

# celonis

## UPDATE GUIDE

Version 1.15

Corresponding Software Version

Celonis 4.7.3

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## REVISION HISTORY

VERSION NUMBER	VERSION DATE	SUMMARY OF REVISIONS MADE
1.1	FEB 16, 2017	Application Version 4.2
1.6	FEB 23, 2018	Updated version for application version 4.3
1.7	MAI 05, 2018	Updated version for application version 4.4
1.9	MAR 03, 2019	Updated version for application version 4.5
1.10	DEC 03, 2019	Updated version for application version 4.6
1.11	JAN 23, 2020	Updated version for application version 4.7
1.12	JUN 21, 2021	Updated version for application version 4.7.1
1.13	OCT 20, 2021	Updated version for application version 4.7.2
1.14	MAY 19, 2022	Updated version for application version 4.7.3
1.15	APR 24, 2023	Added note for Compute Configuration Store migration

## INTRODUCTION

### ABOUT THIS GUIDE

Celonis is a powerful software for retrieving, visualizing and analyzing real as-is business processes from transactional data. 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 provides a step-by-step instruction on how to update Celonis or apply a patch downloaded from [my.celonis.de](https://my.celonis.de). An overview of the changes and new features can be found in the release notes.

### TARGET AUDIENCE

This guide covers all relevant technical information about correctly updating Celonis environments and is meant to be consulted by the following target audiences:

- System Administrators
- Support Personnel
- Technical Staff

## LIST OF ABBREVIATIONS

ABBREVIATION	EXPLANATION
ADFS	Active Directory Federation Service
ID	Identifier
OS	Operating System
SAML	Security Assertion Markup Language
SSO	Single Sign-On
URL	Uniform Resource Locator
ZIP	Zipper (Archive File Format)

## SOFTWARE CHANGE MANAGEMENT

New releases and support packages are announced on [my.celonis.de](https://my.celonis.de) and can be retrieved from there. Regardless of the type of patch, you will be provided with a full installer file. The procedure for updating an installation is described in the next chapter: [SOFTWARE UPDATE PROCEDURE](#). For detailed installation instructions, please refer to the Celonis Installation Guide to find the latest application prerequisites. For detailed operating instructions, please refer to the Celonis Operation Guide to understand the Celonis application in depth.

Please note:

- A Celonis Patch is a resolution or fix for one specific issue
- A Celonis Service Pack resolves multiple issues
- Patches or Service Packs may be available in advance, if critical
- A Celonis Release is a new version of the software, including new features

When you want to promote configurations and artifacts to production, there is a built-in export/import mechanism for all transportable artifacts in the web interface of Celonis; for usage instructions, please refer to the Celonis Manual ([help.celonis.de](https://help.celonis.de)). Technical configurations can be copied on a file level.

## SOFTWARE UPDATE PROCEDURE

### LATEST CELONIS VERSION

The Celonis software is shipped as an installer. The installer type depends on the Operating System it is going to be installed on. Verify the correct Celonis software version before you deploy any update. The latest Celonis software version can be downloaded from [my.celonis.de](https://my.celonis.de).

The general update procedure is described below, however there may be several other instructions specific to a certain release. If any specific instructions should apply, they will be shipped out together with the release.

There will be a short downtime of the Celonis Application for the duration of steps 2 to 6.

### COMPATIBILITY VERIFICATION FOR SYSTEM UPDATES

With every major release, we introduce a variety of new features that often require database migrations and other structural changes. Therefore, a sequential upgrade path for major release versions is required to avoid issues.

From application version 4.7 onward, we enforce a **version compatibility verification** during the installation process. In case the currently installed version is not compatible with the version a user is trying to install, the installation process will cancel. The version compatibility verification is not included in installers previous to 4.7!

### MIGRATION FROM CELONIS PROCESS MINING 4.7.2 TO 4.7.3

In the following section, migration and updates introduced in version 4.7.3 are described.

#### Preconditions

1. **You are updating an existing installation of Celonis Process Mining**

This document is not applicable in case of a fresh installation. Please refer to the Installation Guide for new installations

2. **The currently installed version of Celonis Process Mining is 4.7.2**

At this moment you have **installed, launched and verified** the 4.7.2 version of CPM. If not please request an installer of version 4.7.2 from the customer support and undergo the whole cycle of software installation and verification. Otherwise the 4.7.3 installation process will be aborted by the version compatibility verification

3. **[Ubuntu servers only] The Ubuntu version is 18.** Support of Ubuntu 16 was deprecated with version 4.7. Thus, the OS must be upgraded to version 18 before the update. This concerns the server hosting the Central Application and the server(s) hosting Compute Services

## Compute Configuration Store migration

In some cases, the migration of the Compute Configuration Store can not be migrated due to a bug in the underlying library. The Compute Configuration Store contains temporary data and can be safely removed. Therefore, we recommend the following before upgrading the application:

1. Stop CPM4 application (or at least the compute service).
2. Delete all `appdata.*` files located in `<installDir>/compute/root/`
3. Continue with the regular application update

**Note:** This only affects upgrades to version 4.7.3.0, 4.7.3.1 and 4.7.3.2.

## Microsoft SQL Configuration Store - JDBC Driver

In case the application is configured to use the Celonis Configuration Store based on MS SQL in `config-custom.properties`, a manual update has to be applied.

### Validating the usage of MS SQL

1. Navigate to `<installDir>/config-custom.properties`
2. Check if this **exact** property exists within your `config-custom.properties` file:

```
database.dialect=org.hibernate.dialect.SQLServer2008Dialect
```

**Note:** In case the property is commented (#) the manual update does **not** have to be applied!

### Updating the property

1. Navigate to `<installDir>/config-custom.properties`
2. Replace the old value `org.hibernate.dialect.SQLServer2008Dialect` of the property `database.dialect` with the following value:

```
de.celonis.pm.utils.engine.CPMSQLServer2012Dialect
```

**Note:** In case un-encrypted MS SQL connections are used for the Celonis Configuration Store (configured in `config-custom.properties`) or Database connections in a Data Model (configured in the application UI):

Starting from mssql-jdbc driver 10.1.0 the property `encrypt=false` must be explicitly specified in the JDBC connection string. See [here](#) for more details. Example:



`jdbc:sqlserver://localhost:1433;databaseName=master;encrypt=false`

## Microsoft JDBC Driver for SQL Server Authentication Library for Windows

We also removed the `mssql-jdbc_auth-<version>.x<64/86>.dll` (Microsoft JDBC Driver for SQL Server Authentication Library for Windows) from the embedded dependencies. In case the application is running on Windows and the SQL Server Authentication (indicated by `integratedSecurity=true` in the JDBC string) is used to connect to the Celonis Configuration Store or the Analytics Database, the library has to be deployed manually:

1. Stop the application
2. Download the respective driver version based on your SQL Server version and compatibility from [here](#). Please follow the Microsoft recommendations in case of any questions: [here](#).
3. Place the library in `<installDir>\jre\bin`
4. Start the application

## General logging updates

### 1. Log file structure

The general log file structure was revisited. The following logs tree structure created by default:

#### Windows

- Celonis CPM4 Frontend
  - `<installation_directory>/logs/cpm_svc.err.log`  
`<installation_directory>/logs/cpm_svc.out.log`  
`<installation_directory>/logs/cpm_svc.wrapper.log`  
*Windows Service Wrapper logs (when starting Celonis CPM4 Frontend service)*
  - `<installDir>/logs/cpm-stdout.log`  
*Celonis CPM4 Frontend startup messages (before full application server start)*
  - `<installation_directory>/logs/cpm.log`  
*Celonis CPM4 Frontend general service log file for current date (today's logs)*
  - `<installation_directory>/logs/cpm.<date>.log.gz`  
*Celonis CPM4 Frontend archive service log files, rotated daily by default*
- Celonis CPM4 Compute
  - `<installation_directory>/compute/logs/cpm_svc.err.log`  
`<installation_directory>/compute/logs/cpm_svc.out.log`  
`<installation_directory>/compute/logs/cpm_svc.wrapper.log`  
*Windows Service Wrapper logs (when starting Celonis CPM4 compute service)*
  - `<installDir>/compute/logs/compute-stdout.log`  
*Celonis CPM4 compute startup messages (before full compute server loading)*
  - `<installation_directory>/compute/logs/compute.log`  
*Celonis CPM4 compute general service log file for current date (today's logs)*

- `<installation_directory>/compute/logs/compute.<date>.log.gz`  
*Celonis CPM4 compute archive service log files, rotated daily by default*

## Linux

- Celonis CPM4 Frontend
  - `<installDir>/logs/cpm-stdout.log`  
*Celonis CPM4 Frontend startup messages (before full application server loading)*
  - `<installDir>/logs/cpm.log`  
*Celonis CPM4 Frontend general service log file for current date (today's logs)*
  - `<installation_directory>/logs/cpm.<date>.log.gz`  
*Celonis CPM4 Frontend archive service log files rotated, daily by default*
- Celonis CPM4 Compute
  - `<installDir>/compute/logs/compute-stdout.log`  
*Celonis CPM4 compute startup messages (before full compute server loading)*
  - `<installation_directory>/compute/logs/compute.log`  
*Celonis CPM4 compute general service log file for current date (today's logs)*
  - `<installation_directory>/compute/logs/compute.<date>.log.gz`  
*Celonis CPM4 compute archive service log files rotated, daily by default*

## 2. Default log rotation

As mentioned above, the main service logs for the Celonis 4 Frontend (`cpm.<date>.log`) and the Celonis 4 Compute (`compute.<date>.log`) are now rotated on a **daily** basis by default. This is configured in `logging.xml`.

## 3. Custom logging configuration

The custom logging configuration was updated with version 4.7.3. It was previously configured in `<installDir>/config-custom.properties` via the property `logging.config=`. **This property is no longer supported.**

- If custom logging was configured previously, please migrate the configuration to the approach (see the next slide).
- If a scheduled OS logrotate was configured, please deactivate it and use the default CPM4 log rotation. Alternatively, you can apply a custom logging configuration as highlighted on the next slide.

To apply a custom configuration you can either:

- Refer a custom logging config file using the JVM property `-Dlogging.config` in `<installDir>/cpm.user.vmoptions`
- Refer a custom logging configuration in the file `application.properties#logging.config` residing in the same directory as the application jar.

**Note:** Starting from CPM4.7.3 the logging library was changed from *log4j2* to *logback*. Therefore, an update to the `logging.xml` configuration format could be required. For more information, please refer to: <https://logback.qos.ch/manual/configuration.html>

## INTEGRITY OF CELONIS CONFIGURATION FILES

Celonis updates may require changes on configuration files. The following configuration files exist:

- “config.properties”
- “config-custom.properties”
- “config-custom.properties.sample”
- “cpm.user.vmoptions”
- “compute/compute.user.vmoptions”
- “compute/application.properties”
- “compute/application-custom.properties”
- “compute/application-custom.properties.sample”

The configuration files “config.properties”, “config-custom.properties.sample”, “application.properties”, and “application-custom.properties.sample” will be overwritten by the new version.

Your custom configuration files “config-custom.properties”, “cpm.user.vmoptions” and “application-custom.properties” remain unchanged. Please check the new “config-custom.properties.sample”, “application-custom.properties.sample”, “cpm.user.vmoptions.sample” and files for changed and updated parameters.

## BACKUP OF THE CELONIS SERVICES AND CONFIGURATION STORE

### Step 1: Stop the Celonis services

- Windows: Stop the services “Celonis CPM 4 frontend” and “Celonis CPM4 compute” in the Windows Service Manager.
- Linux: Execute the “stop.sh” script to stop the application service and the Compute Service.

In the case of the above-mentioned Multi-Server Deployment, every Compute Service has to be stopped and backed up individually.

Verify that the Celonis processes have been terminated successfully.

- Windows: Investigate the currently running processes using the Task Manager
- Linux: Investigate the currently running processes by the Linux Process Table

## Step 2: Create a backup of the Celonis application and application data:

### Configuration Store (only in case of PostgreSQL or MSSQL)

In case you are already using the Celonis Configuration Store on an external database system, create a backup of the Celonis Configuration Store.

In case you are using the integrated Celonis Configuration Store powered by HSQLDB, consider migrating the Celonis Configuration Store to an external database system. For more information, please refer to the Celonis Configuration Store Setup Guide.

### Application files

The following directories and files should be backed up:

- **[Windows]** <installPath>/appfiles/\*\*
- **[Windows]** <installPath>/compute/compute\_svc.xml
- **[Linux]** <installPath>/root/\*\*
- <installPath>/lib/\*\*
- <installPath>/component\_configurations/\*\*
- <installPath>/config\_custom.properties
- <installPath>/cpm.user.vmoptions
- <installPath>/compute/root/\*\*
- <installPath>/compute/application-custom.properties
- <installPath>/compute/compute.user.vmoptions

Optional: Perform a file system level backup of the installation and appfiles folder using customer specific backup solution (e.g. Tivoli Storage Manager, Symantec/Veritas Backup Exec, etc.).

## GENERAL UPDATE PROCEDURE

**AFTER A [BACKUP](#) WAS CREATED, PLEASE ADHERE TO THE FOLLOWING STEPS:**

### Step 1: Download the new release from [my.celonis.de](https://my.celonis.de)

Download the correct installer for your host OS. If you cannot find the installer matching your OS and version, please contact the Celonis Servicedesk.

### Step 2: Stop the Celonis services

- Windows: Stop the services “Celonis CPM 4 frontend” and “Celonis CPM4 compute” in the Windows Service Manager.
- Linux: Execute the “stop.sh” script to stop the application service and the compute service.

In the case of a Multi-Server Deployment, every Compute Service has to be stopped (Linux: using the “stop\_compute.sh” script) and then updated individually.

Verify that the Celonis processes have been terminated successfully:

- Windows: Investigate the currently running processes using the Task Manager
- Linux: Investigate the currently running process by the Linux Process Table

Make sure to close any other applications afterwards (esp. the Windows Service Manager on Windows and any Windows Explorer windows or Linux command line locations inside the installation/application path).

### **Step 2a: Rotate log files (Linux only – optional)**

In general there are two options: manual or with logrotate. In order to set up log rotate it is not necessary to stop the Celonis service.

#### **Option 1: Manually**

For information on how to manually rotate log files, please consult the chapter “Celonis Log Files” in the Celonis Operations Guide.

#### **Option 2: Logrotate**

For information on how to set up Logrotate, please consult the chapter “Celonis Log Files” in the Celonis Operations Guide.

### **Step 3: Run the Celonis Installer**

On Windows, the installer will recognize your current setup and keep your system configuration settings. The installer will automatically update Celonis to the latest version.

Continue only if the installation finished successfully. On Linux, you will have to re-enter the initial configuration parameters even for an update.

### **Step 3a (Multi-Server Deployment only): Update the Compute Services individually**

- **Windows**
  1. Execute “compute\_svc.exe uninstall” inside of the “compute” folder as an administrator on the Celonis Compute Server.

2. Copy the folder “jre” as well as the folder “compute” from the install directory of the Central Application into a **newly created** directory on the respective Compute Server.
3. Copy the **“application-custom.properties”, the “log” folder, the “root” folder, and the “temp” folder** from the previous installation directory of the Compute Service into the newly-created directory. This step ensures that custom configurations are preserved.
4. Copy the files “vcredist\_2015\_x64.exe”, “vcredist\_2010\_x64.exe” and “vcredist\_2008\_x86.exe” from the install directory to the Celonis Compute Server and execute each of them.
5. Execute “compute\_svc.exe install” inside of the **newly created** “compute” folder as an administrator on the Celonis Compute Server.

- **Linux**

1. Copy the folder “jre” as well as the folder “compute” from the install directory of the Central Application into a **newly created** directory on the respective Compute Server.
2. Copy the **“application-custom.properties”, the “log” folder, the “root” folder, and the “temp” folder** from the previous installation directory of the Compute Service into the newly-created directory. This step ensures that custom configurations are preserved.

#### Step 4: Start the Celonis services

- Windows: Start the “Celonis CPM 4 frontend” service for the Central Application and the “Celonis CPM4 compute” service for the Compute Service from the Windows Service Manager. Additionally the Compute Service of every separate Compute Server has to be started as well.
- Linux: Execute the “start.sh” script to start the Central Application service and the local Compute Service. Execute the “start\_compute.sh” to start the Compute Service on separated Compute Servers.

Verify that the Celonis processes have been started successfully:

- Windows: Investigate the currently running processes using the Task Manager
- Linux: Investigate the currently running process by the Linux Process Table

#### Step 5: Verify that logs files are written

Login to the Celonis application. Verify if the log files are written:

- Windows: Log-files are separated per service start and can be found in “<installPath>\logs” and “<installPath>\compute\logs”.

- Linux: Log-files are combined in “<installPath>/logs” and “<installPath>/compute/logs”.

## Step 6: Verify the Celonis release ID

Login to the Celonis application and access the “About” page in the bottom left corner of the start screen. Validate that the displayed version ID equals the new release.

If you want to check the version of Celonis while the software is not running, you can do so by viewing the “config.properties” file in the root directory of the Celonis application (parameter “application.version”).

## PERFORM CLEAN-UP OPERATIONS

1. We recommend keeping at least the latest backup archive
2. Delete obsolete backup archives
3. Verify and update the integrity of Celonis configuration files

## MIGRATION FROM CELONIS PROCESS MINING 4.7.1 TO 4.7.2

All new features can be found in the release notes for Celonis Process Mining 4.7.2. In the following section, migration and updates are described.

### Preconditions

4. **You are updating an existing installation of Celonis Process Mining**  
This document is not applicable in case of a fresh installation. Please refer to the Installation Guide for new installations
5. **The currently installed version of Celonis Process Mining is 4.7.1**  
At this moment you have **installed, launched and verified** the 4.7.1 version of CPM. If not please request an installer of version 4.7.1 from the customer support and undergo the whole cycle of software installation and verification. Otherwise the 4.7.2 installation process will be aborted by the version compatibility verification
6. **[Ubuntu servers only] The Ubuntu version is 18.** Support of Ubuntu 16 was deprecated with version 4.7. Thus, the OS must be upgraded to version 18 before the update. This concerns the server hosting the Central Application and the server(s) hosting Compute Services

## Deprecation Now: Legacy Audit Logger

With Celonis Process Mining 4.7.2, we are deprecating the legacy audit logger configured in `<installDir>/component_configurations/audit-logging.properties`. In case the audit logs are used in your installation, a migration of the audit logging configuration to the new `audit-logging-advanced.properties` file is required.

### Activating the new advanced audit logger:

1. Log onto the application server
2. Stop the Celonis Process Mining application
3. Navigate to `<installDir>/component_configurations/`
4. Copy the `audit-logging-advanced.properties.sample` file and rename one of the files to `audit-logging-advanced.properties`.
5. Open the properties file and activate the required properties by setting them to true.
6. Start the Celonis Process Mining application

**More details on the configuration of the Advanced Audit Logs can be found in the Operation Guide. Not following these instructions will lead to no audit logs being written.**

## Amazon Athena JDBC Driver

With Celonis Process Mining 4.7.2, we no longer distribute the Amazon Athena JDBC drivers (`com.simba.athena.jdbc.Driver`) with the Celonis Process Mining application.

If you are currently using any Amazon Athena connection, please follow the instructions below to deploy the JDBC driver.

Deploying your own Amazon Athena JDBC driver:

1. Get the suitable JDBC driver from the vendor (`com.simba.athena.jdbc.Driver`)
2. Log onto the application server
3. Stop the Celonis Process Mining application
4. Navigate to `<installDir>/lib` and paste the driver `.jar` file into the folder
5. Start the Celonis Process Mining application

**Not following this instruction will lead to all respective database connections failing (e.g., for Data Model loads).**



**Time zone information in stdout and advanced audit logs**

The log format of the stdout log files (located in <installDir/logs>) and the advanced audit logs was updated from yyyy-MM-dd HH:mm:ss to yyyy-MM-dd'T'HH:mm:ss.SSSXXX, adding information about the application server time zone.

## SUPPORT DESK MANAGEMENT

To contact Celonis support, you have the following possibilities:

**Hotline:** +49 (0)89 416 159 677

**Email:** [servicedesk@celonis.de](mailto:servicedesk@celonis.de)

**Support-Portal:** <https://celopeers.com>

Please include at least the following items in your issue description:

- At what time the incident occurred (date, time, timezone)
- Screenshot or video recording of the error message / situation
- Full product version tag (format: *4.7.2-RELEASE\_c3739d3\_20211027\_1623*) that can be found:
  - In the Celonis frontend, clicking “About” on the bottom left
  - In the log files
  - In the file *config.properties#application.version* inside the installation directory
  - In the file *FILEID* inside the installation directory
- Log files for the past 30 days:
  - Central Application logs: *logs/stdout, logs/stderr*
  - Compute logs: *compute/logs/stdout, compute/logs/stderr*
  - Query engine logs: *compute/root/logs*
- [Linux only] The content content of the following scripts in the installation directory
  - *start.sh*
  - *stop.sh*
  - *start\_application.sh*
  - *stop\_application.sh*
  - *compute/start.sh*
  - *compute/stop.sh*
- Installation location (e.g., *C:\Program Files\Celonis 4 Enterprise* or */opt/celonis/cpm4*)
- Configuration files inside the installation directory:
  - All *\*.vmoptions* files
  - *config.properties*
  - *config-custom.properties* (anonymized sensitive information such as (passwords, certificate keys etc))
- Operating system information of the application server (name, version, kernel)
- Hardware information of the application server (available RAM, CPUs, persistent storage)

## REFERENCES

- [Celonis Installation Guide](#)
- [Celonis Operation Guide](#)
- [Celonis Release Notes](#)
- [Celonis ADFS Setup Guide](#)
- [Celonis Migration Store Setup Guide](#)