



Operations Guide | PUBLIC

Document Version: 1.4 – 2023-12-01

Operations Guide for the Production Connector 1.4

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1 Getting Started


This guide provides a starting point for managing, maintaining, and running your SAP applications optimally. It contains specific information for various tasks and lists the tools that you can use to implement them. This guide provides references to the documentation required for these tasks, such as the *Installation Guide*.

Caution

This guide does not replace the daily operations manual that we recommend that customers create for their specific production operations.

1.1 Important SAP Notes

The following SAP Notes are important for the correct use of the *Production Connector*:

SAP Note Number	Title	Description
3370244 	Release Installation Note for Production Connector 1.4	Initial information for the installation of the Production Connector 1.4 for SAP Digital Manufacturing

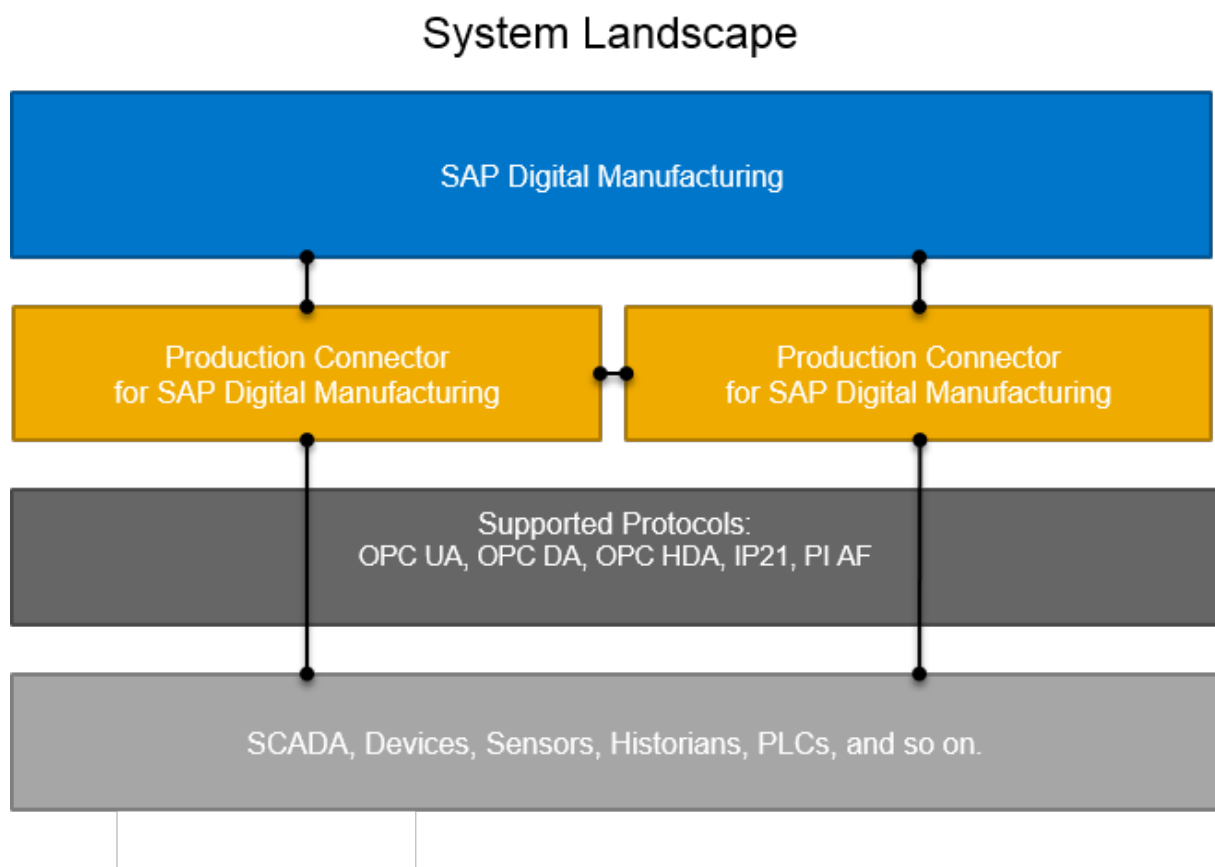
2 Technical System Landscape

2.1 System Landscape Information

The Production Connector for SAP Digital Manufacturing enables the integration of SAP Digital Manufacturing with devices and equipment on the shop floor, that is, the physical world in the production environment. The Production Connector is a .NET application that runs on Microsoft Windows platforms. It is typically installed in the same network as the production systems you want to integrate.

The Production Connector allows you to access production data and services provided by various sources and technologies from the shop floor while using applications in SAP Digital Manufacturing.

The following figure provides an overview of how the Production Connector is embedded in the system landscape:



You have to create the configuration elements for connections and data exchange with the shop floor directly in SAP Digital Manufacturing. After the deployment is executed in SAP Digital Manufacturing, all required configuration elements are created in the Production Connector, and the data flow between the systems on the shop floor, the Production Connector and SAP Digital Manufacturing is established. You cannot display or

change the configuration elements in the Production Connector itself; only the agent instances are listed in the Control Center.

Users create agent instances in SAP Digital Manufacturing by maintaining shop floor systems or defining production processes. Agent instances refer to Windows executable processes and are configured to run as individual Windows services.

2.2 Supported Scenarios

The Production Connector supports three types of scenarios:

- **Query scenario**
SAP Digital Manufacturing (cloud, acting as client) sends a query via the Production Connector to the data source in order to browse, read, or write tags.
- **Notification scenario (subscription scenario)**
The Production Connector subscribes to tag value changes in the data source according to the configuration in cloud. A change event from the data source is processed by the Production Connector and is forwarded to the destination system that you have configured in the cloud.
- **Orchestration scenario**
Production processes that have been modelled in the Production Process Designer can be deployed and executed in the Production Connector. These processes orchestrate activities between devices on the shop floor, also incorporating the query scenario and notification scenario mentioned before.

2.3 Related Documentation

The following table lists where you can find more information about the technical system landscape:

Topic	Guide/Tool	Quick Link
Technical configuration	Production Connector Installation Guide	You can find the Installation Guide on the product page: https://help.sap.com/docs/PRODUCTION_CONNECTOR
Security	Production Connector Security Guide	See the product page.
Released SAP products	Product Availability Matrix	https://userapps.support.sap.com/sap/support/pam?hash=pvnr%3D73554900100900006994

3 Monitoring of the Production Connector

The Production Connector is a .NET application that runs on Microsoft Windows platforms.

3.1 Alert Monitoring

Proactive, automated monitoring is the basis for ensuring reliable operations for your SAP system environment. SAP provides you with the infrastructure and recommendations needed to set up your alert monitoring, so that you can recognize critical situations as quickly as possible.

3.1.1 Monitoring Installation and Setup

Local monitoring

The *Production Connector Control Center* is the main user interface for administrating the Production Connector. This console can be regarded as a monitoring application for all the processes that you set up in the Production Connector. You can find the Control Center in the Windows Start Menu under **SAP Production Connector > Control Center**. The *Production Connector Control Center* can also be started by a user with no administrator privileges. It runs in display mode then, but still allows access to logs and monitoring the status of the agent instances.

3.2 Detailed Monitoring and Tools for Problem and Performance Analysis

3.2.1 Trace and Log Files

The following table describes important log and trace files for installation and operation of the Production Connector.

i Note

In the following sections, some directories or file names are specified by angle brackets, as in the following examples.

- <PRODCONDIR>: This refers to the Production Connector installation directory, for example, `C:\Program Files(x86)\SAP\Production Connector`
- <INSTANCE>: This refers to the name of an agent instance.

- <SAPSETUP>: This refers to the directory in which the SAP Setup tool installs itself during installation of Production Connector, by default C:\Program Files(x86)\SAP\SapSetup.
- <LOCALDATA>: This refers to the user-specific directory where data for non-administrator users is stored. You can access this directory under %LocalAppData%\SAP\ProdCon.

Component	Content	File	Path
Agent instance log	All logging information is contained in an agent instance-specific <i>Windows Event Log</i> . You can export it to a spreadsheet format (see below), or access it through the <i>Control Center</i> or the <i>Windows Event Viewer</i> .	Windows event logs assigned to Production Connector agent instances are named SAP_<log identifier>. Refer to the <i>Control Center of the Production Connector</i> or to the <i>Event Log Management</i> tool to see which log is assigned to a specific agent instance.	Not applicable
Exported agent instance log	Exported log information from agent instances in a readable format (CSV), using a configurable character as column separator. You can define the column separator in the Settings > Log Display dialog of the Control Center.	<INSTANCE>_*	The log file can be exported to a directory selected by the user. This allows the display user to store the file in a folder which does not require administrator privileges.
Windows Event Log	All warning and error log entries are sent additionally to the Windows Event Log application with the source set to the agent instance name.	Not applicable	Not applicable
Control Center	Logs from the Control Center with no relation to an agent instance	ControlCenter_*.csv	<PRODCONDIR>\Logs for administrator users <LOCALDATA>\Logs for non-administrator users (display users)
Main Service	Logs from the main service hosting the configuration services, management services, and the cloud services.	ProdConMainService_*.csv	<PRODCONDIR>\Logs

Component	Content	File	Path
Main Service	The Audit Log records successful and unsuccessful service calls from the cloud.	ProdConMainService.Audit_*.csv	<PRODCONDIR>\Logs
Installation	Logs of the Production Connector that are created during installation or upgrade	ProdConInstallUtility_*.csv	< PRODCONDIR>\Logs
Installation	Logs written by SAP setup during installation or upgrade	NwSapSetup*.log	<SAPSETUP>\LOGs
Migration	Logs that are created during upgrades or during migration of configuration data from SAP Plant Connectivity	ProdConMigrationUtility_*.csv	<PRODCONDIR >\Logs\

3.2.1.1 Agent Instance Log

Messages from agent instances are written to an agent instance-specific Windows event log. They are named `SAP_<log identifier>`, where the log identifier is a four-character sequence of capital letters and numbers, for example A3XU. To view agent instance log entries, use the *Configure Production Connectivity* app in SAP Digital Manufacturing or in the *Control Center*.

You can also use the *Windows Event Viewer* to access the log.

i Note

The message text of a log entry displayed in the *Windows Event Viewer* also contains technical information required for the log display in the *Control Center*.

In the start menu of your **Windows** system, you can find the program **SAP Production Connector > Event Log Management**, which lists all Windows event logs that are assigned to agent instances. The program also administrates the logs of Plant Connectivity if this is installed on the same computer. You can sort the list by the event log name or the agent instance name by clicking on the corresponding column header. The list shows administrative information for each log and allows you to delete orphaned logs that are no longer assigned to any agent instance.

i Note

If a high number of orphaned event logs exists, the dialog for administrating event logs may start up slowly. In this case, you can initiate the cleaning up of orphaned logs through a Windows console running in administrator mode: Change to the system folder of the Production Connector (typically `C:\Program Files (x86)\SAP\ProductionConnector\System`) and run the following command:

```
.\ProdConEventManager.exe /cleanup.
```

The cleanup task will run in the background. You will not see a system reaction during this operation. A dialog box will appear when the operation is completed.

You can configure the severity of the logged messages in SAP Digital Manufacturing by choosing the *Configure Production Connectivity* app. Then go to the *Plant Connectivity/ Production Connector* tab of the Production Connector instance. (See: https://help.sap.com/docs/SAP_DIGITAL_MANUFACTURING/76070b83a9954174b76a3411ad31f034/56cfdeae3f704ec798e903d3bfca9a25.html.)

If you set the log level to *Verbose* or *Information*, you might get a lot of log entries. Depending on the settings of the Windows event log, older log entries might be forced out or log archives might be created. Consider the log level of the logged messages when choosing the log size. The Event Log Manager for the Production Connector also manages the agent instance logs of a parallel Plant Connectivity installation.

Note

The Production Connector uses the lifecycle management of the *Windows Event Log* to prevent uncontrolled growing of the log. To change the log settings, navigate to the *Log* tab of the agent instance and choose *Manage Windows Event Log* to start the *Windows Event Viewer* for the log that is assigned to the agent instance. Choose *Properties* from the context menu of the log to access the settings. By default, logs for the Production Connector agents are created with a log size of 4 MB and older entries are overwritten if the log is full. About 2000 messages per MB log size can be stored in a Windows event log.

If you want to display a log in the Control Center with lots of messages, it can take a long time until the log is displayed. In this case it is recommended that you export the log as a `csv-file` and open the log in `Excel`, for example.

3.2.1.2 Windows Event Viewer

If you have issues for which you cannot find any information in the agent instance log, it is recommended that you check the logs in the *Windows Event Viewer* in the *Application* section, under **Start > Run** and then enter `eventvwr`.

3.2.1.3 Control Center Log

Exceptions that occur in the Control Center during usage by administrators are logged by default to file `ControlCenter_*.csv` in folder `<PRODCONDIR>/Logs`. No further activation of this log is required.

For display users without administrator privileges, this log is written to `<LOCALDATA>\Logs`.

3.2.1.4 Main Service Log

In the main service log, you can find all log information related to the main service and the services hosted by it, the configuration services, and the cloud services. This log is normally found in your `<PRODCONDIR>\Logs` directory.

Security-relevant information is logged to the `ProdConMainService.Audit_*.csv` log file.

3.2.1.5 Installation Log

After installing or upgrading the *Production Connector*, you can find all Production Connector related issues in the *Installation Log*. The file `ProdConInstallUtility_[yyyy.mm.dd_hh.mm.ss].csv` (the values in brackets denote the installation date and time) contains information about the installation of the Production Connector components.

General installation issues can be found in the logs written by `SAP Setup`. You can access these logs under `<SAPSETUP>\LOGs`.

If SAP Support requests the installation logs in case of installation errors, follow the instructions given in SAP Note [3244374](#).

3.2.1.6 Migration Log

When you upgrade the Production Connector or you install it for the first time and take over configuration data from Plant Connectivity, the migration utility tool is started. It checks whether the configuration needs to be adjusted to the current version of the Production Connector. Any messages will be written to the Migration Log `Prod ConMigrationUtility_[yyyy.mm.dd_hh.mm.ss].csv`. This log is normally found in your `<PRODCONDIR>\Logs` directory.

3.2.2 Other Important Problem Analysis and Monitoring Tools

Depending on the data source you are using, various tools are available to monitor the data flow. One example would be the *OPC Analyzer* from the OPC Foundation (<http://www.opcfoundation.org>), which can be used to rule out any problems that originate from the data source. For more information about other monitoring possibilities, see the documentation of your specific data sources for other monitoring possibilities.

3.2.3 Data Growth and Data Archiving Monitors

There is no specific monitor for data growth. However, if you have set the log level in an agent instance to *Information* or *Verbose*, you should limit the log size by adapting the log settings in the *Windows Event Viewer*. If you want to archive your logs, you can use the export functionality from within the log view.

The notification message queues are another possibility for data growth when using notifications. If the notifications are not processed by their destination system with good performance, the message queues will grow. Notification messages are kept in the memory of the agent instance. A notification message queue can take up to 1000 notification messages, before the agent instance is stopped due to a queue overflow. Notification messages will be lost when the agent instance stops.

i Note

Configuration for message queues in the cloud is not possible. Therefore, the message storage method in memory and a maximum queue size of 1000 messages are set by default.

3.2.4 Certificate Overview

You can monitor your configured certificates in the certificate overview, which you can start in the Production Connector by choosing the [Certificate Overview](#) button. In the certificate overview, you can identify missing certificates and certificates that have already expired or that are close to expiration.

→ Recommendation

SAP recommends selecting the renewal times of the certificates in a way that they coincide with planned maintenance dates. This way, you can keep system downtimes to a minimum.

The certificate overview also shows the automatically generated certificate that is used for secure access to the configuration through the main service. It has a validity of one year. If this certificate is due for renewal, restarting the main service will trigger renewal.

4 Management of the Production Connector

4.1 Starting and Stopping

The Control Center of the Production Connector controls agent instances locally, showing each agent instance and its current state. You can start and stop your agent instances there. Additionally, the agent instances can be started using the [Configure Production Connectivity](#) app in SAP Digital Manufacturing.

4.2 Software Configuration/ Administration Tools

In the Control Center of the Production Connector, you can perform the following administration and monitoring tasks:

- Set up and administrate the integration of the Production Connector with SAP Digital Manufacturing
- Monitor the status of the agent instances that have been created from SAP Digital Manufacturing
- Monitor the message queues for notification messages
- Monitor the status of certificates configured in the Production Connector

4.3 Backup and Restore

Creating Backups

SAP Digital Manufacturing provides the functions for backing up and restoring the Production Connector configuration. Configuration backups are created automatically when configuration changes are deployed. You can restore the most recent state of the configuration by executing the corresponding function in the [Configure Production Connectivity](#) app.

For diagnostic purposes, you can create a local backup file through the menu item [Get Support from SAP](#) or through the [Configure Production Connectivity](#) app in the cloud.

Restoring Backups

If it is necessary to restore a backup of the Production Connector configuration, you should first try to restore the data backup created in the cloud.

In exceptional cases, you can also restore the data backup using the Control Center.

i Note

Restoring the configuration backup using the Control Center can lead to inconsistencies between the configuration in SAP Digital Manufacturing and the Production Connector, especially if you import an obsolete data backup or the data backup from another host. Therefore, only use this function in exceptional cases and not to transfer configurations from one computer to another.

To restore a backup in the Control Center of the Production Connector, proceed as follows:

1. Choose ► [Control Center](#) ► [Restore Backup](#) ►.
2. In the following dialog steps, select the file with the data backup.
This can be one of the automatically generated backups, a backup that you have downloaded from the cloud, or a backup that you previously created using the menu item [Get Support from SAP](#). These files have the extension `.pbf`.
3. If the file is saved with a password, the system prompts you to enter the password. Enter this password.
4. Confirm that you want to restore the backup.

When you restore the backup, the settings that you made for integration with the cloud are not changed. The assignment of the Production Connector installation to the original cloud tenant is retained.

If the connection to the cloud is restored, you should restore the current backup from the cloud **before** deploying further configurations. This synchronizes the configurations in the cloud and in the Production Connector.

4.4 Periodic Tasks

You should regularly check the expiration dates of the certificates that are configured in the Production Connector and of those that come from third party systems. You use the certificate overview in the Control Center to monitor the validity of all these certificates.

The Control Center issues an error message on startup if the configuration references expired certificates or certificates that are close to expiry. By default, you will receive the first error message if the time until expiry is less than 30 days. The expiration warning also includes certificates that are configured as trusted certificates or as certificates from trusted issuers. Once you have renewed such expired certificates, you should remove them from the pertaining folders to avoid permanent error messages.

5 Cloud Integration

The Production Connector is the only supported connectivity layer between SAP Digital Manufacturing and the shop floor. The Production Connector has taken on the role of cloud integration of SAP Plant Connectivity. You can connect instances of the Production Connector with SAP Digital Manufacturing applications to enable the information exchange between, on the one hand, production related, locally installed systems or Internet-enabled devices, and on the other hand, business applications in **SAP Digital Manufacturing**.

For more information about the cloud integration and how to establish the connections between SAP Digital Manufacturing, the Production Connector, and the Cloud Connector, see the *Cloud Integration Guide* under [Introduction](#).

For more information about preparing the migration from SAP Plant Connectivity to the Production Connector, see the *Installation Guide* under [Preparing the Migration from SAP Plant Connectivity](#).

6 User Management

Changing the cloud configuration of the Production Connector and starting and stopping the agent instances can only be done by a Windows user who has administrator privileges. A Windows user without administrator privileges can start the Control Center in display mode only and has access to the configuration and the logs. The non-administrator user is neither entitled to change the configuration nor to start and stop agents.

7 Software Change Management

The Production Connector is installed locally using the `SAP Setup` installation tool.

Support Packages and patches for the Production Connector can be downloaded from the following location: [https:// launchpad.support.sap.com/#/softwarecenter](https://launchpad.support.sap.com/#/softwarecenter). They are included in the complete product installation using **SAP Setup**. The Production Connector support packages and patches are cumulative and can be installed over an existing installation as an upgrade.

All agent instances and the Control Center have to be stopped during installation. You should expect a downtime of 5 to 10 minutes per Production Connector installation.

8 Troubleshooting

Troubleshooting involves examining agent instances and Windows event logs as described below. For more information, see the previous section *Monitoring of the Production Connector*.

8.1 Agent Instance Logs

To troubleshoot agent instances in the Control Center of the Production Connector, proceed as follows:

1. Select the desired agent instance.
2. Choose the *Log* tab and click *Refresh*.
3. If the information is insufficient to determine the problem, do the following:
 1. Set the log level in **SAP Digital Manufacturing** to *Verbose*. Changing the log level is possible without stopping the agent first.
 2. Reproduce the problem.
 3. Examine the log.

i Note

If an agent instance does not create log entries, even though the log level has been set to *Verbose*, your computer might need a restart to activate pending changes in the assignment between the event log and the agent instance.

If the *Log* tab in the Control Center does not show an assigned event log in the status bar, run the *Migration Utility* to renew the assignment. Again, a reboot might be needed to activate changes in the log assignment.

8.2 Windows Event Logs

If the log of the agent instance does not indicate the problem, do the following:

- Open the **Windows Event Viewer** and check errors or warnings in the Application or System event logs that correlate to the agent instance process log data.
- Check errors or warnings from other products associated with the problem.

8.3 Main Service and Cloud Connector Logs

To analyze connectivity issues between SAP Digital Manufacturing and the Production Connector, you can access all relevant logs of the main service and of the Cloud Connector through the *Troubleshooting* tab in the Control Center.

8.4 DCOM Troubleshooting

Problems using certain agents can result if DCOM is configured incorrectly. DCOM is used by OPC DA, and other OPC technologies before OPC UA. Correct DCOM configuration is essential for successfully operating the Production Connector using these agents. For more information, see <http://www.opcfoundation.org> ↗

▶ *Downloads* ▶ *White Papers* ▶ *OPC, DCOM and Security* ▶

9 Support in Case of Problems

9.1 Remote Support Setup

The Production Connector can be supported remotely using any product that allows remote connection to the local Windows desktop. With this approach, SAP support can access the Control Center, as well as Windows event logs and performance monitor.

For analysis purposes, it is sufficient to provide SAP support with a normal *Windows user* that does not have administrator privileges. The display mode of the Control Center allows the logs and message queues to be viewed and the configuration to be exported; it is not possible to change the configuration or start and stop agents.


9.2 Problem Message Handover

If a Production Connector problem cannot be resolved, an incident can be submitted to SAP Support using the following component:

Component	Description
MFG-DM-PRC	Component for Production Connector problems

You can facilitate incident processing by SAP Support by providing them with the following artifacts that help analyze the issue: Use the menu ► *Help* ► *Get Support from SAP* ► in the Control Center to easily collect these artifacts. If you want to collect them manually, consider the following files:

- The **system summary** includes the system environment and the list of installed files with their versions.
- The **backup file** allows examination of the configuration in SAP's reference systems. Do not forget to provide SAP Support with the password. Use a separate communication channel for sending the password to SAP, for example, e-mail.
- The **SAP Setup logs** allow you to analyze installation problems.
- The Production Connector *installation logs* help you to identify installation and migration issues.
- The *logs of agent instances* can be helpful to determine the root cause of application errors.

If the Control Center could not be started at all, there might be installation errors. In this case, collect the installation logs following the instructions in SAP Note [3244374](#) .

10 Additional Notes

Ensure Configuration Consistency of the Production Connector

The Production Connector for SAP Digital Manufacturing may only be configured and controlled using the Control Center and applications provided in SAP Digital Manufacturing.

SAP assumes no responsibility for maintenance or liability for configurations that were created by unintended use of the configuration and data exchange Web services or by changing the Production Connector configuration files in the C:\ProgramData folder directly.

Interface Stability

The APIs used for configuring and operating the Production Connector are not intended for public use outside SAP Digital Manufacturing integration.



SAP reserves the right to change the interfaces for configuration and data exchange between the Production Connector and SAP Digital Manufacturing at any time and without prior notice.

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