value which is too large is not recommended either.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 15
- **Since**: 6.3.5

pagemapLockDurationInSeconds

- **Module**: cmweb-server-adapter
- **Description**: Number of seconds to pass before pagemap is considered to be locked for too long.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.7.3

postActivityExecutionScriptName

- **Module**: cmweb-server-adapter
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: postActivityExecutionHandler
- **Since**: 6.2.0

queuesExcludedFromGS

- **Module**: cmweb-server-adapter
- **Description**: Comma-separated list of queue names which are excluded from Quick Search.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: Helpdesk,FAQ
- **Since**: 6.0

rememberMeLifetimeInMinutes

- **Module**: cmweb-server-adapter
- **Description**: Lifetime for *remember me* in minutes.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 1440
- **Since**: 6.0

request.scope.transaction

- **Module**: cmweb-server-adapter
- **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

searchPageSize

- **Module**: cmweb-server-adapter
- **Description**: Default page size for search results.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 20
- **Since**: 6.0

searchPageSizeOptions

- **Module**: cmweb-server-adapter
- **Description**: Options for the page size for search results.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10|20|30|40|50|75|100
- **Since**: 6.0

serverPoolingInterval

- **Module**: cmweb-server-adapter
- **Description**: Defines the time in seconds for pooling server to invalidate caches on the web layer.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: 5
- **Since**: 6.1.0

supportEmail

- **Module**: cmweb-server-adapter
- **Description**:
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.0
- **Removed in**: 6.11.0.1

themeOverlay

- **Module**: cmweb-server-adapter
- **Description**: Name of the folder containing the skin used to customize the layout of the Web Client.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: consolINT
- **Since**: 6.0, functionality changed in 6.11.2.0

ticketListRefreshIntervalInSeconds

- **Module**: cmweb-server-adapter
- **Description**: Refresh interval for the ticket list (in seconds).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 180
- **Since**: 6.0

ticketListSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of tickets in ticket list.
- **Type**: integer
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: 100
- **Since**: 6.0

tx.read.only.mode.enabled

- **Module**: cmweb-server-adapter
- **Description**: Enables read-only transactions for faster page loading. This transactional behavior was introduced in 6.11.0, and this property acts as a safety guard to restore the old behaviors. Do not change this value unless facing tx problems and advised by ConSol.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.11

unitIndexSearchResultSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of units in unit search result (e.g. when searching for contact).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5
- **Since**: 6.0

urlLogoutPath

- **Module**: cmweb-server-adapter
- **Description**: URL which is opened when the user logs out. There are three configuration possibilities:
  - Empty value: The user is redirected to the login page.
  - <CM URL>/cm-client/logout: The user is redirected to the logout page, which includes a link to log in again.
  - Any URL: The user is redirected to the given URL outside ConSol CM.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: https://mycmserver/cm-client/logout
- **Since**: 6.3.1, behavior changed in 6.11.2.0

voCacheEnabled

- **Module**: cmweb-server-adapter
- **Description**: This property enables additional caching for the Web Client, voCaching, of complete objects, thus improving performance.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: true
- **Since**: 6.11.1.0

> (i) **Notes:**
>
> - Since ConSol CM version 6.11.1.1, the default value is "true" for non-clustered environments. The value is set to "true" automatically during the setup or update of ConSol CM 6.11.1.1.
> - When voCaching is enabled and lazy loading is used for folding ticket history entries, once the engineer unfolded an entry, he cannot fold it again by reloading the page or opening the ticket from the workspace.
> - When using the dynamic mode for displaying engineer and customer names in the ticket history (as configured in the system properties cmas-core-server, engineer.description.mode and cmas-core-server, unit.description.mode), the new version of the engineer and/or customer name is only displayed after the ticket has been changed.
> - This system property is ignored for clustered environments (environments with cmas-core-shared, cluster.mode set to "true"). In clustered environments, voCaching is always disabled to avoid problems that changes made to objects on one node are not visible on the other nodes.

webSessionTimeoutInMinutes

- **Module**: cmweb-server-adapter
- **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

wicketAjaxRequestHeaderFilterEnabled

- **Module**: cmweb-server-adapter
- **Description**: 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.
- **Type**: boolean
- **Restart required**: yes
- **System**: yes
- **Optional**: yes
- **Example value**: false
- **Since**: 6.8.1

F.1.3 List of System Properties by Area

This chapter lists the system properties which are relevant for the following areas.

- CMRF & DWH Configuration
- Indexer and Search Configuration
- LDAP Configuration
- Email Configuration
- Activity Interval Configuration
- List of System Properties by Area
- HTTP Header Configuration

F.1.3.1 CMRF & DWH Configuration

autocommit.cf.changes

- **Module**: cmas-dwh-server
- **Description**: Defines whether DWH tasks which result from configurational changes on ticket fields are executed automatically without manual interaction in the Admin Tool. Can be also set in the Admin Tool in the navigation item *DWH*. The default and recommended value is "false".
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false (default value)
- **Since**: 6.7.0

batch-commit-interval

- **Module**: cmas-dwh-server
- **Description**: Number of objects in a DWH message. Larger values mean better transfer performance at the cost of higher memory usage.
  Starting with ConSol CM version 6.11, this property is only used if the package size of a DWH operation is not set. This can only happen when the command is directly addressed to the Java MBean `consol.cmas.global.dwh.synchronizationService`, e.g. using the `update()` method. When a DWH operation is started using the Admin Tool, there is always a value for the package size. If not explicitly set, the default value of 1000 is used as value for `batch.commit.interval`.
- **Default value**: 1000
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 100
- **Since**: 6.0.0

communication.channel

- **Module**: cmas-dwh-server
- **Description**: Communication channel. Only possible value since CM version 6.11.0.0: DIRECT
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: DIRECT

- **Since**: 6.8.5.0
- **Removed in**: 6.11.0.0 (DIRECT mode is the only available mode and is set automatically)

dwh.mode

- **Module**: cmas-dwh-server
- **Description**: Current mode for 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

ignore-queues

- **Module**: cmas-dwh-server
- **Description**: A comma-separated list of queue names which are not not transferred to the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: QueueName1,QueueName2,QueueName3
- **Since**: 6.6.19
- **Removed in**: 6.8.1

is.cmrf.alive

- **Module**: cmas-dwh-server
- **Description**: As a starting point, the time the last message was sent to CMRF should be used. If a response from CMRF is not received after the set value (in seconds), it should create a DWH operation status with an error message indicating that CMRF is down.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1200
- **Since**: 6.7.0

java.naming.factory.initial

- **Module**: cmas-dwh-server
- **Description**: Factory class for the DWH context factory.
- **Type**: string

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: org.jnp.interfaces.NamingContextFactory
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

java.naming.factory.url.pkgs

- **Module**: cmas-dwh-server
- **Description**:
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: org.jboss.naming:org.jnp.interfaces
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

java.naming.provider.url

- **Module**: cmas-dwh-server
- **Description**: URL of naming provider.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: localhost
- **Since**: 6.0.1
- **Removed in**: 6.11.0.0

notification.error.description

- **Module**: cmas-dwh-server
- **Description**: Text for error emails from the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Error occurred
- **Since**: 6.0.1

notification.error.from

- **Module**: cmas-dwh-server
- **Description**: From address for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.error.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Error occurred
- **Since**: 6.0.1

notification.error.to

- **Module**: cmas-dwh-server
- **Description**: To address for error emails from the DWH
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_successfully.description

- **Module**: cmas-dwh-server
- **Description**: Text for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished successfully
- **Since**: 6.0.1

notification.finished_successfully.from

- **Module**: cmas-dwh-server
- **Description**: From address for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_successfully.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished successfully
- **Since**: 6.0.1

notification.finished_successfully.to

- **Module**: cmas-dwh-server
- **Description**: To address for emails from the DWH when a transfer finishes successfully.
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_unsuccessfully.description

- **Module**: cmas-dwh-server
- **Description**: Text for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished unsuccessfully
- **Since**: 6.0.1

notification.finished_unsuccessfully.from

- **Module**: cmas-dwh-server
- **Description**: From address for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.finished_unsuccessfully.subject

- **Module**: cmas-dwh-server
- **Description**: Subject for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Transfer finished unsuccessfully
- **Since**: 6.0.1

notification.finished_unsuccessfully.to

- **Module**: cmas-dwh-server
- **Description**: To address for emails from the DWH when a transfer finishes unsuccessfully.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.0.1

notification.host

- **Module**: cmas-dwh-server
- **Description**: Email (SMTP) server hostname for sending DWH emails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myserver.consol.de
- **Since**: 6.0.1

notification.password

- **Module**: cmas-dwh-server
- **Description**: Password for sending DWH emails (optional).
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.0.1

notification.port

- **Module**: cmas-dwh-server
- **Description**: SMTP port for sending DWH emails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 25
- **Since**: 6.0.1

notification.protocol

- **Module**: cmas-dwh-server
- **Description**: The protocol used for sending emails from the DWH.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: pop3

notification.tls.enabled

- **Module**: cmas-dwh-server
- **Description**: Activates SMTP via SSL/TLS (SMTPS) for sending notification emails from the DWH. The default value is "false". If it is set to "true", SMTPS is activated for sending notifications from the DWH.
- **Type**: string
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.11.1.6

notification.username

- **Module**: cmas-dwh-server
- **Description**: (SMTP) user name for sending DWH emails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: myuser
- **Since**: 6.0.1

recoverable.exceptions

- **Module**: cmas-dwh-server
- **Description**: Comma-separated list of exception definitions: CLASS[+][:REGEX]. The exceptions included in the list do not stop CM from sending to the CMRF process, but force it to try again. If optional '+' after CLASS is present, classes which extend CLASS are matched.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: java.sql.SQLRecoverableException,java.lang.RuntimeException+:.*T.1\,2T.*
- **Since**: 6.8.4.6

skip-ticket

- **Module**: cmas-dwh-server
- **Description**: Tickets are not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-ticket-history

- **Module**: cmas-dwh-server
- **Description**: History of ticket is not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no

- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-unit

- **Module**: cmas-dwh-server
- **Description**: Units are not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

skip-unit-history

- **Module**: cmas-dwh-server
- **Description**: History of unit is not transferred during transfer/update.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.19
- **Removed in**: 6.8.1

split.history

- **Module**: cmas-dwh-server
- **Description**: Changes the SQL that fetches the history for the tickets during DWH transfer so that the history is not fetched for all tickets at once but only for one ticket per SQL.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: false
- **Since**: 6.8.0

unit.transfer.order

- **Module**: cmas-dwh-server
- **Description**: Defines in which order customer field groups should be transferred to the DWH.

- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: company;customer
- **Since**: 6.6.19
- **Removed in**: 6.8.1

F.1.3.2 Indexer and Search Configuration

Indexer

big.task.minimum.size

- **Module**: cmas-core-index-common
- **Description**: Indicates the minimum size of index task (in parts, each part has 100 entities) to qualify this task as a big one. Big tasks have a lower priority than normal tasks.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 15 (default value)
- **Since**: 6.8.3

database.notification.redelivery.delay.seconds

- **Module**: cmas-core-index-common
- **Description**: If the notification channel "database" is used for index updates, this property indicates the delay for notification redelivery when an exception occurs.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 60
- **Since**: 6.8.4.7

database.notification.redelivery.max.attempts

- **Module**: cmas-core-index-common
- **Description**: In case of index update database notification channel, indicates maximum redelivery attempts when an exception occurs.
- **Type**: integer
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: 60
- **Since**: 6.8.4.7

disable.admin.task.auto.commit

- **Module**: cmas-core-index-common
- **Description**: All tasks created for index update will be automatically executed right after creation.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.6.1

index.attachment

- **Module**: cmas-core-index-common
- **Description**: Specifies whether the content of attachments is indexed.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.4.3

index.history

- **Module**: cmas-core-index-common
- **Description**: Specifies whether unit and ticket history are indexed.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: false
- **Since**: 6.1.0
- **Removed in**: 6.11.0

index.status

- **Module**: cmas-core-index-common
- **Description**: Status of the Indexer, possible values RED, YELLOW, GREEN, will be displayed in the Admin Tool.

- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: GREEN
- **Since**: 6.6.1

index.task.worker.threads

- **Module**: cmas-core-index-common
- **Description**: How many threads will be used to execute index tasks (synchronization, administrative and repair tasks). We recommend to use a value not larger than 2.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.6.14, 6.7.3. Since 6.8.0 and exclusively in 6.6.21 also normal (live) index updates are affected by this property.

index.version.current

- **Module**: cmas-core-index-common
- **Description**: Holds information about the current (possibly old) index version.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.7.0

index.version.newest

- **Module**: cmas-core-index-common
- **Description**: Holds information about which index version is considered newest.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1 (default value)
- **Since**: 6.7.0

indexed.assets.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many assets should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.8.0

indexed.engineers.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many engineers should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 300 (default value)
- **Since**: 6.6.14, 6.7.3

indexed.resources.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many resources should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.10.0.0

indexed.tickets.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many tickets should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: 100 (default value)
- **Since**: 6.6.14, 6.7.3

indexed.units.per.thread.in.memory

- **Module**: cmas-core-index-common
- **Description**: Determines how many units should be loaded into memory at once, per thread, during indexing.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 200 (default value)
- **Since**: 6.6.14, 6.7.3

synchronize.master.address

- **Module**: cmas-core-index-common
- **Description**: Value of `-Dcmas.http.host.port` specifying how to connect to the indexing master server. The default value is null. Since 6.6.17 this value is configurable in set-up to designate the initial indexing master server. Since 6.12.0.0 it is possible to switch the node acting as master node by entering the address of the new master node. The index updates are archived for the time configured in the property `cmas-core-index-common`, `synchronize.archive.timeout.minutes`, so the new master can recover missing data in case it had not been fully synchronized with the previous master indexing server at the moment of switch.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 127.0.0.1:80
- **Since**: 6.6.0

synchronize.master.security.token

- **Module**: cmas-core-index-common
- **Description**: The password for accessing the index snapshot via URL, e.g., for index synchronization or for backups.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: token
- **Since**: 6.6.0

synchronize.master.security.user

- **Module**: cmas-core-index-common
- **Description**: The user name for accessing the index snapshot via URL, e.g., for index synchronization or for backups.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: user
- **Since**: 6.6.0

synchronize.master.timeout.minutes

- **Module**: cmas-core-index-common
- **Description**: Determines how long the master server may continually fail until a new master gets elected. Since 6.6.17, this value is configurable in setup, where 0 means that master server will never change (failover is disabled).
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 5 (default value)
- **Since**: 6.6.0

synchronize.megabits.per.second

- **Module**: cmas-core-index-common
- **Description**: Determines how much bandwidth the master server may consume when transferring index changes to all slave servers. Do not use all available bandwidth to transfer index changes between hosts, as doing so will most probably partition the cluster due to some subsystems being unable to communicate.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 85 (default value)
- **Since**: 6.6.0

synchronize.sleep.millis

- **Module**: cmas-core-index-common
- **Description**: Determines how often each slave server polls the master server for index changes.
- **Type**: integer
- **Restart required**: no

- **System**: yes
- **Optional**: no
- **Example value**: 1000 (default value)
- **Since**: 6.6.0

Search Results

globalSearchResultSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of items in Quick Search result.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10
- **Since**: 6.0

searchPageSize

- **Module**: cmweb-server-adapter
- **Description**: Default page size for search results.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 20
- **Since**: 6.0

searchPageSizeOptions

- **Module**: cmweb-server-adapter
- **Description**: Options for the page size for search results.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 10|20|30|40|50|75|100
- **Since**: 6.0

unitIndexSearchResultSizeLimit

- **Module**: cmweb-server-adapter
- **Description**: Maximum number of units in unit search result (e.g. when searching for contact).
- **Type**: integer

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: 5

- **Since**: 6.0

F.1.3.3 LDAP Configuration

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":

authentication.method

- **Module**: cmas-core-security

- **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

ldap.authentication

- **Module**: cmas-core-security

- **Description**: Authentication method used when using LDAP authentication. Possible values are "anonymous" and "simple".

- **Type**: string

- **Restart required**: yes

- **System**: yes

- **Optional**: no

- **Example value**: simple (default value)

- **Since**: 6.0

ldap.basedn

- **Module**: cmas-core-security

- **Description**: Base DN used for looking up LDAP user accounts when using LDAP authentication.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: ou=accounts,dc=consol,dc=de
- **Since**: 6.0

ldap.initialcontextfactory

- **Module**: cmas-core-security
- **Description**: Class name for the initial context factory of the LDAP implementation when using LDAP authentication. If it is not set, `com.sun.jndi.ldap.LdapCtxFactory` is used.
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: com.sun.jndi.ldap.LdapCtxFactory
- **Since**: 6.0

ldap.password

- **Module**: cmas-core-security
- **Description**: Password for connecting to LDAP to look up users when using LDAP authentication. Only needed if look-up cannot be performed anonymously.
- **Type**: password
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.1.2

ldap.providerurl

- **Module**: cmas-core-security
- **Description**: LDAP provider when using LDAP authentication.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: ldap://myserver.consol.de:389
- **Since**: 6.0

ldap.searchattr

- **Module**: cmas-core-security
- **Description**: Search attribute for looking up LDAP entry associated with a CM login.
- **Type**: string
- **Restart required**: no
- **System**: yes

- **Optional**: no
- **Example value**: uid
- **Since**: 6.0

ldap.userdn

- **Module**: cmas-core-security
- **Description**: LDAP user for connecting to LDAP to look up users when using LDAP authentication. Only needed if look-up cannot be performed anonymously.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.1.2

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":

contact.authentication.method

- **Module**: cmas-core-security
- **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
- **Example value**: LDAP
- **Since**: 6.9.3.0

ldap.contact.name.basedn

- **Module**: cmas-core-security
- **Description**: Base path to search for contact DN by LDAP ID.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: ou=accounts,dc=consol,dc=de
- **Since**: 6.9.3.0

ldap.contact.name.password

- **Module**: cmas-core-security
- **Description**: Password to look up contact DN by LDAP ID. If not set, the anonymous account is used.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Since**: 6.9.3.0

ldap.contact.name.providerurl

- **Module**: cmas-core-security
- **Description**: Address of the LDAP server (ldap[s]://host:port).
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: ldap://ldap.consol.de:389
- **Since**: 6.9.3.0

ldap.contact.name.searchattr

- **Module**: cmas-core-security
- **Description**: Attribute to search for contact DN by LDAP ID.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: uid
- **Since**: 6.9.3.0

ldap.contact.name.userdn

- **Module**: cmas-core-security
- **Description**: User DN to look up contact DN by LDAP ID. If not set, the anonymous account is used.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Since**: 6.9.3.0

ldap.initialcontextfactory

- **Module**: cmas-core-security
- **Description**: Class name for the initial context factory of the LDAP implementation when using LDAP authentication. If it is not set, `com.sun.jndi.ldap.LdapCtxFactory` is used.
- **Type**: string
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: com.sun.jndi.ldap.LdapCtxFactory
- **Since**: 6.0

F.1.3.4 Email Configuration

Outgoing Email

mail.smtp.email

- **Module**: cmas-core-server
- **Description**: SMTP email URL for outgoing emails
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: smtp://mail.mydomain.com:25
- **Since**: 6.0

mail.smtp.envelopesender

- **Module**: cmas-core-server
- **Description**: Email address used as sender in SMTP envelope. If not set, the From address of the email is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: mysender@mydomain.com
- **Since**: 6.5.7

mail.from

- **Module**: cmweb-server-adapter
- **Description**: This email address is used instead of the engineer's email address during email conversations.
- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: consolcm@example.com

- **Since**: 6.1.2

mail.reply.to

- **Module**: cmweb-server-adapter

- **Description**: When set, the Ticket Email Editor in the Web Client displays a Reply-To field pre-filled with this value.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: yes

- **Example value**: consolcm@example.com

- **Since**: 6.0.1

mailTemplateAboveQuotedText

- **Module**: cmweb-server-adapter

- **Description**: Determines the behavior of the email template in the Ticket Email Editor when another email is quoted, i.e. forwarded or replied to. Often used to place the signature correctly.

- **Type**: boolean

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: false

- **Since**: 6.2.4

mail.sender.address

- **Module**: cmas-workflow-jbpm

- **Description**: From address for emails from the workflow engine.

- **Type**: string

- **Restart required**: no

- **System**: yes

- **Optional**: no

- **Example value**: myuser@consol.de

- **Removed in**: 6.8.0

- **Replaced by**: jobExecutor.mailFrom

mail.smtp.tls.enabled

- **Module**: cmas-core-server
- **Description**: Activates SMTP via SSL/TLS (SMTPS) for sending emails from the Web Client and scripts. The default value is "false". If it is set to "true", SMTPS is activated for sending emails.
- **Type**: boolean
- **Restart required**: yes
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.11.1.6

Incoming Email

nimh.enabled

- **Module**: cmas-core-server
- **Description**: Enables the NIMH service. Must be suffixed with the cluster node ID, e.g., `nimh.enabled.NODEID` = "true".
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false
- **Since**: 6.9.4.0

filesystem.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads started for database emails' queue polling. The default value is 1
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10
- **Since**: 6.4.0

filesystem.polling.threads.shutdown.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated.
- **Type**: integer
- **Restart required**: no

- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

filesystem.polling.threads.watchdog.interval.seconds

- **Module**: cmas-nimh
- **Description**: Determines the interval in seconds to execute the watchdog which checks the activity of the threads of the file system poller.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.4.0

filesystem.task.enabled

- **Module**: cmas-nimh
- **Description**: With this property the service thread related to a given poller can be disabled.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.4.0

filesystem.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Default interval for polling mailboxes in seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

filesystem.task.polling.folder

- **Module**: cmas-nimh
- **Description**: Polling folder location which will be scanned for emails in the format of eml files. The default value is the `mail` subdirectory of the ConSol CM data directory

- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: c://cmas//mail
- **Since**: 6.4.0

filesystem.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time (of inactivity) the service thread is considered damaged and automatically restarted. Default: 120 seconds
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

filesystem.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Default transaction timeout (in seconds) for email fetching transactions. Should be correlated with number of messages fetched at once.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mailbox.<number>.name

- **Module**: cmas-nimh
- **Description**: Identifier (name) of the mailbox.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: myEmailAccount
- **Since**: 6.11.2.0

mailbox.default.connection.host

- **Module**: cmas-nimh
- **Description**: Host (server name) of a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 10.10.1.157
- **Since**: 6.4.0

mailbox.default.connection.password

- **Module**: cmas-nimh
- **Description**: Password for given mailbox from which the poller reads emails.
- **Type**: password
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: consol
- **Since**: 6.4.0

mailbox.default.connection.port

- **Module**: cmas-nimh
- **Description**: Port for a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 143
- **Since**: 6.4.0

mailbox.default.connection.protocol

- **Module**: cmas-nimh
- **Description**: Poller's protocol e.g., IMAP or POP3. No default value
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: imap
- **Since**: 6.4.0

mailbox.default.connection.username

- **Module**: cmas-nimh
- **Description**: User name for a given mailbox from which the poller reads emails.
- **Type**: string
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: username
- **Since**: 6.4.0

mailbox.default.session.mail.debug

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Allows for more detailed JavaMail session debugging.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.4.0

mailbox.default.session.mail.mime.address.strict

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Counterpart of the old `mule mail.mime.strict`, allows to set not so strict email header parsing.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.4.0

mailbox.default.session.mail.<PROTOCOL>.connectiontimeout

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the connection timeout in milliseconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: 3000
- **Since**: 6.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.fetchsize

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the size of partial fetch in bytes for the indicated protocol.
  For IMAP systems: in CM versions 6.10.7.0 and up, the value of
  `mailbox.default.session.mail.imap.fetchsize` is set to 1048576 (equals 1 MB) during the initial setup of a ConSol CM system. During an update of an existing ConSol CM system, the value of the property is left unchanged, if the property is already present. In case the property is not yet present, it is added with the default value.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: 1048576
- **Since**: 6.9.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.partialfetch

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines whether the protocol's partial fetch capability should be used.
  For IMAP systems: in CM versions 6.10.7.0 and up, the value of
  `mailbox.default.session.mail.imap.partialfetch` is set to "false" during the initial setup of a ConSol CM system. During an update of an existing ConSol CM system, the value of the property is left unchanged, if the property is already present. In case the property is not yet present, it is added with the default value.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true
- **Since**: 6.9.4.0 (IMAP and POP3) / 6.11.2.0 (IMAPS and POP3S)

mailbox.default.session.mail.<PROTOCOL>.timeout

- **Module**: cmas-nimh
- **Description**: JavaMail property, see JavaMail API documentation for further information. Determines the I/O timeout in milliseconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes

- **Example value**: 120 for IMAP(S) and 3000 for POP3(S)
- **Since**: 6.4.0 (IMAP and POP3), 6.11.2.0 (IMAPS and POP3S)

mailbox.default.task.delete.read.messages

- **Module**: cmas-nimh
- **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.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.4.0

mailbox.default.task.enabled

- **Module**: cmas-nimh
- **Description**: With this property, the service thread related to the given poller can be disabled.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.4.0

mailbox.default.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Default interval for polling mailboxes in seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mailbox.default.task.max.message.size

- **Module**: cmas-nimh
- **Type**: integer
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: 10485760 (default value, 10 MB)
- **Since**: 6.4.0

mailbox.default.task.max.messages.per.run

- **Module**: cmas-nimh
- **Description**: Number of messages fetched at once from mailbox. Must be correlated with transaction timeout. The default value is 20
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

mailbox.default.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time (of inactivity) the service thread is considered damaged and automatically restarted. The default value is 120 seconds.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60
- **Since**: 6.4.0

mailbox.default.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Default transaction timeout (in seconds) for email fetching transactions. Should be correlated with number of messages fetched at once.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mailbox.polling.threads.mail.log.enabled

- **Module**: cmas-nimh
- **Description**: Enables email logging which is especially crucial in cluster environment (used as semaphore there)

- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default value)
- **Since**: 6.9.4.1

mailbox.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads for accessing mailboxes.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.4.0

queue.polling.threads.number

- **Module**: cmas-nimh
- **Description**: Number of threads started for polling the email queue in the database.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 1 (default value)
- **Since**: 6.4.0

queue.polling.threads.shutdown.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Waiting time after the shutdown signal. When the timeout is reached, the thread will be terminated.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

queue.polling.threads.watchdog.interval.seconds

- **Module**: cmas-nimh
- **Description**: Determines the interval in seconds to execute the watchdog which checks the activity of the threads of the email queue poller.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 30 (default value)
- **Since**: 6.4.0

queue.task.error.pause.seconds

- **Module**: cmas-nimh
- **Description**: Maximum number of seconds, the queue poller waits after infrastructure (e.g. database) error.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 180 (default value)
- **Since**: 6.4.0

queue.task.interval.seconds

- **Module**: cmas-nimh
- **Description**: Main emails' queue polling thread interval.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 15 (default value)
- **Since**: 6.4.0

queue.task.max.retries

- **Module**: cmas-nimh
- **Description**: Maximum number of email processing retries after an exception. When reached, the email is moved to the email archive. This email can be rescheduled again using NIMH API (or the Admin Tool).
- **Type**: integer
- **Restart required**: no
- **System**: no

- **Optional**: yes
- **Example value**: 10
- **Since**: 6.4.0

queue.task.timeout.seconds

- **Module**: cmas-nimh
- **Description**: After this time of inactivity (in seconds), the service thread is considered damaged and automatically restarted.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 600 (default value)
- **Since**: 6.4.0

queue.task.transaction.timeout.seconds

- **Module**: cmas-nimh
- **Description**: Transaction timeout for email processing in the pipe.
- **Type**: integer
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: 60 (default value)
- **Since**: 6.4.0

mail.attachments.validation.info.sender

- **Module**: cmas-nimh-extension
- **Description**: Sets the From header for error notification emails which are sent when the validation of the attachment type fails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: admin@mail.com
- **Since**: 6.7.5

mail.attachments.validation.info.subject

- **Module**: cmas-nimh-extension
- **Description**: Sets the subject for error notification emails which are sent when the validation of the attachment type fails.
- **Type**: string

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: Email was not processed because its attachments were rejected!
- **Since**: 6.7.5

mail.db.archive

- **Module**: cmas-nimh-extension
- **Description**: If property is set to "true", incoming emails are archived in the database.
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: false (default value)
- **Since**: 6.8.5.5

mail.error.from.address

- **Module**: cmas-nimh-extension
- **Description**: From address for error emails from NIMH
- **Type**: email
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.4.0

mail.error.to.address

- **Module**: cmas-nimh-extension
- **Description**: To address for error emails from NIMH. As a default the email address of the administrator which you have entered during system setup is used.
- **Type**: email
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: myuser@consol.de
- **Since**: 6.4.0

mail.on.error

- **Module**: cmas-nimh-extension
- **Description**: If set to "true" an error email is sent to the above configured address in case the email message could not be processed.
- **Type**: boolean
- **Restart required**: no
- **System**: no
- **Optional**: yes
- **Example value**: true (default)
- **Since**: 6.4.0

mail.ticketname.pattern

- **Module**: cmas-nimh-extension
- **Description**: Regular expression pattern used to identify the ticket name in the subject of incoming mails.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: .*?Ticket\s+\(((\S+)\).*
- **Since**: 6.4.0

Attachments for Incoming Emails

attachment.allowed.types

- **Module**: cmas-core-server
- **Description**: Comma-separated list of allowed file name extensions (if no value is defined, all file extensions are allowed).
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: txt,zip,doc
- **Since**: 6.5.0

attachment.max.size

- **Module**: cmas-core-server
- **Description**: Maximum attachment size, in MB. This is a validation property of the CM API. It controls the size of attachments at tickets, units, and resources. It also controls the size of incoming (not outgoing!) email attachments. The value of this property needs to be aligned with the respective setting in the application server configuration.
- **Type**: integer

- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 100 (default value)
- **Since**: 6.4.0

Email Encryption (Outgoing and Incoming)

These settings only apply if email encryption is active (true).

mail.encryption

- **Module**: cmas-core-server
- **Description**: If the property is set to "true", the encrypt checkbox in the Ticket Email Editor is checked by default. The default value of the property is "false".
- **Type**: boolean
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: true
- **Since**: 6.8.4.0

In case certificates are stored in an LDAP directory, the following settings have to be made:

ldap.certificate.basedn

- **Module**: cmas-core-server
- **Description**: Base DN for certificates location in the LDAP tree. If not provided, `cmas-core-security, ldap.basedn` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: ou=accounts,dc=consol,dc=de
- **Since**: 6.8.4

ldap.certificate.content.attribute

- **Module**: cmas-core-server
- **Description**: LDAP attribute name used where certificate data is stored in the LDAP tree.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes

- **Example value**: usercertificate (default value)
- **Since**: 6.8.4

ldap.certificate.password

- **Module**: cmas-core-server
- **Description**: LDAP Certificates manager password. If not set, `cmas-core-security, ldap.password` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Since**: 6.8.4

ldap.certificate.providerurl

- **Module**: cmas-core-server
- **Description**: LDAP Certificates provider URL. If not set, `cmas-core-security, ldap.providerurl` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: ldap://ldap.consol.de:389
- **Since**: 6.8.4

ldap.certificate.searchattr

- **Module**: cmas-core-server
- **Description**: LDAP attribute name used to search for certificate in the LDAP tree.
- **Type**: string
- **Restart required**: no
- **System**: yes
- **Optional**: yes
- **Example value**: mail (default value)
- **Since**: 6.8.4

ldap.certificate.userdn

- **Module**: cmas-core-server
- **Description**: LDAP Certificates manager DN. If not set, `cmas-core-security, ldap.userdn` is used.
- **Type**: string
- **Restart required**: no
- **System**: yes

- **Optional**: yes
- **Since**: 6.8.4

F.1.3.5 Activity Interval Configuration

admin.tool.session.check.interval

- **Module**: cmas-app-admin-tool
- **Description**: Configures the time interval (in seconds) in which the system checks for inactive (ended) Admin Tool sessions.
- **Type**: integer
- **Restart required**: yes
- **System**: yes
- **Optional**: no
- **Example value**: 30
- **Since**: 6.7.5

server.session.timeout

- **Module**: cmas-core-server
- **Description**: Server session timeout (in seconds) for connected clients (database table `cmas_user_session`). 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`.
  Please see also the Page Customization attributes *updateTimeServerSessionActivityEnabled* and *updateTimeServerSessionActivity*, both of type *cmApplicationCustomization*.
- **Type**: integer
- **Restart required**: no
- **System**: yes
- **Optional**: no
- **Example value**: 1800
- **Since**: 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.

F.1.3.6 HTTP Header Configuration

It is possible to configure the HTTP response header returned with the web page in the Web Client. This allows, for example, to define security-related response headers according to the requirements dictated by policy or environment. These properties are managed in the module `cmweb-server-http-headers`. The name of the property is the field of the response header and the value of the property is the field value sent in the header.

> (i) Both name and value must match the exact spelling of the HTTP specification for the desired response header field. The correct interpretation and handling of the header lies in the responsibility of the client browser.

Example Property: X-Frame-Options

- **Module**: cmweb-server-http-headers

- **Description**: Example property to illustrate the configuration of HTTP headers. In this case the delivered HTTP header contains the field *X-Frame-Options* with the value "SAMEORIGIN".

  Each property in the module `cmweb-server-http-headers` represents one header field. The property name/key identifies the response header field and the value of the property is the field value sent in this header.

  > ⚠ Please be aware that additional HTTP response headers must be correctly defined with the exact spelling as officially specified! Please note also that the correct interpretation and application of these headers is fully in the realm and responsibility of the client browser which requested the page!

- **Type**: string

- **Restart required**: no

- **System**: no

- **Optional**: yes

- **Example value**: SAMEORIGIN

- **Since**: 6.10.8

F.2 Administrator and Notification Email Addresses

This chapter discusses the following:

F.2.1 Introduction

In ConSol CM, several administrator email addresses (or notification email addresses respectively) can be configured. Here, an overview of all those addresses is provided.

F.2.2 Default Configuration

When you set-up a ConSol CM system, you have to enter one global admin email address.

Figure 23: *Admin email address configuration during system set-up*

- Login for the CM admin user (1)
- Global email address of the CM administrator (2)
  This global email address (system property cmas-core-security, admin.email) will be used for all notifications and will be entered automatically for all subsystem-specific email addresses. This means that this admin email address will initially be set automatically for all system properties which contain admin or notification email addresses. The properties can then be changed using the Admin Tool GUI to configure the specific subsystem, e.g., you can configure a specific notification address for DWH operations in the *DWH Configuration* section of the Admin Tool.

By configuring different admin/notification email addresses for different subsystems, you can spread responsibilities according to responsibilities and roles within your company. For some notifications, even the From address, text, and the subject can be configured.

F.2.2.1 Special Cases Where the Admin Email Address Is Used

Queue-Specific Emails When an Engineer Has Been (De-)Assigned

The emails which are sent when ticket assignment templates are set for a queue (see section *Queue Administration* in the Administrator Manual), use the `admin.email` address as

- `From` address
- `ReplyTo` address

The queue-specific email scripts are not used for those automatic emails, thus it is not possible to change the `From` or `ReplyTo` address for (un-)assignment emails using this script!

> ℹ️ Please note: If the CM system property cmas-core-server, mail.notification.sender is set, the value of this property will be used as `From` address and as `ReplyTo` address for (un-)assiggnment emails.

F.2.3 Subsystem-Specific Notification Email Addresses

F.2.3.1 DWH (Data Warehouse) - Specific Notification Email Addresses and Email Configurations

System Properties

- **Error**
  - cmas-dwh-server, notification.error.to
  An email will be sent to this address when a DWH operation has failed. If the property is not set, no email will be sent.

  - cmas-dwh-server, notification.error.from
  An email will be sent with this From address when a DWH operation has failed.

  - cmas-dwh-server, notification.error.subject
  Subject for error emails from the DWH

  - cmas-dwh-server, notification.error.description
  Text for error emails from the DWH.

- **Successful**
  - cmas-dwh-server, notification.finished_successfully.to
  An email will be sent to this address when a DWH transfer has been completed successfully, e.g., when the transfer has been completed without errors. If the property is not set, no email will be sent.

  - cmas-dwh-server, notification.finished_successfully.from
  From address for emails from the DWH when a transfer finishes successfully.

  - cmas-dwh-server, notification.finished_successfully.subject
  Subject for emails from the DWH when a transfer finishes successfully.

  - cmas-dwh-server, notification.finished_successfully.description
  Text for emails from the DWH when a transfer finishes successfully.

- **Unsuccessful**
  - cmas-dwh-server, notification.finished_unsuccessfully.to
  An email will be sent to this address when a DWH transfer has been completed, but not successfully, e.g., when the transfer has been completed with errors. If the property is not set, no email will be sent.

  - cmas-dwh-server, notification.finished_unsuccessfully.from
  From address for emails from the DWH when a transfer finishes unsuccessfully.

  - cmas-dwh-server, notification.finished_unsuccessfully.subject
  Subject for emails from the DWH when a transfer finishes unsuccessfully.

  - cmas-dwh-server, notification.finished_unsuccessfully.description
  Text for emails from the DWH when a transfer finishes unsuccessfully.

  - cmas-dwh-server, notification.error.description
  The text for error emails from the DWH

For an overview of all system properties which can be set for DWH notifications, please refer to section CMRF & DWH Configuration of the List of System Properties by Area chapter. All properties which are relevant in this context start with *notification*.

Graphical Configuration

You reach this screen by opening the navigation item *Administration*, navigation group *Data Warehouse*, and clicking the tool icon.
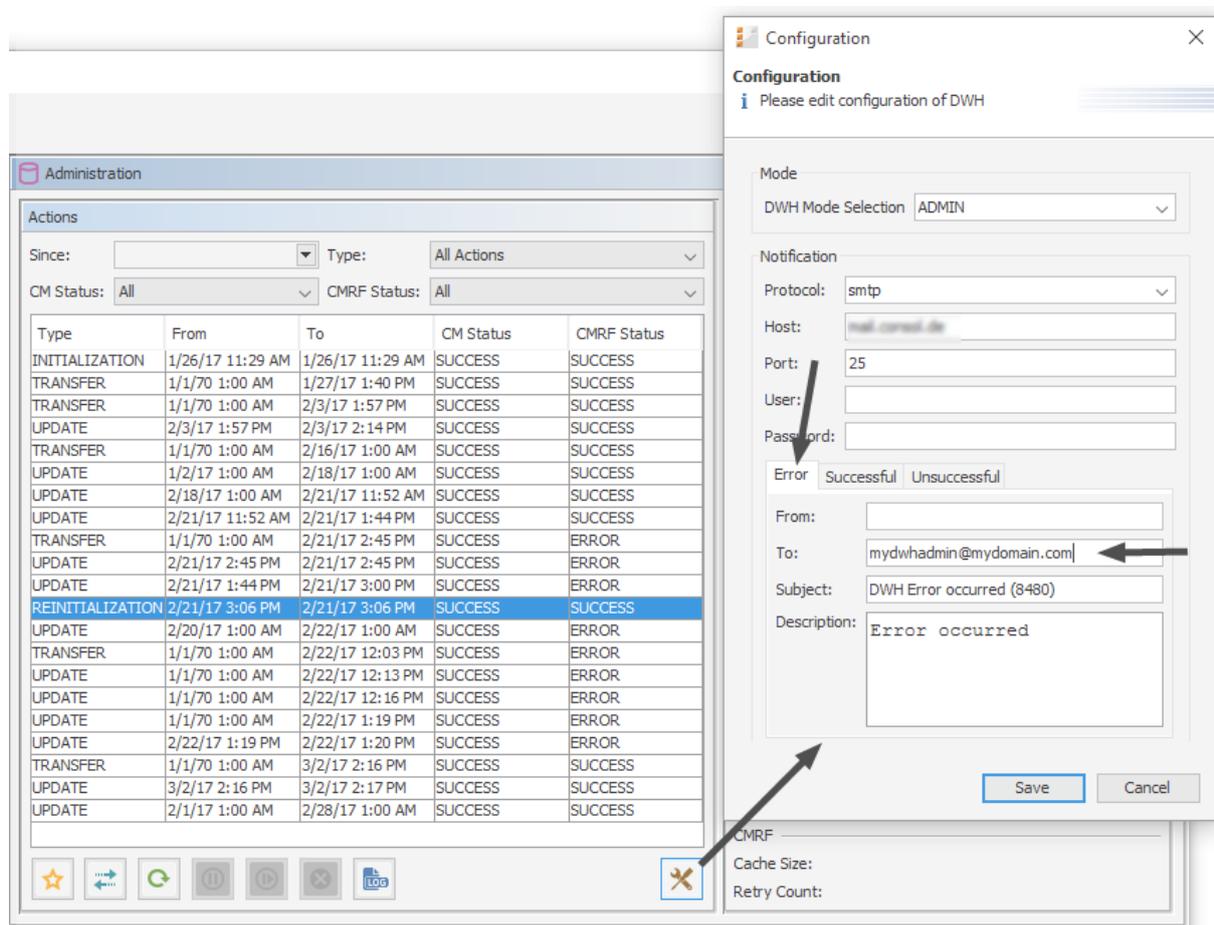

Figure 24: *ConSol CM Admin Tool - Data Warehouse, Administration: Notification address for DWH errors*

The email addresses are checked when you click *Save*. If an email address is not valid, a message is displayed. No mails will be sent to this address.

F.2.3.2 Email-Specific Notification Email Addresses

- cmas-nimh-extension, mail.error.to.address
  An error email is sent to the address in case an email message could not be processed. Starting with CM version 6.10.5.1, an email to this address is also sent when a mail timeout occurs.
  If the value for this property is not set, no email will be sent and an exception will be written into the log file.

- cmas-nimh-extension, mail.attachments.validation.info.sender
  Sets the From header of attachments type *error notification email*.

Please note that the sending is controlled by the system property cmas-nimh-extension, mail.on.error. Only if this property is set to "true", an error email is sent to the above configured address in case an email message could not be processed.

ConSol CM Operations Manual (Version 6.12.0) 412

Graphical Configuration

The value which is entered here (*Error email address*) in the graphical user interface is set as general email notification address.

Figure 25: *ConSol CM Admin Tool - Email, Email: Configuration of global admin email address and of notification email address for email processing problems*

> ⓘ Do not mix up the two email addresses which can be configured on the tab of the navigation item *Email*:
>
> - **Admin email**
>   is the global administrator email (which has been set during system set-up).
>
> - **Error email address**
>   is the address of an email administrator or another person who should receive the error messages if the processing of emails (incoming or outgoing) does not work correctly.

F.2.3.3 Workflow Engine - Specific Notification Email Addresses

- cmas-workflow-engine, jobExecutor.adminMail
  Email address which will get notified about job execution problems (when retry counter is exceeded). If the property is not set, no email will be sent.

- cmas-workflow-engine, jobExecutor.mailFrom
  Email address which will be set as `From` header during admin notifications.

F.3 Trademarks

- The Apache Commons Codec ^{TM} library is a trademark of the Apache Software Foundation. See [Apache Commons Codec web page.](#)

- Apache OpenOffice^{TM} – Apache and the Apache feather logos are trademarks of The Apache Software Foundation. [OpenOffice.org](#) and the seagull logo are registered trademarks of The Apache Software Foundation. See [Apache OpenOffice Trademarks web page](#).

- Google Maps^{TM} – Google Maps is a trademark of Google Inc. See [Google trademark web page](#) for details.

- HAProxy – HAProxy is copyright of Willy Tarreau. See [HAProxy website](#).

- Microsoft® – Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. See [Microsoft trademark web page](#).

- Microsoft® Active Directory® – Microsoft and Microsoft Active Directory are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. See [Microsoft trademark web page](#).

- Microsoft® Exchange Server – Microsoft and Microsoft Exchange Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. See [Microsoft trademark web page](#).

- Microsoft® Office – Microsoft and Microsoft Office are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. See [Microsoft trademark web page](#).

- Microsoft® SQL Server® – Microsoft and Microsoft SQL Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. See [Microsoft trademark web page](#).

- Microsoft® Windows® operating system – Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. See [Microsoft trademark web page](#).

- Microsoft® Word® – Microsoft and Microsoft Word are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. See [Microsoft trademark web page](#).

- MongoDB® – Mongo, MongoDB, and the MongoDB leaf logo are registered trademarks of MongoDB, Inc.

- NGiNX – NGiNX is copyright of Igor Sysoev and Nginx, Inc. See [NGiNX license page](#).

- OpenStreetMap - OpenStreetMap® is open data, licensed under the Open Data Commons Open Database License (ODbL) by the OpenStreetMap Foundation (OSMF). See [OpenStreetMap Copyright and License page](#).

- Oracle® – Oracle is a registered trademark of Oracle Corporation and/or its affiliates. See [Oracle trademarks web page](#).

- Oracle® WebLogic – Oracle is a registered trademark of Oracle Corporation and/or its affiliates. See [Oracle trademarks web page](#).

- Pentaho® – Pentaho and the Pentaho logo are registered trademarks of Pentaho Inc. See [Pentaho trademark web page](#).

- Vis.js – Vis.js is copyright of Almende B.V. See [Vis.js license page](#).

CM/ is a registered trademark of ConSol Consulting & Solutions Software GmbH

- Wicket^{TM} - Apache Wicket and Wicket, Apache, the Apache feather logo, and the Apache Wicket project logo are trademarks of The Apache Software Foundation. See, for example, the hint at the bottom of the Wicket home page

CM/ is a registered trademark of ConSol Consulting & Solutions Software GmbH

Glossary

A

ACF

ACF is the abbreviation of Activity Control Form. ACFs can be used in workflow activities to force the engineer to fill out certain fields before proceeding.

ACIM

Activity item - entry in the history section of a ticket (e.g., comment, email, attachment, time booking entry).

AD

Microsoft Active Directory - an LDAP-based directory service for Microsoft Windows domain networks.

additional customer

Additional customers are customers (companies or contacts) who are interested in the ticket. They are optional and usually have a role indicating the reason why they were added.

additional engineer

Additional engineers are users who have a specific purpose, which depends on your business process. Usually, they have to carry out certain tasks within the process.

Admin Tool

ConSol CM component, Java application to configure and manage a ConSol CM system.

AJP

Apache JServ Protocol, see, for example https://en.wikipedia.org/wiki/Apache_ JServ_Protocol

B

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 methods of the ConSol CM API to access data in ticket fields, customer fields and resource fields.

CIDR

Classless Inter-Domain Routing, notation for IP address ranges

CM/Archive

CM/Archive is a ConSol CM add-on which allows archiving tickets, so that old tickets can be deleted from the ConSol CM database.

CM/Doc

A standard module of ConSol CM which enables the engineer via ConSol CM Web Client to work with Microsoft Word or OpenOffice documents prefilled with ConSol CM ticket or customer parameters.

CM/Phone

The ConSol CM module which provides CTI for CM.

CM/Resource Pool

CM/Resource Pool is an optional add-on which allows to store different kinds

of objects as resources in ConSol CM.

CM/Track

CM/Track is the portal of ConSol CM. Customers can access their tickets through CM/Track.

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.

company

The company is the upper hierarchical level of a two-level customer model. A company can have several contacts.

contact

The contact is the lower hierarchical level of a two-level customer model. A contact can only belong to one company.

CRM

Customer Relationship Management. Approach to manage a company's customers, e.g., to collect data from different sources and integrate the data to generate information which allows, e.g., to optimize the services for the customers.

CTI

Computer Telephony Integration - a denomination for any technology that facilitates interaction between a telephone and a computer.

customer

The customer represents the external side of a ticket. It designates the person or object that gave the reason for creating a ticket. A customer can either be a company or a contact.

customer action

Part of the Action Framework. An action which is performed for a customer object, i.e., a contact or company object.

customer data model

The customer data model is the definition of the customers. It determines the available data fields and possible relations.

customer field

A field where data for customers (contacts or companies) can be stored. Similar to ticket fields for ticket data. Previously called Data Object Group Field.

customer field group

A group of fields where data for customers (contacts or companies) can be stored. Similar to ticket field group for ticket data. Previously called Data Object Group.

customer group

The customer group determines which customer data model is used for its customers and which actions are available.

customer object

A customer (a contact or a company). Formerly called Data Object. The term Unit is used in the programming context.

D

Dashboard

A type of report which integrates data from different sources providing an overall perspective of a certain topic. Often times graphical representation is used.

DWH

Data Warehouse - A database used for reporting and data analysis. In a standard ConSol CM distribution, a DWH is included and only has to be installed and configured.

E

engineer

Engineers are the users who work on the tickets in the Web Client

ERP system

Enterprise Resource Planning - often used for this type of enterprise management software.

ESB

Enterprise Service Bus - a software architecture used for communication between mutually interacting software applications in a service-oriented architecture (SOA).

ETL

Extract Transform Load - extracts data from one source (a database or other source), transforms it, and loads it into a database, e.g., a data warehouse.

F

FlexCDM

Flexible Customer Data Model - the customer data model 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

H

history

The history contains all changes which were carried out for the ticket, customer, or resource.

HMAC

Hash-based Message Authentication Code, message authentication function using hashes

I

IMAP

Internet Message Access Protocol - Internet standard protocol to access email on a remote email server. Can be used as plain IMAP or as secure IMAP (IMAPs). In the latter case, 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.

K

Kerberos

A network authentication protocol based on (Kerberos) tickets which requires a special infrastructure.

KPI

Key Performance Indicator - parameter used for performance measurement for companies, projects, etc.

L

LDAP

LDAP is the abbreviation of Lightweight Directory Access Protocol. It is a protocol used to manage login information for several applications.

LDAPS

LDAP over SSL

M

mailbox

Destination to which email messages are delivered. Mailboxes are managed on an email server. ConSol CM can access one or more mailboxes to retrieve emails.

main customer

The main customer is the customer who gave the reason for creating the ticket. The main customer is mandatory for a ticket.

Mule

An open source Java-based Enterprise Service Bus (ESB).

N

NIMH

New Incoming Mail Handler - module for retrieving incoming emails.

P

PCDS

Page Customization Definition Section

Pentaho

PentahoTM is a business intelligence (BI) suite which is available in open source and as enterprise editions.

permission

Permissions determine which objects the users can see in the Web Client and which actions they are allowed to perform. Permissions are always granted via roles, i.e., they are not assigned to a single user but to a group of users sharing a common role. Usually these users belong to the same team and/or have similar functions in the company.

POP

Post Office Protocol - Internet standard protocol to retrieve emails from a remote server via TCP/IP. Can be used as plain POP or as secure POP (POPs).

In the latter case, proper certificates are required.

portal

CM/Track - provides customer access to ConSol CM.

Process Designer

ConSol CM component used to design, develop, and deploy workflows.

Q

queue

The queue contains thematically related tickets which should be handled in the same way and follow the same business process (workflow). Permissions and other parameters are also defined based on queues.

R

RDBMS

Relational Database Management System - e.g. Oracle ®, MS SQL Server ®, MySQL.

relation

Relations are connections between different data objects in ConSol CM. This can be a relation between two objects of the same type, e.g., between tickets, customers, and resources, or a relation between objects of different types, e.g., between a ticket and a resource or a customer and a resource.

representation

Representations are temporary replacements. The representing user receives a copy of all emails which are sent from the CM system to the represented user's email address. In addition, his

ticket list has an option to display the tickets of the represented user.

resource

Resources are objects managed in CM/Resource Pool.

resource action

Part of the Action Framework. An action performed for a resource object.

resource field

A field where resource data can be stored.

resource field group

A group of fields where data for resources can be stored. Similar to ticket field group for ticket data.

resource type

The resource type is the definition of the resources. It determines the available data fields and possible relations and actions.

REST

Representational State Transfer - conventions for transferring data over HTTP connections.

role

Roles are assigned to users. They define the users' access permissions and views.

S

script

Program written for a specific run-time environment that can interpret and automate the execution of tasks. In

ConSol CM, scripts are stored in the Admin Tool and are stored as scripts for activities in workflows.

search action

Part of the Action Framework. An action performed for the result set of a search.

SMTP

Simple Message Transfer Protocol - standard protocol for sending emails.

T _____

TAPI

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.

template

Templates contain predefined and pre-formatted text. They can be used for comments, emails, and documents.

ticket

The ticket is the request of the customer which the engineer works on. It is the object which runs through the business process defined by the workflow.

ticket field

A field where ticket data can be stored. Previously called Custom Field

ticket field group

A group of ticket fields where ticket data can be stored. Previously called Custom Field Group.

ticket list

The ticket list is located to the left of the main working area of the Web Client. It shows tickets which are relevant for the current user.

time booking

Time bookings allow the engineers to register the time they worked on a ticket or project.

U _____

Unit

Java class which represents a customer object. i.e. a contact is an object of class Unit and a company is also an object of class Unit.

user

Users are the people who work with the ConSol CM system. Users who work on tickets in the Web Client are also called engineers.

V _____

view

Views limit the tickets which are shown in the ticket list in the ConSol CM Web Client to those tickets matching specific criteria (scopes from one or more workflows). Views are assigned to roles.

W

Web Admin Suite

ConSol CM component, web application to configure and manage the ConSol CM system. Will replace the Admin Tool.

Web Client

The Web Client is the primary access to the system for the users. They use the Web Client to work on tickets.

Wicket

Apache Wicket is an open source, component oriented, serverside, Java web application framework. See https://wicket.apache.org/ for details information.

workflow

The workflow is the implementation of the business process managed in ConSol CM. It contains a series of steps which are carried out by the engineers.