celonis

SAP Process Mining by Celonis

Operation Guide

Version 1.2

Corresponding Software Version: 4.0

CONTENTS

INTRODUCTION

ABOUT SAP PROCESS MINING BY CELONIS

SAP Process Mining by Celonis is a powerful software for retrieving, visualizing and analyzing real as-is business processes from transactional data stored by the SAP ERP systems. It provides users with the possibility to create and share comprehensive process analyses giving them full transparency about the business processes at hand.

In order to provide process analyses, SAP Process Mining by Celonis makes use of raw data taken from the SAP ERP systems. For efficient use, the solution requires data to exist in a specified target structure. Thus, raw data from the SAP ERP systems will be transformed into that structure on a regular basis. The result will then be stored as either views or tables. As analytical backbone for the management and storage of the raw data as well as the transformed Process Mining data and as enabler for its real-time analytics, SAP Process Mining by Celonis uses the SAP HANA technology.

SAP Process Mining by Celonis was designed as an analysis platform for the supervision of several business processes and by several users at the same time. Therefore, SAP Process Mining by Celonis is a browser-based web application with a client-server architecture that is easily accessible throughout an enterprise for many users at the same time. User access can be restricted either on analysis-, or data-model-level. Users can also be assigned different roles with different rights for making configurations or creating analyses.

TARGET AUDIENCE

This guide covers all relevant technical information about correctly operating SAP Process Mining by Celonis and is meant to be consulted by the following target audiences:

- System Administrators
- Support Personnel
- Technical Staff

OVERVIEW OF THE MAIN SECTIONS

This guide gives an overview over all information relevant for operating SAP Process Mining by Celonis and is therefore divided into the following sections:

TECHNICAL CONFIGURATION - SYSTEM LANDSCAPE

This section gives an overview over the SAP Process Mining by Celonis architecture as well as its involvement with other systems in the IT landscape.

TECHNICAL CONFIGURATION - SECURITY

This section describes the software's security features.

TECHNICAL CONFIGURATION - HIGH AVAILABILITY

This section shows which steps are necessary for SAP Process Mining by Celonis to operate in a high availability environment.

TECHNICAL CONFIGURATION - LOGGING

This sections describes the logging capabilities of the application.

APPLICATION SERVER ADMINISTRATION

Since the application will be running as an operating system services, this part describes how to correctly configure it as such. It will also describe the necessary tools for administration.

PERIODICAL TASKS – ARCHIVING FILES

This section describes how to best manage the task of periodically archiving old files: the log files of the Apache Tomcat server as well as new releases of SAP Process Mining by Celonis

BACKUP AND RECOVERY – BACKUP APPLICATION METADATA

Here, you will learn about how to regularly backup the metadata datastore as well as restore it in case of a failure.

BACKUP AND RECOVERY – BACKUP ANALYTICS DATABASE (HANA)

Here, you will learn about how to regularly backup the analytics database (SAP HANA) as well as restore it in case of a failure.

MONITORING THE APPLICATION SERVER

This section describes how to best monitor the application server in terms of resource usage to ensure that the application can run with maximum performance and efficiency at all times.

MONITORING SAP HANA

This section describes how to best monitor the analytics database (SAP HANA) in terms of resource usage to ensure that the application can run with maximum performance and efficiency at all times.

LOGGING AND TRACING

Learn about the log files that will be created during the usage of SAP Process Mining by Celonis as well as about how to manage them.

SOFTWARE CHANGE MANAGEMENT

This section describes how changes to the software are managed.

SOFTWARE UPDATE PROCEDURE

Here you can find a step-by-step guide about how to update SAP Process Mining by Celonis once a new version is released.

SUPPORT DESK MANAGEMENT

This part lists the contact details of the service desk as well as the best procedure for getting in contact with it in case of problems.
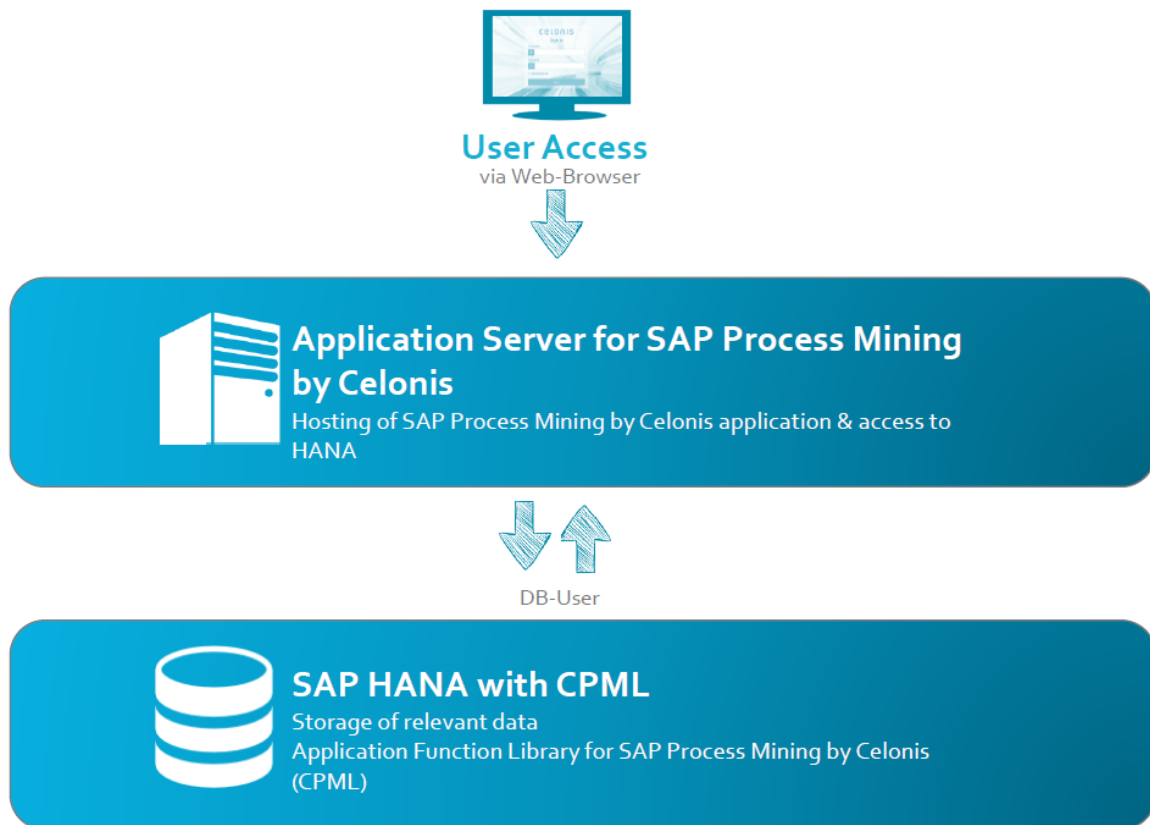
TROUBLESHOOTING

Refer to this section to find a list of common issues and first instruction for soling them.

TECHNICAL CONFIGURATION - SYSTEM LANDSCAPE

SAP Process Mining by Celonis consists of two components: The core SAP Process Mining web application and the SAP HANA AFL plugin for SAP Process Mining by Celonis (called CPML).

In order to show you how SAP Process Mining by Celonis software works, we are presenting the SAP Process Mining by Celonis System Landscape as a diagram below. The System Landscape itself contains sufficient information and visual elements so that you can fully understand how SAP Process Mining by Celonis works and connects with your existing IT Infrastructure.

User Access
via Web-Browser

Application Server for SAP Process Mining by Celonis
Hosting of SAP Process Mining by Celonis application & access to HANA

DB-User

SAP HANA with CPML
Storage of relevant data
Application Function Library for SAP Process Mining by Celonis (CPML)

TECHNICAL CONFIGURATION - SECURITY

SAP Process Mining by Celonis application provides built-in security for database connectivity. All user passwords in the application database are encoded (using SHA-256). Passwords for the connection the the HANA database are encrypted (using AES).

By default, the H2 metadata datastore is secured with a password, that is automatically generated. This password is not visible to the user and it cannot be read in any way. It is simply embedded within the application. If you want to override this setting, you can do so by editing the App DB Settings from the "config-custom.properties" file in your installation directory.

The SAP Process Mining by Celonis web access security relies on the Spring Security Framework hardening. As SAP Process Mining by Celonis can also make use of up to date security standards SSLs, it is recommended for you to enable and use the SSL option right from the beginning, after the installation. This feature can be enabled as well from the "config-custom.properties" file. Upon enabling the SSL feature, you must go through the following steps:

- Set the "server.ssl" option to "true".
- If there is no keystore available, create a Java keystore. To generate a key in a local keystore, please use the Java keytool or import an existing key. A sample command for generating a new key is: "keytool -genkey -alias celonis4 -keyalg RSA -keystore keystore.jks -keysize 2048". Note that for paths on windows, you should use forward slashes (e.g. E:/celonis/my_keystore.jks). More information in the Oracle manual (http://docs.oracle.com/javase/7/docs/technotes/tools/windows/keytool.html).
- Generate a new CSR and/or import the CRT (existing or obtained from the CA after signing the CSR) into the keystore. For more information, the same documentation from the previous step can be used.
- Provide the keystore file path using the "server.ssl.keystore" parameter.
- Specify the keystore alias using the "server.ssl.keyalias" parameter. The key alias name was provided upon the keystore creation.
- Specify the keystore password using the "server.ssl.keystorepw". This password is required to open the keystore.
- Specify the private key password using the "server.ssl.keypw". This password is required to read the private key.

During the installation process, the password for the default user "sysadmin" is requested. Please make sure that you are going to use a secure password. If there is no password specified, the installer will choose the default "$admin!" password. We do not recommend keeping the initial password for the "sysadmin" in a productive environment, thus this password should to be changed as soon as pos-

sible via the web frontend. The default password policies also force you to change the password directly after the first login. The password policies are also highly customizable from the "password-rules.properties" file. There you can enable or disable the rules and set password minimum requirements such as minimum length, complexity and change rate. With the number "0" the options can be set to "unlimited", for example "password.rules.last_passwords_forbidden=0" means that any old password may be reused.

Authorization in SAP Process Mining by Celonis is done via the Authorization Objects. They can be used to automatically filter the dataset for users. This can be particularized for each user and dataset. With this functionality the administrator can opt for obscuring unauthorized data to be displayed to unauthorized users in such a way, that the users will not notice that they are having access to incomplete data. This grants the perfect layer of data protection and privacy for customer's data. The authorized SQL queries must be defined in the "query-definitions.xml" file.

For a secure network setup, we recommend using a dedicated server and close all ports but the ones required by our application. In the case in which another Web-Server will run in front of the SAP Process Mining by Celonis Server, the server port can be bound, for example, to the localhost. This can be achieved from the "config-custom.properties" file using the "server.interface" and "server.port" parameters. Even more, all connections with the database can be encrypted. This can be done using the JDBC String, by adding the "encrypt=true" parameter. In case your SAP HANA installation uses a self-signed certificate, you need to add "validateSSLcertificate=false" parameter. For more information regarding securing JDBC connections, please consult the official SAP Documentation: https://help.sap.com/saphelp_han-aplatform/helpdata/en/db/d3d887bb571014bf05ca887f897b99/content.htm

TECHNICAL CONFIGURATION -
HIGH AVAILABILITY

SAP Process Mining by Celonis application can be installed in a High Availability Cluster configuration in order to benefit from:

- High Application Server uptime.
- Resource scalability.
- Migration easiness.

It is recommended to use a dedicated VM Server for SAP Process Mining by Celonis and to perform regular Snapshots to this VM on a remote location.

As SAP Process Mining by Celonis works highly intensive with the HANA database, its performance and ability to often send requests to the Database Server(s) highly depends on the Database Server(s) performance and availability. As such, it is recommended that the Database Server(s) should operate within a High Availability – High Performance clustering environment and that the fastest communication wiring and protocols with the SAP Process Mining by Celonis application server are assured. The SAP HANA database environment can make use of clustering configurations. It is recommended to scale the Database Server(s) accordingly with the databases size and complexity.

Due to the large number of infrastructure concepts only a sketch is displayed in the "HA-1" diagram below. This is not to be considered as an infrastructure design, but it should give you an overview of the key components you have to consider while using SAP Process Mining by Celonis in a HA design. Networking elements and connectivity are also completely excluded from this diagram. For more information, the specific solution's and / or vendor's HA design must be consulted.

The Database Servers and Highly Availability Cluster's security needs to be applied according with specific tools provided by the SAP Database Software and / or by the Highly Availability Cluster's vendors and their support, considering each IT Infrastructure specific security policies.
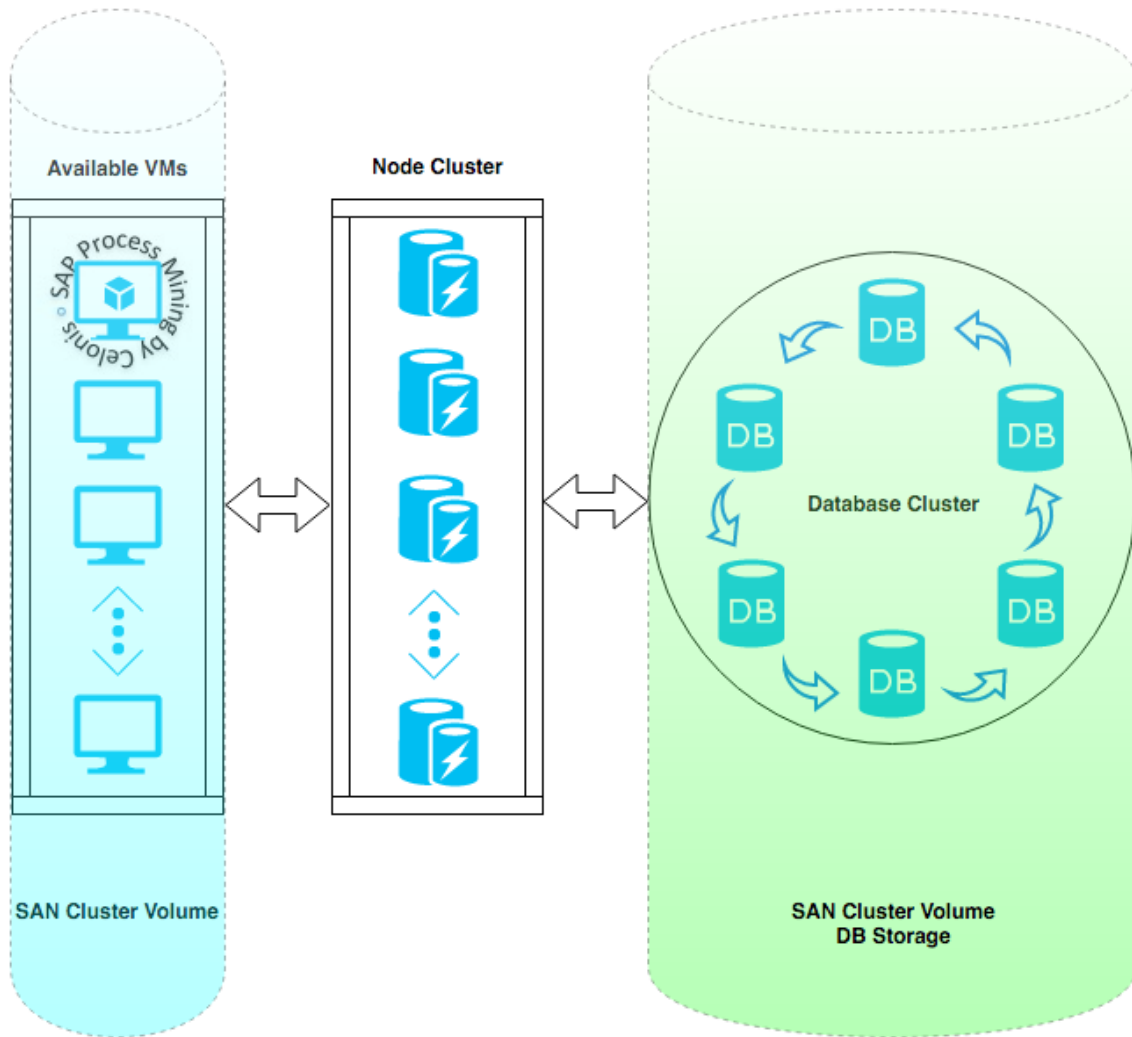
HA-1

TECHNICAL CONFIGURATION - LOGGING

LOGGING FOR SAP PROCESS MINING BY CELONIS

The default log level information for SAP Process Mining by Celonis is "info". This only logs basic information. If you need more advanced log messages you should change this to "debug". Less information is available with the levels "warn" or "error". We do recommend keeping this at the "info" level in production environments.

SAP Process Mining by Celonis also has the ability to write audit logs. The audit logger allows you to create a configuration for logging audit-relevant events. You can enable specific events by setting the audit logger configuration to true. By default, no audit log is written. To enable the configuration, copy the "audit-logging.properties.sample" file in the component_configurations folder in your installation path to "audit-logging.properties" and enable the events you are interested in. You can enable specific events by setting the options from "false" to "true". Individual options can be enabled or disabled for each of the following cases:

- Login events
- Failed logins
- User creation
- User deletion
- Group assignments
- Group creation
- Permission changes
- Object creation
- Object deletion
- Permission denied

Logging at what particular time a user has logged into the SAP Process Mining by Celonis software is also possible. By default, this feature is turned off, but it can be enabled by copying the "login-logging.properties.sample" file to "login-logging.properties" and fill out the required information:

- Login_logging.enabled – either false or true
- Login_logging.database.url – as the information is saved within a database, the JDBC connection url must be entered here
- Login_logging.database.driver – the JDBC driver used to connect
- Login_logging.database.user – the database user with proper access rights
- Login_logging.database.password – the database user's password
- Login_logging.database.success_query – the query that will be executed in case of a successful login.

LOGGING FOR CPML

Logging and tracing is based on the SAP HANA logging infrastructure, as provided by AFLSDK.

Every call to CPML is logged on INFO level. On DEBUG level also the end of a call is logged. For potential long running calls also the runtime is logged. Exceptions which happen CPML are logged on the WARNING level.

Logging can be configured and the log files can be viewed through the SAP HANA Studio. The log level can be configured by setting the desired level of the "aflx" component of the ScriptServer. (HANA Studio → Administration View → Trace Configuration → Database Trace → Show All Components)

APPLICATION SERVER ADMINISTRATION

REQUIRED TOOLS

The following tools are needed on the application server to successfully administer the SAP Process Mining by Celonis application:

- **A text editor**

All supported operating systems provide these tools out of the box. Furthermore, the standard Linux command line tools (like tail, grep and others) will help you in accessing log and configuration files.

As Windows lacks most of those command line tools and the built in text editor is lacking features like syntax highlighting or support for UNIX-style line breaks, it is recommended to install specific tools for Windows (e.g. Notepad++, baretail, baregrep).

For administrative tasks inside the software itself a web browser is required. As the application can normally be accessed from outside the server, there is no direct need to have a web browser on the application server itself. It could however be beneficial to test connection issues, etc.

SAP PROCESS MINING BY CELONIS CONFIGURATION

The SAP Process Mining by Celonis server configuration takes place during the installation process. The central configuration file of SAP Process Mining by Celonis is *config.properties*. This file can be found inside the root directory of the installed software, however we do not recommend manual editing. The file gets overwritten in the update process. All user custom configuration should be made in the *config-custom.properties* file.

SAP PROCESS MINING BY CELONIS AS OPERATING SYSTEM SERVICE

Using the Jetty Embedded Application Server, the SAP Process Mining by Celonis application is installed as a service inside the Windows Operating System, offering the possibility to be administrated as any other regular OS service.

The SAP Process Mining by Celonis service name can be customized in any particular way that it's required. The usual service name that is used by Celonis during the installation process is "SAP Process Mining by Celonis". For Windows operating systems the SAP Process Mining by Celonis Application

Service can be configured using the following "Startup types": "Automatic (Delayed Start)" (Recommended), "Automatic", "Manual" or "Disabled".

For Linux/OSX operating systems the SAP Process Mining by Celonis Application Service can be manually controlled using the "start.sh" and "stop.sh" bash scripts. Using OS specific methods, these scripts can be set to automatically run in special conditions (e.g. Automatically start the software on computer boot).

The SAP Process Mining by Celonis Application Service can receive the following service commands:

- On Windows: "Start", "Stop" or "Restart".
- On Linux & OSX: controlled via the provided bash scripts.

A service restart, if needed, could also be performed by first stopping and then starting up the service.

In order to offer flexibility, SAP Process Mining by Celonis does not require the operating systems service installation in order to run. The application server can also be run manually, only when it's needed, however this is not recommended in productive environments. We highly recommend using SAP Process Mining by Celonis installed as an operating system service in order to benefit from easiness in administration. Operating systems services are also offering the possibility that when no longer needed, they can be uninstalled.

PERIODICAL TASKS - ARCHIVING FILES

Using SAP Process Mining by Celonis for a long period of time will put you in the situation of dealing with old files. Old files will take unnecessary disk space and keeping old files mixed with current files will make the administration process more and more difficult overtime. We recommend archiving these old files and / or even set up an "Old Files Strategy" policy.

The archiving policy should consider the following cases:

SAP PROCESS MINING BY CELONIS LOG FILES

The log files generated by the SAP Process Mining by Celonis Server are located in the "logs" folder that resides in the root of the SAP Process Mining by Celonis Server install path. The "logs" folder will contain the following log files types:

- cbpd_svc-stderr.<date>.log (Windows)
- commons-daemon.<date>.log (Windows)
- cbpd_svc-stdout.<date>.log (Windows)
- stderr (Linux)
- stdout (Windows)

As you can observe, all log files contain a date format that basically is the year, month and day of the log files creation. A new log file is generated each time you restart the software. Inside a log file, for example "*cbpd_svc-stderr.2016-01-15*", you will find only the events that occurred between server start and server stop (restart) commands. If you are going to restart the SAP Process Mining by Celonis on a daily basis (highly unlikely) you will basically get each log type being generated once per day. After a year had passed, - on a Windows installation - you will have 365 "cbpd_svc-stderr.*<date>.log*" files and another 730 files summing the other types. If you want to check for errors, you should not search through log files from two-three months ago. Of course there are text filtering techniques and log files search patterns that can be used and applied (and should be nevertheless), but still going through all the log files can take a long time.

From the disk space consumption perspective, using SAP Process Mining by Celonis in a large (enterprise) productive environment may generate log files up to GBs values and as files this size matter, keeping old log files will than take unnecessary disk space.

SAP PROCESS MINING BY CELONIS RELEASES

SAP Process Mining by Celonis gets periodic new builds that may deal with customer requested new features, tuning, customization, new web browser compatibility, bugfixes or up to date security

standards. As such, we always recommend upgrading SAP Process Mining by Celonis to the latest version. As the upgrading procedure describes, old SAP Process Mining by Celonis production releases (basically the install kits) should not be deleted right away, but kept as backup versions in case the customer experiences problems with the newest release (the use of older web browsers for example). At some point in time, these old versions of SAP Process Mining by Celonis will take unnecessary disk space.

As we do not encourage you to delete anything unless you need to (you may not know when you will need something from the old files), we will make the following recommendations for an archiving strategy:

- Archive (.zip, .tar.gz, etc.) old log files once per month and thus keeping in the "logs" folder only log files newer than 30 days.
- Move all SAP Process Mining by Celonis old software installer releases inside an "Old" folder and thus keeping only the last two releases in your current SAP Process Mining by Celonis installation path (outside the "Old" folder).
- IMPORTANT NOTE: Please consult the upgrading procedure in order to be aware of all the files that are modified during upgrading to a new release – they should all be part of the old SAP Process Mining by Celonis version archiving procedure. Usually we are taking care of this automatically, but there may be special releases at some point in time that will require some extra steps.
- Move all old archives to a remote location in order to free up unnecessary used disk space on the current server.

All Celonis recommendations should be treated as such and you should always consider first the digital files management policies already established by your company, if they are available.

BACKUP AND RECOVERY –
BACKUP APPLICATION METADATA

In order to offer the best possible Process Mining experience with the SAP HANA Database, SAP Process Mining by Celonis is storing metadata in a datastore powered by H2. The metadata contains all configuration of SAP Process Mining, that is done via the web frontend. This includes users, groups, datamodels, analyses and system settings. Please note, that only the configuration of datamodels and analyses is stored in the H2 datastore – the data to be analyzed always resides on HANA.

For this datastore there is an out of the box predefined backup policy inside SAP Process Mining by Celonis.

The datastore is then automatically backed-up each night to the "*appfiles/backup*" folder in the root of the SAP Process Mining by Celonis Server install path. We highly recommended to keep a remote backup of this folder. This will allow the possibility to restore the application metadata in case a disaster will occur.

The backup is set to be performed online so you do not have to worry about any SAP Process Mining by Celonis downtime during this procedure.

The backup is running automated every night at exactly 3am (while the application is running) and additionally whenever the SAP Process Mining by Celonis service is started. All backups taken are full backups for all application metadata.

RECOVERING FROM A BACKUP

The backup files follow the naming convention "db-backup-<yyMMddHHmmss>.h2.db" with the timestamp indicating when the backup was started. Technically, this file is a zipped version of the full application database. To restore the backup, please do the following steps:

- Identify the backup you want to restore. Use the timestamp of the backup to identify the backup you want to restore.
- Rename the backup file – append the file ending .zip to make Windows recognize the file as a zip file. After this, the file name should be db-backup-<yyMMddHHmmss>.h2.db.zip.
- Extract the db-backup-<yyMMddHHmmss>.h2.db.zip file. It should contain a single file called with the extension *.h2.db*
- Shut down the application server. Go to the services.msc, identify the service (Default: SAP Process Mining by Celonis) and stop it.

- Identify the path where the active application database is located. Open the config.properties configuration file (or config-custom.properties if you have customized the application database location). Identify the property "database.url=jdbc:h2:DATABASE_PATH"
- The DATABASE_PATH points to a file with file extension *.h2.db*. This file should have the same name as the file contained in the zip archive db-backup-<yyMMddHHmmss>.h2.db.zip, which you extracted earlier.
- Create a backup of the DATABASE_PATH file. To achieve this, copy the DATABASE_PATH file to the backup folder and rename it accordingly.
- Copy the previously extracted file with the *.h2.db* extension to the location of the DATABASE_PATH file and overwrite the original file.
- Start the application server service using the services.msc console.
- Wait for the application server to be started completely.

As a result, your backup is restored.

BACKUP AND RECOVERY -
BACKUP ANALYTICS DATABASE (HANA)

The SAP Process Mining by Celonis Analytics Database on SAP HANA should be backed-up on a regular basis, preferably to a remote location. You can use for your reference the Backup Policy already established by your IT Department or if such a thing is not available, you can set one up that will best suit your needs. This will allow the possibility of an Analytics Database recovery in case a disaster will occur.

The SAP HANA has built-in tools that can be used for backing-up the Analytics Database. Please refer to the SAP HANA documentation (http://help.sap.com/hana_platform).

When establishing a SAP Process Mining by Celonis Analytics Database backup policy you must take into consideration at least the following topics:

- HANA database size.
- Backup destination and available backup storage space.
- The connectivity and thus the speed and throughput available from the Analytics Database Server to the Backup destination device or medium.
- Database's high usage time frames.
- Regular Schedulers or Cron Jobs that were set-up together with our Data Scientist technical personnel during the Data Integration part of the SAP Process Mining by Celonis installation.

MONITORING THE APPLICATION SERVER

It is a best practice to constantly monitor the Application Server. Besides the initial minimum system requirements that are provided during the SAP Process Mining by Celonis installation, additional resources must be always available, especially if the SAP Process Mining by Celonis Application Server is sharing resources with other 3rd party software.

Unless specified otherwise, an operating system gets periodic updates that will increase its Disk Storage space necessity overtime. Additional Disk Storage space is also required so that the operating system can create periodic restore points. Extra Disk Storage space is to be considered if additional software, modules, libraries or features will also be installed on the SAP Process Mining by Celonis Application Server machine in the near future. These are just a few cases that will make you pay attention to Disk Storage space as other factors can influence this as well.

RAM and CPU resources are also very important. Insufficient RAM and / or CPU power may lead to very poor server performance, hang-ups or can even freeze entirely the Application Server. Most applications are making use of these two resources in a dynamic way (only when necessary), so it is very important to scale them properly.

Network throughput must be taken into account if the SAP Process Mining by Celonis Application Server is shared with other 3rd party software that require highly intensive and regular networking data transmission.

Taking care of everything at start is quite easy, but this is not enough in a productive environment, especially in large IT infrastructures. In such cases (but not only) you should consider using (centralized) server monitoring techniques. There are a lot of tools and features that can provide you with real-time updates regarding all server resources, depending on the server's operating system and IT infrastructure. Having access to this kind of information in real-time will help you avoid unnecessary problems related to server overburdening.

INCLUDED MONITORING FUNCTIONALITY

JAVA MANAGEMENT EXTENSIONS (JMX)

Apart from the Operating System's built-in monitoring capabilities, SAP Process Mining by Celonis supports Java Management Extensions standard monitoring. To enable JMX, you have to configure SAP Process Mining by Celonis accordingly by adding the following Java properties on startup. Please note that the application needs to be restarted in order to activate those changes.

-Dcom.sun.management.jmxremote
-Dcom.sun.management.jmxremote.port=<port>
-Dcom.sun.management.jmxremote.ssl=false
-Dcom.sun.management.jmxremote.authenticate=false

The listed properties enable you to monitor the application remotely and unauthenticated on the configured Port *<port>* via HTTP. More information on JMX monitoring and advanced options/parameters (e.g. for setting up monitoring via HTTPS and using authentication) can be found here:
https://docs.oracle.com/javase/8/docs/technotes/guides/management/agent.html
Adding Java startup properties can either be done via the Commons Daemon Service Manager on Windows or by adjusting the startup script (start.sh) accordingly on Linux (see screenshots below).
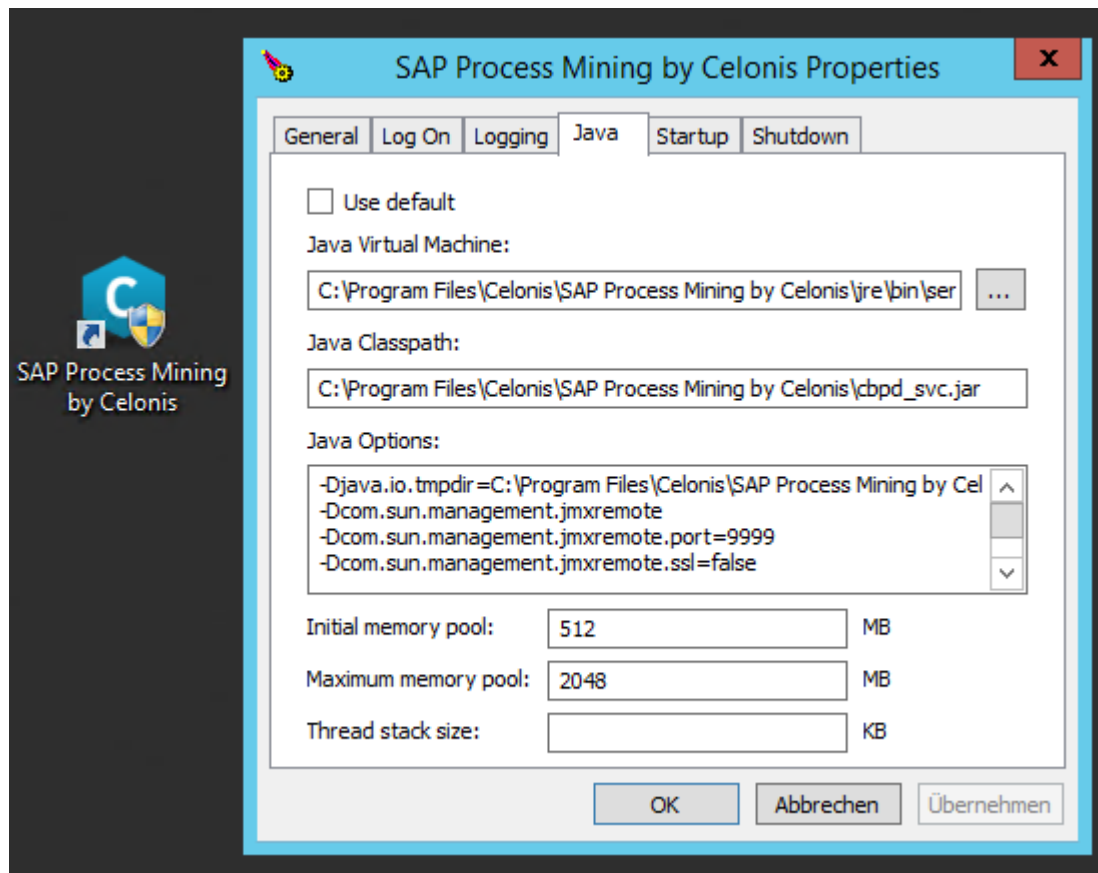
Adding Java startup options on Windows

```bash
#!/usr/bin/env bash

cd "$(dirname "$0")"

JSVC="./jsvc/jsvc"
CLASSNAME="de.celonis.pm.CBPDDaemon"
export JAVA_HOME="$PWD/jre"
export JAVA_OPTS="-Dcom.sun.management.jmxremote -Dcom.sun.management.jmxremote.port=9999 -Dcom.sun.management.jmxremo
te.ssl=false -Dcom.sun.management.jmxremote.authenticate=false"


${JSVC} $JAVA_OPTS -outfile $PWD/logs/stdout -errfile $PWD/logs/stderr -cp ./cbpd_svc.jar -cwd $PWD -pidfile $PWD/run/
celonis4.pid ${CLASSNAME}
```

Adding Java startup options on Linux

WILY INTROSCOPE

The application can also be integrated to be monitored with Wily Introscope. More information on Wily Introscope and its setup can be found in SAP Note 797147 (https://service.sap.com/sap/support/notes/797147).
To configure SAP Process Mining by Celonis for Wily Introscope integration, add the following Java properties on startup using the same method as for JMX above.
-Dintroscope.agent.name=<uniqueName>
-javaagent:<wilyInstallDir>\Agent.jar
-Dcom.wily.introscope.agentProfile=<wilyInstallDir>\core\config\IntroscopeAgent_tomcat.profile
-XX:-UseSplitVerifier

<wilyInstallDir> is the path where you installed/extracted the Wily Introscope Agent.
There is no specific preconfigured agent profile for jetty, but you can reuse the tomcat profile. In this IntroscopeAgent_tomcat.profile, you need to configure at least the following properties, so that the agent will be able to find the enterprise manager installation:
introscope.agent.enterprisemanager.transport.tcp.host.DEFAULT=localhost
introscope.agent.enterprisemanager.transport.tcp.port.DEFAULT=6001

MONITORING SAP HANA

As SAP Process Mining by Celonis is using the power of SAP HANA to deliver its high performance analyses, the underlying SAP HANA analytics database should be monitored as well. When SAP Process Mining by Celonis users are configuring analyses in the frontend and then refreshing data, the application server transforms these requests into SAP queries that are then sent to the database server.

A detailed description of monitoring queries and performance on SAP HANA is out of scope of this Operations Guide. Please refer to the SAP HANA documentation for this (http://help.sap.com/hana_platform).

LOGGING AND TRACING

You can always make use of the SAP Process Mining by Celonis Server logging system. The log files generated by the SAP Process Mining by Celonis Server are located in the "logs" folder that resides in the root of the SAP Process Mining by Celonis Server install path. These logs can offer you information related to:

- Starting and Stopping the SAP Process Mining by Celonis Application Server.
- Exceptions of SAP Process Mining by Celonis
- Queries and their timing
- Other information related to SAP Process Mining by Celonis Server.

SAP Process Mining by Celonis offers the possibility to configure different logging levels. The logging levels can be configured from the "config-custom.properties" file. For this guide, the most significant information is that you can assign different levels to each package: "INFO", "WARN", "ERROR", "DE-BUG". Please note that changes to the logging parameters will require a restart of the SAP Process Mining by Celonis to take effect.

In addition to the SAP Process Mining by Celonis Server logging, SAP Process Mining by Celonis logs query and application exceptions separately and makes them accessible through the application's web interface (System Settings – Exceptions). Here short-term exception information is displayed which can be very helpful when debugging applications.

NOTE: The information gathered by each of the logging systems should be used only for debugging purposes. Tracing is currently only supported for CPML.

SOFTWARE CHANGE MANAGEMENT

New releases and support packages are announced via the SAP service marketplace 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.

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 SAP Process Mining by Celonis; for usage instructions, please refer to the SAP Process Mining by Celonis manual. Technical configurations can be copied on a file level.

SOFTWARE UPDATE PROCEDURE

The SAP Process Mining by Celonis software is shipped as an installer. The installer type depends on the Operating System it's going to be installed on.

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 particular release.

There will be a short downtime of the application for the duration of steps 2 to 5.

General update procedure:

1. Download the new release from the SAP service marketplace.
2. Stop the SAP Process Mining by Celonis Application Server and close all opened Windows if you are using a Windows OS.
3. Run the installer.
4. The installer will automatically bring SAP Process Mining by Celonis to the latest version.
5. Start the SAP Process Mining by Celonis Application Server.
6. You have successfully finished the update!

Information: If you need the check the version of SAP Process Mining by Celonis while the software is not running, you can do so by viewing the *config.properties* file in the root directory of the SAP Process Mining by Celonis application. While the software is running, you can access "About" from the application home screen itself to view the version.

SUPPORT DESK MANAGEMENT

Support for SAP Process Mining by Celonis is delivered jointly by SAP and Celonis. 1st and 2nd level support services for end users are provided by SAP, 3rd level support services are provided by Celonis. In case 3rd level support is necessary, tickets are automatically forwarded to Celonis.

Support is available 24x7.

To contact support, you can create an issue in component **XX-PART-CEL**.

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

- Used browser including version (e.g. IE 11)
- Installation which you are trying to access (in case there is e.g. Dev and Prod)
- URL used to access the system (sometimes, there can be more than one URL to reach a single installation. This will also help to identify the installation you are trying to access)
- Username used to logon
- Screenshot of the error message/situation
- Stacktrace of the error message (if any) – accessible via System Settings -> Exceptions

Before contacting support, make sure you have had a look at the manual (accessible via "Help" in the software) and related SAP notes for component XX-PART-CEL.

In case you need to escalate your ticket, you can write a mail to sap_global_partner_support@sap.com and/or contact SAPs Customer interaction Centre (CIC). More information on the CIC can be found here: https://wiki.wdf.sap.corp/wiki//display/ProcessControl/CIC+and+CIM.

TROUBLESHOOTING

- Application not accessible:
  - o Are you connected to the corporate network?
  - o Do you use a proper (up-to-date) Web Browser?
  - o Is the URL you are trying to access correct?
  - o Is the (Database) Server running?
  - o Is the SAP Process Mining by Celonis Application Server running? (For your reference you can check the "SAP Process Mining by Celonis as Operating System Service" chapter of this guide)
  - o Login failed:
    - Is the Password correct?
    - Is the User name correct?
    - Does the User Account exist?

- Analysis is empty, no data is showing
  - o Are the permission rights set correctly?
    - For the Analysis?
    - For the Data Model?
  - o Was the Analysis saved after modification?
  - o Were all selections reset?
  - o Are the permanent filters deactivated?
  - o Is the database connection successful? Is HANA available?
  - o Have you checked for any errors in data integration?

- Document/Data Model disappeared?
  - o Were the permissions withdrawn?
  - o Was any restore performed with an older backup? (For your reference you can check the "Backup and recovery - Backup Analytics Database (HANA)" chapter of this guide)