



GE Digital

GE Digital APM APM Connect

V4.3.0.5.0

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About This Document

This file is provided so that you can easily print this section of the GE Digital APM Help system.

You should, however, use the Help system instead of a printed document. This is because the Help system provides hyperlinks that will assist you in easily locating the related instructions that you need. Such links are not available in a print document format.

The GE Digital APM Help system can be accessed within GE Digital APM itself or via the GE Digital APM Documentation Website (<https://www.meridium.com/secure/documentation/WebHelp/Home.htm>).

 **Note:** If you do not have access to the GE Digital APM Documentation Website, contact GE Global Support (<https://www.ge.com/digital/asset-performance-management>).

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APM Connect System Requirements

License Requirements

APM Connect has a three-tier license system that enables the APM Connect Framework. One of the following license types is required to take advantage of the APM Connect functionality:

- APM Connect Basic
- APM Connect Plus
- APM Connect Studio

 **Note:** APM Connect Studio contains numerous libraries that integrate with third-party products, such as GeoRaster. Questions regarding linking these libraries with GE Digital APM should be directed to a member of the GE Digital Professional Services department on an individual basis. Specific requirements of third-party products, such as additional licensing, is outside the scope of APM Connect Studio support.

Additional Licensing

The following additional licenses are required to take advantage of the SAP Adapters:


- **SAP Integration Interfaces:** Enables the SAP Equipment, Functional Location, Work History, and Notification Creation Adapters.
- **SAP Technical Characteristics:** Enables the SAP Technical Characteristics Adapter.
- **SAP Work Management:** Enables the SAP Work Management Adapter.

The following additional license is required to take advantage of the SAP PI Adapters:

- **SAP Process Integration:** Enables the SAP PI Adapters.

The following additional license is required to take advantage of the Maximo Adapters:

- **Maximo Interfaces:** Enables the Maximo Equipment, Functional Location, Work History, Service Request, and Work Order Generation Adapters.

 **Note:** There is no additional license required to take advantage of the APM Connect Data Loader functionality.

Additional Components Required

In addition to the basic GE Digital APM system architecture, your system must also contain the following components:

Minimum Software Requirements

- Windows Server 2008 R2
- Windows Server 2012
- Java SE 8 Update 131 or higher
- The third-party components listed in the following table

Third-Party File Name	Version	Where You Can Obtain It
edtftpj.jar	Version: 2.0.5	http://enterprisedt.com/products/edtftpj/
ftp4j-1.5.1.jar	Version: 1.5.1	http://www.sauronsoftware.it/projects/ftp4j/
jboss-serialization.jar	Version: 1.0.3.GA	http://serialization.jboss.org/downloads
trove.jar	Version: 1.0.2	http://trove4j.sourceforge.net/
xom-1.2.7.jar	Version: 1.2.7	http://www.xom.nu/

Recommended Software

- Windows Server 2012 R2
- Windows 7 64-bit OS

Browser Requirements


Web Browser	Recommended or Supported
Microsoft Internet Explorer 11	Recommended
Mozilla Firefox 13 to 28	Recommended
Microsoft Internet Explorer 10	Supported
Apple Safari 5 to 7	Supported
Google Chrome 22 to 34	Supported

Minimum Hardware Requirements

- Four Processor Core, 2.0GHz
- 8 GB RAM
- 100 GB Free Disk
- 100 MB Network Interface

Recommended Hardware

- I5 Processor, 2.0 + GHz
- 32 GB RAM
- 300 GB Free Disk
- 1 GB Network Interface

 **Tip:** APM Connect is input and output intensive, and requires a lot of storage space. Faster storage is the best way to improve performance.

Depending on how your system is configured, these requirements may not be sufficient. Parameters that affect the hardware requirements include the number of users, modules purchased, database size, and other factors that can vary from one customer to another. For help refining your specific system requirements, contact GE Digital.

SAP System Requirements

- **SAP Backend System:** The following versions are supported:
 - SAP ECC 6.0 (Enhancement Packs [EhP] 1 and above)
 - S/4 Hana (1511, 1610, and 1709) for the following APM Connect SAP Adapters:
 - Equipment Extraction
 - Functional Location Extraction
 - Notification Management
 - Technical Characteristics
 - Work History Extraction
 - Work Management
- **SAP Database:** A database that contains the SAP data model and data.
- **SAP Internet Transaction Server (ITS):** Version 6.20 or higher.
- SAP Java Connector Files (SAP JCO) downloaded from the SAP marketplace, which contains the following files:
 - sapjco.dll
 - sapjco3.dll
 - sapjco3.jar

SAP PI System Requirements

- **SAP Backend System:** The following versions are supported:
 - SAP ECC 6.0 (Enhancement Packs [EhP] 1 and above)
 - S/4 Hana (1511, 1610, and 1709) for the following APM Connect SAP Adapters:

- Equipment Extraction
 - Functional Location Extraction
 - Notification Management
 - Technical Characteristics
 - Work History Extraction
 - Work Management
- **SAP PI:** An SAP PI system 7.00 and above, up to SAP PI 7.50.
 - An SAP PO system 7.50 and later.

Maximo System Requirements


APM Connect supports Maximo versions above 7.1.1.6.

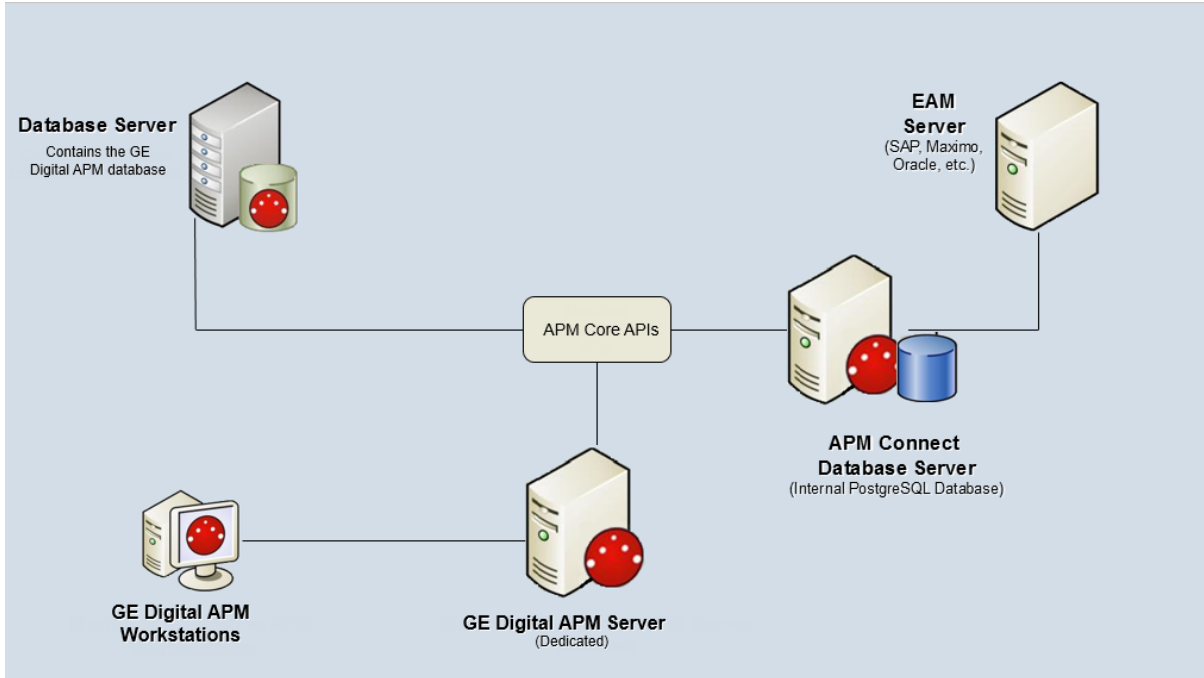
- **Maximo Application Server:** A Maximo Application Server machine that houses the Maximo Web Services and is running version 7.1, 7.5, or 7.6.
- **Maximo Database Server:** A database that houses the Maximo data model and data and is running a version that is supported by the Maximo Application Server. For details on requirements of the Maximo Database Server, see the Maximo documentation.
- **Maximo Client Workstation:** A computer that is used to access the Maximo application. For details on the requirements of the Maximo Client workstation, see the Maximo documentation.
- **Maximo Administrative Workstation:** A computer that contains the Maximo application. For details on the requirements of the Maximo Administrative workstation, see the Maximo documentation.

System Architecture for EAM Adapters

Single Server Configuration (Recommended)

The single server configuration is the simplest way to configure APM Connect. However, it does include an embedded database. The following image depicts this configuration.

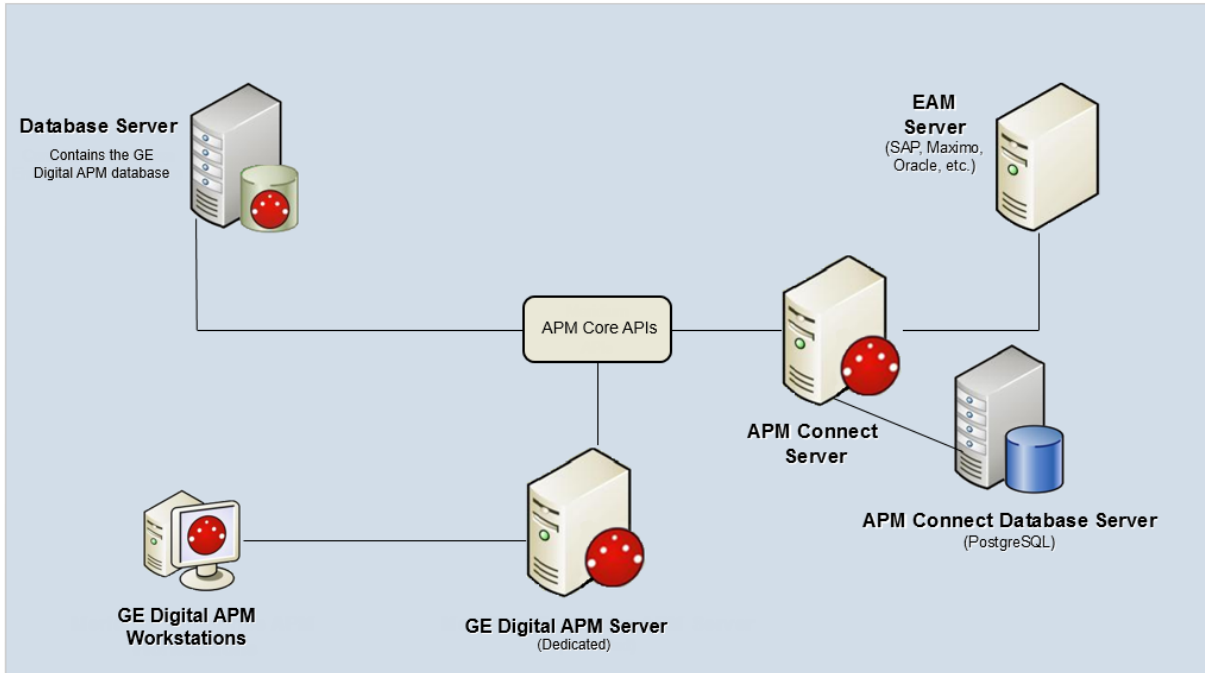
 **Note:** Only one EAM system is supported for each APM tenant or database.



External Database Configuration

Many organizations choose to separate their databases. It is possible to install the intermediate repository database on an external server, and to keep the APM Connect Systems database on a different server. The following image depicts this configuration.

Note: The external configuration will affect performance. The single server configuration results in faster performance.



Deploying APM Connect

After you have installed and configured the basic GE Digital APM system architecture, you will need to perform some configuration steps specifically for APM Connect.

Supported Features in APM Now

All APM Connect features are available.

Deploy APM Connect

The checklists in this section of the documentation contain all the steps necessary for deploying and configuring this module whether you are deploying the module for the first time or upgrading from a previous module.

Deploy the APM Connect Base

The checklists in this section of the documentation contain all the steps necessary for deploying and configuring this module whether you are deploying the module for the first time or upgrading from a previous module.

Deploy the APM Connect Base for the First Time

The following table outlines the steps that you must complete to deploy and configure this module for the first time. These instructions assume that you have completed the steps for deploying the basic GE Digital APM system architecture.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

Note: If you are deploying this module in APM Now, before you begin completing these tasks, review the system requirements for this module to identify the supported features for this module in APM Now. Unless noted, all deployment tasks in the following table are applicable for the deployment of this module in APM Now.

Step	Task	Notes
1	Ensure that you meet the software and hardware system requirements for APM Connect.	This step is required.
2	On the APM Connect server, run the third-party software batch file .	This step is required. The APM Connect server is the system on which you will run the APM Connect installer.
3	On the APM Connect server, run the APM Connect installer .	This step is required.
4	On the APM Connect server, change and encrypt passwords .	This step is required.
5	On the APM Connect server, import the Karaf file into the Administration Center .	This step is required.
6	On the APM Connect server, start the APM Runtime Container .	This step is required.
7	On the APM Connect server or the GE Digital APM server, install the Meridium Integration Services .	This step is required only if you are completing an on-premises deployment.
8	On the APM Connect server, enable Internet Explorer for APM Connect .	This step is required only if you are using Internet Explorer to access the APM Connect Administration Center.
9	On the APM Connect server, update PostgreSQL networking configuration .	This step is required.
10	On the APM Connect server, change the PostgreSQL passwords .	This step is required.

Step	Task	Notes
11	On the APM Connect server, access the APM Connect Administration Center .	This step is required.
12	On the APM Connect server, change the APM Connect Administration Center user password .	This step is required.
13	On the APM Connect Server, validate the APM Connect Administration Center license .	This step is required only if your APM Connect Administration Center license was not validated automatically when you accessed the APM Connect Administration Center.
14	Configure the APM Connect Administration Center .	This step is required.
15	In the APM Connect Administration Center, set user permissions .	This step is required.
16	In the APM Connect Administration Center, authorize users for projects .	This step is required.
17	In GE Digital APM, establish the connection from GE Digital APM to APM Connect.	This step is required only if you are completing an on-premises deployment.
18	Configure SSL .	This step is required only if you want to use SSL.
19	On the APM Connect server, create a service user .	This step is required.
20	On the APM Connect server, configure logging .	This step is required only if you want to change how APM Connect logs events.
<p>⚠ IMPORTANT: Each of the following tasks may be required depending on the license that you have purchased and the APM Connect component that you are deploying.</p>		
21	Configure the APM Connect Administration Center for the Studio .	This step is required only if you have the APM Connect <i>Studio</i> license.

Step	Task	Notes
22	On the APM Connect server, install the Studio .	This step is required only if you have the APM Connect <i>Studio</i> license.
23	Deploy the Data Loaders .	This step is required only if you are deploying the Data Loaders in an on-premises deployment.
24	On the APM Connect server, deploy the automatic data loader job .	This step is required only if you are using the automatic data loader job.
25	Deploy the Maximo Adapters .	This step is required only if you are deploying the Maximo Adapters.
26	Deploy the SAP Adapters .	This step is required only if you are deploying the SAP Adapters.

Upgrade the APM Connect Base to V2.0.0

The following table outlines the steps that you must complete to upgrade this module to V2.0.0.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

Upgrade from any version V1.0.0 through V1.0.3

Step	Task	Notes
1	Uninstall APM Connect.	This step is required.
2	Complete the steps to deploy the APM Connect Base for the first time.	This step is required.

About the APM Connect Installation Package

GE Digital APM creates and delivers an installation package that provides the files and folders needed for a successful implementation of APM Connect. This topic describes what may be contained in your installation package based on your requirements.

Contents of the Installation Package

The installation package contains the following folders:

- **APM Connect Base:** This folder contains the APM Connect installer.
- **DL:** The APM Connect data loaders. This folder contains a configuration folder, a jobs package folder, a third-party software folder, and a compressed file to help you install the third-party software.

Depending on the licenses that you have activated, it also contains these folders:

- **APM Connect Studio:** This folder contains the APM Connect Studio installer.
The following folders contain a configuration folder, a jobs package folder, a third-party software folder, and a compressed file to help you install the third-party software. The SAP folders also contain the ABAP package and installation documentation for that package.
- **EAM MAX:** This folder contains Maximo data loaders.
- **EAM SAP:** This folder contains SAP data loaders.
- **EAM SAP PI:** This folder contains SAP PI data loaders.

Run the Third-Party Software Batch File

APM Connect requires [third-party software files](#) for FTP capabilities and improved Java performance. This topic describes how to incorporate these components into the jobs.

Steps


1. On your APM Connect server, access your APM Connect installation package, and then navigate to the **Jobs** folder.
2. Right-click on the folder **ApplyThirdPartySoftware_0.1.zip**, and then select **Extract All**.

The **Extract Compressed (Zipped) Folders** window appears.

3. Select **Extract**.


The files are extracted, and the folder **ApplyThirdPartySoftware_0.1** appears in the same directory.

4. Download the [third party software files](#), and then create a directory on the APM Connect server containing those files.
5. Open a command prompt, and navigate to `<root>ApplyThirdPartySoftware_0.1\ApplyThirdPartySoftware`.
6. Enter the following command: `ApplyThirdPartySoftware_run.bat --context_param JOBS_DIR=<JOB PACKAGE DIR> --context_param THIRD_PARTY_SOFTWARE_DIR=<YOUR THIRD_PARTY_SOFTWARE_DIR>`
 - **<JOB PACKAGE DIR>**: Replace with the filepath to the directory that contains the job zip files (e.g., `C:/APMConnect/Jobs`).
 - **<YOUR THIRD_PARTY_SOFTWARE_DIR>**: Replace with the filepath for the directory that you created in step 4 (e.g., `C:/APMConnect/ThirdPartySoftware`).






 **Hint:** When entering a directory in a command prompt window, the file path must use the forward slashes.

7. Execute the command by pressing Enter.

The adapter jobs are updated with the third-party software component, and a message appears on the command prompt window, indicating that the update is complete. Additionally, a new folder is created: **updated_jobs**.

 **Note:** The jobs contained in the **updated_jobs** folder are the jobs that will be used to facilitate the data transfer from the source to GE Digital APM.

Deploy APM Connect

Name	Date modified	Type	Size
 ApplyThirdPartySoftware_0.1	7/21/2016 9:39 AM	File folder	
 Jobs	7/21/2016 9:49 AM	File folder	
 ThirdPartySoftware	7/21/2016 11:40 AM	File folder	
 updated_jobs	7/21/2016 11:56 AM	File folder	
 ApplyThirdPartySoftware_0.1.zip	7/20/2016 4:50 PM	Compressed (zipp...	5,282 KB

What's Next?

- [Refer to the first-time deployment workflow.](#)

Run the APM Connect Installer

The APM Connect installer completes many tasks, including installing Java, installing APM Connect Windows services, and installing the intermediate repository (PostgreSQL).

⚠ IMPORTANT: Each of the following steps may be required depending on the license that you have purchased and the APM Connect component that you are deploying.

Before You Begin

Before you can run the APM Connect Installer, you must:

- Access the APM Connect installation package.
- Ensure that your system meets the APM Connect [system requirements](#).
- For SAP integrations, download the [SAP Java Connector Files \(SAP JCO\)](#) from the SAP marketplace.

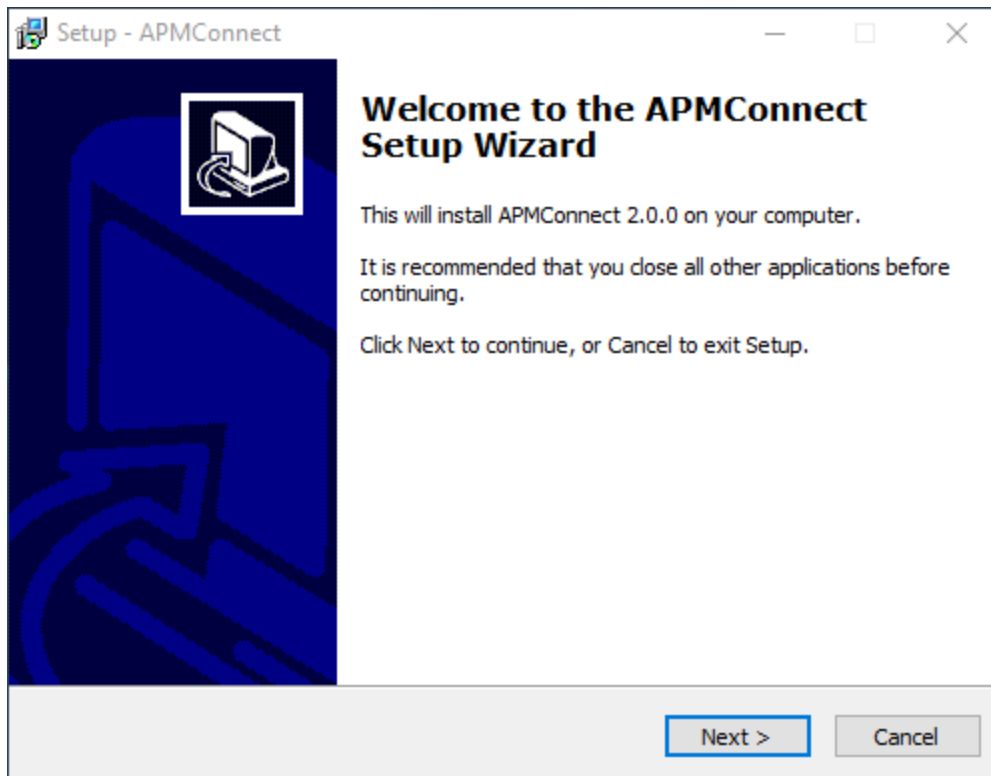
Steps

1. On your APM Connect server, access the APM Connect installation package, navigate the *Installer* folder, and then open it.
2. Double-click the file **APMConnect-Base.exe**.

A message appears, asking if you want to allow the installer to make changes to your machine.

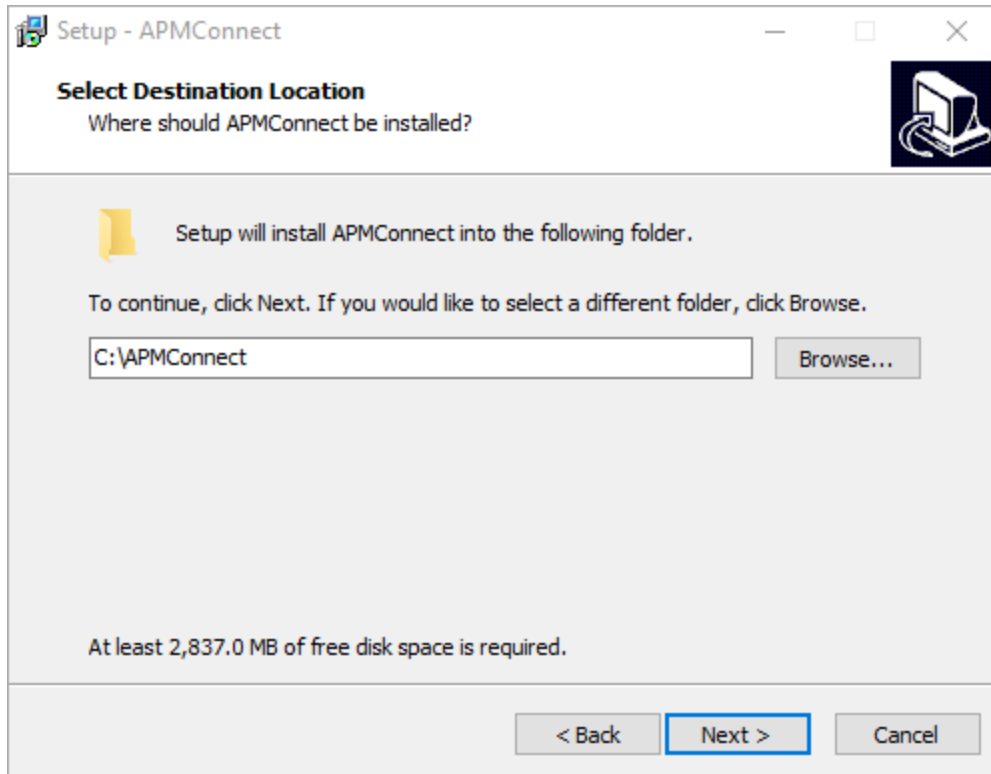
3. Select **Yes**.

The **Setup - APM Connect** window appears.



4. Select **Next**.

The **Select Destination Location** screen appears.

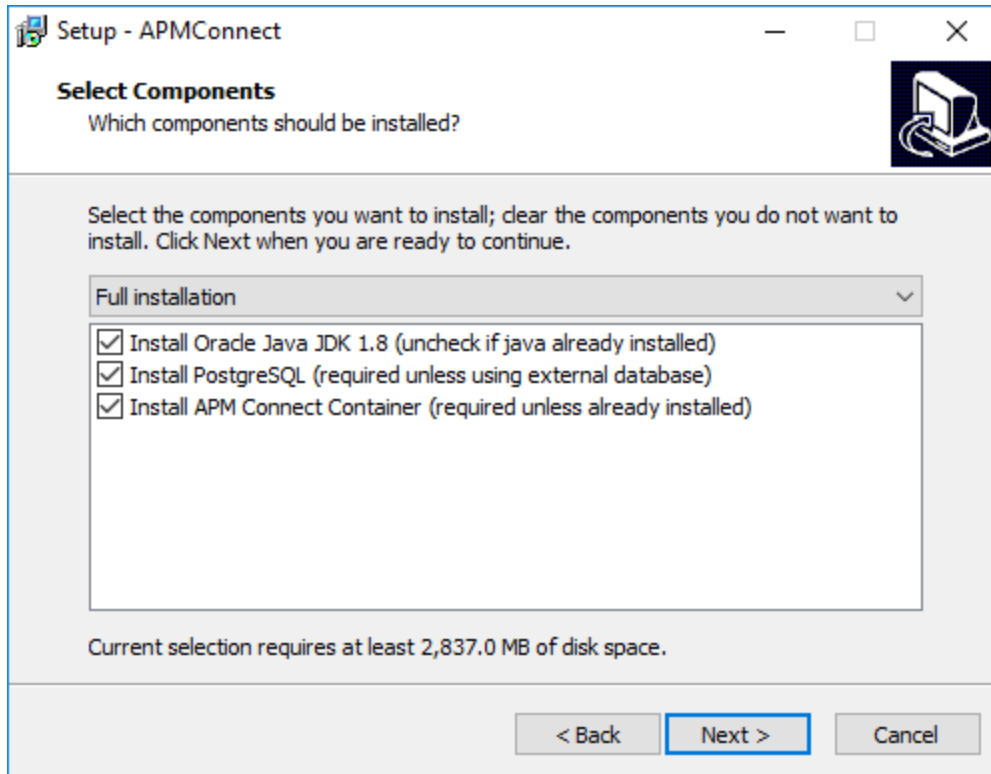


5. By default, the APM Connect software will be saved to the following folder: **C:\APMConnect**. If you are satisfied with the default location where the software will be installed, select **Next**.

-or-

If you want to change the location where the software will be installed, select **Browse...**, and then navigate to the location where you want to install the APM Connect software. The folder path that you select will be displayed in place of the default folder path. When you are satisfied with the installation location, select **OK**, and then select **Next**.

The **Select Components** screen appears.



6. If you want to install all components, select **Next**.

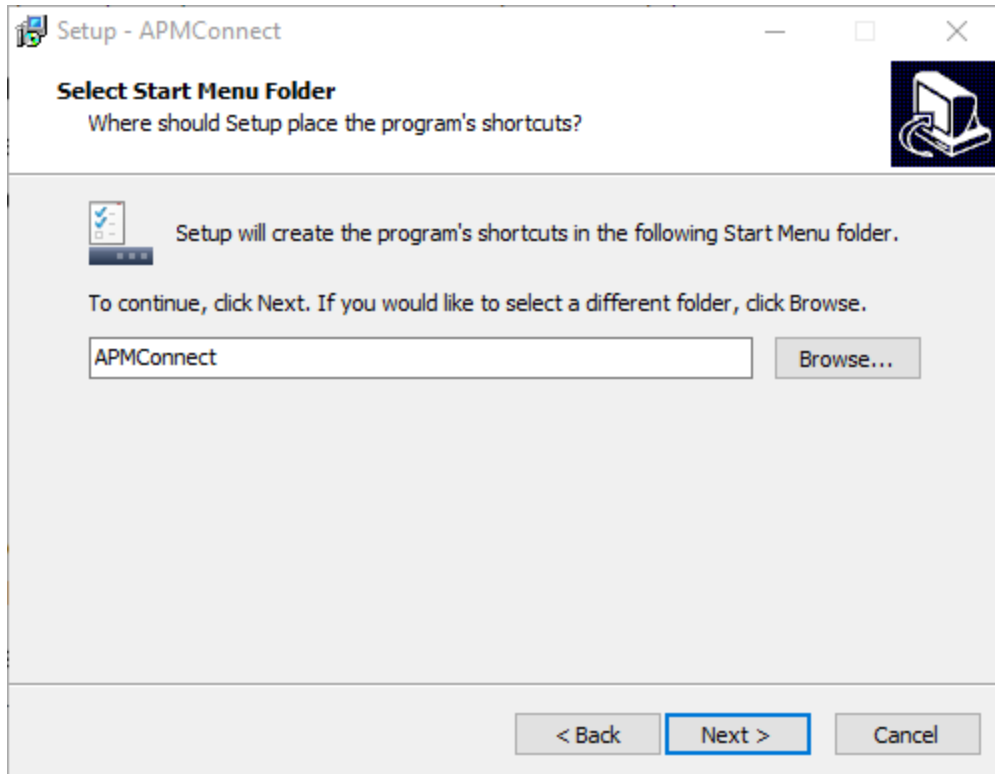
-or-

As needed, clear the check boxes based on your APM Connect license and the APM Connect component(s) you are deploying:

- **Install Oracle Java JDK 1.8 (uncheck if java already installed):** If Java JDK 1.8 is already installed on your machine, clear the check box.
- **Install PostgreSQL (required unless using external database):** If you are using an external database configuration, clear the check box.
- **Install APM Connect Container (required unless already installed):** If you have previously installed the APM Connect Container, clear the check box.

7. Select **Next**.

The **Select Start Menu Folder** screen appears.

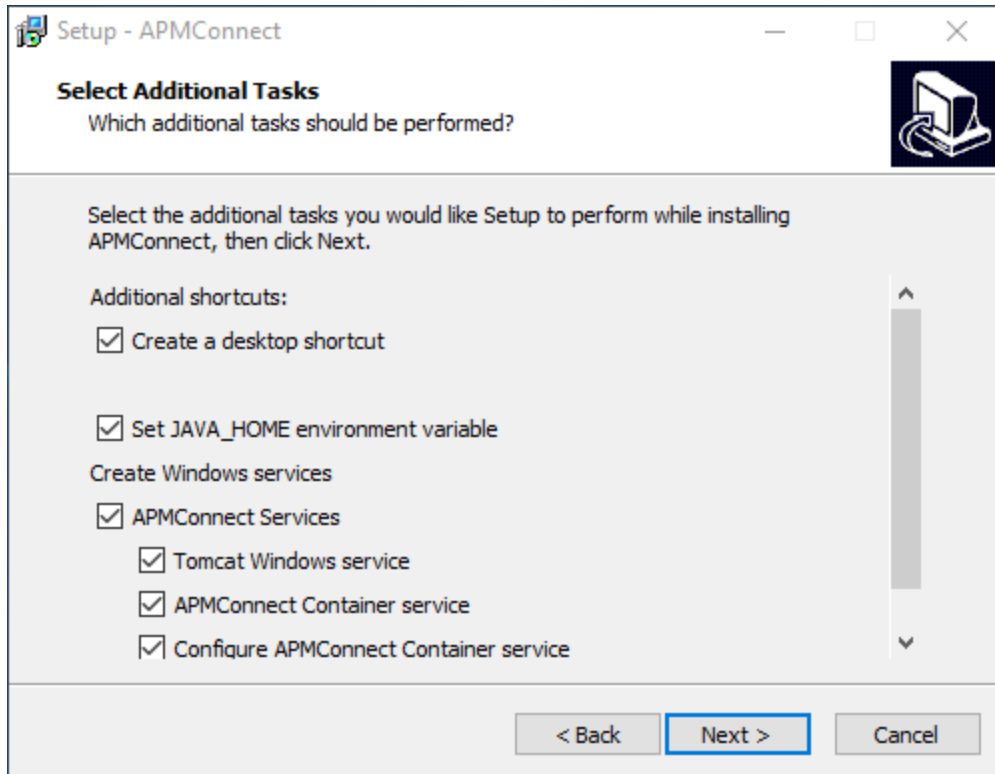


8. By default, the Start Menu folder will be saved to the following folder: **APMConnect**. If you are satisfied with the default location where the software will be installed, select **Next**.

-or-

If you want to change the location where the folder will be saved, select **Browse...**, and then navigate to the location where you want to install the APM Connect software. The folder path that you select will be displayed in place of the default folder path. When you are satisfied with the installation location, select **OK**, and then select **Next**.

The **Select Additional Tasks** screen appears.



9. If you want to perform all additional tasks, select **Next**.

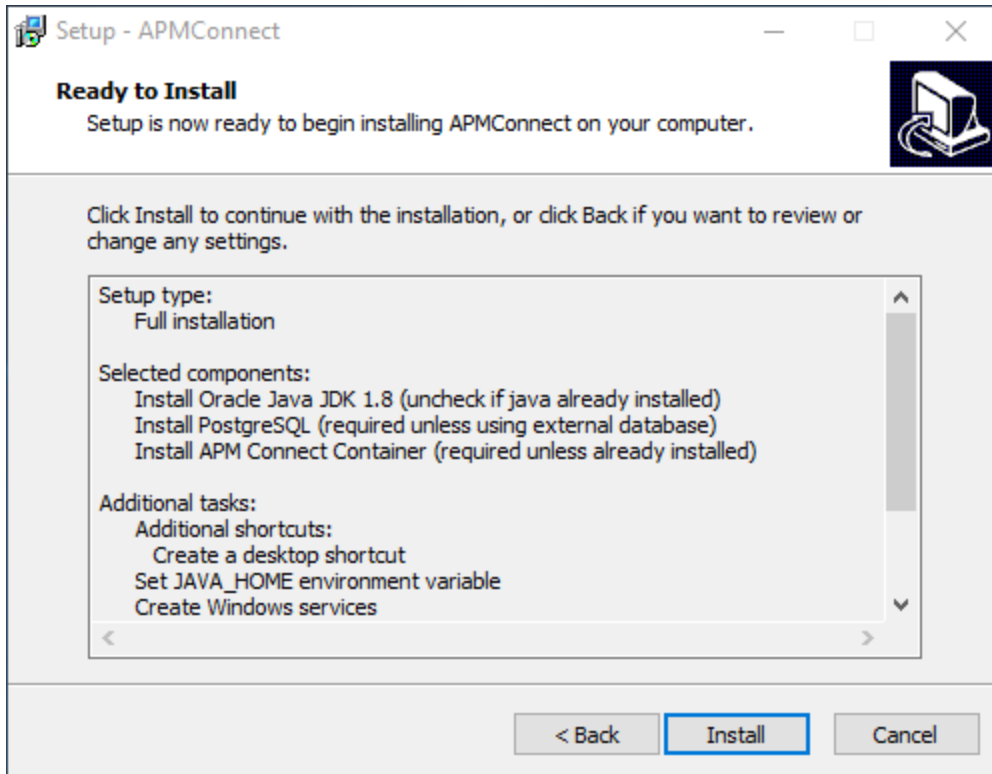
-or-

As needed, clear the check boxes based on your APM Connect license and the APM Connect component(s) you are deploying:

- **Create a desktop shortcut:** If you do not want to create a shortcut on your desktop, clear the box.
- **Set JAVA_HOME environment variable:** If Java is already installed, and an environment variable does not need to be created, clear the check box.
- **APMConnect Services:** If the APM Connect Services do not need to be installed, clear the check box.
- **Tomcat Windows service:** If the Tomcat Windows service does not need to be created, clear the check box.
- **APMConnect Container service:** If you don't want to install the APM Connect Container service, clear the check box.
- **Configure APMConnect Container service:** If you don't want to configure the APM Connect Container service, clear the check box.
- **Install APM Connect Container service SAP JCO driver software:** If your source system is SAP, select this check box.

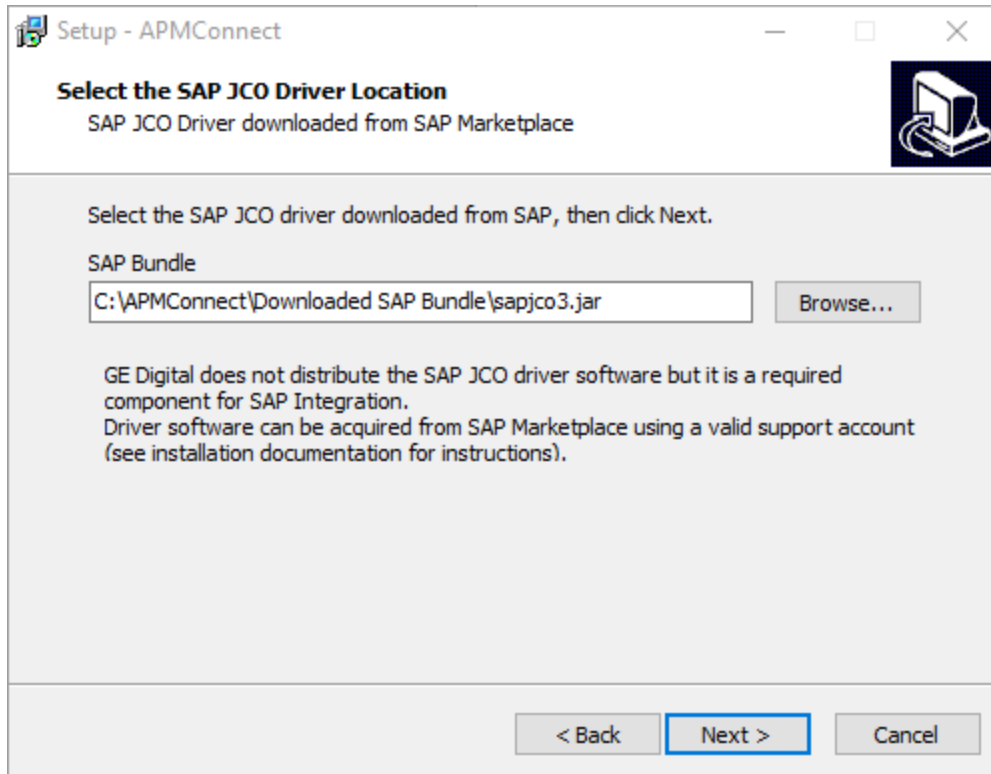
10. Select **Next**.

The **Ready to Install** screen appears.



11. Review the items to be installed, and then select **Install**.

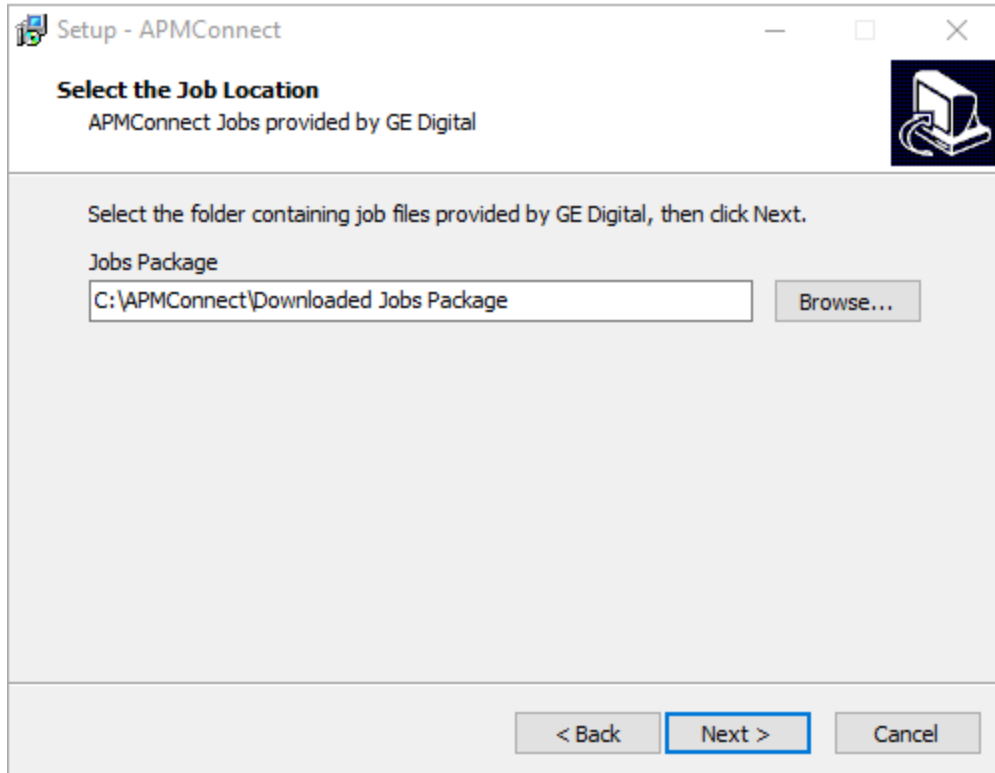
If you selected **Install APM Connect Container service SAP JCO driver software** on the previous screen, the **Select the SAP JCO Driver Location** screen appears.



 **Note:** If you did not select **Install APM Connect Container service SAP JCO driver software**, the **Select the Job Location** screen appears, and you can proceed to Step 13.

12. In the **SAP Bundle** box, specify the location of the file **sapjco3.jar**, which is part of the SAP Java Connector Files (SAP JCO) that you downloaded from the SAP marketplace, and then select **Next**.


The **Select the Job Location** screen appears.



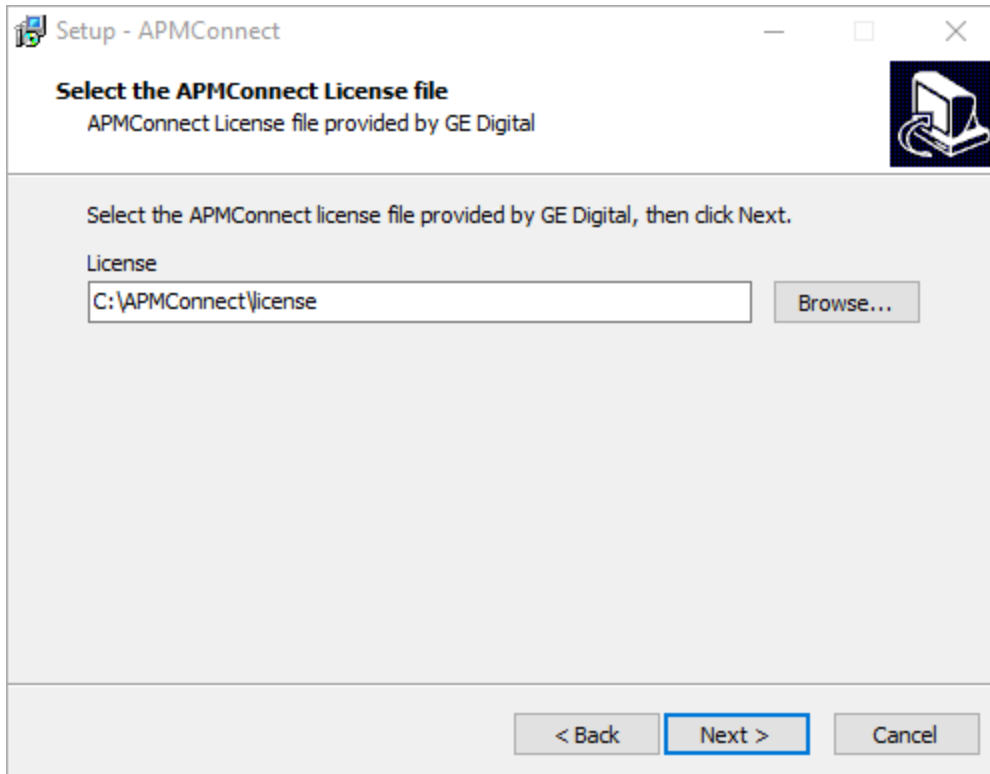
13. By default, the folder containing the job files is specified as **C:\APMConnect\Downloaded Jobs Package**. If this location is correct, select **Next**.

-or-

If this location is incorrect, select **Browse...**, navigate to the location where the jobs package is located, select **OK**, and then select **Next**.

 **Note:** The jobs package is not part of the APM Connect Installation package. Instead, you will receive it as a separate artifact (e.g., download from a designated ftp site).

The **Select the APMConnect License file** screen appears.

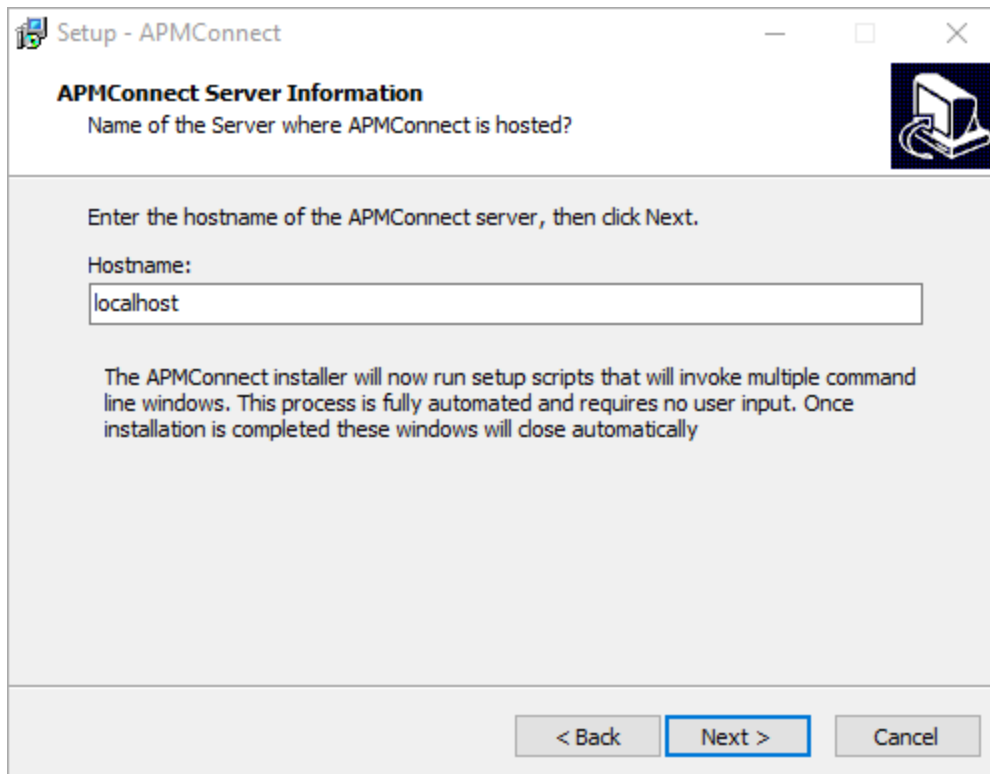


14. By default, the folder specified is **C:\APMConnect\license**. If this location is correct, select **Next**.

-or-

If this location is incorrect, select **Browse...**, navigate to the location where the license file is located, select **OK**, and then select **Next**.

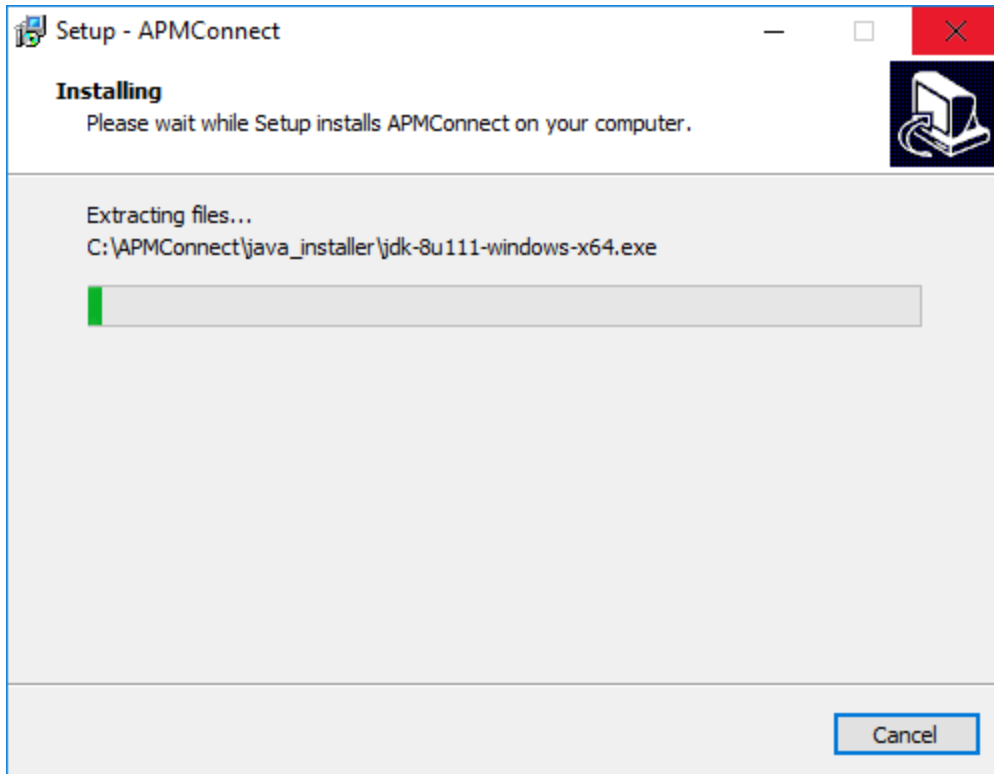
The **APMConnect Server Information** screen appears.



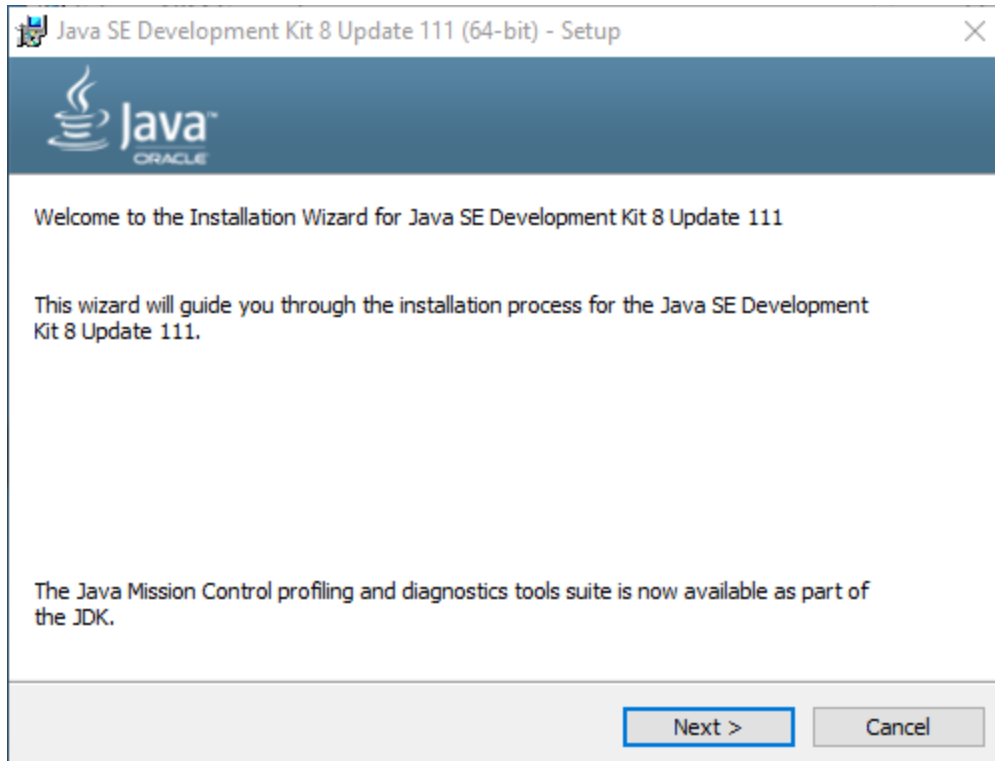
15. In the **Hostname** box, enter the name of you APM Connect server, and then select **Next**.

The **Installing** screen appears, displaying an installation progress bar.

Deploy APM Connect



Once the progress bar indicates that the APM Connect installer is *Finishing installation...*, **Java SE Development Kit <JAVA_VERSION_NUMBER> - Setup** window appears.



16. Select **Next**.

The **Select optional features to install** screen appears.

17. Select **Next**.

The Java installation progress bar appears. Once the progress bar indicates that the process is complete, the **Destination Folder** screen appears.

18. Select **Next** to install Java in the default location.

⚠ IMPORTANT: These instructions assume that Java is installed in the default location.

The progress bar reappears. After the progress bar indicates that the installation is complete, the **Successfully Installed Java SE Development Kit <JAVA_VERSION_NUMBER>** screen appears.

19. Select **Close**.

Java is installed.

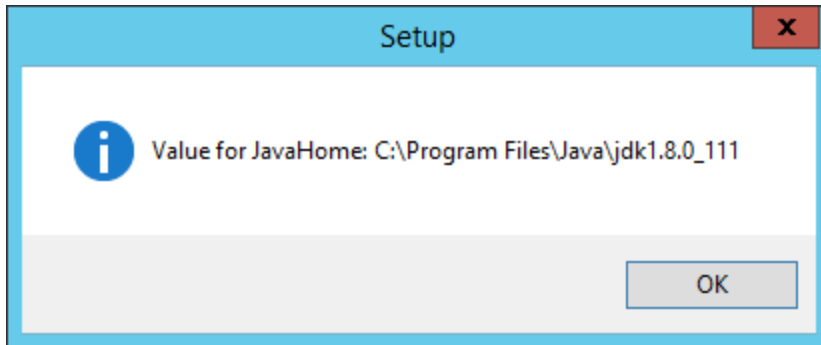
A command prompt appears, prompting you to press any key to continue.

ℹ Hint: If an error appears on the command prompt window, refer to creating

Java environment variables.

20. Press any key.

The command prompt window closes, then the **Installing** screen reappears briefly, and then the **Setup** dialog box appears, displaying the JavaHome path.



21. Select **OK**.

The **Setup - PostgreSQL** screen appears.




22. Select **Next**.

The **Installation Directory** screen appears, prompting you to select the location where PostgreSQL for APM Connect will be installed.

23. By default, PostgreSQL will be saved to the following folder: **C:\Program Files\PostgreSQL\9.6**. If you are satisfied with the default location, select **Next**.

-or-


If you want to change the location where the software will be installed, select the  button, then navigate to the location where you want to install PostgreSQL for APM Connect, and then select **Next**.

The **Data Directory** screen appears.

24. Select **Next**.

The **Password** screen appears.


25. In the **Password** box, and in the **Retype password** box, enter a password.

 **Hint:** This password will be used as a service account for PostgreSQL, and is needed in later configuration. Be sure to record it. Additionally, this documentation assumes *admin* as the password, and uses it in subsequent default configurations.

26. Select **Next**.

The **Port** screen appears.

27. If you are satisfied with the default port, select **Next**.

 **Hint:** The port number is needed in later configuration. Be sure to record it. Additionally, these instructions and all subsequent instructions assume that the default port 5432 is used.

-or-

In the **Port** box, enter the port on which you prefer the server to listen, and then select **Next**.

The **Advanced Options** screen appears.

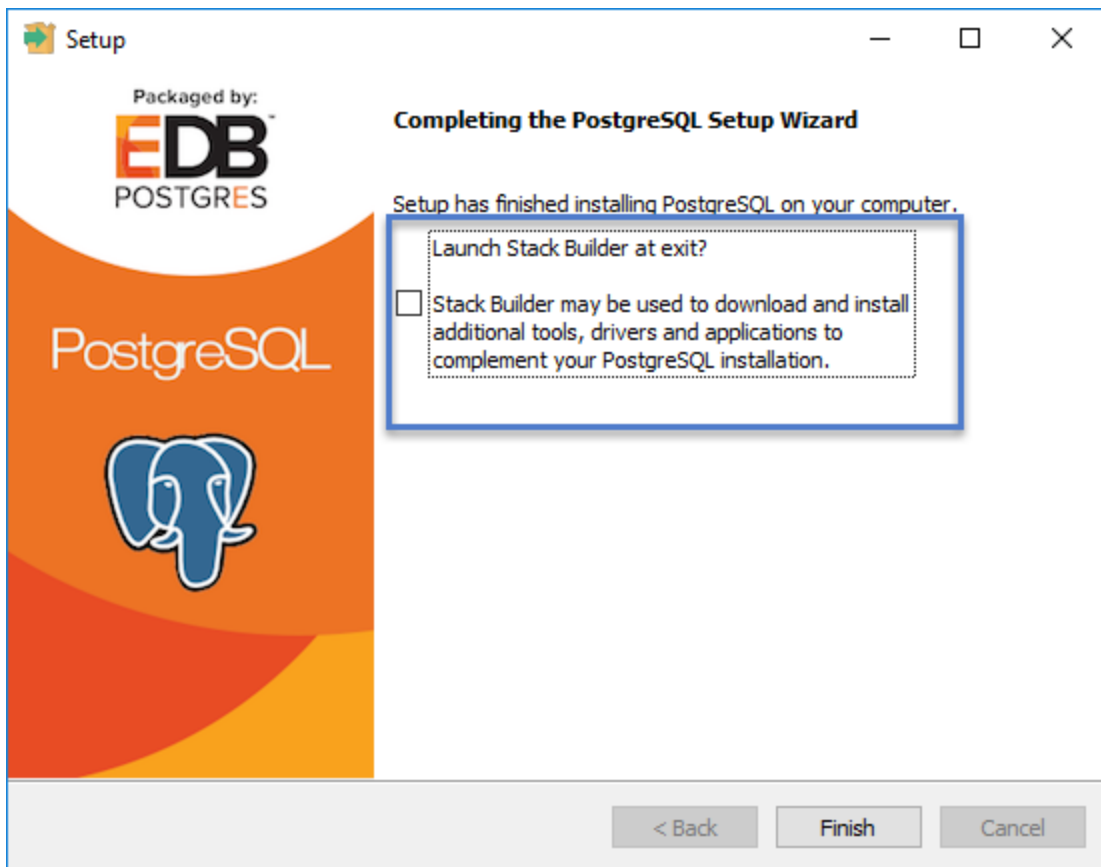
28. Select **Next**.

The **Ready to Install** screen appears.

29. Select **Next**.

The **Installing** screen appears, displaying an installation progress bar. After the installation bar indicates that the installation is complete, the **Completing the PostgreSQL Setup Wizard** screen appears.

30. Clear the **Stack Builder may be used to download and install additional tools, drivers and applications to complement your PostgreSQL installation** check box.

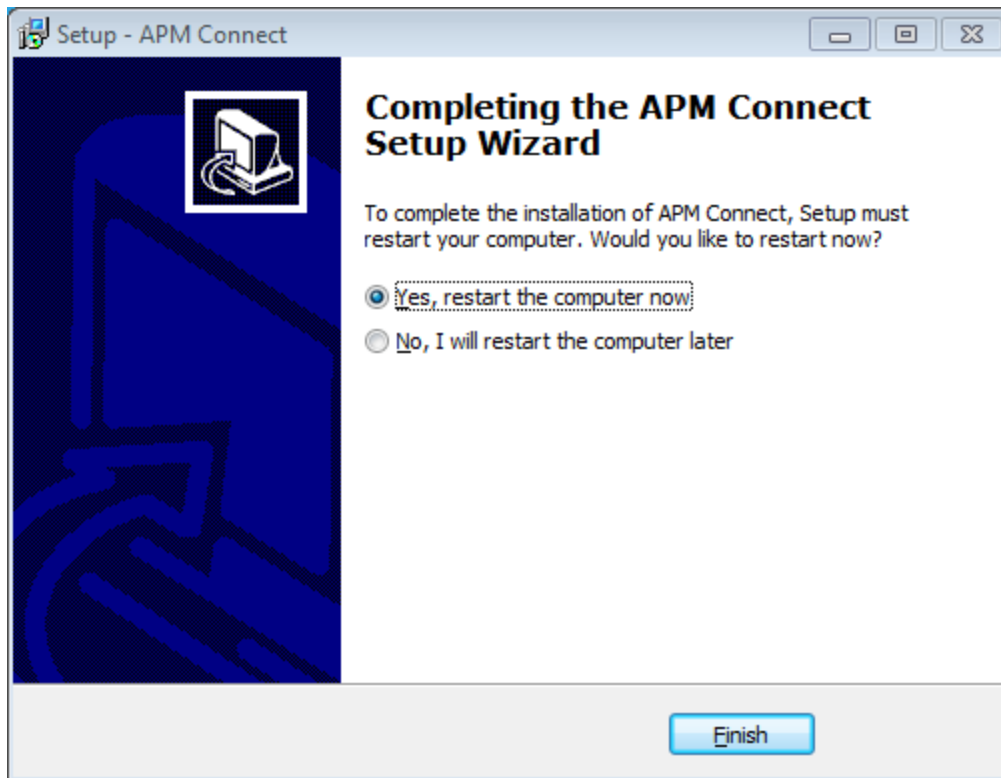


31. Select **Finish**.

PostgreSQL server is installed, then the **Installing** screen reappears briefly, and then **Completing the APM Connect Setup Wizard** appears.

Note: If you have selected the installation of APM Connect Container service or the SAPJCO driver software, the **Administrator: Windows Power Shell** and **Administrator: Karaf** windows appear. Installation progress may not be visible on the screen for 2-3 minutes. During this time, do not press any key or close the windows.

The **Yes, restart the computer now** check box should be selected.



32. Select **Finish**.

The APM Connect installer has completed its operations, and the machine should restart automatically.

33. If it does not do so automatically, restart your machine.

What's Next?

- [Refer back to the first-time deployment workflow.](#)

Change and Encrypt the APM Connect Service User Names and Passwords

△ IMPORTANT: During installation, the system defines default users and passwords in a configuration file. Complete these steps on the APM Connect server to correctly secure the server.

Steps

1. On the APM Connect server, if the service is running, stop the APM Connect service.
2. Navigate to **C:\APMConnect\Utilities\runtime\etc**.
3. Open the file **users.properties** in an application that you can use to modify a text file (e.g., Notepad).
4. Change the passwords for the default user names.
5. Specify your own user names using the following format:

user=password[,role] [,role] [,role]...

- or -

user=password[,group] [,group] [,group]...

Note: For information about groups and defining roles, refer to the Talend documentation.

6. Save and close the file.
7. To specify authorizations for the jobserver, open the file **users.csv**.
8. Add the authorized user names and passwords in the following format:

username,password

Note: For information about jobserver requirements, refer to the Talend documentation.

9. Save and close the file.
10. To enable password encryption, open the file **system.properties**.
11. Add the following statements at the end of the file:

```
# edit config
config:edit org.apache.karaf.jaas
config:property-set encryption.enabled true
config:update
```

Deploy APM Connect

```
# force a restart  
bundle:restart
```

12. Save and close the file.
13. Start the APM Connect service.

What's Next?

- [Refer to the first-time deployment workflow.](#)

Import the Karaf File into the APM Connect Administration Center

To complete the connection between GE Digital APM, Karaf, and the APM Connect Administration Center, you must import the **RunDataLoaderRoute.kar** file into the APM Runtime folder. This topic guides you through that process.

Steps

1. On your local machine, access and then copy the **RunDataLoaderRoute.kar** file.
2. Navigate to the following path: `<root:>\APMConnect\Utilities\runtime\deploy`.
3. Right-click inside the folder, and then select **Paste** to copy the .kar file into the Runtime folder.

The new service is deployed to the APM Connect host.

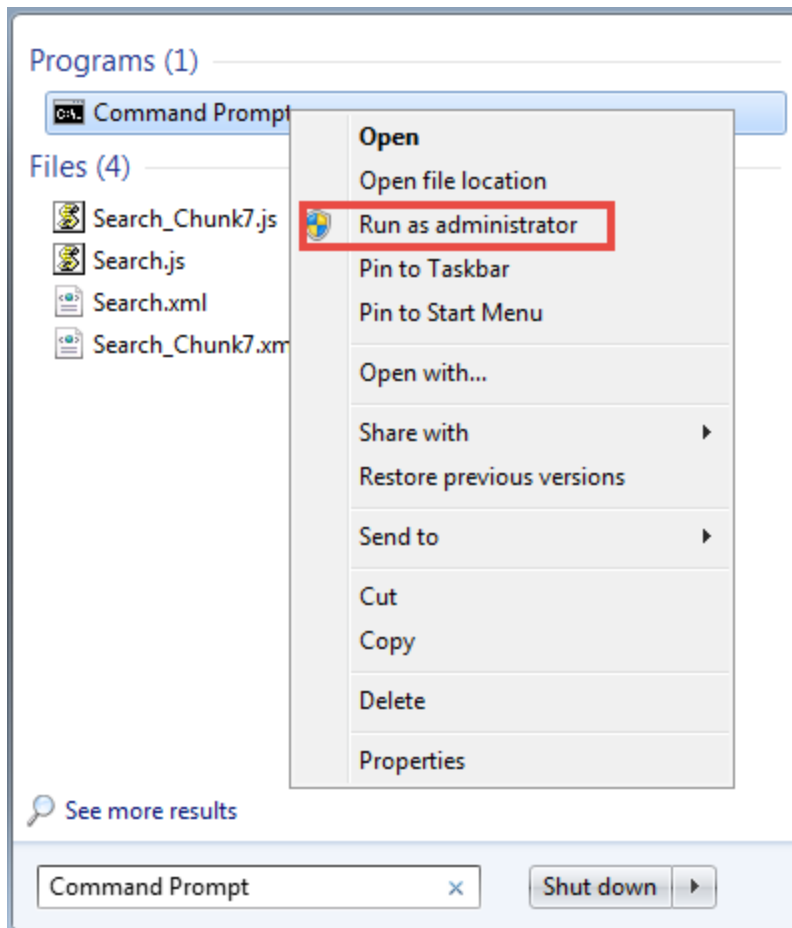
What's Next?

- [Refer back to the first-time deployment workflow.](#)

Install and Start the APM Runtime Container

Steps

1. On the APM Connect server, locate *Command Prompt*
2. Right-click on **Command Prompt**, and then select **Run as administrator**.



The **Administrator: Command Prompt** window appears.

3. Change the directory to: `C:\APMConnect\Utilities\runtime\bin`.
4. In the **Command Prompt**, after the new directory path, enter: `trun`.

A message appears in the Command Prompt, and another `karaf@trun>` prefix appears.

Note: When you first start Karaf, it takes a few minutes to load all of the commands. So, if you attempt to enter the `features:install` command in Step 5 and

receive an error message in the Command Prompt, try the command again in a few minutes.

```
Administrator: Karaf
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Windows\system32>cd C:\APMConnect\Utilities\runtime\bin
C:\APMConnect\Utilities\runtime\bin>trun

  TRUN
  (version 5.4.1)

Hit '<tab>' for a list of available commands
and '<cmd> --help' for help on a specific command.
Hit '<ctrl-d>' or 'osgi:shutdown' to shutdown the TRUN.

karaf@trun> _
```

5. In the Command Prompt, after `karaf@trun>`, enter `features:install wrapper`.

Another `karaf@trun>` prefix appears.

6. After `karaf@trun>`, enter `wrapper:install -s AUTO_START -n APM-CONTAINER -d APM-Container -D "APM Container Service"`.

A service wrapper feature is now installed into the Runtime Container, and a batch file is created in your local APM folder.

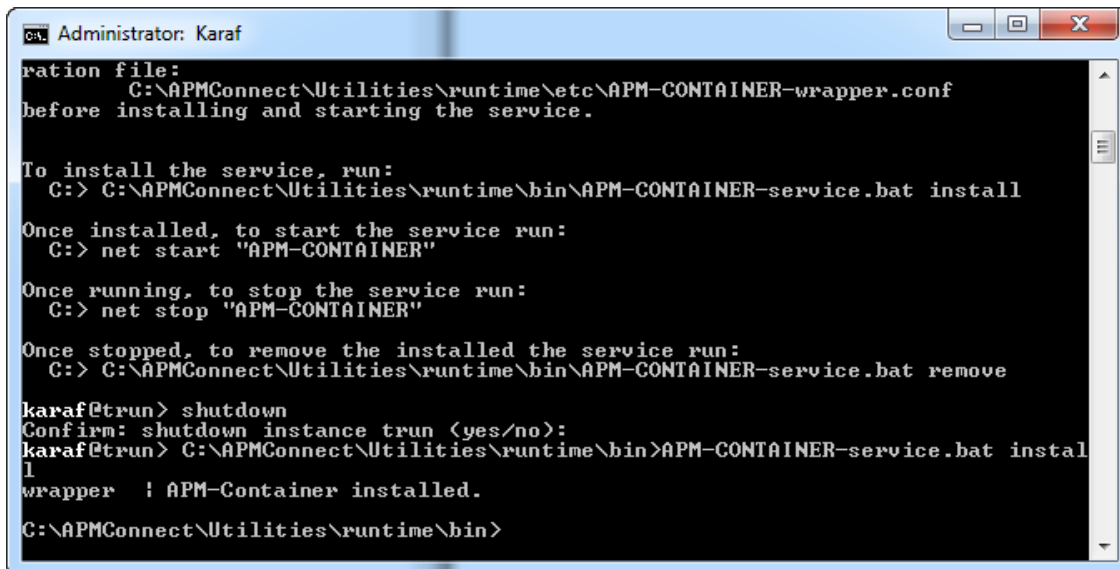
Hint: On your local computer, navigate to your APM Connect folder: `C:\APMConnect\Utilities\runtime\bin`. Notice that your local APM Connect folder now contains two new items: `APM-CONTAINER-service.bat` and `APM-CONTAINER-wrapper.exe`.

Another `karaf@trun>` prefix appears.

7. After `karaf@trun>`, enter `shutdown`, and then enter `yes` to confirm you want to shut down karaf.

Karaf is shut down, and another `karaf@trun>` prefix appears and the directory is changed to `C:\APMConnect\Utilities\runtime\bin`

8. After `c:\APMConnect\Utilities\runtime\bin>`, enter `APM-CONTAINER-service.bat install`.



```
Administrator: Karaf
ration file:
    C:\APMConnect\Utilities\runtime\etc\APM-CONTAINER-wrapper.conf
before installing and starting the service.

To install the service, run:
C:> C:\APMConnect\Utilities\runtime\bin\APM-CONTAINER-service.bat install

Once installed, to start the service run:
C:> net start "APM-CONTAINER"

Once running, to stop the service run:
C:> net stop "APM-CONTAINER"

Once stopped, to remove the installed the service run:
C:> C:\APMConnect\Utilities\runtime\bin\APM-CONTAINER-service.bat remove

karaf@trun> shutdown
Confirm: shutdown instance trun (yes/no):
karaf@trun> C:\APMConnect\Utilities\runtime\bin>APM-CONTAINER-service.bat instal
l
wrapper : APM-Container installed.
C:\APMConnect\Utilities\runtime\bin>
```

The APM Container is installed, and a message appears indicating as such.

9. To start the APM Container, restart your machine.

What's Next?

- [Refer back to the first-time deployment workflow.](#)

Install the Meridium Integration Services

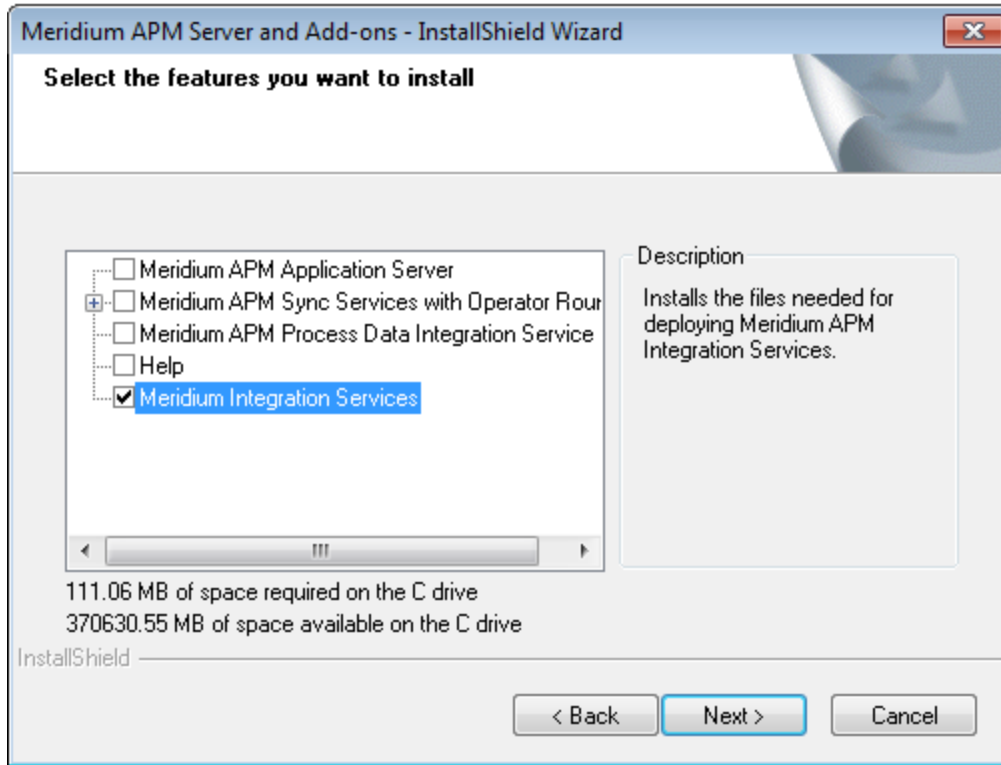
△ IMPORTANT: This step is required only if you are deploying APM Connect on-premises. If you are deploying in APM Now, you can skip this procedure, and proceed to the next step in the [APM Connect Base First-Time Deployment Workflow](#).

Depending on your system architecture, you can perform this procedure on the APM Connect server or the GE Digital APM server.

Steps

1. On the server, access the GE Digital APM distribution package, and then navigate to the folder `\\Setup\Meridium APM Server and Add-ons`.
2. Double-click the file **Setup.exe**.
The **Welcome** screen appears.
3. Select **Next**.
The **License Agreement** screen appears.
4. Read the License Agreement and, if you agree, select the **I accept the terms of the license agreement** check box. Then, select **Next**.
The **Select Installation Location** screen appears.
5. Select **Next** to accept the default location.
The **Select the features you want to install** screen appears.
6. Select the **Meridium Integration Services** option.

Note: While additional options are available for selection, these options are not meant to be installed on this server. These instructions assume that you want to install only Meridium Integration Services.



7. Select **Next**.

The **Websites** screen appears.

8. Select **Next**.

The Complete the Installation screen appears.

9. Select **Install**.

The **Setup Status** screen appears, displaying a progress bar. Once the installation is complete, the **Installation is complete** screen appears.

10. Select **Finish**.

The **Meridium Integration Services** installation is complete

What's Next?

- [Refer to the first-time deployment workflow.](#)

Enable Internet Explorer for APM Connect

△ IMPORTANT: This step is required only if you are using Internet Explorer to access the APM Connect Administration Center. If you are not using Internet Explorer, you can skip this procedure, and proceed to the next step, in the [APM Connect Base First-Time Deployment Workflow](#).

Steps

1. On the APM Connect server, access **Control Panel\Network and Internet**, and then select **Internet Options**.

The **Internet Properties** screen appears

2. Select the **Security** tab, then, in the **Select a zone to view or change security settings** section, select **Local intranet**, and then select **Custom level....**

The **Security Settings -Intranet Zone** screen appears.

3. In the **Settings** section, access the **Include local directory path when uploading files to a server**, and select **Disable**.

4. Select **OK**.

The **Security Settings -Intranet Zone** screen closes.

5. On the **Internet Properties** screen, select **Apply**.

Internet Explorer is configured accommodate APM Connect.

What's Next?

- [Refer to the first-time deployment workflow](#).

Update PostgreSQL Networking Configuration

To allow connections from the GE Digital APM Server to APM Connect, you must update the PostgreSQL networking configuration. This topic describes how to perform the configuration update.

Steps

1. On the machine on which you installed APM Connect, navigate to your PostgreSQL installation files. The default location is `<root;>\Program Files\PostgreSQL\9.3\data`.
2. Locate the configuration file `pg_hba.conf`, then right-click on the file, and then open it with a text editor.

The file `pg_hba.conf` opens in the text editing application.

3. Scroll down to the end of the document and locate the following line of text: `host all 127.0.0.1/32 md5`

```

76
77 # TYPE DATABASE USER ADDRESS METHOD
78
79 # IPv4 local connections:
80 host all all 127.0.0.1/32 md5
81 host all all <APM IP address>/32 md5
82 # IPv6 local connections:
83 host all all ::1/128 md5
84 # Allow replication connections from localhost, by a user with the
85 # replication privilege.
86 #host replication postgres 127.0.0.1/32 md5
87 #host replication postgres ::1/128 md5
88

```

4. Add a host all all statement specifying the IP address of the GE Digital APM Server using method md5.
5. Save the file, and then close the text editor.

PostgreSQL is now configured to open the connection from the GE Digital APM Server.

What's Next?

- [Refer to the first-time deployment workflow.](#)

Change the PostgreSQL Passwords

These steps describe how to change the PostgreSQL passwords using pgAdmin, although you can use any SQL query tool to perform this task.


Steps

1. Start pgAdmin.
2. Right-click on a database, and then select **Query Tool**.
The workspace for the selected database appears.
3. In the workspace, enter ALTER statements for each role to be changed using the following format:

```
ALTER ROLE username SET PASSWORD TO 'newpassword'
```

4. At the top of the workspace, select  .

The query runs and the password is changed.

 **Note:** For more information about the PostgreSQL roles, see the PostgreSQL documentation.

What's Next?

- [Refer to the first-time deployment workflow.](#)

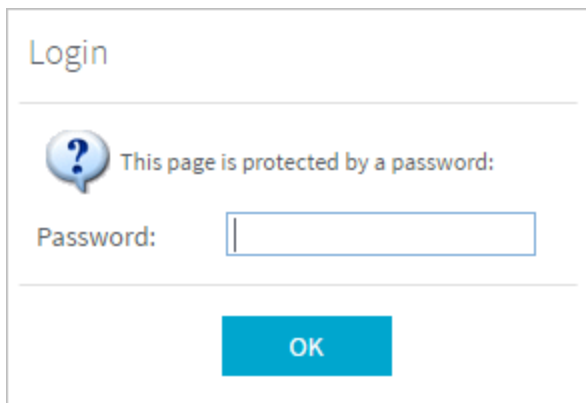
Access the APM Connect Administration Center

Using the APM Connect Administration Center, you can run extraction and load jobs. Before you can begin running jobs, you must set up the APM Connect Administration Center. This topic explains how to access and deploy the APM Connect Administration Center for the first time.

Steps

1. Open a web browser, and then enter the following URL into your web browser: `http://localhost:8080/apmconnect/`.

The **Login** window appears.



2. In the **Password** box, enter *admin*.
3. Select **OK**.

The **Login** window disappears, the **Database parameter** section is visible, and a check is performed by the APM Connect Administration Center.

⚠ IMPORTANT: If your license does not validate, you can [validate your license manually](#).

Deploy APM Connect

Database parameters

Database type:

Driver:

Url:

Username:

Password:

[Save](#) [Reload from file](#) [Import parameters](#)

Check

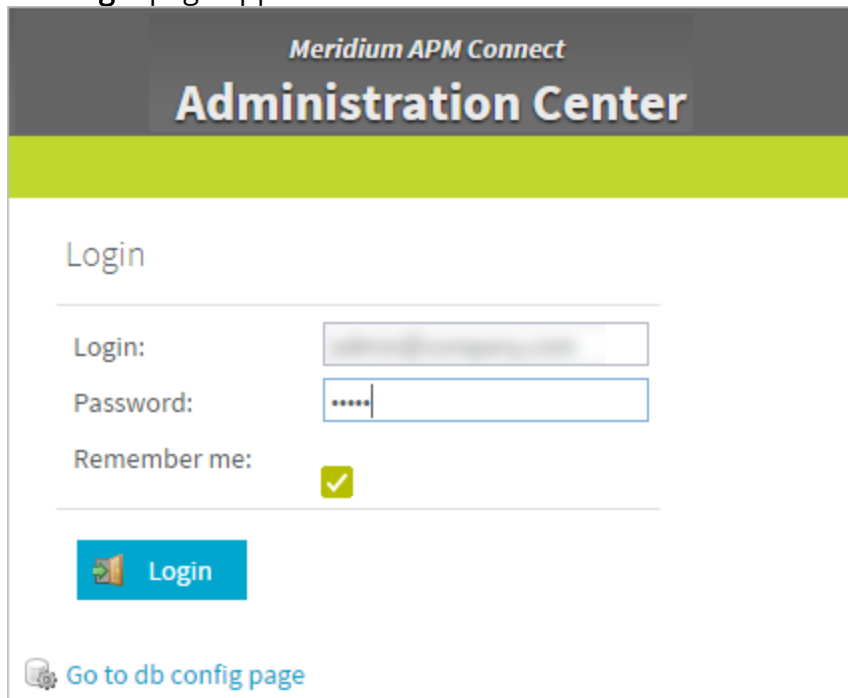
Driver	✔ OK
Url	✔ OK
Connection	✔ OK
Version	✔ OK
License	✘ No license available, please input your valid license

[Check](#) [Set new license](#) [Validate your license manually](#) [Project Check](#) [Transfer libraries](#)

[Go to login page](#)

Select **Go to login page**.

4. The **Login** page appears.



The screenshot shows the Meridium APM Connect Administration Center login page. At the top, there is a dark grey header with the text "Meridium APM Connect" and "Administration Center" in white. Below the header is a green horizontal bar. The main content area is white and contains a "Login" section. This section includes a "Login:" label and a text input field, a "Password:" label and a password input field with masked characters, and a "Remember me:" label with a checked checkbox. Below these fields is a blue "Login" button with a right-pointing arrow icon. At the bottom left of the login section, there is a link with a gear icon and the text "Go to db config page".

5. In the **Login** box, enter the default username: *admin@company.com*.
6. In the **Password** box, enter the default password: *admin*.
7. Select **Login**.

The APM Connect Administration Center is successfully deployed, and the APM Connect Administration Center **Welcome** page appears.

Deploy APM Connect

The screenshot displays the Meridium APM Connect Administration Center. The interface is divided into a left-hand navigation menu and a main content area. The navigation menu includes sections for Settings, Conductor, and Monitoring, with various sub-items like Users, Projects, Licenses, and Servers. The main content area is titled 'WELCOME' and features a 'Welcome to Meridium APM Connect' message. Below this, it states 'Administration Center is the centralized place where you can manage:' and provides a grid of management options. These options are categorized into 'Settings: Manage users, projects, license' and 'Conductor: Deploy, run and plan job executions on distant servers'. The 'Settings' section includes options for Users, User groups, Projects, Project authorizations, Project references, Locks, Licenses, Configuration, Rights management, Backup, and Notifications. The 'Conductor' section includes options for ESB Conductor, Publisher, Job Conductor, and Execution Plan. At the bottom of the interface, there is a user profile for 'admin, admin' and a task bar with tabs for 'Welcome', 'Client log', 'Repository browser', 'Job Conductor', and 'Users'.

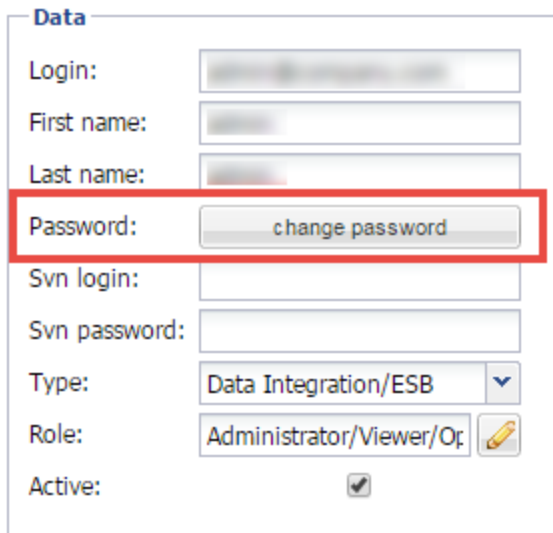
What's Next?

- [Refer to the first-time deployment workflow.](#)

Change the APM Connect Administration Center User Password

Steps

1. [Access the APM Connect Administration Center.](#)
2. In the **Menu** pane, in the **Settings** section, select the **Users** tab.
The **Users** workspace appears.
3. In the **Users** workspace, select the user whose password you want to change.
4. In the **Data** pane, select **change password**.



The screenshot shows a 'Data' pane with several fields and a button. The fields are: Login, First name, Last name, Password, Svn login, Svn password, Type (dropdown menu), Role (dropdown menu), and Active (checkbox). The 'Password' field is highlighted with a red box, and the 'change password' button is visible next to it.

The **User Password** window appears.

5. Enter the new password, and enter it again to confirm.
6. Select **Validate**.

The password has been changed.

Validate the APM Connect Administration Center License

⚠ IMPORTANT: This step is required only if your license was *not* validated automatically when you [accessed the APM Connect Administration Center](#). If you did not receive the *No token set* error when accessing the APM Connect Administration Center, you can skip this procedure, and proceed to the next step, [Configure the APM Connect Administration Center](#), in the [APM Connect Base deployment workflow](#).

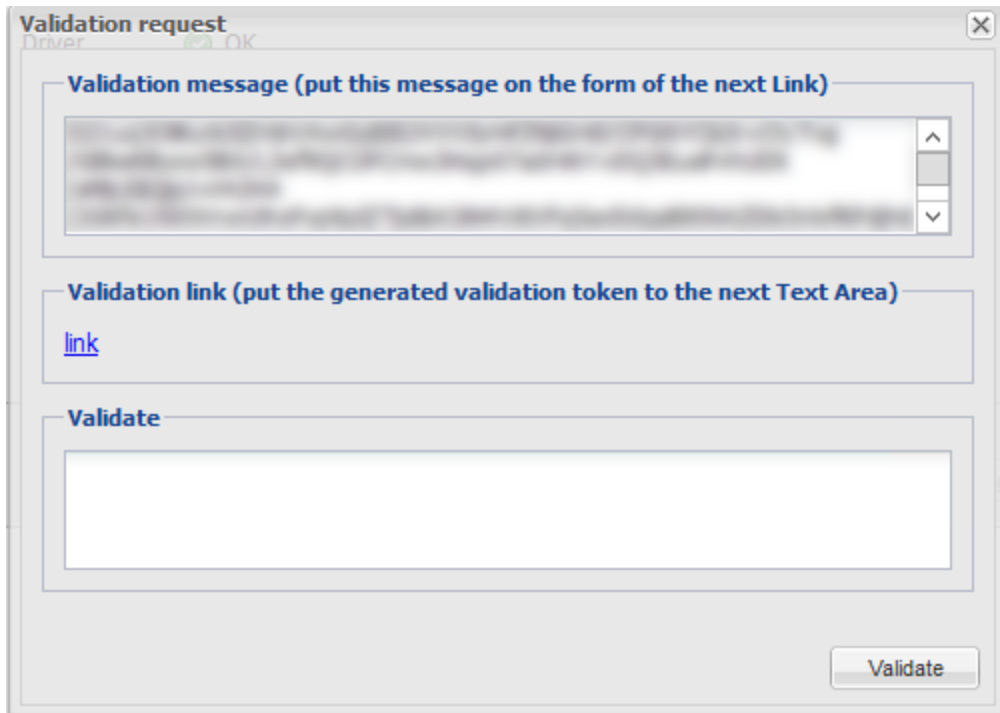
To use the APM Connect Administration Center, you must validate your Administration Center license. Typically, validation is done automatically. However, user specific environment configuration, such as firewalls, may require manual validation. This topic describes how to manually validate your APM Connect Administration Center license.

Steps

1. If you receive the *No token set* error when accessing the APM Connect Administration Center, as shown in the following image, select **Validate your license manually**.

The screenshot displays the 'Database parameters' section of the APM Connect Administration Center configuration interface. It includes fields for Database type (H2 Local), Driver (org.h2.Driver), Url (jdbc:h2:C:/Program Files/Apache Software Foundation/Tomcat 8.5/webapps/apmconnect/WEB), Username, and Password. Below these fields are buttons for 'Save', 'Reload from file', and 'Import parameters'. The 'Check' section shows a list of parameters: Driver (OK), Url (OK), Connection (OK), Version (OK), and License (No license available, please input your valid license). At the bottom, there are buttons for 'Check', 'Set new license', 'Validate your license manually', 'Project Check', and 'Transfer libraries'. A 'Go to login page' button is located in the bottom right corner.

The **Validation request** screen appears.



2. In the **Validation message (put this message on the form of the next Link)** box, copy the text.
3. In the **Validation link (put the generated validation token to the next text Area)** section, select **link**.

If a browser opens, displaying the **Enter your validation request** page, skip to step 6.

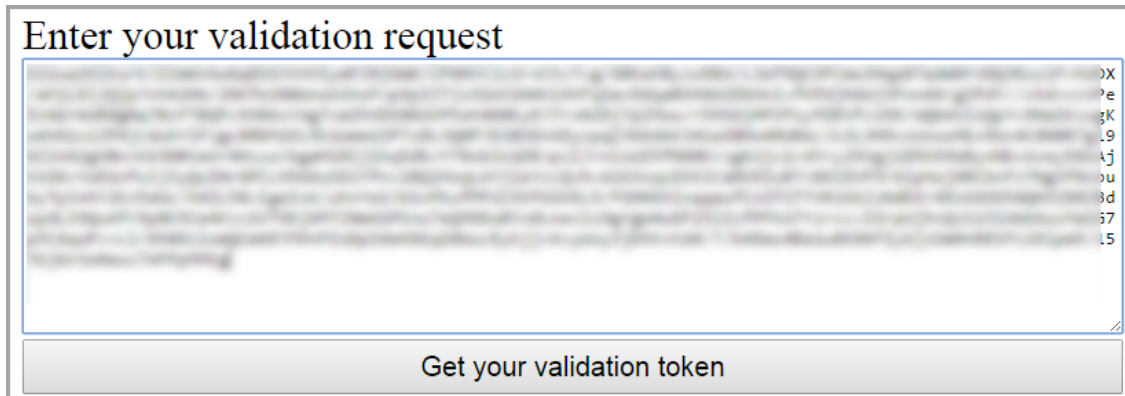
-or-

If a browser does not open, proceed to the next step.

4. Right-click **link**, and then select **copy link text**.
5. Via email or chat, send the link to a machine with internet access that is not behind the firewall, and then, on that machine, paste the link into a browser.

The **Enter your validation request page** appears in your browser.

6. Paste or enter the text from the **Validation message (put this message on the form of the next Link)** box into the box in the browser.



7. Select **Get your validation token**.
The **Copy your validation token** screen appears.
8. Copy the text in the box.
9. Return to the APM Connect Administration Center.
10. Paste the token text into the **Validate** box.
11. Select **Validate**.
The license is validated manually.

What's Next?


- [Refer to the first-time deployment workflow.](#)

Configure the APM Connect Administration Center

Depending on whether you are using the EAM Adapters (SAP Adapters and Maximo Adapters) or the Data Loaders, configuring the APM Connect Administration Center requires defining parameters for some or all of the following components: Commandline, Job conductor, Monitoring, and Log4j. This topic describes how to configure these parameters in the APM Connect Administration Center.

Steps

1. If you are not already in the APM Connect Administration Center, access it via <http://localhost:8080/apmconnect/>.
2. If prompted, log in to the APM Connect Administration Center.
3. In the **Menu** pane, in the **Settings** section, select the **Configuration** tab.
The **Configuration** pane appears.
4. Select the **Job conductor (7 Parameters)** group to expand the workspace.
5. Using the following table as a guide, enter the recommended parameters.

 **Note:** You can accept the default values of parameters not listed in the table.

Parameter	Description	Recommended or Default Value
Generated jobs folder	The path to the folder with the Job execution archives.	C:\APMConnect\Logs\generated_jobs
Tasks logs folder	The path to the folder with the Job execution logs.	C:\APMConnect\Logs\execution_logs

The default parameters are configured as shown in the following image.

Job conductor (7 Parameters / 2 errors)

Generated jobs folder: c:/APMConnect/Logs/generated_jobs

Tasks logs folder: c:/APMConnect/Logs/execution_logs

Number of executions log: 1000


Maximum age of log file(d): 0

Maximum number of generated jobs: 3

Maximum age of generated job(d): 0

Quartz servlet

6. Select the **Servers** group to expand the workspace.
7. In the workspace, select **Add**, and then select **Add Server**.
8. In the **Execution server** section, configure the server.
 - a. Enter the name of the administrator host in the **Label;** **Description;** and **Host:** boxes.
 - b. Select the **Meridium Runtime** check box.
 - c. Select **Save**.
The server configuration is saved.
 - d. Select the server you just added to verify the configuration.
All of the server indicators should be green.
9. Select the **Monitoring (2 Parameters)** group to expand the workspace.

 **Note:** Configuring this parameter is optional.

10. Select the **Log4j (4 Parameters)** group to expand the workspace.
11. Using the following table as a guide, enter the necessary parameters.

Parameter	Description	Recommended or Default Value
-----------	-------------	------------------------------

Technical file appender	The path to the technical log file of the APM Connect Administration Center.	C:/APMConnect/Utilities/Tomcat/logs/technical.log
Technical log threshold	The level of logs you want to append.	WARN
Business log file path	The path to the business log file of the APM Connect Administration Center.	C:/APMConnect/Utilities/Tomcat/logs/business.log
Technical logstash appender	The host and port corresponding to the Logstash instance.	localhost:8050

The default parameters are configured as shown in the following image.

Log4j (4 Parameters / 1 errors)

Technical file appender: C:/APMConnect/Utilities/Tomcat/logs/technical.log ✓

Technical log threshold: WARN ✓

Business log file path: C:/APMConnect/Utilities/Tomcat/logs/business.log ✓

Technical logstash appender: localhost:8050 ✓

The APM Connect Administration Center parameters are configured.

What's Next?

- [Refer to the first-time deployment workflow.](#)

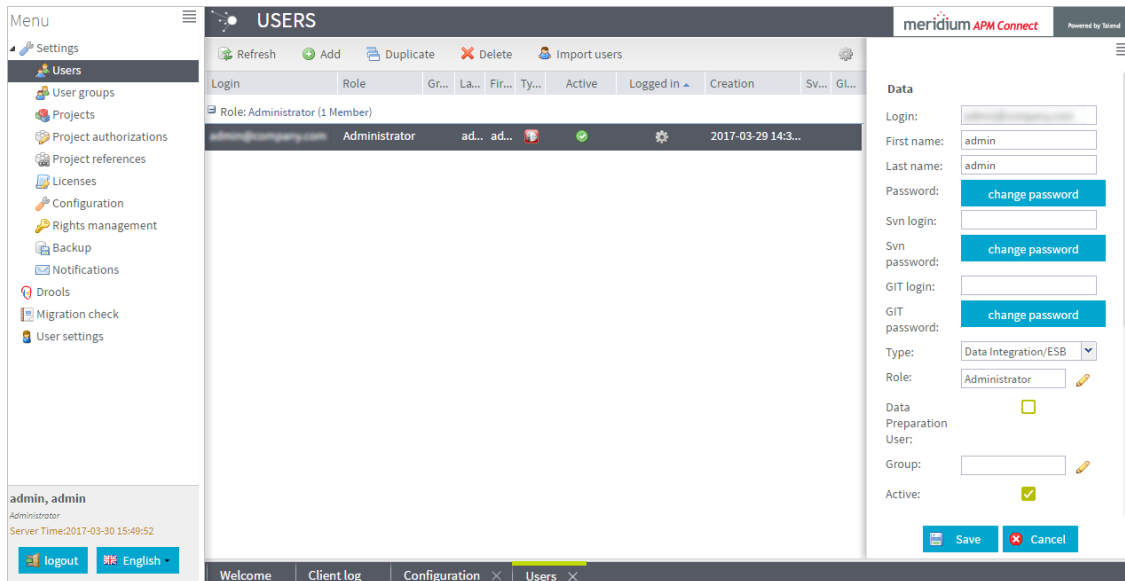
Set User Permissions


To begin using the APM Connect Administration Center to run data extractions, or Jobs, you must first give the admin user all of the user roles.

Steps

1. In the **Menu** pane, in the **Settings** section, select the **Users** tab.
2. Select the user that you want to be the administrator.

The **Data** pane is activated.



3. On the Data pane, next to the **Role:** box, select . The **Role Selection** window appears.

The image shows a 'Roles Selection' dialog box with a close button (X) in the top right corner. It contains a list of roles with checkboxes: 'Role' (unchecked), 'Administrator' (checked), 'Viewer' (unchecked), 'Operation manager' (unchecked), and 'Designer' (unchecked). A blue 'Validate' button with a checkmark icon is located at the bottom right of the dialog.

4. Select each check box to assign the user all roles, or select the box of the role(s) you want to assign the user, according to the following table:

⚠ IMPORTANT: You must designate at least one user the role of Operation Manager to access the Job Conductor.

📄 Note: [A user must be authorized for a project](#) before they can view or change sections associated with a project.

Role	Read Permissions by Module	Write Permissions by Module
Administrator	None.	License, Configuration, Users, Projects, Rights Management, Backup, Notifications, Software Updates
Operations Manager	Projects, EBS Publisher, Service Activity Monitoring, Authorization, Service Registry, Studio, Repository Browser	Configuration, Lock, Notifications, Servers, Job Conductor, ESB Conductor, Execution Plan, Monitoring Audit BRMS (Drools), Service Locator
Designer	Configuration, Projects, Servers, Job Conductor, EBS Conductor, EBS Publisher, Execution Plan, Monitoring	Execution Plan, Audit, BRMS (Drools), Service Locator
Viewer	Servers, Job Conductor, Execution Plan, Audit, Studio, Repository	None.

Deploy APM Connect

5. Select **Validate**.
6. Select **Save**.

The user permissions are set.

What's Next?

- [Refer to the first-time deployment workflow.](#)

Authorize Users for Projects

Before a user can begin work on a specific project, that user must be authorized to work on that project. Each project can have multiple users with differing roles. Users can also be authorized for multiple projects. This topic explains how to authorize a user for a project.


Steps

1. In the **Menu** pane, in the **Settings** section, select **Project authorizations**.

The **Project Authorizations** workspace appears displaying the **Project** section which lists all the projects to which you can add users and the **User Authorizations for the Project: <name>** section which lists all users that can be added to the project.

Entity	Type	Login	Last name	First nam...	Active	Description	Right
User			admin	admin			

2. From the **Project** list, select the project to which you want to add a user.
3. To give a user *read* permissions only, in the **Right** column in the row for that user, select the button.
4. To give a user *read and write* permissions, in the **Right** column in the row for that user, select the button.

 **Hint:** The icons in the **Right** column will be appear in a lighter color if the user is not authorized for a specific action, and be colored if the user has the required permissions.

The user is now authorized for the project.

What's Next?

- [Refer to the first-time deployment workflow.](#)

Configure SSL

If you want to use SSL for connections from APM Connect, this step is required.

About This Task


If you want to use SSL when moving data through the system, you must import security certificates from the secured application into a truststore file accessible to APM Connect. This procedure describes the process for a single application. You can import multiple certificates into a single truststore file by repeating this procedure for each application requiring SSL.

 **IMPORTANT:** When copying the certificates, make sure that you only log in to the application requiring SSL access to APM Connect.

 **Note:** If you want to use SSL with GE Digital APM web services, contact GE Global Support.

Steps

1. Log in to your application, and then access the certificate information for your browser.

 **Note:** Typically, you can access certificate information by selecting the lock icon in the address bar.

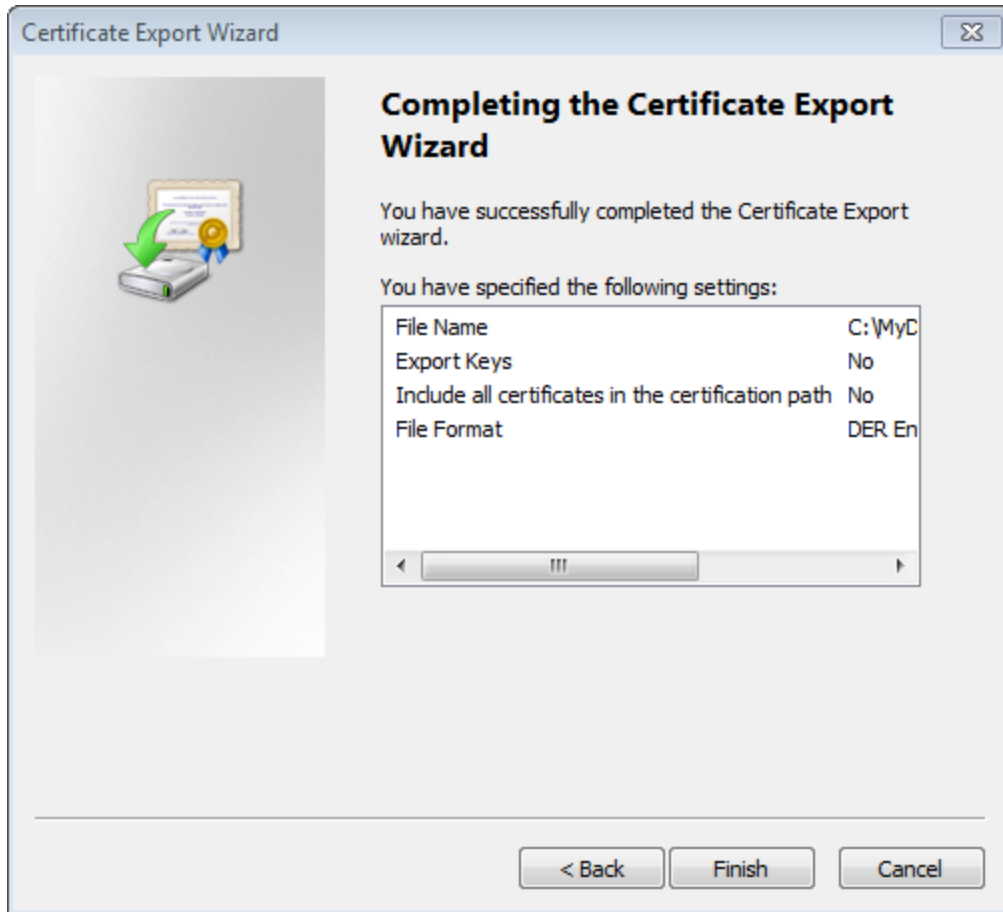
The **Certificate** window appears.

2. Select **Details**, and then select **Copy to File...**

The **Certificate Export Wizard** window appears.



3. Select **Next**.
4. In the **Export File Format** window, select **DER encoded binary X.509 (.cer)**, and then select **Next**.
5. In the **File to Export** window, select **Browse...**
The **Save As** window appears.
6. Save the file to your Desktop under the name *certificate.cer*.
7. Select **Next**.
8. Select **Finish**.
The **Certificate Export Wizard** window appears.



9. Select **OK**.

10. Copy the certificate.cer file, and then paste it into the location for Java files on your machine.

Tip: For example, if your Java files are located at C:\Program Files\Java\jre7\bin, you will want to copy the certificate.cer file to that bin folder.

11. On the APM Connect server, access the Command Prompt window as an Administrator, and then navigate to the location of the Java files on your machine.

12. Enter *keytool*.

Commands for the Key and Certificate Management Tool appear in the Command Prompt.

13. In the last line line, C:\Program Files\Java\jre7\bin>, enter `keytool -importcert -alias test -file certificate.cer -keystore publickey.store`.

14. Enter a password, and confirm the password by reentering it.

In the Command Prompt window, you are asked if you want to trust the certificate.

15. For yes, enter y.

The keystore file is created.

16. For the Karaf service, navigate to the location of the Karaf JDK, and then repeat steps 12 through 15 using the path and password for the Karaf service JDK.

- For the value of the keystore argument, use the file path of the Karaf JDK, (for example, C:\Program Files\Java\<JDK version>\jre\lib\security\cacerts).
- The default password for keytool is changeit. Enter your unique value.

17. Access the context file, and then enter the following values for the corresponding parameters:

- **TRUSTSTORE_FILE:** The location of the truststore file.
- **TRUSTSTORE_PASSWORD:** The password you entered in the Command Prompt window when you installed the certificate.
- **USE_SSL:** true.
- **APM_API_USE_SSL:** true, if you are using SSL on the GE Digital APM Server.

SSL is now enabled for the applications for which you imported the certificates.

What's Next?

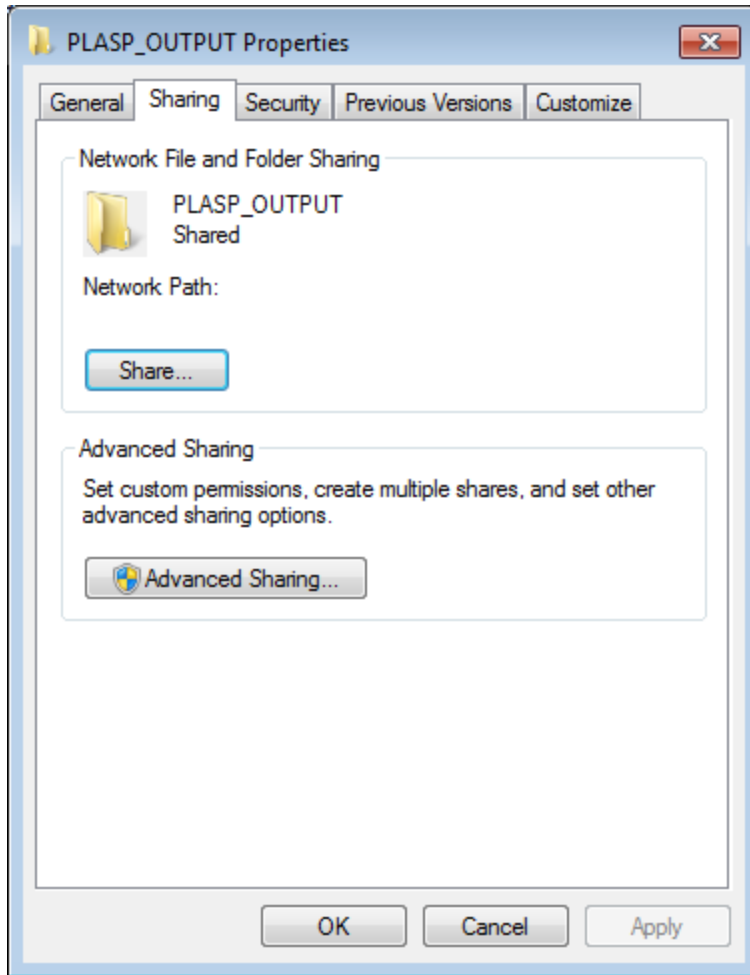
- Refer back to the first-time deployment workflow.

Create a Service Account User

For security reasons, it is important to limit the number of users that can access the file shares between the SAP server and the APM Connect server. The best way to do this is to create one service account user to run the Jobserver and to access the SAP file shares on the SAP server. This topic describes how to create a service account user that has access to the SAP server and runs the Jobserver.

Steps

1. In the same domain as the SAP server, create an active directory user.
2. On the SAP server, create a new folder that will be shared with the new user you just created.
3. Right-click the new folder.
4. Select **Properties**.
The <Folder Name> **Properties** window appears.
5. Select the **Sharing** tab.



6. Select **Share...**
The **File Sharing** window appears.
7. In the text box, enter the user name of the service account.
8. Select **Add**.
The new user appears in the list of users.
9. In the **Permission Level** column, select ▼, and then select **Read/Write**.
10. Select **Share**.
11. Close the windows.
12. On the APM Connect server, select the Windows Start button to open the Windows Start menu.
13. In the **Search programs and files** box, enter *services*.

Services appears in the **Programs** list.

14. Open **Services**.

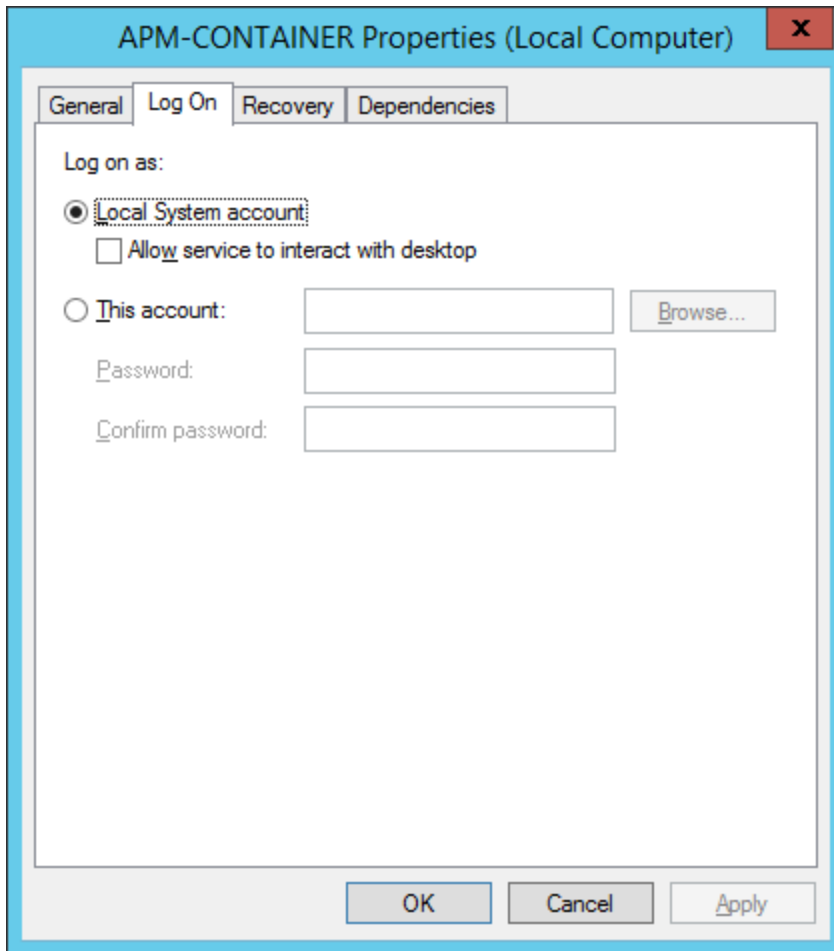
The **Services** window appears.

15. Right-click the *APM-CONTAINER* service.

16. Select **Properties**.

The **APM-CONTAINER Properties (Local Computer)** window appears.

17. Select the **Log On** tab.



18. Select **This account:**.

19. Enter the service account user.

20. Select **OK**.

The service account user has been created, authorized to run the Jobserver, and given access to the file shares on the SAP server.

What's Next?

Deploy APM Connect

- [Refer to the first-time deployment workflow.](#)

Configure Logging

APM Connect uses log4j version 1.2 to log events and provides a default configuration for logging events. These steps describe how to modify this default configuration.

Steps


1. On the APM Connect Server, navigate to the folder **C:\APMConnect\Config**.
2. Open the file **log4j.properties** in an application that you can use to modify a text file (e.g., Notepad).
3. Modify the *log4j.rootLogger* statement to select the correct severity level and appender. Consider the following example of a modified statement:


```
log4j.rootLogger=ERROR, fileout
```

...where the first value is the severity level and the second value is the appender to use. You can enter any of the following values as the severity level:

- TRACE
- DEBUG
- INFO
- WARN
- ERROR
- FATAL
- OFF

The severity level that you configure controls the messages written to the log. Each severity causes the system to filter messages above that type in the preceding list.

 **Note:** The appender value must be either *fileout* or *consoleout*.

 **IMPORTANT:** To collect the most complete information, do not change the conversion pattern on any appender you use.

4. Modify the *log4j.logger.org.apache.cd* statement to log the Web Service request and response messages. The format is similar to *log4j.rootlogger*.
5. Modify the *log4j.logger.org.apache.activemq* statement to enable the logging levels for ActiveMQ messages. The format is similar to *log4j.rootlogger*.
6. If you use the console appender, uncomment all statements containing *consoleout* and comment the statements containing *fileout*. Consider the following example:

```
# consoleout is set to be a ConsoleAppender.
```

```
log4j.appender.consoleout=org.apache.log4j.ConsoleAppender
```

```
log4j.appender.consoleout.Threshold=DEBUG
```

```
log4j.appender.consoleout.layout=org.apache.log4j.PatternLayout
```

```
log4j.appender.consoleout.layout.ConversionPattern=[%-5p][%d{dd MMM yyyy HH:m-m:ss}][%t][%c][%M] %x - %m%n
```

```
#fileout uses fileAppender
```

```
#log4j.appender.fileout=org.apache.log4j.RollingFileAppender
```

```
#log4j.appender.fileout.Threshold=debug
```

```
#log4j.appender.fileout.MaxFileSize=1MB
```

```
#log4j.appender.fileout.MaxBackupIndex=2
```

```
#log4j.appender.fileout.File=${LOG}/${LOG_FILE}
```

```
#log4j.appender.fileout.Append=true
```

```
#log4j.appender.fileout.layout=org.apache.log4j.PatternLayout
```

```
#log4j.appender.fileout.layout.ConversionPattern=[%-5p][%d{dd MMM yyyy HH:m-m:ss}][%t][%c][%M] %x - %m%n
```

 **Note:** When configuring logging for SAP or SAP PI, you *must* specify the actual path to the log file as the value of *log4j.appender.fileout.file*.

7. If you use the file rolling appender:
 - a. Modify the *log4j.appender.fileout.MaxFileSize* value to the appropriate size for your installation.
 - b. Modify the *log4j.appender.fileout.MaxBackupIndex* value to the number of log files you want to keep.
8. Save the file.

Event logging has been configured.

Configure the APM Connect Administration Center for the Studio

△ IMPORTANT: This step is required only if you have the APM Connect Studio license. If you are deploying APM Connect Base with a Basic or Plus License, skip this procedure and proceed to the next step in the [APM Connect Base deployment workflow](#).

Steps

1. Open a web browser.

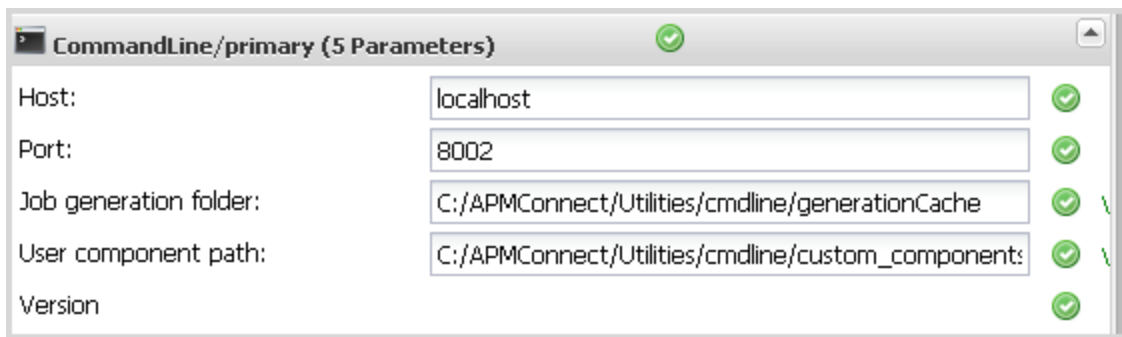
Hint: APM Connect is most compatible with Google Chrome or Mozilla Firefox web browsers. It is not recommend using Internet Explorer to access the APM Connect Administration Center.

2. Enter the following URL into your web browser: `http://localhost:8080/apmconnect/`.
3. If prompted, log in to the APM Connect Administration Center.
4. In the **Menu** pane, in the **Settings** section, select the **Configuration** tab.
The **Configuration** pane appears.
5. Select the **CommandLine/primary (5 Parameters)** group to expand the workspace.
6. According to the information in the following table, enter the necessary parameters.

Parameter	Description	Recommend or Default Value
Host	The IP address of the CommandLine.	localhost
Port	The port number on which the CommandLine is queried.	8002

Job generation folder	The path to the folder where Jobs are generated.	<root:>\APMConnect\Utilities\cmdline\generationCache
User component path	The path to the folder where user components are stored.	<root:>\APMConnect\Utilities\cmdline\custom_components

The default parameters are configured as shown in the following image.



What's Next?

- [Refer to the first-time deployment workflow.](#)

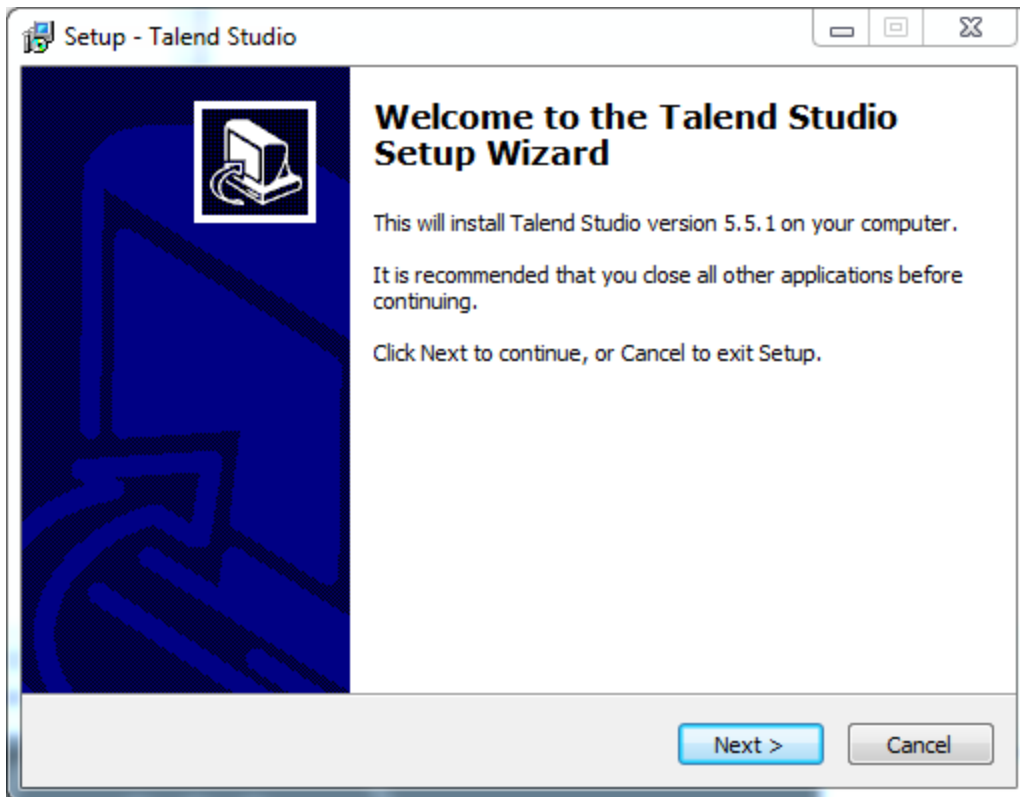
Install the Studio

⚠ IMPORTANT: This step is required only if you have the APM Connect Studio license. If you are deploying APM Connect Base with a Basic or Plus License, skip this procedure and proceed to the next step in the [APM Connect Base deployment workflow](#).

Steps

1. On the machine on which you installed APM Connect, access the Talend Studio installation package.
2. Open the file **TalendStudioInstall.exe**.

The **Setup-Talend Studio** window opens.



3. Select **Next**.

The **License Agreement** screen appears.

4. Read the entire license agreement, and then select one of the following options:
 - **I accept the agreement:** If you agree to the terms of the license agreement and want to continue. These instructions assume that you want to continue.

- **I do not accept the agreement:** This option is selected by default. If you do not agree to the terms of the license agreement and do not want to continue, select **Cancel** to exit the installer.

Next is enabled.

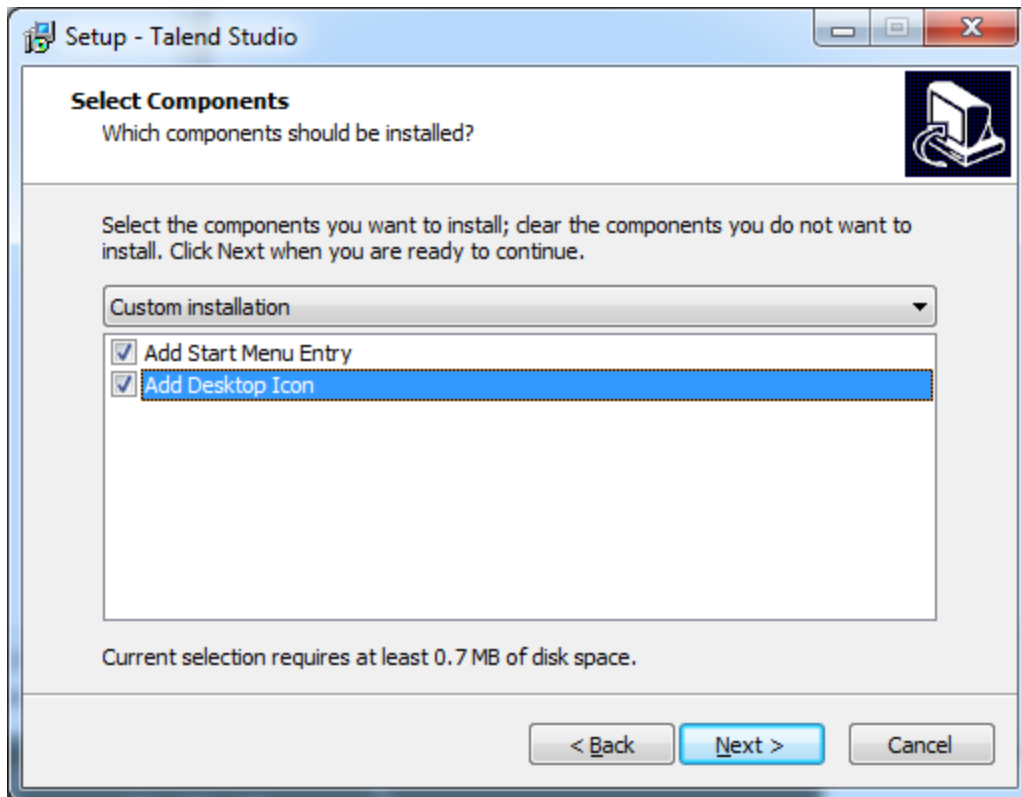
5. Select **Next**.

The **Select Destination Location** screen appears.

6. Select **Next**.

The **Select Components** screen appears.

7. Select the **Add Start Menu Entry** box, and then select the **Add Desktop Icon** box.



8. Select **Next**.

The **Select Start Menu Folder** screen appears.

9. Select **Next**.

The **Ready to Install** screen appears.

10. Select **Install**.

The **Installing** screen appears, displaying an installation progress bar. Once the installation is complete, the **Completing the Talend Studio Setup Wizard** screen appears.

11. Select **Finish**.

The installation is complete, and Talend Studio desktop icon is available.

What's Next?


- [Refer to the first-time deployment workflow.](#)

Uninstall APM Connect

Before you can [upgrade the APM Connect Base](#), you must uninstall your current version of APM Connect.

Steps

1. On the APM Connect server, access the **Uninstall or Change a Program** section of the Control Panel.
2. Select *APMConnect 1.0.3*, right-click, and then select **Uninstall**.
3. Access the **Services** section of the Control Panel (in the **Administrative Tools** section of **System and Security**) and stop the following services:
 - APM-CONTAINER
 - 7.0.57 APMConnect_Tomcat
4. Access the **Uninstall or Change a Program** section of the Control Panel again, select the Java programs (e.g., *Java 1.7.71* and *Java SE Development Kit 1.7.71*), right-click, and then select **Uninstall**.
5. On the APM Connect server, locate the folder *C:\APMConnect*, and then delete it.

 **Tip:** If files are locked and prevent you from deleting this folder, you may need to restart the APM Connect server machine.

6. Access the DOS Command Prompt window, and run the following commands:
 - SC DELETE APM-CONTAINER
 - SC DELETE APMConnect_Tomcat
7. Restart the APM Connect server machine.

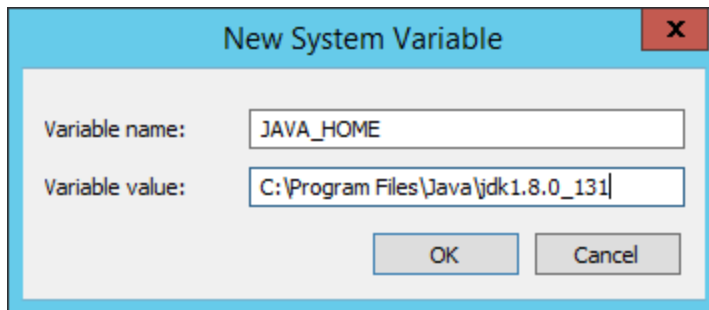
APM Connect is uninstalled.

Set Java Environment Variables

The Java Environment variables are set automatically when you [run the APM Connect installer](#). However, if you need to update or reinstall Java without reinstalling APM Connect, complete these steps to configure Java on your APM Connect server.

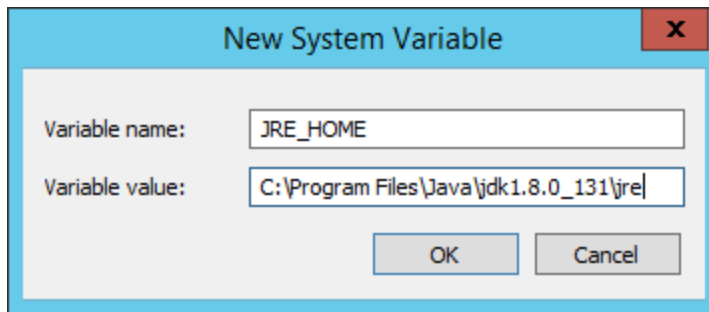
Steps

1. On the APM Connect server, navigate to **Control Panel\System and Security\System** to open system properties for the Windows machine.
The **View basic information about your computer** screen appears.
2. In the **Control Panel Home** pane, select **Advanced systems settings**.
The **System Properties** window appears, displaying the **Advanced** tab.
3. Select **Environment Variables...**
The **Environment Variables** window appears.
4. In the **System variables** section, select **New....**
The **New System Variable** window appears.
5. In the **Variable name** box, enter `JAVA_HOME`.
6. In the **Variable value** box, enter the path to the root *jdk* installation directory. If you installed Java in the default location, the path you should enter is `C:\Program Files\Java\jdk<JAVA_VERSION_NUMBER>`. For example, the default path for Java 8 is `C:\Program Files\Java\jdk1.8.0_131`



7. Select **OK**.
8. In the **System variables** section, select **New....**
The **New System Variable** window appears.
9. In the **Variable name** box, enter `JRE_HOME`.
10. In the **Variable value** box, enter the path to the root *jre* installation directory. If

you installed Java in the default location, the path you should enter is `C:\Program Files\Java\jdk<JAVA_VERSION_NUMBER>\jre`. For example, the default path for Java 8 is `C:\Program Files\Java\jdk1.8.0_131\jre`



11. Select **OK**, and then close the properties window.


The Java environment variables are created.

Import Adapter Jobs

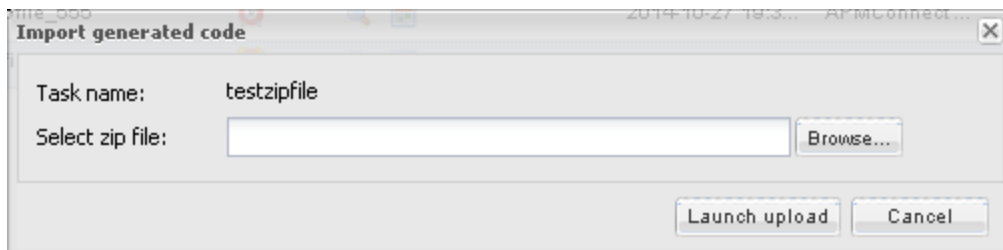
Note: This step is needed only if the adapter jobs were not imported when you [ran the APM Connect installer](#).

A job is used to extract information from the source and push it into GE Digital APM. Before you can initiate a job using the APM Connect Administration Center, you must first load the jobs into the APM Connect Administration Center. This is accomplished by importing the jobs from a .zip file. This topic describes how to import jobs into the APM Connect Administration Center.

Steps

1. In the **Menu** pane, in the **Conductor** section, select the **Job Conductor** tab.
2. On the **Job Conductor** toolbar, select **Add**.
The **Execution task** pane is activated.
3. In the **Execution task** pane, in the **Label** box, enter a label for the job.
4. In the **Description** box, enter a description for the Job.
5. Select the **Active** check box.
6. In the **Job** section, select .


The **Import generated code** window appears.



7. Select **Browse**, and then navigate to the folder containing [the updated jobs package](#).
8. Depending on the type of deployment, select the files that contains the job based on the following table.

Note: You must import every job, or run the respective wrapper job, in the table for the respective deployment.

Data Loader Jobs


Job Name	Description
CleanStagingDatabase.zip	This is a utility job that is optional and it does not load data. When the job is run, it clears temporary tables not removed from your IR database during the loading process. This can help reduce the amount of disk space used by the IR database.
create_dinoloader_db.zip	Creates Intermediate Repository database for DinoLoader. <div style="border: 1px solid yellow; padding: 5px;">  Note: This job must be executed before you can initiate any data imports using the data loaders. </div>

Maximo Adapter Jobs

Job Name	Description
CreateIntermediateRepository.zip	Creates the IR database.
Maximo_Assets.zip	Loads Asset records to GE Digital APM as Equipment records.
Maximo_Location.zip	Loads Location records to GE Digital APM as Functional Location records.
Maximo_Master_Interface.zip	Wrapper job for all Maximo Adapters allowing easy configuration of multiple Maximo Adapters jobs.
Maximo_WorkHistory.zip	Loads Maximo Service Request and Work Order records to GE Digital APM as Work History records.


SAP Adapter Jobs

Job Name	Description
CreateIntermediateRepository.zip	Creates IR database.
CreateStaticData.zip	Loads lookup tables.
EncryptString.zip	Used to encrypt passwords.
IR_Equipment_APM_load.zip	Restarts failed Equipment load from the point of failure.
IR_Equipment_TC_APM_load.zip	Restarts failed Technical Characteristics load from the point of failure.
IR_FLOC_APM_Load.zip	Restarts failed Functional Location load from the point of failure.
IR_FLOC_TC_APM_Load.zip	Restarts failed Technical Characteristics load from the point of failure.
IR_Task_APM_load.zip	Restarts failed Notification Management load from the point of failure.
IR_WorkHistory_To_APM_load.zip	Restarts failed Work History load from the point of failure.
Load_ID_List.zip	Allows large amounts of Asset IDs to be loaded into GE Digital APM.
SAP_Equipment.zip	Loads Equipment records to GE Digital APM.
SAP_Equipment_TechCharacters.zip	Loads Equipment Technical Characteristics records to GE Digital APM.
SAP_FunctionalLocation.zip	Loads Functional Location records to GE Digital APM.
SAP_FunctionalLocation_TechCharacters.zip	Loads Functional Location Technical Characteristics records to GE Digital APM.

SAP_Master_Interface.zip	<p>Wrapper job for all SAP Adapters allowing easy configuration of multiple SAP jobs.</p> <div style="border: 1px solid yellow; padding: 5px;"> <p> Note: This job can be used to run all of the Adapter jobs. It is recommended to use this job solely. Additionally, if you are using Multiple SAP systems you must use this job.</p> </div>
SAP_WorkHistory.zip	Loads Work History records to GE Digital APM.
SAP_WorkManagement.zip	Loads Work Management records to GE Digital APM.

SAP Cloud Adapter Jobs

Job Name	Description
Client_Queue_Listener.zip	Enables the connection to the queue.
CreateIntermediateRepository_Client.zip	Creates Intermediate Repository database.
Email_notifcation.zip	Allows for an email notification to be sent when a job or extraction fails. This report, the Failure Details report, provides the reason for why a record did not load.
EncryptString.zip	Used to encrypt passwords.

Extraction_Wrapper.zip	<p>Wrapper job for all SAP Adapters allowing easy configuration of multiple SAP jobs.</p> <p> Note: This job can be used to run all of the Adapter jobs. It is recommended to use this job solely. Additionally, if you are using multiple SAP systems you must use this job.</p>
SAP_NotificationManagement.zip	Create SAP Notification from General Recommendations.

SAP PI Adapter Jobs

SAP PI Jobs	Description
CreateIntermediateRepository.zip	Creates IR database.
EncryptString.zip	Used to encrypt passwords.
IR_Equipment_APM_load.zip	Restarts failed Equipment load from the point of failure.
IR_FLOC_APM_Load.zip	Restarts failed Functional Location load from the point of failure.
IR_WorkHistory_To_APM_load.zip	Restarts failed Work History load from the point of failure.
Load_ID_List.zip	Allows large amounts of Asset IDs to be loaded into GE Digital APM.
SAP_PI_CreateStaticData.zip	Loads look up tables.
SAP_PI_Equipment.zip	Loads Equipment records to GE Digital APM.
SAP_PI_Equipment_TechCharacters.zip	Loads Equipment Technical Characteristics records to GE Digital APM.
SAP_PI_FuncationalLocation.zip	Loads Functional Location records to GE Digital APM.

SAP_PI_FunctionalLocation_TechCharacters.zip	Loads Functional Location Technical Characteristics records to GE Digital APM.
SAP_PI_Maseter_Interface.zip	Wrapper job for all SAP PI Adapters interfaces allowing easy configuration of multiple SAP.
SAP_PI_NotificationManagement.zip	Load Notification Management data into GE Digital APM.
SAP_PI_WorkHistory	Loads Work History records to GE Digital APM.
SAP_PI_WorkManagement.zip	Loads Work Management records to GE Digital APM.

- On the **Import generated code** window, select **Launch upload**.

The **Project**, **Branch**, **Name**, **Version**, and **Context** boxes are automatically populated with appropriate values.

- In the **Execution Server** list, select the server on which the task should be executed.
- Select **Save**.

The Adapter Job is imported into the APM Connect Administration Center.

- Repeat steps 2-12 for every job.

Each Job is automatically categorized into the correct project.


What's Next?

- Return to the [APM Connect base first-time deployment workflow](#).

Delete a Job

When upgrading in a cloud environment or an adapter, you have to delete the old adapter job before installing the new job.

Steps

1. [Access the APM Connect Administration Center.](#)
2. In the **Menu** pane, in the **Conductor** section, select **Job Conductor**.
The **Job Conductor** workspace appears.
3. In the **Job Conductor** workspace, select the job you want to delete, and then, at the top of the workspace, select  **Delete** .

Results

The job is deleted.

Deploy the Data Loaders

The checklists in this section of the documentation contain all the steps necessary for deploying and configuring this module whether you are deploying the module for the first time or upgrading from a previous module.

Deploy the Data Loaders for the First Time

The following table outlines the steps that you must complete to deploy and configure this module for the first time. These instructions assume that you have completed the steps for deploying the basic GE Digital APM system architecture.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

⚠ Important: If you are using SSL, make sure you have [configured SSL](#) correctly.

Step	Task	Notes
1	Deploy the APM Connect Base.	This step is required.
2	On your APM Connect server and on your GE Digital APM Application Sever, set permissions for the APM Connect Directory.	This step is required.
3	On your APM Connect server, deploy and configure data loaders files.	This step is required.
4	On your APM Connect server, deploy and configure the APM_UPDATE_LOGIC Webservice.	This step is required.
5	In the APM Connect Administration Center, create the Intermediate Repository database.	This step is required.

Upgrade APM Connect Data Loaders to UDLP V2.3.0

The following table outlines the steps that you must complete to upgrade this module to UDLP V2.3.0.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

Upgrade from any Version DL V1.0.0 through UDLP V2.2.0

Step	Task	Notes
1	Upgrade the APM Connect Base.	This step is required.
2	Complete the steps to deploy the data loaders for the first time.	This step is required.

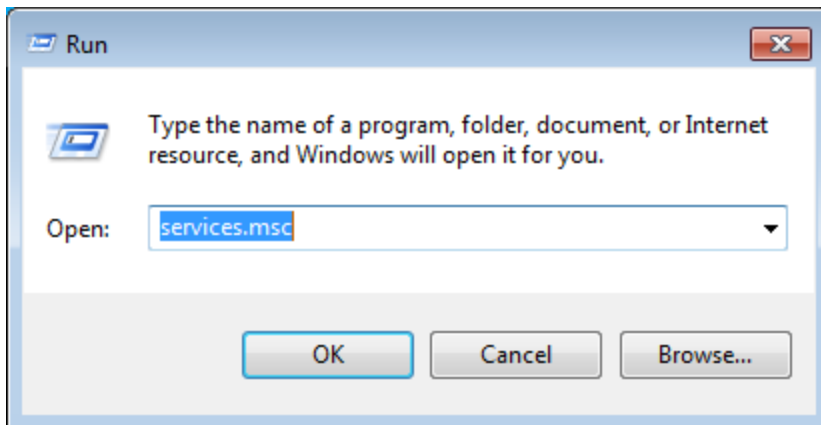
Set Permissions for APM Connect Directory

Before you begin importing data into GE Digital APM using the Excel source files, you must set up a network folder share. The data is passed from the APM Server to the APM Connect server through a file share, a situation in which a folder on the network is shared and accessible to both servers. This topic describes the steps for setting up the permissions required to enable the file share.

Steps:

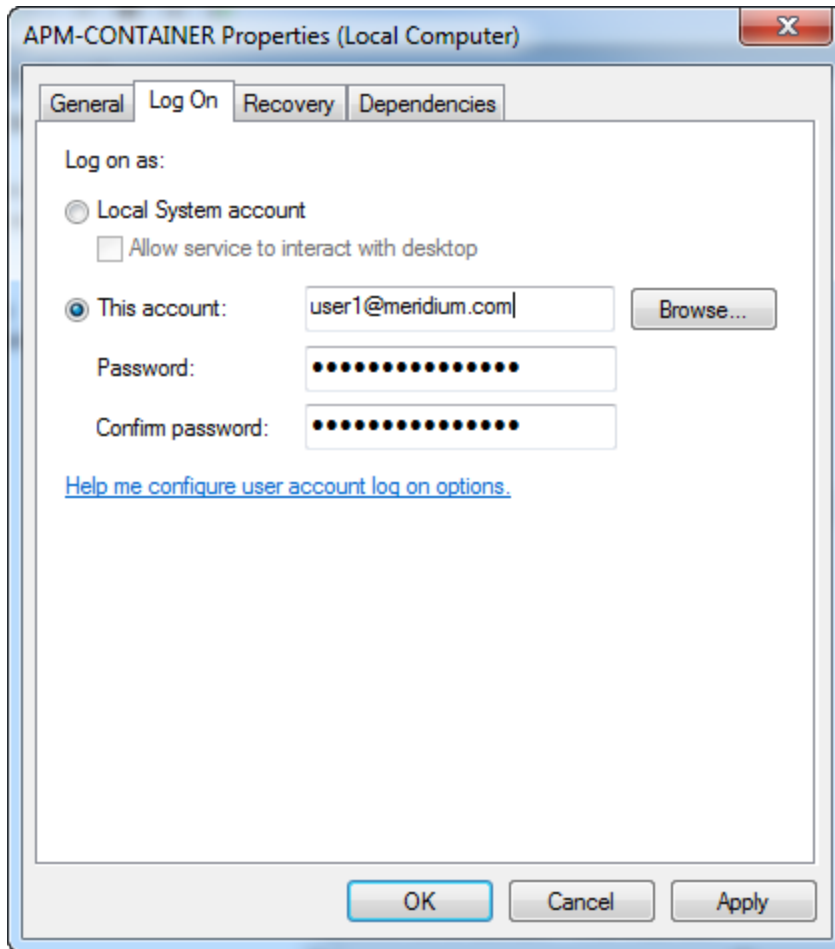
To create a domain user for the APM Container:

1. On the machine on which you installed APM Connect, from your desktop, select the Windows Start button to open the Windows Start Menu.
2. In the **Search programs and files** box, search for *Run*.
Run appears in the **Programs** list.
3. Open **Run**.
The **Run** window appears.
4. In the **Open** box, enter: **services.msc**.



5. Select **OK**.
The **Services** window appears.
6. Right-click **APM-CONTAINER**, and then select **Properties**.
The **APM-CONTAINER Properties** window appears.
7. Select the **Log On** tab, and then select **This account**.
8. Enter the credentials for a user within your network, designated to run APM Connect services.

Example: *user1@meridium.com*



9. Select **Apply**, and then select **OK**.

10. Repeat Steps 6-8 for the service Apache Tomcat 7.0 APMConnect_Tomcat.

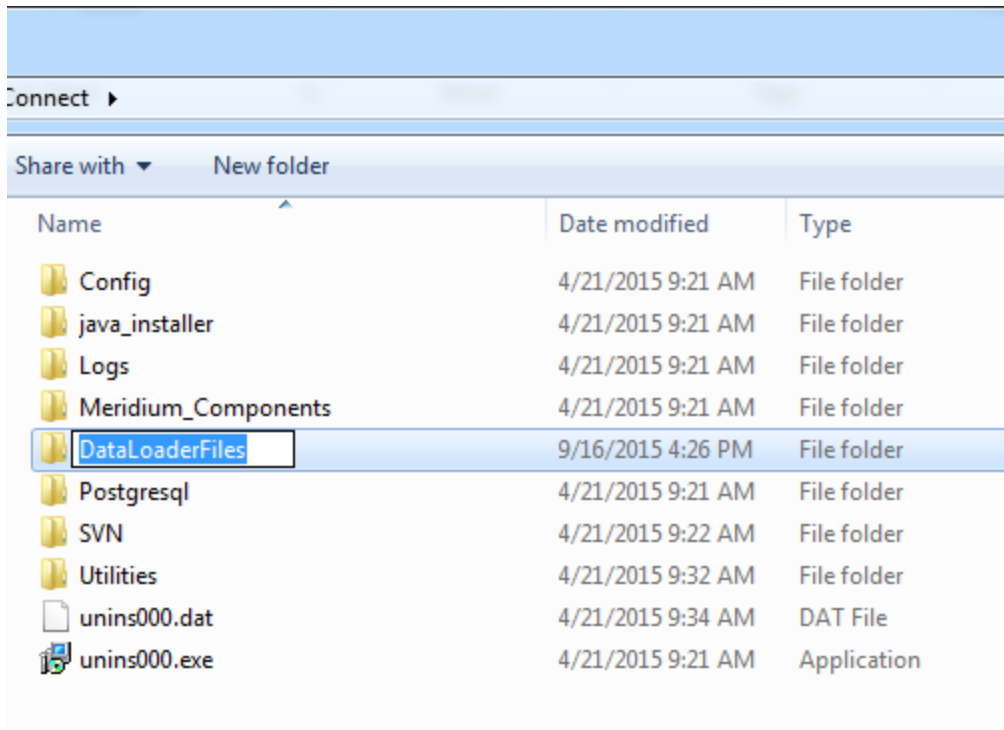
A domain user has been assigned to run the APM Container service and the Tomcat service.

To create a Data Loaders file share:

⚠ IMPORTANT: If you are employing a load-balancing setup using multiple servers, before you proceed, you must first configure the APM Server file share. If you are employing a standalone server, you may proceed with the following steps.

1. On your APM Connect Server, navigate to the APM Connect directory at the following file path: `<root:>\APMConnect\`.
2. In the directory window, select **New folder**, and then name the folder with the

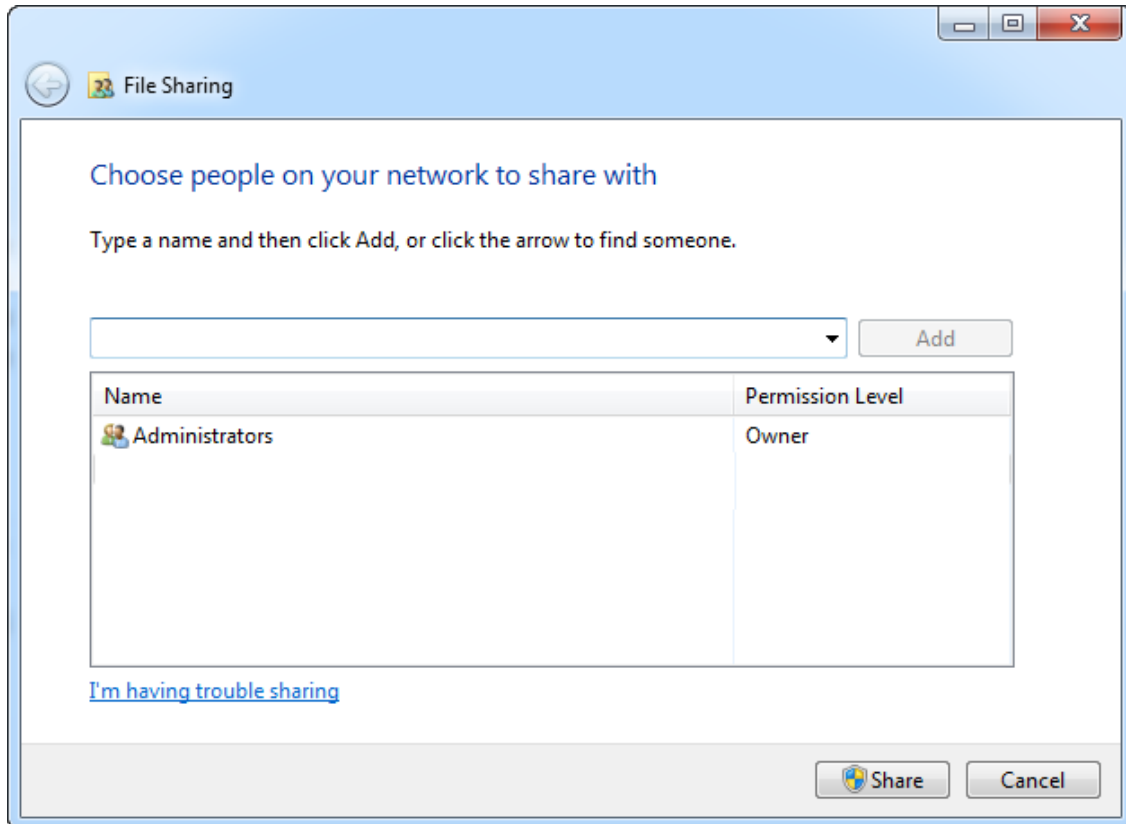
recommended name: *DataLoaderFiles*.



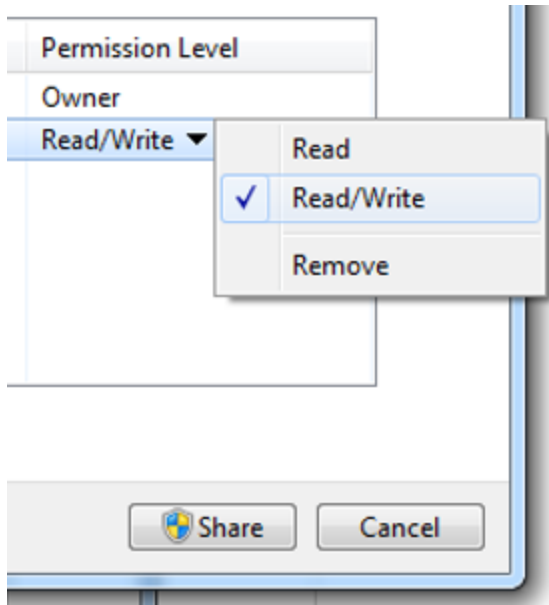
The Data Loader files folder is created.

3. Right-click the folder **DataLoaderFiles**.
4. Point to **Share with**, and then select **Specific people....**

The **File Sharing** window appears.



5. Select the domain user that you indicated in **Step 8** of the **To create a domain user for the APM Container** section of this topic.
6. In the **Permission Level** column for that user, select the drop-down arrow, and then select **Read/Write**.



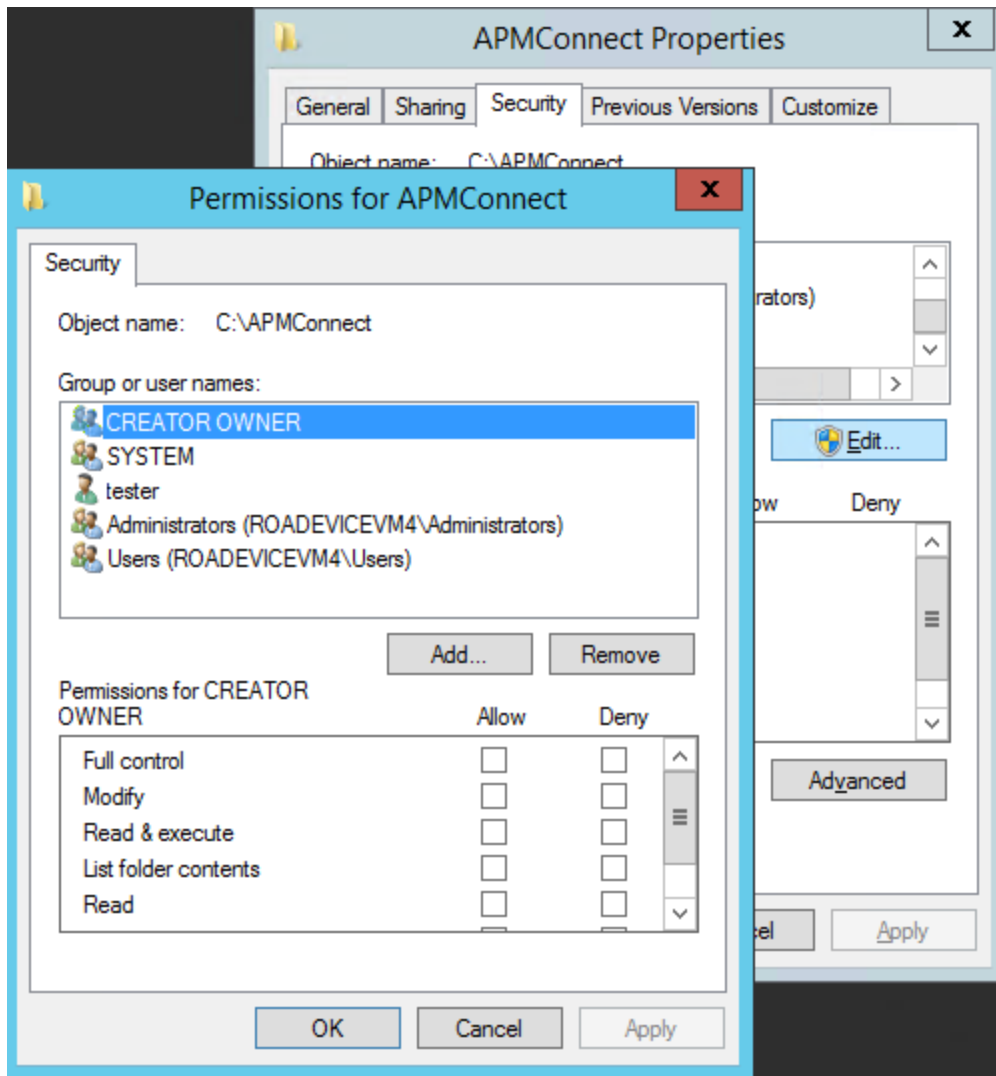
Note: Users running the APM-CONTAINER service and the APM Server must have Read/Write access to this folder.

7. Select **Share**.

Permission for the folder is granted to the user that you selected.

Grant Read/Write Access to the APMConnect folder:

1. Navigate to the **APMConnect** folder.
If you installed APM Connect in the default location the folder is *C:/APMConnect*.
2. Right-click on the folder **APMConnect**, and then select **Properties**.
The **APMConnect Properties** window appears.
3. Select the **Security** tab, and then select **Edit**.
The **Permissions for APMConnect** window appears.



4. Select **Add...**

The **Select Users, Computers, Service Accounts, or Groups** window appears.

5. In the **Enter the object names to select(examples):** box, enter the name of the APM Connect user that you indicated in **Step 8** of the **To create a domain user for the APM Container** section of this topic.

6. Select **Check Names**.

The APMConnect user's name is validated.

7. Select **OK**.

The **Select Users, Computers, Service Accounts, or Groups** window closes, and the APM Connect user is populated in the **Group or user names** box.

8. Select the APM Connect user.

9. In the **Permissions for <Username>** box, on the **Full Control** row, select **Allow**.
10. Select **OK**.
The **Permissions for APM Connect** window closes.
11. On the **APMConnect Properties** window, select **OK**.
The APM Connect service user has access to the APM Connect folder.

What's Next?

- [Refer back to the first-time deployment workflow.](#)

Deploy and Configure Data Loader Files

Note: The APM Connect installer automatically deletes the file *Run-DataLoaderRoute.cfg* from the following location *C:\APMConnect\Utilities\runtime\deploy*, if it exists there. You must complete the remaining steps in this topic manually.

Steps


1. Access the APM Connect installation package, and then copy the file **Run-DataLoaderRoute.cfg**.
2. Navigate to `<root>\APMConnect\Utilities\runtime\etc`, and then paste the copied file in that location.
3. Open the file to edit, and then configure the following parameters:

Parameter	Description	Default or Recommended Value
context	Defines what Talend context environment is used.	Default.
TRUSTSTORE_FILE	The directory path to the dino-loader SSL configuration file.	Value is unique to the user.
TRUSTSTORE_PASSWORD	The password for the keystore files.	Value is unique to the user.
USE_SSL	Determines if SSL is used.	<ul style="list-style-type: none"> • true: will use SSL. • false: will not use SSL.
IR_HOST	Intermediary Repository host name.	Value is unique to the user.
IR_DATABASE	Database for the dinoloader job.	Value is unique to the user.

IR_USERID	Intermediary Repository user-name.	Value is unique to the user.
IR_PASSWORD	Intermediary Repository password.	Value is unique to the user.
IR_SCHEMA	The schema in which the IR database will be created.	The default value is <i>public</i> .
IR_PORT	Intermediate Repository port.	Default value is 5432.
LOG4J_CONFIG_FILE	Log4j directory path.	C:/APMConnect/Config/log4j.properties
IS_LINUX	Indicates if the machine on which the Data Loaders are deployed is a POSIX-compliant operating system (e.g., Linux, UNIX, AIX, HPUX etc.) or another operating system.	<ul style="list-style-type: none"> • true: Enter true if you are deploying the Data Loaders on a POSIX-compliant operating system. • false: Enter false if you are not deploying the Data Loaders on a POSIX-compliant operating system.
LINUX_BASE_PATH	The directory path where the data loader file share is mounted.	<p>This parameter is required only if you are deploying the Data Loaders on a Linux machine.</p> <p>This path is defined by system administrator for the Linux machine, and the value is unique to the user.</p>
ROW_LEVEL_LOGGING	Used for debugging, specifies whether or not data rows are written to the log.	<p>The default is <i>false</i>.</p> <p>true: Writes data rows to the log.</p> <p>false: Suppresses data rows from the log.</p>

org.apache.karaf.features.configKey	Karaf web console configuration tie-in is used to associate this configuration file with the RunDataLoaderRoute class.	RunDataLoaderRoute.talendcontext.Default ⚠ IMPORTANT: Do not modify this parameter.
-------------------------------------	--	---

4. Save the file.
5. In the installation package, copy the file **RunDataLoaderRoute.kar**.
6. On your APM Connect server, navigate to **<root>\APMConnect\Utilities\runtime\deploy**, and then paste the copied file in that location.

 **Note:** If new configuration is not automatically applied, restart the APM_CONTAINER service. This will force the changes to be applied.

What's Next?


- [Refer back to the first-time deployment workflow.](#)

Deploy and Configure the APM_UPDATE_LOGIC Webservice


The APM_UPDATE_LOGIC webservice manages the temporary tables GE Digital APM uses to load the database. Correct configuration is required for the system to operate correctly.

1. Access the APM Connect installation package, and then copy the file **APM_UPDATE_LOGIC.cfg**.
2. Navigate to `<root>\APMConnect\Utilities\runtime\etc`, and then paste the copied file in that location.
3. Open the file to edit, and then configure the following parameters:

Parameter	Description	Default or Recommended Value
context	Defines what Talend context environment is used.	Default. Do not change.
CONFIG_FILE_PATH	The directory path to the context file used for extractions.	C:/APMConnect/Config/ContextFile.xml
LOG4J_CONFIG_FILE	The directory path to the log4j.properties file used for extractions.	C:/APMConnect/Config/log4j.properties
SAP_CLOUD_ENABLED	Specifies whether the installation is in the cloud or on premises.	<ul style="list-style-type: none"> • <i>true</i>: the installation is in the cloud. • <i>false</i>: the installation is on premises.

 **Note:** All file paths *must* use / in this configuration as a directory separator or errors will occur.

4. Save the file.
5. In the installation package, copy the file **APM_UPDATE_LOGIC.jar**.
6. On your APM Connect server, navigate to `<root>\APMConnect\Utilities\runtime\deploy`, and then paste the copied file in that location.

 **Note:** If new configuration is not automatically applied, restart the APM_CONTAINER service. This will force the changes to be applied.

Create the Intermediate Repository Database

This topic describes how to set up a repository in preparation to run your first job.

Before You Begin

△ IMPORTANT: If you are using both the Data Loaders and an EAM Adapter, you need only one Intermediate Repository Database.

- Before you can prepare and deploy the repository, you must [import the CreateIntermediateRepository job](#).
- If you are using the Data Loaders and the EAM Adapters, you must deploy and run the *CreateIntermediateRepository* job for each set of adapters.
- For SAP adapters, you must first run the Static Data job.
- For multiple EAM systems, the context file parameter values for a specific type of system must be identical except for the value of CMMS_ID.
- For multiple EAM systems, the Intermediate Repository Connection parameters have the same values for all adapters connected to this GE Digital APM system.

△ Important: Each time you run the *CreateIntermediateRepository* you recreate the GE Digital APM database to the baseline settings, removing any previous configuration. When you run the *addSourceSystem* job, the job will add new source systems based on the CMMS_ID and the SOURCE_SYSTEM_TYPE. If the job is run an additional time with the same configuration, it will reset the control values of an existing source system.

Steps

1. Log in to the APM Connect Administration Center web application.

Note: The user logging in [must have access to the Job Conductor](#) by being designated the Operations Manager role. By default, users designated as administrators do not have Job Conductor permissions.

2. In the **Job Conductor** workspace, in the appropriate project, select the *CreateIntermediateRepository* job.
3. Select **Context parameters**.

The **Context parameters** section appears.

- Configure the following parameter.

Context Parameter	Description
CONFIG_FILE_PATH	<p>The file path to context files for the jobs.</p> <div style="border: 1px solid red; padding: 5px;"> <p>⚠ IMPORTANT: You <i>must</i> change the default value to reflect the actual path to your configuration file.</p> </div>

- Select **Run**.

The intermediate repository is created for the project.

If you are configuring a single system, you have completed your configuration. The intermediate repository database is created for the project.

If you are configuring multiple EAM systems, perform the remaining steps in this topic.

- In the **Job Conductor** workspace, in the appropriate project, select the addSourceSystem job.
- Configure the following parameter.

Context Parameter	Description
CONFIG_FILE_PATH	<p>The file path to context files for the jobs.</p> <div style="border: 1px solid red; padding: 5px;"> <p>⚠ IMPORTANT:</p> <ul style="list-style-type: none"> You <i>must</i> change the default value to reflect the actual path to your configuration file. CMMS_ID and SOURCE_SYSTEM_TYPE must be set in the context file. </div>


- Select **Run**.
- If you are using multiple adapters, repeat steps 6 through 8 for all adapters.

What's Next?

Deploy APM Connect

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.
-or-
- Return to the [Maximo Adapter workflow](#) for the next steps in the deployment process.
-or-
- Return to the [Data Loader workflow](#) for the next step in the deployment process.

Enable Test Connection

 **Note:** This step is completed automatically when you [run the APM Connect installer](#). These steps are included here for your reference if necessary.

Steps

1. Access your APM Connect Installation package, navigate to the Jobs folder, and then copy the file CheckConnections.jar.
2. On your APM Connect server, navigate to C:\APMConnect\Utilities\runtime\deploy.
3. In the deploy directory, paste the file CheckConnections.jar.

Results

- You can now test the connections required to complete a data load.

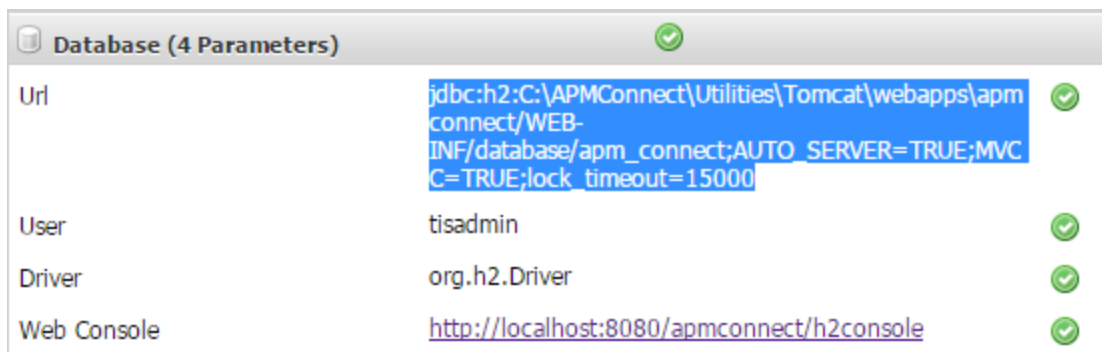
Change H2 Console Password

Note: This step is completed automatically when you [run the APM Connect installer](#). These steps are included here for your reference if necessary.

This topic describes how to change the H2 Console password associated with the APM Connect Administration Center.

Steps

1. [Access the APM Connect Administration Center](#).
2. In the **Menu** pane, in the **Settings** section, select the **Configuration** tab.
The **Configuration** section appears.
3. Select the **Database (4 Parameters)** group to expand the workspace.
4. Highlight and copy the URL in the **URL** row.



Database (4 Parameters)		
Url	<code>jdbc:h2:C:\APMConnect\Utilities\Tomcat\webapps\apmconnect\WEB-INF/database/apm_connect;AUTO_SERVER=TRUE;MVC=C=TRUE;lock_timeout=15000</code>	✓
User	tisadmin	✓
Driver	org.h2.Driver	✓
Web Console	http://localhost:8080/apmconnect/h2console	✓

5. Select the link in the **Web Console** row.
In a new browser tab, the **H2 Console Login** screen appears.
6. In the H2 Console, in the **JDBC URL** field, paste the copied URL.
7. In the **User Name** field, enter the user name. The default user name is *tisadmin*.
8. In the **Password** field, enter the password. The default password is *tisadmin*.

Login

Saved Settings: Generic H2 (Embedded) ▼

Setting Name: Generic H2 (Embedded) Save Remove

Driver Class: org.h2.Driver

JDBC URL: jdbc:h2:C:\APMConnect\Utilities\Tomcat\webapps\lapmc


User Name: tisadmin

Password:

Connect Test Connection

9. Select **Connect**.


10. In the H2 Console, in the **SQL statement** pane, enter the following command: SET PASSWORD '<password>'.

 **Note:** The password must be in single quotes. Example: SET PASSWORD 'abc-strng!5'.

11. Select **Run (Ctrl+Enter)**.

The H2 Console password is changed.

Create APM Service User

 **Note:** This step is completed automatically when you [run the APM Connect installer](#). These steps are included here for your reference if necessary.

Running jobs in the APM Connect Administration Center is perpetrated by users. The *apmService* user is required in order to facilitate communication between APM Connect and GE Digital APM.

Steps

1. In the APM Connect Administration Center, from the **Menu** pane, in the **Settings** section, select the **Users** tab.

2. Select **Add**.

The **Users** pane appears.

3. Enter the user information into the empty fields as necessary according to the following table:

Field	Description	Value
Login	Email login for user	apmService@meridium.com
First name	User first name	apm
Last name	User last name	service
Password	User password	apmConnect (default password)
Type	Type of data migration	Data Integration/ESB
Role	User role	Operation manager
Active	Select check box to signify active user	Must select check box

4. Select **Save**.

The apmService user is created, and it appears in the list of users.


Deploy the Maximo Adapters


The checklists in this section of the documentation contain all the steps necessary for deploying and configuring this module whether you are deploying the module for the first time or upgrading from a previous module.

Deploy Maximo Adapters for the First Time

The following table outlines the steps that you must complete to deploy and configure this module for the first time. These instructions assume that you have completed the steps for deploying the basic GE Digital APM system architecture.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

 **Note:** This GE Digital APM module is not available in the APM Now environment.

 **Important:** If you are using SSL, make sure you have [configured SSL](#) correctly.

Step	Task	Notes
1	Deploy the APM Connect Base.	This step is required.
2	In GE Digital APM, assign security users to one or more of the APM Connect Security Groups .	This step is required.
3	On the APM Connect sever, configure the context file .	This step is required.
4	On the APM Connect server, encrypt passwords in the context file.	None
5	On the APM Connect sever, import notification management file .	This step is required.
6	In the APM Connect Administration Center, configure the context parameters .	This step is required.
7	In the APM Connect Administration Center, create the intermediate repository database .	None
8	Configure Site Reference Values .	This step is required only if you want to modify the default configuration for Site References .
9	In Maximo, create object structures .	This step is required.
10	In Maximo, create web services .	This step is required only if you are <i>not</i> using the REST web services.
11	In Maximo, configure the default password .	This step is required.
12	In GE Digital APM, create EAM System records to identify your Maximo systems.	This step is required.

Upgrade Maximo to Maximo UDLP V2.4.0

The following tables outline the steps that you must complete to upgrade this module to Maximo UDLP V2.4.0. These instructions assume that you have completed the steps for upgrading the basic GE Digital APM system architecture.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

⚠ Important: The Equipment mappings for Maximo have changed. As of Maximo UDLP V2.2.0, the mappings changed to include the Maximo Asset number in the GE Digital APM Equipment ID and the Asset ID that is automatically defined by Maximo in the GE Digital APM Equipment Technical Number. This is the reverse of the previous mapping.

To maintain your current mappings, you must [update the autojoin_control](#) table to reflect your specific mapping. Otherwise, to migrate to the new mapping, you must update the data in your database to conform with the new mappings.

Upgrade from Maximo UDLP V2.2.0 through Maximo UDLP V2.3.0

Step	Task	Notes
1	Upgrade the APM Connect Base.	This step is required.
2	Complete the steps to deploy the Maximo adapters for the first time.	This step is required.

Upgrade from any version EAM MAX V1.0.0 through EAM MAX V2.0.0

Step	Task	Notes
1	Upgrade the APM Connect Base.	This step is required.
2	Complete the steps to deploy the Maximo adapters for the first time.	This step is required.

Maximo Interfaces Security Groups

The following table lists the baseline Security Groups available for users within this module, as well as the baseline Roles to which those Security Groups are assigned.

⚠ IMPORTANT: Assigning a Security User to a Role grants that user the privileges associated with *all* of the Security Groups that are assigned to that Role. To avoid granting a Security User unintended privileges, before assigning a Security User to a Role, be sure to review all of the privileges associated with the Security Groups assigned to that Role. Also be aware that additional Roles, as well as Security Groups assigned to existing Roles, can be added via Security Manager.

Security Group	Roles
MI CMMS Interface Administrator	MI Data Loader Admin
MI CMMS Interface User	MI Data Loader User

The baseline family-level privileges that exist for these Security Groups are summarized in the following table.

Family	MI CMMS Interface Administrator	MI CMMS Interface User
Entity Families		
CMMS Interface	View, Update, Insert, Delete	View
CMMS Mapping	View, Update, Insert, Delete	View
CMMS System	View, Update, Insert, Delete	View
Equipment	View, Update, Insert, Delete	View
Functional Location	View, Update, Insert, Delete	View
Interface Log	View, Update, Insert, Delete	View
SAP System1	View, Update, Insert, Delete	View
Site Reference	View	View

Work History	View, Update, Insert, Delete	View, Update, Insert
Work History Detail	View, Update, Insert, Delete	View, Update, Insert
Relationship Families		
Equipment Has Equipment	View, Update, Insert, Delete	View, Update, Insert
Functional Location Has Equipment	View, Update, Insert, Delete	View, Update, Insert
Functional Location Has Functional Location(s)	View, Update, Insert, Delete	View, Update, Insert
Has CMMS Interface	View, Update, Insert, Delete	View
Has CMMS Mapping	View, Update, Insert, Delete	View
Has CMMS System	View, Update, Insert, Delete	View
Has Event Detail	View, Update, Insert, Delete	View, Update, Insert
Has SAP System	View, Update, Insert, Delete	View

Maximo Context File Parameters


The following table contains a list of parameters that you can configure in the Maximo context file.


⚠ IMPORTANT: Modifying the context file will override the configurations in the [Context Parameters](#) section of the [APM Connect Administration Center](#).

📄 Note: For parameters in the Functional Location Specific Filters, Equipment Specific Filters, and Work History Specific Filters sections, you can enter multiple values by separating the values using commas.

Parameters	Description	Default or Recommended Value
Interface Mode Selection		
MAXIMO_CLOUD_ENABLED	Determines if the Adapter will be used in a cloud environment.	You must enter one of the following values: <ul style="list-style-type: none"> • true: Adapter will run in the cloud. • false: Adapter will run on premises.
LOAD_MERIDIUM_APM	Determines if data will be loaded into the Meridium database.	You must enter one of the following values: <ul style="list-style-type: none"> • true: Data will be loaded into the Meridium database. • false: Data will not be loaded into the Meridium database.
LOAD_DIGITAL_APM	Determines if data will be loaded into the Predix database.	You must enter one of the following values: <ul style="list-style-type: none"> • true: Data will be loaded into the Predix database. • false: Data will not be loaded into the Predix database.

Parameters	Description	Default or Recommended Value
CMMS_ID	<p>The CMMS ID is used as the identifier for your system, and is <System ID>-<Client ID>.</p> <p>For example, if your System ID is D03 and your Client ID is 001, then your CMMS ID would be DO3-001.</p>	<p>This value is required.</p> <p>Enter a unique value.</p>
SOURCE_SYSTEM_TYPE	Identifies the type of system connecting with GE Digital APM.	<p>This value is required.</p> <p>You must enter the value MAXIMO.</p>
Intermediate Repository (IR) Connection		
IR_HOST	The IP address of the IR.	This value is unique for each user.
IR_PORT	The port number of the IR.	The default value is <i>5432</i> .
IR_DATABASE	The database in which the IR data is stored.	This value is unique for each user.
IR_SCHEMA	The schema associated with the IR.	The default value is <i>Public</i> .
IR_USER_ID	The IR user name.	This value is unique for each user.
IR_PASSWORD	The IR system password.	This value is unique for each user.
IR_TALEND_OUTPUT	The shared folder to which the Maximo Adapter will write files.	This value is unique for each user.

Parameters	Description	Default or Recommended Value
APM Connect Connection		
CUSTOMER_NAME	The coded customer name.	Enter your unique value, which was provided during installation.
APM Connection		
 Note: The APM Connection Parameters are not required for a cloud deployment.		
APM_API_APP_SERVER	The name of the GE Digital APM server.	This value is unique for each user.
APM_API_USE_SSL	Specifies whether the GE Digital APM API application uses SSL.	<p>The valid values are:</p> <ul style="list-style-type: none"> • true: The API application uses SSL. • false: The API application does not use SSL. <p>The default value is false.</p>
APM_APP_SERVER	The name of the GE Digital APM server.	This value is unique for each user.
APM_DATASOURCE	The name of the GE Digital APM data source to which the data will be exported.	This value is unique for each user.
APM_USERID	Your GE Digital APM user ID.	This value is unique for each user.
APM_PASSWORD	Your GE Digital APM password.	This value is unique for each user.
Maximo Connection for Extraction Interfaces		
MAXIMO_USERID	The Maximo system user ID.	This value is unique for each user.
MAXIMO_PASSWORD	The Maximo system password.	This value is unique for each user.


Parameters	Description	Default or Recommended Value
LANGUAGE	The alphabetical code that represents the language used for values in the records that are transferred to GE Digital APM.	This value is unique for each user.
MAXIMO_REST_URL	The REST URL for the Maximo Interface. This value is used if you want to use the REST web services to communicate with the Maximo system.	<p>You must enter a value in the following format: <i>http://<maximohost>:<port>/maxrest/rest/os</i></p> <p>This value is not required if the value for the MAXIMO_WEBSERVICE parameter is <i>false</i>.</p> <div style="border: 1px solid yellow; padding: 5px;"> <p> Note: REST services are not fully supported in Maximo versions 7.1 and 7.5.</p> </div>
MAXIMO_WEBSERVICE_URL	The web service URL for the Maximo Interface. This value is used if you want to use the SOAP web services to communicate with the Maximo system.	<p>You must enter a value in the following format: <i>http://<maximohost>:<port>/meaweb/services</i></p> <p>This value is not required if the value for the MAXIMO_WEBSERVICE parameter is <i>true</i>.</p>
MAXIMO_WEBSERVICE	Determines the type of web service to use.	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • <i>true</i>: Uses the SOAP web services. • <i>false</i>: Uses the REST web services. This is the default value for this parameter.
MAXIMO_SYSTEM	The EAM System name defined in the EAM System record in GE Digital APM.	This value is unique for each user, and must match the value in the Name field in the EAM System family in GE Digital APM.

Parameters	Description	Default or Recommended Value
MAXIMO_CONNECTION_TIMEOUT	The duration, measured in seconds, until which the Maximo Adapters will wait for the connection to be established with the Maximo system before timing out.	The recommended value is <i>30</i> .
MAXIMO_RECEIVE_TIMEOUT	The duration, measured in seconds, until which the Maximo Adapters will wait for the response from the Maximo system before timing out.	The recommended value is <i>60</i> .
MAXIMO_REST_ASSETNAME	This value is based on the Equipment object structure that you created in the Maximo system .	The default value is <i>MIASSET</i> .
MAXIMO_REST_FLOCNAME	This value is based on the Functional Location object structure that you created in the Maximo system .	The default value is <i>MIOPERLOC</i> .


Parameters	Description	Default or Recommended Value
MAXIMO_REST_SRNAME	This value is based on the Service Request object structure that you created in the Maximo system.	The default value is <i>MISR</i> .
MAXIMO_REST_WONAME	This value is based on the Work Order object structure that you created in the Maximo system.	The default value is <i>MIWO</i> .
EXTRACT_NUM_PARALLEL_JOBS	Determines the maximum number of Maximo background jobs allowed during extraction.	The recommended value is <i>10</i> .
IR_LOAD_NUM_PARALLEL_JOBS	Determines the maximum number of Maximo background jobs allowed during loading.	The recommended value is <i>10</i> .
Common Filter		
CHANGE_DATE_START	The data extracted is restricted to records changed on or after the date specified for this parameter.	A value is optional for this parameter. You must enter a date in the following format: <i>YYYYMMDD</i>


Parameters	Description	Default or Recommended Value
CHANGE_DATE_END	The data extracted is restricted to records changed on or before the date specified for this parameter.	A value is optional for this parameter. You must enter a date in the following format: <i>YYYYMMDD</i>
CHANGE_TIME_START	The data extracted is restricted to records changed on or after the time specified for this parameter.	A value is optional for this parameter. You must enter time in the following format: <i>HHMMSS</i>
CHANGE_TIME_END	The data extracted is restricted to records changed on or before the time specified for this parameter.	A value is optional for this parameter. You must enter time in the following format: <i>HHMMSS</i>
SITE_ID	The site ID as defined in GE Digital APM.	A value is optional for this parameter. This value is unique for each user.
Functional Location Specific Filter		
LOCATION	A number that identifies the Functional Location whose data you want to extract.	A value is optional for this parameter. This value is unique for each user.
LOCATION_TYPE	The ID of the Functional Location type whose data you want to extract.	A value is optional for this parameter. This value is unique for each user.


Parameters	Description	Default or Recommended Value
LOCATION_STATUS	The status of the Functional Location whose data you want to extract.	A value is optional for this parameter. This value is unique for each user.
Equipment Specific Filter		
ASSETNUM	The asset numbers of the assets that you want to extract.	A value is optional for this parameter. This value is unique for each user.
ASSET_TYPE	The ID of the Asset type that will limit the assets extracted.	A value is optional for this parameter. This value is unique for each user.
ASSET_STATUS	The asset status that will limit the Functional Locations extracted.	A value is optional for this parameter. This value is unique for each user.
Work History Specific Filter		
SERVICE_REQUEST_NO	The Service Request number that will limit the Service Requests extracted.	A value is optional for this parameter. This value is unique for each user.
SERVICE_REQUEST_STATUS	The Service Request status that will limit the data extracted.	A value is optional for this parameter. This value is unique for each user.
WORK_ORDER_NO	The Work Order number that will limit the Work Orders extracted.	A value is optional for this parameter. This value is unique for each user.


Parameters	Description	Default or Recommended Value
WORK_ORDER_TYPE	The type of Work Order that will limit the Work Orders extracted.	A value is optional for this parameter. This value is unique for each user.
WORK_ORDER_SYSTEM_STATUS	The Work Order system status that will limit the Work Orders extracted.	A value is optional for this parameter. This value is unique for each user.
WORKORDER_OR_SERVICEREQUEST_FILTER	Determines if the Maximo Service Requests or Work Orders will be transferred to and from GE Digital APM.	<p>For Work Order and Service Request extraction jobs, a value is required for this parameter. You can enter one of the following values:</p> <ul style="list-style-type: none"> • SERVICEREQUEST: Loads only Service Requests. • WORKORDER: Loads only Work Orders. This is the default value. <p> Note: If no value is entered for this parameter, then both Service Requests and Work Orders will be extracted.</p>
Miscellaneous		
MANUAL_RUN	Determines how the date parameters will be treated.	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: The dates specified in the context file will be used. Additionally, the dates of the last successful run stored in the database will not be updated. • false: The date range used during the extraction will be the date of the last successful record, as stored in the database. Each time a job is run successfully, the database is updated with those dates, and all subsequent runs will use the dates from the last successful record.

Parameters	Description	Default or Recommended Value
LOG_REQUEST	Determines if the GE Digital APM web service requests must be logged.	You must enter one of the following values: <ul style="list-style-type: none"> • true: Enables log creation for requests. • false: Disables log creation for requests. This is the recommended value.
LOG_RESPONSE	Determines if the GE Digital APM web service responses must be logged.	You must enter one of the following values: <ul style="list-style-type: none"> • true: Enables log creation for responses. • false: Disables log creation for responses. This is the recommended value.
REST_FILTER_LIMIT	A numeric value that indicates the number of records that are extracted in one load in the failure table.	The default value is <i>100</i> .
MAXIMO_RS_COUNT	Limits the amount of Maximo records extracted in one load.	The default value is <i>1,000</i> .
Maximo Notification Management		
<div style="border: 1px solid red; padding: 5px;"> <p>⚠ IMPORTANT: You must configure the Maximo parameters for the parameters that correspond to your version of Maximo. For example, if you are using Maximo 76, configure the parameters in the MAXIMO76 section.</p> </div>		
MAXIMO_USERID	The Maximo system user ID.	This value is unique for each user.
MAXIMO_PASSWORD	The Maximo system password.	This value is unique for each user.

Parameters	Description	Default or Recommended Value
LANGUAGE	The alphabetical code that represents the language used for values in the records that are transferred from GE Digital APM.	This value is unique for each user.
MAXIMO_REST_URL	The REST URL for Maximo Interface. This value is used if you want to use the REST web services to communicate with the Maximo system.	<p>You must enter a value in the following format: <i>http://<maximohost>:<port>/maxrest/rest/os</i></p> <p>This value is not required if the value for the MAXIMO_WEBSERVICE_URL parameter is <i>false</i>.</p> <div style="border: 1px solid yellow; padding: 5px;"> <p> Note: REST services are not fully supported in Maximo versions 7.1 and 7.5.</p> </div>
MAXIMO_WEBSERVICE_URL	The web service URL for Maximo Interface. This value is used if you want to use the SOAP web services to communicate with the Maximo system.	<p>You must enter a value in the following format: <i>http://<maximohost>:<port>/meaweb/services</i></p> <p>This value is not required if the value for the MAXIMO_WEBSERVICE_URL parameter is <i>true</i>.</p>
MAXIMO_CONNECTION_TIMEOUT	The duration, measured in seconds, until which the Maximo Adapters will wait for the connection to be established with the Maximo system before timing out.	The recommended value is <i>30</i> .

Parameters	Description	Default or Recommended Value
MAXIMO_RECEIVE_TIMEOUT	The duration, measured in seconds, until which the Maximo Adapters will wait for the response from the Maximo system before timing out.	The recommended value is <i>60</i> .
MAXIMO_REST_SRNAME	This value is based on the Service Request object structure that you created in the Maximo system .	The default value is <i>MISR</i> .
MAXIMO_REST_WONAME	This value is based on the Work Order object structure that you created in the Maximo system .	The default value is <i>MIWO</i> .
MAXIMO_CREATE_WO_SR	Determines if the Maximo Adapter will transfer Maximo Work Orders or Service Requests.	For Notification Management jobs, a value is required for this parameter. You can enter one of the following values: <ul style="list-style-type: none"> • WO: Will transfer only Work Orders. • SR: Will transfer only Service Requests.
MAXIMO_DEFAULT_SITE_ID	The site ID in the Maximo records.	This value is unique for each user. You can enter the value of the Site record that is linked to the EAM System records that you are loading to Maximo.
Queue		
 Note: The Queue parameters apply only to a cloud deployment.		
QUEUE_HOST	The queue host name.	Enter your unique value, which was provided during installation.

Parameters	Description	Default or Recommended Value
QUEUE_HOST_1	The additional queue host name.	Enter your unique value, which was provided during installation.
QUEUE_HOST_2	The additional queue host name.	Enter your unique value, which was provided during installation.
QUEUE_PORT	The queue port.	Enter your unique value, which was provided during installation.
QUEUE_PORT_1	The additional queue port.	Enter your unique value, which was provided during installation.
QUEUE_PORT_2	The additional queue port.	Enter your unique value, which was provided during installation.
QUEUE_USER	The queue user name.	Enter your unique value, which was provided during installation.
QUEUE_PASSWORD	The queue password.	Enter your unique value, which was provided during installation.
CUSTOMER_NAME	The coded customer name.	Enter your unique value, which was provided during installation.
Email Notification		
 Note: The Email Notification parameters apply only to a cloud deployment.		
EMAIL_TO	Email address (es) to which the email will be sent.	Enter your unique value.
EMAIL_FROM	Email address from which the email will be sent.	Enter your unique value.
REPORT_TARGET_DIR	Directory where the report file will be delivered.	Enter your unique value.

Parameters	Description	Default or Recommended Value
FAILURE_DETAIL_REPORT_JRXML_FILE_PATH	Directory where the failure report file will be delivered.	Enter your unique value.
LOAD_SUMMARY_REPORT_JRXML_FILE_PATH	Directory where the load complete report file will be delivered.	Enter your unique value.
SMTP_HOST	Host for SMTP installation on the APM Connect server.	Enter your unique value.
SMTP_PORT	Port for SMTP.	The default value is 25.
LOAD_SUMMARY_REPORT_ENABLED	Indicates whether the load complete report will be loaded with each extraction.	You must enter one of the following values: <ul style="list-style-type: none"> • true: The load complete report, detailing the number of records that were extracted and successfully loaded into GE Digital APM, will be sent. • false: The load complete report will not be sent.
FAILURE_DETAIL_REPORT_ENABLED	Indicates whether the failure detail report will be sent when a record fails to load.	You must enter one of the following values: <ul style="list-style-type: none"> • true: The failure detail report, detailing the records that failed to load into GE Digital APM and the reason for failure, will be sent. • false: The failure detail report will not be sent.
SFTP		
 Note: The SFTP parameters apply only to a cloud deployment.		
SFTP_HOST	The SFTP server host name.	Enter your unique value, which was provided during installation.
SFTP_USERID	The SFTP server user name.	Enter your unique value, which was provided during installation.

Parameters	Description	Default or Recommended Value
SFTP_PASSWORD	The SFTP server password.	Enter your unique value, which was provided during installation.
SFTP_PORT	The SFTP server port.	Enter your unique value, which was provided during installation.
SFTP_LANDING_DIR	Directory where the shared files are stored.	Enter your unique value, which was provided during installation.
USE_SSH_KEY	Determines if the SSH security configuration will be used by the adapters.	You must enter one of the following values: <ul style="list-style-type: none"> • true: SSH security configuration will be used. • false: SSH security configuration will not be used.
SSH_PRIVATE_KEY	Directory where the SSH key is stored.	Enter your unique value. The SSH key must be generated by the user in the openSSH format. This key can be stored in any directory on the APM Connect server, but it is recommended to store it in the following folder: C:\APMConnect\Config

Configure the Maximo Context File Directory

Steps

1. On the APM Connect server, navigate to the following folder: `<root>:/APMConnect/Config`.
2. Rename the folder **RENAME_TO_SYSTEM_NAME** to the name of the Maximo system that you are using.
3. Open the folder that you renamed, and then, using an XML editor or a text editor, open the following file: **ContextFile.xml**.

The content in the context file appears in the editor, displaying the parameters that you can configure for data extraction.

4. As needed, modify the values for the parameters in [the context file](#), and then save the file.

Your changes to the context file are saved.

What's Next?

- Return to the [Maximo Adapter workflow](#) for the next step in the deployment process.

About Site Reference Configuration via the `autojoin_control` Table

The Equipment, Functional Location, and Work History records that are imported to GE Digital APM are assigned to a Site based on a Site Reference. In the Maximo adapter, the Site Reference is configured using [the `autojoin_control` table](#) in the Intermediate Repository. In the table, the value in the `site_reference` column in each row defines the Site that must be used while loading the data defined by the SQL statement specified in that row. To modify the value assigned as the Site in the imported records, you must [modify the value in the `site_reference` column](#).

⚠ IMPORTANT: Site records corresponding to the Sites that you want to assign to the records must exist in GE Digital APM before you can import the records.

You can configure Site Reference in one of the following ways:

- **Direct Site Reference:** The Site Reference is configured with a specific site name (e.g., Site 100).
- **Indirect Site Reference:** The Site Reference is configured to use the value in a specific GE Digital APM field to assign the Site in the imported records. The following fields can be used as Site References for records extracted from Maximo Systems:
 - `MI_FNCLOC00_SITE_C`
 - `MI_EQUIP000_SITE_C`

By default, in the `autojoin_control` table, the `site_reference` column contains the following values:

- `#MI_FNCLOC00_SITE_C#` for Functional Location records
- `#MI_EQUIP000_SITE_C#` for Equipment records

These values indicate that the site assigned to the Functional Location and Equipment records is determined by the value in the `SITEID` field in the Maximo system.

Additionally, in the `autojoin_control` table, if the value in the `site_reference` column is `null` or blank in a row, the records will be assigned with a Site based on the value specified in the `default_site_reference` column. The default value in the `default_site_reference` column is `*Global*`, which assigns the Site `Global` to the imported records.

In the `autojoin_control` table, the value in the `site_reference` column for the rows that define relationships of the Work History with Functional Locations and Equipment, determines the Site assigned to the Work History records loaded by the Maximo adapters.

The autojoin_control Table

The **autojoin_control** table is used to customize the data that is loaded into GE Digital APM. Each row in the table contains an SQL statement that defines the fields that must be imported to GE Digital APM. You can also specify the value to be used as Site Reference using the **autojoin_control** table. The following columns are available in the **autojoin_control** table:

Column	Description
AUTOJOIN_ID	An integer value used to identify each row in the table.
BATCH_NAME	The name of the batch to which the query belongs. When a job for loading data is processed, queries with the same BATCH_NAME are run together.
TABLE_NAME	The name specified in this column along with the unique ID for the job is used to define the name of the temporary table that is created to store the data extracted using the SQL statement specified in the row.
SQL_EXECUTION_ORDER	The sequence in which the SQL statements will be run when they are processed in batches. Within a batch, SQL statements for rows with lower numbers in this column will be run first.
SQL	An SQL SELECT statement that defines the data that will be loaded to GE Digital APM. The results of this statement are copied to the temporary table, whose name is defined by the unique ID of the job and the value in the TABLE_NAME column. The columns defined in the SELECT statement must match the column names in the GE Digital APM family to which the data is being loaded.
SITE_REFERENCE	The value used to determine the Site assigned to records generated for the corresponding SQL statement. You can configure this value to modify the Site Reference . The default value is #MI_FNCLOCOO_SITE_C# for Functional Location records and #MI_EQUIPOO_SITE_C# for Equipment records, indicating that the site assigned to the records is determined by the value in the SITEID field in the Maximo system.
APM_SITE_REFERENCE_COLUMN	The GE Digital APM field that is used to store the names of the Site. Unless you have customized the GE Digital APM database, this value should be MI_SITE_NAME.

APM_SITE_REFERENCE_FAMILY	The GE Digital APM family to which the Site Reference will be applied. When the relationship is being built within the records of the same entity, the value is <PRED_FAMILY_ID>. Unless you have customized the GE Digital APM database, you do not need to modify this value.
USE_RELATIONSHIP_LOOKUP	Specifies whether the row is for an entity or a relationship family. If the row is used to populate a relationship family, the value is 1. Otherwise, the value is 0. This affects the way relationship references are defined in the resulting SQL statements.
DEFAULT_SITE_REFERENCE	A value that indicates the Site Reference that should be used in one of the following scenarios: <ul style="list-style-type: none"> • The value in the site_reference column is <i>null</i>. <li style="text-align: center;">-or- • The value in the field specified in the site_reference column for indirect site reference is <i>null</i>. <p>If you want to assign the site as <i>global</i>, in this field, you must enter <i>*Global*</i>. If you want to assign a site to the records, you must enter the name of a site.</p>

Encrypt Passwords

Passwords in the APM Connect context file are not encrypted by default. However, you can encrypt any password manually. This topic describes how to manually encrypt passwords.

Steps

1. On the machine on which you installed APM Connect, access the APM Connect installation package, locate the *Encrypt String_0.1.zip*, and then unzip the file.
2. Open the EncryptString folder, and then select *EncryptString_run.bat*.
A command prompt opens, and then the **Talend Open Studio** window appears.
3. Enter the password that you want to encrypt in the **Enter the text to be encrypted:** box.
4. Select **OK**.
5. In the command prompt, between the banners, copy the text that was generated.
6. Open the context file.
7. In the parameter that you want to encrypt, paste the generated text.
8. Append the highlighted parameter the with *_AES*, as shown in the following image.

```

<!-- Intermediate Repository connection parameters-->
<IR_HOST>APMCONNECTVM</IR_HOST>
<IR_PORT>5432</IR_PORT>
<IR_DATABASE>APMconnectFTP</IR_DATABASE>
<IR_PASSWORD_AES>FyoGBWa6ftigcB2nAWZ56w==</IR_PASSWORD_AES>

```

9. Save the context file.
10. For each password that you want to encrypt, repeat steps 2 through 9.
The passwords are encrypted.

What's Next?


Return to the adapter workflow for the next step in the deployment process.

Import the Maximo Notification Management File

△ IMPORTANT: Maximo does not support notification generation for multiple EAM systems.

Steps

1. On the APM Connect server, navigate to the following folder: `<root:>/APMConnect/Config`
2. Copy the file `Maximo_NotificationManagement.cfg` to the following directory: `<root:>\APMConnect\Utilities\runtime\etc`
3. Modify the file such that the following parameters have the stated values:
 - context = Default
 - CONFIG_FILE_PATH = <The directory path to your [Maximo Context File](#)>

 **Note:** The path must use forward slashes (/).

4. Save the file.
5. Access the APM Connect installation package, and then copy the following file: `connectServices.jar`
6. Navigate to the following directory: `<root:>\APMConnect\Utilities\runtime\deploy`
7. If you already have an existing `connectServices.jar` file, delete it before copying the new file into the directory.
8. Paste the copied file `connectServices.jar` in the directory.

The notification management file is imported.

What's Next?

- Return to the [Maximo Adapter workflow](#) for the next step in the deployment process.

Configure Context Parameters

Steps

1. In the APM Connect Administration Center, in the **Job Conductor** workspace, select the MAXIMO_MASTER_INTERFACE Job.
2. At the bottom of the **Job Conductor** workspace, select **Context parameters**.

The **Context parameters** section appears, displaying the following parameters:

Context Parameter	Description
CONFIG_FILE_DIRECTORY	The file path to context files for the jobs.
SYSTEM_TO_RUN	Name of the folder in which the context file is stored, and is the <system name> folder.
LOG4J_CONFIG_FILE	The file path for Log4j.
RUN_WORKHISTORY	The Work History Job.
RUN_EQUIPMENT	The Equipment Job.
RUN_FLOC	The Functional Location Job.

3. Select the **Active** check box for each parameter whose custom value you want to edit.
4. To save the custom value, press Enter.
5. In the **CONFIG_FILE_DIRECTORY Custom value** box, enter the directory where the context files are stored. If the default configuration was followed, the path will be the following: <root:>\APMConnect\Config.
6. Press Enter.
7. In the **SYSTEM_TO_RUN Custom value** box enter:
 - The name of the system directory from which you want to extract data.
 - or-
 - * to extract from all systems.
8. Press Enter.

The master job is configured.

What's Next?

Deploy APM Connect

- Return to the [Maximo Adapter workflow](#) for the next step in the deployment process.

Create the Intermediate Repository Database

This topic describes how to set up a repository in preparation to run your first job.

Before You Begin

△ IMPORTANT: If you are using both the Data Loaders and an EAM Adapter, you need only one Intermediate Repository Database.

- Before you can prepare and deploy the repository, you must [import the CreateIntermediateRepository job](#).
- If you are using the Data Loaders and the EAM Adapters, you must deploy and run the *CreateIntermediateRepository* job for each set of adapters.
- For SAP adapters, you must first run the Static Data job.
- For multiple EAM systems, the context file parameter values for a specific type of system must be identical except for the value of CMMS_ID.
- For multiple EAM systems, the Intermediate Repository Connection parameters have the same values for all adapters connected to this GE Digital APM system.

△ Important: Each time you run the *CreateIntermediateRepository* you recreate the GE Digital APM database to the baseline settings, removing any previous configuration. When you run the *addSourceSystem* job, the job will add new source systems based on the CMMS_ID and the SOURCE_SYSTEM_TYPE. If the job is run an additional time with the same configuration, it will reset the control values of an existing source system.

Steps

1. Log in to the APM Connect Administration Center web application.

Note: The user logging in [must have access to the Job Conductor](#) by being designated the Operations Manager role. By default, users designated as administrators do not have Job Conductor permissions.

2. In the **Job Conductor** workspace, in the appropriate project, select the *CreateIntermediateRepository* job.
3. Select **Context parameters**.

The **Context parameters** section appears.

- Configure the following parameter.

Context Parameter	Description
CONFIG_FILE_PATH	<p>The file path to context files for the jobs.</p> <div style="border: 1px solid red; padding: 5px;"> <p>⚠ IMPORTANT: You <i>must</i> change the default value to reflect the actual path to your configuration file.</p> </div>

- Select **Run**.

The intermediate repository is created for the project.

If you are configuring a single system, you have completed your configuration. The intermediate repository database is created for the project.

If you are configuring multiple EAM systems, perform the remaining steps in this topic.

- In the **Job Conductor** workspace, in the appropriate project, select the addSourceSystem job.
- Configure the following parameter.

Context Parameter	Description
CONFIG_FILE_PATH	<p>The file path to context files for the jobs.</p> <div style="border: 1px solid red; padding: 5px;"> <p>⚠ IMPORTANT:</p> <ul style="list-style-type: none"> You <i>must</i> change the default value to reflect the actual path to your configuration file. CMMS_ID and SOURCE_SYSTEM_TYPE must be set in the context file. </div>

- Select **Run**.
- If you are using multiple adapters, repeat steps 6 through 8 for all adapters.

What's Next?

Deploy APM Connect

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.
-or-
- Return to the [Maximo Adapter workflow](#) for the next steps in the deployment process.
-or-
- Return to the [Data Loader workflow](#) for the next step in the deployment process.

Configure Site Reference Values

This topic describes how to modify [the `autojoin_control` table in the Intermediate Repository](#), to assign site references to records using values other than those in the [default configuration](#).

⚠ IMPORTANT: Site records corresponding to the Sites that you want to assign to the records must exist in GE Digital APM before you can import the records.

Steps: Configure the Site Reference Value to Use an Indirect Site Reference Value

1. Using a database browser tool, access your Intermediate Repository.
A list of tables available in the repository appears.
2. In the list of tables, navigate to [the `autojoin_control` table](#), and then, in the data available for the table, locate the **site_reference** column.
3. For each row in which you want to modify the Site Reference, in the **site_reference** column, modify the value using the following format: `#FIELD_ID#`, where `FIELD_ID` represents the ID of the GE Digital APM field from which you want to populate the site reference value.

For example, if you want the Site Reference for the Equipment and Functional Location records to be assigned with the name of the CMMS System from which the data was extracted, then modify the value in the **site_reference** column with the following values:

- Where the value `#MI_EQUIPOO_SITE_C#` occurs, replace the value with `#MI_EQUIPOO_SAP_SYSTEM_C#`.
- Where the value `#MI_FNCLOC00_SITE_C#` occurs, replace the value with `#MI_FNCLOC00_SAP_SYSTEM_C#`.

`MI_EQUIPOO_SAP_SYSTEM_C` and the `MI_FNCLOC00_SAP_SYSTEM_C` are fields in the Equipment and Functional Location records that store the name of the CMMS System.

4. Save the **autojoin_control** table.

Your changes are saved. When you import records into GE Digital APM from your Maximo system, the site assigned to the records will be based on the Site Reference that you specified in the **autojoin_control** table.

Steps: Configure the Site Reference Value to Use a Direct Site Reference

1. Using a database browser tool, access your Intermediate Repository.
A list of tables available in the repository appears.
2. In the list of tables, navigate to [the autojoin_control table](#), and then, in the data available for the table, locate the **site_reference** column.
3. For each row in which you want to modify the Site Reference, in the **site_reference** column, replace the value with the name of the Site that you want to assign to the records.
4. Save the **autojoin_control** table.

Your changes are saved. When you import records into GE Digital APM from your Maximo system, the site assigned to the records will be the Site that you specified in the **autojoin_control** table.

What's Next?

- Return to the [Maximo Adapter workflow](#) for the next step in the deployment process.

Create Object Structures in Maximo

To connect your Maximo system and your GE Digital APM system, you will need to create object structures in Maximo for the following:

- Asset
- Location
- Work Order
- Service Request

Steps: Create Object Structure - Asset

1. In the **Go To Application** column, select **Integration**, and select **Object Structures**.

The **Object Structure** page appears.

2. In the **Object Structure** box, enter *MXASSET*, and then open the object structure.
3. In the **Go To Application** column, in the **More Actions** section, select **Duplicate Object Structure**.

4. Enter the Object Structure name *MIASSET*.

5. In the **Source Object for MIASSET** section, remove all objects *except* the ASSET object.

6. In the **Go To Application** column, in the **More Actions** section, select **Exclude/Include Fields**.

The **Exclude/Include Fields** window appears.

7. On the **Persistent Fields** tab, clear the **Exclude?** check boxes on the rows corresponding to the following fields:

- ASSETID
- ASSETNUM
- ASSETTYPE
- CHANGEDATE
- DESCRIPTION
- INSTALLDATE
- ITEMNUM
- LOCATION

- MANUFACTURER
 - PRIORITY
 - SERIALNUM
 - SITEID
 - STATUS
 - VENDOR
 - WARRANTYEXPDATE
8. On the **Non-Persistent Fields** tab, select the **Include?** check box on the row corresponding to the following field:
- DESCRIPTION_LONGDESCRIPTION
9. Select **OK**.

Steps: Create Object Structure - Location

1. In the **Go To Application** column, select **Integration**, and select **Object Structures**.
The **Object Structure** page appears.
2. In the **Object Structure** box, enter *MXOPERLOC*, and then open the object structure.
3. In the **Go To Application** column, in the **More Actions** section, select **Duplicate Object Structure**.
4. Enter the Object Structure name *MIOPERLOC*.
5. In the **Source Object for MIOPERLOC** section, remove all objects *except* the **LOCATION** object.
6. Add the **ASSET** object with **LOCATION** as parent and **ASSET** as relationship.
7. In the **Go To Application** column, in the **More Actions** section, select **Exclude/Include Fields**.
The **Exclude/Include Fields** window appears.
8. On the **Persistent Fields** tab, clear the **Exclude?** check boxes on the rows corresponding to the following Fields:
 - CHANGEDATE
 - DESCRIPTION

- LOCATION
 - LOCATIONSID
 - SITEID
 - STATUS
 - TYPE
9. On the **Non-Persistent Fields** tab, select the **Include ?** check box on the row corresponding to the following fields:
- FAILURECODE
 - PARENT
 - LOCPRIORITY
 - DESCRIPTION_LONGDESCRIPTION
10. Select OK.

Steps: Create Object Structure - Work Order

1. In the **Go To Application** column, select **Integration**, and select **Object Structures**.
The **Object Structure** page appears.
2. In the **Object Structure** box, enter *MXWO*, and then open the object structure.
3. In the **Go To Application** column, in the **More Actions** section, select **Duplicate Object Structure**.
4. Enter the Object Structure name *MIWO*.
5. In the **Source Object for MIWO** section, remove all objects *except* the WORK ORDER object.
6. In the **Go To Application** column, in the **More Actions** section, select **Exclude/Include Fields**.
The **Exclude/Include Fields** window appears.
7. On the **Persistent Fields** tab, clear the **Exclude?** check boxes on the rows corresponding to the following Fields:
 - ACTFINISH
 - ACTLABCOST
 - ACTLABHRS

- ACTMATCOST
- ACTSERVCOST
- ACTSTART
- ACTTOOLCOST
- ACTTOTALCOST
- ASSETLOC PRIORITY
- ASSETNUM
- CALCPRIORITY
- CHANGEBY
- CHANGEDATE
- CREWID
- DESCRIPTION
- ESTLABCOST
- ESTLABHRS
- ESTMATCOST
- ESTSERVCOST
- ESTTOOLCOST
- JPNUM
- JUSTIFY PRIORITY
- LEAD
- LOCATION
- OUTLABCOST
- OUTMATCOST
- OUTTOOLCOST
- PMNUM
- REPORTDATE
- SCHEDFINISH
- SCHEDSTART
- SITEID

- STATUS
 - TARGCOMPDATE
 - TARGSTARTDATE
 - WONUM
 - WOPRIORITY
 - WORKTYPE
8. On the **Non-Persistent Fields** tab, select the **Include ?** box on the row corresponding to the following **Fields**:
- DESCRIPTION_LONGDESCRIPTION
9. Select OK.

Steps: Create Object Structure - Service Request


1. In the **Go To Application** column, select **Integration**, and select **Object Structures**.
The **Object Structure** page appears.
2. In the **Object Structure** box, enter *MXSR*, and then open the object structure.
3. In the **Go To Application** column, in the **More Actions** section, select **Duplicate Object Structure**.
4. Enter the Object Structure name *MISR*.
5. In the **Source Object for MIWO** section, remove all objects *except* the service request object.
6. In the **Go To Application** column, in the **More Actions** section, select **Exclude/Include Fields**.
The **Exclude/Include Fields** window appears.
7. On the **Persistent Fields** tab, clear the **Exclude?** check boxes on the rows corresponding to the following **Fields**:
 - ASSETNUM
 - DESCRIPTION
 - LOCATION
 - SITEID
 - TICKETID

8. On the **Non-Persistent Fields** tab, select the **Include ?** box on the row corresponding to the following **Fields**:
 - **DESCRIPTION_LONGDESCRIPTION**
9. Select **OK**.

What's Next?

- Return to the [Maximo Adapter workflow](#) for the next step in the deployment process.

Create Web Services in Maximo

 **Note:** You must only complete this step if you are not using the REST services. REST services are not fully supported in Maximo versions 7.1 and 7.5.

To complete the connection between your Maximo and your GE Digital APM System, you need to deploy each of the following web services in your Maximo system:

- MIASSET
- MIOPERLOC
- MIWO
- MISR

Steps

1. On the **Go To Applications** menu, select **Integration**, and then select **Web Service Library**.

The **Web Services Library** page appears.

2. In the **More Actions** section, select **Create Web Service**, and then select **Create Web Service from Object Structure**.

The **Create Web Service from an Object Structure Service Definition** window appears.

3. In the **Source Name** column, select the check box next to the web service name you want to create, and then select **Create**.

The web service name appears in the **Web Services Library** list.

4. In the **More Actions** tab, select **Deploy to Product Web Service Container**, and then select **Deploy Web Service**.

5. Repeat Steps 1-4 to create the remaining web services.

What's Next?

- Return to the [Maximo Adapter workflow](#) for the next step in the deployment process.

Configure the Default Password

If you have enabled web service authentication in your Maximo system, then you must configure a default user name and password in Maximo.

Steps

1. In Maximo, select **System configuration**, and then select **Platform configuration**, and then select **System properties**.
2. Search for the following property: *mx.int.dfltuser*.
3. For the *mx.int.dfltuser* property set the default user as *mxintadm*.
4. Refresh your Maximo system, and then search for the following property *mx.int.dfltuserpassword*.
5. For the *mx.int.dfltuserpassword* property, enter your default password, and then refresh your Maximo system.

The default user name and password are configured.

Results

- After configuring the default user name and password, you can run the web service, and authentication will be accomplished through the default user and password.

What's Next?

- Return to the [Maximo Adapter workflow](#) for the next step in the deployment process.

Set System Properties Settings for Web Service Response

Steps

1. In the **Go To Application** column, select **System Configuration**, select **Platform configuration**, and then select **System Properties**.

The **System Properties** page appears displaying the **Global Properties** and **Instance Properties**.

2. In the **Global Properties** section, navigate the property *mxo.int.keyresponse*.
3. On the *mxo.int.keyresponse* row, select ▾.

The row is expanded, and the **Global Properties Details** appear.

4. In the **Global Value** box, enter 1.

The **Global Value** is equal to 1.

Results



- Setting the **Global Value** to one enables Service Request numbers or Work Order numbers on GE Digital APM Recommendation to be updated and the Request Number field will be populated. It allows the response returned during the update to contain key elements and will prevent the value from being null.

What's Next?

- Return to the [Maximo Adapter workflow](#) for the next step in the deployment process.

Create EAM System Records

Steps

1. Create a new record , using the EAM System family.
2. In the Datasheet ID: box, select **Maximo**.
3. In the **Name** box, enter the name of the Maximo system.
4. If this system is the system to and from which you want to send data by default, select the **Default EAM System?** check box.
5. In the System Type box, select **Maximo**.
6. In the **User ID** box, enter a valid User ID.
7. In the **Password** box, select **...**.
8. In the **Enter EAM System Password** window, in the **Password** box, enter the password that is associated with the specified user ID.
9. In the **Confirm Password** box, reenter the password.
10. Select **OK**.
11. In the **Web Service URL** box, enter the URL for the Maximo Web Services that will extract the data.
12. In the **Language** box, enter the code of the language for this connection (for example, EN).
13. In the **Service Request Family Name** box, enter the table name for the Service Request in Maximo (this value is usually MISR).
14. In the **Work Order Family Name** box, enter the table name for the Work Order in Maximo (this value is usually MIWO).
15. In the **WO or SR** box, enter the default notification type to be created. This value can either be WO or SR.
16. In the **Default Site ID** box, enter the Site under which the WO or SR should be created if it is not provided in the notification the system receives.
17. Select .
The EAM System record is saved.
18. Select , and then select **Test Connection**.
The connection parameters are verified, and the System ID box is populated with your EAM System ID.

Results

Deploy APM Connect

- An EAM system record is created for the EAM system to and from which you want to establish a connection with GE Digital APM. This record should now be used to link site reference.
- Linking an EAM system to an EAM System record enables the APM Connect Adapters to create Notifications against that EAM System.

What's Next?

- Return to the [Maximo workflow](#) for the next step in the deployment process.

Deploy the SAP Adapters

The checklists in this section of the documentation contain all the steps necessary for deploying and configuring this module whether you are deploying the module for the first time or upgrading from a previous module.

Deploy the SAP Adapters for the First Time


The following table outlines the steps that you must complete to deploy and configure this module for the first time. These instructions assume that you have completed the steps for deploying the basic GE Digital APM system architecture.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

⚠ Important: If you are using SSL, make sure you have [configured SSL](#) correctly.

Step	Task	Notes
1	Deploy the APM Connect Base.	This step is required.
2	On the APM Connect Server, configure the context file directory.	This step is required.
3	On the APM Connect Server, configure the directory for multiple SAP systems.	This step is required only if you are using multiple SAP systems.
4	On the APM Connect Server, install the SAP Java connector.	This step is required.
5	On the APM Connect Server, configure the context file.	This step is required.
6	On the APM Connect Server, encrypt passwords.	This step is required.
7	In the APM Connect Administration Center, configure the context parameters.	This step is required.
8	Configure site filtering.	This step is required only if you do not want to use the baseline configuration for site references.
9	On the APM Connect Server and the SAP server, mount a file share.	This step is required.
10	On the SAP Server and in SAP, establish SFTP Transfer in SAP.	<p>This step is required only if you are using SFTP to transfer files between SAP and GE Digital APM.</p> <p>⚠ IMPORTANT: Do not perform this step if you are using SAP PI.</p>

11	On your SAP server, create file share folder structure .	This step is required.
12	In SAP, install the SAP Adapters ABAP base service pack add-on .	This step is required.
13	In SAP, verify the SAP ABAP add-on .	This step is required.
<p>⚠ IMPORTANT: Each of the following tasks may be required depending on the license that you have purchased and the APM Connect component that you are deploying.</p>		
14	In SAP, identify the Operation values that will be used to trigger the management of Inspection Task and Calibration Task records .	This step is required only if you are using the Work Management Adapter.
15	In GE Digital APM, assign the desired Security Users to the SAP Adapters Security Groups .	This step is required.
16	In GE Digital APM, configure the GE Digital APM system to create Notifications from Recommendation records belonging to customer-defined Recommendation families.	This step is required only if you are using the Notification Management Adapter.
17	Deploy the SAP Connector file .	The step required.
18	In GE Digital APM, configure the Priority values .	This step is required only if you are using the Notification Management Adapter.
19	In GE Digital APM, create EAM System records to identify your SAP system (s).	<p>This step is required only if you are using one or more of the following:</p> <ul style="list-style-type: none"> • Work Management Adapter • Technical Characteristic Adapters • Notification Management Adapter

20	In GE Digital APM, test the SAP connection information that you specified in your EAM System records.	<p>This step is required only if you are using the on-premises:</p> <ul style="list-style-type: none"> • Work Management Adapter • Technical Characteristic Adapters • Notification Management Adapter <div style="border: 1px solid black; background-color: #ffffcc; padding: 5px; margin-top: 10px;"> <p> Note: This step is not required if you are using the SAP Cloud Adapters.</p> </div>
21	In the APM Connect Administration Center, create the intermediate repository .	This step is required.
22	In the APM Connect Administration Center, run the Static Data job .	This step is required.
23	In GE Digital APM, configure SAP task and confirmation creation .	This step is required only if you are using the Work Management Adapter.
24	In GE Digital APM, configure the Get Tasks for Work Order Generation query .	This step is required only if you are using the Work Management Adapter.
25	In GE Digital APM, create a scheduled item to create Work Orders in SAP .	This step is required only if you are using the Work Management Adapter.
26	In GE Digital APM, identify Classifications whose Characteristics you want to extract .	This step is required only if you are using the Technical Characteristic Adapters.
27	In GE Digital APM, identify Characteristics that you want to extract .	This step is required only if you are using the Technical Characteristic Adapters.
28	Deploy the SAP PI Adapters for the first time .	This step is required only if you are deploying SAP PI on-premises.

Upgrade SAP Adapters to SAP UDLP V2.4.0

The following tables outline the steps that you must complete to upgrade this module to SAP UDLP V2.4.0. These instructions assume that you have completed the steps for upgrading the basic GE Digital APM system architecture.

The steps that you must complete may vary depending on the version from which you are upgrading. Follow the workflow provided in the appropriate section.

Upgrade from EAM SAP V1.5.0 through UDLP V2.3.0

Step	Task	Notes
1	Upgrade the APM Connect Base.	This step is required.
2	Complete the steps to deploy the SAP adapters for the first time.	This step is required.

Upgrade from APM Connect V1.0.0 through V1.3.0

Step	Task	Notes
1	Upgrade the APM Connect Base.	This step is required.
2	Complete the steps to deploy the SAP adapters for the first time.	This step is required.

Configure the Context File

This topic describes how to access and configure parameters in these context files.

Before you can run a job in the APM Connect Administration Center, you must specify a set of connection parameters and corresponding values to establish a connection between APM Connect components, GE Digital APM, and your EAM system. Each of these connections is used when running a job, and it is required. The connections are established via context files.

Tip: The SAP Adapters support [connections between multiple SAP systems](#) and multiple GE Digital APM databases by using one context file for each SAP system or GE Digital APM database.

Steps

1. On the APM Connect server, access your context file. If you installed it in the default location, navigate to the following folder: **C:\APMConnect\Config**
2. Configure the context file for your type of deployment.

IMPORTANT: Changes made to the context file will override changes made in the [Context parameters section of APM Connect Administration Center](#).


To configure the context file, enter the appropriate values for each parameter into the context file according to the following table.

Parameters	Description	Default or Recommended Value
Interface Mode Selection		
SAP_CLOUD_ENABLED	Determines whether the Adapter will be used in a cloud environment.	You must enter one of the following values: <ul style="list-style-type: none"> • true: Adapter will be run in the cloud. • false: Adapter will be run on premises.

LOAD_MERIDIUM_APM	Determines whether the data will be loaded into the Meridium database.	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: Data will be loaded into the Meridium database. • false: Data will not be loaded into the Meridium database.
LOAD_DIGITAL_APM	Determines whether the data will be loaded into the Predix database.	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: Data will be loaded into the Predix database. • false: Data will not be loaded into the Predix database.
CMMS_ID	<p>The CMMS ID is used as the identifier for your SAP system, and is <SAP System ID>-<SAP Client ID>.</p> <p>For example, if your SAP System ID is D03 and your SAP Client ID is 001, then your CMMS ID would be DO3-001.</p>	<p>This value is required.</p> <p>Enter a unique value.</p>
SOURCE_SYSTEM_TYPE	Identifies the type of system connecting with GE Digital APM.	<p>This value is required.</p> <p>You must enter the one of the following values:</p> <ul style="list-style-type: none"> • SAP: If the source system is SAP. • SAP-PI: If the source system is SAP-PI.
Intermediate Repository (IR) Connection		

IR_HOST	The IP address of the IR.	Enter the host name of the PostgreSQL server. If you installed APM Connect using the default settings, then the value is <i>localhost</i> .
IR_PORT	The port number of the IR.	Enter your PostgreSQL port. The default value is <i>5432</i> .
IR_DATABASE	The database in which the IR data is stored.	Enter a name for the IR database. This value will be used to create the IR database.
IR_SCHEMA	The schema in which the IR database will be created.	The default value is <i>public</i> .
IR_USERID	The IR user name.	Enter the user name for the PostgreSQL database. The default user name is <i>postgres</i> .
IR_PASSWORD	The IR system password.	Enter the password for the PostgreSQL database that was created during installation .
SAP Connection		
SAP_CLIENT	The SAP client from where the data is imported.	Enter a unique value.
SAP_HOST	The IP address or the host name of the SAP application server.	Enter a unique value.
SAP_LANGUAGE	The language in which the SAP system sends messages to APM Connect.	The default value is <i>EN</i> .
SAP_SYSTEM_NUMBER	The instance number of the SAP application server.	Enter a unique value.
SAP_USERID	The SAP system user ID.	Enter a unique value.

SAP_PASSWORD	The SAP system password.	Enter a unique value.
SAP_SYSTEM_TIMEZONE	The SAP Application Server Operating System time zone.	The default value is <i>EST</i> .
SAP_FILE_ENCODING	Determines the encoding of the source data.	The default value is <i>UTF8</i> . All the character encoding supported by the Java Virtual Machine (JVM) are correct.
EXTRACT_NUM_PARALLEL_JOBS	Determines the maximum number of SAP background jobs allowed during extraction.	The recommended value is <i>10</i> .
IR_LOAD_NUM_PARALLEL_JOBS	Determines the maximum number of SAP background jobs allowed during loading.	The recommended value is <i>10</i> .
LOG_REQUEST	Logs the APM web service requests.	You must enter one of the following values: <ul style="list-style-type: none"> • true: Enables logging. • false: Disables logging. This is the recommended value.
LOG_RESPONSE	Logs the APM web service responses.	You must enter one of the following values: <ul style="list-style-type: none"> • true: Enables logging. • false: Disables logging. This is the recommended value.
File System		
PLSAP_INPUT	The path of the directory you created , which SAP uses to place data files used by APM Connect.	Enter a unique value.

PLSAP_OUTPUT	The path of the directory used by APM Connect to search for the files created by SAP. This directory should be shared with the SAP server.	Enter a unique value.
IR_TALEND_OUTPUT	The temporary workspace used when moving files from SAP to APM Connect.	Enter a unique directory path.
LOG_BASE_DIR	The directory path to the log file.	C:\APMConnect\Logs
SFTP_STAGING_DIR	The temporary storage location for files that are waiting to be loaded.	Enter a unique value (for example, C:\APMConnect\Staging).
UNC_FILE_PATH	The path of the directory of the data loader file share.	Enter a unique value.
APM Connect		
APM_CONNECT_HOST	The host name of the machine where APM Connect Administration Center is installed.	Enter a unique value.
APM_CONNECT_PORT	The port name of the machine where APM Connect Administration Center is installed.	Enter a unique value.
APM Connection		
 Note: The APM Connection Parameters are not required for cloud deployment.		
APM_API_APP_SERVER	The GE Digital APM API application server name.	Enter the name of your GE Digital APM API server.

APM_API_USE_SSL	Specifies whether the GE Digital APM API application uses SSL.	<p>The valid values are:</p> <ul style="list-style-type: none"> • true: The API application uses SSL. • false: The API application does not use SSL. <p>The default value is false.</p>
APM_APP_SERVER	The GE Digital APM application server name.	Enter the name of your GE Digital APM server.
APM_DATASOURCE	The GE Digital APM data source to which the data will be exported.	Enter the name of your GE Digital APM data source.
APM_USERID	The GE Digital APM Framework user ID.	Enter a unique value.
APM_PASSWORD	The GE Digital APM Framework password.	Enter a unique value.
Miscellaneous		


<p>MANUAL_RUN</p>	<p>Determines how the date parameters will be treated.</p>	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: The dates specified in the context files will be used. Additionally, the dates of the last successful run stored in the database will not be updated. • false: The date range used during the extraction will be the date of the last successful record as stored in the database. Each time a job is run successfully, the database is updated with those dates and all the subsequent runs will use the dates from the last successful record.
<p>MULTI_OBJECTS_ENABLED</p>	<p>Determines if different types of objects that are logically related to each other can be classified into a single class type.</p> <p>For example, you can use class type 023 to classify both materials and batches.</p>	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: Used if the SAP system is enabled to allow multiple objects. • false: Used if the SAP system is not enabled to allow multiple objects. This is the default value.
<p>TECHNICAL_CHARACTERISTICS_ENABLED</p>	<p>Determines if the technical characteristics of Equipment or Functional Location will be extracted.</p>	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: If you are using Equipment or Functional Location Adapter. • false: If you are not using Equipment or Functional Location Adapter. This is the default value.

Filter		
MAINT_PLANT	The ID(s) of the Maintenance Plant whose data you want to extract.	Plant values cannot exceed four characters.
LANGUAGE	The SAP code that represents the language of the description to transfer data into GE Digital APM.	The value must be a single character.
CREATE_DATE_START	The date value that limits the data extracted to records created on or after the specified date.	Date must be entered in the following format: YYYYMMDD.
CREATE_DATE_END	The date value that limits the data extracted to records created on or before the specified date.	Date must be entered in the following format: YYYYMMDD.
CHANGE_DATE_START	The date value that limits the data extracted to records changed on or after the specified date.	Date must be entered in the following format: YYYYMMDD.
CHANGE_DATE_END	The date value that limits the data extracted to records changed on or before the specified date.	Date must be entered in the following format: YYYYMMDD.
Equipment Filter Criteria		
EQUIPMENT_NO	The number that identifies the Equipment record that you want to extract.	Equipment number should not exceed 18 characters. You cannot exceed 500 Equipment numbers. For multiple Equipment records, separate the numbers using commas.

EQUIPMENT_CATEGORY	The ID of the Equipment category that limits the Equipments extracted.	Equipment category ID must be a single character. For multiple Equipment categories, separate the IDs using commas.
EQUIPMENT_TYPE	The ID of the Equipment type that limits the Equipments extracted.	Equipment type ID should not exceed 10 characters. For multiple Equipment types, separate the IDs using commas.
EQUIPMENT_CLASS	The ID of the Equipment classification that limits the Equipments extracted.	Equipment classification ID should not exceed 18 characters. If an Equipment has multiple classifications, as long as you specify one of those classifications, the Equipment record will be extracted. For multiple Equipment classifications, separate the IDs using commas.
Functional Location Filter Criteria		
FLOC_NO	The ID of the Functional Location that limits the Functional Locations extracted.	Functional Location ID should not exceed 40 characters. You cannot exceed 500 Functional Location numbers. For multiple Functional Locations, separate the IDs using commas.
FLOC_TYPE	The ID of the Functional Location type that limits the Functional Locations extracted.	Functional Location type ID should not exceed 10 characters. For multiple Functional Location types, separate the IDs using commas.

FLOC_CLASS	The ID of the Functional Location classification that limits the Functional Locations extracted.	Functional Location classification ID should not exceed 18 characters. For multiple Functional Location classifications, separate the IDs using commas.
FLOC_CATEGORY	The ID of the Functional Location category that limits the Functional Locations extracted.	Functional Location category ID must be a single character. For multiple Functional Location categories, separate the IDs using commas.
Work History Filter Criteria		
NOTIFICATION_NO	The number that identifies the Notification record that you want to extract.	Notification number should not exceed 12 characters. For multiple Notification records, separate the numbers using commas.
WORK_ORDER_NO	The number that identifies the Work Order record that you want to extract.	Work Order number should not exceed 12 characters. For multiple Work Order records, separate the numbers using commas.
NOTIFICATION_TYPE	The Notification type that limits the Work Orders that you want to extract.	Notification type should not exceed two characters. For multiple Notification types, separate the Notification types using commas.
WORK_ORDER_TYPE	The ID of the Work Order type that limits the Work Orders that you want to extract.	Work Order type ID should not exceed four characters. For multiple Work Order types, separate the IDs using commas.
WORK_ORDER_SYSTEM_STATUS	The Work Order systems status that limits the Work Orders that you want to extract.	Work Order system status should not exceed four characters.

WORK_ORDER_USER_STATUS	The Work Order user status that limits the Work Orders that you want to extract.	Work Order user status should not exceed four characters.
NOTIFICATION_SYSTEM_STATUS	The Notification system status that limits the notifications that you want to extract.	Notification system status should not exceed four characters.
NOTIFICATION_USER_STATUS	Notification user status that limits the notifications that you want to extract.	Notification user status should not exceed four characters.
CREATE_TIME_START	The time value that limits the data extracted to records created on or after the specified time.	Time must be in the following format: HHMMSS.
CREATE_TIME_END	The time value that limits the data extracted to records created on or before the specified time.	Time must be in the following format: HHMMSS.
CHANGE_TIME_START	The time value that limits the data extracted to records changed on or after the specified time.	Time must be in the following format: HHMMSS.
CHANGE_TIME_END	The time value that limits the data extracted to records changed on or before the specified time.	Time must be in the following format: HHMMSS.
Work Management		



MAINTENANCE_PLAN	The number that identifies the maintenance plan record.	The maintenance plan number must not exceed 12 characters and it should be zero padded. Example: 000000000012. For multiple maintenance plan records, separate the numbers using commas.
INSPECTION_FAMILY	Determines the family to which the Inspection records are associated.	To use the default association, enter the value MI_TASKINSP.
INSPECTION_CONDITION	Determines the SAP control key used to identify trigger values for Inspection records.	The parameter requires the following specific syntax: <SAP Table>-<SAP Field> EQ '<Key Value 1>,<Key Value 2>,<Key Value 3>', etc.' To use the default configuration, enter the following value: PLPO-STEUS EQ 'ZMI1'
CALIBRATION_FAMILY	Determines the family to which the Calibration records are associated.	To use the default configuration, enter the value MI_TASKCALB.
CALIBRATION_CONDITION	Determines the SAP control key used to identify trigger values for Calibration records.	The parameter requires the following specific syntax: <SAP Table>-<SAP Field> EQ '<Key Value 1>,<Key Value 2>,<Key Value 3>', etc.' To use the default configuration, enter the following value: PLPO-STEUS EQ 'ZMI2'
Queue		
 Note: The Queue parameters apply only to cloud deployment.		
QUEUE_HOST	The queue host name.	Enter a unique value, which was provided during installation.

QUEUE_HOST_1	An additional queue host name.	Enter a unique value, which was provided during installation.
QUEUE_HOST_2	An additional queue host name.	Enter a unique value, which was provided during installation.
QUEUE_PORT	The queue port.	Enter a unique value, which was provided during installation.
QUEUE_PORT_1	An additional queue port.	Enter a unique value, which was provided during installation.
QUEUE_PORT_2	An additional queue port.	Enter a unique value, which was provided during installation.
QUEUE_USER	The queue user name.	Enter a unique value, which was provided during installation.
QUEUE_PASSWORD	The queue password.	Enter a unique value, which was provided during installation.
CUSTOMER_NAME	The coded customer name.	Enter a unique value, which was provided during installation.
USE_SSL	Provides for encryption and authentication of the data and its transmission to the server.	Enter a unique value.
TRUSTSTORE_FILE	Location of the file with all the necessary keys and certificates for data transfer to the server using the active message queue.	Enter a unique value.
TRUSTSTORE_PASSWORD	Password of the trust store for APM Connect to retrieve the keys.	Enter a unique value.
SFTP		

SFTP Connection is supported only for the SAP Adapters, and configuration is required only if you are using SFTP to transfer information between your systems.


⚠ IMPORTANT: If you are using an SAP System with the SAPFTP_SERVERS table, you must configure that table to activate SFTP servers according to the SAP Help system. You can refer to SAP OSS 1605054 for more details. Typically, this will apply to any SAP version later than ECC6 EHP5.


PLSAP_FTP_HOST	The SFTP server host name.	Enter a unique value.
PLSAP_FTP_USERID	The SFTP server user name.	Enter a unique value.
PLSAP_FTP_PASSWORD	The SFTP server password.	Enter a unique value.
PLSAP_FTP_PORT	The SFTP server port.	If the default configuration was followed, enter one of the following values: <ul style="list-style-type: none"> • 21: For FTP connection. • 22: For SFTP connection.
PLSAP_FTP_MODE	The mode by which files are copied.	Enter one of the following values: <ul style="list-style-type: none"> • SERVER: To use file shares. • FTP: To use standard FTP. • SFTP: To use standard secure FTP.
PLSAP_FTP_SCAN_DIR	The remote SFTP directory used to scan for files.	Enter a unique value.
PLSAP_FTP_NUM_OF_RETRY	The number of times to scan the SFTP server for files.	10
PLSAP_FTP_SLEEP_TIME	The time in seconds between scans.	10

PLSAP_SFTP_SCP_COMMAND	The command name created when .	Enter a unique value.
SFTP		
 Note: The SFTP parameters apply only to cloud deployment.		
SFTP_HOST	The SFTP server host name.	Enter a unique value, which was provided during installation.
SFTP_USERID	The SFTP server user name.	Enter a unique value, which was provided during installation.
SFTP_PASSWORD	The SFTP server password.	Enter a unique value, which was provided during installation.
SFTP_PORT	The SFTP server port.	Enter a unique value, which was provided during installation.
SFTP_LANDING_DIR	The directory path where the shared files are stored.	Enter a unique value, which was provided during installation.
USE_SSH_KEY	Determines if SSH security configuration will be used by the adapters.	You must enter one of the following values: <ul style="list-style-type: none"> • true: SSH configuration will be used. • false: SSH configuration will not be used.
SSH_PRIVATE_KEY	The directory where the SSH key is stored.	Enter a unique value. The SSH key must be generated by the user in the openSSH format. This key can be stored in any directory on the APM Connect server, but it is recommended to store it in the following directory: C:\APMConnect\Config
Email Notification		
 Note: The Email Notification parameters apply only to cloud deployment.		

EMAIL_FROM	The email address from which the notification email will be sent.	Enter a unique value.
EMAIL_TO	The email address(es) to which the email will be sent.	Enter a unique value.
FAILURE_DETAIL_REPORT_ENABLED	Indicates whether the failure detail report will be sent when a record fails to load.	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: The failure detail report, detailing the records that failed to load into GE Digital APM and the reason for failure, will be sent. • false: The failure detail report will not be sent.
FAILURE_DETAIL_REPORT_JRXML_FILE_PATH	Directory where the JasperReport file to generate the failure detail report in PDF will be delivered.	Enter a unique value.
LOAD_SUMMARY_REPORT_ENABLED	Indicates whether the load complete report will be loaded with each extraction.	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: The load complete report, detailing the number of records that were extracted and successfully loaded into GE Digital APM, will be sent. • false: The load complete report will not be sent.
LOAD_SUMMARY_REPORT_JRXML_FILE_PATH	Directory where the JasperReport file to generate the summary detail report in PDF will be delivered.	Enter a unique value.

REPORT_TARGET_DIR	Directory where the report file will be delivered.	Enter a unique value.
SMTP_HOST	The host for SMTP installation the APM Connect server.	Enter a unique value.
SMTP_PORT	The port for SMTP.	The default value is 25.
Guardrail		
EQUIPMENT_THRESHOLD	The maximum number of records that should be transferred from SAP to GE Digital APM in a single run of the Equipment Adapter.	The default value is 100000.
FLOC_THRESHOLD	The maximum number of records that should be transferred from SAP to GE Digital APM in a single run of the Function Location Adapter.	The default value is 100000.
WORKHISTORY_THRESHOLD	The maximum number of records that should be transferred from SAP to GE Digital APM in a single run of the Work History Adapter.	The default value is 50000.

<p>OVERRIDE_GUARDRAILS</p>	<p>Indicates whether the job will continue if the number of records exceeds the defined threshold.</p>	<p>The default value is Y, which means that the job will run regardless of the number of records included. A warning notification will also be sent to the email address specified in the EMAIL_TO parameter within the Email Notification Parameters section of this file. If you set this parameter to N, the job will be terminated when the number of records exceeds the defined threshold, and an error notification will be sent.</p>
<p>SAP PI</p>		
<p> Note: Enter the appropriate values for the following parameters into the context file only if you are deploying the SAP PI Adapters (in which case the parameter SAP_USE_PI should have the value true), which are the SAP Adapters for Process Integration.</p>		
<p>SAP_USE_PI</p>	<p>Determines whether the SAP PI connection will be used.</p>	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: SAP PI connection will be used. • false: SAP PI connection will not be used. This is the default value.
<p>SAP_SYSTEM_ID</p>	<p>The system IDs of the SAP systems from which you want to extract data.</p>	<p>Enter a unique value.</p>
<p>SAP_PI_HOST</p>	<p>The SAP PI server host.</p>	<p>Enter a unique value. For example,</p> <ul style="list-style-type: none"> • http://your.pi_system.com - when not using SSL. • https://your.pi_system.com - when using SSL.

SAP_PI_PORT	The SAP PI server port.	Enter a unique value.
SAP_PI_RECEIVER_PARTY	The receiver party configured in the SAP PI ID configurations.	This is optional and unique to the user.
SAP_PI_RECEIVER_SERVICE	The receiver service configured in the SAP PI ID configurations.	This is optional and unique to the user.
SAP_PI_SENDER_PARTY	The sender party configured in the SAP PI ID configurations.	This is optional and unique to the user.
SAP_PI_SENDER_SERVICE	The sender service configured in the SAP PI ID configurations.	The default value is Meridium_APMConnect. The value <i>must</i> match the communication channel value in SAP.
SAP_PI_USERID	The SAP PI user ID.	Enter a unique value.
SAP_PI_PASSWORD	The SAP PI password.	Enter a unique value.
COMPRESS_TYPE	Determines if the files will be compressed and the method of compression that is used.	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • None: Files are not compressed. <div style="border: 1px solid yellow; padding: 5px; margin: 10px 0;"> <p> Note: If you do not compress files, large extractions will take a long time.</p> </div> <ul style="list-style-type: none"> • SAPCAR: Files are compressed by SAP. This is the recommended value. If used, you must install the SAPCAR file on the APM Connect server. • ZIP: Files are compressed through a standard zip method.

<p>COMPRESS_SAP_COMMAND_NAME</p>	<p>The value of the command name created.</p>	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • ZSAPCAR: The command name for SAP compression. • ZSZIP: The command name for standard compression.
<p>FILE_MOVE_USE_PI</p>	<p>Determines if APM Connect should use SAP-PI to extract and load data.</p>	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: SAP PI will move the data from SAP to APM Connect. • false: APM Connect will directly copy the data from SAP.
<p>MAX_FILE_WAIT_SEC</p>	<p>Defines how long the PI Adapters will wait for the extraction to complete before the job times out.</p>	<p>The recommended value is 1000.</p>
<p>SAP_PI_AAE</p>	<p>If you are using SAP PI 7.3 or later, you may use the Advanced Adapter Engine (AAE). This parameter allows this functionality to be used during extraction.</p>	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: If you are using AAE. • false: If you are not using AAE. This is the default value.

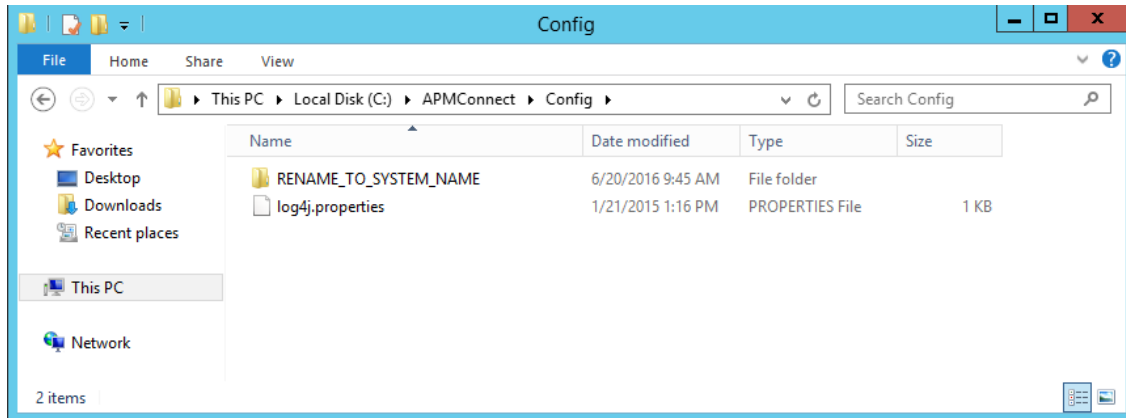
What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Configure the Context File Directory

Steps

1. On the APM Connect server, access your APM Connect installation package, and then navigate to the Jobs folder.
2. Access the context file, and then copy the file.
3. Navigate to the directory C:\APMConnect\Config.



4. Rename the folder **RENAME_TO_SYSTEM_NAME** to represent the name of your system. This folder will define the Systems Context Directory.
5. Paste the context file, in the C:\APMConnect\Config\- 6. Delete the file *place context file here and delete this file.deleteme*.

The Context File Directory is configured.

What's Next?

- Return to the adapter workflow for the next step in the deployment process.

Configure the Context File Directory for Multiple SAP Systems

△ IMPORTANT: This step is required only if you are using multiple SAP Systems from which you plan on extracting data. If you are not using multiple SAP systems, you can skip this procedure and proceed to the next step, [install the SAP Java connector](#), in the [APM Connect Base First-Time Deployment Workflow](#).

APM Connect allows you to extract data from multiple SAP Systems using the Master Job to extract from multiple systems. You must set up the appropriate directory structures. Additionally, jobs are automatically configured to run a full extraction or load per context file for each job cycle, allowing different configurations per SAP System.

Steps

1. On the machine on which you installed APM Connect, navigate to the following location: `C:\APMConnect\Config\`.
2. Create a new folder for each SAP System using the following folder structure: `C:\APMConnect\Config\<SAP System Name>`.
3. In each SAP system folder, place a copy of the [context file](#).
4. Label each copy of the context file using the following format: `SAP_<system name>_Contextfile.xml`.

△ IMPORTANT: You must label the context file with `SAP_` at the beginning of the file name, or APM Connect will be unable to read the context file during the extraction. The only difference in the context file for each system is the value of the `CMMS_ID` parameter.

The directory structure is in place with the complete file path: `C:\APMConnect\Config\<SAP system name>\SAP_<SAP system name>_Contextfile.xml`.


For example, a configured directory will resemble the following: `C:\APMConnect\Config\Q-66\SAP_Q66_Contextfile.xml`.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.


Install SAP Java Connector

To facilitate the data transfer, there must be a java connector between SAP and the APM Connect server. This topic describes how to establish the connection via the SAP Java Connector (SAP JCO).

 **Note:** The [APM Connect installer](#) automatically places the files *sapjco3.dll* and *sapjco.jar* into the location *C:\APMConnect\Utilities\runtime\lib*. You must complete the remaining steps in this topic manually.

Steps

1. Navigate to the location where you downloaded the SAP Java Connector package from the SAP marketplace, and copy the following files:
 - *sapjco3.dll*
 - *sapjco.jar*

 **Note:** If you are using a 64-bit machine, per the APM Connect system requirements, you must select the 64-bit installer.

2. Navigate to *C:\APMConnect\Utilities\runtime\lib\wrapper*, and then paste the copied files in that location.
3. Copy the file *sapjco3.dll* again.
4. Navigate *C:\windows\system32*, and then paste the copied file in that location.
The Java Connector is installed.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Encrypt Passwords

Passwords in the APM Connect context file are not encrypted by default. However, you can encrypt any password manually. This topic describes how to manually encrypt passwords.

Steps

1. On the machine on which you installed APM Connect, access the APM Connect installation package, locate the *Encrypt String_0.1.zip*, and then unzip the file.
2. Open the EncryptString folder, and then select *EncryptString_run.bat*.
A command prompt opens, and then the **Talend Open Studio** window appears.
3. Enter the password that you want to encrypt in the **Enter the text to be encrypted:** box.
4. Select **OK**.
5. In the command prompt, between the banners, copy the text that was generated.
6. Open the context file.
7. In the parameter that you want to encrypt, paste the generated text.
8. Append the highlighted parameter the with *_AES*, as shown in the following image.

```

<!-- Intermediate Repository connection parameters-->
<IR_HOST>APMCONNECTVM</IR_HOST>
<IR_PORT>5432</IR_PORT>
<IR_DATABASE>APMconnectFTP</IR_DATABASE>
<IR_PASSWORD_AES>FyoGBWa6ftigcB2nAWZ56w==</IR_PASSWORD_AES>

```

9. Save the context file.
10. For each password that you want to encrypt, repeat steps 2 through 9.
The passwords are encrypted.

What's Next?

Return to the adapter workflow for the next step in the deployment process.

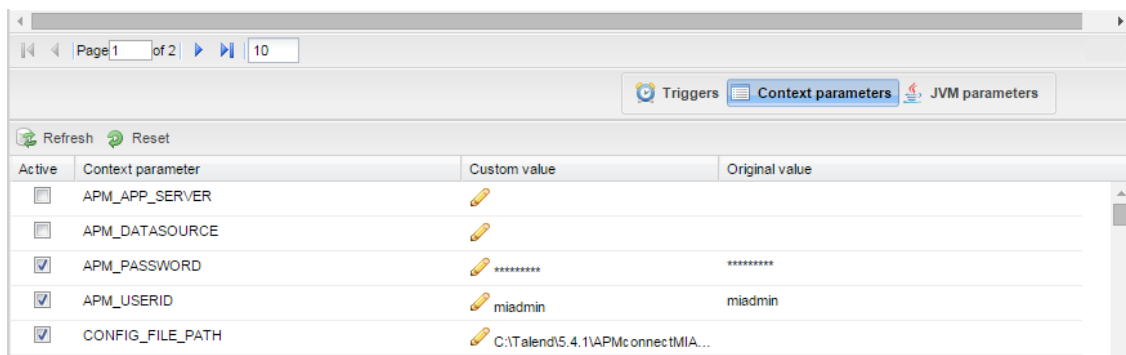
Configure Context Parameters

For every job that is imported, certain context parameters in the APM Connect Administration Center must be configured. This topic describes how to configure the required context parameters, so that you can run the job.

Steps

1. In the APM Connect Administration Center, in the **Job Conductor** workspace, select the Job for which you would like to set parameters.
2. At the bottom of the **Job Conductor** workspace, select **Context parameters**.


The **Context parameters** section appears.



Active	Context parameter	Custom value	Original value
<input type="checkbox"/>	APM_APP_SERVER		
<input type="checkbox"/>	APM_DATASOURCE		
<input checked="" type="checkbox"/>	APM_PASSWORD	*****	*****
<input checked="" type="checkbox"/>	APM_USERID	miadmin	miadmin
<input checked="" type="checkbox"/>	CONFIG_FILE_PATH	C:\Talend\5.4.1\APMconnect\IA...	

3. In the **Context parameter** column, scroll down to the context parameter you would like to configure.
4. In the **Custom value** box, configure context parameters, and select the **Active** check boxes for the following:
 - **APM User_ID**: Enter your GE Digital APM user name
 - **APM_PASSWORD**: Enter your GE Digital APM password.
 - **IR_USERID**: Enter your intermediate repository user name.
 - **IR_PASSWORD**: Enter your intermediate repository password.
 - **SAP_USERID**: Enter you SAP System user name.
 - **SAP_PASSWORD**: Enter your SAP system password.
 - **CONFIG_FILE_PATH**: Enter the file path to the location where the context file is stored.
 - **LOG4j_FILE_PATH**: Enter the file path to the location where the Log4j file is stored. If you installed APM Connect in the default location, then enter \APMConnect\Config\log4jproperties
 - **MANUAL_RUN**: Enter true or false to determine whether or not the dates

recorded in the context file will be used during extraction.

 **Note:** If the `MANUAL_RUN` parameter is set to `true`, the dates specified in the context file will be used. Additionally, the dates of the last successful run stored in the database will not be updated. If set to `false`, the date range used during the extraction will be the date of the last successful run, as stored in the database. Each time a Job is run successfully, the database is updated with those dates, and all subsequent runs will use the dates from the last successful run.

The context parameters are configured.

5. Repeat steps 1-3 for every imported Job you will run.
6. To configure the Master job to run, select the `SAP_MASTER_INTERFACE` Job.
7. At the bottom of the **Job Conductor** workspace, select **Context parameters**.

The **Context parameters** section appears, displaying the following parameters:

- `RUN_STATIC_DATA`: The Static Data Job
 - `RUN_EQUIPMENT`: The Equipment Job
 - `RUN_FLOC`: The Functional Location Job
 - `RUN_WORKHISTORY`: The Work History Job
 - `RUN_WORKMANAGEMENT`: The Work Management Job
 - `MASTER_CONFIG_FILE_DIR`: The file path to context files for the jobs
 - `SYSTEM_TO_RUN`: The source system from which you want to extract data
 - `RUN_TC_EQUIPMENT`: The Equipment Technical Characteristic Job
 - `RUN_TC_FLOC`: The Functional Location Technical Characteristics Job
8. For each extraction jobs you want to run, in the **Custom value** column enter `true`, and then select the **Active** check box.
 9. In the `MASTER_CONFIG_FILE_DIR` **Custom value** box, enter the directory where the context file(s) is stored.
 10. In the `SYSTEM_TO_RUN` **Custom value** box enter:
 - The name of the system directory from which you want to extract data.
 - or-
 - `*` to extract from all systems.
 11. Press Enter.

The Jobs are configured to run.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Configure the Context Parameters for APM Now

⚠ IMPORTANT: The Extraction Wrapper job is required only for APM Now deployment of the SAP Adapters.

The extraction wrapper job is a container job for the following APM Now SAP Adapters extraction jobs:

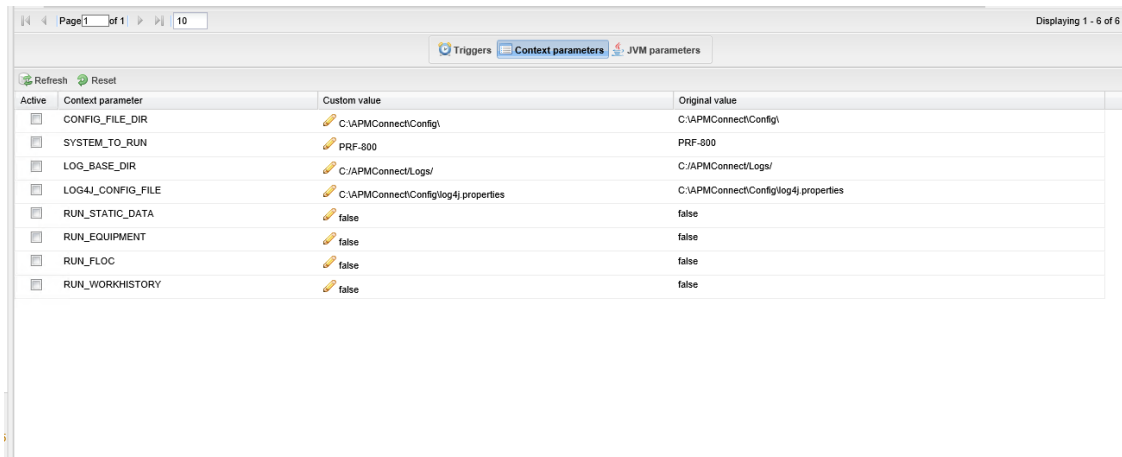
- RUN_STATIC_DATA
- RUN_EQUIPMENT
- RUN_FLOC
- RUN_WORKHISTORY

In addition to the extractions jobs, the Extraction Wrapper contains additional context parameters are required to configure the jobs to run.

Steps

1. In the APM Connect Administration Center, in the **Job Conductor** workspace, select the Extraction Wrapper job, and then select **Context parameters**.

The **Context parameters** section appears.



Active	Context parameter	Custom value	Original value
<input type="checkbox"/>	CONFIG_FILE_DIR	C:\APMConnect\Config\	C:\APMConnect\Config\
<input type="checkbox"/>	SYSTEM_TO_RUN	PRF-800	PRF-800
<input type="checkbox"/>	LOG_BASE_DIR	C:\APMConnect\Logs\	C:\APMConnect\Logs\
<input type="checkbox"/>	LOG4J_CONFIG_FILE	C:\APMConnect\Config\log4j.properties	C:\APMConnect\Config\log4j.properties
<input type="checkbox"/>	RUN_STATIC_DATA	false	false
<input type="checkbox"/>	RUN_EQUIPMENT	false	false
<input type="checkbox"/>	RUN_FLOC	false	false
<input type="checkbox"/>	RUN_WORKHISTORY	false	false

2. Configure the **Custom value** for the following connection parameters:
 - **CONFIG_FILE_DIR:** Enter the directory path where your context file is stored.
 - **SYSTEM_TO_RUN:** Enter the [name of the directory](#) containing the context file from which you want to extract data, or, to extract from all context directories, enter *****.
 - **LOG_BASE_DIR:** Enter the directory path into which the log files will be written.

- **LOG4J_CONFIG_FILE:** Enter the directory path where your log4j properties file is stored.
3. Select the **Active** check box corresponding to each of the connection parameters.
 4. For each extraction jobs you want to run, in the **Custom value** column enter *true*, and then select the **Active** check box.

For example, if you want run only the Equipment Adapter, in the **RUN_EQUIPMENT** row, in the **Custom value** box enter **true**. Then, select the **Active** check box.

Active	Context parameter	Custom value	Original value
<input type="checkbox"/>	CONFIG_FILE_DIR	C:\APMConnect\Config\	C:\APMConnect\Config\
<input type="checkbox"/>	SYSTEM_TO_RUN	PRF-800	PRF-800
<input type="checkbox"/>	LOG_BASE_DIR	C:\APMConnect\Logs\	C:\APMConnect\Logs\
<input type="checkbox"/>	LOG4J_CONFIG_FILE	C:\APMConnect\Config\log4j.properties	C:\APMConnect\Config\log4j.properties
<input type="checkbox"/>	RUN_STATIC_DATA	false	false
<input checked="" type="checkbox"/>	RUN_EQUIPMENT	true	false
<input type="checkbox"/>	RUN_FLOC	false	false
<input type="checkbox"/>	RUN_WORKHISTORY	false	false

The Extraction Wrapper job is configured to run. Once the job is executed, the data designated to be extracted in the **Connect parameters** will be transferred from your SAP System to your GE Digital APM system.

5. For each of the remaining jobs imported into the APM Connect Administration center, select the job, and then **Context parameters**.
6. Configure the following parameters:
 - **CONFIG_FILE_PATH:** Enter the directory path where your context file is stored, including the name of the context file, e.g. C:\APMConnect\Config\SYS-001\SAP_ContextFile.xml
 - **LOG4J_CONFIG_FILE:** Enter the directory path where your log4j properties file is stored, including the name of the context file, e.g. C:\APMConnect\Config\log4j.properties
7. Repeat steps 5-7 for each imported job that you plan to run.

The jobs are configured [to run](#).

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Configure Site Reference Values

Note: If you are deploying the SAP PI and Maximo Adapters, site filtering is handled by [parameters in the context file](#).

To assign site references to records using values other than those in the [baseline configuration](#), you must modify the **autojoin_control** table in the Intermediate Repository.

IMPORTANT: Site Reference records corresponding to the site references that you specify must exist in GE Digital APM before you can transfer records.

Steps: Configure the Site Reference Value to Use an Indirect Site Reference Value

1. Access a database browser tool, and then access your Intermediate Repository (PostgreSQL) database.
2. Locate the **autojoin_control** table, and then locate the **site_reference** column.

Tip: For details about what each column in the **autojoin_control** table contains, see [About Site Filtering Configuration](#).

3. Update the value in the **site_reference** column using the format #FIELD_ID#, where FIELD_ID represents the ID of the field from which you want to populate the site reference value.

For example, if you want the site reference value to be the value in the SAP Maintenance Plant field of the corresponding Equipment or Functional Location.

- Where the value #MI_FNCLOC00_SAP_SYSTEM_C# occurs, replace the value with #MI_FNCLOC00_MAINT_PLNT_C#
- Where the value #MI_EQUIPOO_SAP_SYSTEM_C# occurs, replace the value with #MI_EQUIPOO_MAINT_PLANT_C#

When you import record into GE Digital APM from your SAP System, its Site Reference Key will be the value in the field that you specified. In the example above, the Site Reference Key will be the SAP Maintenance Plant of the corresponding Equipment or Functional Location.

Steps: Configure the Site Reference Value to be A Specific Site Name

1. Access a database browser tool, and then access your Intermediate Repository (PostgreSQL) database.

2. Locate the **autojoin_control** table, and then locate the **site_reference** column.

Tip: For details about what each column in the **autojoin_control** table contains, see [About Site Filtering Configuration](#).

3. Where the value **#MI_FNCLOC00_SAP_SYSTEM_C#** occurs, replace the value with the Site name as defined in a GE Digital APM Site Reference record.
4. Where the value **#MI_EQUIPOO_SAP_SYSTEM_C#** occurs, replace the value with the Site name as defined in a GE Digital APM Site Reference record.

When you import records into GE Digital APM from your SAP System, its Site Reference Key will be the name of the Site as defined in the APM Site Reference record.

Example: Configure MI_EQUIP000_CST_CNR_C as an Indirect Site Reference

In this example, the database browser tool used in this example is pgAdmin4, the IR database name is SAP_UDLP_EAMClient. You can use the database browser of your choice.

1. On your APM Connect server, open pgAdmin4, your database browser tool.

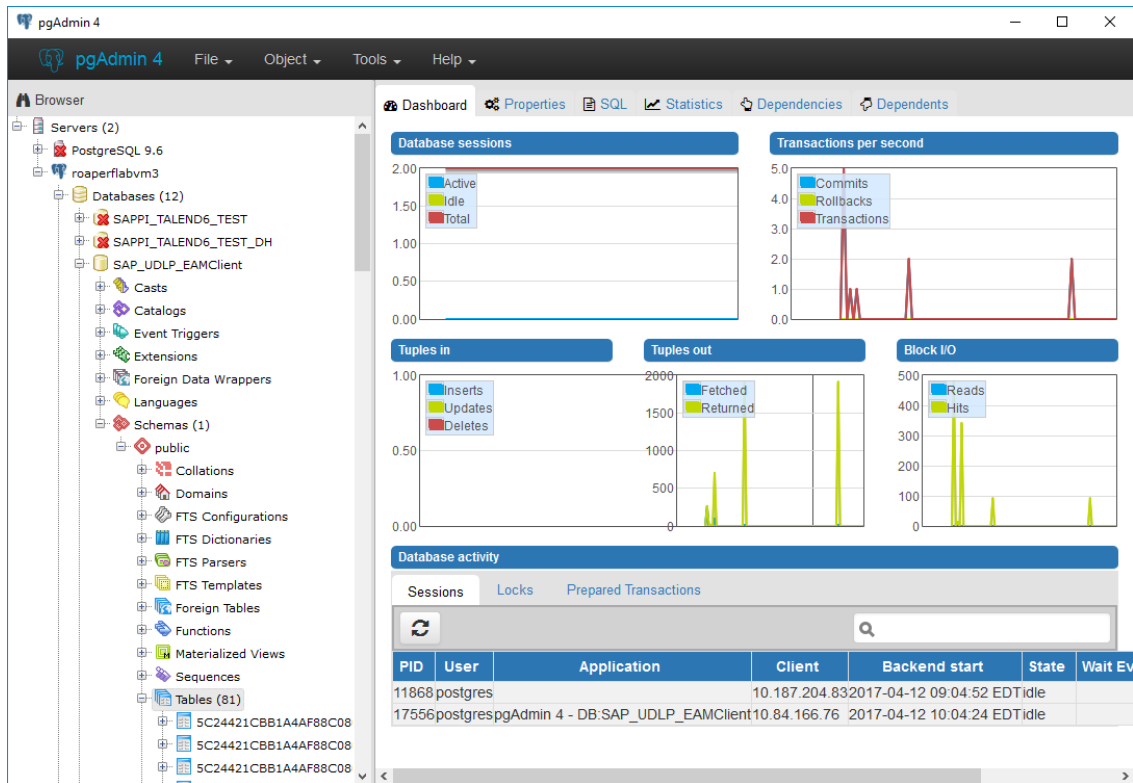
PgAdmin4 is open displaying your available servers.



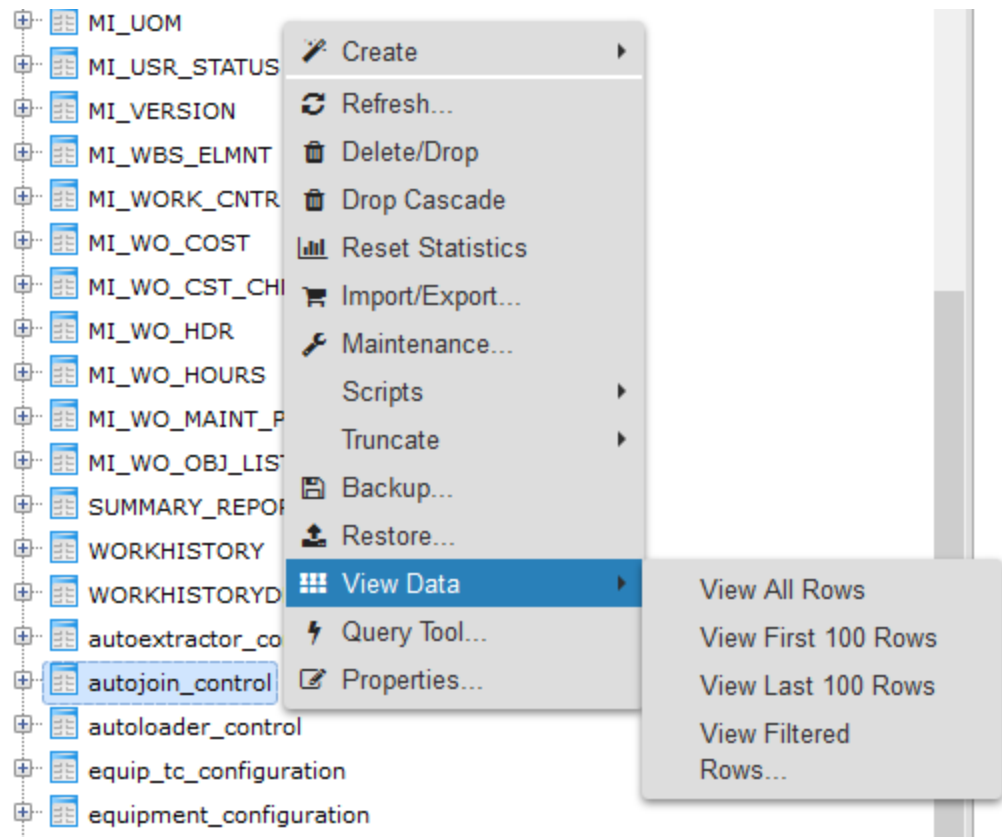
2. Navigate the server tree to the appropriate IR database, access your tables.

Deploy APM Connect

In this example, the path is Servers(2)\roaperflabvm3\Databases\SAP_UDLP_EAMClient\Schemas(1)\public\Tables (81). The list of tables in your IR database are visible.



3. Locate the table **autojoin_control**, right click, and then select the **View Data** dropdown.



4. Select **View All Rows**.

The Query -1 tab is populated with the autojoin table.

5. In each row, in the **site_reference** column, enter #MI_EQUIP000_CST_CNR_C#

Tip: This example assumes that the existing values in the **site_reference** column correspond to values in the MI_EQUIP000 and MI_FNCLOC00 families. If they do not, you must also update the **apm_site_reference_family** column to the corresponding family.

The value in the MI_EQUIP000_CST_CNR_C field will be used to populate the Site Reference Key in corresponding records.

About Site Filtering Configuration via the autojoin_control Table

Site Reference values are managed in the Intermediate Repository, specifically in the **autojoin_control** table as shown in the following image.

site_reference character varying	apm_site_reference_column character varying	apm_site_reference_family character varying	use_relationship_lookup character varying	default_site_reference character varying
#MI_FNCLOC00_SAP_SYSTEM_C#	MI_SITE_NAME	MI_FNCLOC00	0	*Global*
#MI_FNCLOC00_SAP_SYSTEM_C#	MI_SITE_NAME	<PRED_FAMILY_ID>	1	*Global*
#MI_EQUIP000_SAP_SYSTEM_C#	MI_SITE_NAME	MI_EQUIP000	1	*Global*

About the Baseline Site Reference Configuration

The baseline configuration of the SAP Adapters uses the SAP System to determine the site to which a record should be assigned. More specifically, the value in the **site_reference** column in the **autojoin_control** table is #MI_FNCLOC00_SAP_SYSTEM_C# for Functional Location records and #MI_EQUIP000_SAP_SYSTEM_C# for Equipment records.

Additionally, if SAP System value is null or empty on a record in SAP, once transferred into GE Digital APM, it will be assign the site reference defined in the **default_site_reference** column in the **autojoin_control** table. The default value is *Global*.


If you want to use your SAP System as the site for all records transferred from SAP to APM then no additional configuration is needed. However, if necessary, you can [configure different site reference values](#).

⚠ IMPORTANT: A Site Reference record corresponding to your SAP System(s) must exist in GE Digital APM before you can transfer records.

About the autojoin_control Table

You can specify site references using the **autojoin_control** table. The columns in this table are described in the following table.

Column	Description
AUTOJOIN_ID	Surrogate ID used to uniquely identify a row; i.e., the primary key.
BATCH_NAME	When a load is processed, queries defined in this table are run together in batches. All queries with the same BATCH_NAME are executed together.
TABLE_NAME	The name of the temporary table that will be created for this row. This name will be concatenated by the load UUID.

SQL_EXECUTION_ORDER	Within a batch, the value in this column defines the order in which the SQL statements will be executed. Lower numbers will be executed first.
SQL	The SQL SELECT statement to be executed. The results of this statement will be copied to the temporary table defined by the load UUID and the TABLE_NAME column. Columns defined in the SELECT statement should match exactly the column names in the GE Digital APM family for which data is being loaded.
SITE_REFERENCE	<p>This column specifies the value to use for the corresponding record's Site Reference Key. This can be a direct site reference (i.e., a specific site reference name) or it can contain an indirect site reference (i.e., a field that contains the site reference name to use). See the topic Configure Site Reference Values for details.</p> <div style="border: 1px solid yellow; padding: 5px;"> <p> Note: The baseline value is #MI_FNCLOCOO_SAP_SYSTEM_C# for Functional Location records and #MI_EQUIPOO_SAP_SYSTEM_C# for Equipment records. This means the SAP System will determine to which site records are assigned.</p> </div>
APM_SITE_REFERENCE_COLUMN	The GE Digital APM column used to store Site Reference values. Unless you have customized the GE Digital APM database, this value should be MI_SITE_NAME.
APM_SITE_REFERENCE_FAMILY	The GE Digital APM family to which the site reference will be applied. When the relationship is being built within the records of the same entity, the value is <PRED_FAMILY_ID>. Unless you have customized the GE Digital APM database, you do not need to modify this value.
USE_RELATIONSHIP_LOOKUP	<p>This column specifies whether the row is for an entity or relationship.</p> <p>If this row is populating a relationship, the value should be 1. If not, the value should be 0. This affects the way relationship references are defined in the resulting SQL statements.</p>
DEFAULT_SITE_REFERENCE	<p>If an indirect site reference is specified, this value defines the Site Reference Key that should be used if the value in the specified indirect site reference column is NULL.</p> <ul style="list-style-type: none"> • Enter *Global* to assign the site as global • Enter the name of a site to assign records to that site.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Mount a File Share

To enable writing files between the servers within your APM Connect architecture, file shares need to be mounted. This topic details the basic process for setting up a file share based on your operating systems. Generally, this process involves, creating a file share to be mounted, then mounting the file share, and then making the file share permanent.

⚠ IMPORTANT: The process can vary greatly between organizations based on network configurations. Additionally, this procedure should be completed by an administrator with the expertise to manage network configurations.


Before You Begin

- Be sure that you understand the recommended configurations to enable [file shares within the APM Connect architecture](#).
- You will need access to the Linux console and root privileges on your Linux server.
- You will need the APM Connect server service account user name and password.
- You should be a network administrator with working knowledge of your network configurations.

Steps: Create a File Share on a Windows Server, and then Mount the Share to a Linux Server

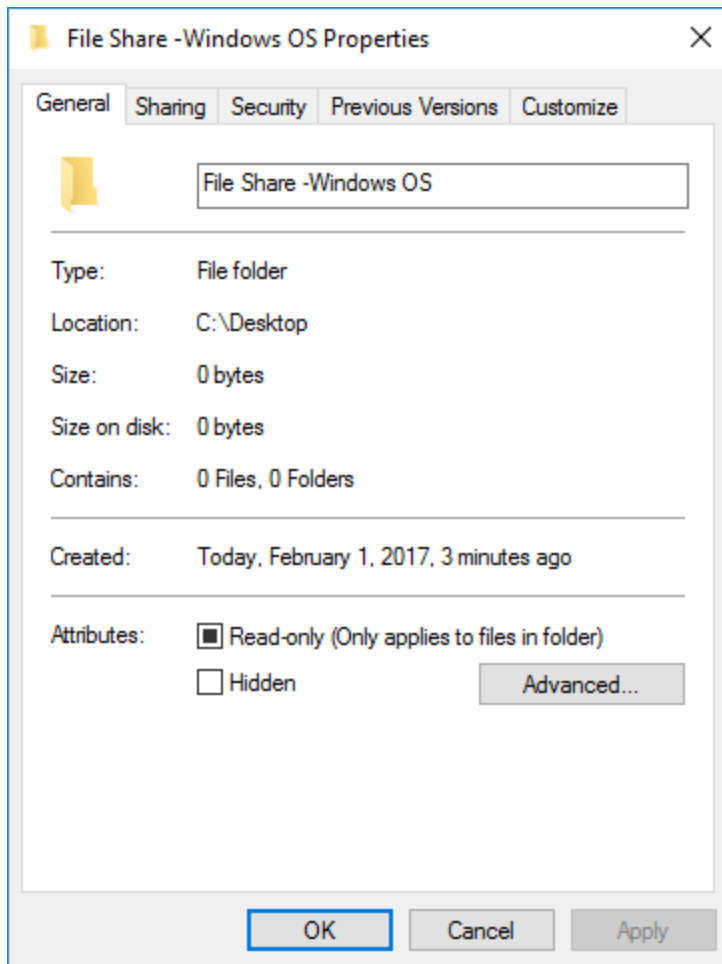
Create the File Share

1. On your APM Connect server (i.e., the Windows server on which you want to create the share), create a new folder for file sharing.

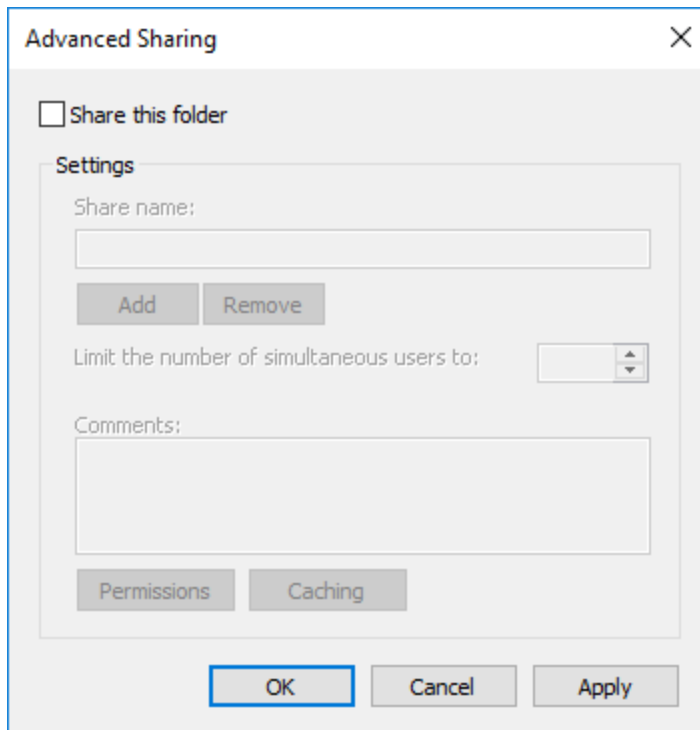
 **Note:** This share can be anywhere on your APM Connect server and can have any name.

2. Right-click on the new folder, and then select **Properties**.

The <Folder Name> **Properties** window appears.



3. Select the **Sharing** tab, and then select **Advanced Sharing**.
The **Advanced Sharing** window appears.

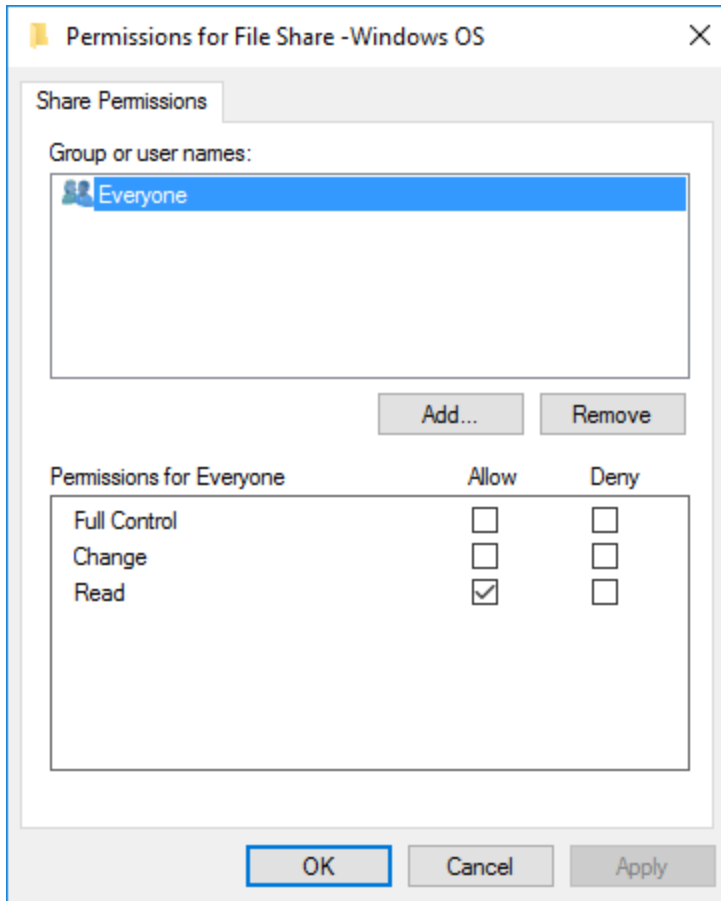


4. Select the **Share this folder** check box.

The other fields on the window are enabled.

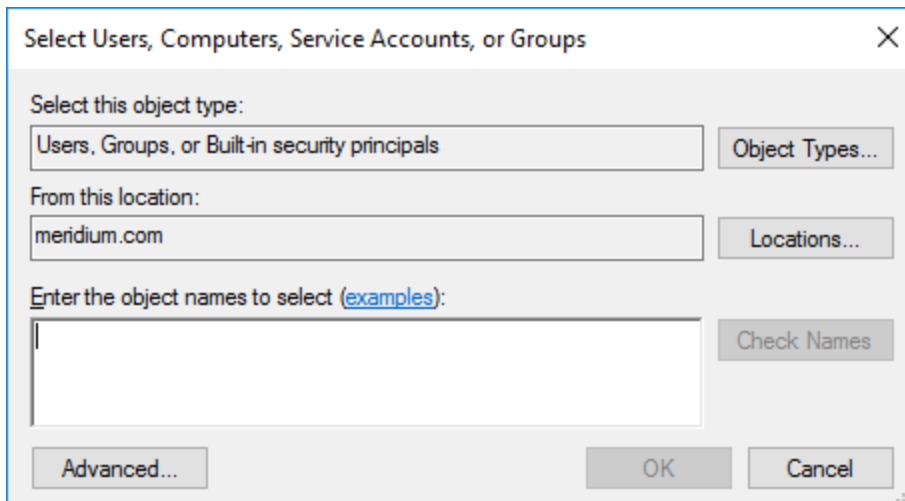
5. Optionally, edit the name in the **Share name:** box. If you do not edit this name, the name will default to the folder name.
6. Select **Permissions**.

The **Permissions for <Folder Name>** window appears.




7. Select **Add...**

The **Select, Users, Computers, Service Accounts, or Groups** window appears.



8. In the **Enter the object names to select (examples)** box, enter the name of your APM Connect service account user.

 **Note:** The user must have permission to read and write to the shared folder.

9. Select **OK**.

The **Select, Users, Computers, Service Accounts, or Groups** window closes.

10. On the **Permissions for <Folder Name>** window, in the **Permissions for <Service User Name>** box, in the **Allow** column select the **Full Control** check box, the **Change** check box, and the **Read** check box.

11. Select **OK**.

The **Permissions for <Folder Name>** window closes.


12. On the **Advanced Sharing** window, select **OK**.

The **Advanced Sharing** window closes. Then, on the **<Folder Name> Properties** window, in the **Network File and Folder Sharing** section, the **Network Path:** subsection is populated.

13. Record the network path.

Mount the File Share

14. Access your SAP PI server or your SAP server (i.e., the Linux server to which you want to mount the share) via a Linux Command Line Editor tool (e.g., Vim or Nano).
15. Determine an existing directory that will be used as the share, or create a new directory.
16. In that directory, to initiate the connection between your source and target share, execute a mount command. The command will likely require the APM Connect service account user, source of the file share folder you created on the APM Connect server, and target for the share on your Linux server.

 **Tip:** The exact mount command will vary based on the system that you are using. An example of a mount command is `mount -t smbfs -o user-name=Administrator //recurring/c$ /mnt/recurring`

17. To verify that the new mount is configured correctly, enter the command `mount`. The mount appears in the list of mounted shares.

Tip: At this point, you should be able to write files from one share to another. To test, place a file in the source folder on the Windows machine, and then the file should appear in the target directory on the Linux machine.

Make the Share Permanent

18. On the Linux machine, navigate to the file */etc/fstab*.

Tip: Mounting the share into the */etc/fstab* file makes the file share permanent meaning that upon reboot the file share is still be mounted. If you do not execute the mount in this location, once the machine is rebooted the mount will be disconnected.

19. Open the file to be edited using a data base editor (e.g. Vim or Nano).
20. Add a new line to the file defining the share, mount point, file system driver, and options.

Tip: The following is an example of the file syntax: *//<Source Folder Name> /<Target Folder Name <Systems Type or Driver> username=username password=<password> 02*.

Additionally, the following is the same entry with sample values: *//APMConnectServer1/WindowsSharedFolder /opt/LinuxSharedFolder cifs -o username=APMConnectSeriveAccount1 password=APMConnect 0 2*

21. Close the file, and then return to the root directory.
22. To unmount the share created, execute the command *umount* (i.e., if the original mount directory was */opt/LinuxFileShare*, then execute the command *umount /opt/LinuxFileShare*).

Tip: You must unmount the share from the original location for it to be mounted from the */etc/fstab* file.

23. Execute the command *mount*.

The original mount directory does not appear in the list of mounted shares, and the new share in the */etc/fstab* folder can be mounted.

24. Execute the command `mount -a`.

i Tip: Executing the command will read the configuration from the `/etc/fstab` file, and then perform the mount operation based on the parameters in the file.

25. To verify that the share has been mounted, execute the command `mount`.

The new mount point added to the `/etc/fstab` file appears in the list.

At this point, you can place a file on the APM Connect server in the shared folder, and it will be transferred to the shared Linux folder.

Steps: Create a File Share on a Linux Server, and then Mount the Share to a Linux Server

Create the File Share

1. Access your SAP Server (i.e., the Linux server to which you want to mount the share) via a Linux Command Line Editor tool (e.g., Vim or Nano).
2. Ensure that the `nfs-kernel-server` service is installed and running.

⚠ IMPORTANT: The name of this service can vary based on the Linux system.

3. Create the directory that will be mounted to your SAP PI server or your SAP server.
4. To grant the remote server permission to mount a local directory, locate the file `/etc/exports`.
5. In that file, enter the directory you created in Step 3, and then identify the server that can mount the directory.

For example, if you wanted to create the directory `/opt/PI_FileShare` and grant all users permissions to mount that directory, then you would enter the following:
`/opt/PI_FileShare *(rw, sync, no_root_squash, not_subtree_check)`.

i Tip: You can find all of the export options and access control lists in the manual file accessed by executing the command `man exports`.

6. Restart the service `/etc/init.d/nfs-kernel-server`.

Mount the File Share

7. Access your SAP PI server or your SAP server (i.e., the Linux machine to which you want to mount the share).
8. Create a directory to which files will be written from the share.

9. Execute the mount command to mount the exported directory on to the SAP PI server or the SAP server.

Tip: The exact mount command will vary based on the system that you are using. An example of a mount command is `mount example.host-name.com:/ubuntu/local/ubuntu`.

For example, if your SAP server hostname is SAPServer1, your source directory is /opt/PI_FileShare, and your target directory is /opt/SAP_FileShare, you would enter the following: `mount SAPServer1: /opt/PI_File_Share /opt/SAP_FileShare`

10. The directory created in step 8 appears in the list of mounted directories.

Tip: At this point, you should be able to write files from one share to another. To test, place a file in the source folder on the Windows machine, and then the file should appear in the target directory on the Linux machine

Make the File Share Permanent

11. On the Linux machine on which the share will be mounted, navigate to the file `/etc/fstab`.

Tip: Mounting the share into the `/etc/fstab` file makes the file share permanent, meaning that upon reboot the file share will still be mounted. If you do not execute the mount in this location, once the machine is rebooted the mount will be disconnected.

12. Open the file to be edited using a database editor (e.g., Vim or Nano).
13. Add a new line to the file defining the share, mount point, file system driver, and options.

Tip: The following is an example of the file syntax: `<exporting server host-name>:<exported Folder Name> <Target Folder Name> <Systems Type or Driver> 0 2`.

Additionally, the following is the same entry with sample values: `APMConnectServer1.company.com:/exportedFolder /opt/mountpointFolder nfs 0 2`

14. Close the file, and then return to the root directory.
15. To unmount the share in the directory created in step 8, execute the command

umount.

For example if the original mount directory was `/opt/LinuxFileShare`, then execute the command `umount /opt/LinuxFileShare`.

Tip: You must unmount the share from the original location for it to be mounted from the `/etc/fstab` file.

16. Execute the command `mount -a`.

Tip: Executing the command will read the configuration from the `/etc/fstab` file, and then perform the mount operation based on the parameters in the file.

17. To verify that the share has been mounted, execute the command `mount`.

The new mount point added to the `/etc/fstab` file appears in the list.

At this point, you can place a file on the APM Connect server in the shared folder, and it will be transferred to the shared Linux folder.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

About File Shares and APM Connect

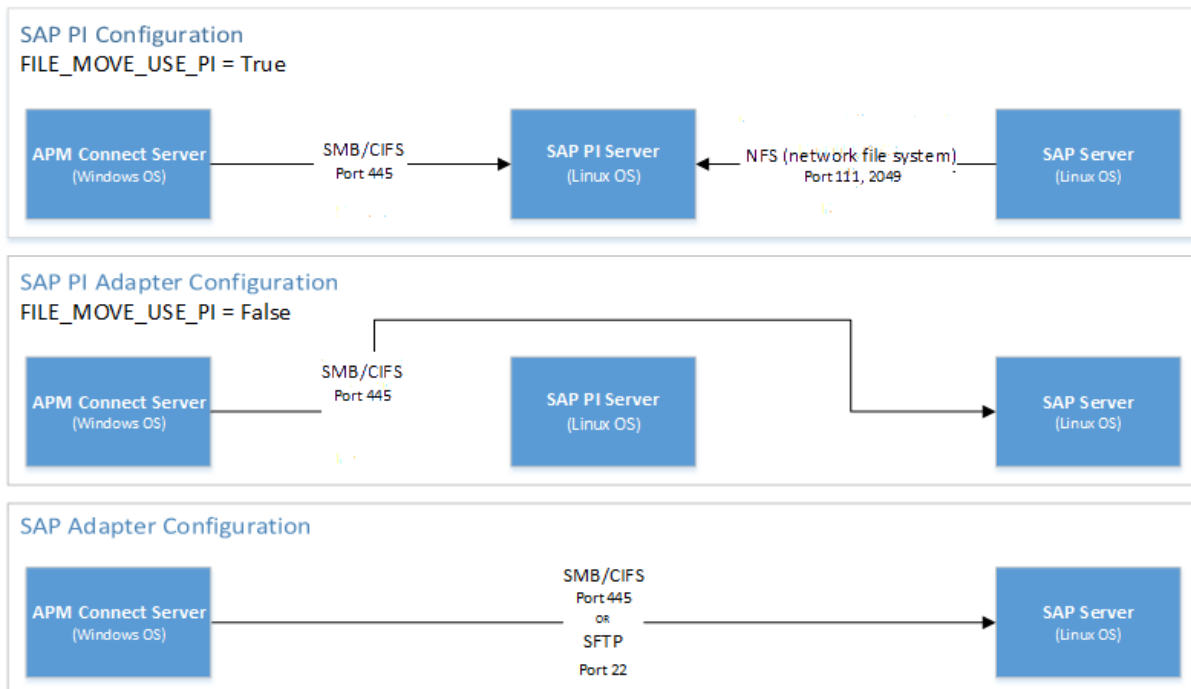
File shares mounted in the APM Connect architecture allow you to read and write files between servers within your architecture configuration.

File Mount Configurations

If you are using SAP PI, create a file share on your APM Connect server, and then mount it to your SAP PI server. Then, create a share on your SAP server, and then mount to your SAP PI Server. Similarly, if you are not using SAP PI, or you are bypassing your SAP PI server, you must create a file share on your APM Connect server, and then mount it to your SAP Server.

Note: The SAP PI Adapters determine if SAP PI server will be used via the FILE_MOVE_USE_PI parameter in the context file. If the parameter is true, then SAP PI will be used to copy files from your SAP server to your APM Connect server. If it is false, SAP PI will not be used to copy files from your SAP server to your APM Connect sever. In both configurations however, the SAP PI server will be used to proxy RFC calls.


Additionally, in the most common architecture, the APM Connect server is hosted on a Windows Sever with the SAP server and the SAP PI server hosed on a Linux server. The following diagrams details the recommended configurations.




User's Permissions for File Shares

When using a shared file system to facilitate data extraction from SAP to APM Connect,

you will need to grant the [service account user\(s\)](#) the appropriate permissions to access both systems.


 **Note:** Using active directory to manage the service account is recommended.

The volume to be mounted can be in three configurations: NAS/SAN, Windows, or Unix. Additionally, access control could be different for each configuration, as shown in the following table:

 **Tip:** When the shares are created and permissions configured correctly, [run the equipment job](#) for a single equipment ID. This is a quick and easy way to check that permissions are set up correctly. After you run the job, a file will be created using the SAP service account, then opened and read by the [APM Connect](#)

Volume (Disk, Share, LUN)	Access Control
NAS/SAN	Vendor specific user mapping (i.e. NetApp), or active directory integrations.
Windows	Users/Groups permissions are defined in Active Directory.
Unix	Active Directory integration, or user maps (i.e. Samba or Config).

Establish SFTP Transfer in SAP

 **Note:** If you using SAP PI, then you can skip this procedure.

If you use (S)FTP to transfer files between SAP, APM Connect, and GE Digital APM, you must complete additional configuration in SAP. You must download a puTTY file and set up command names in SAP to use the puTTY file.

Steps

1. On your SAP system, in a browser, navigate to the PuTTY website.
2. Download the following puTTY file: pscp.exe.
3. Copy it into the PATH on your SAP system. The recommended directory is *%WINDIR%/System32*.
4. In SAP, run the transaction code SM69.

The **External Operation System Commands** screen appears.

5. Select .

The **Create an External Command** screen appears.

6. In the **Command Section**, in the **Command Name** box, enter a name for your command.
7. In the **Definition** section, in the **Operating system command** box, enter following systems commands: *pscp*.
8. Select **Save**.

The puTTY file is on the SAP system, and the corresponding command names are set up.

What's Next?


- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Create File Share Folder Structure

Data files written by SAP are placed in a specific directory defined by the context parameter PLSAP_INPUT. This topic describes how to create the appropriate directory structure.

Steps

1. Navigate to the folder into which your SAP system writes files.

 **Note:** This folder will be different for each customer, but will likely be labeled PLSAP_INPUT.

2. Create a new folder for each of the following:


- EQUIPMENT
- FLOC
- TC_EQUI
- TC_IFLOT
- WMI
- WORKHISTORY

The directory is created, and SAP will write files to the specified location.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Install the ABAP Base Service Pack Add-on

 **Note:** To complete the following instructions successfully, you must use SAP client 000.

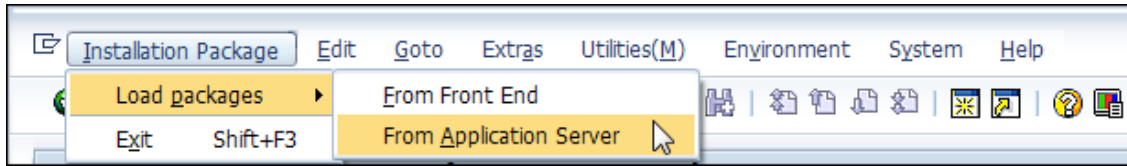
Before You Begin

- Determine the release and level of your current ABAP installation by completing the [steps to verify the ABAP installation](#).

Steps

1. On a machine from which you can access the SAP Server, navigate to the FTP site provided to you.
2. Determine how to proceed based on your ABAP release, level, and type of SAP system.
 - For ECC6, if your currently installed ABAP release is 400_600 and the level is 0000, 0030, 0032, 0033, or 0034, proceed directly to step 16. Otherwise, proceed to the next step.
 - For S/4 Hana, if your currently installed ABAP release is 4XX_750 and the level is 0034, proceed directly to Step 16. Otherwise, proceed to the next step.
3. Depending on your SAP environment, navigate to the folder **\\SAP Interfaces ABAP Add-On\Service Pack Files\ECC6** or **\\SAP Interfaces ABAP Add-On\Service Pack Files\S/4 Hana**, and then select one of the following folders:
 - **Exchange Upgrade:** To upgrade the ABAP package when upgrading to a new SAP version.
 - **Install:** To install the ABAP Package for the first time.
 - **Upgrade:** To upgrade the ABAP package.
4. Copy the .pat file(s). The file names begin with either D07 for ECC6 or H4S for S/4 Hana.
5. On the SAP Server, paste the copied file into the folder **\\usr\sap\trans\EPS\in**.
6. Log in to the SAP system as a user with:
 - SCTSIMPSGL and S_CTS_ADMIN authorizations.
 - or-
 - SAP_ALL authorization.
7. Run the following transaction: *SAINT*.
The **Add-On Installation Tool** screen appears.

8. In the page, select **Installation Package**, then select **Load packages**, and then select **From Application Server**.



A message appears, asking if you want to upload OCS packages from the ECS inbox.

9. Select **Yes**.

The **SAINT: Uploading Packages from the File System** screen appears.

Note: In an S/4 Hana environment, two files are uploaded and are displayed in the **SAINT: Uploading Packages from the File System** screen.

In the row corresponding to the .pat file that you copied previously, the Message Text column displays *Uploaded successfully*.

10. At the top of the screen, select .

The **Add-On Installation Tool** screen appears again.

11. Select **Start**.

A new grid appears. MIAPMINT appears in the list of add-on packages that can be installed.

12. Select the row containing the value MIAPMINT in the first column, and then select **Continue**.

The **Support Package selection** screen appears.

13. Select **Continue**, and then select **Continue** again.

Notes:

- During the installation, the **Add Modification Adjustment Transports to the Queue** window might appear. If it does, select **No**.
- During the installation, the **Open data extraction requests** window might appear. If it does, select **Skip**, and then select **Yes**.

An indicator appears at the bottom of the screen to indicate the installation progress.

When the progress indicator disappears, a message appears, indicating that the add-on package will be installed.

14. Select



The status is updated to indicate that the add-on package will now be imported, and the installation process continues. When the installation process is complete, the status is updated to indicate that the add-on package was imported successfully.

15. Select **Finish**.

The MIAPMINT add-on package appears in the list of installed add-on packages on the **Add-On Installation Tool** screen.

16. On the FTP site, navigate to the folder **\\SAP Interfaces ABAP Add-On\Support Package**.
17. Depending on your SAP environment, navigate to the **ECC6** folder or navigate to the **S/4 Hana** folder, and copy the .pat file(s).
18. On the SAP Server, paste the copied file(s) into the folder **\\usr\sap\trans\EPS\in**.
19. Log in to the SAP system.
20. Run the following transaction: *SPAM*.

The **Support Package Manager** screen appears.

21. Select **Menu**, then select **Support Package**, then select **Load Packages**, and then select **From Application Server**.

A message appears, asking if you want to upload the package.

22. Select **Yes**.

A summary screen appears, indicating that the package was uploaded successfully.

23. Select **Back**.

24. Select **Display/define**.

The **Component Selection** window appears.

25. Select the MIAPMINT component.
26. When prompted, confirm that the patch will be imported into the queue, and then select .

27. Select **Menu**, then select **Support Package**, and then select .


The **SPAM: Import: Queue** window appears.

28. In the **SPAM: Import: Queue** window, select .

The import process begins. When it is complete, a message appears, indicating that the import process was successful.

29. Select **Continue**.

Another message appears, indicating that the import process was successful.

30. Select .

31. Select **Menu**, then select **Support Package**, and then select .

The installation is complete.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Verify ABAP Installation

Steps

1. In SAP, in the **System** menu, select **Status...**

The **System: Status** window appears.

The screenshot shows the 'System: Status' window with the following data:

Usage data			
Client	800	Previous logon	10:45:01
User	MERIDIUM_USF	Logon	12:47:05
Language	EN	System time	12:47:15
		Time zone	UTC 16:47:15

SAP data			
Repository data		SAP System data	
Transaction	SESSION_MANA	Component version	SAP ECC 6.0
Program (screen)	SAPLSMTR_NAVI	Installation number	0020243634
Screen number	100	License expiration	9999.12.31
Program (GUI)	SAPLSMTR_NAVI	Unicode System	Yes
GUI status	SESSION_ADMIN		


Host data		Database data	
Operating system		Database system	
Machine type		Release	
Server name		Name	
Platform ID		Host	
		Owner	

2. In the **SAP System data** subsection, select .

The **System: Component information** window appears.

3. If you have deployed the ABAP Add-On package for the SAP Adapter, scroll down until you see the Software Component *MIAPMINT*. If you see the following values in the following columns, the Add-On was applied successfully:

- **Release:**
ECC6: *400_600*
S/4 Hana: *4XX_750*
- **Level:**
ECC6: *0035*
S/4 Hana: *0035*


 **Note:** If the level does not match, go back to the copy .pat files step of [Install the ABAP Base Service Pack Add-on](#) and rerun the installation steps.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Uninstall the ABAP Base Service Pack Add-on


If you are upgrading from one version of the ABAP Base service pack add-on to a newer version, you will need to uninstall the currently installed service pack.

 **Note:** The uninstall feature is available only in SAP versions S/4 Hana 1511 and later. To complete these steps, you *must* use SAP client 000.

Before You Begin

- [Verify the release and level of your ABAP installation.](#)

Steps

1. Log in to the SAP server as a user with either *SCTSIMPSGL* and *S_CTS_ADMIN* authorizations or *SAP_ALL* authorization.
2. Enter *SAINT*.
The **Add-On Installation Tool** screen appears.
3. Select the **Uninstallable components** tab.
MIAPMINT appears in the list of add-on packages that can be uninstalled.
4. Select **MIAPMINT**, and then select **Continue**.
The **Start options** window appears.
5. Select **Default options**.
6. Select .
The status is updated to indicate that the add-on package will now be imported and the uninstallation process continues. When the process completes, the status is updated to show that the add-on package was removed successfully.
7. Select **Finish**.

Results

The MIAPMINT add-on package is removed from the list of installed add-on packages in the **Add-On Installation Tool** screen.

Create APM Connect User Profile in SAP

1. In SAP, run the transaction *PFCG*.

The role maintenance screen appears.



2. In the **Role** box enter the role name *ZRM_APMConnect_auth_profile*, and then select **Single Role**.

The **Display Roles** screen appears.

3. Select the **Authorizations** tab.

4. In the **Maintain Authorization Data and Generate Profiles** section, on the **Change Authorization Data** row, select .

The **Choose Template** window appears.

5. Select **do not select templates**.

The **Change Role: Authorizations** window appears.

6. Select **Manually**.



The **Manual selection of authorizations** pane appears.

7. In the **Authorization Object** box enter the following:

- S_RFC
- S_BTCH_JOB
- S_DATASET
- S_TABU_NAM
- S_LOG_COM
- I_QMEL
- I_AUART
- I_BETRVORG
- C_TCLA_BKA

8. Select .

9. On the **Cross-application Authorization Objects** row to expand the workspace, select .

10. On the **Activity** row, select .
The Define Values window appears.
11. Select the **Execute** box.
12. Select .
13. If you are using ASI, configure the ASI SAP permissions.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

SAP Interfaces Security Groups

The following table lists the baseline Security Groups available for users within this module, as well as the baseline Roles to which those Security Groups are assigned.

⚠ IMPORTANT: Assigning a Security User to a Role grants that user the privileges associated with *all* of the Security Groups that are assigned to that Role. To avoid granting a Security User unintended privileges, before assigning a Security User to a Role, be sure to review all of the privileges associated with the Security Groups assigned to that Role. Also, be aware that additional Roles, as well as Security Groups assigned to existing Roles, can be added via Security Manager.

Security Group	Roles
MI SAP Interface Administrator	None
MI SAP Interface User	None

The baseline family-level privileges that exist for these Security Groups are summarized in the following table.

Family	MI SAP Interface Administrator	MI SAP Interface User
Entity Family		
Confirmation	View, Update, Insert, Delete	View, Update, Insert
Equipment	View, Update, Insert, Delete	View, Update, Insert
Functional Location	View, Update, Insert, Delete	View, Update, Insert
SAP System	View, Update, Insert, Delete	View
Site Reference	View	View
Work History	View, Update, Insert, Delete	View, Update, Insert
Work History Detail	View, Update, Insert, Delete	View, Update, Insert
Relationship Families		
Equipment Has Equipment	View, Update, Insert, Delete	View, Update, Insert, Delete
Functional Location Has Equipment	View, Update, Insert, Delete	View, Update, Insert, Delete
Functional Location Has Functional Location(s)	View, Update, Insert, Delete	View, Update, Insert, Delete


Has Confirmation	View, Update, Insert, Delete	View, Update, Insert, Delete
Has Event Detail	View, Update, Insert, Delete	View, Update, Insert, Delete
Has SAP System	View, Update, Insert, Delete	View, Update, Insert, Delete
Has Work History	View, Update, Insert, Delete	View, Update, Insert, Delete
User Assignment	View, Update, Insert, Delete	View, Update, Insert, Delete

Identify Trigger Values for Creating Task Records

The Work Management Adapter allows you to create Inspection Task and Calibration Task records from SAP Maintenance Plans using Operations and Object Lists. This topic describes how to identify which values in an Operation or Object list will trigger the creation of which Task records in GE Digital APM.

The baseline product is configured such that:

- Operations with the control key ZMI2 will be used to create Calibration Task records.
- Operations with the control key ZMI1 will be used to create Inspection Task records.

 **Note:** You are not required to use the default configuration. If you want to use values in different Operation fields to trigger the creation of GE Digital APM Task records, you can do so.

Steps

- If you want to accept the baseline configuration complete the following:
 - a. [Create the control keys](#) ZMI1 and ZMI2.
 - b. In the [context file](#), configure the following Work Management parameters Work Management Parameters to enable trigger values.


What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Configure GE Digital APM to Create Notifications from Recommendation Records


The SAP Interfaces feature allows you to create Recommendation records in GE Digital APM that will be used to create SAP Notifications automatically. For a Recommendation record to generate an SAP Notification automatically, the Create Work Request field must exist on the Recommendation datasheet. This field is available on the baseline datasheets for the baseline Recommendation families from which you are allowed to create SAP Notifications.

If you want to generate SAP Notifications from Recommendation records that belong to customer-defined subfamilies of the root Recommendation family, in addition to implementing the correct rules (for an example of the rules that you will need to implement, you can look at any active baseline Recommendation family), you will need to add the Create Work Request field to the desired datasheets for that family.

 **Hint:** You can create multiple types of SAP Notifications (e.g., M1) from Recommendation records. By default, GE Digital APM creates M1 Notifications.

Steps

1. If you want to create different Notification types, you will need to:
 - a. Add the Notification Type field to the datasheet.
 - b. Configure the Notification Type field to accept values other than M1.

 **Note:** In the baseline SAP Interfaces product, this field is disabled. If desired, you could configure it to be enabled so that users can type a value directly in the Notification Type cell on the datasheet. You might also consider creating a Valid Values rule that provides a list of acceptable values so that users can select the desired value from the list.

What's Next?

- [Return to the workflow](#) for the next step in the deployment process.

Deploy and Configure the SAP Connector File

As recommended and by default, a RestFUL SAP web service call is used as an intermediary between SAP and GE Digital APM, thereby avoiding RFC calls directly between GE Digital APM and your SAP sever. Complete these steps to deploy and configure the files necessary to enable this connection.

Steps

1. Access the APM Connect installation package, and then copy the file **connectorServices.jar**.
2. On your APM Connect server, navigate to *<root:>\APMConnect\Utilities\runtime\deploy*.
3. Paste the copied file **connectorServices.jar** into the directory.

The RFC Connector files are deployed and configured.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Configure Notification Priority

You can configure the priority value in GE Digital APM to match the priority value in SAP by editing the MI_PRIORITY system code table.

Steps

1. Determine the values in your EAM system that determine priority.
2. For each priority that exist in you EAM System, modify the MI_PRIORITY system table to match the values in your EAM system.

Results

- When priority values are transferred from a GE Digital APM recommendation to an SAP Notification, the priority values will match.

What's Next?

- [Return to the workflow](#) for the next step in the deployment process.

Create an EAM System Record


You must configure an EAM System Record to establish a connection between any EAM system and GE Digital APM.

Steps


1. Create a new record , using the [EAM System family](#).
2. In the **Name** box, enter the name of your SAP system.
3. If this SAP system is the system to and from which you want to send data by default, select the **Default EAM System?** check box.
4. Set the **System Type** to SAP.
5. In the **User ID** box, enter a valid SAP User ID.
6. In the **Password** box, select **...**.

The **Enter SAP System Password** window appears.

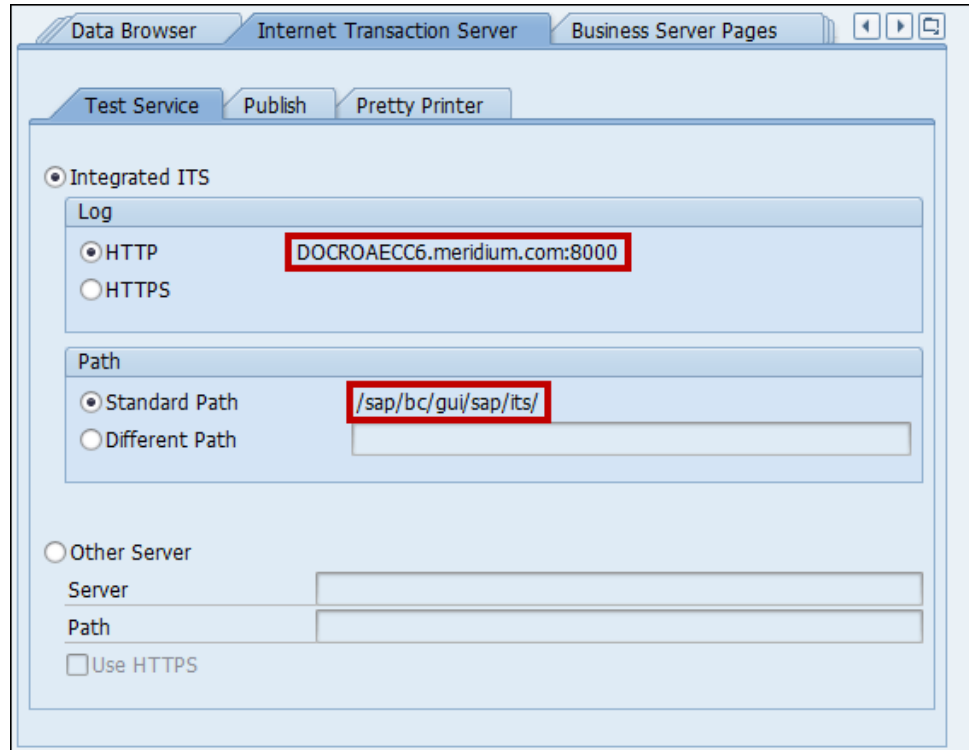
7. In the **Enter Password** box, enter the password that is associated with the specified user ID.
8. In the **Confirm Password** box, reenter the password.
9. Select **OK**.
10. In the **Connection String** box:
 - a. Replace the text *SAP_SERVER_IP* with the IP address of the SAP Server.
 - b. Replace the text *SAP_SYSTEM_NUMBER* with the SAP System number.
 - c. Replace the text *SAP_CLIENT_NUMBER* with the SAP Client number.
 - d. Delete all angle brackets.
11. **Optional:** In the **ITS URL** box:
 - a. Replace the text: *its_or_integrated_its_server_url* with the ITS Server information. To locate the ITS Server information:
 - i. In SAP, run the following transaction: *SE80*.

 **Note:** If you do not have access to this transaction, contact your SAP BASIS team for assistance.

- ii. On the toolbar, select **Utilities**, and then select **Settings**.

- iii. In the window, select  repeatedly until the **Internet Transaction Server** tab appears.
- iv. Select the **Internet Transaction Server** tab.

The ITS Server information that you must enter in the **ITS URL** box in GE Digital APM is <Log><Path>, where <Log> is the text in the **Log** section and <Path> is the text in the **Path** section.




- b. Delete the angle brackets.
- c. At the end of the URL, enter: *webgui/!*.

For example, the ITS URL that corresponds with the values in the image above is *http:// DOCROAECC6.meridium.com:8000/sap/bc/gui/sap/its/webgui/!*.

- 12. Select .

The EAM System record is saved.

- 13. Select , and then select **Test Connection**.

The connection parameters are verified, and the **System ID** box is populated with you EAM System ID.

Results

Deploy APM Connect


- An EAM system record is created for the EAM system to and from which you want to establish a connection with GE Digital APM. This record should now be used to link Site Reference.
- Linking an EAM system to an EAM System record enables the APM Connect Adapters to create Notifications against that EAM System.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Test the Connection Defined in an EAM System Record

Steps

1. In the GE Digital APM application, open the [EAM System record](#) whose connection information you want to test.
2. To access the **Associated Pages** menu, select , and then select **Test Connection**.
The connection is tested.

Results

- The connection information that you provided is tested, and a message appears, indicating whether or not the test was successful. In addition, the System ID field is populated automatically with the name of the SAP system, using the format <SYSID>-<CLIENT>, where <SYSID> is the System ID of the SAP system, and <CLIENT> is the Client number.

What's Next?

- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.

Create the Intermediate Repository Database

This topic describes how to set up a repository in preparation to run your first job.

Before You Begin

△ IMPORTANT: If you are using both the Data Loaders and an EAM Adapter, you need only one Intermediate Repository Database.

- Before you can prepare and deploy the repository, you must [import the CreateIntermediateRepository job](#).
- If you are using the Data Loaders and the EAM Adapters, you must deploy and run the *CreateIntermediateRepository* job for each set of adapters.
- For SAP adapters, you must first run the Static Data job.
- For multiple EAM systems, the context file parameter values for a specific type of system must be identical except for the value of CMMS_ID.
- For multiple EAM systems, the Intermediate Repository Connection parameters have the same values for all adapters connected to this GE Digital APM system.

△ Important: Each time you run the *CreateIntermediateRepository* you recreate the GE Digital APM database to the baseline settings, removing any previous configuration. When you run the *addSourceSystem* job, the job will add new source systems based on the CMMS_ID and the SOURCE_SYSTEM_TYPE. If the job is run an additional time with the same configuration, it will reset the control values of an existing source system.

Steps

1. Log in to the APM Connect Administration Center web application.

Note: The user logging in [must have access to the Job Conductor](#) by being designated the Operations Manager role. By default, users designated as administrators do not have Job Conductor permissions.

2. In the **Job Conductor** workspace, in the appropriate project, select the *CreateIntermediateRepository* job.
3. Select **Context parameters**.

The **Context parameters** section appears.

- Configure the following parameter.

Context Parameter	Description
CONFIG_FILE_PATH	<p>The file path to context files for the jobs.</p> <div style="border: 1px solid red; padding: 5px;"> <p>⚠ IMPORTANT: You <i>must</i> change the default value to reflect the actual path to your configuration file.</p> </div>

- Select **Run**.

The intermediate repository is created for the project.

If you are configuring a single system, you have completed your configuration. The intermediate repository database is created for the project.

If you are configuring multiple EAM systems, perform the remaining steps in this topic.

- In the **Job Conductor** workspace, in the appropriate project, select the addSourceSystem job.
- Configure the following parameter.

Context Parameter	Description
CONFIG_FILE_PATH	<p>The file path to context files for the jobs.</p> <div style="border: 1px solid red; padding: 5px;"> <p>⚠ IMPORTANT:</p> <ul style="list-style-type: none"> You <i>must</i> change the default value to reflect the actual path to your configuration file. CMMS_ID and SOURCE_SYSTEM_TYPE must be set in the context file. </div>

- Select **Run**.
- If you are using multiple adapters, repeat steps 6 through 8 for all adapters.

What's Next?

Deploy APM Connect


- Return to the [SAP Adapter workflow](#) for the next step in the deployment process.
-or-
- Return to the [Maximo Adapter workflow](#) for the next steps in the deployment process.
-or-
- Return to the [Data Loader workflow](#) for the next step in the deployment process.

Run the Static Data Job

The Static Data job populates the database with static site information. This topic describes how to run this job.

Steps

1. Open and log in to the APM Connect Administration Center web application.

 **Note:** The user logging in [must have access to the Job Conductor](#) by being designated the Operations Manager role. By default, users designated admin do not have Job Conductor permissions.

2. Select **Job Conductor**.
3. In the **Job Conductor** workspace, select an appropriate project, and then select the *CreateStaticData* Job.
4. Select **Run**.

The static data pull is enabled.

You can now execute jobs.

Configure SAP Task and Confirmation Creation

In order to transfer data between SAP items and GE Digital APM Task records and Event records for Inspection and Calibration, you will need to configure the datasheets used as the default datasheet.

Steps: Configure GE Digital APM to Transfer Data Between SAP Items and Task Records

1. Set the following baseline datasheets as the default datasheets on the Inspection and Calibration Task families:
 - **Inspection Task for SAP Integration:** Defined on the Inspection Task family.
 - **Calibration Task for SAP Integration:** Defined on the Calibration Task family.

Steps: Configure GE Digital APM to Create Confirmations from Calibration Event Records

1. Set the following baseline datasheets as the default datasheets on the Calibration Event families:
 - **Calibration, Analog:** Defined on the Calibration, Analog family.
 - **Calibration, Analyzer Multi-Component:** Defined on the Calibration, Analyzer Multi-Component family.
 - **Calibration, Analyzer Single Component:** Defined on the Calibration, Analyzer Single Component family.
 - **Calibration, Discrete:** Defined on the Calibration, Discrete family.
 - **Calibration, Functional Test:** Defined on the Calibration, Functional Test family.
 - **Calibration, Weight Scale:** Defined on the Calibration, Weight Scale family.

Steps: Configure GE Digital APM to Create Confirmations from Inspection Event Records

1. Set the following baseline datasheets as the default datasheets on the Inspection Event families:
 - **Bundle Inspection SAP Integration:** Defined on the Bundle Inspection family.
 - **Bundle Sub-Inspection SAP Integration:** Defined on the Bundle Sub-Inspection family.
 - **Visual Inspection SAP Integration:** Defined on the Full Inspection family.

- **General Inspection SAP Integration:** Defined on the General Inspection family.
- **Pressure Test Inspection SAP Integration:** Defined on the Pressure Test Inspection family.
- **Pressure Test Sub-Inspection SAP Integration:** Defined on the Pressure Test Sub-Inspection family.

What's Next?

- [Return to the workflow](#) for the next step in the deployment process.

Configure the Query Get Tasks for Work Order Generation

The query Get Tasks for Work Order Generation is used to determine which Task records to use to create Orders in SAP.

The query contains the Task query source. For each record that is returned by the query, GE Digital APM will create an Order in SAP. The baseline query is configured to transfer Task records that meet specific criteria. If desired, you can modify the query to further limit the Task records that you want to transfer.

Steps

1. Access the **Catalog** page.
2. In the left pane, select **Public**, then select **Meridium**, then select **Modules**, then select **SAP Integration Interfaces**, and then select **Queries**.

A list of queries appears.

3. Select the **Get Tasks for Work Order Generation** query.

The workspace appears.

4. Select **Design**.

5. Modify the query to meet at least the following requirements:

- Contains the following column:
 - Field: ([Task].[Next Date]-[Task].[Call Horizon])
 - Alias: Expr
 - Criteria (>=(? :d :caption='Last Successful Execution Date': id=LAST_DATE) AND < Now())
- Includes at least one field from the source family record.

What's Next?

- [Return to the workflow](#) for the next step in the deployment process.

Schedule Work Orders

Steps


1. [Access the APM Connect page.](#)

The **APM Connect Configuration** page appears.

2. Select **EAM Settings**.


The **EAM Settings** page appears.

3. In the **Scheduling Properties** section, select **Edit Schedule**.

 **Note:** If there is a previously schedule item, a schedule summary will be displayed next to **Edit Schedule**. If there is no scheduled item, **Not scheduled** appears next to the **Edit Schedule** button.

4. On the **Edit Schedule** window, select the **Recurrence** check box.

5. In the **Time Zone** box, select the appropriate time zone.

6. In the **Start** box, select  to schedule the start date and time.

- a. Select one of the following as appropriate:

- **The current date:** Select this option to use the current time and date as the starting point.
- **Clear:** Select this option to clear the current selection.
- **<Date>:** Select this option to use the selected date as the start date.

- b. Select , and then select the appropriate time.

- c. Select **Close**.

7. In the **Every** section, in the interval box, enter the numeric value for how often you want the generation to occur.

8. In the **Every** section, in the units box, select the interval unit (i.e., minutes, hours, years, etc).

9. In the **Every** section, in the begin box, select one of the following:

- **From start time:** Select this option to start the recurrence from the previously selected start time.
- **After last occurrence:** Select this option to begin the generation after the last time the job ran.

10. In the **End** box, based on when you want the recurrence to end, use the drop-down to select one of the following:

- **Never:** If you select this option, then the recurrence will not end.
- **After:** If you select this option, then you will enter a number of occurrences after which the generation will end.
- **Time & Date:** Select this option to use the calendar to select a time and date when the generation will end.

11. Select **OK**.


The schedule summary appears next to the **Edit Schedule**. Additionally, the scheduled item can be viewed in **Operations Manager** in **Scheduling**.

Identify Classifications to Extract

Before You Begin

- [Run the Static Data job.](#)

Steps

1. Access the GE Digital APM application.
2. In the upper-right corner of the page, select  and search for the CMMS Classification Type record representing the item whose classifications you want to extract (i.e., Equipment or Functional Location).
3. Select a record from the list.
4. Select the **Details** tab.
5. For each Classification whose Characteristics you want to extract, in the right column of the **Classification for Class Type** grid, select the **Extract From CMMS System** check box.

-or-

If you want to stop extracting all Characteristics for a Classification, clear the **Extract From CMMS System** check box for the Classification.

6. Select .

The [CMMS Classification](#) records are saved.

Results

If you chose to stop extracting all Characteristics for a Classification:

- The **Extract From CMMS System** check box is cleared automatically in all [CMMS Characteristic records](#) that are linked to the [CMMS Classification record](#).
- When you run the corresponding Characteristic extraction adapter, the Characteristics whose **Extract From CMMS System** check boxes were cleared automatically will not be extracted.

What's Next?

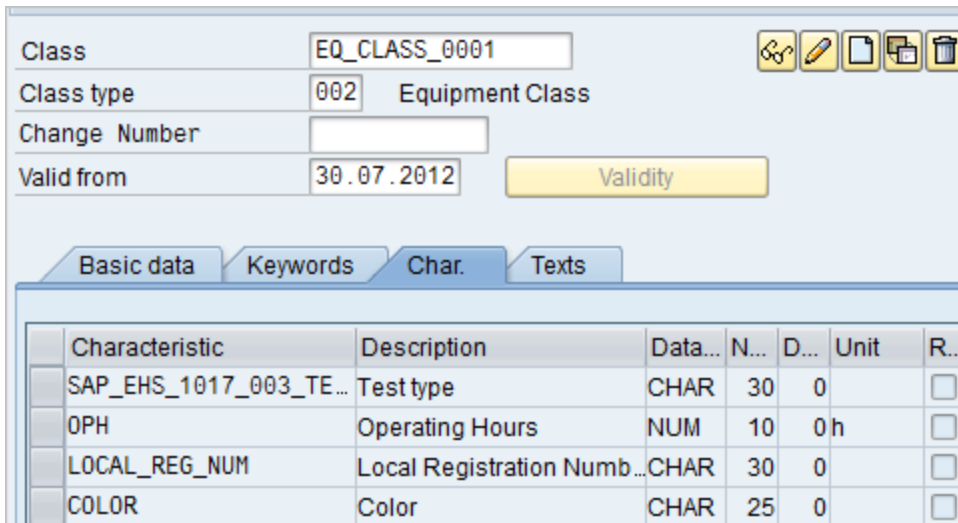
- [Return to the workflow](#) for the next step in the deployment process.

About Classification Hierarchies

In SAP, for any given class, multiple characteristics can be inherited from another class. For example, consider the following SAP classes:

- EQ_CLASS_0001
- Fasteners
- Bolts
- Hexagonal Bolt

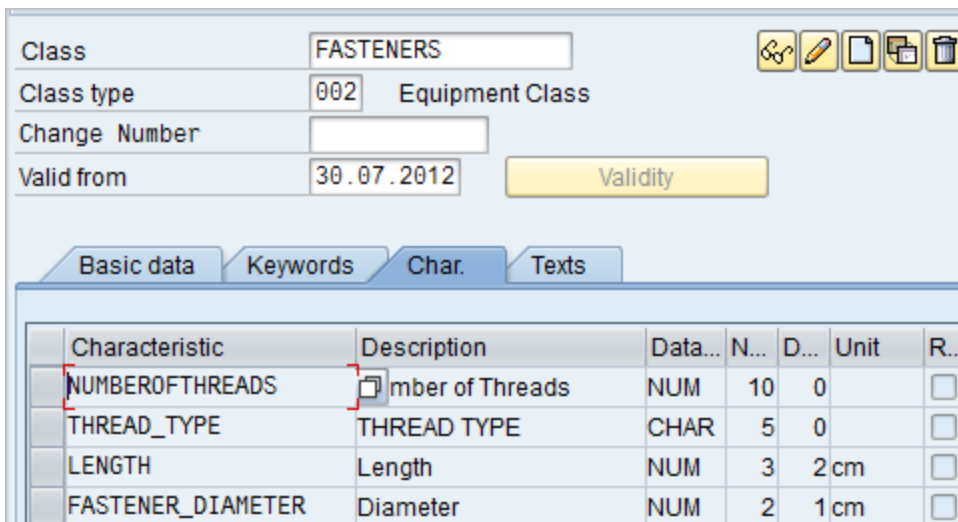
As shown in the following image, EQ_CLASS_0001 has four unique characteristics:



The screenshot shows the SAP configuration for class EQ_CLASS_0001. The class type is 002 (Equipment Class) and it is valid from 30.07.2012. The 'Char.' tab is selected, displaying a table of characteristics.

Characteristic	Description	Data...	N...	D...	Unit	R..
SAP_EHS_1017_003_TE...	Test type	CHAR	30	0		<input type="checkbox"/>
OPH	Operating Hours	NUM	10	0 h		<input type="checkbox"/>
LOCAL_REG_NUM	Local Registration Numb...	CHAR	30	0		<input type="checkbox"/>
COLOR	Color	CHAR	25	0		<input type="checkbox"/>

As shown in the following image, Fasteners also has four sets of unique characteristics:



The screenshot shows the SAP configuration for class FASTENERS. The class type is 002 (Equipment Class) and it is valid from 30.07.2012. The 'Char.' tab is selected, displaying a table of characteristics.

Characteristic	Description	Data...	N...	D...	Unit	R..
NUMBEROFTHREADS	Number of Threads	NUM	10	0		<input type="checkbox"/>
THREAD_TYPE	THREAD TYPE	CHAR	5	0		<input type="checkbox"/>
LENGTH	Length	NUM	3	2 cm		<input type="checkbox"/>
FASTENER_DIAMETER	Diameter	NUM	2	1 cm		<input type="checkbox"/>

Bolts, however, inherits all of the characteristics from EQ_CLASS_0001 and FASTENERS. In addition, Bolts has two unique characteristics of its own: HEAD_SHAPE and BOLT_TYPE:

The screenshot shows the SAP configuration interface for the equipment class 'BOLTS'. The 'Class' field is set to 'BOLTS' and the 'Class type' is '002 Equipment Class'. The 'Valid from' date is '30.07.2012'. Below this, there are tabs for 'Basic data', 'Keywords', 'Char.', and 'Texts'. The 'Char.' tab is active, displaying a table of characteristics.

Characteristic	Description	Data...	N...	D...	Unit	R...
SAP_EHS_1017_003_TEST	Test type	CHAR	30	0		<input type="checkbox"/>
OPH	Operating Hours	NUM	10	0 h		<input type="checkbox"/>
LOCAL_REG_NUM	Local Registration Numb...	CHAR	30	0		<input type="checkbox"/>
COLOR	Color	CHAR	25	0		<input type="checkbox"/>
NUMBEROFTHEADS	Number of Threads	NUM	10	0		<input type="checkbox"/>
THREAD_TYPE	THREAD TYPE	CHAR	5	0		<input type="checkbox"/>
LENGTH	Length	NUM	3	2 cm		<input type="checkbox"/>
FASTENER_DIAMETER	Diameter	NUM	2	1 cm		<input type="checkbox"/>
HEAD_SHAPE	HEAD SHAPE	CHAR	10	0		<input type="checkbox"/>
BOLT_TYPE	TYPE OF bOLT	CHAR	10	0		<input type="checkbox"/>

Finally, Hexagonal Bolt also inherits all of the characteristics from EQ_CLASS_0001, FASTENERS, and BOLTS. It also has one unique characteristic of its own: TOLERANCE:

Class: HEXAGONALBOLT

Class type: 002 Equipment Class

Change Number: []

Valid from: 30.07.2012

Validity: []

Basic data | Keywords | Char. | Texts

Characteristic	Description	Data...	N...	D...	Unit	R..
HEAD_SHAPE	AD SHAPE	CHAR	10	0		<input type="checkbox"/>
BOLT_TYPE	TYPE OF bOLT	CHAR	10	0		<input type="checkbox"/>
SAP_EHS_1017_003_TE...	Test type	CHAR	30	0		<input type="checkbox"/>
OPH	Operating Hours	NUM	10	0 h		<input type="checkbox"/>
LOCAL_REG_NUM	Local Registration Numb...	CHAR	30	0		<input type="checkbox"/>
COLOR	Color	CHAR	25	0		<input type="checkbox"/>
NUMBEROFTHEADS	Number of Threads	NUM	10	0		<input type="checkbox"/>
THREAD_TYPE	THREAD TYPE	CHAR	5	0		<input type="checkbox"/>
LENGTH	Length	NUM	3	2 cm		<input type="checkbox"/>
FASTENER_DIAMETER	Diameter	NUM	2	1 cm		<input type="checkbox"/>
TOLERANCE	tolerance	NUM	3	0 %		<input type="checkbox"/>

Using these SAP classes, in GE Digital APM system, if you were to select the **Extract From CMMS System** check box for the HEXAGONALBOLT class, after selecting the **Synchronize Characteristics** link while viewing the HEXAGONALBOLT CMMS Classification record, the following CMMS Characteristic records would be created automatically:

Class Group	Classification	Characteristic Name	Characteristic Description	Extract From CMMS System
[]	EQ_CLASS_001	COLOR		<input type="checkbox"/>
[]	.FASTENERS	FASTENERS DIAMETER		<input type="checkbox"/>
[]	BOLTS	HEAD_SHAPE		<input type="checkbox"/>
[]	.FASTENERS	LENGTH		<input type="checkbox"/>
[]	EQ_CLASS_001	LOCAL_REG_NUM		<input type="checkbox"/>
[]	.FASTENERS	NUMBEROFTHEADS		<input type="checkbox"/>
[]	EQ_CLASS_001	OPH		<input type="checkbox"/>
[]	EQ_CLASS_001	SAP_EHS_1017_003		<input type="checkbox"/>
[]	.FASTENERS	THREAD_TYPE		<input type="checkbox"/>
[]	.HEXAGONALBOLT	TOLERANCE		<input type="checkbox"/>
[]	BOLTS	BOLT_TYPE		<input type="checkbox"/>

As you can see from the Classification column, some of the characteristics are inherited from other classes:

Specifically, you can see that:


- The following characteristics are inherited from the class EQ_CLASS_0001:
 - COLOR
 - LOCAL_REG_NUM
 - OPH
 - SAP_EHS_1017_003_TEST_TYPE
- The following characteristics are inherited from the class FASTENERS:
 - FASTENER_DIAMETER
 - LENGTH
 - NUMBEROFTHREADS
 - THREAD_TYPE
- The following characteristics are inherited from the class BOLTS:
 - HEAD_SHAPE
 - BOLT_TYPE
- The characteristic TOLERANCE is assigned directly to the class HEXAGONALBOLT (no highlighting).

If you selected the **Extract From CMMS System** check boxes for *all* of these characteristics, if you were to run the Equipment Characteristics Extraction Interface without filters, *all* of these characteristics would be extracted.


If, however, you were to filter the report to extract only characteristics belonging to the HEXAGONALBOLT class, only characteristics that are assigned directly at the HEXAGONALBOLT level would be extracted. In other words, because only TOLERANCE is assigned directly to HEXAGONALBOLT, only the TOLERANCE characteristic would be extracted.

Identify Characteristics to Extract

Steps

1. Open the [CMMS Classification](#) record representing the Classification whose Characteristics you want to extract. To do so, either:
 - Open the specific record in Record Manager.
 - or-
 - Open the master CMMS Classification Type record to which it is linked, and then view the CMMS Classification record in the grid on the datasheet.
2. Select .
3. In the grid on the CMMS Classification datasheet, in the row for each Characteristic that you want to extract, select the **Extract From CMMS System** check box.

-or-


If you want to stop extracting a Characteristic, clear the **Extract From CMMS System** check box for the Characteristic.
4. Select .
5. Commit the configuration by [running the Static Data job](#).

The Characteristics to extract have been identified.

What's Next?

- [Return to the workflow](#) for the next step in the deployment process.


About Extracting Characteristics

 **Note:** If you are using SAP PI, Classification and Characteristic synchronization are not supported.

When you create CMMS Classification Type records using the CMMS System list, you must select the SAP system from which you want to extract characteristics belonging to that classification type. The **CMMS System** list displays the values in the Name field in all existing EAM System records. When you save the CMMS Classification Type record, the GE Digital APM system finds the EAM System record whose Name field contains the selected value, and the value in the System ID field in that EAM System record is copied to the CMMS System ID field in the CMMS Classification Type record.


Then, when you create CMMS Classification or CMMS Characteristic records that are associated with that CMMS Classification Type record, the value in the CMMS System ID field in the CMMS Classification Type record is copied automatically to the CMMS System ID field in those records.


CMMS Characteristic records are created automatically and linked to the CMMS Classification record. Each CMMS Characteristic record is created from a characteristic that currently exists in the specified SAP system (using the CMMS System field in the CMMS Classification record). The CMMS Characteristic records are displayed in a grid on the CMMS Classification datasheet.

 **Note:** The System ID field is available on the baseline EAM System datasheet, but the CMMS System ID field is not available on the baseline CMMS Classification Type, CMMS Classification, or CMMS Characteristic datasheets.

When you run the Equipment Characteristic Extraction Interface or the Functional Location Characteristic Extraction Interface, GE Digital APM needs to determine which specific characteristics to extract from that system. To do so, it evaluates the CMMS Characteristic records that exist in your GE Digital APM database. If it finds any CMMS Characteristic records whose CMMS System ID field value identifies the SAP system from which you are running the interface, it will extract only those characteristics from that SAP system (assuming that the **Extract from CMMS System** check box is selected in the CMMS Characteristic record).

Import the SAP Notification Management File

 **Note:** This step is needed only if the notification management file was not imported when you [ran the APM Connect installer](#).

 **IMPORTANT:** This step is required only for on-premises deployment of the SAP Adapters. If you are not completing an on-premises deployment, you can skip this procedure, and proceed to the next step in the [SAP Adapter First-Time Deployment Workflow](#).

Steps

1. Access the APM Connect installation package, and then copy the file *connectServices.jar*.
2. Navigate to `<root:>\APMConnect\Utilities\runtime\deploy`.
3. If you already have an existing *connectServices.jar* file, delete it before copying the new file into the directory.
4. Paste the copied file *connectServices.jar* in the directory.

The notification management file is imported.

What's Next?

- Return to the [SAP Adapter First-Time Deployment Workflow](#).


Deploy the SAP PI Adapters


This topic provides a list of all procedures related to the PI Specific setup, as well as links to the related concept and reference topics.

Deploy the SAP PI Adapters for the First Time

The following table outlines the steps that you must complete to deploy and configure this module for the first time. These instructions assume that you have completed the steps for deploying the basic GE Digital APM system architecture.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

 **Note:** This GE Digital APM module is not available in the APM Now environment.

 **Important:** If you are using SSL, make sure you have [configured SSL](#) correctly.

Step	Task	Notes
1	Deploy the SAP Adapters.	This step is required.
2	On your SAP PI server, import the design object.	This step is required.
3	On your SAP PI server, import the configuration object.	This step is required.
4	On your SAP PI server, modify the baseline communication channels.	This step is required.
5	On your SAP PI server, activate the RFCReceiverToECC object.	This step is required.
6	In GE Digital APM, configure the GE Digital APM system to create Notifications from Recommendation records belonging to customer-defined Recommendation families.	This step is required only if you are using the Notification Management Adapter.
7	On your SAP PI server, add entries to the /MIAPM/TASK_CNF table.	This step is required.
8	In SAP, define the command name.	This step is required.
9	In SAP, install the SAPCAR file.	This step is required.
10	In SAP, create SAP PI directory structure.	This step is required.

Upgrade the SAP PI Adapters to UDLP SAP PI V2.4.0

The following tables outlines the steps that you must complete to upgrade this module to UDLP SAP PI V2.4.0. These instructions assume that you have completed the steps for upgrading the basic GE Digital APM system architecture.

These tasks may be completed by multiple people in your organization. We recommend, however, that the tasks be completed in the order in which they are listed.

To Upgrade from UDLP SAP PI V2.3.0

Step	Task	Notes
1	Upgrade the APM Connect Base.	This step is required.
2	Complete the steps to deploy the SAP adapters for the first time.	This step is required.
3	Complete the steps to deploy the SAP PI adapters for the first time.	This step is required.


To Upgrade from EAM SAP PI V2.0.0

Step	Task	Notes
1	Upgrade the APM Connect Base.	This step is required.
2	Complete the steps to deploy the SAP adapters for the first time.	This step is required.
3	Complete the steps to deploy the SAP PI adapters for the first time.	This step is required.

To Upgrade from EAM SAP PI V1.0.0 through V1.3.0

Step	Task	Notes
1	Upgrade the APM Connect Base.	This step is required.
2	Complete the steps to deploy the SAP adapters for the first time.	This step is required.
3	Complete the steps to deploy the SAP PI adapters for the first time.	This step is required.

About Site Filtering Configuration in the Context File

 **Note:** This site filtering configuration applies only to SAP PI deployment. If you are deploying the SAP Adapters, site filtering is handled by [modifying the autojoin_control table](#).


IMPORTANT:

- Site Reference records must exist in your GE Digital APM system, before you can use the EAM Adapters to populate the Site Reference Key. Additionally, the site entered into the context file must match the exact value in the corresponding Site Reference record.
- The user who is running the EAM Adapters jobs must be assigned, in GE Digital APM, to the site to which the records being loaded will be assigned. Additionally, the credentials for that user must be entered into the context file. If the user is not a member of the appropriate site, then the data load will fail, and an error message will appear.

The EAM Adapters are used to populate the Site Reference on Equipment, Functional Location, and Work History records in GE Digital APM. The adapters populate the MI_SITE_KEY system field with the ENTY_KEY system field associated with the Site Reference value to be populated. On asset records, the Site Reference is stored in the MI_SITE_KEY field, a system field in GE Digital APM. The EAM Adapters use the Site Name (MI_SITE_NAME) to translate the value to the corresponding Site Reference Key and populate the MI_SITE_KEY field; therefore, you do not need to know the key to be able to populate the site reference. This functionality is important because this value can change from one database to another.

When records are loaded using the Equipment, Function Location, and Work History Adapters, the system will assign the Site Reference Key (MI_SITE_KEY) to the assets using the value designated in the applicable context file (i.e., the file for SAP or for Maximo). The following parameters are used to designate the Site Reference Key value:

- **SITE_REFERENCE_EQUIP:** Used to populate the Site Reference Key on Equipment records being loaded into GE Digital APM. The Site Reference Key determines the Site to which the Equipment record(s) will be assigned.
- **SITE_REFERENCE_FLOC:** Used to populate the Site Reference Key on Functional Location records loaded into GE Digital APM. The Site Reference Key determines Site to which the Functional Location record(s) will be assigned.

 **Note:** The values entered into these parameters should match, because Equipment records are linked to Functional Location records. Therefore, they should have the same site.

These parameters accept three types of values to determine the site reference value.


- a. **Site Name:** You can enter the site name directly as defined on the preexisting Site Reference record (i.e., Site 100).
- b. **Column Name:** You can enter a column value between two pound symbols (#) to set the site reference. The following columns can be used:
 - SAP columns:
 - MI_EQUIP000_SAP_SYSTEM_C
 - MI_EQUIP000_MAINT_PLANT_C
 - MI_FNCLOC00_MAINT_PLNT_C
 - MI_FNCLOC00_SAP_SYSTEM_C

For example, if you wanted to use your SAP maintenance plant field as your GE Digital APM site reference, you would enter `#MI_EQUIP000_MAINT_PLANT_C#`.

After the adapters are run, records designated to be transferred into GE Digital APM will be assigned to the site defined in the Site Reference parameters.

In addition to Equipment and Functional Location records loaded by the EAM adapters, Work History records and shell records are impacted by site reference functionality as detailed in the following table.

Action	Result
If the Work History Adapter is run after the Equipment or Functional Location Adapter...	The Work History records will inherit the Site Reference Key of their parent Functional Location or Equipment records.
If the Work History Adapter is run before the Equipment or Functional Location Adapter...	The Site Reference Key will be inherited from the shell record that will be created for Equipment and Functional Location.
If a shell record is created while loading data...	The Site Reference Key will be the value set in the context parameters.

 **Note:** If you are using [multiple SAP Systems](#), you must set up a context file for each system, and then designate the appropriate site(s) for each EAM Systems.

Import the Design Objects

Steps

1. Access the APM Connect installation package.
2. Navigate to the folder that corresponds to the version of SAP PI that you are using. For example, if you are using SAP PI version 7.3, navigate to **SAP PI 730**.
3. Copy the file **APMConnect_DesignObjects_BaseV4.tpz**.
4. On the SAP PI Server, paste the copied file to the folder `\usr\sap\<SID>\SYS\global\Xi\repository_server\import`, where `<SID>` is the system ID of the SAP PI Server.

-or-

Paste the copied file anywhere on your local machine.
5. If you are using a version prior to SAP PI 7.3, select **Integration Repository**.

-or-

If you are using SAP PI 7.3 or above, select **Enterprise Services Builder**.

A login screen appears.
6. Log in as an administrator.

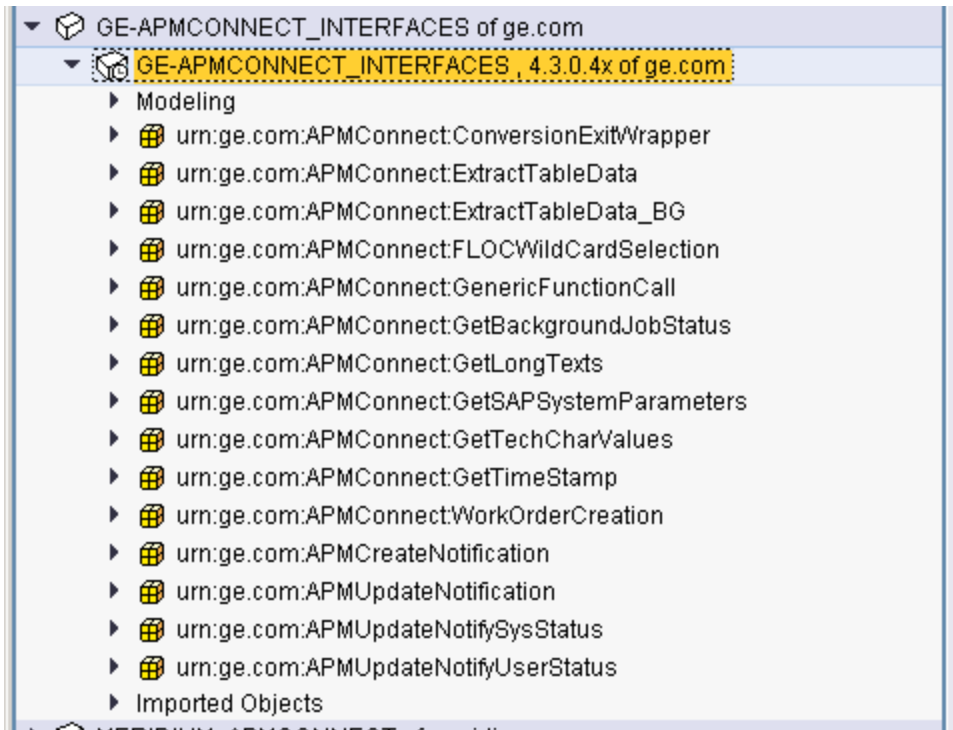
Depending on the SAP PI Server version you are using, the **Design: Integration Builder** window or the **Enterprise Services Builder** window appears.
7. On the **Tools** menu, select **Import design objects**.

The **Choose Import Source** window appears.
8. Select **Client** if the file copied in step 3 was pasted onto your local machine, or select **Server** if the file copied in Step 3 was pasted into the folder `\usr\sap\<SID>\SYS\global\Xi\repository_server\import` on the SAP PI Server.
9. Select the **Design Objects** folder.
10. Select the file **APMConnect_DesignObjects_BaseV4.tpz**, and then select **OK**.

A confirmation window appears.
11. Select **Import**.

The file is imported.
12. Select **Close**.

The design objects are imported and appear in the **Objects** section.



What's Next?

- Return to the [SAP PI Adapter workflow](#) for the next step in the deployment process.

Import the Configuration Object

Steps

1. Access the APM Connect installation package.
2. Navigate to the folder that corresponds to the version of SAP PI that you are using. For example, if you are using SAP PI version 7.3, navigate to **SAP PI 730**.
3. Copy the file **APMConnect_ConfigurationObjectsV4.tpz**.
4. On the SAP PI Server, paste the copied file into the folder `\usr\sap\<SID>\SYS\global\Xi\directory_server\import`, where `<SID>` is the system ID of the SAP PI Server.

-or-

Paste the copied file anywhere on your local machine.

5. In a web browser, navigate to `http://<SAP PI Server>:<port number>/rep/start/index.jsp`, where `<SAP PI Server>` is the name of the SAP PI Server and `<port number>` is the port number of the specified SAP PI Server.

The **SAP Exchange Infrastructure** window appears.

6. Select **Integration Directory**.

A login screen appears, prompting you to log in to the Configuration: Integration Builder.

7. Log in as an administrator.

The Configuration: Integration Builder window appears.

8. On the **Tools** menu, select **Import configuration objects**.

The **Choose Import Source** window appears.

9. Select **Client** if the file copied in step three was pasted onto your local machine, or select **Server** if the file copied in step one was pasted into the folder `\usr\sap\<SID>\SYS\global\Xi\directory_server\import` on the SAP PI Server.

10. Select the **Configuration Objects** folder.

11. Select the file **APMConnect_ConfigurationObjectsV4.tpz**, and then select **OK**.

A confirmation window appears.

12. Select **Import**.

The file is imported, and a confirmation message appears.

13. Select **Close**.

The configuration object is imported, and the objects appear in the Configuration Integration Builder.

What's Next?

- [Modify the baseline communication](#) channels. To do so, you will need to remain logged in to the Configuration: Integration Builder.

Modify the Baseline Communication Channels

Notes:

- If the FILE_MOVE_USE_PI parameter is set to false in the [context file](#), you can skip this procedure, except step 9 if you are using SSL.
- These instructions describe using the SAP PI 7.3 configuration interface. Different versions may have minor differences in interface labels or steps.

The SAP PI adapters have the following baseline communication channels that you will need to modify:

- FileSender_SAP_Equipment
- FileSender_SAP_FLOC
- FileSender_SAP_StaticData
- FileSender_SAP_TC_EQUI
- FileSender_SAP_TC_IFLOT
- FileSender_SAP_WMI
- FileSender_SAP_Workhistory
- FileReceiver_APMConnect_Equipment
- FileReceiver_APMConnect_FLOC
- FileReceiver_APMConnect_StaticData
- FileReceiver_APMConnect_TC_EQUI
- FileReceiver_APMConnect_TC_IFLOT
- FileReceiver_APMConnect_WMI
- FileReceiver_APMConnect_Workhistory

Steps

1. In a web browser, navigate to **http://<SAP PI Server>:<port number>/rep/start/index.jsp**, where <SAP PI Server> is the name of the SAP PI Server and <port number> is the port number of the specified SAP PI Server.

The **SAP Exchange Infrastructure** window appears.

2. Select **Integration Directory**.

A login screen appears, prompting you to log in to the Configuration: Integration Builder.

3. Log in as an administrator.

The **Configuration: Integration Builder** window appears.

4. In the **Configuration: Integration Builder** window, in the **Scenarios** section, expand the **GE_APMConfigurations** row.
5. Expand the **Communication Channel** row.

The row expands, and the following APM Connect Communication Channels appear:

- FileReceiver_APMConnect_Equipment
 - FileReceiver_APMConnect_FLOC
 - FileReceiver_APMConnect_StaticData
 - FileReceiver_APMConnect_TC_EQUI
 - FileReceiver_APMConnect_TC_IFLOT
 - FileReceiver_APMConnect_WMI
 - FileReceiver_APMConnect_Workhistory
 - FileSender_SAP_Equipment
 - FileSender_SAP_FLOC
 - FileSender_SAP_StaticData
 - FileSender_SAP_TC_EQUI
 - FileSender_SAP_TC_IFLOT
 - FileSender_SAP_WMI
 - FileSender_SAP_Workhistory
6. Configure the FileReceiver communication channels by performing these steps for each channel, replacing <interface> with the appropriate interface name.

- a. Select **FileReceiver_APMConnect_<interface>**.



The **Display Communication Channel** screen appears.




- b. Select .

- c. In the **File Access Parameters** section, in the **Target Directory** box, enter the target directory file path, for example, `\\context.PLSAP_OUTPUT\<interface>`.

△ IMPORTANT: This path must match exactly the PLSAP_OUTPUT [parameter in the context file](#).

- d. In the **File Name Scheme** column, enter `*.*`.
- e. In the **Processing Parameters** section, in the **File Construction Mode** box, enter the value `Create`.

- f. Select the **Overwrite Existing File** check box.
 - g. In the **Write mode** box, select **Directly**.
 - h. In the **Empty-Message Handling** section, select **Write Empty File**.
 - i. In the **Advanced** section, in the **Adapter-Specific Message Attributes**, select the following options:
 - Set Adapter-Specific Attributes
 - File Name
 - File Type
 - j. Select .
7. Configure the FileSender communication channels by performing these steps for each channel, replacing <interface> with the appropriate interface name.
- a. Select FileSender_APMConnect_<interface>.
The **Display Communication Channel** screen appears.
 - b. Select .
 - c. In the **File Access Parameters** section, in the **Source Directory** box, enter the endpoint of the share between your SAP server and your SAP PI server exactly as it is in the PLSAP_INPUT parameter in the context file and corresponding interface folder name, for example, `\\context.PLSAP_INPUT\<interface>\`.
 - d. In the **File Name Scheme** column, enter *.*.
 - e. In the **Processing Parameters** section, in the **Poll Interval** box, enter the recommended value of 10.
 - f. In the **Processing Mode** box, select **Delete**.
 - g. In the **Quality of Service** box, select **Best Effort**.
 - h. In the **Empty-File Handling** box, select **Process Empty Files**.
 - i. In the **Advanced** section, complete the following steps:
 - In the **Adapter-Specific Message Attributes** section, select the following options:
 - Set Adapter-Specific Message Attributes
 - File Name
 - File Type

- In the **Adapter Status** section, in the **Status** box, select **Active**.
 - Select the **Advanced Mode** check box.
 - In the **Additional Parameters** section, in the **Msecs to Wait Before Modification Check** box, enter the recommended value of 1000 or more.
8. Select .
 9. **Optional:** If you are using SSL, configure the SOAP channel to use SSL.
 - a. In the **Communication Channel** row, select **SOAPSender_APMConnect**.
 - b. In the **Communication Channel** menu, select .
 - c. In the **General** section, in the **HTTP Security Level** box, select **HTTPS Without Client Authentication**.
 - d. In the **Communication Channel** menu, select .
 10. Select **Activate**.

Result

The communication channels are configured.

What's Next?


- Return to the [SAP PI Adapter workflow](#) for the next step in the deployment process.

Activate the RFCReceiver_SAP Object



Use this procedure to activate the RFCReceiver_SAP Object for SAP PI.

Steps

1. In the Configuration: Integration Builder, select the **Change Lists** tab.
2. In the **Change Lists** section, select | **GE_APM_SAP** | **RFCReceiver_SAP**.

 **Note:** The **Error Loading Adapter Metadata** window may appear. If it appears, select **Close**.

The communication channel details appear on the screen.

3. Select .
4. In the **Parameters** section, in the **Adapter Type** row, select .

The **Choose Adapter Metadata** window appears.

5. Select the latest RFC Adapter from the list, and then select **Apply**.

The communication channel details return to focus.

6. In the **Properties** section, confirm or enter values for the following parameters:
 - RFC Server Type: this parameter must be set to SAP.
 - Application Server
 - System Number
 - Authentication Mode: this parameter must be set to Use Logon Data for SAP System.
 - Logon User
 - Logon Password
 - Logon Language
 - Logon Client

7. Select .

8. In the **Change Lists** section, right-click on **PI <version number> Import**, and then select **Activate**.

A confirmation message appears.

9. Select **Activate**.

The object is activated.

What's Next?

Deploy APM Connect

- Return to the [SAP PI Adapter workflow](#) for the next step in the deployment process.

Import the SAP-PI Notification Management File

Steps

1. On your APM Connect Server, in the `<root:>\APMConnect\Utilities\runtime\etc` directory create a context file named: `SAP_PI_NotificationManagement.cfg`.

⚠ IMPORTANT: The file name must match `SAP_PI_NotificationManagement.cfg` exactly.

2. Paste the following into the context file:
 - context = Default
 - CONFIG_FILE_PATH = <The directory path to your [SAP PI Context File](#). >

📌 Note: The path must use forward slashes (/).


3. Save the file.
4. Access the APM Connect installation package, and then copy the file `connectServices.jar`.
5. Navigate to `<root:>\APMConnect\Utilities\runtime\deploy`.
6. If you already have an existing `connectServices.jar` file, delete it before copying the new file into the directory.
7. Paste the copied file `connectServices.jar` in the directory.

The notification management file is imported.


What's Next?

- Return to the [SAP PI Adapter workflow](#) for the next step in the deployment process.


Define the Command Name in SAP

 **Note:** If you are not using a compression method during the extraction, then you can skip this procedure.

If you are using a compression option in the context file, you need to define the command name for the compression type you are using. There are two types of compressions for APM Connect SAPCAR and ZIP. You can only use one type of compression.

 **Note:** It is recommended to use SAPCAR as your compression type.

Steps

1. In SAP, run the transaction code *SM69*.
The **External Operation System Commands** screen appears.
2. Select .
The **Create an External Command** screen appears.
3. In the **Command** section, in the **Command Name** box, enter one of the following the command names:
 - **ZSAPCAR:** if you are using SAPCAR for compression.
-or-
 - **ZZIP:** if you are using ZIP for compression.
4. In the **Definition** section, in the **Operating system command** box, enter one of the following systems commands:
 - *SAPCAR -cvf:* if you are using SAPCAR for compression.
-or-
 - *ZIP -9 -j:* if you are using ZIP for compression.
5. Select **Save**.
The Command Name is defined.

What's Next?

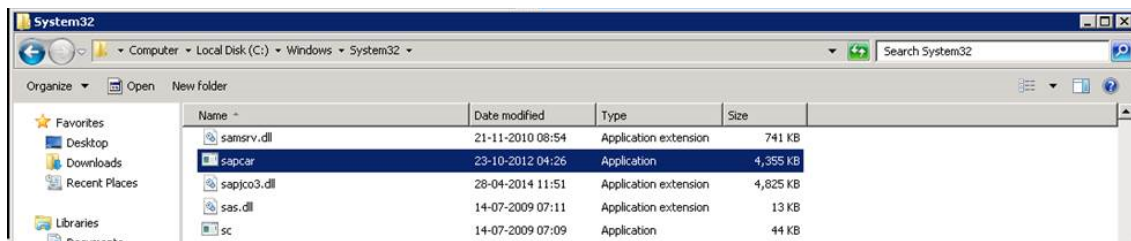
- Return to the [SAP PI Adapter workflow](#) for the next step in the deployment process.

Install the SAPCAR File on the APM Connect Server

Note: If you are not using SAPCAR to compress files, then skip this procedure and proceed to the next procedure in the installation workflow.

Steps

1. On the SAP Server, copy the SAPCAR.exe file.
2. Access the APM Connect Server.
3. In the windows system32 directory, paste the SAPCAR.exe file, as shown in the following image:



The SAPCAR file is installed.

What's Next?

- Return to the [SAP PI Adapter workflow](#) for the next step in the deployment process.

Create SAP PI Directory Structure

You will need to set up a directory structure on your SAP server to facilitate transfers from SAP PI to APM Connect. The structure depends on the [FILE_MOVE_USE_PI parameter and the COMPRESS_TYPE parameter usage in the context file](#).

Steps

- On your SAP server, create one directory and subdirectory according to the following grid:

If FILE_MOVE_USE_PI is..	...and COMPRESS_TYPE is...	... create the following directory structure:
false	NONE	<root:>/<New Directory Name>
false	ZIP or SAPCAR	<root:><New Directory Name>/Compress
true	NONE	<root:>/<New Directory Name>
true	ZIP or SAPCAR	<root:>/<New Directory Name>/Compress

Note: Each directory needs to be in a shared directory that APM Connect can access, and should be the base path value in PLSAP_INPUT parameter. Additionally, once the job is run, the compress directory will be programmatically added to the value PLSAP_INPUT in the context file.

The directories are created, and the SAP PI server and APM Connect server can extract files from the SAP sever.

What's Next?

- Return to the [SAP PI Adapter workflow](#) for the next step in the deployment process.

Deploy the Automatic Data Loader Job

This section contains the procedures and concepts you need to configure and use the automatic data loader job.

Set up the Automatic Data Loader Job

Before you can use the automatic data loader job, you must set up the job in the APM Connect Administration Center.


Before You Begin

APM Connect must be installed.

Steps

1. [Access the APM Connect Administration Center.](#)
2. In the **Menu** pane, in the Conductor section, select **Job Conductor**.
3. On the **Job Conductor** toolbar, select **Add**.

The **Execution task** pane is enabled.

4. In the **Execution task** pane, in the **Label** box, enter a label for the job.
5. In the **Description** box, enter a description for the job.
6. Select the **Active** check box.
7. In the **Job** section, select .

The **Import generated code** window appears.

8. Select **Browse...**, and then navigate to the folder containing [the updated jobs package](#).
9. Select the job **dinokeeper.zip**, and then select **Launch upload**.

The job is imported into the **Job Conductor**.

10. [Configure the context file](#) to identify the location of the load directory, the archive directory, and the log file.
11. Modify the <Context_File_PATH> value in the job conductor context parameters to point to the context file for the job.
12. Run the job.

Results

The job conductor indicates that the job ran successfully, and the automatic data loader directories will be created, if they do not already exist.

You can now place workbooks in the appropriate data loader directory.

Configure the Context File

The context file provides the automatic data loader job with the information it needs to locate the directories and log the file it requires.


Before You Begin

You should have [imported the automatic data loader job](#).

Steps

1. Navigate to the following folder: **C:\APMConnect\Config\<>system<**
2. Modify the file **ContextFile.xml** to indicate the values for your system.

Parameter	Description	Default or recommended value
CONFIG_FILE_PATH	The path to the context file used for extraction.	Enter your unique value (e.g., C:\APMConnect\Config\ContextFile.xml).
SCAN_DIR	The directory that contains the directories from which the job retrieves workbooks to load data.	Enter your unique value (e.g., C:\APMConnect\Dinokeeper). ⚠ IMPORTANT: Because this job runs with administrative authority, you must control user access to this directory.
ARCHIVE_DIR	The directory that the facility uses to archive workbooks.	Enter your unique value (e.g., C:\APMConnect\Archives).
LOG_BASE_DIR	The path that the facility uses to store the generated log files.	Enter your unique value (e.g., C:\APMConnect\Log).

Parameter	Description	Default or recommended value
LOG4J_CONFIG_FILE	The path to the log4j configuration file.	<p>Enter your unique value (e.g., C:\APMConnect\Config\log4j.properties).</p> <div data-bbox="852 365 1395 625" style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: This can be the same log4j configuration file that you use for your Adapters. If you want to use log4j settings that are different from the EAM job, then you must configure the context file with different log4j properties.</p> </div>


About the Automatic Data Loader Job

GE Digital APM provides a method to automatically load data from correctly formatted Excel workbooks into the system. You must place your data loader workbook in the [correct directory](#) for a successful data load.

The job monitors a configured load directory for the presence of a file in a subdirectory and stages the contents of the file into the system. Multiple files moved into the directory are processed in descending order according to the last modified timestamp on each file.

The system logs the staging progress and archives files it has successfully staged in an archive directory. If data fails to stage, a message is written to the log indicating the reason for failure, and the source files remain in the scan directory.

A service then retrieves the staged workbooks, and using an administrative account, the service invokes the appropriate data loader to load the data contained in the workbooks.

 **Note:** For cloud implementation, the archiving of files occurs before staging the data for uploading to the cloud server.

The Automatic Data Loader Directories

The automatic data loader job uses directories within the directory identified in the SCAN_DIR parameter to identify the data loader to use for a particular workbook.

Data Loaders and Directories

The following table lists the directories that are created when the job starts that correspond to the various data loaders.

Data Loader Name	Directory Name
APM Family	ManageAPM
Asset Criticality Analysis (ACA)	ACADDataLoader
Asset Ingestion Loader	AssetIngestionLoader
Asset Strategy Management (ASM)	ManageASM
Asset Strategy Management (ASM) Templates	ManageAssetStrategyTemplate
Calibration	Calibration Loader
Custom Asset Hierarchy	Custom Asset Hierarchy Loader
Equipment and Functional Location	ManageEquipmentAndFunctionalLocation
Failure Modes and Effects Analysis (FMEA)	ManageRCMFMEA
Failure Modes and Effects Analysis (FMEA) Analysis Templates	ManageFMEAAalysisTemplate
Failure Modes and Effects Analysis (FMEA) Asset Templates	ManageFMEAAssetTemplate
Generation Availability Analysis (GAA) Amplification Codes	GAA GADS Amplification Code
Generation Availability Analysis (GAA) Cause Code	GAA GADS Cause Code
Geographic Information System (GIS)	GISDataLoader
Hazards	Hazards Loader

Data Loader Name	Directory Name
Inspection Management (IM) Assets	ManageInspections
Inspection Management (IM) Functional Location	ManageInspectionsFL
Production Loss Analysis (PLA)	Load PLA
Reliability Centered Maintenance (RCM)	ManageRCM
Risk Based Inspection (RBI) 580	ManageRBI580
Risk Based Inspection (RBI) 581	ManageRBI581
Risk Based Inspection (RBI) Corrosion Loop	Load RBI Corrosion Loop
Role	RoleDataLoader
Root Cause Analysis (RCA)	Manage RCA
Rounds Allowable Values	Rounds Allowable Value
Rounds Readings	Rounds Readings
Rounds Routes	Rounds Route
Rounds Templates	Rounds MLTG
Tags to Assets Relationship	ManageTagLinks
Taxonomy	ManageTaxonomy
Thickness Monitoring (TM) Equipment	ManageTMLGroup
Thickness Monitoring (TM) Functional Location	ManageTMLGroupFL
Work History	ManageWorkHistory

Overview of APM Connect

GE Digital APM Connect is an integration framework designed to connect users to the valuable data that exists in data stores, systems, and applications throughout the enterprise.

The framework delivers data transformation engines to convert data to their appropriate forms, a modular integration engine to handle complex routing scenarios, and other engineered components to create a unified integration solution.

Built on the APM Connect framework are numerous adapters that can meet many integration needs by either pulling data from or pushing it into other sources in the data ecosystem. APM Connect offers new EAM connection adapters as replacement technology for some existing EAM interfaces, and will continue to add additional adapters and capabilities in subsequent releases.

Adapters

The following adapters are currently available through the most recent release of APM Connect:

- ASI for SAP
- [EAM Adapters](#)
 - [SAP Adapters](#)
 - Equipment Adapter
 - Functional Location Adapter
 - Work History Adapter
 - Notification Management Adapter
 - Technical Characteristics Adapter
 - Work Management Adapter
 - SAP PI Adapters
 - [Maximo Adapters](#)
 - Equipment
 - Functional Location Adapters
 - Work History Adapter
 - Work Order and Service Request Adapter
- Data Loaders

Overview of the EAM Adapters

The APM Connect EAM Adapters transfer data from your existing Enterprise Asset Management (EAM) system into GE Digital APM using the APM Connect Administration Center.

APM Connect is built upon a fundamental premise that you are using an external EAM system to store information about your equipment, the locations in which the equipment exists, failures of the equipment and locations, and work that has been performed on the equipment and locations.

GE Digital APM provides tools that let you analyze and process this data. Before you can analyze the data in GE Digital APM, however, you must transfer it from your EAM system into your GE Digital APM system. After the data exists in GE Digital APM, it can be analyzed to determine the state of your equipment and locations, and the reliability, trends, potential risks, and probability of failures associated with them.

About Time Zone Data

GE Digital APM stores the date and time of transaction in the Universal Coordinated Time (UTC) format. This enables the data to flow through the system in a single time zone format.

To provide information with the timestamp relevant to your operations, the system converts UTC to your time zone by using the time zone information configured in your user definition.

⚠ IMPORTANT: If you change the time zone information configured in your user definition, all the records will reflect the new time zone.

The following sections contain the time zone considerations relevant to specific systems.

Maximo

GE Digital APM stores the timestamp associated with the data extracted from Maximo in UTC and displays the timestamp based on your configured time zone.

SAP

SAP provides a set of baseline time zone codes, which contain most of the standard time zones across the world. SAP also provides the ability for administrators to define their own custom time zone, as needed. Before you use a customized time zone, you must configure the `timezone_control` table in APM Connect to reflect the customized time zone.

SAP defines two types of time zones:

- **System:** This time zone is based on SAP Application Server Operating System and is derived from the context file. You cannot modify this type of time zone.
- **User:** This time zone is based on the user who created the SAP record. You can modify and store this type of time zone in the SAP user interface.

GE Digital APM stores the timestamp associated with the data extracted from SAP in UTC and displays the timestamp based on the time zone configured for the user who created the SAP record.

📄 Note: If the data extracted from SAP contains only the date, then GE Digital APM will assign the time 00:00:00 and the SAP system or user time zone to the data. This may lead to date mismatch when you choose to display the data in GE Digital APM. To prevent this, GE Digital APM stores the reference timestamp as a string within the data, which is hidden, by default. If you need this information, you can configure GE Digital APM to display the data.

EAM Adapter Workflow


This workflow provides the basic, high-level steps for using this module. The steps and links in this workflow do not necessarily reference every possible procedure. For more procedures, see the links in the Related Information section.

1. Identify the records you want to transfer from your EAM system(s) to GE Digital APM.
2. Apply filter parameters in the context file as necessary.
3. [Schedule a job\(s\)](#) to run in the APM Connect Administration Center.

-or-

Execute a [run-now job](#).

4. Check that the record was transferred into GE Digital APM.

 **Note:** This step is not necessary to complete the data transfer. However, it is a check to ensure that the transfer was executed successfully.

5. If the transfer was not successful, [view the execution log](#) for errors.

Overview of the SAP Adapters

Data extractions, also referred to as jobs, are orchestrated through the different adapters. Depending on the type of data (i.e., Equipment, Functional Location, Work History) you want to extract, there is a corresponding job. SAP extractions are facilitated by the [APM Connect Administration Center](#) and a corresponding context file. The context file contains [filter parameters](#) that are applied to each extraction adapter Job. The filter parameters define the scope of the data extraction.

More Details

The following SAP and SAP PI adapters are available for data extractions:

- [Equipment Adapter](#): Extracts records that are used to store information about physical pieces of equipment, such as pumps, motors, and compressors.
- [Functional Location Adapter](#): Extracts records that are used to store information about locations in your organization including, but not limited to, the locations at which the physical pieces of equipment are installed.
- [Work History Adapter](#): Extracts records that are used to store data about work that was performed against your locations and equipment, as well as failures that occurred for those locations and equipment. Additionally, it allows you to transfer Notifications and Orders from SAP to GE Digital APM.
- [Notification Management Adapter](#): Allows you to transfer Recommendation records from GE Digital APM to SAP in the form of Notifications.
- [Technical Characteristics Adapter](#): Allows you to transfer Functional Location characteristics and Equipment characteristics from SAP to GE Digital APM.
- [Work Management Adapter](#): Allows you to manage scheduled work in SAP and GE Digital APM.

Employ the Notification Management Adapter

This topic provides a list of all procedures related to employing the Notification Management Adapter, as well as links to the related concept and reference topics.


Create an SAP Notification from a Recommendation Record

Before you Begin


- Ensure the Create EAM Notification field exists in the family of the necessary Recommendation record and that it also exists on the datasheet.
- Ensure the EAM Notification Type field exists in the family of the necessary Recommendation record and on the datasheet as an enabled field. In the baseline database, Notification Type is already available in all baseline Recommendation families that exist for the purpose of using the SAP Adapters. It is not, however, included on any baseline datasheets or configured as an enabled field. The following instructions assume that an administrative user has enabled the field and added it to the datasheet.

Steps

1. Create a new General Recommendation record or access an existing Recommendation record.
2. Link the Recommendation record to an Equipment or Functional Location record that represents an SAP Equipment or Functional Location.

 **Note:** If you select an Equipment or Functional Location record that does not exist in SAP, after you save the record, an SAP Notification will be created in SAP but its Equipment or Functional Location field will be blank.

3. Select the **Create EAM Notification?** check box.
4. In the **Notification Type** box, specify the type of notification that you want to create.

 **Note:** Unless otherwise configured, the default SAP Notification Type will be M1.

5. Select .


The record is saved.

Results

After you create a new Recommendation record, the adapter does the following:


- Creates an SAP Notification in SAP.
- Populates the Work Request Reference field with the ID of the corresponding SAP Notification.

- Populates the Work Request Equipment field with the value in the Equipment field in the SAP Notification, as available.
- Populates the Work Request Functional Location field with the value in the Functional Location field in the SAP Notification, as available.
- After the Work Request Reference field is populated, the Create Work Request field is disabled.

 **Note:** If a Notification could not be created, a message appears indicating the problem. In addition, you will be unable to save the Recommendation record until you clear the **Create EAM Notification?** check box.

Update an SAP Notification from a Recommendation Record

Once an SAP Notification is created from a Recommendation record, the Recommendation record and the SAP Notification can be updated. This topic describes how to update an existing SAP Notification by updating the corresponding Recommendation record in GE Digital APM.

 **Note:** Only Recommendation records with the **Create EAM Notification?** check box selected can be updated.

Before You Begin

- [Create an SAP Notification from a Recommendation record.](#)

Steps

1. Access a Recommendation record that you want to update.
2. Select the field you want to update.
3. Enter the updated information.

For example, if you would like to update the description of an existing Recommendation record, modify the text in the **Description** box as needed.

4. Select .

The Recommendation record is updated in GE Digital APM, and the SAP Notification is updated in your SAP system.

Employ the Work Management Adapter

This topic provides a list of all procedures related to employing the Work Management Adapter, as well as links to the related concept and reference topics.


Work Management Workflow

This workflow provides the basic, high-level steps for using this module. The steps and links in this workflow do not necessarily reference every possible procedure. For more procedures, see the links in the Related Information section.

Manage Scheduled Work in SAP Workflow

1. In SAP, on a Maintenance Plan, enter a value, or the combination of values, [configured to trigger the creation of a GE Digital APM Task record](#).
2. In the Administration Center, [run the Work Management Job](#).

One or more Task records are automatically created in GE Digital APM.

 **Note:** If the Task records are created from Maintenance Plans that are associated with Equipment or Functional Locations that do not already exist in GE Digital APM, corresponding Equipment and Functional Location records will be created automatically and linked to the new Task records. These Equipment and Functional Location records will contain values only in key fields as defined in the [mappings](#) (e.g., Equipment ID, Functional Location Internal ID, CMMS System). You will need to [run the Equipment Extraction and Functional Location Adapters](#) to populate the remaining fields.

3. In GE Digital APM, [create an Inspection record or Calibration Event record](#).
4. Link the new record to the Inspection Task or Calibration Task record that you created by running the Work Management Job.
5. [Close the Work Order](#).
6. In GE Digital APM, [update the Confirmation record](#) with any modified information.

-or-

In SAP, [validate the Confirmation](#).

Manage Scheduled Work in GE Digital APM Workflow


1. In GE Digital APM, [create a Task record](#).
2. creation.
3. In GE Digital APM, [create an Inspection record](#) or a [Calibration Event record](#).
4. Link the new record to the Inspection Task or Calibration Task record that you created.

5. [Close the Work Order](#).
6. If needed, in GE Digital APM, [update the Confirmation record](#).

-or-

In SAP, [validate the Confirmation](#).

Create a Task Record

 **Note:** To complete the following steps, use the Task datasheet that is configured for use with the SAP Adapter. For Inspection Task records, use the Inspection Task for SAP Integration Adapter datasheet. For Calibration Task records, use the Calibration Task for SAP Integration datasheet. These datasheets are defined on the corresponding Task family in the baseline database, but they are not set as the default datasheets.

To create the Task record, make sure to use the Task Builder and not the Record Manager. Otherwise, the Task record will not be linked to the Equipment or Functional Location record, and the Work Management Adapter will not work as expected.

Before You Begin

You can create an SAP Order from a Task record only if all of the following conditions are true:


- The Work Order Number field in the Task record is blank.
- The Task record was not created automatically from SAP data.

Steps

1. In GE Digital APM, create an Inspection Task or Calibration Task record.
2. In the Task record, in the Task List field, select **...**.

The **Locate Task List** window appears.

3. In the **Search Criteria** section, enter the desired search criteria.

 **Note:** If you accept the default criteria, the search results will return *all* Task Lists.

4. Select **Search**.

The Task Lists that meet the search criteria appear in the **Search Results** section.


5. In the **Search Results** section, select the row containing the desired Task List, and then select **OK**.

The Task List field on the Task record is updated with the Task List group number.

6. In the Last Date field, enter or select the last date on which the task was executed.
7. In the Desired Interval field, enter the desired interval.


The value in the Next Date field is updated automatically based on the Last Date and the Desired Interval.

8. In the Call Horizon field, enter the desired call horizon.

 **Tip:** For details about call horizons, see the SAP Help, which is located at <http://help.sap.com/>.

9. Save the Task record.

Create an Event Record or Inspection Record

 **Note:** The following instructions work correctly only if the SAP Interfaces - Work Management license is active.

When creating the Inspection record or Calibration Event record, be sure to use the process defined by the module rather than the Record Manager. Otherwise, the record will not be linked to the Equipment or Functional Location record, and the Work Management Adapter will not work as expected.

Steps

1. Using the process defined by the module, create an Inspection record or Calibration Event record. As you proceed through the Event Builder, on the **Task(s) Selection** screen, select the appropriate Task record. This could be:
 - A Task record that was generated from SAP.
 - or-
 - A Task record that you created manually to generate an SAP Order automatically.
2. If the Event record is an Inspection record, select values in the Commencement Date and Completion Date fields. Ensure that the Completion Date is a date after the Commencement Date.

Close a Work Order

Steps

1. Access the event record linked to the [task record](#) you want to mark as complete.
2. In the **Tasks Addressed** box, select the task ID for the record you transferred from SAP by running the Work Management Adapter.
3. In the **Actual Work Time** box, enter a value for the number of hours worked to complete the task.
4. In the Event record, in the **Actual Work Time** box, enter the time (in hours) that you spent completing the work.
5. If the Event record is a Calibration Event record, select the **Calibration Close** check box.

-or-

If the Event record is an Inspection record, select the **Inspection Task Complete** check box.

6. Save the Event record.

The event record is saved, and the work order is closed. A confirmation record is created in GE Digital APM and in SAP.

⚠ IMPORTANT: When transferring Work Management data from SAP into GE Digital APM, the Desired Interval field is populated with a null value. After the Plan is called, the Next Date field will populate with the next execution date based on calculations made by SAP.

Results

After saving the record, the following occurs:

- A Confirmation record is created and linked to the Event record and the Task records to which the Event record is linked. The number of Confirmation records created equals the number of Task records that are linked to the Event record. In addition, a Confirmation is created in SAP for each Confirmation record that is created in GE Digital APM.

If only one Confirmation record is created, the Actual Work Time in the Confirmation record matches the Actual Work Time in the Event record. If more than one Confirmation record is created, the Actual Work Time in the Event record is split evenly between those Confirmation records.

For example, if an Event record is linked to two Task records, two Confirmation records will be created. If the Actual Work Time in the Event record is 14, the Actual Work Time in each Confirmation record will be 7 (14/2).

- The Work Order Numbers in the Task records that are linked to the Event record are removed.
- The Confirmation that is created in SAP is marked as final.

Update an SAP Confirmation by Updating the Actual Work Time in a Confirmation Record

Steps

1. Access the Confirmation record that you want to modify.
2. Modify the **Actual Work Time** value, and then save the record.

Results

- The associated SAP Confirmation is canceled in SAP, and a new SAP Confirmation is created. The counter in the new SAP Confirmation is one digit higher than the counter in the canceled SAP Confirmation.
- The Actual Work Time field in the Inspection record or Calibration Event record to which this Confirmation record is linked is updated automatically to reflect the updated value in the Confirmation record. If this is the only Confirmation record that is linked to the Inspection or Calibration Event record, the Actual Work Time in the Inspection or Calibration Event record will match the value in the Confirmation record.
- If more than one Confirmation record is linked to the Inspection or Calibration Event record, the Actual Work Time in the Event record is updated to be the sum of the values in the Actual Work Time fields in all of those Confirmation records.

For example, if an Event record is linked to this Confirmation record and two other Confirmation records, and the final values in the Actual Work Time fields of those Confirmation records are 7, 6, and 5, the Event record will contain the value 18 (7 + 6 + 5) in the Actual Work Time field.

Validate SAP Confirmations Against GE Digital APM Confirmation Records

After you have created SAP Confirmations from GE Digital APM Confirmation records, you can validate the information in the SAP Confirmations against the information in the GE Digital APM Confirmation records.

Steps

1. In SAP, run the following transaction: IW43.

The window appears.

Display PM Order Confirmation: Initial Screen

Parameters

Operation confirmation number
Confirmation

Order
Order
Oper./Act.
Suboperation

Long-term order for
Funct. Location
Equipment

Confirmation counter
Counter


Indiv.capacity
Capacity Cat.
Split number

2. If you know the Confirmation number of the Confirmation that you want to validate, in the **Confirmation** text box enter the Confirmation number, which appears in the Confirmation Number field on the Confirmation datasheet in the GE Digital APM system.

-or-

If you know the Order number associated with the Confirmations that you want to validate, in the **Order** text box, enter the Order number, which appears in the

Work Order Number field on the Confirmation datasheet in the GE Digital APM system.

3. Select .

If only one Confirmation meets the specified criteria, the **Display PM Order Confirmation: Actual Data** screen appears, displaying the values that appear on the Confirmation datasheet in the GE Digital APM system.

-or-

If more than one Confirmation meets the specified criteria, the **Display PM Order Confirmation: Confirmation Overview** screen appears, displaying a list of the Confirmations that meet the specified criteria. In the list, you can see the values that appear on the Confirmation datasheet in the GE Digital APM system.

Manage Filter Parameters in the Context File

This topic provides a list of all procedures related to applying filter parameters in the context file, as well as links to the related concept and reference topics.

Apply Common Filter Parameters

There are common filter parameters in the context file that operate in the same manner, no matter which adapter you are using to extract data. This topic describes how to configure the common filter parameters.


Before You Begin

Before you can transfer data with an adapter, you must complete the following:

- [Import an Adapter Job](#) to which filters can be applied.

Steps

1. On the machine on which you installed APM Connect, navigate to `<root:\>APMConnect\Config`.

 **Note:** If you are using multiple SAP systems, there will be multiple context files to which you will need to apply the filter parameters.

2. Right-click on the *context file* file, and then select **Edit**.

The context file opens.

3. As necessary, configure the following common parameters in the table:

Common Filter Parameters	Description	Value Requirements	Required, Optional
CHANGE_DATE_START	Date value that limits the data extracted to records changed on or after the specified date.	Dates must be entered in the following format: YYYYMMDD.	Optional
CHANGE_DATE_END	Date value that limits the data extracted to records changed on or before the specified date.	Dates must be entered in the following format: YYYYMMDD.	Optional
CREATE_DATE_START	Date value that will limits the data extracted to records created on or after the specified date.	Dates must be entered in the following format: YYYYMMDD.	Optional
CREATE_DATE_END	Date value that limits the data extracted to records created on or before the specified date.	Dates must be entered in the following format: YYYYMMDD.	Optional
LANGUAGE	The SAP code that represents the language.	Must be a single character.	Required
MAINT_PLANT	ID(s) of the Maintenance Plant whose data you want to extract.	Plant values cannot exceed four characters.	Optional

4. Save the changes to the context file.

The common filter parameters are configured and applied to all Adapter Jobs in the APM Connect Administration Center.

Results

- When Jobs are executed in the APM Connect Administration Center, APM Connect will use the common filters in the context file to determine the scope of the extraction required by that Job. Now, you can configure the filter parameters specific to the Adapter Job that you would like to run.

Example: Using the Common Filters

To extract English records created between January 1st and December 31, 2000, and

changed between January 1st and December 31st, 2012, from maintenance plant 1000:

1. In the CREATE_DATE_START field, enter the following to reflect January 01, 2000:
20000101.
2. In the CREATE_DATE_END field, enter the following to reflect December 31, 2000:
20001231.
3. In the CHANGE_DATE_START field, enter the following to reflect January 01, 2012:
20120101.
4. In the CHANGE_DATE_END field, enter the following to reflect December 31, 2012:
20121231.
5. In the LANGUAGE field, enter the following SAP code for English: E.
6. In the MAINT_PLANT> field, enter the following maintenance plant ID: 1000.

The necessary filter parameters are entered into the context file, as shown in the following image:

```

<MANUAL_RUN>true</MANUAL_RUN>                                <!-- if "false" then : ^
<MULTI_OBJECTS_ENABLED>FALSE</MULTI_OBJECTS_ENABLED>
<TECHNICAL_CHARACTERISTICS_ENABLED></TECHNICAL_CHARACTERISTICS_ENABLED>
<UNC_FILE_PATH></UNC_FILE_PATH>

<!-- Filter Parameters -->
<MAINT_PLANT></MAINT_PLANT>
<LANGUAGE>E</LANGUAGE>

<!-- date format is yyyyMMdd -->
<CREATE_DATE_START></CREATE_DATE_START>
<CREATE_DATE_END></CREATE_DATE_END>

<!-- Change Dates are used for changes to assets and work order/notifications as well as work o
<CHANGE_DATE_START></CHANGE_DATE_START>
<CHANGE_DATE_END></CHANGE_DATE_END>

<!-- times are used during workhistory processing only -->
<!-- time format is HH24mmss -->
<CREATE_TIME_START></CREATE_TIME_START>
<CREATE_TIME_END></CREATE_TIME_END>
<CHANGE_TIME_START></CHANGE_TIME_START>
<CHANGE_TIME_END></CHANGE_TIME_END>

<!-- Equipment Filter Criteria -->
<EQUIPMENT_NO></EQUIPMENT_NO>
<EQUIPMENT_CATEGORY></EQUIPMENT_CATEGORY>
<EQUIPMENT_TYPE></EQUIPMENT_TYPE>
<EQUIPMENT_CLASS></EQUIPMENT_CLASS>

<!-- Functional Location Filter Criteria -->
<FLOC_NO></FLOC_NO>
<FLOC_TYPE></FLOC_TYPE>

```

7. Save the context file.

Only records with English descriptions created in 2000 and changed in 2012 from maintenance plant 1000 will be extracted when an Adapter is run in the APM Connect Administration Center.

What's Next?

- Common filters can be applied to each adapter. After the necessary common filters are configured, you can apply the following adapter specific parameters:
 - [Equipment Adapter filter parameters.](#)
 - [Functional Location Adapter filter parameters.](#)
 - [Work History Adapter filter parameters.](#)
 - [Technical Characteristic filter parameters.](#)
 - [Work Management filter parameters.](#)

Apply Equipment Filter Parameters

In the context file, there are filter parameters that apply specifically to the Equipment Adapter Jobs. These filter parameters determine which Equipment data will be transferred from the EAM source system into GE Digital APM. This topic outlines the functions of Equipment-specific filters, and how to apply them.


Before You Begin

Before you can manipulate the Equipment Adapter data, you must first complete the following:

- [Import the Equipment Adapter Job](#) into the APM Connect Administration Center.

Steps

1. On the machine on which you installed APM Connect, navigate to `<root:\>\APMConnect\Config`.

 **Note:** If you are using multiple SAP systems, there will be multiple context files to which you will need to apply the filter parameters.

2. Right-click the file **context file**, and then select **Edit**.
The context file opens.
3. As needed, configure the [Common Filters](#).

4. As needed, configure the following Equipment Filter parameters in the table:

Equipment Filter Parameters	Description	Value Requirements	Required or Optional
EQUIPMENT_NO	Equipment that you want to extract.	The Equipment number should not exceed 18 characters. You cannot exceed 500 Equipment numbers.	Optional
EQUIPMENT_CATEGORY	ID of the Equipment Category that will limit the Equipment extracted	The Equipment Category should not exceed one character.	Optional
EQUIPMENT_TYPE	ID of the Equipment Type that will limit the Equipment extracted.	The Equipment Type should not exceed 10 characters.	Optional
EQUIPMENT_CLASS	ID of the Equipment Classification that will limit the Equipment extracted.	The Equipment Class should not exceed 18 characters. If an Equipment has multiple classifications, as long as you specify one of those classifications, the Equipment record will be extracted.	Optional

5. Save the changes to the context file.

Results

- The Equipment filter parameters are configured, and the Equipment Adapter Job can be run in the APM Connect Administration Center. When a Job is run in the APM Connect Administration Center, the Job will look to the context files for the parameters of the extraction. If no filters are entered to limit the records extracted, all Equipment records will be extracted.

Example: SAP Equipment Data Extraction

To extract Equipment records created between December 2009 and December 2010 with Equipment numbers 1001273-1001277:

1. In the CREATE_DATE_START field, enter the following to reflect the date December 1, 2009: 20091201.
2. In the CREATE_DATE_END field, enter the following to reflect the date December 31, 2010: 20101231.
3. In the EQUIPMENT_NO field enter the following Equipment identification numbers: 000000000001001273, 000000000001001274,000000000001001275,000000000001001276,00000000000100-1277.

The necessary filter parameters are entered in the context file, as shown in the following image:

```
<!-- Filter parameters (some more will added based on
requirement)-->
<!-- Equipment Filter criteria -->
  <EQUIPMENT_NO>
000000000001001273,000000000001001274,000000000001001275,00000000
0001001276,000000000001001277</EQUIPMENT_NO>
  <CREATE_DATE_START>20091201</CREATE_DATE_START>
  <CREATE_DATE_END>20101231</CREATE_DATE_END>
  <CHANGE_DATE_START></CHANGE_DATE_START>
  <CHANGE_DATE_END></CHANGE_DATE_END>
  <MAINT_PLANT></MAINT_PLANT>
  <EQUIPMENT_CATEGORY></EQUIPMENT_CATEGORY>
  <EQUIPMENT_TYPE></EQUIPMENT_TYPE>
  <EQUIPMENT_CLASS></EQUIPMENT_CLASS>
  <LANGUAGE>E</LANGUAGE>
```

4. Save the context file.

Only Equipment records with the IDs 1001273-1001277 created between December 2009 and December 2010 are extracted when the Job is run in the APM Connect Administration Center.

What's Next?

- After you have applied the filters in the context file, you can [run the associated job in the APM Connect Administration Center](#).

Apply Functional Location Filter Parameters


In the context file, there are filter parameters that apply specifically to the Functional Location Adapter. These filter parameters determine which Functional Location data will be transferred from the EAM source system into GE Digital APM. This topic outlines the functions of Functional Location-specific filters, and how to apply them.

Before You Begin

Before you can manipulate the Functional Location data, you must first [import the functional location adapter job](#) into the APM Connect Administration Center.

Steps

1. On the machine on which you installed APM Connect, navigate to <root:\>\APMConnect\Config.

 **Note:** If you are using multiple SAP systems, there will be multiple context files to which you will need to apply the filter parameters.

2. Right-click the file **context file**, and then select **Edit**.
The context file opens.
3. As necessary, configure the [Common Filters](#).
4. As necessary, configure the following Functional Location Filter parameters in the table:

Functional Location Parameters	Description	Value Requirements	Required or Optional
FLOC_NO	Number that identifies the Functional Location record you want to extract.	The Functional Location number should not exceed 40 characters. You cannot exceed 500 Functional Location numbers.	Optional
FLOC_CATEGORY	ID of the Functional Location Category that will limit the Functional Locations extracted.	The Functional Location Category should not exceed one character.	Optional

FLOC_CLASS	ID of the Functional Location Classification that will limit the Functional Locations extracted.	The Functional Location Class should not exceed 18 characters.	Optional
FLOC_TYPE	ID of the Functional Location Type that will limit the Functional Locations extracted.	The Functional Location Type should not exceed ten characters.	Optional
TECHNICAL_CHARACTERISTICS_ENABLED	Determines whether technical characteristics are extracted during the static data job. Setting the value to <i>False</i> removes these records and improves performance.	<i>True or False</i>	Required

5. Save the changes to the context file.

Results

- The Functional Location filters parameters are configured, and the Functional Location Adapter Job can be run in the APM Connect Administration Center. When a Job is run in the APM Connect Administration Center, the Job will reference the context files for the parameters of the extraction. If no filters are entered to limit the records extracted, all Functional Location records will be extracted.

Example: SAP Functional Location Extraction

To extract Functional Location records changed between January 1 and December 31, 2013, with the Functional Location class WCM:

1. In the CHANGE_DATE_START field, enter 20130101.
2. In the CHANGE_DATE_END field, enter 20131231.
3. In the FLOC_CLASS field, enter *WCM* to limit records extracted to those with the Functional Location class of WCM, as shown in the following image:

```

ContextFile.xml - Notepad
File Edit Format View Help
  <!-- Filter parameters(some more will added based on requirement) -->
  <EQUIPMENT_NO></EQUIPMENT_NO>
  <FLOC_NO></FLOC_NO>
  <NOTIFICATION_NO></NOTIFICATION_NO>
  <WORK_ORDER_NO></WORK_ORDER_NO>
  <CREATE_DATE_START></CREATE_DATE_START>
  <CREATE_DATE_END></CREATE_DATE_END>
  <CHANGE_DATE_START>20130101</CHANGE_DATE_START>
  <CHANGE_DATE_END>20131231</CHANGE_DATE_END>
  <CREATE_TIME_START></CREATE_TIME_START>
  <CREATE_TIME_END></CREATE_TIME_END>
  <CHANGE_TIME_START></CHANGE_TIME_START>
  <CHANGE_TIME_END></CHANGE_TIME_END>
  <MAINT_PLANT></MAINT_PLANT>
  <EQUIPMENT_CATEGORY></EQUIPMENT_CATEGORY>
  <FLOC_CATEGORY></FLOC_CATEGORY>
  <EQUIPMENT_TYPE></EQUIPMENT_TYPE>
  <FLOC_TYPE></FLOC_TYPE>
  <NOTIFICATION_TYPE></NOTIFICATION_TYPE>
  <WORK_ORDER_TYPE></WORK_ORDER_TYPE>
  <SYSTEM_STATUS></SYSTEM_STATUS>
  <USER_STATUS></USER_STATUS>
  <EQUIPMENT_CLASS></EQUIPMENT_CLASS>
  <FLOC_CLASS>WCM</FLOC_CLASS>
  <LANGUAGE>E</LANGUAGE>
  <WORK_ORDER_SYSTEM_STATUS></WORK_ORDER_SYSTEM_STATUS>

```

4. Save the context file.

Only Functional Location records with the Functional Location class WCM that were modified between January 1 and December 31, 2013, are extracted when the job is run in the APM Connect Administration Center.

What's Next?

- After you have applied the filters in the context file, you can [run the associated job in the APM Connect Administration Center](#).

Apply Work History Filter Parameters

There are filter parameters in the context file that specifically apply to the Work History Adapter. The filter parameters determine which Work History data will be transferred from SAP into GE Digital APM. This topic describes the functions of Work History-specific filters, and how to apply them.

Before You Begin

Before you can manipulate the Work History data, you must [import the work history adapter job](#) into the APM Connect Administration Center.

Steps

1. On the machine on which you installed APM Connect, navigate to `<root:\>\APMConnect\Config`.
2. Right-click the file **context file**, and then select **Edit**.
The context file opens.
3. As necessary, configure the [Common Filters](#).
4. As necessary, configure the following Work History parameters in the context file:

Work History Parameters	Description	Value Requirements
CHANGE_TIME_START	Time value. Retrieves records changed at or after the specified time.	Time values must be entered in the following format: HHMMSS.
CHANGE_TIME_END	Time value. Retrieves records changed at or before the specified time.	Time values must be entered in the following format: HHMMSS.
CREATE_TIME_START	Time value. Retrieves records created at or after the specified time.	Time values must be entered in the following format: HHMMSS.
CREATE_TIME_END	Time value. Retrieves records created at or before the specified time.	Time values must be entered in the following format: HHMMSS.
WORK_ORDER_SYSTEM_STATUS	Work Order system status that limits the work orders you will extract.	Work Order System Status should not exceed four characters.

WORK_ORDER_USER_STATUS	Work Order user status that limits the work orders you will extract.	Work Order User Status should not exceed four characters.
NOTIFICATION_SYSTEM_STATUS	Notification system status that limits the notifications you will extract.	Notification system status should not exceed four characters.
NOTIFICATION_USER_STATUS	Notification user status that limits the notifications you will extract.	User status should not exceed four characters.
NOTIFICATION_NO	Number that identifies the Notification record.	Notification Number should not exceed 12 characters.
WORK_ORDER_NO	Number that identifies the Work Order record.	Work Order Number should not exceed 12 characters.
NOTIFICATION_TYPE	Order type that limits the orders you will extract.	Notification type should not exceed two characters.
WORK_ORDER_TYPE	ID of the work order that limits the orders you will extract.	Work Order type should not exceed four characters.
EQUIPMENT_CATEGORY	ID of the Equipment category that limits the Equipment data extracted.	Equipment category should not exceed one character.
EQUIPMENT_CLASS	ID of the Equipment class that limits the Equipment data extracted.	Equipment class should not exceed 18 characters.
EQUIPMENT_TYPE	ID of the Equipment Type that will limit the Equipment extracted.	Equipment type should not exceed 10 characters.
FLOC_CATEGORY	ID of the Functional Location Category that will limit the Functional Locations extracted.	Functional Location category should not exceed one character.
FLOC_CLASS	ID of the Functional Location Classification that will limit the Functional Locations extracted.	Functional Location class should not exceed 18 characters.

FLOC_TYPE	ID of the Functional Location Type that will limit the Functional Locations extracted.	Functional Location type should not exceed 10 characters.
-----------	--	---

Results

- The context file is configured, and the Work History Adapter Job can be run in the APM Connect Administration Center. When a Job is run in the APM Connect Administration Center, the job will look to the context files for the parameters of the extraction. If no filters are entered to limit the records extracted, all Work History records for work orders and notifications will be extracted.

Example: SAP Work History Extraction

To extract Work History records created in 2014 between October 1-31st, changed between the hours of 8:00 A.M. and 5:00 P.M., with the Work Order type maintenance orders, with the Equipment Type mobile cranes:

1. In the CREATE_DATE_START field, enter the following to reflect October 1, 2014: 20141001.
2. In the CREATE_DATE_END field, enter the following to reflect October 31, 2014: 20141031.
3. In the CHANGE_TIME_START field, enter the following to reflect 8:00 A.M.: 080000.
4. In the CREATE_TIME_END field, enter the following to reflect 5:00 P.M.: 170000.
5. In the WORK_ORDER_TYPE field, enter the following SAP code for Maintenance order: PAM.
6. In the EQUIPMENT_TYPE field, enter the following SAP code for Mobile Cranes: 007.

The necessary parameters are in the context file, as shown in the following image:

```

ContextFile.xml - Notepad
File Edit Format View Help
  <!-- Filter parameters(some more will added based on requirement) -->
  <EQUIPMENT_NO></EQUIPMENT_NO>
  <FLOC_NO></FLOC_NO>
  <NOTIFICATION_NO></NOTIFICATION_NO>
  <WORK_ORDER_NO></WORK_ORDER_NO>
  <CREATE_DATE_START>20141001</CREATE_DATE_START>
  <CREATE_DATE_END>20141031</CREATE_DATE_END>
  <CHANGE_DATE_START></CHANGE_DATE_START>
  <CHANGE_DATE_END></CHANGE_DATE_END>
  <CREATE_TIME_START></CREATE_TIME_START>
  <CREATE TIME END></CREATE TIME END>
  <CHANGE_TIME_START>080000</CHANGE_TIME_START>
  <CHANGE_TIME_END>170000</CHANGE_TIME_END>
  <MAINT_PLANT></MAINT_PLANT>
  <EQUIPMENT_CATEGORY></EQUIPMENT_CATEGORY>
  <FLOC_CATEGORY></FLOC_CATEGORY>
  <EQUIPMENT_TYPE>007</EQUIPMENT_TYPE>
  <FLOC_TYPE></FLOC_TYPE>
  <NOTIFICATION_TYPE></NOTIFICATION_TYPE>
  <WORK_ORDER_TYPE>PAM</WORK_ORDER_TYPE>
  <SYSTEM_STATUS></SYSTEM_STATUS>
  <USER_STATUS></USER_STATUS>
  <EQUIPMENT_CLASS></EQUIPMENT_CLASS>
  <FLOC_CLASS></FLOC_CLASS>
  <LANGUAGE>E</LANGUAGE>
  <WORK_ORDER_SYSTEM_STATUS></WORK_ORDER_SYSTEM_STATUS>
  <WORK_ORDER_USER_STATUS></WORK_ORDER_USER_STATUS>
  <NOTIFICATION_SYSTEM_STATUS></NOTIFICATION_SYSTEM_STATUS>
  <NOTIFICATION_USER_STATUS></NOTIFICATION_USER_STATUS>

```

7. Save the context file.

Only Work History records that are Maintenance Orders for Mobile Cranes created in October 2014, changed between the hours of 8:00 A.M. and 5:00 P.M., will be extracted when the Work History Job is run in APM Connect Administration Center.

What's Next?

- After you have applied the filters in the context file, you can [run the associated job in the APM Connect Administration Center](#).

Apply Technical Characteristics Filters

In the context file, there are filter parameters that apply specifically to the Technical Characteristics Adapter jobs. These filter parameters determine which Technical Characteristics data will be transferred from the EAM source system into GE Digital APM.

Before You Begin


Before you can manipulate the Technical Characteristics Adapter data, you must [import the Technical Characteristics Adapter job](#) into the APM Connect Administration Center.

Steps

To configure filter parameters for the Equipment Technical Characteristics Adapter:

1. On the machine on which you installed APM Connect, navigate to `<root:\>\APMConnect\Config`.
2. Right-click on the *context file* file, and then select **Edit**.
The context file opens.
3. As needed, configure the [Common Filters](#).
4. As needed, configure the following Technical Characteristics Filter parameters for *Equipment* in the table:

Equipment Filter Parameters	Description	Value Requirements	Required/Default or Optional
EQUIPMENT_NO	Equipment number that defines the Equipment that you want to extract	The Equipment number should not exceed 18 characters.	Optional
EQUIPMENT_CATEGORY	ID of the Equipment Category that will limit the Equipment extracted	The Equipment Category should not exceed one character.	Optional

EQUIPMENT_CLASS	<p>ID of the Equipment Classification that will limit the Equipment extracted. If an Equipment has multiple classifications, as long as you specify one of those classifications, the Equipment record will be extracted.</p> <div style="border: 1px solid yellow; padding: 5px;"> <p> Note: When Technical Characteristic classifications are updated in GE Digital APM, they will override any changes made to the EQUIPMENT_CLASS parameter in the context file.</p> </div>	The Equipment Class should not exceed 18 characters.	Optional
EQUIPMENT_TYPE	ID of the Equipment Type that will limit the Equipment extracted	The Equipment Type should not exceed 10 characters.	Optional
TECHNICAL_CHARACTERISTICS_ENABLED	Determines whether technical characteristics and functional characteristics are gathered during static data. Setting the value to <i>False</i> removes these records and improves performance.	<i>True or False</i>	Required

5. Save the changes to the context file.

Results

- The Equipment Technical Characteristics filter parameters are configured, and the Equipment Technical Characteristics Adapter Job can be run in the APM Connect Administration Center. When a Job is run in the APM Connect Administration Center, the Job will look to the context files for the parameters of the extraction. If

no filters are entered to limit the records extracted, all Equipment Technical Characteristics records will be extracted.

Steps

To configure filter parameters for the Functional Location Technical Characteristics Adapter:

1. On the machine on which you installed APM Connect, navigate to `<root:\>\APMConnect\Config`.
2. Right-click on the *context file* file, and then select **Edit**.
The context file opens.
3. As necessary, configure the following [Common Filters](#).
4. As needed, configure the following Functional Location Technical Characteristics filter parameters in the table:

Functional Location Parameters	Description	Value Requirements	Required/Default or Optional
FLOC_NO	Functional Location number that defines the Functional Location that you want to extract.	The Functional Location number should not exceed 40 characters.	Optional
FLOC_CATEGORY	ID of the Functional Location Category that will limit the Functional Locations extracted.	The Functional Location Category should not exceed one character.	Optional
FLOC_CLASS	ID of the Functional Location Classification that will limit the Functional Locations extracted.	The Functional Location Class should not exceed 18 characters.	Optional
FLOC_TYPE	ID of the Functional Location Type that will limit the Functional Locations extracted.	The Functional Location Type should not exceed 10 characters.	Optional

5. Save the changes to the context file.

Results

- The Functional Location Technical Characteristics filters parameters are configured, and the Technical Characteristics Adapter Job can be run in the APM Connect Administration Center. When a Job is run in the APM Connect Administration Center, the Job will look to the context files for the parameters of the extraction. If no filters are entered to limit the records extracted, all Technical Characteristics records will be extracted.

What's Next?

- After you have applied the filters in the context file, you can [run the associated job in the APM Connect Administration Center](#).

Apply Work Management Filters

There is a filter parameter in the context file that applies specifically to the Work Management Adapter. The filter parameter determines which Work Management data will be transferred from SAP into GE Digital APM.

Before You Begin

Before you can apply Work Management filters, you must [import the Work Management Job](#) into the APM Connect Administration Center.


Steps

1. On the machine on which you installed APM Connect, navigate to `<root:\>\APMConnect\Config`.
2. Right-click the file **context file**, and then select **Edit**.
The context file opens.
3. As needed, configure the [Common Filters](#).
4. As needed, configure the Work Management filter parameter in the table:

⚠ IMPORTANT: If you change any of the required parameters after loading data, you *must* rerun the Work Management job.

Work Management Filter Parameter	Description	Value Requirements	Required/Default or Optional
MAINTENANCE_PLAN	Maintenance Plan ID number that defines the Work Management data that you want to extract.	The Maintenance Plan ID is 12 characters.	Optional
<p>Note: The following parameters do not apply to SAP PI. For SAP PI, you <i>must</i> add entries to the /MIAPM/TASK_CNF table entries to the /MIAPM/TASK_CNF table.</p>			
INSPECTION_FAMILY	Determines to which family the Inspection records are associated.	To use the default association, enter the value <i>MI_TASKINSP</i> .	Required

INSPECTION_ CONDITION	Determines the SAP control key used to identify trigger values for Inspection records.	The parameter requires specific syntax as follows: <SAP Table>-<SAP Field> EQ '<Key Value 1>, <Key Value 2>,<Key Value 3>', etc.' To use the default configuration, enter the following value <i>PLPO-STEUS EQ 'ZMI1'</i> .	Required
CALIBRATION_ FAMILY	Determines to which family the Calibration records are associated.	To use the default configuration enter the value <i>MI_TASKCALB</i> .	Required
CALIBRATION_ CONDITION	Determines the SAP control key used to identify trigger values for Calibration records.	The parameter requires specific syntax as follows: <SAP Table>-<SAP Field> EQ '<Key Value 1>, <Key Value 2>,<Key Value 3>', etc.' To use the default configuration, enter the following value <i>PLPO-STEUS EQ 'ZMI2'</i> .	Required

 **Note:** For *Inspection_Condition* and *Calibration_Condition* you can only use the PLPO, PLAS, and PLKO SAP tables. The valid comparison operators are:

EQ: Equal to.

GE: Greater than or equal to.

LE: Less than or equal to.

LT: Less than.

GT: Greater than.

NE: Not equal to.

Example 1: Configure Work Management to use Non-default Control Keys

Suppose you want to use the SAP field STEUS with the control keys PM01 and PM02 to

trigger Calibration task records. Additionally, suppose you want to use the control keys QM01 and QM02. In this case, you should configure the context file as follows:

1. In the INSPECTION_FAMILY parameter, enter MI_TASKINSP.
2. In the INSPECTION_CONDITION parameter, enter PLPO-STEUS EQ 'QM01,QM02'.
3. In the CALIBRATION_FAMILY parameter, enter MI_TASKCALB.
4. In the CALIBRATION_CONDITION parameter enter, PLPO-STEUS EQ 'PM01,PM02'.

The Work Management parameters are configured.

```
<INSPECTION_FAMILY>MI_TASKINSP</INSPECTION_FAMILY>
<INSPECTION_CONDITION>PLPO-STEUS EQ 'QM01,QM02'</INSPECTION_CONDITION>
<CALIBRATION_FAMILY>MI_TASKCALB</CALIBRATION_FAMILY>
<CALIBRATION_CONDITION>PLPO-STEUS EQ 'PM01,PM02'</CALIBRATION_CONDITION>
```

Example 2: Configure Work Management to use Non-default Control Keys

Suppose you want to use the SAP field USROO from the PLPO table, the control key values PM01 or PM02 for Calibration Task, and the control key QM01 or QM02 for Inspection Tasks.

1. In the INSPECTION_FAMILY parameter, enter MI_TASKINSP.
2. In the INSPECTION_CONDITION parameter, enter PLPO-USR00 EQ 'QM01,QM02'.
3. In the CALIBRATION_FAMILY parameter, enter MI_TASKCALB.
4. In the CALIBRATION_CONDITION parameter enter PLPO-USR00 EQ 'PM01,PM02'.

The Work Management parameters are configured.

```
<INSPECTION_FAMILY>MI_TASKINSP</INSPECTION_FAMILY>
<INSPECTION_CONDITION>PLPO-USR00 EQ 'QM01,QM02'</INSPECTION_CONDITION>
<CALIBRATION_FAMILY>MI_TASKCALB</CALIBRATION_FAMILY>
<CALIBRATION_CONDITION>PLPO-USR00 EQ 'PM01,PM02'</CALIBRATION_CONDITION>
```

 **Note:** The conditions follow standard SAP select query filtering rules.

Consider the following example:

```
<INSPECTION_CONDITION>( PLPO-STEUS EQ 'QM01' ) OR ( PLKO-AENNR EQ '1234
, '4587' OR PLKO-AENNR EQ '5678' ) AND ( PLAS-TECHV EQ 'A1234' AND PLAS-
TECHV EQ 'B1234' ) OR ( PLPO-AEDAT GE '20171218' ) OR ( PLPO-STEUS NE
'QM01' ) </INSPECTION_CONDITION>
```

Results

- The context file is configured, and the Work Management Adapter Job can be run in the APM Connect Administration Center. When a Job is run in the APM Connect Administration Center, the Job will look to the context file for the parameters of the extraction. If no filters are entered to limit the records extracted, all Work Management records will be extracted.

What's Next?

- After you have applied the filters in the context file, you can [run the associated job in the APM Connect Administration Center](#).

About the SAP Adapters

This topic provides a listing of all overviews and high level explanatory information to help you understand the SAP Adapters.

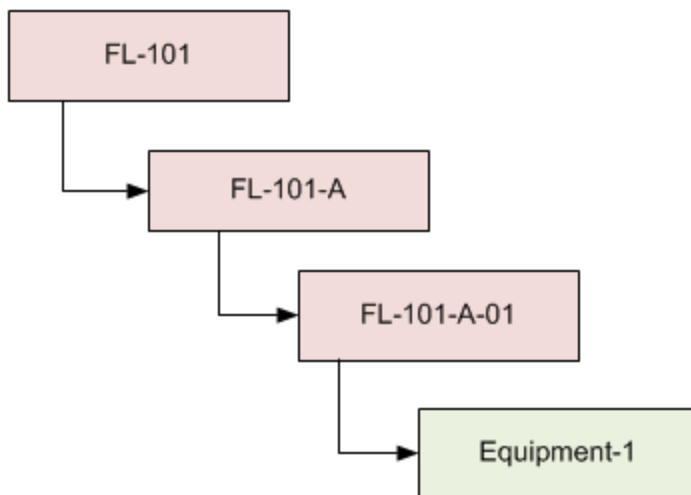
About the Equipment and Functional Location Adapters

The Equipment Adapter lets you extract Equipment items from your SAP system into your GE Digital APM system. When you do so, for each SAP Equipment item that meets the criteria defined in the extraction Job, a corresponding Equipment record is created in the GE Digital APM database.

Likewise, the Functional Location Adapter lets you extract Functional Locations from your SAP system into your GE Digital APM system. When you do so, for each Functional Location that meets the criteria defined in the extraction Job, a corresponding Functional Location record is created in the GE Digital APM database.

Because the SAP system allows you to define a hierarchy in which Functional Locations are related to other Functional Locations, and because Equipment items are also related to Functional Locations, when you run either the Equipment Adapter or the Functional Location Adapter, the SAP hierarchy is maintained. In some cases, to maintain the hierarchy, placeholder records are created in the GE Digital APM database to represent the SAP relationships.

For example, suppose that the SAP system contains the following Functional Locations and Equipment items, where the Functional Locations are shaded red, and the Equipment items are shaded green.



In this case, if you were to run the Functional Location Adapter, the following Functional Location records would be created automatically in the GE Digital APM database:

- FL-101
- FL-101-A
- FL-101-A-01

Then, if you were to run the Equipment Adapter, the following Equipment record would be created automatically in the GE Digital APM database:

- Equipment-1

This Equipment record would be linked automatically to the Functional Location record for *FL-101-A-01*.

Suppose, however, that using the same SAP data structure example, you decide to run the Equipment Adapter *before* running the Functional Location Adapter. In this case, when running the Equipment Adapter, the Equipment record *Equipment-1* would be created automatically to represent that SAP Equipment item. In addition, the following placeholder Functional Location record would also be automatically created to represent the SAP Functional Location that is directly associated with the Equipment:

- FL-101-A-01

The Equipment record would be automatically linked to the Functional Location record *FL-101-A-01*. This placeholder record would contain a value only in the Functional Location key fields. You would need to run the Functional Location Adapter to populate the remaining fields in the placeholder Functional Location record.

About the Work History Adapter

If Orders and Notifications are associated with a Technical Object, you can extract Orders and Notifications from SAP to create Work History records and Work History Detail records in GE Digital APM. To do so, you will need to run the Work History Adapter Job.

When you extract an Order (with or without Notifications), the following Work History records are created:

- One Work History record to represent the Order Header, which appears on the **HeaderData** tab in SAP. This Work History record will be created for the Technical Objects that appears on the **HeaderData** tab in SAP. This means that the Work History record will be populated with values representing those Technical Objects, and it will also be linked to the Equipment or Functional Location records representing those objects. Only this Work History record will contain cost values and estimated and actual confirmed hours.
- One Work History record per object that appears in the Order's object list (i.e., on the **Objects** tab when you are viewing the Order). These Work History records will be created for the Technical Objects that are specifically associated with those items. This means that these Work History records will be populated with values representing those Technical Objects, and they will also be linked to the Equipment or Functional Location records representing those Technical Objects.

When you extract a Notification that is not associated with an Order, one Work History record is created to represent the Notification, and this Work History record will be linked to Equipment and Functional Location records representing the Notification reference objects. Specifically:

- If the Notification has only an Equipment reference object, the Work History record for that Notification will be linked to an Equipment record.
- If the Notification has only a Functional Location reference object, the Work History record for that Notification will be linked to a Functional Location record.
- If the Notification has Equipment and Functional Location reference objects, the Work History record for that Notification will be linked to an Equipment record and a Functional Location record.

If a Notification has items, one Work History Detail record will be created to represent each item.

The following tables detail what to expect when running a Work History Job based on your SAP work order and notification combinations:

Orders Without Notifications

After you:	...Run this Job:	...Result:
Create an Order that is not associated with a Notification.	SAP_WorkHistory	A Work History record is created.
Update the Order referenced above.	SAP_WorkHistory	The corresponding Work History record is updated.

Orders With Notifications

Notifications Without Items:

After you:	...Run this Job:	...Result:
Create an Order that is associated with a Notification without items.	SAP_WorkHistory	A Work History record is created to capture the data in the Order and the Notification.
Update only the Order.	SAP_WorkHistory	The corresponding Work History record is updated.
Update only the Notification.	SAP_WorkHistory	The corresponding Work History and Work History Detail records are updated.
Update both the Order and Notification.	SAP_WorkHistory	The corresponding Work History and Work History Detail records are updated.

Notifications With Items:

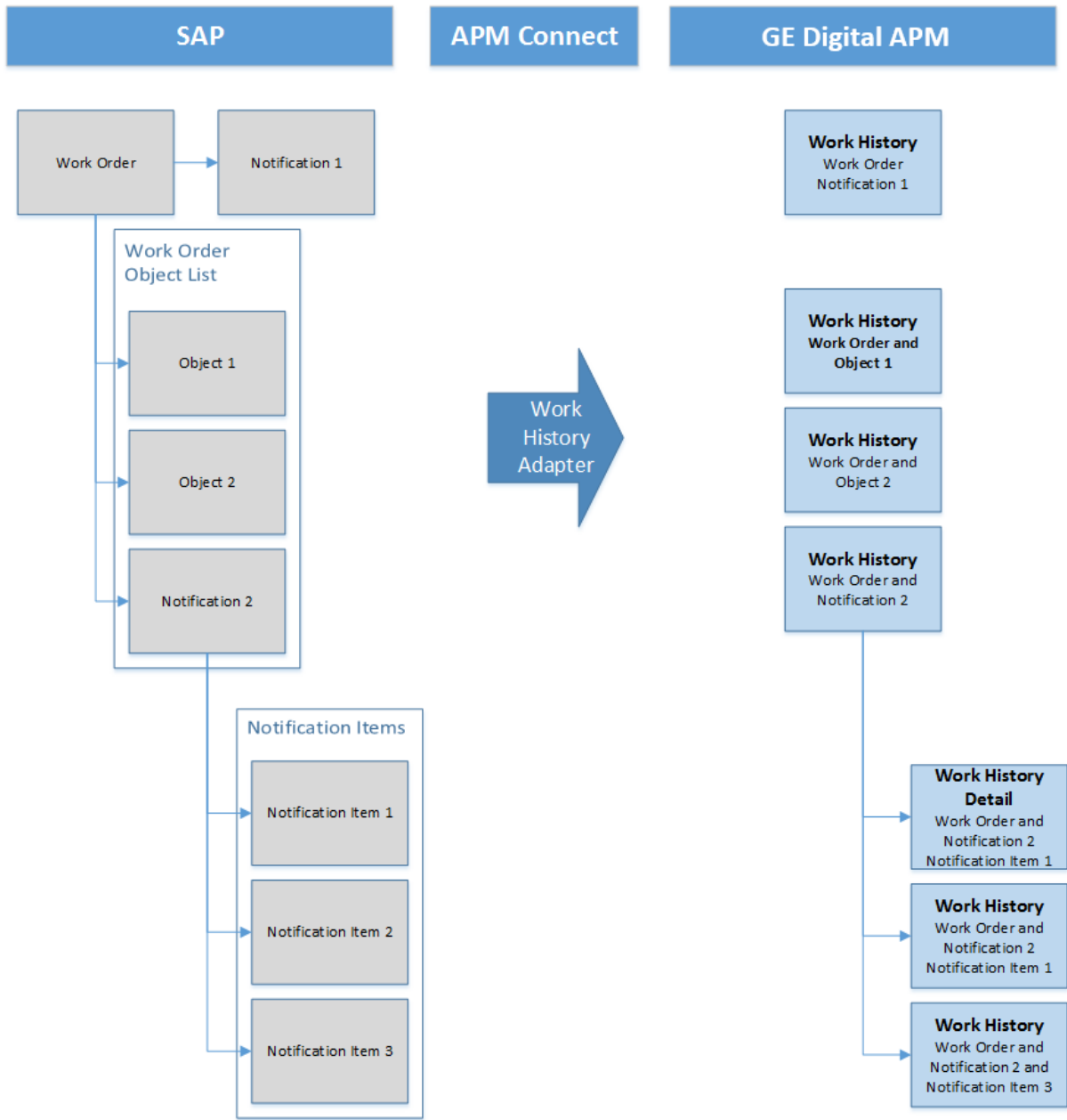
After you:	...Run this Job:	...Result:
Create a Notification with items, but do not associate it with an Order.	SAP_WorkHistory	A Work History record and a Work History Detail record are created to capture the data in the Notification.
Update the Notification referenced above.	SAP_WorkHistory	The corresponding Work History and Work History Detail records are updated.

Notifications and Work Orders transferred from SAP into GE Digital APM maintain their SAP ID in the Work History Detail and Work History record naming convention.

For example, suppose Work Order 18652 and Notification 20087 are related in SAP. Then, the Work Order and Notification are transferred into GE Digital APM. One Work History record will be created using the following syntax: WH ~ <Notification Number> ~

<Work Order Number>. In this example, the Work History record ID would be WH~20087~18652.

The following diagram exemplifies how records in SAP are mapped to Work History records in GE Digital APM.



Example: Order With Notification: Items on Object List

Suppose the following SAP Order exists, where the red outlines indicate that:

- The Order number is 4000483.
- The associated Notification number is 10001363.
- The reference Technical Objects are Functional Location ABC-PQR/12-34-56/8 and Equipment TURBINE.

Display Corrective Maintenance order 4000483: Central Header

Order PM01 **4000483** Order with Notification

Sys.Status CRTD ESTC MANC NMAT PRC

HeaderData Operations Components Costs Partner Objects Addit. Data

Person responsible

PlannerGrp 100 / 1000 Main Planning Grp

Mn.wk.ctr **PRODUCTI** / 1000 Production line

Person res... 0

Notifctn **10001363**

Costs 5.000,00 EUR

PMActType 001 Inspection

SystCond.

Address Meridium Inc

Dates

Bsc start 07/27/2012 Priority

Basic fin. 07/27/2012 Revision

Reference object

Func. Loc. **ABC-PQR/12-34-56/...** EXCHANGER LOCATION IN PLANT 1000

Equipment **TURBINE** Turbine.

Assembly MATERIAL 1 Material 1

Malfnctn data Damage Notif. dates

Malf.start 07/27/2012 19:49:55 Breakdown

MalfEnd 00:00:00 Breakdown dur. 0,00 H

First operation

Operation Order with Notification CcKey Calculate duration

WkCtr/PInt **PRODUCTI** / 1000 Ctrl key PM01 Acty Type PRT

Work durtn 0 H Number 0 Oprtn dur. 0 H Comp.

Person. no 0

In addition, you can see from the Objects tab that there are items on the object list:

P.	Sort	Serial no.	Material	Material Description	Equipment	Equipment description	Functional loc.	FunctLocDescrip.	Notification	N...	Description
					TURBINE	Turbine.	ABC-PQR/12-34-56/890	EXCHANGER LOCATIO...	10001363		Order with Notification
					EQABC123	ICE SCOOPER	ABC-XYZ-DE-VW-123456	TEST FUNCTIONAL LOC...			

If you were to extract this Order, two Work History records would be created:

- One for the Order and Notification combination.
- One for the object list item *EQABC123*.

Work History Record for the Order and Notification Combination

Suppose there is a Work History record for the Order and Notification combination, where the associated Technical Object is *TURBINE*, and the Work History record is also linked to the Equipment record *TURBINE*.

Note: The Equipment record *TURBINE* is created during the Order extraction process as a placeholder record. You would need to run the Equipment Adapter to populate the Equipment fields.

If the Notification contained items, a Work History Detail record would also be created to capture additional information about that Notification.

Work History Record for the Object List Item *EQABC123*

Suppose the Work History record for the object list item *EQABC123*, and that the Work History record is also linked to the Equipment record *EQABC123*.

Note: The Equipment record *EQABC123* and the associated Functional Location record *ABC-XYZ-DE-VW-123456* are created during the Order extraction process as placeholder records. You would need to run the Equipment Adapter and the Functional Location Adapter to populate the Equipment record and Functional Location record fields.

Example: Order Without Notification: No Items on Object List

Suppose the following SAP Order exists, where the red outlines indicate that:

- The Order number is *4000141*.
- There is no associated Notification.
- The reference Technical Object is Equipment *V100*.

Display Corrective Maintenance order 4000141: Central Header

Order PM01 **4000141** Shannon Test

Sys.Status REL PCNF CSER NMAT PRC

HeaderData Operations Components Costs Partner Objects Addit. Data

Person responsible

PlannerGrp / 1000

Mn.wk.ctr **PRODUCTI** / 1000 Production line

Person res... 0

Notifctn

Costs 0,00 EUR

PMActType 001 Inspection

SystCond.

Address

Dates

Bsc start 02/16/2009 Priority

Basic fin. 02/16/2009 Revision

Reference object

Func. Loc.

Equipment **V100** Overhead Accumulator

Assembly

First operation

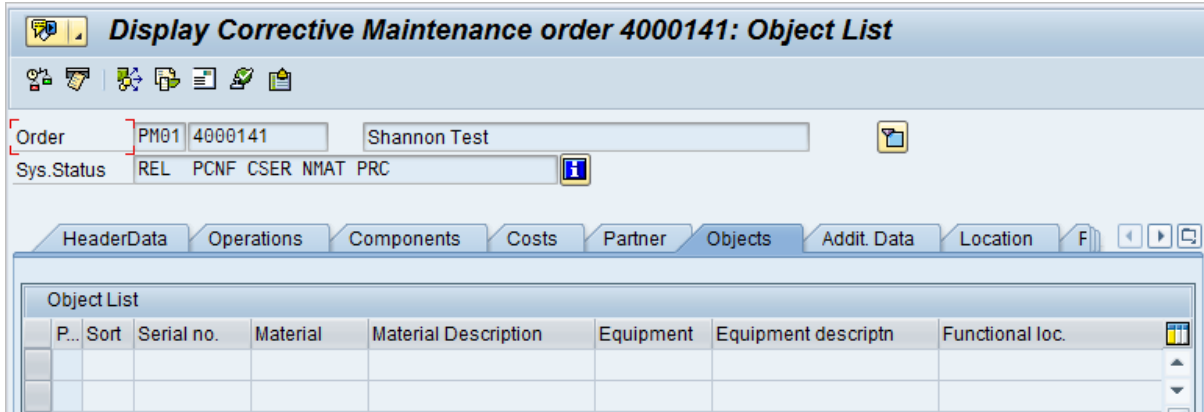
Operation Erect scaffolding CcKey

WkCtr/PInt **PRODUCTI** / 1000 Ctrl key PM01 Acty Type PRT

Work durtn 0,0 Number 0 Oprtn dur. 0,0 Comp.

Person. no 0

In addition, you can see from the Objects tab that there are no items on the object list:



If you were to extract this Order, the following Work History record would be created, with the following:

- The referenced technical object is *V100*.
- The Work History record is linked to the Equipment record *V100*.

Note: The Equipment record *V100* is created during the Order extraction process as a placeholder record. You would need to run the Equipment Adapter to populate the Equipment fields.

Example: Notification Without Order: Without Notification Items

Suppose the following SAP Notification exists, where the red outlines indicate that:

- The Notification number is *10001364*.
- The reference Technical Object is Functional Location *A1*.
- There are no items.

Display PM Notification: Maintenance Request

Notification: 10001364 M1 Notification_No Items

Status: OSNO LOW

Notification | Reference object | Malfunction, breakdown | Location data | Scheduling overview

Reference object

Functional loc. A1 Location A1 for testing

Equipment

Assembly

Subject

Coding

Description: Notification_No Items

Notification - No Items

Responsibilities

Planner group: 010 / 1061 Planner Group 1

Main WorkCtr: PRODUCTI / 1000 Production line

Department resp.

Person respons.

Reported by

Notif.date: 07/27/2012 20:51:40

Start/End Dates

Required Start: 07/27/2012 20:51:40 Priority: 3-Medium

Required End: 07/30/2012 00:00:00 Breakdown

Item

Object part

Damage

Text


Cause code

Cause text

Entry 0 frm 0

If you were to extract this Notification, the Work History record would be created, with the following:

- The Work History record is associated with the Notification's Technical Object *A1*.
- The Work History record is linked to the Functional Location record *A1*.

 **Note:** The Functional Location record *A1* is created during the Notification extraction process as a placeholder record. You would need to run the Functional Location Adapter to populate the Functional Location fields.

Example: Notification Without Order: With Notification Items

Suppose the following SAP Notification exists, where the red outlines indicate that:

- The Notification number is *10001365*.
- The reference Technical Object is Functional Location *F1*.
- There are two items.

Display PM Notification: Maintenance Request

Notification M1 Notification_With Items

Status OSNO LOW

Notification | Reference object | Malfunction, breakdown | Location data | Scheduling overview

Reference object

Functional loc. Functional Location F1

Equipment

Assembly

Subject

Coding

Description

Notification_With Items

Responsibilities

Planner group / Kroger

Main WorkCtr / services

Department resp

Person respons.

Reported by Notif.date 20:54:57

Start/End Dates

Required Start Priority

Required End Breakdown

Item

Object part Object part 2

Damage

Text

Cause code Cause 1

Cause text


Entry 1 frm 2

If you were to extract this Notification, the following records would be created:

- One Work History record.
- Two Work History Detail records: one to capture additional information about the first notification item, and another to capture additional information about the second notification item.

The Work History record, would be created with the following:

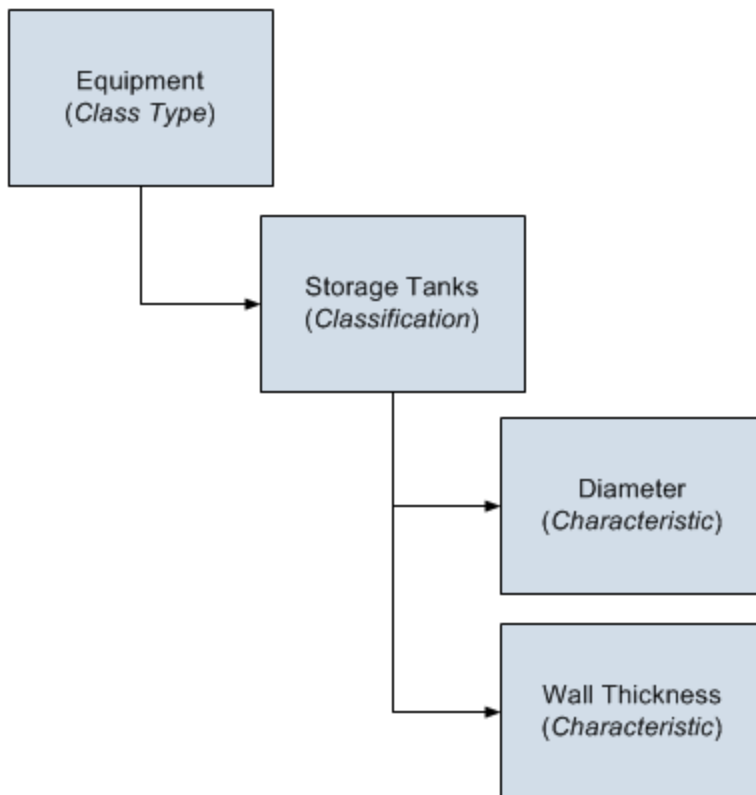
- The Work History record is associated with the Notification's Technical Object *F1*.
- The Work History record is linked to the two Work History Detail records.
- The Work History record is linked to the Functional Location record *F1*.

 **Note:** The Functional Location record *F1* is created during the Notification extraction process as a placeholder record. You would need to run the Functional Location Adapter to populate the Functional Location fields.

About the Technical Characteristics Adapter

Note: You can run the Technical Characteristics Adapters successfully only if the SAP Technical Characteristics license is active.

In SAP, you can assign specific characteristics to Equipment and Functional Locations. Each characteristic belongs to a Classification, and each Classification belongs to a Class Type. For example, the Class Type Equipment Class might contain the classification Storage Tanks, which might contain the Characteristics Diameter and Wall Thickness, as illustrated in the following image:



When you extract Equipment and Functional Locations from SAP into the GE Digital APM system, their corresponding Characteristics will not be extracted into the Equipment and Functional Location records that are created during the extraction process. If you want to extract their corresponding Characteristics, you will need to run the Technical Characteristics Adapter. When you run these adapters, Technical Characteristic records are created to store the Characteristics that have been configured to be extracted, and these records are linked automatically to the appropriate Equipment and Functional Location records.

Note: When Technical Characteristic classifications are updated in GE Digital APM, they will override any changes made to the [classifications parameter in the context file](#).

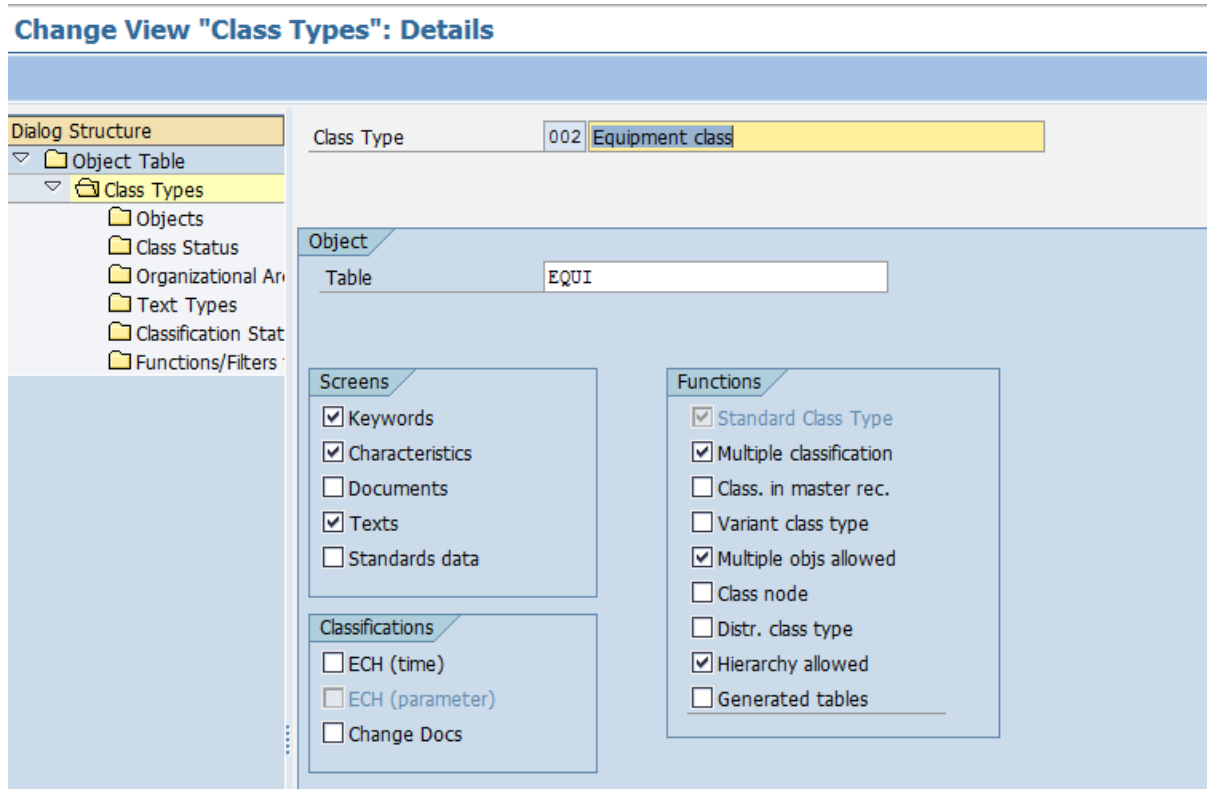
Numeric Value Format

The format in which numbers are displayed in GE Digital APM is determined by the SAP user that is used to extract the SAP data. For example, if the SAP user is configured to display the value one thousand one hundred and one-tenth as *1.100,1*. The value in GE Digital APM will be displayed in the same format.

Multiple Objects Allowed

The Technical Characteristic Adapter can transfer Equipment and Functional Locations configured for multiple objects allowed. This functionality is enabled by EQUIPMENT_CLASS context parameter in the [context file](#).

Equipment and Functional Locations are configured for multiple objects in SAP, as shown in the following image.



This indicator tells you whether several different types of object can be classified in classes of this class type. This allows you to classify objects that are logically related to each other in the same class.

GE Digital APM Actions and Results

In GE Digital APM, you can configure which Characteristics you want to extract from SAP. When you do so, various actions that you perform in the GE Digital APM system and the SAP system cause specific results, as seen in the following table.

Action	Result	Notes
Select the Extract From CMMS System check box in a CMMS Characteristic record.	The next time the Technical Characteristics Adapter is run, the characteristic is extracted.	During the extraction process, a corresponding Technical Characteristic record is created.
Clear the Extract From CMMS System check box in a CMMS Characteristic record.	If a Technical Characteristic record has been created using this CMMS Characteristic record, it is not deleted automatically when you delete the CMMS Characteristic record. Instead, the next time that the Technical Characteristics Adapter is run, the corresponding Technical Characteristic record is deleted.	To begin extracting the characteristic again, you will need to select the Extract From CMMS System check box.

<p>Delete a CMMS Characteristic record.</p>	<p>If a Technical Characteristic record has been created using this CMMS Characteristic record, it is not deleted automatically when you delete the CMMS Characteristic record.</p> <p>Instead, the next time that the Technical Characteristics Adapter is run, the corresponding Technical Characteristic record is deleted.</p> <p>In addition, until the CMMS Characteristic record is recreated and flagged for extraction, beginning with the next time the Technical Characteristics Adapter is run, the characteristic is no longer extracted.</p>	<p>To begin extracting the characteristic again, you will need to:</p> <ul style="list-style-type: none">• Refresh the GE Digital APM system to reflect the current SAP characteristics, which will cause the CMMS Characteristic record to be recreated.• Select the Extract From CMMS System check box in that CMMS Characteristic record.
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<p>Delete a CMMS Classification record.</p>	<p>All CMMS Characteristic records that were linked to the CMMS Classification record are deleted automatically.</p> <p>If a Technical Characteristic record has been created using this CMMS Classification record, it is not deleted automatically when you delete the CMMS Classification record.</p> <p>Instead, the next time that the Technical Characteristics Adapter is run, the corresponding Technical Characteristic records are deleted automatically.</p> <p>In addition, until the CMMS Classification record is recreated and flagged for extraction, beginning with the next time the Technical Characteristics Adapter is run, characteristics belonging to that classification are no longer extracted.</p>	<p>To begin extracting characteristics belonging to this classification again, you will need to:</p> <ul style="list-style-type: none"> • Refresh the GE Digital APM system to reflect the current SAP classifications, which will cause the CMMS Classification record to be recreated automatically. • Select the Extract From CMMS System check box in the CMMS Classification record. • Refresh the GE Digital APM system to reflect the current SAP characteristics, which will cause the CMMS Characteristic records that were previously deleted to be recreated automatically. • Select the Extract From CMMS System check box in the appropriate CMMS Characteristic records.
---	--	--


<p>Delete a CMMS Classification Type record.</p>	<p>All CMMS Classification and CMMS Characteristic records that were linked (directly or indirectly) to the CMMS Classification Type record are deleted automatically.</p> <p>If a Technical Characteristic record has been created using this CMMS Classification Type record, it is not deleted automatically when you delete the CMMS Classification Type record.</p> <p>Instead, the next time that the Technical Characteristics Adapter is run, the Technical Characteristic record is deleted automatically.</p> <p>In addition, until the CMMS Classification Type record is recreated and its CMMS Classification and CMMS Characteristic records are flagged for extraction, beginning with the next time the Technical Characteristics Adapter is run, <i>no</i> characteristics are extracted.</p>	<p>To begin extracting characteristics again, you will need to:</p> <ul style="list-style-type: none"> • Recreate the CMMS Classification Type record. Refresh the GE Digital APM system to reflect the current SAP classifications and characteristics, which will cause CMMS Classification records to be recreated. • Select the Extract From CMMS System check box in the desired CMMS Classification records. • Refresh the GE Digital APM system to reflect the current SAP classifications and characteristics, which will cause CMMS Classification records to be recreated. • Select the Extract From CMMS System check box in that CMMS Characteristic record.
--	--	--

SAP Actions and Results

Action	Result
<p>Specify a value for a characteristic that is configured to be extracted.</p>	<p>The next time the Technical Characteristics Adapter is run, a Technical Characteristic record is created and linked to the corresponding Equipment or Functional Location record.</p>

<p>Remove a value for a characteristic that is configured to be extracted.</p>	<p>The next time the Technical Characteristics Adapter is run, the corresponding Technical Characteristic record is updated by removing the value from the Value field.</p>
<p>Assign a new classification to an Equipment or Functional Location, and specify values for the characteristics belonging to that class.</p>	<p>The next time the Technical Characteristics Adapter is run, Technical Characteristic records representing the new characteristic values are created and linked to the corresponding Equipment or Functional Location record.</p>
<p>Remove the assignment of a classification from an Equipment or Functional Location record.</p>	<p>The next time the Technical Characteristics Adapter is run or you refresh the GE Digital APM system to reflect current SAP characteristics, the corresponding Technical Characteristic record is deleted.</p>
<p>Delete a characteristic from a classification.</p>	<p>The next time the Technical Characteristics Adapter is run, the corresponding Technical Characteristic record is deleted.</p>

About the Work Management Adapter

 **Note:** You can run the Work Management Adapter only if the SAP Work Management license is active.

The Work Management Adapter facilitates integration with the SAP planning and scheduling modules for condition assessment activities. The adapter allows you to manage scheduled work in SAP and GE Digital APM.

About Task Records

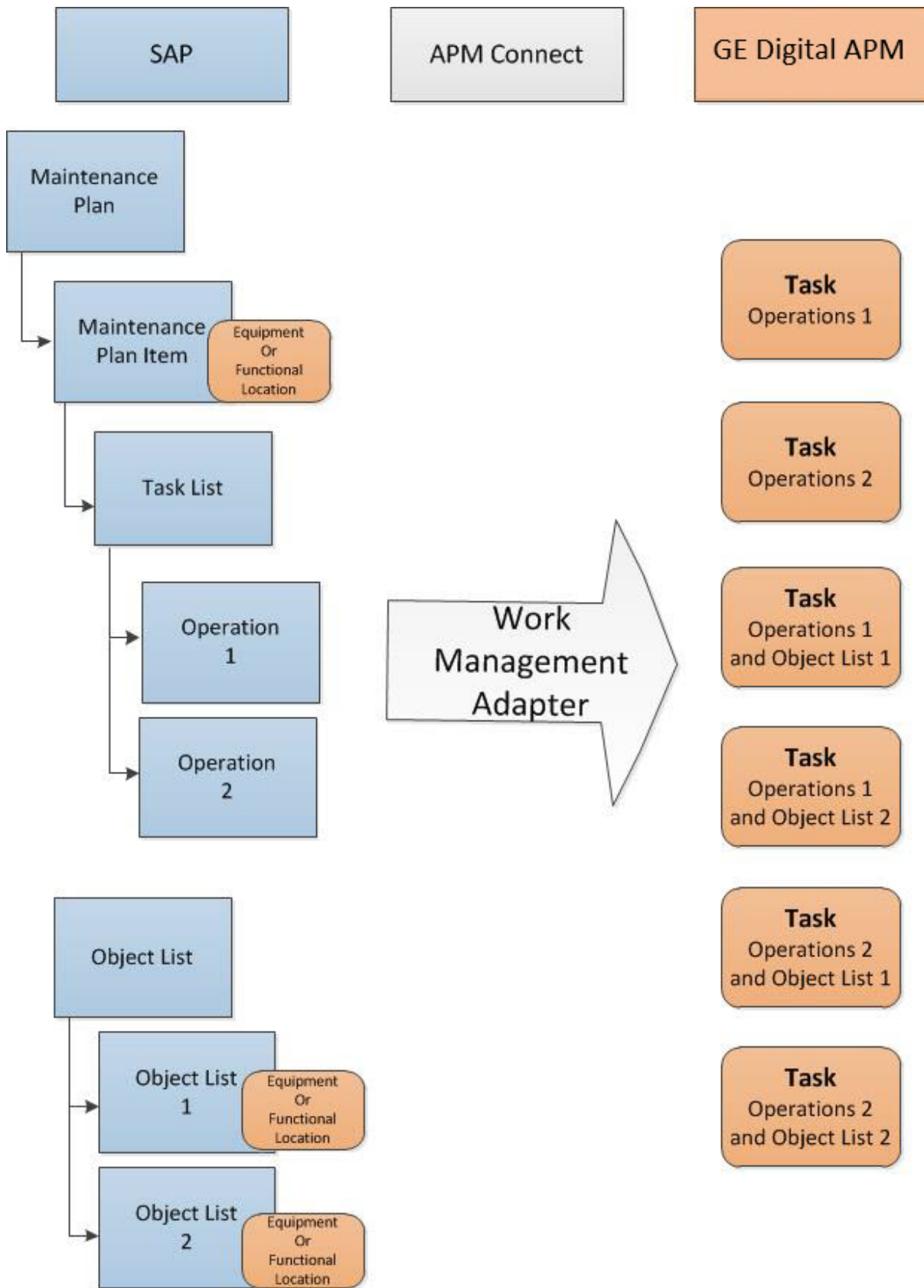
If an SAP Maintenance Plan has a Task List that has Operations and Object Lists that meet the criteria defined in the context file, when you run the Work Management Adapter in the APM Connect Administration Center, one or more Task records will be created in GE Digital APM. The corresponding Task record will be created based on the configuration defined in the context file.

If you modify a Maintenance Plan and then run the Work Management Adapter again, the corresponding Task record will be updated automatically in GE Digital APM. Likewise, if you add an Order to the Maintenance Plan, the corresponding Task record will also be updated automatically in GE Digital APM.

When you run the Work Management Adapter, it creates Tasks in GE Digital APM using the following items in SAP:

- Operations
- Object Lists

For example, suppose you have a Maintenance Plan with two Operations and two Object Lists. When you run the Work Management Adapter, six Tasks will be created and associated with the particular asset in GE Digital APM as show in the following image:



About Last and Next Date from SAP

When transferring Work Management data from SAP to GE Digital APM, the Desired Interval field is populated with a null value. The Next Date field will populate with the next execution date of the Task (GE Digital APM) or Operation (SAP) when it is transferred to GE Digital APM.

Note: Last Date and Next Date values are calculated in SAP, not in GE Digital APM.

The following chart includes the possibilities for the Last Date and Next Date fields upon transferring data from SAP to GE Digital APM Task records:

Workflow Step	Step Narrative	Last Date Field	Next Date Field
The Plan is created, but not scheduled, and the Work Management Job is run.	The Tasks of a Plan are created in GE Digital APM when the Work Management Job is run.	Null	Null
The Plan is scheduled, but not called, and the Work Management Job is run.	The Plan is scheduled. The Task created previously is updated in GE Digital APM.	Null	If the Plan is <i>On Hold</i> , the field will contain the next execution date. Otherwise, the field is Null.
The Plan is called for the first time, and the Work Management Job is run.	The Task previously created will be updated with information from the Work Order from SAP.	Null	The next date that the task is scheduled to run.
The Task is executed in GE Digital APM.	An Inspection Event is linked to the Task. The Inspection Hours field is set, and the Inspection is closed. A Confirmation record is created.	Date is set to Date of Confirmation.	The next date that the task is scheduled to run.

SAP Maintenance Plans Supported

The Work Management Adapter creates GE Digital APM Inspection or Calibration Tasks

from SAP Operations on the Task List from the following plan types:

- Single Cycle: Time-Based
- Single Cycle: Performance-Based
- Strategy Plan: Time-Based
- Strategy Plan: Performance-Based
- Multiple Counter Plan

About Discontinued Task Records


If a Task record was created from SAP data and you modify the SAP data in a way that causes that Task record to become obsolete, you can run the Work Management Job to resolve the differences.


When you run the adapter, the Tasks in APM are validated against the Operations in SAP. The adapter will search for Task records in GE Digital APM and Operations in SAP to determine associations based on the following values: Equipment or Functional Location, Maintenance Plan, Maintenance Plan Item, Task List, and Operation. If a Task record in GE Digital APM is found in SAP, it is determined to be valid. If the Task record in GE Digital APM is not found in SAP, it will be discontinued. The adapter updates the Task record in GE Digital APM as follows:

- The Task ID for the record will be set to ****DISCONTINUED****.
- The value in the Reason field will be prepended with the following:
<Date> - <User ID> - <Previous Task ID> was discontinued due to changes in SAP. The previous Task ID was <Previous Task ID>.

Where <Date> is the UTC date and time on which the Task ID was set to ****DISCONTINUED**** and <User ID> is the user name of the user updating the record.

For example, suppose a Calibration Task record was created from an Operation with the control key ZMI2. If you later change the control key and run the report, the Calibration Task record will be discontinued.

 **Note:** When a Task ID in a Task record has been set to ****DISCONTINUED****, if you run Work Management Adapter again and the data is still not valid, the Task record will be skipped. In other words, its Reason field will not contain more than one instance of the text ****DISCONTINUED****.

 **Note:** If you modify the SAP data so that it corresponds to the existing discontinued Task record, running the adapter will reactivate the discontinued Task record.

About Call Horizon

When the scheduled item that GE Digital APM delivers for the purpose of creating SAP Orders is executed, the GE Digital APM system performs a calculation on the Next Date and Call Horizon values in all Task records. The calculated result is passed into the query Get Tasks for Work Order Generation. If the result meets the criteria defined for the query column ([Task].[Next Date] - [Task].[Call Horizon]), the Task record meets the remaining criteria defined in the query, and the Task does not already contain a value in the Work Order Number field, an Order will be created from the Task record.

Using the baseline query, an SAP Order will be created if the Task record meets all query criteria (i.e., the Maintenance Plan field does not contain a value) and the calculated result meets the following criteria:

Task Next Date - Task Call Horizon = A date between the Last Executed Date and the Next Execution Date of the scheduled item.

Example

Suppose the scheduled item contains the following values:

Last Executed Date	Next Execution Date
July 1, 2008 1:00:00 A.M.	July 2, 2008 1:00:00 A.M.

Based on these values, an SAP Maintenance Order will be created automatically if the Next Date of the Task record minus its Call Horizon is between July 1, 12:00:00 A.M. and July 2, 12:00:00 A.M.

Suppose a Task record contains the following values:


Next Date	Call Horizon
July 11, 2008 3:00:00 A.M.	10

Using these Task record values, if you subtract the Call Horizon, 10 days, from the Next Date, July 11, 2008 3:00:00 A.M., the result is July 1, 2008 3:00:00 A.M.

Because July 1, 2008 3:00:00 A.M. falls between the Last Executed Date of July 1, 2008 1:00:00 A.M. and July 2, 2008 1:00:00 A.M., the Task record will be used to generate an Order (assuming that the Task record meets the remaining query criteria).

In other words:

July 11, 2008 3:00:00 A.M. (Task Next Date) - 10 (Call Horizon) = July 1, 2008 3:00:00 A.M.
(A date between the Last Executed Date and the Next Execution Date of the scheduled item)

 **Note:** If the scheduled item is being executed for the first time, GE Digital APM assumes a Last Executed Date of 1/1/1900. Also, if the Call Horizon field does not contain a value, the value is treated as zero (0).

About Filter Parameters

Filter parameters determine what data will be transferred from the EAM source systems to GE Digital APM, and are applied to the extraction job in the context file. There are two types of filter parameters: configuration parameters and adapter filter parameters. Each adapter has specific filters that apply only to that adapter. Additionally, there are some filter parameters that are common to all of the SAP adapters. When an adapter job executes, it will apply all common filters and those unique to the specific adapter job. This topic provides an overview of the adapter filter parameters for the following adapters:

- Equipment
- Functional Location
- Work History
- Technical Characteristics
- Work Management

Scope of the Filter Parameters

By entering a value into the parameter, you limit the scope of the extraction to the values in the parameter. If no value is entered into a parameter, all data for that parameter will be transferred from the EAM system source into GE Digital APM.

Additionally, changes made in the context file will change the scope of all jobs connected to that context file. For example, if you changed the FLOC_CLASS value in the context file, all Functional Location jobs in the APM Connect Administration Center, associated with that context file, will change accordingly. However, you can use [more than one context file for multiple SAP systems](#).

How Times and Dates are Used

There are certain conditions that apply to some of the [common filter parameters](#), as shown in the following table:

Condition	Expect Result	Notes
If the start date parameter is empty	The start date defaults to 1/1/1900.	None
If the end date parameter is empty	The end date defaults to the current date.	None

If the start time parameter is empty	The start time defaults to 00:00:00.	This only applies to the Work History Adapter , and only if the start and end dates are the same.
If the end time parameter is empty	The end time defaults to the current time.	This only applies to the Work History Adapter .
If a date range is not entered	The Job defaults to the date of the last successful run.	None
If it is the very first execution and no dates are specified	Records for all dates will be extracted.	None

Using Multiple Values

⚠ IMPORTANT: If you are using multiple values, you should not exceed 500 values.

Multiple values can be entered into the parameters using comma separated values. For example, if you wanted to extract data from Equipment Classes M, S, and A, the equipment class parameter would look like the following: `<EQUIPMENT_CLASS> M,S,A </EQUIPMENT_CLASS>`. Comma separated values can be used with the following parameters:

- Plants
- Equipment numbers
- Equipment categories
- Equipment classes
- Equipment Types
- Functional Location Numbers
- Functional Location Categories
- Function Location Classes
- Function Location Types
- Order System Status
- Order user statuses
- Notification system statuses
- Notification user statuses

Overview of APM Connect

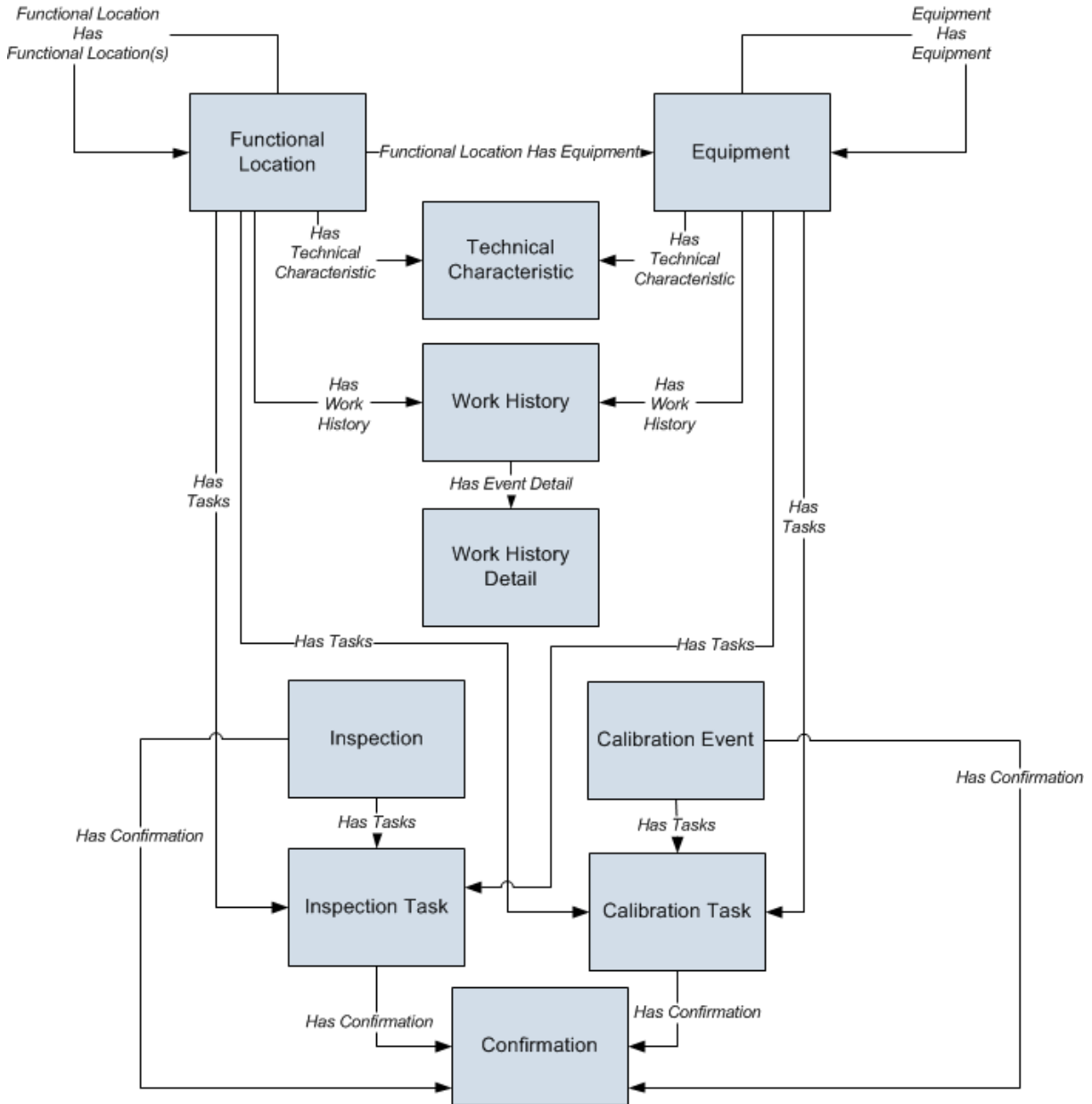
- Notification Numbers
- Notification type
- Work Order type
- Work Order numbers
- Maintenance Plans

Reference Information: SAP Adapters

This topic provides a listing of all detailed reference information provided for the SAP Adapters, such as command syntax, specifications, and table/field descriptions.

SAP Adapter Data Model

The following diagram shows how families used by the APM Connect SAP Adapters are related to one another:




Note: In the diagram, boxes represent entity families and arrows represent relationship families that are configured in the baseline database. You can determine the direction of the each relationship definition from the direction of the arrowhead: the box from which the arrow originates is the predecessor, and the box to which the arrow head points is the successor.

Like all GE Digital APM modules, the GE Digital APM SAP Adapters feature consists of entity families, relationship families, and business rules. When attempting to understand and make use of the SAP Adapters functionality, it can be helpful to visualize the SAP Adapters data model.

Because you should already be familiar with the concept of records and viewing records in the GE Digital APM Record Manager, as you attempt to get your bearings in the SAP Adapters feature, it may be useful to remember that the SAP Adapters feature simply lets you create, view, and manage records.

Each adapter is responsible for creating or updating one or more records that are displayed in the image. For example, when you run the Equipment Extraction Interface, Equipment records are created or updated.

 **Note:** Although, the data model image does not show the relationship, Equipment and Functional Location records are also linked to Site Reference records.

Family Field Descriptions

This topic provides a list of all detailed reference information provided for Family Field Descriptions, such as command syntax, specifications, and table/field descriptions.

CMMS Characteristic

CMMS Characteristic records are used by the SAP Adapters to facilitate data extracts and loads to and from SAP.

This topic provides an alphabetical list and description of the fields that exist for the CMMS Characteristic. The information in the table reflects the baseline state and behavior of these fields.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site, and will then only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. See the Site Filtering section of the documentation for more information on using this feature.

Field	Data Type	Description	Behavior and Usage
Characteristic Description	Character	The description of the characteristic (as it is defined in the SAP system).	This field is disabled.
Characteristic Name	Character	The ID of the characteristic (as it is defined in the SAP system).	On the datasheet, the value in this field is formatted as a hyperlink, which you can select to open the CMMS Characteristic by itself, outside of the context of its master CMMS Classification record. This field is disabled.
Class Group	Character	The SAP class group to which this characteristic belongs.	The value in this field is set automatically, and this field is disabled.
Classification	Character	The classification to which this characteristic belongs.	On the datasheet, the value in this field is formatted as a hyperlink, which you can select to open the CMMS Classification record representing the classification to which this characteristic belongs. This field is disabled.

<p>CMMS System ID</p>	<p>Character</p>	<p>The ID of the SAP System from which this characteristic will be extracted.</p>	<p>This field is populated automatically and used internally by the GE Digital APM system. This field is not available on the baseline datasheets.</p>
<p>Extract From CMMS System</p>	<p>Boolean</p>	<p>A value that identifies whether or not this characteristic will be extracted.</p>	<p>On the datasheet, you can select this check box if you want to extract this characteristic.</p>

CMMS Classification

CMMS Classification records are available on the baseline Classification Type Classifications master-detail datasheet, the table explains how these fields behave when you are viewing CMMS Classification records in the context of this master-detail record.

This topic provides an alphabetical list and description of the fields that exist for the CMMS Classification family. The information in the table reflects the baseline state and behavior of these fields.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site, and will then only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. See the Site Filtering section of the documentation for more information on using this feature.

Field	Data Type	Description	Behavior and Usage
Class Group	Character	The SAP class group to which this classification belongs.	The value in this field is set automatically, and this field is disabled.
Classification	Character	The ID of the classification (as it is defined in the SAP system).	On the datasheet, the value in this field is formatted as a hyperlink, which you can select to see all of the characteristics that belong to this classification. This field is disabled.
Classification Description	Character	The description of the classification (as it is defined in the SAP system).	This field is disabled.
CMMS System ID	Character	The value in the System ID field in the EAM System record whose Name field contains the value that is stored in the CMMS System field in this record.	This field is populated automatically and used internally by the GE Digital APM system. This field is not available on the baseline datasheets.

<p>Extract From CMMS System</p>	<p>Boolean</p>	<p>A value that identifies whether or not characteristics for this classification will be extracted from the SAP system.</p>	<p>On the datasheet, you can select this check box if you want to extract characteristics belonging to this classification.</p>
<p>Internal Classification Number</p>	<p>Character</p>	<p>This value is used internally by the GE Digital APM system.</p>	<p>The value in this field is set automatically, and this field is disabled.</p>

CMMS Classification Type Records

CMMS Classification Type records are used by the SAP Adapters to facilitate data extracts and loads to and from SAP.

This topic provides an alphabetical list and description of the fields that exist for the CMMS Classification Type family. The information in the table reflects the baseline state and behavior of these fields.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site, and will then only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. See the Site Filtering section of the documentation for more information on using this feature.

Field	Data Type	Description	Behavior and Usage
Classification Type	Character	The item whose characteristics will be extracted.	You can select either <i>Equipment</i> or <i>Functional Location</i> . This field is required.
Classification Type Code	Character	A code assigned to the item whose characteristics will be extracted.	This field is populated based on the selection of the Classification Type field. This value is used internally by the GE Digital APM system.
CMMS System	Numeric	The SAP system from which characteristics will be extracted.	The field is read-only and populated with the value in the Name field in the EAM System record whose Default EAM System field contains the value <i>True</i> .
CMMS System ID	Character	The value in the System ID field in the EAM System record whose Name field contains the value that you selected in CMMS System list in this CMMS Classification Type record.	This field is populated automatically and used internally by the GE Digital APM system. This field does not appear on the baseline datasheets.

EAM System

EAM System records are used to store information about your SAP or SAP PI Systems to facilitate data extracts and loads to and from SAP or SAP PI.

When you transfer data from GE Digital APM to your EAM system during any of the following workflows, the GE Digital APM system uses EAM System records to determine which EAM system to use:

- [Creating or updating SAP Notifications from GE Digital APM Recommendation records.](#)
- [Creating or updating SAP Confirmations from GE Digital APM Confirmation records.](#)
- [Creating SAP Orders from GE Digital APM Task records.](#)

In addition, EAM System records are used by the Equipment Characteristics Extraction Adapter and the Functional Location Characteristics Extraction Adapter in both of the following workflows:


- When you create CMMS Classification Type records, EAM System records are used to determine which EAM system information to use to populate the CMMS System ID field.
- When you refresh the GE Digital APM system to reflect the current SAP classifications and characteristics, EAM System records are used to determine the EAM system in which to look for the current classifications and characteristics.

This topic provides an alphabetical list and description of the fields that exist for the EAM System family. The information in the table reflects the baseline state and behavior of these fields.

This family is not enabled for site filtering, which means that records in this family can be accessed by any user with the appropriate license and family privileges. See the Site Filtering section of the documentation for more information.

SAP Field Descriptions

Field	Data Type	Description	Behavior and Usage
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<p>Connection String</p>	<p>Character</p>	<p>The connection information for the SAP system.</p>	<p>In new EAM System records, you will need to delete all angle brackets and:</p> <ul style="list-style-type: none"> • Replace the text <code>SAP_SERVER_IP</code> with the IP address of the SAP Server. • Replace the text <code>SAP_SYSTEM_NUMBER</code> with the SAP System number. • Replace the text <code>SAP_CLIENT_NUMBER</code> with the SAP Client number.
<p>Connection Type</p>	<p>Character</p>	<p>The type of connection that will be used to connect to the EAM system.</p>	<p>This field is available on the <i>SAP System for RCMO</i> datasheet, and is not enabled by default.</p> <p>The default and recommended value is <i>RFC</i>. This connection type uses a REST web service call as an intermediary between SAP and GE Digital APM, thereby avoiding RFC calls directly between GE Digital APM and your SAP server.</p> <div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: If necessary, you can change the connection type to <i>RFC Direct</i>. Changing this value will bypass APM Connect and use a direct RFC connection when connecting your GE Digital APM system and your SAP system.</p> <p>To change this value, you must first enable editing on the datasheet.</p> </div>

Default EAM System?	Boolean	A value that indicates whether this EAM system should be used by default when transferring data between your GE Digital APM system and your SAP system.	On the datasheet, you can select the check box to identify this SAP system as the Default EAM System.
Password	Character	The password to the SAP system.	The password that you enter will be encrypted and displayed as asterisks on the datasheet.
ITS URL	Character	The URL to the ITS Server.	In new EAM System records, you will need to delete the angle brackets and replace the text its_or_integrated_its_server_url with the appropriate URL. Entering this value is optional.
Name	Character	The name of the SAP system.	You can enter any name, but we recommend that you use the format <SYSID>-<CLIENT>, where <SYSID> is the System ID of the SAP system and <CLIENT> is the Client number. By doing so, the value in the Name field will match the value that will be populated automatically in the System ID field.

System ID	Character	The ID of the SAP system.	<p>This field is populated automatically after you test the connection to the SAP system using the Test Connection link on the Associated Pages menu.</p> <p>Specifically, the System ID field is populated automatically with the name of the SAP system, using the format <SYSID>-<CLIENT>, where <SYSID> is the System ID of the SAP system and <CLIENT> is the Client number.</p>
System Type	Character	EAM system type.	SAP
User ID	Character	The User ID of a user that can log in to the SAP system.	None.

SAP PI Fields

Field	Data Type	Description	Behavior and Usage
Password	Character	The password to the SAP PI system.	The password that you enter will be encrypted and displayed as asterisks on the datasheet.
SAP PI AAE	Boolean	If you are using SAP 7.3 or above, you may use the Advanced Adapter Engine (AAE). This parameter allows this functionality to be used during extraction.	<p>You must enter one of the following values:</p> <ul style="list-style-type: none"> • true: If you are using AAE. • false: If you are not using AAE. This is the default.

SAP PI Host	Character	The SAP PI server host.	Enter your unique value.
SAP PI Port	Character	The SAP PI server port.	Enter your unique value.
SAP PI Receiver Party	Character	The receiver determined in the communication channel section in SAP.	This field is optional. Enter your unique value.
SAP PI Receiver Service	Character	The receiver service determined in the communication channel section in SAP.	This field is optional. Enter your unique value.
SAP PI Sender Party	Character	The receiver sender determined in the communication channel section in SAP.	This field is optional. Enter your unique value.
SAP PI Sender Service	Character	The sender service determined in the communication channel in SAP.	The default value is GE_APMConnect.
System Type	Character	EAM system type.	SAP_PI
User ID	Character	The User ID of a user that can log in to the SAP PI system.	None.

Technical Characteristic

Technical Characteristics records are used to store information about your SAP Technical Characteristics to facilitate data extracts and loads to and from SAP.

This topic provides an alphabetical list and description of the fields that exist for the Technical Characteristic family and appear on the baseline EAM System datasheet. The information in the table reflects the baseline state and behavior of these fields.

This family is enabled for site filtering, which means that records in this family can be assigned to a specific site, and will then only be accessible to users who are assigned to the same site and have the appropriate license and family privileges. See the Site Filtering section of the documentation for more information on using this feature.

Field	Data Type	Description	Behavior and Usage
Name	Character	The name of the characteristic.	None
Value	Character	The value assigned to the characteristic.	If multiple values are assigned to a characteristic in SAP, all of those values will be displayed in the Value field, separated by commas.

SAP Transactions-Quick Reference

The following table provides a list of SAP transactions and their functions:

This transaction:	...Lets you:
/n/MIAPM/MIPRO	View a list of GE Digital APM-specific steps that can be performed in SAP.
/n/MIAPM/MANAGE_PARAMS	Access and manage the /MIAPM/PARAMS table.
/n/MIAPM/MANAGE_TSKCNF	Access the /MIAPM/TASK_CNF table.
SM37	Check the status of a background process.
IW43	Validate SAP Confirmations against that data in GE Digital APM Confirmation records.



SAP Adapter Mappings

This topic provides a listing of all SAP Adapter Mapping topics.

SAP Equipment Mappings

The following table explains the SAP fields that are used to populate the baseline Equipment fields when you extract SAP Equipments to create Equipment records in GE Digital APM:

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table	SAP Field ID	SAP Field Caption
MI_EQUIP000	MI_EQUIP000_CAT_PROF_C	Catalog Profile	EQUZ	RBNR	Catalog Profile
MI_EQUIP000	MI_EQUIP000_CAT_PROF_DESC_C	Catalog Profile Description	T352B_T	RBNRX	Catalog Profile Description
MI_EQUIP000	MI_EQUIP000_SAP_CATEG_C	Category	EQUI	EQTYP	SAP Category
MI_EQUIP000	MI_EQUIP000_SAP_CATEG_DESC_C	Category Description	T370U	TYPTX	SAP Category Description


<p>MI_EQUIP000</p> <div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: The time zone used for the value in the CMMS Creation Date field is the same as the SAP server time zone.</p> </div>	<p>MI_EQUIP000_CREATE_DATE_D</p>	<p>CMMS Creation Date</p>	<p>EQUI</p>	<p>ERDAT</p>	<p>SAP Creation Date</p>
<p>MI_EQUIP000</p> <div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: The time zone used for the value in the CMMS Last Changed Date field is the same as the SAP server time zone.</p> </div>	<p>MI_EQUIP000_CHANGE_DATE_D</p>	<p>CMMS Last Changed Date</p>	<p>EQUI</p>	<p>AEDAT</p>	<p>SAP Last Changed Date</p>
<p>MI_EQUIP000</p>	<p>MI_EQUIP000_SAP_SYSTEM_C</p>	<p>CMMS System</p>	<p><SY-SID> + <SY-MANDT></p>	<p>Name of SAP R/3 System - R/3 System, client number from logon</p>	

MI_EQUIP000	MI_EQUIP000_CONSTN_TYP_C	Construction Type	EQUZ	SUBMT	Construction Type
MI_EQUIP000	MI_EQUIP000_CONSTN_TYP_DESC_C	Construction Type Description	MAKT	MAKTX	Construction Type Description
MI_EQUIP000	MI_EQUIP000_CRITI_IND_C	Criticality Indicator	ILOA	ABCKZ	Criticality Indicator
MI_EQUIP000	MI_EQUIP000_CRITI_IND_DESC_C	Criticality Indicator Description	T370C_T	ABCTX	Criticality Indicator Description
MI_EQUIP000	MI_EQUIP000_EAM_REF_CREATE_DT_C	EAM Reference Creation Date	EQUI	ERDAT	SAP Creation Date
MI_EQUIP000	MI_EQUIP000_EAM_REF_CHANGE_DT_C	EAM Reference Last Changed Date	EQUI	AEDAT	SAP Last Changed Date
MI_EQUIP000	MI_EQUIP000_EAM_REF_PRCH_DT_C	EAM Reference Purchase Date	EQUI	ANSDT	Purchase Date
MI_EQUIP000	MI_EQUIP000_EAM_REF_VLD_FRM_DT_C	EAM Reference Valid From Date	EQUZ	DATAB	Valid From Date


MI_EQUIP000	MI_EQUIP000_EAM_REF_WRNTY_EXPR_DT_C	EAM Reference Warranty Expiration Date	BGMKOBJ	GWLEN	Warranty Expiration Date
MI_EQUIP000	MI_EQUIP000_EQUIP_ID_C	Equipment ID	EQUI	EQUNR	Equipment ID
MI_EQUIP000	MI_EQUIP000_EQUIP_LNG_DESC_T	Equipment Long Description	EQUI	Retrieved using FM READ_TEXT with ID=LTXT, OBJECT-T=EQUI	Equipment Long Description
MI_EQUIP000	MI_EQUIP000_SN_C	Equipment Serial Number	EQUI	SERGE	Serial Number
MI_EQUIP000	MI_EQUIP000_EQUIP_SHRT_DESC_C	Equipment Short Description	EQKT	EQKTX	Equipment Short Description
MI_EQUIP000	MI_EQUIP000_EQUIP_TECH_NBR_C	Equipment Technical Number	EQUZ	TIDNR	Equipment Technical Number
MI_EQUIP000	MI_EQUIP000_EQUIP_VNDR_C	Equipment Vendor	EQUI	ELIEF	Equipment Vendor
MI_EQUIP000	MI_EQUIP000_FNC_LOC_C	Functional Location	ILOA	TPLNR	Functional Location


MI_EQUIP000	MI_EQUIP000_FNC_LOC_DESC_C	Functional Location Description	IFLOTX	PLTXT	Functional Location Description
MI_EQUIP000	MI_EQUIP000_INV_NO_C	Inventory Number	EQUI	INVNR	Inventory Number
MI_EQUIP000	MI_EQUIP000_MAIN_WRK_CNR_C	Main Work Center	CRHD	ARBPL	Main Work Center
MI_EQUIP000	MI_EQUIP000_MAIN_WRK_CN_DESC_C	Main Work Center Description	CRTX	KTEXT	Main Work Center Description
MI_EQUIP000	MI_EQUIP000_MAINT_PLANT_C	Maintenance Plant	ILOA	SWERK	Maintenance Plant
MI_EQUIP000	MI_EQUIP000_MAINT_PLANT_DESC_C	Maintenance Plant Description	T001W	NAME1	Maintenance Plant Description
MI_EQUIP000	MI_EQUIP000_MFR_C	Manufacturer	EQUI	HERST	Manufacturer
MI_EQUIP000	MI_EQUIP000_MOD_NO_C	Model Number	EQUI	TYPBZ	Model Number
MI_EQUIP000	MI_EQUIP000_OBJ_TYP_C	Object Type	EQUI	EQART	Object Type
MI_EQUIP000	MI_EQUIP000_OBJ_TYP_DESC_C	Object Type Description	T370K_T	EARTX	Object Type Description

MI_EQUIP000	MI_EQUIP000_PRT_NO_C	Part Number	EQUZ	MAPAR	Part Number
MI_EQUIP000	MI_EQUIP000_PLANT_SECT_DESC_C	Person Responsible for Plant Section	T357	FING	Plant Section Description
MI_EQUIP000	MI_EQUIP000_PLANG_GRP_C	Planner Group	EQUZ	INGRP	Planner Group
MI_EQUIP000	MI_EQUIP000_PLANG_GRP_DESC_C	Planner Group Description	T024I	INNAM	Planner Group Description
MI_EQUIP000	MI_EQUIP000_PLNNG_PLNT_C	Planning Plant	EQUZ	IWERK	Planning Plant
MI_EQUIP000	MI_EQUIP000_PLNNG_PLNT_DESC_C	Planning Plant Description	T001W	NAME1	Planning Plant Description
MI_EQUIP000	MI_EQUIP000_PLANT_SECTION_C	Plant Section	ILOA	BEBER	Plant Section

MI_EQUIP000					
<div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;">  Note: The time zone used for the value in the Purchase Date field is the same as the time zone of the user who created the Equipment. </div>	MI_EQUIP000_PRCH_D	Purchase Date	EQUI	ANSDT	Purchase Date
MI_EQUIP000	MI_EQUIP000_PO_NO_C	Purchase Order Number	EQBS	KDAUF	Purchase Order Number
MI_EQUIP000	MI_EQUIP000_SAP_CLASS_C	SAP Class	KLAH	CLASS	SAP Class
MI_EQUIP000	MI_EQUIP000_SAP_CLASS_DESC_C	SAP Class Description	SWOR	KSCHL	SAP Class Description
MI_EQUIP000	MI_EQUIP000_SZ_C	Size/Dimension	EQUI	GROES	Size/Dimension
MI_EQUIP000	MI_EQUIP000_SORT_FIELD_C	Sort Field	ILOA	EQFNR	Sort Field
MI_EQUIP000	MI_EQUIP000_SYS_ST_C	System Status	TJ02T	TXT04	System Status

MI_EQUIP000	MI_EQUIP000_TECH_DRW_NO_C	Technical Drawing Number	EQUI	HZEIN	Technical Drawing Number
MI_EQUIP000	MI_EQUIP000_VLD_FRM_DAT_D	Valid From Date	EQUZ	DATAB	Valid From Date

 **Note:**
The time zone used for the value in the Valid From Date field is the same as the time zone of the user who created the Equipment


<p>MI_EQUIP000</p> <div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p> Note: The time zone used for the value in the Warranty Expiration Date field is the same as the time zone of the user who created the Equipment.</p> </div>	<p>MI_EQUIP000_WRNTY_EXPR_D</p>	<p>Warranty Expiration Date</p>	<p>BGMKOBJ</p>	<p>GWLEN</p>	<p>Date on which the warranty ends</p>
<p>MI_EQUIP000</p>	<p>MI_EQUIP000_WBS_ELMNT_C</p>	<p>WBS Element</p>	<p>ILOA</p>	<p>POST1</p>	<p>WBS Element</p>
<p>MI_EQUIP000</p>	<p>MI_EQUIP000_YR_CONSTRD_N</p>	<p>Year Constructed</p>	<p>EQUI</p>	<p>BAUJJ</p>	<p>Year Constructed</p>

SAP Functional Location Mappings

The following table explains the SAP fields that are used to populate the baseline Functional Location fields when you extract SAP Functional Locations to create Functional Location records in GE Digital APM:

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table	SAP Field	SAP Field Caption
MI_FNCLOC00	MI_FNCLOC00_BUS_AREA_C	Business Area	ILOA	GSBER	Business Area
MI_FNCLOC00	MI_FNCLOC00_BUS_AREA_D_C	Business Area Description	TGSBT	GTEXT	Business Area Description
MI_FNCLOC00	MI_FNCLOC00_CAT_PROF_C	Catalog Profile	IFLOT	RBNR	Catalog Profile
MI_FNCLOC00	MI_FNCLOC00_CAT_PROF_D_C	Catalog Profile Description	T352B_T	RBNRX	Catalog Profile Description
MI_FNCLOC00	MI_FNCLOC00_CATEG_C	Category	IFLOT	FLTYP	Category
MI_FNCLOC00	MI_FNCLOC00_CATEG_D_C	Category Description	T370F_T	TYPTX	Category Description
MI_FNCLOC00	MI_FNCLOC00_CREATE_DATE_D	CMMS Creation Date	IFLOT	ERDAT	SAP Creation Date

Note: The time zone used for the value in the CMMS Creation Date field is the same as the SAP server time zone.

MI_FNCLOC00					
<div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;">  Note: The time zone used for the value in the CMMS Last Changed Date field is the same as the SAP server time zone. </div>	MI_FNCLOC00_CHANGE_DATE_D	CMMS Last Changed Date	IFLOT	AEDAT	SAP Last Changed Date
MI_FNCLOC00	MI_FNCLOC00_CO_AREA_C	CO Area	ILOA	KOKRS	Controlling Area
MI_FNCLOC00	MI_FNCLOC00_CO_AREA_D_C	CO Area Description	TKA01	BEZEI	Controlling Area Description
MI_FNCLOC00	MI_FNCLOC00_CO_CD_C	Company Code	ILOA	BUKRS	Company Code
MI_FNCLOC00	MI_FNCLOC00_CO_CD_D_C	Company Code Description	T001	BUTXT	Company Code Description
MI_FNCLOC00	MI_FNCLOC00_CONST_TYP_C	Construction Type	IFLOT	SUBMT	Constr Type Material of Object
MI_FNCLOC00	MI_FNCLOC00_CONST_TYP_DESC_C	Construction Type Description	MAKT	MAKTX	Constr Type Material of Object Desc
MI_FNCLOC00	MI_FNCLOC00_CST_CNR_C	Cost Center	ILOA	KOSTL	Cost Center
MI_FNCLOC00	MI_FNCLOC00_CST_CNR_D_C	Cost Center Description	CSKT	KTEXT	Cost Center Description
MI_FNCLOC00	MI_FNCLOC00_CRTCAL_IND_C	Criticality Indicator	ILOA	ABCKZ	ABC Indicator

MI_FNCLOC00	MI_FNCLOC00_CRTCAL_IND_D_C	Criticality Indicator Description	T370C_T	ABCTX	ABC Indicator Description
MI_FNCLOC00	MI_FNCLOC00_EAM_REF_CREATE_DT_C	EAM Reference Creation Date	IFLOT	ERDAT	SAP Creation Date
MI_FNCLOC00	MI_FNCLOC00_EAM_REF_CREATE_DT_C	EAM Reference Last Changed Date	IFLOT	AEDAT	SAP Last Changed Date
MI_FNCLOC00	MI_FNCLOC00_FNC_LOC_C	Functional Location	IFLOT	Computed from TPLNR using FM CONVERSION_EXIT_TPLNR_OUTPUT	FunctLocation
MI_FNCLOC00	MI_FNCLOC00_FNC_LOC_DESC_C	Functional Location Description	IFLOTX	PLTXT	Description
MI_FNCLOC00	MI_FNCLOC00_INTERNAL_ID_C	Functional Location Internal ID	IFLOT	TPLNR	FunctLocation
MI_FNCLOC00	MI_FNCLOC00_FNC_LOC_LNG_DESC_C	Functional Location Long Description	IFLOT	Retrieved using FM READ_TEXT with ID=LTXT, OBJECT=IFLOT	Long Text
MI_FNCLOC00	MI_FNCLOC00_INSTLD_ALWBL_C	Installation Allowed	IFLOT	IEQUI	Installation Allowed
MI_FNCLOC00	MI_FNCLOC00_LOCAT_C	Location	ILOA	STORT	Location
MI_FNCLOC00	MI_FNCLOC00_LOCAT_DESC_C	Location Description	T499S	KTEXT	Location Description
MI_FNCLOC00	MI_FNCLOC00_MAINT_PLNT_C	Maintenance Plant	ILOA	SWERK	Maintenance Plant

MI_FNCLOC00	MI_FNCLOC00_MAINT_PLNT_D_C	Maintenance Plant Description	T001W	NAME1	Maintenance Plant Description
MI_FNCLOC00	MI_FNCLOC00_OBJ_TYP_C	Object Type	IFLO	EQART	Object Type
MI_FNCLOC00	MI_FNCLOC00_OBJ_TYP_DESC_C	Object Type Description	T370K_T	EARTX	Object Type Description
MI_FNCLOC00	MI_FNCLOC00_PLANNER_GROUP_C	Planner Group	IFLOT	INGRP	Planner Group
MI_FNCLOC00	MI_FNCLOC00_PLANNER_GRP_DESC_C	Planner Group Description	T024I	INNAM	Planner Group Description
MI_FNCLOC00	MI_FNCLOC00_PLNNG_PLNT_C	Planning Plant	IFLOT	IWERK	Planning Plant
MI_FNCLOC00	MI_FNCLOC00_PLNNG_PLNT_D_C	Planning Plant Description	T001W	NAME1	Planning Plant Description
MI_FNCLOC00	MI_FNCLOC00_PLNT_SECT_C	Plant Section	ILOA	BEBER	Plant Section
MI_FNCLOC00	MI_FNCLOC00_PLNT_SECT_D_C	Plant Section Description	T357	FING	Plant Section Description
MI_FNCLOC00	MI_FNCLOC00_ROOM_C	Room	ILOA	MSGRP	Room
MI_FNCLOC00	MI_FNCLOC00_SAP_CLASS_C	SAP Class	KLAH	CLASS	Class
MI_FNCLOC00	MI_FNCLOC00_SAP_CLASS_DESC_C	SAP Class Description	SWOR	KSCHL	Class Description
MI_FNCLOC00	MI_FNCLOC00_SORT_FLD_C	Sort Field	ILOA	EQFNR	Sort Field
MI_FNCLOC00	MI_FNCLOC00_STRUC_INDIC_C	Structure Indicator	IFLOT	TPLKZ	StrIndicator

MI_FNCLOC00	MI_FNCLOC00_SUPR_FNC_LOC_C	Superior Function Location	IFLOT	TPLMA	SupFunctLoc
MI_FNCLOC00	MI_FNCLOC00_SYS_STATUS_C	System Status	TJ02T	TXT04	System Status
MI_FNCLOC00	MI_FNCLOC00_WRK_CNTR_C	Work Center	CRHD	ARBPL	Work Center
MI_FNCLOC00	MI_FNCLOC00_WRK_CNTR_DESC_C	Work Center Description	CRTX	KTEXT	Work Center Description


SAP Work History Mappings



The following tables explain the SAP fields that are used to populate the baseline Work History fields when you extract Orders and Notifications from SAP. The tables are divided into sections, depending on the source of the Work History records. The Work History records can be created from:

- Orders with Notifications
- Orders without associated Notifications
- Notifications without associated Orders

Values Mapped to Records That Were Created from Orders with Notifications

GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table	SAP Field ID	SAP Field Caption
MI_EVWKHIST_ ORDR_PM_ ACT_C	Activity Type	VIAUFKST	ILART	Maintenance activity type


 **Note:** The value in the Activity Type field is associated with Order Preventive Maintenance.


<p>MI_EVWKHIST_ ORDR_PM_ ACT_DESC_C</p> <p> Note: The value in the Activity Type Description field is associated with Order Preventive Maintenance.</p>	<p>Activity Type Description</p>	<p>T353I_T</p>	<p>ILATX</p>	<p>Description of maintenance activity type</p>
<p>MI_EVWKHIST_ ACT_LABOR_ TIME_N</p> <p> Note: The value in the Actual Labor field is calculated as the sum of actual hours across all Operations that are associated with the Order (in the SAP user interface, this value is visible in the Actual work box in the Act. Data section of the Operation).</p>	<p>Actual Labor</p>	<p>AFVV</p>	<p>ISMNW</p>	<p>Actual work</p>



MI_EVWKHIST_ ASMBLY_C	Assembly	VIAUFKST	BAUTL	Assembly
MI_EVWKHIST_ ASMBLY_DESC_ C	Assembly Description	MAKT	MAKTX	Material description
MI_EVWKHIST_ ASST_TECH_ID_ C	Asset Tech ID	EQUZ	TIDNR	Technical identification number
MI_EVWKHIST_ BRKDN_IND_F	Breakdown Indicator	VIQMEL	MSAUS	Breakdown Indicator
MI_EVWKHIST_ SAP_SYSTEM_C	CMMS System	SY-SYSID + "-" + SY-MANDT	N/A	Name of SAP R/3 System - R/3 System, client number from logon
MI_EVWKHIST_ EAM_REF_ START_DT_C	EAM Reference Event Start Date	VIQMEL	QMDAT, MZEIT	Date/Time of Notification
MI_EVWKHIST_ EAM_REF_ MAINT_ COMPL_DT_C	EAM Reference Maintenance Completion Date	VIAUFKST	GETRI, GEUZI	Actual finish date/time
MI_EVWKHIST_ EAM_REF_ MAINT_START_ DT_C	EAM Reference Maintenance Start Date	VIAUFKST	GSTRI, GSUZI	Actual start date/time
MI_EVWKHIST_ EAM_REF_ MECH_AVAIL_ DT_C	EAM Reference Mechanically Available Date	VIQMEL	AUSBS, AUZTB	End of Malfunction (Date/Time)



MI_EVWKHIST_ EAM_REF_ MECH_UNAVL_ DT_C	EAM Reference Mechanically Unavailable Date	VIQMEL	AUSVN, AUZTV	Start of Mal- function (Date/Time)
MI_EVWKHIST_ EAM_REF_ ORDR_CRT_DT_ C	EAM Reference Order Creation Date	VIAUFKST	ERDAT, ERFZEIT	Created on Date/Time
MI_EVWKHIST_ EAM_REF_ ORDR_CHNG_ DT_C	EAM Reference Order Last Change Date	VIAUFKST	AEDAT, AEZEIT	Change date/- time for Order Master
MI_EVWKHIST_ EAM_REF_ RQST_CRT_DT_ C	EAM Reference Request Creation Date	VIQMEL	ERDAT, ERZEIT	Date/Time on which the record was created
MI_EVWKHIST_ EAM_REF_ ORDR_CHNG_ DT_C	EAM Reference Request Last Change Date	VIQMEL	AEDAT, AEZEIT	Date/Time of Last Change
MI_EVWKHIST_ EAM_REF_ SCHED_ COMPL_DT_C	EAM Reference Scheduled Com- pletion Date	VIAUFKST	GLTRS, GLUZS	Scheduled finish date/- time
MI_EVWKHIST_ EAM_REF_ SCHED_START_ DT_C	EAM Reference Scheduled Start Date	VIAUFKST	GSTRS, GSUZS	Scheduled start date/- time
MI_EVWKHIST_ EFFECT_CD_C	Effect Code	VIQMEL	AUSWK	Effect on Operation
MI_EVWKHIST_ EFFECT_DESC_C	Effect Description	T357A_T	AUSWKT	Text - Effect on Oper- ation



MI_EVWKHIST_ ASST_CTGRY_ DESC_C	Equipment Cat- egory Description	T370U	TYPTX	Equipment category description
MI_EVWKHIST_ ASST_CL_ DESC_C	Equipment Class Description	SWOR	KSCHL	Keywords
MI_EVENT_ ASST_ID_CHR	Equipment ID	VIAUFKST/OBJK	EQUNR	Equipment number
MI_EVENT_ ASST_DESC_ CHR	Equipment Short Description	EQKT	EQKTX	Description of technical object
MI_EVWKHIST_ ASST_TYP_ DESC_C	Equipment Type Description	T370K_T	EARTX	Text for Object Type



<p>MI_EVWKHIST_ EST_LABOR_ TIME_N</p> <div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p> Note: The value in the Estimated Labor field is calculated as the sum of planned hours across all Operations that are associated with the order (in the SAP Adapter, this value is visible in the Work box in the Internal section of the Operation.)</p> </div>	<p>Estimated Labor</p>	<p>AFVV</p>	<p>ARBEI</p>	<p>Work involved in the activity</p>
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<p>MI_EVWKHIST_ EVENT_DATE_ DESC_C</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p> Note: If the Notification is not assigned to a Work Order, the Event Date Description field is populated with the following static value: Order Actual Start Date. Otherwise, this field is populated with the following value: Notification Date.</p> </div>	<p>Event Date Description</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>
<p>MI_EVENT_ID</p>	<p>Event ID</p>	<p>VIQMEL, VIAUFKST</p>	<p>QMNUM, AUFNR (Com- bination of WH- QMNUM- AUFNR)</p>	<p>Notification Number - Order Num- ber</p>
<p>MI_EVENT_ LNG_DSC_TX</p>	<p>Event Long Description</p>	<p>QMEL, AUFK</p>	<p>LTXT, KOPF</p>	<p>Notification long text - work Order long text</p>
<p>MI_EVENT_ SHRT_DSC_ CHR</p>	<p>Event Short Description</p>	<p>VIQMEL</p>	<p>QMTXT</p>	<p>Short Text</p>



MI_EVENT_STRT_DT	Event Start Date	VIQMEL	QMDAT, MZEIT	Date/Time of Notification
<p> Note: The value in the Event Start Date field is the same as the time zone of the user who created the Notification.</p>				
MI_EVENT_TYP_CHR	Event Type	N/A	N/A	N/A
<p> Note: The value in the Event Type field is populated with the following static value: Work History.</p>				
MI_EVWKHIST_FAILR_MODE_CD_C	Failure Mode Code	VIQMEL	QMCOD	Coding
MI_EVWKHIST_FAILR_MODE_DESC_C	Failure Mode Description	QPCT	KURZTEXT	Short Text for Code
MI_EVENT_LOC_ID_CHR	Location ID	VIQMEL/OBJK	TPLNR	Functional Location
MI_EVENT_LOC_SHRT_DESC_CHR	Location Short Description	IFLOTX	PLTXT	Description of functional location

<p>MI_EVWKHIST_MAINT_COMPL_D</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p> Note: The value in the Maintenance Completion Date field is the same as the time zone of the user who created the Work Order.</p> </div>	<p>Maintenance Completion Date</p>	<p>VIAUFKST</p>	<p>GETRI, GEUZI</p>	<p>Actual finish date/time</p>
<p>MI_EVWKHIST_MAINT_CST_N</p>	<p>Maintenance Cost</p>	<p>PMCO</p>	<p>Σ(WRT00 - WRT16)</p>	<p>Sum of (Period value in ledger currency)</p>
<p>MI_EVWKHIST_MAINT_CST_UOM_C</p>	<p>Maintenance Cost UOM</p>	<p>PMCO</p>	<p>COCUR</p>	<p>Maintenance Cost UOM</p>
<p>MI_EVWKHIST_MAINT_START_D</p> <div style="border: 1px solid orange; padding: 5px; margin-top: 10px;"> <p> Note: The value in the Maintenance Start Date field is the same as the time zone of the user who created the Work Order.</p> </div>	<p>Maintenance Start Date</p>	<p>VIAUFKST</p>	<p>GSTRI, GSUZI</p>	<p>Actual start date/time</p>

MI_EVWKHIST_MECH_DWN_TIME_N	Mechanical Down Time	VIQMEL	AUSZT	Breakdown Duration
MI_EVWKHIST_MECH_AVAIL_D	Mechanically Available Date	VIQMEL	AUSBS, AUZTB	End of Mal-function (Date/Time)
<div style="border: 1px solid yellow; padding: 5px; margin-bottom: 10px;"> <p> Note: The value in the Mechanically Available Date field is the same as the time zone of the user who created the Notification.</p> </div>				
MI_EVWKHIST_MECH_UNAVL_D	Mechanically Unavailable Date	VIQMEL	AUSVN, AUZTV	Start of Mal-function (Date/Time)
<div style="border: 1px solid yellow; padding: 5px; margin-bottom: 10px;"> <p> Note: The value in the Mechanically Unavailable Date field is the same as the time zone of the user who created the Notification.</p> </div>				
MI_EVWKHIST_OBJECT_NUMBER_C	Object Number	VIAUFKST	AUFNR	Work Order Object number

MI_EVWKHIST_ ORDR_CALL_ NBR_C	Order Call Num-ber	VIAUFKST	ABNUM	Maintenance plan call number
MI_EVWKHIST_ ORDR_CRT_DT_ D	Order Creation Date	VIAUFKST	ERDAT, ERFZEIT	Created on Date/Time
<div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p> Note: The value in the Order Creation Date field is the same as the SAP server time zone.</p> </div>				
MI_EVWKHIST_ ORDR_DESC_C	Order Description	VIAUFKST	KTEXT	Short text
MI_EVWKHIST_ ORDR_ID_C	Order ID	VIAUFKST	AUFNR	Order Num-ber
MI_EVWKHIST_ ORDR_CHNG_ DT_D	Order Last Change Date	VIAUFKST	AEDAT, AEZEIT	Change date/-time for Order Master
<div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p> Note: The value in the Order Last Change Date field is the same as the SAP server time zone.</p> </div>				
MI_EVWKHIST_ ORDR_MAINT_ ITEM_C	Order Main-tenance Item	VIAUFKST	WAPOS	Maintenance item

MI_EVWKHIST_ ORDR_MAINT_ PLAN_C	Order Maintenance Plan	VIAUFKST	WARPL	Maintenance plan
MI_EVWKHIST_ ORDR_PRTY_C	Order Priority	VIAUFKST	PRIOK	Priority
MI_EVWKHIST_ ORDR_PRTY_ DESC_C	Order Priority Description	T356_T	PRIOKX	Priority Text
MI_EVWKHIST_ ORDR_SYS_ COND_C	Order System Condition	VIAUFKST	ANLZU	Overall condition of technical system
MI_EVWKHIST_ ORDR_SYS_ COND_DESC_C	Order System Condition Description	T357M_T	ANLZUX	Text on Operating Condition
MI_EVWKHIST_ ORDR_SYS_ STAT_C	Order System Status	TJ02T	TXT04	Individual status of an object (short form)
MI_EVWKHIST_ ORDR_TYP_CD_C	Order Type Code	VIAUFKST	AUART	Order Type
MI_EVWKHIST_ ORDR_TYP_ DESC_C	Order Type Description	T003P	TXT	Short Text
MI_EVWKHIST_ ORDR_USER_ STAT_C	Order User Status	TJ30T	TXT04	Individual status of an object (short form)

MI_EVWKHIST_ RQST_CRT_DT_ D	Request Creation Date	VIQMEL	ERDAT, ERZEIT	Date/Time on which the record was created
<div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: The value in the Request Creation Date field is the same as the SAP server time zone.</p> </div>				
MI_EVWKHIST_ RQST_DESC_C	Request Description	VIQMEL	QMTXT	Short Text
MI_EVWKHIST_ RQST_ID_C	Request ID	VIQMEL/OBJK	QMNUM/IHNUM	Notification Number
MI_EVWKHIST_ RQST_CHNG_ DT_D	Request Last Change Date	VIQMEL	AEDAT, AEZEIT	Date/Time of Last Change
<div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: The value in the Request Last Change Date field is the same as the SAP server time zone.</p> </div>				
MI_EVWKHIST_ RQST_PRTY_C	Request Priority	VIQMEL	PRIOK	Priority
MI_EVWKHIST_ RQST_PRTY_ DESC_C	Request Priority Description	T356_T	PRIOKX	Priority Text


MI_EVWKHIST_ RQST_SYS_ STAT_C	Request System Status	TJ02T	TXT04	Individual status of an object (short form)
MI_EVWKHIST_ RQST_TYP_CD_ C	Request Type Code	VIQMEL	QMART	Notification Type
MI_EVWKHIST_ RQST_TYP_ DESC_C	Request Type Description	TQ80_T	QMARTX	Notification Type Texts
MI_EVWKHIST_ RQST_USER_ STAT_C	Request User Status	TJ30T	TXT04	Individual status of an object (short form)
MI_EVENT_ ASST_CTGRY_ CHR	SAP Category	EQUI	EQTYP	Equipment category
MI_EVENT_ ASST_CL_CHR	SAP Class	KLAH	CLASS	Class Num- ber
MI_EVENT_ ASST_TYP_CHR	SAP Type	EQUI	EQART	Type of Tech- nical Object

<p>MI_EVWKHIST_SCHED_COMPL_D</p> <p>Note: The value in the Scheduled Completion Date field is the same as the time zone of the user who created the Work Order.</p>	<p>Scheduled Completion Date</p>	<p>VIAUFKST</p>	<p>GLTRS, GLUZS</p>	<p>Scheduled finish date/-time</p>
<p>MI_EVWKHIST_SCHED_START_D</p> <p>Note: The value in the Scheduled Start Date field is the same as the time zone of the user who created the Work Order.</p>	<p>Scheduled Start Date</p>	<p>VIAUFKST</p>	<p>GSTRS, GSUZS</p>	<p>Scheduled start date/-time</p>
<p>MI_EVWKHIST_SUB_OBJECT_NUM_C</p>	<p>Sub Object Number</p>	<p>VIAUFKST/OBJK</p>	<p>OBZAE</p>	<p>Object List Count</p>



Values Mapped to Records That Were Created Without Notifications

GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table	SAP Field ID	SAP Field Caption
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<p>MI_EVWKHIST_ ORDR_PM_ACT_C</p> <p>Note: The value in the Activity Type field is associated with Order Preventive Maintenance.</p>	<p>Activity Type</p>	<p>VIAUFGST</p>	<p>ILART</p>	<p>Maintenance activity type</p>
<p>MI_EVWKHIST_ ORDR_PM_ACT_ DESC_C</p> <p>Note: The value in the Activity Type Description field is associated with Order Preventive Maintenance.</p>	<p>Activity Type Description</p>	<p>T353I_T</p>	<p>ILATX</p>	<p>Description of maintenance activity type</p>


<p>MI_EVWKHIST_ACT_LABOR_TIME_N</p> <div style="border: 1px solid yellow; padding: 5px;"> <p> Note: The value in the Actual Labor field is calculated as the sum of actual hours across all Operations that are associated with the Order (in the SAP user interface, this value is visible in the Actual work box in the Act. Data section of the Operation).</p> </div>	Actual Labor	AFVV	ISMNW	Actual work
MI_EVWKHIST_ASMBLY_C	Assembly	VIAUFKST	BAUTL	Assembly
MI_EVWKHIST_ASMBLY_DESC_C	Assembly Description	MAKT	MAKTX	Material description
MI_EVWKHIST_ASST_TECH_ID_C	Asset Tech ID	EQUZ	TIDNR	Technical identification number
MI_EVWKHIST_SAP_SYSTEM_C	CMMS System	SY-SYSID + "-" + SY-MANDTSY	N/A	Name of SAP R/3 System - R/3 System, client number from logon
MI_EVWKHIST_EAM_REF_START_DT_C	EAM Reference Event Start Date	VIAUFKST/VIQMEL	GSTRI, GSUZI / QMDAT/MZEIT	Date, Time of Work Order / Notification



MI_EVWKHIST_ EAM_REF_MAINT_ START_DT_C	EAM Refer- ence Main- tenance Start Date	VIAUFGST	GSTRI, GSUZI	Actual start date/time
MI_EVWKHIST_ EAM_REF_ORDR_ CRT_DT_C	EAM Refer- ence Order Creation Date	VIAUFGST	ERDAT, ERFZEIT	Date/Time on which the record was created
MI_EVWKHIST_ EAM_REF_ORDR_ CHNG_DT_C	EAM Refer- ence Order Last Change Date	VIAUFGST	AEDAT, AEZEIT	Date/Time of Last Change
MI_EVWKHIST_ ASST_CTGRY_DESC_ C	Equipment Category Description	T370U	TYPTX	Equipment category description
MI_EVWKHIST_ ASST_CL_DESC_C	Equipment Class Description	SWOR	KSCHL	Keywords
MI_EVENT_ASST_ID_ CHR	Equipment ID	VIAUFGST/OBJK	EQUNR	Equipment number
MI_EVENT_ASST_ DESC_CHR	Equipment Short Description	EQKT	EQKTX	Description of technical object
MI_EVWKHIST_ ASST_TYP_DESC_C	Equipment Type Descrip- tion	T370K_T	EARTX	Text for Object Type



<p>MI_EVWKHIST_EST_LABOR_TIME_N</p> <p> Note: The value in the Estimated Labor field is calculated as the sum of planned hours across all Operations that are associated with the order (in the SAP Adapter, this value is visible in the Work box in the Internal section of the Operation.)</p>	<p>Estimated Labor</p>	<p>AFVV</p>	<p>ARBEI</p>	<p>Work involved in the activity</p>
<p>MI_EVWKHIST_EVENT_DATE_DESC_C</p> <p> Note: If the Notification is not assigned to a Work Order, the Event Date Description field is populated with the following static value: Order Actual Start Date. Otherwise, this field is populated with the following value: Notification Date.</p>	<p>Event Date Description</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>

MI_EVENT_ID	Event ID	VIAUFKST	AUFNR	Order Number
MI_EVENT_LNG_DSC_TX	Event Long Description	AUFK	Retrieved by calling FM READ_TEXT with ID=LTXT, OBJECT=AUFK	Long Desc
MI_EVENT_SHRT_DSC_CHR	Event Short Description	VIAUFKST/VIQMEL	KTEXT / QMTXT	Short text
MI_EVENT_STRT_DT	Event Start Date	VIAUFKST/VIQMEL	GSTRI, GSUZI / QMDAT/MZEIT	Date, Time of Work Order / Notification
MI_EVENT_TYP_CHR	Event Type	N/A	N/A	N/A
MI_EVENT_LOC_ID_CHR	Location ID	VIAUFKST/OBJK	TPLNR	Functional Location
MI_EVENT_LOC_SHRT_DESC_CHR	Location Short Description	IFLOTX	PLTXT	Description of functional location

 **Note:** The value in the Event Start Date field is the same as the time zone of the user who created the Notification.

 **Note:** The value in the Event Type field is populated with the following static value: Work History.

MI_EVWKHIST_ MAINT_COMPL_D				
<p> Note: The value in the Maintenance Completion Date field is the same as the time zone of the user who created the Work Order.</p>	Maintenance Completion Date	VIAUFKST	GETRI, GEUZI	Actual finish date/time
MI_EVWKHIST_ MAINT_CST_N	Maintenance Cost	PMCO	Σ(WRT00 - WRT16)	Sum of (Period value in ledger currency)
MI_EVWKHIST_ MAINT_CST_UOM_C	Maintenance Cost UOM	PMCO	COCUR	Maintenance Cost UOM
MI_EVWKHIST_ MAINT_START_D				
<p> Note: The value in the Maintenance Start Date field is the same as the time zone of the user who created the Work Order.</p>	Maintenance Start Date	VIAUFKST	GSTRI, GSUZI	Actual start date/time
MI_EVWKHIST_ OBJECT_NUMBER_C	Object Number	VIAUFKST	AUFNR	Work Order Object number
MI_EVWKHIST_ ORDR_CALL_NBR_C	Order Call Number	VIAUFKST	ABNUM	Maintenance plan call number

MI_EVWKHIST_ ORDR_CRT_DT_D	Order Creation Date	VIAUFGST	ERDAT, ERFZEIT	Date/Time on which the record was created
<div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: The value in the Order Creation Date field is the same as the SAP server time zone.</p> </div>				
MI_EVWKHIST_ ORDR_DESC_C	Order Description	VIAUFGST	KTEXT	Short text
MI_EVWKHIST_ ORDR_ID_C	Order ID	VIAUFGST	AUFNR	Order Num- ber
MI_EVWKHIST_ ORDR_CHNG_DT_D	Order Last Change Date	VIAUFGST	AEDAT, AEZEIT	Date/Time of Last Change
<div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: The value in the Order Last Change Date field is the same as the SAP server time zone.</p> </div>				
MI_EVWKHIST_ ORDR_MAINT_ ITEM_C	Order Main- tenance Item	VIAUFGST	WAPOS	Maintenance item
MI_EVWKHIST_ ORDR_MAINT_ PLAN_C	Order Main- tenance Plan	VIAUFGST	WARPL	Maintenance plan
MI_EVWKHIST_ ORDR_PRTY_C	Order Pri- ority	VIAUFGST	PRIOK	Priority
MI_EVWKHIST_ ORDR_PRTY_DESC_ C	Order Pri- ority Descrip- tion	T356_T	PRIOKX	Priority Text


MI_EVWKHIST_ORDR_SYS_COND_C	Order System Condition	VIAUFKST	ANLZU	Overall condition of technical system
MI_EVWKHIST_ORDR_SYS_CND_DESC_C	Order System Condition Description	T357M_T	ANLZUX	Text on Operating Condition
MI_EVWKHIST_ORDR_SYS_STAT_C	Order System Status	TJ02T	TXT04	Individual status of an object (short form)
MI_EVWKHIST_ORDR_TYP_CD_C	Order Type Code	VIAUFKST	AUART	Order Type
MI_EVWKHIST_ORDR_TYP_DESC_C	Order Type Description	T003P	TXT	Short Text
MI_EVWKHIST_ORDR_USER_STAT_C	Order User Status	TJ30T	TXT04	Individual status of an object (short form)
MI_EVENT_ASST_CTGRY_CHR	SAP Category	EQUI	EQTYP	Equipment category
MI_EVENT_ASST_CL_CHR	SAP Class	KLAH	CLASS	Class Number
MI_EVENT_ASST_TYP_CHR	SAP Type	EQUI	EQART	Type of Technical Object
MI_EVWKHIST_SUB_OBJECT_NUM_C	Sub Object Number	VIAUFKST/OBJK	OBZAE	Object List Count



Values Mapped to Records That Were Created from Notifications Without Associated Orders




GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table	SAP Field ID	SAP Field Caption
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MI_EVWKHIST_ ASMBLY_C	Assembly	VIQMEL	BAUTL	Assembly
MI_EVWKHIST_ ASMBLY_DESC_C	Assembly Description	MAKT	MAKTX	Material description
MI_EVWKHIST_ ASST_ TECH_ID_C	Asset Tech ID	EQUZ	TIDNR	Technical identification number
MI_EVWKHIST_ BRKDN_IND_F	Breakdown Indicator	VIQMEL	MSAUS	Breakdown Indicator
MI_EVWKHIST_ SAP_ SYSTEM_C	CMMS System	SY-SYSID + "-" + SY-MANDTSY	N/A	Name of SAP R/3 System - R/3 System, client number from logon
MI_EVWKHIST_ EAM_ REF_START_DT_C	EAM Reference Event Start Date	VIQMEL	QMDAT, MZEIT	Date/Time of Notification
MI_EVWKHIST_ EAM_ REF_MECH_AVAIL_DT_ C	EAM Reference Mechanically Available Date	VIQMEL	AUSBS, AUZTB	End of Malfunction (Date/Time)
MI_EVWKHIST_ EAM_ REF_MECH_UNAVL_ DT_C	EAM Reference Mechanically Unavailable Date	VIQMEL	AUSVN, AUZTV	Start of Malfunction (Date/Time)
MI_EVWKHIST_ EAM_ REF_RQST_CRT_DT_C	EAM Reference Request Creation Date	VIQMEL	ERDAT, ERZEIT	Date/Time on which the record was created

MI_EVWKHIST_EAM_REF_RQST_CHNG_DT_C	EAM Reference Request Last Change Date	VIQMEL	AEDAT, AEZEIT	Date/Time of Last Change
MI_EVWKHIST_EFFCT_CD_C	Effect Code	VIQMEL	AUSWK	Effect on Operation
MI_EVWKHIST_EFFCT_DESC_C	Effect Description	T357A_T	AUSWKT	Text - Effect on Operation
MI_EVWKHIST_ASST_CTGRY_DESC_C	Equipment Category Description	T370U	TYPTX	Equipment category description
MI_EVWKHIST_ASST_CL_DESC_C	Equipment Class Description	SWOR	KSCHL	Keywords
MI_EVENT_ASST_ID_CHR	Equipment ID	VIQMEL	EQUNR	Equipment number
MI_EVENT_ASST_DESC_CHR	Equipment Short Description	EQKT	EQKTX	Description of technical object
MI_EVWKHIST_ASST_TYP_DESC_C	Equipment Type Description	T370K_T	EARTX	Text for Object Type
MI_EVWKHIST_EVENT_DATE_DESC_C	Event Date Description	N/A	N/A	N/A

 **Note:** The value in the Event Date Description field is populated with the following static value: Notification Date.


MI_EVENT_ID	Event ID	VIQMEL	QMNUM	Notification Number
MI_EVENT_LNG_DSC_TX	Event Long Description	QMEL	Retrieved by calling FM READ_TEXT with ID=LTXT, OBJECT=QMEL	Notification Long Desc
MI_EVENT_SHRT_DSC_CHR	Event Short Description	VIQMEL	QMTXT	Short Text
MI_EVENT_STRT_DT	Event Start Date	VIQMEL	QMDAT, MZEIT	Date/Time of Notification
<div style="border: 1px solid yellow; padding: 5px;"> <p> Note: The value in the Event Start Date field is the same as the time zone of the user who created the Notification.</p> </div>				
MI_EVENT_TYP_CHR	Event Type	N/A	N/A	N/A
<div style="border: 1px solid yellow; padding: 5px;"> <p> Note: The Event Type field is populated with the following static value: Work History.</p> </div>				
MI_EVWKHIST_FAILR_MODE_CD_C	Failure Mode Code	VIQMEL	QMCOD	Coding
MI_EVWKHIST_FAILR_MODE_DESC_C	Failure Mode Description	QPCT	KURZTEXT	Short Text for Code
MI_EVENT_LOC_ID_CHR	Location ID	VIQMEL	TPLNR	Functional Location
MI_EVENT_LOC_SHRT_DESC_CHR	Location Short Description	IFLOTX	PLTXT	Description of functional location

MI_EVWKHIST_MECH_DWN_TIME_N	Mechanical Down Time	VIQMEL	AUSZT	Breakdown Duration
MI_EVWKHIST_MECH_AVAIL_D	<div style="border: 1px solid yellow; padding: 5px;">  Note: The value in the Mechanically Available Date field is the same as the time zone of the user who created the Notification. </div> Mechanically Available Date	VIQMEL	AUSBS, AUZTB	End of Mal-function (Date/Time)
MI_EVWKHIST_MECH_UNAVL_D	<div style="border: 1px solid yellow; padding: 5px;">  Note: The value in the Mechanically Unavailable Date field is the same as the time zone of the user who created the Notification. </div> Mechanically Unavailable Date	VIQMEL	AUSVN, AUZTV	Start of Mal-function (Date/Time)
MI_EVWKHIST_OBJECT_NUMBER_C	Object Number	VIAUFKST	AUFNR	Work Order Object number
	<div style="border: 1px solid yellow; padding: 5px;">  Note: The value in the Request Creation Date field is the same as the SAP server time zone. </div> Request Creation Date	VIQMEL	ERDAT, ERZEIT	Date/Time on which the record was created
MI_EVWKHIST_RQST_DESC_C	Request Description	VIQMEL	QMTXT	Short Text
MI_EVWKHIST_RQST_ID_C	Request ID	VIQMEL	QMNUM	Notification Number


MI_EVWKHIST_RQST_CHNG_DT_D	Request Last Change Date	VIQMEL	AEDAT, AEZEIT	Date/Time of Last Change
<div style="border: 1px solid yellow; padding: 5px; margin-bottom: 5px;">  Note: The value in the Request Last Change Date field is the same as the SAP server time zone. </div>				
MI_EVWKHIST_RQST_PRTY_C	Request Priority	VIQMEL	PRIOK	Priority
MI_EVWKHIST_RQST_PRTY_DESC_C	Request Priority Description	T356_T	PRIOKX	Priority Text
MI_EVWKHIST_RQST_SYS_STAT_C	Request System Status	TJ02T	TXT04	Individual status of an object (short form)
MI_EVWKHIST_RQST_TYP_CD_C	Request Type Code	VIQMEL	QMART	Notification Type
MI_EVWKHIST_RQST_TYP_DESC_C	Request Type Description	TQ80_T	QMARTX	Notification Type Texts
MI_EVWKHIST_RQST_USER_STAT_C	Request User Status	TJ30T	TXT04	Individual status of an object (short form)
MI_EVENT_ASST_CTGRY_CHR	SAP Category	EQUI	EQTYP	Equipment category
MI_EVENT_ASST_CL_CHR	SAP Class	KLAH	CLASS	Class Number
MI_EVENT_ASST_TYP_CHR	SAP Type	EQUI	EQART	Type of Technical Object
MI_EVWKHIST_SUB_OBJECT_NUM_C	Sub Object Number	VIAUFKST/OBJK	OBZAE	Object List Count


SAP Work History Detail Mappings

The following table explains the SAP fields that are used to populate the baseline Work History Detail fields when you extract Orders and Notifications from SAP.

 **Note:** If a Technical Object in the object list is associated with a Notification that has items, separate Work History Detail records will be created for each of those items. The Work History Detail records will be linked to the Work History record that was created using that Technical Object.

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table	SAP Field	SAP Field Caption
MI_DTWKHIST	MI_DTWKHIST_CAUSE_CD_C	Cause Code	QMUR	URCOD	Cause Code
MI_DTWKHIST	MI_DTWKHIST_CAUSE_DESC_C	Cause Description	QPCT	KURZTEXT	Short Text for Code
MI_DTWKHIST	MI_DTWKHIST_CREATE_DATE_D	CMMS Creation Date	VIAUFGS	ERDAT, ERZEIT	SAP Creation Date

 **Note:** The time zone used for the value in the CMMS Creation Date field is the same as the SAP server time zone.

MI_DTWKHIST	MI_DTWKHIST_CHANGE_DATE_D	CMMS Last Changed Date	VIAUFKS	AEDAT, AEZEIT	SAP Last Changed Date
<div style="border: 1px solid yellow; padding: 5px;"> <p> Note: The time zone used for the value in the CMMS Last Changed Date field is the same as the SAP server time zone.</p> </div>					
MI_DTWKHIST	MI_DTWKHIST_CNDTN_CD_C	Condition Code	QMFE	FECOD	Problem
MI_DTWKHIST	MI_DTWKHIST_CNDTN_DESC_C	Condition Description	QPCT	KURZTEXT	Short Text for Code
MI_DTWKHIST	MI_DTWKHIST_DTL_NARTV_T	Detail Narrative	QMFE	LTXT	Long Text
MI_DTWKHIST	MI_DTWKHIST_EAM_REF_CREATE_DT_C	EAM Reference Creation Date	VIAUFKS	ERDAT, ERZEIT	SAP Creation Date
MI_DTWKHIST	MI_DTWKHIST_EAM_REF_CHANGE_DT_C	EAM Reference Last Changed Date	VIAUFKS	AEDAT, AEZEIT	SAP Last Changed Date
MI_DTWKHIST	MI_DTWKHIST_ASST_CTGRY_C	Equipment Category	EQUI	EQTYP	Equipment category

MI_DTWKHIST	MI_DTWKHIST_ASST_CTGRY_DESC_C	Equipment Category Description	T370U	TYPTX	Equipment category description
MI_DTWKHIST	MI_DTWKHIST_ASST_CLASS_C	Equipment Class	KLAH	CLASS	Class Number
MI_DTWKHIST	MI_DTWKHIST_ASST_CLASS_DESC_C	Equipment Class Description	SWOR	KSCHL	Keywords
MI_DTWKHIST	MI_DTWKHIST_ASST_ID_C	Equipment ID	VIQMEL	EQUNR	Equipment number
MI_DTWKHIST	MI_DTWKHIST_ASST_TYP_C	Equipment Type	EQUI	EQART	Type of Technical Object
MI_DTWKHIST	MI_DTWKHIST_ASST_TYP_DESC_C	Equipment Type Description	T370K_T	EARTX	Text for Object Type
MI_DTWKHIST	MI_DTWKHIST_LOC_ID_C	Location ID	VIQMEL	TPLNR	Functional Location
MI_DTWKHIST	MI_DTWKHIST_MAINT_ITEM_CD_C	Maintainable Item Code	QMFE	OTEIL	Part of Object
MI_DTWKHIST	MI_DTWKHIST_MAINT_ITEM_DESC_C	Maintainable Item Description	QPCT	KURZTEXT	Short Text for Code
MI_DTWKHIST	MI_DTWKHIST_MAINT_ACTN_CD_C	Maintenance Action Code	QMMA	MNCOD	Activity Code

MI_DTWKHIST	MI_DTWKHIST_MAINT_ACTN_DESC_C	Maintenance Action Description	QPCT	KURZTEXT	Short Text for Code
MI_DTWKHIST	MI_DTWKHIST_MARKED_FOR_DEL_F	Marked for Deletion?	QMFE	KZLOESCH	Delete Data Record
MI_DTWKHIST	MI_DTWKHIST_EVNT_DTL_DESC_C	Work History Detail Description	VIQMEL	QMTXT	Short Text
MI_DTWKHIST	MI_DTWKHIST_EVNT_DTL_ID_C	Work History Detail ID	QMFE, VIQMEL	QMNUM, AUFNR, FENUM	Notification Number - Order Number
MI_DTWKHIST	MI_DTWKHIST_WRK_HISTRY_ID_C	Work History ID	VIAUFKS	QMNUM	Notification Number
MI_DTWKHIST	MI_DTWKHIST_ORDR_ID_C	Order ID	VIAUFKS	AUFNR	Order Number
MI_DTWKHIST	MI_DTWKHIST_RQST_ID_C	Request ID	VIQMEL	QMNUM	Notification Number

SAP Technical Characteristics Mappings


The following table explains the SAP fields that are used to populate the baseline Technical Characteristic fields when you extract SAP characteristics to create Technical Characteristic records in GE Digital APM.

GE Digital APM Field Name	GE Digital APM Field Name	SAP Table	SAP Field ID
Data Type	MI_TECHCHAR_TYPE_C	CABN	ATFOR
Length of Data Type	MI_TECHCHAR_NUM_CHARS_N	CABN	ANZST
Number of Decimal Places	MI_TECHCHAR_NUM_DEC_PLACES_N	CABN	ANZDZ
Description	MI_TECHCHAR_DESC_C	CABN	ATBEZ
Character Value	MI_TECHCHAR_CHAR_VALUE_C	AUSP	ATWRT/ATFLB/ATFLV
Numeric Value	MI_TECHCHAR_NUMERIC_VALUE_N	AUSP	ATWRT/ATFLB/ATFLV
Multiple Value Characteristic	MI_TECHCHAR_MULTI_VALUE_C	AUSP + TCURC T006	ATWRT/ATFLB/ATFLV + ISOCD MSEH6
CMMS System	MI_TECHCHAR_SAP_SYSTEM_C	None	<SY-SID> + <SY-MANDT>
Name	MI_TECHCHAR_NAME_C	CABN	ATNAM
Currency Value	MI_TECHCHAR_CURR_VALUE_N	AUSP	ATWRT/ATFLB/ATFLV
Equipment ID	MI_TECHCHAR_EQUIP_ID_C	EQUI	EQUNR
Functional Location ID	MI_TECHCHAR_FLOC_ID_C	IFLOT	TPLNR
Technical Characteristics ID	MI_TECHCHAR_ID_C	CABNT	ATINN


Unit of Measurement	MI_TECHCHAR_UOM_C	TCURC T006	ISOCD MSEH6
Restrictable Characteristic Indicator	MI_TECHCHAR_IS_RESTRICTABLE_F	CABN	ATGLA
Technical Characteristic Value Description	MI_TECHCHAR_VALUE_DESC_C	CABNT	ATBEZ
Interval Value	MI_TECHCHAR_INTERVAL_VALUE_C	AUSP + TCURC T006	ATWRT/ATFLB/ATFLV + ISOCD MSEH6

SAP Work Management Mappings

The following table explains the SAP fields that are used to populate the baseline Work Management fields when you extract SAP characteristics to create Work Management records in GE Digital APM.


GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table	SAP Field	SAP Field Caption	Mapping Formula
MI_TASKCALB/MITASKINSP	MI_TASK_LAST_DATE_DT	Last Date	AFVV	IEDD	Actual finish: Execution (date)	Null
<div style="border: 1px solid black; padding: 5px; background-color: #ffffcc;"> <p> Note: The time zone used for the value in the Actual finish: Execution (date) field is the same as the time zone of the user who created the Work Management.</p> </div>						
MI_TASKCALB/MITASKINSP	MI_TASK_EAM_REF_LAST_DT_C	EAM Reference Last Date	AFVV	IEDD	Actual finish: Execution (date)	Null
MI_TASKCALB/MITASKINSP	MI_TASK_DESC_TX	Task Description	VIMPOS / PLKO	EQU-NR / TPLNR	Equipment/Functional Location	Concatenate EQU-NR or TPLNR with - and PLPO.LT-XA1 + PLPO.LT-XA2


MI_TASKCALB/MITASKINSP	MI_TASK_TASK_LIST_GROUP_CNTR_C	Task List Group Counter	PLKO	PLNAL	Group Counter	PLNAL
MI_TASKCALB/MITASKINSP	MI_TASK_TASK_LIST_GROUP_C	Task List Group	PLKO	PLNNR	Key for Task List Group	PLNNR
MI_TASKCALB/MITASKINSP	MI_TASK_MAINT_PLAN_ITEM_NBR_C	Maintenance Item	MPOS	WAP-OS	Maintenance item	WAPOS
MI_TASKCALB/MITASKINSP	MI_TASK_MAINT_PLAN_NBR_C	Maintenance Plan	MPLA	WAR-PL	Maintenance Plan	WARPL
MI_TASKCALB/MITASKINSP	MI_TASK_NEXT_DATE_DT	Next Date	MHIS	NPL-DA	Next planned date	Null

 **Note:** The time zone used for the value in the Next planned date field is the same as the time zone of the user who created the Work Management.

MI_TASKCALB/MITASKINSP	MI_TASK_EAM_REF_NEXT_DT_C	EAM Reference Next Date	MHIS	NPL-DA	Next planned date	Null
MI_TASKCALB/MITASKINSP	MI_TASK_DESIR_INTER_NBR	Desired Interval	Null	Null	Null	Null
MI_TASKCALB/MITASKINSP	MI_TASK_DESIR_INTER_UOM_C	Desired Interval UOM	Null	Null	Null	Null
MI_TASKCALB/MITASKINSP	MI_TASK_MIN_INTER_NBR	Min Interval	Null	Null	Null	Null
MI_TASKCALB/MITASKINSP	MI_TASK_MIN_INTER_UOM_C	Min Interval UOM	Null	Null	Null	Null
MI_TASKCALB/MITASKINSP	MI_TASK_MAX_INTER_NBR	Max Interval	Null	Null	Null	Null
MI_TASKCALB/MITASKINSP	MI_TASK_MAX_INTER_UOM_C	Max Interval UOM	Null	Null	Null	Null
MI_TASKCALB/MITASKINSP	MI_TASK_OPERATION_NBR_C	Operation Number	PLPO	VOR-NR	Operation/Activity Number	VORNR

MI_TASKCALB/MITASKINSP	MI_TASK_ID	Task	PLPO	LTXA-1, LTXA-2	Operation/Activity Number	Concatenate MPOS-EQUNR or MPOS-FLOC with MPLA-WARPL + MPOS-WAPOS + PLKO-PLNTY + PLKO-PLLNR + PLKO-PLNAL + PLPO-VORNR
MI_TASKCALB/MITASKINSP	MI_TASK_TASK_LIST_TYPE_C	Task List Type	PLKO	PLNT-Y	Task List Type	PLNTY
MI_TASKCALB/MITASKINSP	MI_TASK_CREATE_DATE_D	Create Date	PLPO	AND-AT	SAP Creation Date	ANDAT
MI_TASKCALB/MITASKINSP	MI_TASK_EAM_REF_CREATE_DT_C	EAM Reference Creation Date	PLPO	AND-AT	SAP Creation Date	ANDAT

 **Note:** The time zone used for the value in the SAP Creation Date field is the same as the SAP server time zone.

MI_TASKCALB/MITASKINSP	MI_TASK_MAINT_PLANT_C	Maintenance Plant	MPOS	SWERK	SAP Maintenance Plant	SWERK
MI_TASKCALB/MITASKINSP	MI_TASK_CHANGE_DATE_D	Change Date	PLPO	AEDAT	SAP Last Changed Date	AEDAT
<div style="border: 1px solid black; background-color: #ffffcc; padding: 5px;"> <p> Note: The time zone used for the value in the SAP Last Changed Date field is the same as the SAP server time zone.</p> </div>						
MI_TASKCALB/MITASKINSP	MI_TASK_EAM_REF_CHANGE_DT_C	EAM Reference Last Changed Date	PLPO	AEDAT	SAP Last Changed Date	AEDAT
MI_TASKCALB/MITASKINSP	MI_TASK_SAP_SYSTEM_C	SAP System	None	SY-SID, SY-MANDT	SAP System	Concatenate SY-SID with SY-MANDT

SAP Recommendation Mappings

The following tables explain the Recommendation fields that are used to populate SAP Notification fields when you use the Notification Management Adapter.

GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table ID	SAP Field ID	BAPI Structure	BAPI Field	SAP Field Caption	Notes
MI_REC_ASSET_ID_CHR	Asset ID	VIQM-EL	EQU-NR	BAPI208-0_NOTHD-RI	EQUIPME-NT	Equip-ment number	None
MI_REC_LOC_ID_CHR	Functional Location ID	VIQM-EL	TPLN-R	BAPI208-0_NOTHD-RI	FUNCT-LOC	Func-tional Location	None

MI_REC_ NOTIF_ TYPE_C	M1	VIQM- EL	QMA- RT	None	NOTIF_ TYPE	Noti- fication Type	In SAP, the Reported By field is pop- ulated with the first twelve char- acters of the value in the User ID field. The value in the User ID field is the user ID of the Security user that was logged in to GE Digita- l APM when the Noti- fication was cre- ated.
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None	None	None	None	BAPI208-0_NOTHD-RI	REPORTED-BY	Name of Person Reporting Notification	The Reported By field is populated in SAP with the first twelve characters of the user ID of the Security User that was logged in to GE Digital APM when the Notification was created.
MI_REC_LONG_DESCR_TX	Recommendation Description	None	None	None	None	Notification Long Text	The value in this field appears as a string.
MI_REC_SHORT_DESCR_CHR	Recommendation Headline	VIQM-EL	QMT-XT	BAPI208-0_NOTHD-RI	SHORT-TEXT	Short Text	None

The following fields are updated in the Recommendation record based on data from the created Notification.

GE Digital APM Field ID	GE Digital APM Field Caption	SAP Table ID	SAP Field ID	BAPI Structure	BAP- I Field	SAP Field Caption	Notes
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MI_REC_EAM_REF_CHANGE_DATE_C	EAM Reference Change Date	VIQME-L	AEDAT/AEZEIT	None	None	Changed on Date/Time	The value in this field appears as a string to match the date and time in SAP.
MI_REC_EAM_REF_CREATE_DATE_C	EAM Reference Creation Date	VIQME-L	ERDAT/ERZEIT	None	None	Created on Date/Time	The value in this field appears as a string to match the date and time in SAP.
MI_REC_WR_EQUIP_C	Work Request Equipment	VIQME-L	EQUNR	None	None	Equipment number	None
MI_REC_WR_LOC_C	Work Request Functional Location	VIQME-L	TPLNR	None	None	Functional Location	None
MI_REC_WK_REQ_REF_CHR	Work Request Reference	VIQME-L	QMNUM	None	None	Notification Number	None

SAP Task Value Mappings

When you use the Work Management Interface to create Orders from GE Digital APM Task records, several values in the GE Digital APM Task record are passed to the SAP Order and its associated Operations. The following table explains the Task fields whose values are passed to the SAP Function Module /MIAPM/MAINTAIN_ORDER (which calls the SAP BAPI BAPI_ALM_ORDER_MAINTAIN).

GE Digital APM Field Caption	BAPI Structure	SAP BAPI Field
Work Order Type	BAPI_ALM_ORDER_HEADERS_I	ORDER_TYPE
Task Description	BAPI_ALM_ORDER_HEADERS_I	SHORT_TEXT
Task List Type	None	TASKLIST_TYPE
Task List Group	None	TASKLIST_GROUP
Task List Group Counter	None	TASKLIST_GROUP_CTR
Task Details	None	IT_TEXT_LINES
Work Order Number	None	ORDER_NUMBER
The GE Digital APM system maps a value from the Equipment record to which the Task record is linked, based upon the configuration of the query Get SAP ID for Equipment, which is stored in the Catalog folder \\Public\Meridium\Modules\SAP Integration Interfaces\Queries.	BAPI_ALM_ORDER_HEADERS_I	EQUIPMENT
The GE Digital APM system maps a value from the Functional Location record to which the Task record is linked, based upon the configuration of the query Get SAP ID for Functional Location, which is stored in the Catalog folder \\Public\Meridium\Modules\SAP Integration Interfaces\Queries.	None	FUNCT_LOC

After these values are passed to the SAP BAPI, the Function Module then sends additional data from the associated SAP Task List to the SAP Order, as described in the following table.

Task List Field	BAPI Structure	Order Field
WERKS	BAPI_ALM_ORDER_HEADERS_I	PLANT
ARBPL	BAPI_ALM_ORDER_HEADERS_I	MN_WK_CTR
None. The value 4 is always mapped.	BAPI_ALM_ORDER_HEADERS_I	SCHED_TYPE
IWERK	BAPI_ALM_ORDER_HEADERS_I	PLANPLANT

Also, for each Operation that belongs to the Task List, a corresponding Operation will belong to the Order. The following table identifies the values that are mapped from each Operation that is attached to the Task List to each Operation that is attached to the Order.

Task List Field	BAPI Structure	Order Field
ARPBL	BAPI_ALM_ORDER_OPERATION	WORK_CNTR
VORNR	BAPI_ALM_ORDER_OPERATION	ACTIVITY
STEUS	BAPI_ALM_ORDER_OPERATION	CONTROL_KEY
WERKS	BAPI_ALM_ORDER_OPERATION	PLANT
LTXA1	BAPI_ALM_ORDER_OPERATION	DESCRIPTION
TXTSP	BAPI_ALM_ORDER_OPERATION	LANGU
KTSCH	BAPI_ALM_ORDER_OPERATION	STANDARD_TEXT_KEY
LOANZ	BAPI_ALM_ORDER_OPERATION	NO_OF_TIME_TICKETS
LOART	BAPI_ALM_ORDER_OPERATION	WAGETYPE
QUALF	BAPI_ALM_ORDER_OPERATION	SUITABILITY
LOGRP	BAPI_ALM_ORDER_OPERATION	WAGEGROUP
SORTL	BAPI_ALM_ORDER_OPERATION	SORT_FLD
LIFNR	BAPI_ALM_ORDER_OPERATION	VENDOR_NO
BMSCH	BAPI_ALM_ORDER_OPERATION	QUANTITY

MEINH	BAPI_ALM_ORDER_OPERATION	BASE_UOM
PREIS	BAPI_ALM_ORDER_OPERATION	PRICE
PEINH	BAPI_ALM_ORDER_OPERATION	PRICE_UNIT
SAKTO	BAPI_ALM_ORDER_OPERATION	COST_ELEMENT
WAERS	BAPI_ALM_ORDER_OPERATION	CURRENCY
INFNR	BAPI_ALM_ORDER_OPERATION	INFO_REC
EKORG	BAPI_ALM_ORDER_OPERATION	PURCH_ORG
EKGRP	BAPI_ALM_ORDER_OPERATION	PUR_GROUP
MATKL	BAPI_ALM_ORDER_OPERATION	MATL_GROUP
ANZZL	BAPI_ALM_ORDER_OPERATION	NUMBR_OF_ CAPACITIES
PRZNT	BAPI_ALM_ORDER_OPERATION	PERCENT_OF_ WORK
INDET	BAPI_ALM_ORDER_OPERATION	CALC_KEY
LARNT	BAPI_ALM_ORDER_OPERATION	ACTTYPE
ANLZU	BAPI_ALM_ORDER_OPERATION	SYSTCOND
ISTRU	BAPI_ALM_ORDER_OPERATION	ASSEMBLY
VERTN	BAPI_ALM_ORDER_OPERATION	INT_DISTR
PLIFZ	BAPI_ALM_ORDER_OPERATION	PLND_DELRV
DAUNO	BAPI_ALM_ORDER_OPERATION	DURATION_ NORMAL
DAUNE	BAPI_ALM_ORDER_OPERATION	DURATION_ NORMAL_UNIT
EINSA	BAPI_ALM_ORDER_OPERATION	CONSTRAINT_ TYPE_START
EINSE	BAPI_ALM_ORDER_OPERATION	CONSTRAINT_ TYPE_FINISH
ARBEI	BAPI_ALM_ORDER_OPERATION	WORK_ACTIVITY
ARBEH	BAPI_ALM_ORDER_OPERATION	UN_WORK
AUFKT	BAPI_ALM_ORDER_OPERATION	EXECFACTOR

SLWID	BAPI_ALM_ORDER_OPERATION	FIELD_KEY
USR00	BAPI_ALM_ORDER_OPERATION	USR00
USR01	BAPI_ALM_ORDER_OPERATION	USR01
USR02	BAPI_ALM_ORDER_OPERATION	USR02
USR03	BAPI_ALM_ORDER_OPERATION	USR03
USR04	BAPI_ALM_ORDER_OPERATION	USR04
USR05	BAPI_ALM_ORDER_OPERATION	USR05
USE05	BAPI_ALM_ORDER_OPERATION	USE05
USR06	BAPI_ALM_ORDER_OPERATION	USR06
USE06	BAPI_ALM_ORDER_OPERATION	USE06
USR08	BAPI_ALM_ORDER_OPERATION	USR08
USR09	BAPI_ALM_ORDER_OPERATION	USR09
USR10	BAPI_ALM_ORDER_OPERATION	USR10
USR11	BAPI_ALM_ORDER_OPERATION	USR11

Overview of the Maximo Adapters

The APM Connect Maximo Adapters allow you to extract, transform, and load data between your Maximo system and your GE Digital APM system.

Create Maximo Work Orders or Service Requests

△ IMPORTANT: You can only create either a Work Order or a Service Request in Maximo from GE Digital APM. You can not create both at the same time, so [you must configure the context file](#) to designate which to create.

Note: The following instructions assume that the **Create Work Request** field exists on the baseline datasheets for the supported Recommendation families. This field exists on the default datasheets in the baseline GE Digital APM database, so these instructions assume that they have not been removed by an administrative user.

Steps

1. Create a new or open an existing Recommendation record .
2. If the Recommendation records is not already linked to the Equipment or Functional Location record that represents the equipment or location for which you want to create a Maximo Work Order, link the records.
3. Select the appropriate datasheet for the Recommendation record.
4. Enter values into the fields as desired to provide information about the recommended action.

Note: The value in the Target Completion Date field must be a date other than the current date.

5. Select the **Create Work Request?**.
6. Select .

The record is saved.

Results

After you save the recommendation record the following occurs:

1. A Work Order or Service Request is created in the Maximo system.
2. The **Work Request Reference** field is populated with the ID of the corresponding Work Order or Service Request.
3. After the **Work Request Reference** field is populated, the **Create Work Request** field becomes disabled.

Note: If a Work Order could not be created for any reason, a message appears, describing the problem. You will be unable to save the Recommendation record until you clear the **Create Work Request?** check box.

About Extracting Data From Maximo

The extraction adapters allow you to extract data from your Maximo system and import it into your GE Digital APM system. To execute an adapter, you must configure the appropriate [parameters in the context file](#). After the context file is configured, you must [run the Adapter job in the APM Connect Administration Center](#), and then your data is extracted, transformed, and loaded into GE Digital APM.


There are four jobs that can be used to extract data from Maximo and load data into GE Digital APM.

- **Maximo_Asset:** Loads Maximo Asset records to GE Digital APM as Equipment records.
- **Maximo_Location:** Loads Maximo Location records to GE Digital APM as Functional Location records.
- **Maximo_WorkHistory:** Loads Maximo Work Order records, Service Request records, and failure records as GE Digital APM Work History and Work History Detail records.
- **Maximo_Master_Interface:** Can be used as a wrapper job to run all of the extraction jobs simultaneously.

As a GE Digital APM user, after the adapter job runs, you can use standard GE Digital APM tools (e.g., Search Tool) to access the records that were created automatically.


Details: Extracting Equipment Data


When the [Equipment job is run](#), for each asset in the Maximo system that meets the criteria defined in [context file](#), a corresponding Equipment record will be created in GE Digital APM database. In addition, if that Maximo asset has a parent asset or location, GE Digital APM Equipment record will be linked automatically to a parent record belonging to the Equipment family or the Functional Location family, as appropriate.

 **Note:** If an asset is deleted in the Maximo system after an Equipment record has already been created for it in the GE Digital APM system, rerunning the Equipment Adapter job will not delete the GE Digital APM Equipment record.

Details: Extracting Functional Location Data

When the Functional Location Adapter job is run, for each location in the Maximo system that meets the criteria defined in the [context file](#), a corresponding Functional Location record will be created in the GE Digital APM database. In addition, if that Maximo location has a parent asset or location, the GE Digital APM Functional Location record will be linked automatically to a parent record belonging to the Equipment family or the Functional Location family, as appropriate.

 **Note:** The Functional Location Extraction Interface will not extract locations of the type COURIER or LABOR. Additionally, store room functional locations are not extracted.

 **Note:** If an asset is deleted in the Maximo system after a Functional Location record has already been created for it in the GE Digital APM system, rerunning the Functional Location Extraction Interface will not delete the GE Digital APM Functional Location record.

Details: Extracting Work Orders

When the Work History Job is run, for each Work Order in the Maximo system that meets the criteria defined in the scheduled item, a corresponding Work History record will be created in the GE Digital APM database. Each Work History record will be linked to one Equipment or Functional Location record identifying the asset or location against which the Maximo Work Order is written.

If the Work Order is written against a location, the Work History record will be linked to a Functional Location record, and the Location ID field in the Work History record will be populated automatically with the Location ID of that Maximo location.

If the Work Order is written against an asset, the Work History record will be linked to an Equipment record, and the Equipment ID field in the Work History record will be populated automatically with the Location ID of that Maximo asset. In addition, if that Maximo asset has a parent location, the Work History record will also be linked to a Functional Location record representing that parent Maximo location. The Location ID field in the Work History record will also be populated automatically with the Location ID of that parent Maximo location.

Details: Extracting Service Requests

When the Work History Job is run, for each Service Request in the Maximo system that meets the criteria defined in the scheduled item, a corresponding Work History record will be created in the GE Digital APM database. Each Work History record will be linked to one Equipment or Functional Location record identifying the asset or functional location against which the Maximo Service Request is written. Specifically:


If the Service Request is written against a location, the Work History record will be linked to a Functional Location record, and the Location ID field in the Work History record will be populated automatically with the Location ID of that Maximo location.

If the Service Request is written against an asset, the Work History record will be linked to an Equipment record, and the Equipment ID field in the Work History record will be populated automatically with the Location ID of that Maximo asset. In addition, if that

Maximo asset has a parent location, the Work History record will also be linked to a Functional Location record representing that parent Maximo location. The Location ID field in the Work History record will also be populated automatically with the Location ID of that parent Maximo location.

Details: Extracting Work History Details

When the Work History Job is run Work Order and Service Request failure information is extracted from your Maximo system into your GE Digital APM system as Work History Detail records.

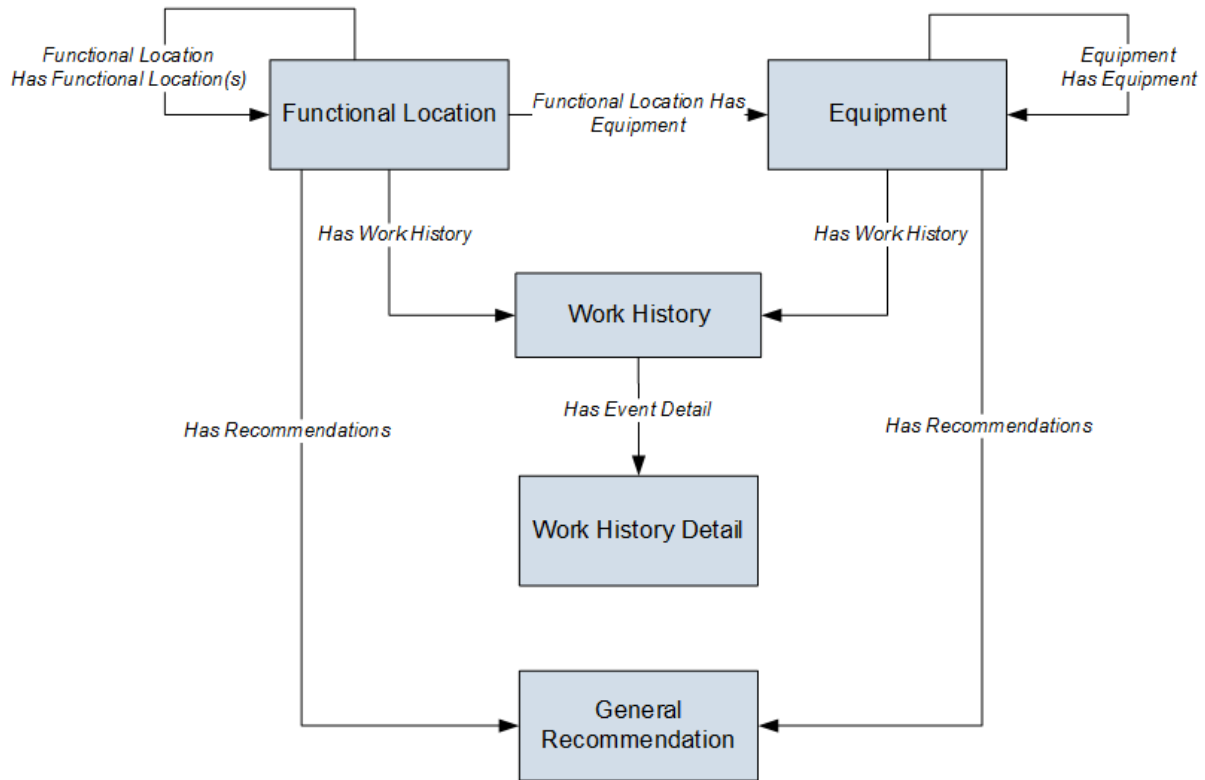
 **Note:** If a Work Order does not have any failure information, a Work History Detail record will not be created.

Reference Information: Maximo Adapters

This topic provides a listing of all detailed reference information provided for the Maximo Adapters, such as command syntax, specifications, and table/field descriptions.

Maximo Data Model

The following diagram shows how the families used by the Maximo Adapter are related to one another.



Note: In the diagram, boxes represent entity families and arrows represent relationship families that are configured in the baseline database. You can determine the direction of each relationship definition from the direction of the arrow head: the box from which the arrow originates is the predecessor, and the box to which the arrow head points is the successor.

The GE Digital APM Maximo Interfaces feature consists of entity families, relationship families, and business rules. When attempting to understand and make use of the GE Digital APM Maximo Interfaces functionality, it can be helpful to visualize the Maximo Interfaces data model. You can use the Maximo Interfaces to create and view records. This documentation assumes that you are familiar with the concept of records and viewing records in the GE Digital APM Record Manager.

About Interface Log Records used by the Service Request and Work Order Interface Record

Each time an interface is run, an Interface Log record is created automatically to store information about the process, such as the status of the process (e.g., *Completed with*

warnings), the date the interface was run, and the parameters that were used to run the interface.

If the value in an Interface Log record is *Completed with Warnings* or *Completed with Errors*, a Super User or a member of the MI CMMS Interfaces Administrator Security Group can review the warnings or errors, and then change the status to *Completed with Warnings (Cleared)* or *Completed with Errors (Cleared)*.

Maximo Values Mapped to GE Digital APM Records

This topic provides a listing of all mapping information provided for the Maximo Adapters.

Maximo Equipment Mappings

The following table contains a list of Maximo fields that are used to populate fields in the Equipment records created in GE Digital APM when you use the Maximo Equipment Adapter:

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	Maximo Table	Maximo Internal ID	Maximo Adapter Label	Comments
MI_EQUIP0-00	MI_EQUIP0-00_SAP_SYSTE-M_C	CMMS SYSTEM	Auto-matically populated by the Maximo System.	Automatically populated by the Maximo System.	Auto-matically populated by the Maximo System.	This is a GE Digital APM key field.
MI_EQUIP0-00	MI_EQUIP0-00_CHANG-E_DATE_D	CMMS Last Changed Date	ASSET	CHANGEDATE	Changed Date	None
MI_EQUIP0-00	MI_EQUIP0-00_CRITI_IND_C	Criticality Indicator	ASSET	PRIORITY	Priority	None
MI_EQUIP0-00	MI_EQUIP0-00_EQUIP_ID_C	Equipment ID	ASSET	ASSETNUM	Asset	This is a GE Digital APM key field.
MI_EQUIP0-00	MI_EQUIP0-00_EQUIP_LNG_DESC_T	Equipment Long Description	ASSET	DESCRIPTION_LONGDESCRIPTION	On the Maximo interface, this value appears in the Long Description box.	None

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	Maximo Table	Maximo Internal ID	Maximo Adapter Label	Comments
MI_EQUIP0-00	MI_EQUIP0-00_SN_C	Equipment Serial Number	ASSET	SERIALNUM	Manufacturer Serial Number	None
MI_EQUIP0-00	MI_EQUIP0-00_EQUIP_SHRT_DESC_C	Equipment Short Description	ASSET	DESCRIPTION	On the Maximo interface, this value appears next to the Asset box.	None
MI_EQUIP0-00	MI_EQUIP0-00_EQUIP_TECH_NBR_C	Equipment Technical Number	ASSET	ASSETID	None. This field does not appear on the Maximo interface.	None
MI_EQUIP0-00	MI_EQUIP0-00_EQUIP_VNDR_C	Equipment Vendor	ASSET	VENDOR	Vendor	None
MI_EQUIP0-00	MI_EQUIP0-00_FNC_LOC_C	Functional Location	ASSET	LOCATION	Location	None
MI_EQUIP0-00	MI_EQUIP0-00_INV_NO_C	Inventory Number	ASSET	ITEMNUM	Rotating Item	None

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	Maximo Table	Maximo Internal ID	Maximo Adapter Label	Comments
MI_EQUIP0-00	MI_EQUIP0-00_MFR_C	Manufacturer	ASSET	MANUFACTURE-R	Manufacturer	None
MI_EQUIP0-00	MI_EQUIP0-00_PRCH_D	Purchase Date	ASSET	INSTALLDATE	Installation Date	None
MI_EQUIP0-00	MI_EQUIP0-00_SITE_C	Site	ASSET	SITEID	Site	None
MI_EQUIP0-00	MI_EQUIP0-00_SYS_ST_C	System Status	ASSET	STATUS	Status	None
MI_EQUIP0-00	MI_EQUIP0-00_WRNTY_EXPR_D	Warranty Expiration Date	ASSET	WARRANTYEXP-DATE	None. This field does not appear on the Maximo interface.	None

Maximo Functional Location Mappings

The following table contains a list of Maximo fields that are used to populate fields in the Functional Location records created in GE Digital APM when you use the Maximo Functional Location Adapter:

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	MAXIMO Table	Maximo Internal ID	Maximo Adapter Label	Comments
MI_FNCLOC-00	MI_FNCLOC-00_CHANGE_DATE_D	CMMS Last Changed Date	LOCATION	CHANGEDATE	None. This field does not appear on the Maximo interface.	None
MI_FNCLOC-00	MI_FNCLOC-00_SAP_SYSTEM_C	CMMS System	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	This is a GE Digital APM key field.
MI_FNCLOC-00	MI_FNCLOC-00_CRITCAL_IND_C	Criticality Indicator	LOCATION	LOCPRIORITY	Priority	None
MI_FNCLOC-00	MI_FNCLOC-00_FAIL_CLASS_C	Failure Class	LOCATION	FAILURECODE	Failure Class	None
MI_FNCLOC-00	MI_FNCLOC-00_FNC_LOC_C	Functional Location	LOCATION	LOCATION	Location	This is a GE Digital APM key field.

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	MAXIMO Table	Maximo Internal ID	Maximo Adapter Label	Comments
MI_FNCLOC-00	MI_FNCLOC-00_FNC_LOC_DESC_C	Functional Location Description	LOCATION	DESCRIPTION	On the Maximo interface, this value appears next to the Location box.	None
MI_FNCLOC-00	MI_FNCLOC-00_INTERNAL_ID_C	Functional Location Internal ID	LOCATION	LOCATIONSID	None. This field does not appear on the Maximo interface.	None
MI_FNCLOC-00	MI_FNCLOC-00_FNC_LNG_DESC_C	Functional Location Long Description	LOCATION	DESCRIPTION_LONGDESCRIPTION	This value appears in the Long Description box.	None
MI_FNCLOC-00	MI_FNCLOC-00_TYPE_C	Location Type	LOCATION	TYPE	Type	None
MI_FNCLOC-00	MI_FNCLOC-00_SITE_C	Site	LOCATION	SITEID	Site	None
MI_FNCLOC-00	MI_FNCLOC-00_SUPR_FNC_LOC_C	Superior Functional Location	LOCATION	PARENT	Parent	None

GE Digital APM Family ID	GE Digital APM Field ID	GE Digital APM Field Caption	MAXIMO Table	Maximo Internal ID	Maximo Adapter Label	Comments
MI_FNCLOC-00	MI_FNCLOC-00_SYS_STATUS_C	System Status	LOCATION	STATUS	Status	None

Maximo Work History Mappings

The following tables list the Maximo fields that are used to populate the fields in the Work History records created in GE Digital APM when you extract Work Orders and Service Request using the Maximo Work History Adapter:

Values Mapped from Maximo Work Orders to GE Digital APM Work History Records

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVWKHI-ST_MAINT_COMPL_D	Maintenance Completion Date	WORKORDER	ACTFINISH	Actual Finish	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ACT_LABOR_COST_N	Actual Labor Cost	WORKORDER	ACTLABCOST	Actual Labor Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ACT_LABOR_TIME_N	Actual Labor	WORKORDER	ACTLABHRS	Actual Labor Hours	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ACT_MTRL_COST_N	Actual Material Cost	WORKORDER	ACTMATCOST	Actual Material Cost	None

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVWKHI-ST_ACT_SERV_COST_N	Actual Service Cost	WORKORDER	ACTSERVCOST	Actual Service Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_MAINT_START_D	Maintenance Start Date	WORKORDER	ACTSTART	Actual Start	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ACT_TOOL_COST_N	Actual Tool Cost	WORKORDER	ACTTOOLCOST	Actual Tool Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_MAINT_CST_N	Maintenance Cost	WORKORDER	ACTTOTALCOST	Actual Total Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_EQU_LOC_PRIORITY_N	Equipment Location Priority	WORKORDER	ASSETLOCPRIORITY	Asset/Location Priority	None
MI_EVWKHI-ST	MI_EVENT_ASST_ID_CHR	Equipment ID	WORKORDER	ASSETNUM	Asset	None

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVWKHI-ST_CALC_PRIORITY_N	Calculated Priority	WORKORDER	CALCPRIORITY	Asset/Location Priority	None
MI_EVWKHI-ST	MI_EVENT_MODFD_BY_CHR	Modified By	WORKORDER	CHANGEBY	Modified By	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ORDR_CHNG_DT_D	Order Last Change Date	WORKORDER	CHANGEDATE	None. This field does not appear on the Maximo interface.	None
MI_EVWKHI-ST	MI_EVWKHI-ST_CREW_ID_C	Crew ID	WORKORDER	CREWID	Crew	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ORDR_DESC_C	Order Description	WORKORDER	DESCRIPTION	Description	None

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVENT_SHRT_DSC_CHR	Event Short Description	WORKORDER	DESCRIPTION	Description	None
MI_EVWKHI-ST	MI_EVENT_LNG_DSC_TX	Event Long Description	WORKORDER	DESCRIPTION_LONGDESCRIPTION	This value appears in the Long Description box.	None
MI_EVWKHI-ST	MI_EVWKHI-ST_EST_LABOR_COST_N	Estimated Labor Cost	WORKORDER	ESTLABCOST	Estimated Labor Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_EST_LABOR_TIME_N	Estimated Labor	WORKORDER	ESTLABHRS	Estimated Labor Hours	None
MI_EVWKHI-ST	MI_EVWKHI-ST_EST_MTRL_COST_N	Estimated Material Cost	WORKORDER	ESTMATCOST	Estimated Material Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_EST_SERV_COST_N	Estimated Service Cost	WORKORDER	ESTSERVCOST	Estimated Service Cost	None

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVWKHI-ST_EST_TOOL_COST_N	Estimated Tool Cost	WORKORDER	ESTTOOLCOST	Estimated Tool Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ORDR_MAINT_PLAN_C	Order Maintenance Plan	WORKORDER	JPNUM	None. This field does not appear on the Maximo interface.	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ORDR_PRTY_DESC_C	Order Priority Description	WORKORDER	JUSTIFYPRIORITY	Priority Justification	None
MI_EVWKHI-ST	MI_EVWKHI-ST_LEAD_CRAFT_C	Lead Craft	WORKORDER	LEAD	Lead	None
MI_EVWKHI-ST	MI_EVENT_LOC_ID_CHR	Location ID	WORKORDER	LOCATION	Location	None

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVWKHI-ST_ACT_OUT_LBR_CST_N	Actual Outside Labor Cost	WORKORDER	OUTLABCOST	Outside Labor Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ACT_OUT_MTR_CST_N	Actual Outside Material Cost	WORKORDER	OUTMATCOST	Outside Material Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ACT_OUT_TL_CST_N	Actual Outside Tool Cost	WORKORDER	OUTTOOLCOST	Outside Tool Cost	None
MI_EVWKHI-ST	MI_EVWKHI-ST_PM_NBR_C	PM Number	WORKORDER	PMNUM	None. This field does not appear on the Maximo interface.	None
MI_EVWKHI-ST	MI_EVWKHI-ST_RQST_ID_C	Request ID	WORKORDER	ORIGRECORDID	None. This field does not appear on the Maximo interface.	None

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVWKHI-ST_RQST_TYP_CD_C	Request Type Code	WORKORDER	ORIGRECORDCLASS	None. This field does not appear on the Maximo interface.	None
MI_EVWKHI-ST	MI_EVENT_STRT_DT	Event Start Date	WORKORDER	REPORTDATE	Reported Date	None
MI_EVWKHI-ST	MI_EVWKHI-ST_SCHED_COMPL_D	Scheduled Completion Date	WORKORDER	SCHEDFINISH	Scheduled Finish	None
MI_EVWKHI-ST	MI_EVWKHI-ST_SCHED_START_D	Scheduled Start Date	WORKORDER	SCHEDSTART	Scheduled Start	None
MI_EVWKHI-ST	MI_EVWKHI-ST_SITE_C	Site	WORKORDER	SITEID	Site	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ORDR_SYS_STAT_C	Order System Status	WORKORDER	STATUS	Status	None

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVWKHI-ST_TARGET_COMPL_D	Target Completion Date	WORKORDER	TARGCOMPDATE	Target Finish	None
MI_EVWKHI-ST	MI_EVWKHI-ST_TARGET_START_D	Target Start Date	WORKORDER	TARGSTARTDATE	None. This field does not appear on the Maximo interface.	None
MI_EVWKHI-ST	MI_EVENT_ID	Event ID	WORKORDER	WONUM	Work Order	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ORDER_ID_N	Order ID	WORKORDER	WONUM	Work Order	None
MI_EVWKHI-ST	MI_EVWKHI-ST_ORDR_PRTY_C	Order Priority	WORKORDER	WOPRIORITY	Priority	None

GE Digital APM Family Name	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table Name	Maximo Internal ID	Maximo Interface Label	Comments
MI_EVWKHI-ST	MI_EVWKHI-ST_ORDR_TYP_CD_C	Order Type Code	WORKORDER	WORKTYPE	None. This field does not appear on the Maximo interface.	None
MI_EVWKHI-ST	MI_EVWKHI-ST_OBJECT_NUMBER_C	Object Number	WORKORDER	"OR"+WONUM	None. This field does not appear on the Maximo interface.	This field appears as a drop-down list box in GE Digital APM.
MI_EVWKHI-ST	MI_EVWKHI-ST_SAP_SYSTEM_C	CMMS System	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	This is a GE Digital APM key field.

Values Mapped from Maximo Service Request to GE Digital APM Work History Records

GE Digital APM Family	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table	Maximo Internal ID	Maximo Interface Label	Comments
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MI_EVWKHIS-T	MI_EVENT_ASST_ID_CHR	Equipment ID	SR	ASSETNUM	Asset	None
MI_EVWKHIS-T	MI_EVENT_SHRT_DSC_CHR	Event Short Description	SR	DESCRIPTION	Summary	None
MI_EVWKHIS-T	MI_EVENT_LOC_ID_CHR	Location ID	SR	LOCATION	Location	None
MI_EVWKHIS-T	MI_EVWKHIS-T_SITE_C	Site	SR	SITEID	Site	None
MI_EVWKHIS-T	MI_EVWKHIS-T_OBJECT_NUMBER_C	OBJECT NUMBER	SR	"QM"+TICKETID	None. This field does not appear on the Maximo interface.	This is a GE Digital APM key field.
MI_EVWKHIS-T	MI_EVWKHIS-T_RQST_ID_CHNG_DT_D	Change Date	SR	CHANGEDATE	None. This field does not appear on the Maximo interface.	None
MI_EVWKHIS-T	MI_EVWKHIS-T_RQST_ID_C	Request ID	SR	TICKETID	Service Request	None

MI_EVWKHIS-T	MI_EVWKHIS-T_SAP_SYSTEM_C	CMMS System	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	This is a GE Digital APM key field.
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Maximo Work History Detail Mappings

The following tables list the Maximo fields that are used to populate the fields in the Work History Details records created in GE Digital APM when you extract Work Order information and Service Request information using the Maximo Work History Adapter:

Values Mapped from Maximo Work History Details to GE Digital APM Work History Detail Records

GE Digital APM Family	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table	Maximo Internal ID	Maximo Interface Label	Comments
MI_DTWKHIST	MI_DTWKHIST_ASST_ID_C	Equipment ID	WORKORDER	ASSETNUM	Asset	None
MI_DTWKHIST	MI_DTWKHIST_EVNT_DTL_DESC_C	Work History Detail Description	WORKORDER	DESCRIPTION	Description	None
MI_DTWKHIST	MI_DTWKHIST_DTL_NARTV_T	Detail Narrative	WORKORDER	DESCRIPTION_LONGDESCRIPTION	This value appears in the Long Description box.	None
MI_DTWKHIST	MI_DTWKHIST_LOC_ID_C	Location ID	WORKORDER	LOCATION	Location	None

MI_DTWKHI-ST	MI_DTWKHI-ST_CNDTN_CD_C	Condition Code	WORKORDER	PROBLEMCODE	Problem Code	None
MI_DTWKHI-ST	MI_DTWKHI-ST_SITE_C	Site	WORKORDER	SITEID	Site	None
MI_DTWKHI-ST	MI_DTWKHI-ST_WRK_HISTORY_ID_C	Work History ID	WORKORDER	WONUM	Work Order	None
MI_DTWKHI-ST	MI_DTWKHI-ST_ORDR_ID_C	Order ID	WORKORDER	WONUM	Work Order	None
MI_DTWKHI-ST	MI_DTWKHI-ST_EVNT_DTL_ID_C	History Detail ID	WORKORDER	WONUM	Work Order	This is a GE Digital APM key field.
MI_DTWKHI-ST	MI_DTWKHI-ST_SAP_SYSTEM_C	CMMS System	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	This is a GE Digital APM key field.

Values Mapped from Maximo Service Request Details to GE Digital APM Work History Detail Records

GE Digital APM Family	GE Digital APM Work History Field ID	GE Digital APM Work History Field Caption	Maximo Table	Maximo Internal ID	Maximo Interface Label	Comments
MI_DTWKHIST	MI_DTWKHIST_ASST_ID_C	Equipment ID	SR	ASSETNUM	Asset	None
MI_DTWKHIST	MI_DTWKHIST_EVNT_DTL_DESC_C	Work History Detail Description	SR	DESCRIPTION	Summary	None
MI_DTWKHIST	MI_DTWKHIST_LOC_ID_C	Location ID	SR	LOCATION	Location	None
MI_DTWKHIST	MI_DTWKHIST_SITE_C	Site	SR	SITEID	Site ID	None
MI_DTWKHIST	MI_DTWKHIST_RQST_ID_C	Request ID	SR	TICKETID	Service Request	None
MI_DTWKHIST	MI_DTWKHIST_EVNT_DTL_ID_C	History Detail ID	SR	TICKETID	Service Request	This is a GE Digital APM key field.
MI_DTWKHIST	MI_DTWKHIST_SAP_SYSTEM_C	CMMS System	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	Automatically populated by the Maximo System.	This is a GE Digital APM key field.

Maximo Recommendation Mappings

The following tables contain a list of GE Digital APM Recommendation fields that are used to populate Maximo Work Orders and Service Requests when you use the Maximo Notification Management Adapter:

Values Mapped to Maximo Work Order from GE Digital APM Recommendation

GE Digital APM Family	GE Digital APM Field	Maximo Object Structure	Maximo Field
MI_REC	MI_REC_ASSET_ID_CHR	WORKORDER	ASSETNUM
MI_REC	MI_REC_SHORT_DESCR_CHR	WORKORDER	DESCRIPTION
MI_REC	MI_REC_LONG_DESCR_TX	WORKORDER	DESCRIPTION_LONG
MI_REC	MI_REC_LOC_ID_CHR	WORKORDER	LOCATION
MI_REC	MI_REC_SITE_C	WORKORDER	SITEID
MI_REC	MI_REC_TARGE_COMPL_DATE_DT	WORKORDER	TARGCOMPDATE
CONSTANT	WORKORDER	WORKORDER	WOCLASS
CONSTANT	PM	WORKORDER	WORKTYPE
CONSTANT	Add/Change	WORKORDER	@action

Values Mapped to Maximo Service Request from GE Digital APM Recommendation

GE Digital APM Family	GE Digital APM Field	Maximo Object Structure	Maximo Field
MI_REC	MI_REC_ASSET_ID_CHR	SR	ASSETNUM
MI_REC	MI_REC_SHORT_DESCR_CHR	SR	DESCRIPTION

MI_REC	MI_REC_LONG_DESCR_TX	SR	DESCRIPTION_LONG
MI_REC	MI_REC_LOC_ID_CHR	SR	LOCATION
MI_REC	MI_REC_SITE_C	SR	SITEID
MI_REC	MI_REC_TARGE_COMPL_DATE_DT	SR	STATUSDATE
CONSTANT	SR	SR	CLASS
CONSTANT	Add/Change	SR	@action

Manage Jobs in the Administration Center

This topic provides a list of all procedures related to running jobs in the APM Connect Administration Center, as well as links to the related concept and reference topics.

Schedule a Job

Using the APM Connect Administration Center, you can extract items from the EAM source systems to create and update records in GE Digital APM. While you can run a Job any time you want to extract new or updated items from the EAM source by executing a [Run-Now Job](#), you will probably want to schedule the items to be extracted automatically based on the schedule parameters. This method ensures synchronization between your EAM database and your GE Digital APM database. This topic describes how to schedule a recurring Job in the APM Connect Administration Center.

Note: You cannot run two Jobs of the same kind at the same time. For example, you cannot run two Equipment Jobs at the same time.

Before You Begin

Before you can schedule a Job, you must complete the following:

- Ensure that a Job is [imported](#) in the **Job Conductor**.
- Apply the filter parameters for the Job you want to execute in the context file.

Steps

1. From the **Menu** pane, in the **Conductor** section, select **Job Conductor**.

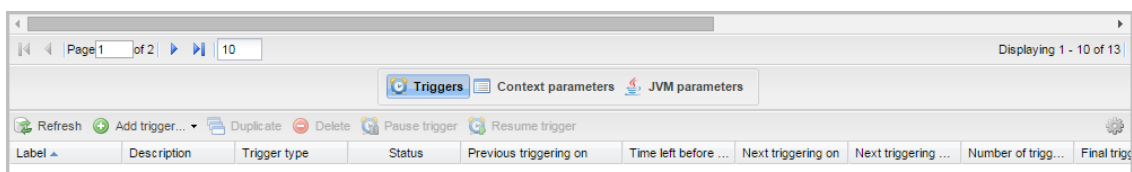
The **Job Conductor** pane appears, displaying the Jobs that can be executed.

2. Select the Job you want to schedule.

Note: If the Job you want to execute is not in the workspace, you must [import the Job](#) into the **Job Conductor**.

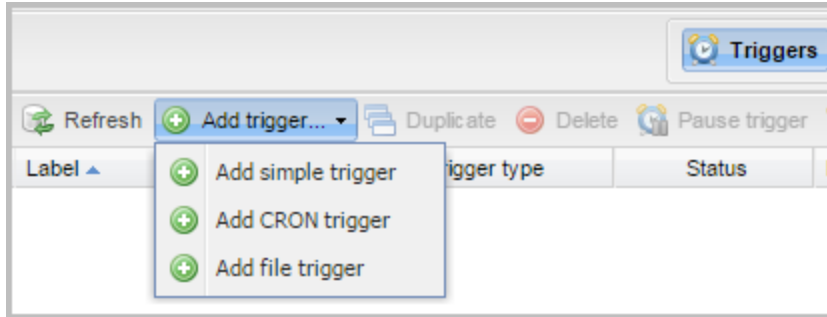
3. At the bottom of the **Job Conductor** workspace, select **Triggers**.

The **Triggers** section appears.



4. In the **Triggers** section, select **Add trigger**.

A drop-down menu appears, displaying the options for the types of triggers you can add.



The following trigger is applicable to APM Connect data extractions:

- **CRON trigger:** A time-based trigger that generates the Job and executes it multiple times at a specified date and time. Cron Trigger is most widely used because it allows the user to set the repetition of execution with more accuracy. For example, a Cron trigger can be set in such a way that it is executed every 10 minutes starting from 10 A.M. to 11 A.M. on every Friday in January, March, August, and December in the year 2015.

5. Select the **Add CRON trigger** button.

The **Add CRON trigger** section appears on the right side of the page.

6. Enter the trigger details using the following guidelines:

- **Label:** Enter a name for the trigger.
- **Description:** Enter a description for the trigger.
- **Time zone strategy:** Select JobServer time.
- **Minutes:** Enter the time interval (in minutes) after which the execution needs to be repeated.
- **Hours:** Enter the time (in hours) when the execution should begin.
- **Days of month:** Enter the days of the month on which the Job should be executed.
- **Months:** Enter the months during which the Job should be executed.
- **Days of week:** Enter the days of the week on which the Job should be executed.
- **Years:** Enter the year during which the Job should be executed.

7. Select **Save**.

The new trigger is created and appears in the **Triggers** section.

The Job is scheduled.

Execute a Run-Now Job

While you can use the APM Connect Administration Center to [schedule Jobs](#) to run on a recurring basis, you can run a previously scheduled Job at any time to extract new or updated items. This topic describes how to execute a Run-Now Job.

⚠ IMPORTANT: You cannot run two Jobs of the same kind at the same time. For example, you cannot run two Equipment Jobs at the same time.

Steps


1. In the **Job Conductor** workspace, select the Scheduled Job that you want to run.
2. Select **Run**.

The Job is run.

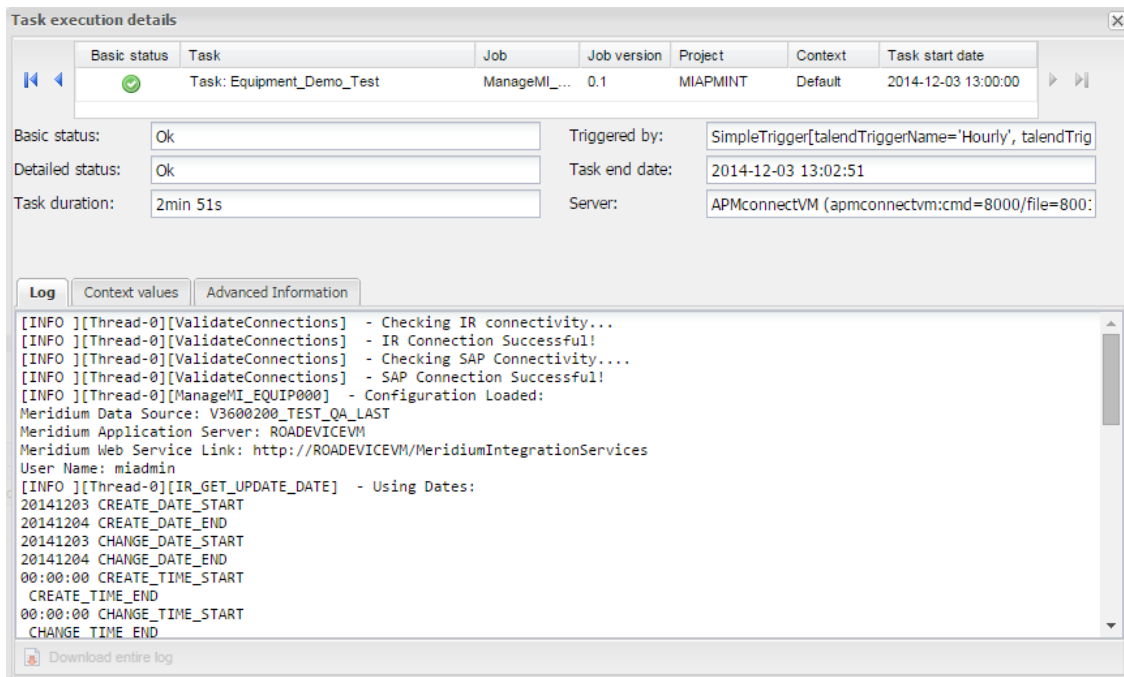
View the Execution Log

You can view the execution log for information about the Job execution such as its status, ID, trigger type, and other details. The log also contains information about the errors and warnings that occurred during the execution process. The execution details are available for any Job that appears in the **Job Conductor** workspace. This topic describes how to view the execution log.

Steps

1. In the **Job Conductor** workspace, select the  button next to the Job whose execution details you want to view.

The **Task execution details** window appears, displaying the details of the latest execution.



Basic status	Task	Job	Job version	Project	Context	Task start date
Ok	Task: Equipment_Demo_Test	ManageMI_...	0.1	MIAPMINT	Default	2014-12-03 13:00:00

Basic status: Ok

Detailed status: Ok

Task duration: 2min 51s

Triggered by: SimpleTrigger[talendTriggerName='Hourly', talendTrig

Task end date: 2014-12-03 13:02:51

Server: APMconnectVM (apmconnectvm:cmd=8000/file=800:

Log Context values Advanced Information

```
[INFO ][Thread-0][ValidateConnections] - Checking IR connectivity...
[INFO ][Thread-0][ValidateConnections] - IR Connection Successful!
[INFO ][Thread-0][ValidateConnections] - Checking SAP Connectivity...
[INFO ][Thread-0][ValidateConnections] - SAP Connection Successful!
[INFO ][Thread-0][ManageMI_EQUIP000] - Configuration Loaded:
Meridium Data Source: V3600200_TEST_QA_LAST
Meridium Application Server: ROADEVICEVM
Meridium Web Service Link: http://ROADEVICEVM/MeridiumIntegrationServices
User Name: miadmin
[INFO ][Thread-0][IR_GET_UPDATE_DATE] - Using Dates:
20141203 CREATE_DATE_START
20141204 CREATE_DATE_END
20141203 CHANGE_DATE_START
20141204 CHANGE_DATE_END
00:00:00 CREATE_TIME_START
CREATE_TIME_END
00:00:00 CHANGE_TIME_START
CHANGE_TIME_END
```

Download entire log

You can view three types of information in the **Task execution details** window:


- In the **Log** section, view the sequence of execution, error messages, and warning messages.
- In the **Context values** section, view the values that were passed into the parameters of the executed Job.
- In the **Advanced Information** section, view information about the executed Job.


Update Existing Jobs

Occasionally, changes will be made to the .zip files associated with an adapter Job. When changes are made to the adapter through a .zip file, the existing Job must be updated by reimporting the .zip file. This topic describes how to update an existing Job.

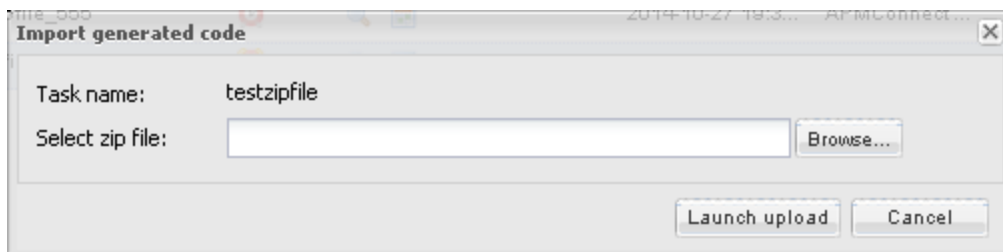
Steps

1. In the **Job Conductor** workspace, select the Job for which the file has been updated.
2. On the **Job Conductor** toolbar, select **Delete**.

 **Note:** If you do not delete the existing Job, the Job will not update properly, and the Job cannot be executed.

3. On the **Job Conductor** toolbar, select **Add**.
The **Execution task** pane is activated.
4. In the **Execution task** pane, in the **Label** box, enter a label for the Job.
5. In the **Description** box, enter a description for the Job.
6. Select the **Active** check box.
7. In the **Job** section, select .

The **Import generated code** window appears.



8. Select **Browse** to navigate to the file containing the adapter Jobs that have been updated.
9. Select the appropriate file.
10. On the **Import generated code** window, select **Launch upload**.
11. The **Project**, **Branch**, **Name**, **Version**, and **Context** text boxes are automatically populated with appropriate values.
12. In the **Execution Server** list, select the server on which the Job should be executed.
13. Select **Save**.

The updated adapter Jobs are imported into the APM Connect Administration Center.

APM Connect Administrative Help

This topic provides a list of help topics related to the APM Connect administrative settings

APM Connect EAM Jobs

The APM Connect EAM Jobs contains a result grid to access the details of the EAM SAP Cloud jobs. Additionally, from the APM Connect EAM Jobs you can access the Interface Log record for each SAP Cloud job.

Access APM Connect EAM Jobs

Steps

1. Access **Operations Manager** , and then select **APM Connect EAM Jobs**.

The **APM Connect EAM Jobs** page appears.


APM Connect EAM Jobs				
 1 - 9  of 9 record(s)				
Job ID	Job Description	Status and Log	Date/Time	User
64259652863	WORKHISTORY_LOAD	 Complete 	05/24/2017 16:08:36 PM	Administrator
64259652843	FUNCTIONAL_LOCATION_LOAD	 Complete 	05/24/2017 16:08:02 PM	Administrator
64259652834	EQUIPMENT_LOAD	 Complete 	05/24/2017 16:07:22 PM	Administrator
64259652827	STATIC_DATA_LOAD	 Complete 	05/24/2017 16:06:50 PM	Administrator
64259652817	EQUIPMENT_LOAD	 Complete 	05/24/2017 16:03:38 PM	Administrator


Access the Details of an EAM Job




You can view the details of EAM Adapter jobs such as status, time and date, and the associated interface log record.


Steps

1. [Access the APM Connect EAM Jobs.](#)
2. In the **Status and Log** column, view the status of each job.

Tip: If necessary, you can cancel an import job by selecting the  button that appears in the **Status and Log** column. If you cancel a job, any changes that have already occurred are *not* removed, therefore, you may need to manually modify records to update or remove unnecessary data.

Status	Description
Waiting	Initial state when job is created. The data import job is queued for pre-processing on the APM Connect Server.
Staging In Progress	The data import job is being prepared on the APM Connect Server.
Staging Failure	The data import job failed during preparation.
Staging Complete	The data import job was prepared successfully.
Dataloader Enqueued	The maximum number of data load jobs has been exceeded, as determined in the APM Connect Connection Records , or there is a job of the same type running. The data import will begin once the other jobs are complete.
Configuring Dataloader	The data import job is configuring the proper user roles and arranging data processing for most efficient execution flow.
In Progress	The data import job is loading data into the GE Digital APM Data Source.
Data Synchronization in Progress	The data import job is synchronizing the loaded data and relationships across the APM Data Source.
Job Cancelling	The data import job is in the process of being canceled. This occurs after you select  .


Status	Description
Cancelled by User	<p>The data import job was cancelled successfully.</p> <p> Note: When a job is cancelled, the data imported prior to cancelling is not removed.</p>
Errors	<p>The data import is complete, but encountered one or more errors. You can download the log file to view detailed error messages.</p>
Complete	<p>Data has been imported into GE Digital APM.</p> <p> Note: If the  icon appears, the data was imported with warnings. You can download the log file to view detailed warning messages.</p>

- In the **Status and Log** column, select  on the row corresponding to the EAM job for which you want to access the log.

The log file is downloaded.

- To access the Interface Log record for a specific job, in the **Job ID** column select the job ID that you want to open.

The **Record Manager** page appears, displaying the datasheet for the selected job.

- To view the information contained in the **Log Text**, select the  in the **Log Text** box.

A window appears, displaying details about the job such as error messages, warnings concerning the data load, and general information regarding the data records that were loaded.

APM Connect

In the **APM Connect** section of **Operations Manager**, you can manage the connections used by the APM Connect Adapters. The APM Connect Adapters facilitate data transfers to and from GE Digital APM.

Access the APM Connect Page

Steps

1. Access **Operation Manager** , then select **Connections**, and then select **APM Connect**.

The **APM Connect** workspace appears.

The screenshot shows the 'APM Connect Configuration' page. On the left, a navigation pane lists various connection types, with 'APM Connect' highlighted. The main content area is titled 'APM Connect Configuration' and includes 'Delete' and 'Save' buttons. Below the title are three tabs: 'General Settings' (selected), 'Data Loader Settings', and 'EAM Settings'. The 'General Settings' tab contains the following configuration options:

- APM Connect Server Settings**
- Connection Parameters**
- Application Server**: [Empty text box]
- Integration Server**: localhost
- Connection String**: http://localhost:8040/
- Maximum Concurrent DL and EAM Jobs**: 1 (dropdown menu)
- Timeout (ms)**: 100000
- Network Credentials**
 - Use Authentication
 - Username**: [Empty text box]
 - Password**: [Empty text box]

Establish Connection from GE Digital APM

To load data into GE Digital APM using the APM Connect Data Loaders or the EAM Adapters. You must establish the connection between your APM Connect component and GE Digital APM.

Steps

1. [Access the APM Connect page.](#)

The **APM Connect Configuration** workspace appears.

2. In the **APM Connect Configuration** workspace, configure the parameters on the [APM Connect Connection record](#) in the following sections.

- [General Settings](#): Established the connection between the APM Connect server and GE Digital APM.

⚠ IMPORTANT: The **General Settings** section must be configured if you are using either the Data Loaders or the EAM adapters.

- [Data Loaders Settings](#): Stores the staging database parameters and the remote file server settings.
- [EAM Settings](#): Used to [schedule work orders](#), which determine how frequently work orders will be transferred to your SAP.

📌 Note: These settings are only required for the SAP adapters.

3. Select **Save**.

The connection between APM Connect and GE Digital APM is established.

Determine Logging Level

You can set the logging level that will determine the logging messages included in the Data Loader log file.

Steps

1. [Access the APM Connect page](#), and then select **Data Loaders** settings.

The **Data Loaders Settings** workspace appears.

2. In the **Logging Level** box, use the drop-down to select one of the following logging levels:
 - **Debug**: The default logging level, and the highest level of logging. Selecting debug will return the most details and is helpful when trying to debug the application.
 - **Info**: Returns information message indicating the progress of the application, and is the second highest level of logging.
 - **Warn**: Returns warnings detected during the loading process.
 - **Error**: The lowest level of logging returning errors only.

Notes:

- Logging levels are hierarchical. For example, if you select **Info**, you will see all warnings and errors. If you select **Error**, you will only see errors.
- If you are loading a large amount of data, you should use logging level Warn or Error to improve performance, unless debugging a problem.

3. Select **Save**.

The record is saved.

Results

- Once the record is saved, subsequent data loads will return log files with the logging level you determined. The logging level will only apply to future data loads. Meaning if you change the level from **Error** to **Warn** historic log files will not be updated with more details. It will only apply to new data loads.

Schedule Work Orders

Steps


1. [Access the APM Connect page.](#)

The **APM Connect Configuration** page appears.

2. Select **EAM Settings**.


The **EAM Settings** page appears.

3. In the **Scheduling Properties** section, select **Edit Schedule**.

 **Note:** If there is a previously schedule item, a schedule summary will be displayed next to **Edit Schedule**. If there is no scheduled item, **Not scheduled** appears next to the **Edit Schedule** button.

4. On the **Edit Schedule** window, select the **Recurrence** check box.

5. In the **Time Zone** box, select the appropriate time zone.

6. In the **Start** box, select  to schedule the start date and time.

- a. Select one of the following as appropriate:

- **The current date:** Select this option to use the current time and date as the starting point.
- **Clear:** Select this option to clear the current selection.
- **<Date>:** Select this option to use the selected date as the start date.

- b. Select , and then select the appropriate time.

- c. Select **Close**.

7. In the **Every** section, in the interval box, enter the numeric value for how often you want the generation to occur.

8. In the **Every** section, in the units box, select the interval unit (i.e., minutes, hours, years, etc).

9. In the **Every** section, in the begin box, select one of the following:

- **From start time:** Select this option to start the recurrence from the previously selected start time.
- **After last occurrence:** Select this option to begin the generation after the last time the job ran.

10. In the **End** box, based on when you want the recurrence to end, use the drop-down to select one of the following:

- **Never:** If you select this option, then the recurrence will not end.
- **After:** If you select this option, then you will enter a number of occurrences after which the generation will end.
- **Time & Date:** Select this option to use the calendar to select a time and date when the generation will end.


11. Select **OK**.


The schedule summary appears next to the **Edit Schedule**. Additionally, the scheduled item can be viewed in **Operations Manager** in **Scheduling**.

APM Connect Connection Records

The **APM Connect** workspace stores information about connections used by APM Connect. Specifically, it manages the connection between GE Digital APM and APM Connect components. This topic provides an alphabetical list and description of the fields that exist in the **APM Connect** workspace. The information in the table reflects the baseline state and behavior of these fields.

General Setting

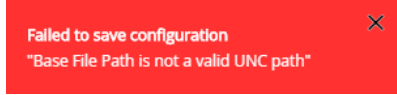
Field	Data Type	Description	Behavior and Usage
Application Server	String	The name of your GE Digital APM server.	Enter the name of your GE Digital APM Server to establish your connection to your APM Connect server.
Connection String	String	The URL indicating the APM Connect server host and port used to connect GE Digital APM and the APM Connect sever.	<p>This field is required.</p> <p>The connection string is a combination of the APM Connect Connection parameters APM_CONNECT_HOST and APM_CONNECT_PORT as defined in the context file.</p> <p>For example, if the host was <i>apmconnect</i> and the port was <i>8040</i>, the connection string would be <i>http://apmconnect:8040/</i>.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p> Note: This string is used by the file SAP_ConnectorService.jar.</p> </div>


Integration Server	String	The location of the server where the Integration Services Integration Services is installed.	This field is required.
Maximum Concurrent DL and EAM Jobs	Numeric	The number of Data Loading jobs or EAM jobs that can run at the same time.	<p>This field is required. The default value is 1. This means that only one job can run at a time. The maximum value allowed is 5. When the number of concurrent jobs is low, data ingestion into GE Digital APM is faster and the system is less likely to become overloaded.</p> <div data-bbox="1062 926 1398 1465" style="border: 1px solid black; padding: 5px;"> <p> Note: Two Data Loaders of the same type are not allowed to run at the same time. For example, if you initiated two Taxonomy data loads at the same time, the second job would not begin loading until the first is complete regardless of the value in the field.</p> </div>
Password	String	The password for the APM Connect network.	This field is required only if you are using network authentication.

Password	String	The password of the proxy server.	This field is required only if you are using proxy server authentication.
Port	String	The port number of the PostgreSQL server.	The default value is 5432. This value must match the value specified for the IR_PORT parameter in the Context File.
Proxy Server	String	The location of the proxy server.	This field is required only if you are using proxy server authentication.
Timeout (ms)	Numeric	The time in milliseconds before the connection between the APM Connect server and GE Digital APM will timeout.	The default value is 100,000 ms, and is populated automatically.
Use Authentication	Boolean	Indicates whether or not authorization will be used.	If the check box is selected, authentication will be used, and you must enter the network user name and password.
Use Proxy Server	Boolean	Indicates the whether or not to use a proxy server.	If the check box is selected, the proxy server will be used.
Use Proxy Server Authentication	Boolean	Indicates whether or not authentication will be used to the proxy server.	If the check box is selected, authentication will be used for the proxy server.
Username	String	The user name for the APM Connect network.	This field is required only if you are using network authentication.

Username	String	The user name for the proxy server.	This field is required only if you are using proxy server authentication.
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Data Loader Settings

Field	Data Type	Description	Behavior and Usage
Base File Path	String	The path to the file server.	<p>This field is required.</p> <p>An example of a valid server path is <code>\\host-server\share\subfolder</code>. If an invalid server path is entered, an error message will appear.</p> 
Database Name	String	The database name of the Data Loader staging (IR) database.	None.
Host Name	String	The host name of the Data Loaders staging (IR) database.	None.

<p>Logging Level</p>	<p>String</p>	<p>Determines the logging level for the data loader logs.</p>	<p>The following logging levels can be selected:</p> <ul style="list-style-type: none"> • Debug: The default logging level, and the highest level of logging. Selecting debug will return the most details and is helpful when trying to debug the application. • Info: Returns information message indicating the progress of the application, and is the second highest level of logging. • Warn: Returns warnings detected during the loading process. • Error: The lowest level of logging returning errors only. <div style="border: 1px solid yellow; padding: 5px;"> <p> Notes:</p> <ul style="list-style-type: none"> • Logging levels are hierarchical. For example, if you select Info, you will see all warnings and errors. If you select Error, you will only see errors. • If you are loading a large amount of data, you should use logging level Warn or Error to improve </div>
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			performance, unless debugging a problem.
Password	String	The Data Loader staging database (IR) password.	None.
Password	String	The password of the file server.	None.
Use File Path Authentication	Boolean	Indicates whether or not to use authentication when accessing the file server.	If selected, authentication will be used for the file path.
UserName	String	The Data Loader staging database (IR) user name.	None.
Username	String	The user name of the file server.	None.

EAM Settings

Field	Data Type	Description	Behavior and Usage
Work Order Generation Schedule	Boolean	Stores the scheduling mechanism for transferring work orders to SAP.	To determine the schedule, you must schedule work orders.