



Configuration Store Setup Guide

Version 1.8

Corresponding Software Version

Celonis 4.5

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REVISION HISTORY

VERSION NUMBER	VERSION DATE	SUMMARY OF REVISIONS MADE
1.6	FEB 23, 2018	Initial version
1.7	NOV 23, 2018	Fix typos in connection settings
1.8	APR 18, 2019	Fix typos in connection settings

INTRODUCTION

ABOUT THIS GUIDE

Celonis is a powerful software for retrieving, visualizing and analyzing real as-is business processes from transactional data based on event information. It provides users with the possibility to create and share comprehensive process analyses giving them full transparency about the business processes at hand.

This guide describes the setup of the Celonis Configuration Store. This can either be a new setup or a migration from the internally used HyperSQL (HSQL) database to an external database system such as PostgreSQL or Microsoft SQL Server (MSSQL). The Celonis Configuration Store is the central storage of the application metadata, e.g. system settings, users, groups, definitions of analyses and data models and contains all configuration done via the web frontend. The actual data to be analyzed resides in the underlying database and is never part of the Celonis Configuration Store.

TARGET AUDIENCE

This guide is meant to be consulted by the following target audiences:

- System Administrators
- Technical Staff

LIST OF ABBREVIATIONS

ABBREVIATION	EXPLANATION
DB	Database
HSQL	HyperSQL
JDBC	Java Database Connectivity
MSSQL	Microsoft SQL Server

SUPPORTED DATABASE SYSTEMS AND PREREQUISITES

Celonis supports the following database systems for the Celonis Configuration Store:

- PostgreSQL Version 9.5 and higher (9.x only)
- MSSQL Version 2014 and higher

The installation of these database system is out of the scope of this guide. We recommend installing the database system locally on the Celonis application server.

It is expected that the database system is already installed on the Celonis application server. The user that is used by the Celonis application must have the following permissions:

- PostgreSQL: superuser
- MSSQL: database owner

We recommend using the database system exclusively for the Celonis Configuration Store data.

Validate if the drivers for external database systems are present in the application data folder.

- Go to the "appfiles" (Windows) / "root" (Linux) folder of the Celonis application "appfiles/app/WEB-INF/lib".
- Copy the database system driver into this folder. Please download the JDBC driver from the corresponding database system provider.
 - PostgreSQL JDBC supported driver: 9.4.1211 JDBC 4
 - MSSQL JDBC supported driver: Microsoft JDBC Driver 4.0 for SQL Server

Please note, when an external database system is used as Celonis Configuration Store, there are no backups created automatically. The customer is responsible to back up the database files of the Celonis Configuration Store.

SETUP CONFIGURATION STORE

For migrating an existing Celonis Configuration Store (powered by HSQLDB), please follow all steps below.

For setup of a new Celonis Configuration Store (in a new installation), please only follow steps 1 and 3 to 5 as indicated below.

STEP 1: STOP THE CELONIS APPLICATION SERVER

Windows

- Open the Celonis Management Console.
- Stop the service by clicking on the “Stop” button.

Linux

- Switch to the Celonis installation directory.
- Stop the service by executing the stop script (see Table 1).

```
sudo sh stop.sh
```

Table 1: Execute stop script on Linux.

Validate if the Celonis service terminated successfully in the process explorer overview. If the service does not terminate after several minutes, terminate the service directly.

STEP 2 (MIGRATION ONLY): PREPARE MIGRATION

STEP 2a: BACKUP THE CONFIGURATION STORE AND CONFIGURATION FILE

Backup current Celonis Configuration Store:

- The HSQL files are in "appfiles" (Windows) / “root” (Linux) folder of the Celonis installation directory and consist of the following four files (do not select the appdata.lock file).
 - appdata.lob
 - appdata.log
 - appdata.properties
 - appdata.script
- Zip these four files into a zip file (e.g. 7-Zip) name it properly and move the created zip-file into your backup folder.

Backup the custom configurations file:

- Copy the file "config-custom.properties", located in the Celonis installation directory, to your backup folder and rename it "config-customer.properties.backup_YYYYMMDD" by replacing the placeholder YYYYMMDD with the current date (YYYY – year, MM – month, DD – day).

STEP 2b: CREATE MIGRATION FOLDER AND COPY THE CONFIGURATION STORE

- Create the folder "migration" within the "appfiles" (Windows) / "root" (Linux) folder.
- Copy the HSQL database files into the folder "migration" excluding the "appdata.lck" file. The files are in the "appfiles" (Windows) / "root" (Linux) folder of the Celonis installation directory (for details see [STEP 2 \(MIGRATION ONLY\): PREPARE MIGRATION](#)
- **STEP 2a: BACKUP THE CONFIGURATION STORE AND CONFIGURATION**).
- Do not copy the appdata.lck file as it locks the HSQL database and the migrator tool cannot establish a connection. If you copied it, delete it.

STEP 2c: COPY THE MIGRATOR TOOL INTO THE MIGRATION FOLDER

- The migration tool is the provided to you by Celonis.
- Copy the migration tool (java application) into the previously created "migration" folder.

STEP 3: SETUP THE EXTERNAL DATABASE SYSTEM

Recommended configuration of the external database system:

- Create a database user named "celonis_configuration_store_user"
 - PostgreSQL: the user must be a superuser
 - MSSQL: the user must be the database owner
- Create a database named "celonis_configuration_store". The user created in the previous step must be the database owner.

Please note, we recommend selecting the location of the database files in accordance to your backup strategy.

STEP 4: CONFIGURATE THE CONNECTION TO THE DATABASE SYSTEM

The following fields must be activated in the “config-custom.properties” file, which is located in the Celonis installation directory (see Table 2).

PostgreSQL	<pre> database.driverClassName=org.postgresql.Driver database.url=jdbc:postgresql://localhost:<port>/celonis_configuration_store database.username=celonis_configuration_store_user database.password=<password> database.dialect=de.celonis.pm.utils.engine.CPMPostgresDialect </pre>
MSSQL	<pre> database.driverClassName=com.microsoft.sqlserver.jdbc.SQLServerDriver database.url=jdbc:sqlserver://localhost:<port>;databaseName=celonis_configuration_store database.username=celonis_configuration_store_user database.password=<password> database.dialect=org.hibernate.dialect.SQLServerDialect </pre>

Table 2: Configuration settings for the connection to the external database system.

STEP 5: START THE CELONIS SERVICE AND VALIDATE THE SETUP

Please note, the restart of the application is mandatory as the application server needs to create the required tables in the external database system. The migration tool only copies the tables from the file-based HSQL database into the new database system.

- Start the Celonis service and login as system administrator. You should only be able to login with system administrator account using the default password, as no application data is available yet. The default password is stored in the “config.properties” file within the Celonis installation directory.
- You should not see any projects or analysis.
- In any other case the configuration of the new database system was not successful.

Troubleshooting

- Check if the port of the database connection is correct
- Validate the username and password
- PostgreSQL specific: the user must be a superuser
- MSSQL specific: the user must be the database owner

STEP 6 (MIGRATION ONLY): EXECUTE MIGRATION

STEP 6a: STOP THE CELONIS SERVICE

- Log out from the Celonis application.
- Stop the Celonis service.

STEP 6b: PERFORM THE DATA MIGRATION

- Execute the migration tool from the folder “migration” (see [STEP 2b: CREATE MIGRATION FOLDER AND COPY THE CONFIGURATION STORE](#)) using the command in Table 3.

PostgreSQL	<pre>java -jar celonis_configuration_store_migrator_v1-6.jar "hsqldb-pg" "jdbc:hsqldb:file:<HSQL_files_location>/appdata" "jdbc:postgresql://localhost:<port>/celonis_configuration_store" "celonis_configuration_store_user" "<password>"</pre>
MSSQL	<pre>java -jar celonis_configuration_store_migrator_v1-6.jar "hsqldb-mssql" "jdbc:hsqldb:file:<HSQL_files_location>/appdata" "jdbc:sqlserver://localhost:<port>;databaseName=celonis_configuration_store" "celonis_configuration_store_user" "<password>"</pre>

Table 3: Command to execute the migration tool.

The following information must be updated within the command:

- Location of the HSQL files
 - PostgreSQL and MSSQL: "jdbc:hsqldb:file:<HSQL_files_location>/appdata", where <HSQL_files_location> is the folder of the Celonis application data specified in the configuration file ("config.properties").
- Port of the new database
 - PostgreSQL: "jdbc:postgresql://localhost:<port>/celonis_configuration_store"
 - Example: "jdbc:postgresql://localhost:5432/celonis_configuration_store"
 - MSSQL:
 - "jdbc:sqlserver://localhost:<port>;databaseName=celonis_configuration_store"
 - Example:
 - "jdbc:sqlserver://localhost:1433;databaseName=celonis_configuration_store"

Figure 1 shows a successful example output of the migration tool, where the migrated tables are listed. If the output is different, the migration tool is configured incorrectly.

```

Administrator: Eingabeaufforderung
WARNING WARNING WARNING WARNING WARNING WARNING
WARNING WARNING WARNING WARNING WARNING WARNING

Type YES to continue:
YES
Processing CPM_DATABASE_TABLE_NAME_MAPPING_CONNECTION
Processing CPM_CPM_ERROR
Processing CPM_DRAFT
Processing CPM_REPORT_SCHEDULE
Processing CPM_COLUMN_NAME_MAPPING
Processing CPM_DATABASE_USER_LIST_PROVIDER
Processing CPM_FOLDER_ENTRY_GROUP_PERMISSION
Processing CPM_FOLDER_ENTRY_USER_PERMISSION
Processing CPM_MAINTENANCE_NOTIFICATION
Processing CPM_USAGE_REPORTS
Processing CPM_FOLDER_ENTRY_STAR
Processing CPM_DATABASE_SOURCE_CONFIGURATION
Processing CPM_FOLDER_ENTRY
Processing CPM_DOCUMENT_ASSET
Processing CPM_LIC_METRIC
Processing CPM_PREDICTION_OBSERVATION
Processing CPM_USER_GROUP_MEMBERSHIP
Processing CPM_CONFIGURATION
Processing CPM_GROUP_GROUP_MEMBERSHIP
Processing CPM_USER_PROFILE
Processing CPM_EXPORTING_JOB_CONFIGURATION
Processing CPM_COMMAND_ENTITY
Processing CPM_GENERAL_NAME_MAPPING
Processing CPM_DOCUMENT_ACCESS
Processing CPM_AUTHORIZATION_USER_ASSIGNMENT
Processing CPM_LDAP_AUTHENTICATION
  
```

Figure 1: Successful example output of the migrator tool.

Troubleshooting

- The location to the Celonis Configuration Store (HSQL file location) must contain the name of the file-based database files, which is "appdata" by default.
- Check if you deleted the "appdata.lock" file, which locks the HSQL database files.
- Check if the port of the database connection is valid.
- Validate the username and password of the database system.
- Are the tables in the target database system already created? If not, go to [STEP 5: START THE CELONIS SERVICE AND VALIDATE THE SETUP](#).

STEP 6c: RESTART THE CELONIS SERVICE AND VALIDATE THE MIGRATION

- Start the Celonis service and login.
- Validate if the projects, analysis and your configurations have been migrated correctly.

STEP 6d: CLEAN-UP

Please note, that the clean-up steps are optional.

- Delete the configuration file backup "config-custom.properties.backup_YYYYMMDD"
- Delete the backup of the Celonis Configuration Store
- Delete the "migration" folder in the "appfiles" (Windows) / "root" (Linux) folder