



## Meridium Enterprise APM System Requirements

# V4.2.0.0



## Meridium Enterprise APM System Requirements

V4.2.0.0

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## About This Document

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This file is provided so that you can easily print this section of the Meridium Enterprise 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 Meridium Enterprise APM Help system can be accessed within Meridium Enterprise APM itself or via the Meridium APM Documentation Website (<https://www.meridium.com/documentation/WebHelp/WebHelpMaster.htm>).

 **Note:** If you do not have access to the Meridium APM Documentation Website, contact [Meridium Global Support Services](#).

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## Basic Meridium Enterprise APM System Hardware and Software Requirements

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The *basic Meridium Enterprise APM system* consists of machines and software that are required for any Meridium Enterprise APM implementation to function. Implementation of the basic Meridium Enterprise APM system gives you the foundation-level analysis tools within the Meridium Enterprise APM. This section of the documentation provides details on the hardware and software requirements for each machine within the basic system.

Other hardware and software may be required for a specific module or feature that is not required to deploy the basic Meridium Enterprise APM system. System requirements for specific modules and features are located in the documentation for that module or feature.

# Meridium Enterprise APM Client

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## Hardware Requirements

The following hardware requirements outline the *minimum* hardware required for any machine or mobile device that will access the Meridium Enterprise APM system. These requirements account for the Meridium Enterprise APM software only. Additional hardware may be required on clients where other components are installed. These requirements may not be sufficient, depending upon how your system is configured.


## Desktops and Laptops

Minimum requirements:

- Two Processor Cores, 2 GHz
- 4 GB RAM (8 GB RAM recommended)
- 8 GB of available hard drive space
- 13" screen
- 1024 X 768 screen resolution

## Mobile Devices

Support for mobile devices is provided in two resolution view modes: full or limited. Full-resolution view mode supports access to the entire Meridium Enterprise APM system. Limited-resolution view mode supports limited access to overview pages and data collection. Resolution view mode is determined by the type of device that is used to access Meridium Enterprise APM, and is not a selectable option.

 **Note:** Interaction with diagramming and design canvases is not available on touch-screen devices. If needed, use a mouse peripheral to utilize this functionality.


Minimum Requirements	Devices Tested
<p>Minimum requirements for full-resolution view mode:</p> <ul style="list-style-type: none"> <li>• Two Processor Cores, 2 GHz</li> <li>• 2 GB RAM</li> <li>• 8 GB of available hard drive space</li> <li>• 7" screen</li> <li>• 1920 X 1200 screen resolution</li> </ul>	<p>Devices used in Meridium testing environment:</p> <ul style="list-style-type: none"> <li>• Apple iPad 4th Generation</li> <li>• Apple iPad Air</li> <li>• Apple iPad Air 2</li> <li>• Apple iPad Mini 2</li> <li>• Apple iPad Mini 3</li> <li>• Microsoft Surface Pro 3</li> </ul>
<p>Minimum requirements for limited-resolution view mode:</p> <ul style="list-style-type: none"> <li>• Two Processor Cores, 1 GHz</li> <li>• 1 GB RAM</li> <li>• 8 GB of available hard drive space</li> <li>• 4" screen</li> <li>• 1024 X 600 screen resolution</li> </ul>	<p>Devices used in Meridium testing environment:</p> <ul style="list-style-type: none"> <li>• Samsung Galaxy Tab 4 (7")</li> <li>• Samsung Galaxy Tab 4 (10")</li> </ul>

## Software Requirements

The following software components are required on any machine or device that will access the Meridium Enterprise APM system.

One of the following browsers is required for desktops, laptops, and mobile devices:

- Chrome 43 and higher
- Internet Explorer 11
- Microsoft Edge
- Safari 8 (Mac only)

 **Note:** You can access Meridium Enterprise APM via the browser on a mobile device, but it is recommended that you install and use the Meridium Enterprise APM mobile application for an enhanced experience. On a mobile device, you should set your default browser to the desktop versions of Chrome or Internet Explorer (as opposed to the application versions) in order to ensure that the mobile application works as intended.

## Desktops and Laptops

One of the following operating systems is required for desktops and laptops:




- Apple OS X Yosemite
- Windows 7 (32-bit)
- Windows 7 (64-bit)
- Windows 8.1 (64-bit)
- Windows 10 (64-bit)

## Mobile Devices

One of the following operating systems is required for mobile devices:

- Android Kitkat 4.4
- Android Lollipop 5.0
- Android Marshmallow 6.0
- Apple iOS 8
- Windows 8.1 (64-bit)
- Windows 10 (64-bit)

 **Note:** Accessing Reference Documents in the Meridium Enterprise APM mobile application will vary depending on your device platform. For example, on Windows and Android devices, the first time you access Reference Documents, you will be prompted to select the application in which you want to open a file, and this selection will then become the default. Apple iOS will always prompt. On all platforms, you will also be prompted when your device's platform does not recognize the file type that it is attempting to download.

# Meridium Enterprise APM Server


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## Hardware Requirements

The following hardware requirements outline the *minimum* hardware required for any machine that will serve as the Meridium Enterprise APM Server. These requirements account for the Meridium APM software only. Additional hardware may be required on a Meridium Enterprise APM Server machine on which other components are installed. These minimum requirements may not be sufficient, depending upon how your system is configured and the anticipated user load the system must service.

- Four Processor Cores, 2+ GHz
- 16 GB RAM
- 100 GB of available hard drive space on, at a minimum, 7.2K RPM drives

A minimum of a 100BASE-TX switched network is required between the Meridium Enterprise APM Server and the Database Server.

 **Note:** For maximum system availability, we recommend deploying Meridium Enterprise APM servers in a clustered configuration to facilitate load balancing and failover in the event of a hardware problem. Meridium supports Microsoft Clustering Services and Network Load Balancing for clustered deployment configurations.

If you are using a virtual machine (VM) to host your Meridium Enterprise APM Server, we recommend that:

- You increase the physical server CPU and hard drive space requirements by 20% to ensure that the application will perform equivalently in a virtualized environment.
- You double the physical server memory requirements.
- Each VM have its own dedicated processor cores and memory allocation to ensure appropriate performance.

Meridium, Inc. supports Hyper-V and VMWare platforms.

These requirements may not be sufficient, depending upon how your system is configured and the anticipated user load. 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, [consult a member of the Meridium, Inc. Professional Services department](#).

## Software Requirements

The following software components are required on any machine that will serve as the Meridium Enterprise APM Server. This table is intended to be used as a reference of the behavior of the Meridium Enterprise APM Server and Add-ons installer as it relates to

each component. In addition to the components that appear in this list, there are configuration settings that will need to be set depending upon your operating system.

A Windows Server 2012 R2 (64-bit) operating system is required to properly run Meridium software, and must be installed on the machine that will serve as the Meridium Enterprise APM Server.

**⚠ IMPORTANT:** Ensure that you have installed the latest update for Windows Server 2012 R2 (64-bit) before installing Meridium Enterprise APM.

Software Name and Version	Where You Can Obtain It	Required?	Behavior of Meridium Enterprise APM Server and Add-ons Installer
Microsoft SQL Server 2012 Management Objects	Microsoft	Yes	If this is not found, the installer will install it automatically.
ReportViewer2015	Microsoft	Yes	If this is not found, the installer will install it automatically.
IIS 8.5 -and- IIS 6.5 WMI Compatibility Roles	Microsoft	Yes	If this is not found, an error message will appear.
Microsoft ADOMD.Net	Microsoft	Yes, if Rounds will be installed.	If this is not found, the installation will continue.
SQL Server Data Tools (SSDT) (if you are using SQL Server Reporting Services 2012)	Microsoft	Yes, if you want to design reports on that machine. Otherwise, this is not required.	

Software Name and Version	Where You Can Obtain It	Required?	Behavior of Meridium Enterprise APM Server and Add-ons Installer
Microsoft Access Database Engine (ACE) 2010	Meridium Enterprise APM distribution package	Yes	<p>The installer does not check for this component.</p> <p>Microsoft Database Access (ACE) is required on the Meridium Enterprise APM Server if you have translations stored in your database and want those translations to be exported during the database upgrade process.</p> <p>The Microsoft ACE software is stored in the following location in the Meridium Enterprise APM distribution package:  <b>Required 3rd Party Components\Microsoft ACE\12.0.</b></p> <p>To install this component, open the file <b>AccessDatabaseEngine_x64.exe</b>.</p>
WinMerge	This is a third-party component, and must be obtained from WinMerge Development.	Yes, if you will use the Meridium Enterprise APM Database Comparison Tool. This tool is required if you are upgrading Meridium Enterprise APM, but is not required if you are performing a first-time installation.	If this is not found, an error message will appear. However, you can continue through the installation process without installing WinMerge.

Software Name and Version	Where You Can Obtain It	Required?	Behavior of Meridium Enterprise APM Server and Add-ons Installer
Microsoft Message Queuing (MSMQ)	Microsoft	Yes	If this is not found, you can continue through the installation process. This service can be activated through roles in the Server Manager.
Microsoft Visual C++ Redistributable Package (x86)	Meridium Enterprise APM	Yes	If this is not found, the installer will install it automatically.

# Meridium Enterprise APM Database Server

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## Hardware Requirements

The following hardware requirements outline the *minimum* hardware required for any machine that will serve as the Meridium Enterprise APM Database Server. These requirements account for the Meridium Enterprise APM software only. Additional hardware may be required on Meridium Enterprise APM Database Server machines where components other than the Meridium Enterprise APM database are installed. These requirements may not be sufficient, depending upon how your system is configured.

- Four Processor Cores, 2+ GHz
- 32 GB RAM
- 200 GB of available hard drive space on, at a minimum, 10K RPM drives

Note also that:

- While Meridium, Inc. supports the use of RAID 5, which has benefits in its recoverability features, Meridium, Inc. *recommends the use of RAID 10* for the best overall database performance.
- Oracle requires instance tuning to use memory cache effectively. For Oracle Database Servers, a comparable UNIX-based system can be used.
- A minimum of a 100BASE-TX switched network is required between the Meridium Enterprise APM Server and the Meridium Enterprise APM Database Server.

## Software Requirements

Meridium Enterprise APM supports the use of an Oracle or SQL Server Database Server.

### Oracle Requirements

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Meridium Enterprise APM requires that you use Oracle Server 12.1 Enterprise Edition. The Meridium, Inc. testing environment uses Oracle Server 12.1.0.2.

### SQL Server Requirements

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Meridium Enterprise APM requires that you use SQL Server 2012 or SQL Server 2014. If you are using SQL Server 2012, it must be SP2 CU2 or above. The Meridium, Inc. testing environment uses SQL Server 2012 Standard Edition SP2 CU2 and SQL Server 2014 Standard Edition RTM.

**⚠ IMPORTANT:** Meridium, Inc. does not support any modifications made to database tables directly or via third-party tools. Do not write data directly into or change data in database tables through any third-party tool.

Only access, add, or modify data related to Meridium, Inc. products via approved Meridium, Inc. procedures and processes. Accessing, adding, or modifying data by any

other method may result in data corruption, *and may void your Meridium, Inc. product warranty.* For more information, consult a member of the Meridium, Inc. Professional Services department.

# SQL Server Report Server

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## Hardware Requirements

The following hardware requirements outline the *minimum* hardware required for any machine that will serve as the SQL Server Report Server. These requirements account for the Meridium Enterprise APM software only. Additional hardware may be required on a SQL Server Report Server machine where other components are installed. These requirements may not be sufficient, depending upon how your system is configured.

- Two Processor Cores, 2+ GHz
- 8 GB RAM
- 25 GB of available hard drive space

If you are using a virtual machine (VM) to host your SQL Server Report Server, we recommend that:

- You increase the physical server CPU and hard drive space requirements by 20% to ensure that the application will perform equivalently in a virtualized environment.
- You double the physical server memory requirements.
- Each VM have its own dedicated processor cores and memory allocation to ensure appropriate performance.

Meridium, Inc. supports Hyper-V and VMWare platforms.

These requirements may not be sufficient, depending upon how your system is configured. 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, [consult a member of the Meridium, Inc. Professional Services department](#).

## Software Requirements

The following software components are required on any machine that will serve as the SQL Server Report Server.



Software Name and Version	Where You Can Obtain It	Required?	Behavior of Meridium APM Server and Add-ons Installer
SQL Server Reporting Services 2012 -or- SQL Server Reporting Services 2014	Microsoft	Yes	If it is not found, the installer will close.

## SQL Server Analysis Services

### Hardware Requirements

The following hardware requirements outline the *minimum* hardware required for SQL Server Analysis Services support in APM Metrics and Scorecards module. These requirements account for the Meridium Enterprise APM software only. Additional hardware may be required on a SQL Server Analysis Services machine where other components are installed. These requirements may not be sufficient, depending upon how your system is configured.

- Two Processor Cores, 2+ GHz
- 8 GB RAM
- 25 GB of available hard drive space

### Software Requirements

The following software components are required on any machine that will serve as the SQL Server Analysis Services server.

Software Name and Version	Where You Can Obtain It	Required?
SQL Server Reporting Services 2012 (Multi-Dimensional mode only)	Microsoft	Yes
-or- SQL Server Reporting Services 2014 (Multi-Dimensional mode only)		

## Meridium Enterprise APM Supported Software and Devices

The following tables describe the software and devices supported by Meridium Enterprise APM.

### Supported Software

Meridium Enterprise APM Components	Supported Third Party Components	Notes	V4.2.0.0
All Meridium Enterprise APM Components	.NET Framework 4.5		✓
AMS Analytics	AMS Intelligent Device Manager V13		✓
APM System Monitoring	MongoDB Community Edition		✓
GE Analytics	GE System 1 Fleet V2.0.040.0		✓
	RabbitMQ server V3.5.3 and above		✓

Meridium Enterprise APM Components	Supported Third Party Components	Notes	V4.2.0.0
Meridium Enterprise APM Client Operating System	Android Kitkat 4.4		✓
	Android Lollipop 5.0		✓
	Android Marshmallow 6.0		✓
	Apple iOS 8		✓
	Apple iOS 9		✓
	Apple OS X		✓
	Windows 7 (32- bit and 64-bit)	Applies to desktops and laptops.	✓
	Windows 8.1 (64- bit)	Applies to desktops, laptops, and mobile devices.	✓
	Windows 10 (64- bit)	Applies to desktops, laptops, and mobile devices.	✓
Meridium Enterprise APM Client Web Browser	Chrome 43 and higher		✓
	Internet Explorer 11		✓
	Microsoft Edge		✓
	Safari 8 (Mac only)		✓

Meridium Enterprise APM Components	Supported Third Party Components	Notes	V4.2.0.0
Meridium Enterprise APM Database	Oracle Server 12.1 Enterprise Edition	<p>Servers used in the Meridium, Inc. testing environment:</p> <ul style="list-style-type: none"> <li>• Oracle Server 12.1.0.1</li> <li>• Oracle Server 12.1.0.2</li> </ul>	✓
	SQL Server 2012 (SP2 CU2 or higher)	The Meridium, Inc. testing environment uses SQL Server 2012 Standard Edition SP2 CU2.	✓
	SQL Server 2014	The Meridium, Inc. testing environment uses SQL Server 2014 Standard Edition RTM.	✓
Meridium Enterprise APM Servers	Windows Server 2012 R2 (64-bit)		✓
Metrics and Scorecards	Microsoft SQL Server Analysis Services 2012		✓
	Microsoft SQL Server Analysis Services 2014		✓

Meridium Enterprise APM Components	Supported Third Party Components	Notes	V4.2.0.0
Process Data Integration	OSIsoft® PI Server version 3.4.390.16 with PI OPC DA/HDA Server version 1.2.7.0.		✓
	Matrikon Simulation tool, which simulates the MatrikonOPC Historical Data Access Suite		✓
	IP21 (Aspen ONE V8.0) Version 12.0.0.20	A direct connection to IP21 provides access to DA values only.	✓
	IP21 (Aspen ONE V8.0) Version 12.0.0.20 with MatrikonOPC IP21 Server Version 2.3.1.5322		✓
	Honeywell Uni-formance® Process History Database (PHD) Version 310.1.0.		✓
R Scripts	DeployR Open	The Meridium, Inc. testing environment uses DeployR Open 8.0.0.	✓
Reports	SQL Server Reporting Services 2012		✓
	SQL Server Reporting Services 2014		✓

Meridium Enterprise APM Components	Supported Third Party Components	Notes	V4.2.0.0
Rounds (iOS, Android and Windows tablet devices)	Any operating system that meets the Meridium Enterprise APM Client operating system requirements.		✓
	Windows Mobile 2003, 5.0, 6.0, and 6.5		✓
	Windows Embedded Handheld 6.5		✓
SAP Interfaces and ASI for SAP	SAP ECC 6.0 (Enhancement Packs [EhP] 1 through 7)		✓

## Supported Devices

Meridium Enterprise APM Components	Device	Notes	V4.2.0.0
Calibration Management*	Fluke 74x Documenting Process Calibrator		✓
	Fluke 75x Documenting Process Calibrator		✓

Meridium Enterprise APM Components	Device	Notes	V4.2.0.0
Rounds	Any Android, iOS, or Windows tablet that meets the Meridium Enterprise APM Client operating system requirements listed in the Supported Software table		✓
	Windows Mobile handheld devices		✓
	<b>Barcode Functionality</b>		
Device cameras for Android, iOS, and Windows tablets	This feature is only available when using the Meridium Enterprise APM mobile application.	✓	



Meridium Enterprise APM Components	Device	Notes	V4.2.0.0
	Intermec and Motorola scanners	Devices used in the Meridium Enterprise APM testing environment: <ul style="list-style-type: none"> <li>• Intermec CN70 device</li> <li>• Motorola MC9500-K Series device</li> <li>• Motorola PSION Omnii XT15 with 1D barcode reader</li> </ul>	✓
<b>RFID Functionality</b>			
	Intermec 70 Series scanners with the Intermec IP30 Handheld RFID reader	Device used in the Meridium Enterprise APM testing environment: <ul style="list-style-type: none"> <li>• Intermec CN70 device with an Intermec IP30 Handheld RFID reader</li> </ul>	✓

Meridium Enterprise APM Components	Device	Notes	V4.2.0.0
	ecom/Intermec i.roc Ci70 -Ex handheld device with LF or HF RFID reader		✓
Thickness Monitoring*	GE DMS Go	This device is not compatible with the Microsoft Edge browser.	✓
	GE DMS Go+	This device is not compatible with the Microsoft Edge browser.	✓
	GE DMS2		✓
	Olympus 37DL Plus Ultrasonic Thickness Gage		✓
	Olympus 38DL Plus Ultrasonic Thickness Gage		✓

\* Thickness Monitoring and Calibration Management use the Devices Interface, which is a UI that is configured to support the transfer of data between Meridium Enterprise APM and devices that Meridium, Inc. supports.

# AMS Analytics System Requirements

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## License Requirements

The AMS Analytics license is required to take advantage of the AMS Analytics functionality.

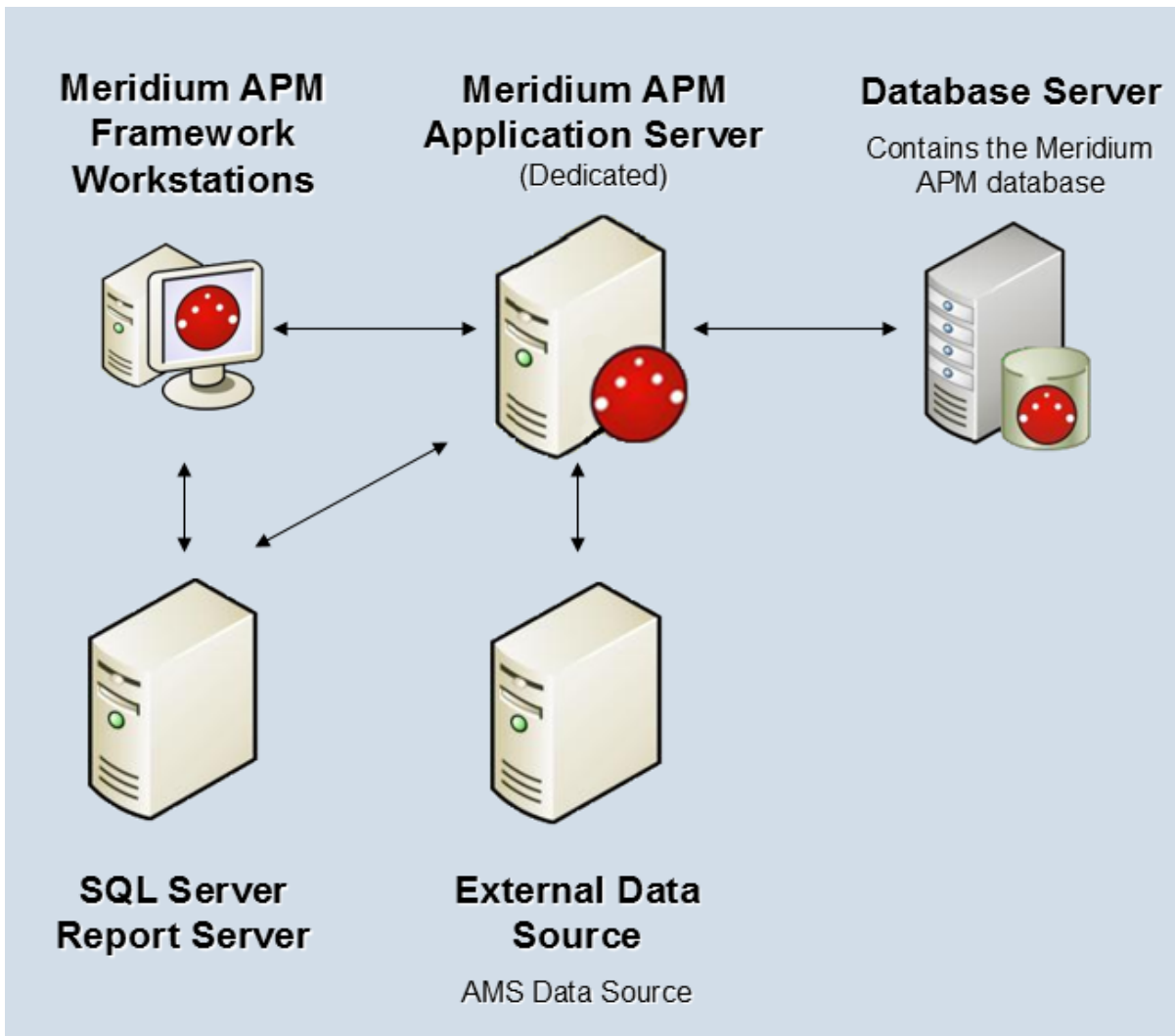
## Additional Components Required

In addition to the basic Meridium Enterprise APM system architecture, your system must also contain the following additional components:

- AMS Intelligent Device Manager V13, which is a third-party component and exceeds the scope of this documentation

## System Architecture

The following image shows how the additional components should be incorporated into the basic Meridium Enterprise APM system architecture to support this module.



## APM Connect System Requirements

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Meridium 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.

Access the APM Connect System Requirements Help and associated links from the APM Connect help system.

# Asset Criticality Analysis (ACA) System Requirements

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## License Requirements

The *Meridium APM Framework Tools* license is required to take advantage of ACA functionality.

In order to update your SAP system to reflect the criticality value that is determined in ACA, the licenses *SAP Interfaces – Foundation* and *SAP Interfaces - Criticality Assessment* are also required.

## Additional Components Required

Only the basic Meridium Enterprise APM system architecture is required for this feature to work correctly. No additional components are required.

# Asset Health Manager (AHM) System Requirements

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## License Requirements

The *Asset Health* license and the licenses for the modules that you want to use with AHM are required to take advantage of AHM functionality.

## Additional Components Required

When you install the Meridium Enterprise APM Server, the Meridium Asset Health Indicator Service is installed automatically. In order for the Asset Health Indicator Service to function as described within this documentation, you must start the Asset Health Indicator Service. After you do so, the Asset Health Indicator Service will allow the health indicator status values to be updated automatically.

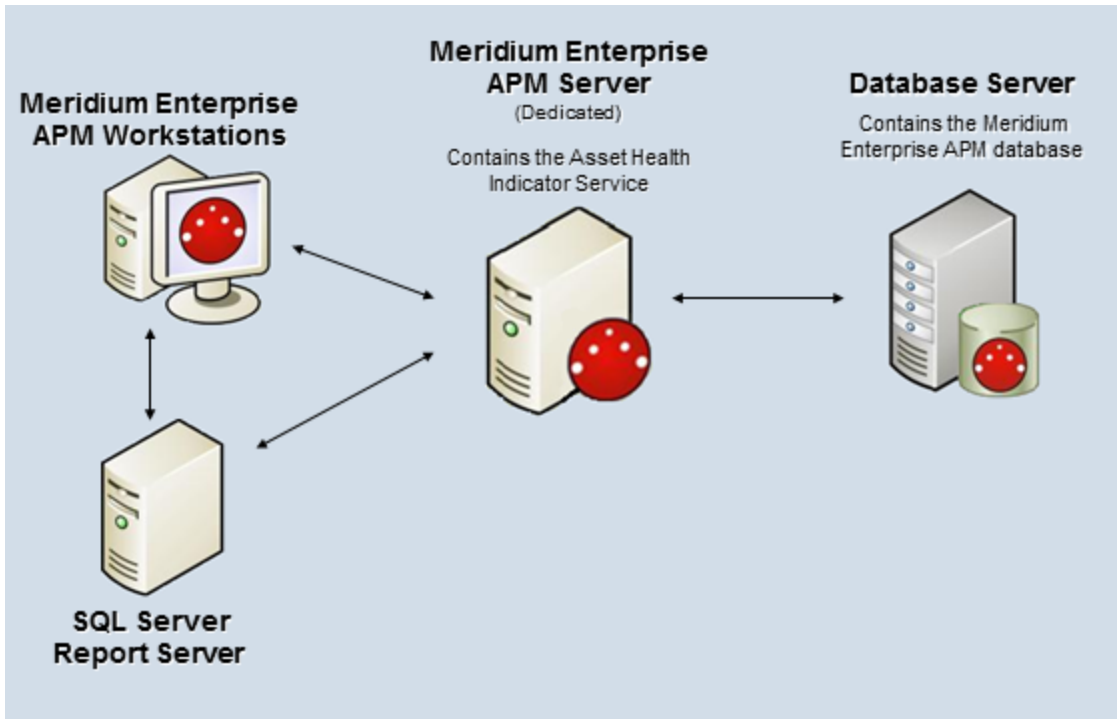
In addition, Asset Health Manager can be used to its complete potential only when it is integrated with one or more of the following modules:

- Rounds
- Asset Strategy Management
- Metrics and Scorecards
- Process Data Integration

Your system must also meet the system requirements for any of these additional modules that you plan to use with Asset Health Manager.

## System Architecture

The following image shows the architecture components that are required to support this module.



## Deploying Asset Health Manager

After you have installed and configured the basic Meridium Enterprise APM system architecture, you will need to perform some configuration steps specifically for Asset Health Manager.

If you want to use Asset Health Manager with [Process Data Integration](#) and [Policy Designer](#), you must also configure and start the services associated with these modules. For additional information on how services used by these three modules interact, select this link.



# Asset Strategy Implementation (ASI) System Requirements

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## License Requirements


The following licenses are required to take full advantage of ASI functionality:

- *Asset Strategy Management*
- *SAP Content for ASI*

## SAP System Requirements

The following SAP system versions are required to update items in SAP with changes made in ASI:

- **To create ASI/ASM objects in SAP and import ASI/ASM objects from SAP:** *SAP ECC 6.0 - Enhancement Packs (EhP) 1 and above.*
- **To update ASI/ASM objects in SAP:** *SAP ECC 6.0 - Enhancement Packs (EhP) 5 and above.*

 **Note:** ASI for SAP is not currently supported for SAP PI.

## Additional Components Required

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

- **The Asset Strategy Management (ASM) module.** ASI allows you to build Implementation Packages, which are containers of records that dictate the work that you want to perform and the Asset Strategies that contain the original work requests (Action Revision records). Asset Strategies are created in ASM.
- **An SAP System.** The connectivity to SAP is required only if you want to create items such as Maintenance Plans, Maintenance Items, and Task Lists from ASI. To take full advantage of the ASI module, we recommend that you integrate ASI with SAP.

# Asset Strategy Management (ASM) System Requirements

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## License Requirements

A limited version of the ASM module is available with a Meridium license. To experience ASM with full functionality, an *Asset Strategy Management* license is required.

## Additional Components Required

In addition to the basic Meridium APM system architecture, your system must also contain the following additional components if you wish to use Asset Strategy Implementation for packaging Actions from more than one strategy:

- **The Asset Strategy Implementation (ASI) module.** ASI allows you to build Implementation Packages, which are containers of records that dictate the work that you want to perform and the Asset Strategies that contain the original work requests.

# Asset Strategy Optimization (ASO) System Requirements

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## License Requirements

The following licenses are required to take full advantage of ASO functionality:

- *Asset Strategy Management*
- *Asset Strategy Optimization*

## Additional Components Required

In addition to the basic Meridium Enterprise APM system architecture, your system must also contain the following additional components:

- **The Asset Strategy Management (ASM) module.** ASO allows you to optimize Asset Strategies by running data simulations on existing Asset Strategies. Asset Strategies are created in ASM.

# Calibration Management System Requirements

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## License Requirements

The *Calibration* license is required to take advantage of the Calibration Management functionality.

## Additional Components Required

If you will use a documenting process calibrator to perform automated calibration, then the machine that will connect to that calibrator must have the Meridium Devices Service installed. The following devices are supported:

- Fluke 74x Documenting Process Calibrator
- Fluke 75x Documenting Process Calibrator

These devices may require additional drivers provided by the manufacturer.

# Cognitive Analytics System Requirements

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## License Requirements

The *Cognitive Analytics* license is required to take advantage of the Cognitive Analytics functionality.

## Deploying Cognitive Analytics

Cognitive Analytics is currently only deployable in APM Now. To use Cognitive Analytics in APM Now, you will need to perform some configuration steps specifically for Cognitive Analytics.

# Failure Modes and Effects Analysis (FMEA) System Requirements

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## License Requirements

The *RCM* license is required to take advantage of FMEA functionality.

## Additional Components Required

Only the basic Meridium Enterprise APM system architecture is required for this feature to work correctly. No additional components are required.

# Family Policy System Requirements

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## License Requirements

The *Family Policy* license is required to take full advantage of Family Policy functionality.

## Additional Components Required

Only the basic Meridium Enterprise APM system architecture is required for this feature to work correctly. No additional components are required.

# GE Analytics System Requirements

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## License Requirements


The GE System 1 Integration license is required to take advantage of the GE Analytics functionality.

## Additional Components Required


In addition to the basic Meridium Enterprise APM system architecture, your system must also contain the following additional components:

- GE System 1 Fleet V2.0.040.0, which is a third-party component and exceeds the scope of this documentation.
- RabbitMQ server V3.5.3 and above, which is a third-party component and exceeds the scope of this documentation

Data from GE systems, such as GE System 1 and GE Predix SmartSignal, is transferred to Meridium Enterprise APM via the GE Fleet Message Server. This GE Fleet Message Server represents the following components:

 **Note:** We recommend that these components be installed on the same machine in order to simplify the configuration of this module. However, in your system architecture, these components may be installed on separate machines.

- **GE System 1 Fleet:** Aggregates data from one or more GE systems and publishes the data to the RabbitMQ Server.

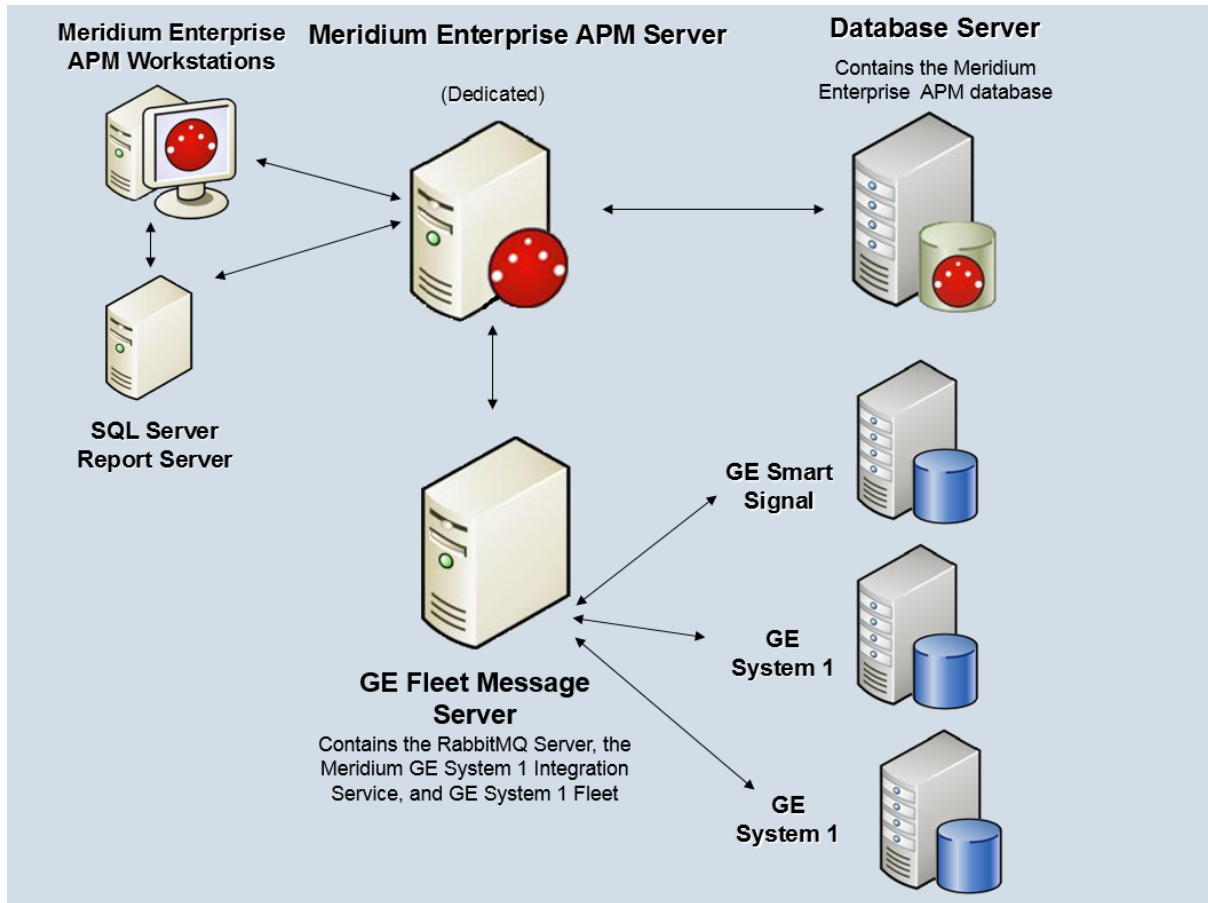
 **Note:** There can only be one GE System 1 Fleet per Meridium Enterprise APM database.

- **Meridium GE System 1 Integration Service:** A service that subscribes to the published data aggregated by the GE System 1 Fleet, and synchronizes the data to the Meridium Enterprise APM Database.
- **RabbitMQ Message Server:** an open source message broker used by GE System 1 Fleet to translate messaging protocols from the sender to the receiver.

## System Architecture

The following image shows how the additional components should be incorporated into the basic Meridium Enterprise APM system architecture to support this module.





## Deploying GE Analytics

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

# Generation Availability Analysis (GAA) System Requirements

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## License Requirements

The *Generation Management* license is required to take advantage of the Generation Availability Analysis functionality.

## Additional Components Required

In addition to the basic Meridium Enterprise APM system architecture, your system must also contain the following additional components:

- The GAA module utilizes R script functionality. Therefore, your system must also meet the system requirements for [R scripts](#).
- If you want to Access and create a Root Cause Analysis (RCA) from GAA, you must ensure that the [license for Root Cause Analysis](#) is *active*.
- If you want to Access the **Health Summary** page for an Asset, you must ensure that the [license for Asset Health Manager](#) is *active* and that you are a member of one of the following Asset Health Manager Security Groups:
  - MI AHI Administrator
  - MI AHI User
  - MI AHI Viewer

# Hazards Analysis System Requirements

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## License Requirements

The *Hazards Analysis* license is required to take advantage of the Hazards Analysis functionality.

In order to use the integration between Hazards Analysis and SIS Management, the *SIS Management* license is also required.

## Additional Components Required

Only the basic Meridium Enterprise APM system architecture is required for this feature to work correctly. No additional components are required.

# Inspection Management System Requirements

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## License Requirements

The *Inspection* license is required to take advantage of Inspection Management functionality.

For organizations with sites located in Brazil, Meridium Enterprise APM provides expanded inspection functionality to support the inspection requirements of NR-13. To take advantage of this functionality, the *NR13* license is required.

# Life Cycle Cost Analysis System Requirements

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## License Requirements

The *Life Cycle Cost Analysis (LCC)* license is required to take advantage of the Life Cycle Cost Analysis functionality.

## Additional Components Required

If you want to:

- Import a Production Event from PLA, the [license for Production Loss Analysis](#) is required.
- Import a Strategy Action from ASM, the [license for Asset Strategy Management](#) is required.

# Metrics and Scorecards System Requirements

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## License Requirements

The *Metrics Manager* license is required for Metrics and Scorecards module.

## Additional Components Required

In addition to the basic Meridium Enterprise APM system architecture, your system must also contain a SQL Server Analysis Services Server machine that will host the Microsoft SQL Server Analysis Services software. The following versions of SQL Server Analysis Services are supported in this version of Meridium Enterprise APM:

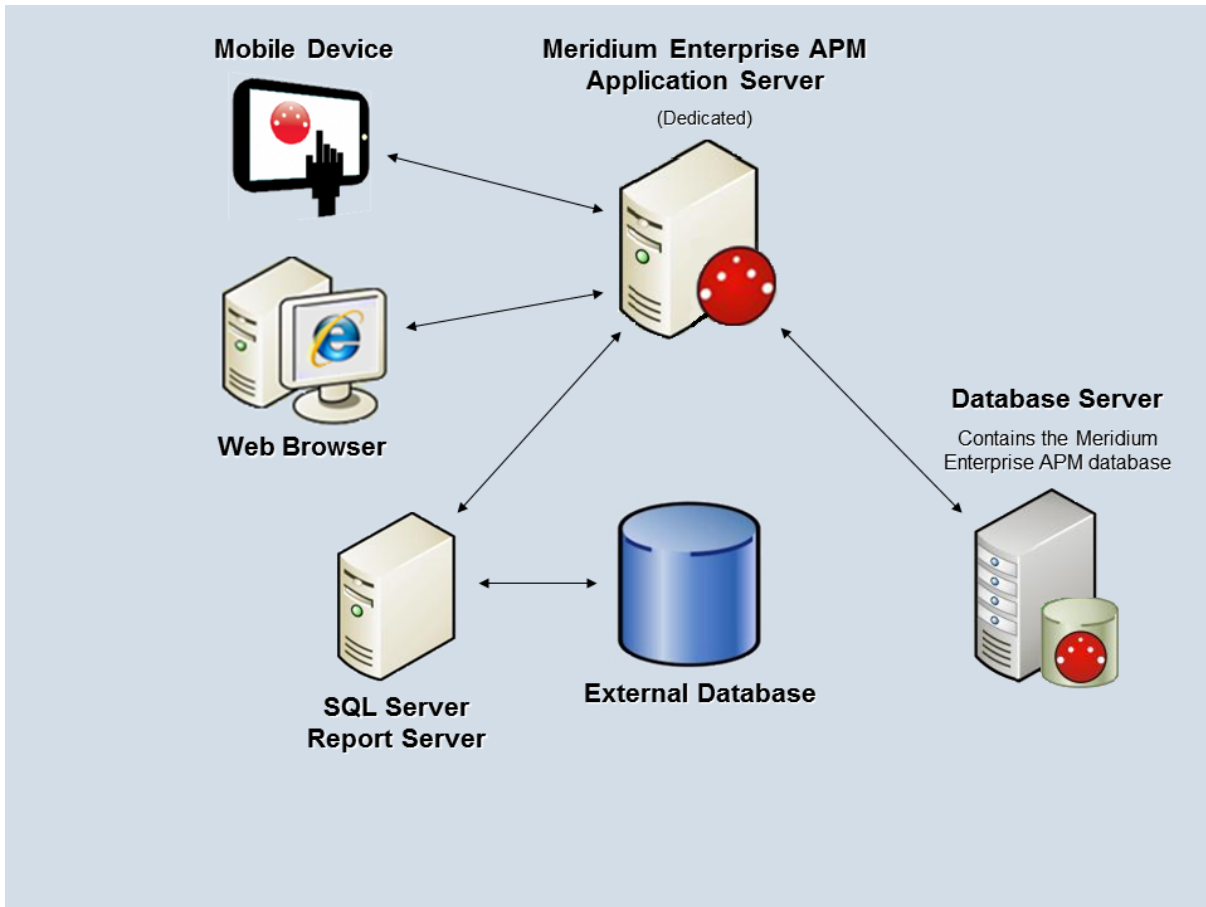
- Microsoft SQL Server Analysis Services 2012
- Microsoft SQL Server Analysis Services 2014

 **Note:** The Meridium Enterprise APM testing environment uses SQL Server Analysis Services 2012 and SQL Server Analysis Services 2014.

Microsoft SQL Server Analysis Services provides the ability to analyze large amounts of data quickly and easily. Analysis Services provides a means for accessing warehouses of data by letting you create dimensional cubes from information in the database and dimension tables. Numeric measures can be summed into pre-aggregated values while cubes are being created. Cubes can contain data that is summarized, copied, or read directly from the data warehouse. Cubes, dimensions, and partitions can be processed (i.e., updated) to incorporate new or changed data from the data warehouse. Time, location, equipment type, or sizes are common dimensions against which measures are calculated and displayed in Meridium Enterprise APM. Note that the data warehouse can be created as a separate database, combining information from Meridium Enterprise APM and other data sources. On the other hand, dimensional cubes can be created by accessing the Meridium Enterprise APM database directly.

Together, Microsoft SQL Server Analysis Services and the Metrics and Scorecards module functionality provide Meridium Enterprise APM users with the ability to analyze data in the Meridium Enterprise APM database using the features of Analysis Services through the Meridium Enterprise APM interface. To use the Metrics and Scorecards functionality, you must incorporate SQL Server Analysis Services into your Meridium Enterprise APM system.

If you choose to implement the Metrics and Scorecards module within your system, we recommend using a configuration in which the Analysis Server exists on a machine that is separate from the Meridium Enterprise APM Application Server. This deployment scenario most accurately reflects the Meridium Enterprise APM testing environment. The following illustration shows how the SQL Server Analysis Services Server connects to the basic Meridium Enterprise APM System architecture.



**Note:** While this image depicts only a single, dedicated Meridium Enterprise APM Application Server, your implementation may contain one or more of these machines. The purpose of this image is to depict the interaction of the SQL Server Analysis Server with the basic Meridium Enterprise APM components not to provide details on the basic components themselves. While your Meridium Enterprise APM system may contain multiple dedicated Application Servers, it will contain only a single SQL Server Analysis Server that *all* of those Application Servers will access.

# Policy Designer System Requirements

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## License Requirements

The *Policy Designer* license is required to take full advantage of Policy Designer functionality.

**Note:** This license is not required for *module workflow policies* to operate. However, if you want to modify a module workflow policy, the *Policy Designer* license *is* required.

## Additional Components Required

When you install the Meridium Enterprise APM Server, the Meridium Policy Execution Service and Policy Trigger Service are installed automatically. In order to execute policies, you must configure these services on the appropriate machines.

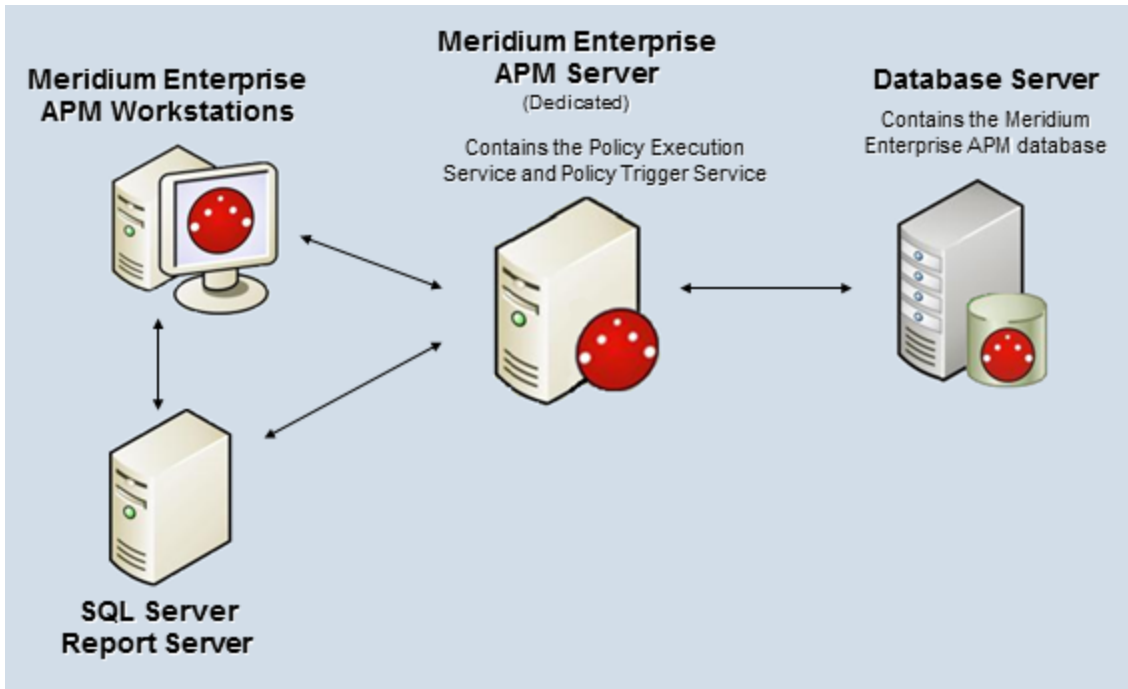
**Note:** Depending on the number of policies that you need to manage in your system, you may have multiple Meridium Enterprise APM Servers to process policy executions. In this case, you can configure your Meridium Enterprise APM System Architecture according to your company's preference for server load-balancing.

Your system must also meet the system requirements for any additional modules that you plan to use with Policy Designer.

## System Architecture

The following image shows the basic system architecture for deploying Policy Designer with one Meridium Enterprise APM Server that processes policy executions.





## Deploying Policy Designer

After you have installed and configured the basic Meridium Enterprise APM system architecture, you will need to perform some configuration steps specifically for Policy Designer.

If you want to use Policy Designer with [Process Data Integration](#) and [Asset Health Manager](#), you must also configure the services associated with these modules. For additional information on how services used by these three modules interact, select this link.

# Process Data Integration (PDI) System Requirements

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## License Requirements

The *OPC Interfaces* license is required to take advantage of Process Data Integration functionality.

## Additional Components Required

In addition to the basic Meridium Enterprise APM system architecture, your system must also contain the following additional components:

- **Meridium APM Process Data Integration Server:** A machine on which the Meridium APM Process Data Integration Service is installed. The Meridium APM Process Data Integration Server must contain Microsoft Message Queuing (MSMQ).

 **Note:** While MSMQ is not a prerequisite to installing the Meridium APM Process Data Integration Service, it must exist on the machine before users begin using the Process Data Integration feature.

If you are using a virtual machine (VM) to host your Meridium APM Process Data Integration Server, we recommend that:

- You increase the physical server CPU and hard drive space requirements by 20% to ensure that the application will perform equivalently in a virtualized environment.
- You double the physical server memory requirements.
- Each VM have its own dedicated processor cores and memory allocation to ensure appropriate performance.

Meridium, Inc. supports Hyper-V and VMWare platforms.

These requirements may not be sufficient, depending upon how your system is configured. 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 Meridium, Inc.](#)

- **OPC Server:** A machine on which the OPC-compliant server software is installed. The software requirements of this server are determined by the third-party distributor of the software.

To reduce your number of configuration tasks, (i.e., to avoid configuring a COM or DCOM connection), we recommend that this be the *same* machine as the Meridium APM Process Data Integration Server, (i.e., the machine on which the Meridium APM Process Data Integration Service is installed). If, however, your company restricts the installation of additional applications on the OPC Server, the

Meridium APM Process Data Integration Server may be a separate machine from the OPC Server. Note that if you choose this deployment method:

- The OPC Server must be accessible from your Meridium APM Process Data Integration server.
- The Meridium APM Process Data Integration Server must connect to the OPC Server using a COM or DCOM connection. Meridium does not provide documentation or support for configuring this connection.

**⚠ IMPORTANT:** The OPC Server must pass time data to the Meridium Process Data Integration Service using the UTC time zone in order for the PDI functionality to work as designed.

- **Process Historian:** A machine that contains the process historian software. The software requirements of this machine are determined by the third-party distributor of the software.

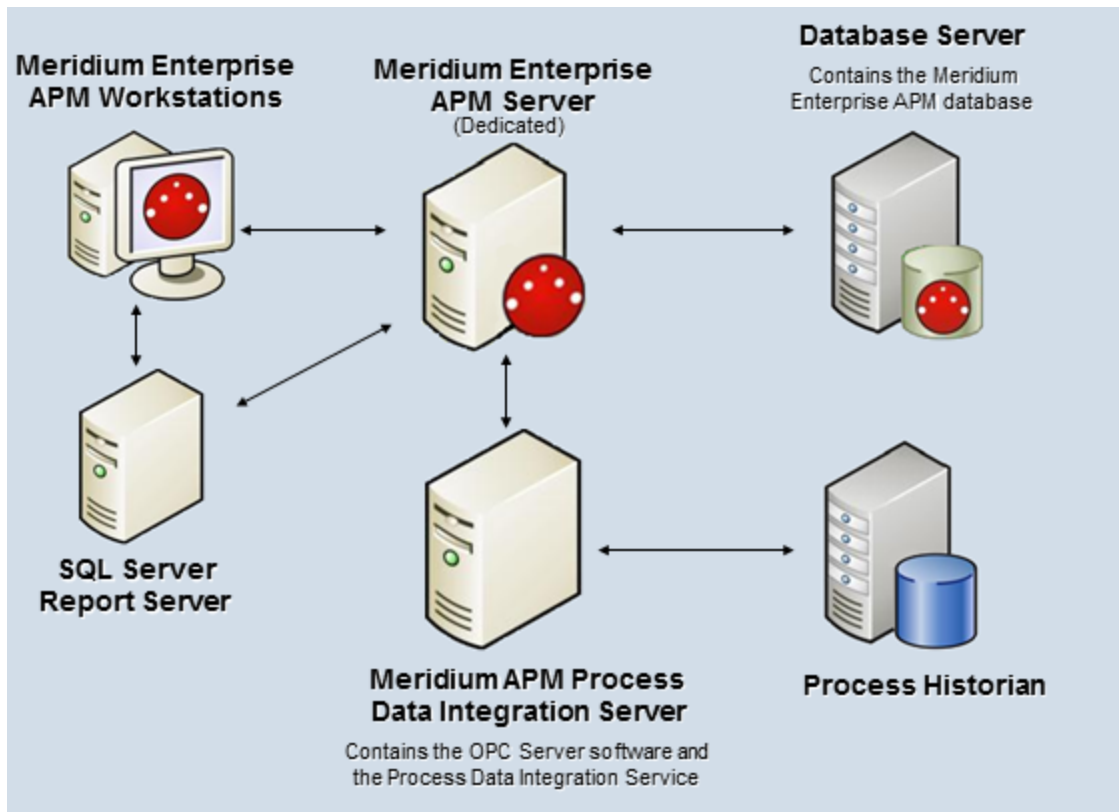
Only the following OPC Servers and process historians are supported for the PDI feature. Other OPC Servers and process historians have not been tested and connections to them are not supported by Meridium, Inc.:

- OSIsoft® PI Server version 3.4.390.16 with PI OPC DA/HDA Server version 1.2.7.0.
- Matrikon Simulation tool, which simulates the MatrikonOPC Historical Data Access Suite.
- IP21 (Aspen ONE V8.0) Version 12.0.0.20.
- IP21 (Aspen ONE V8.0) Version 12.0.0.20 with MatrikonOPC IP21 Server Version 2.3.1.5322.
- Honeywell Uniformance® Process History Database (PHD) Version 310.1.0.

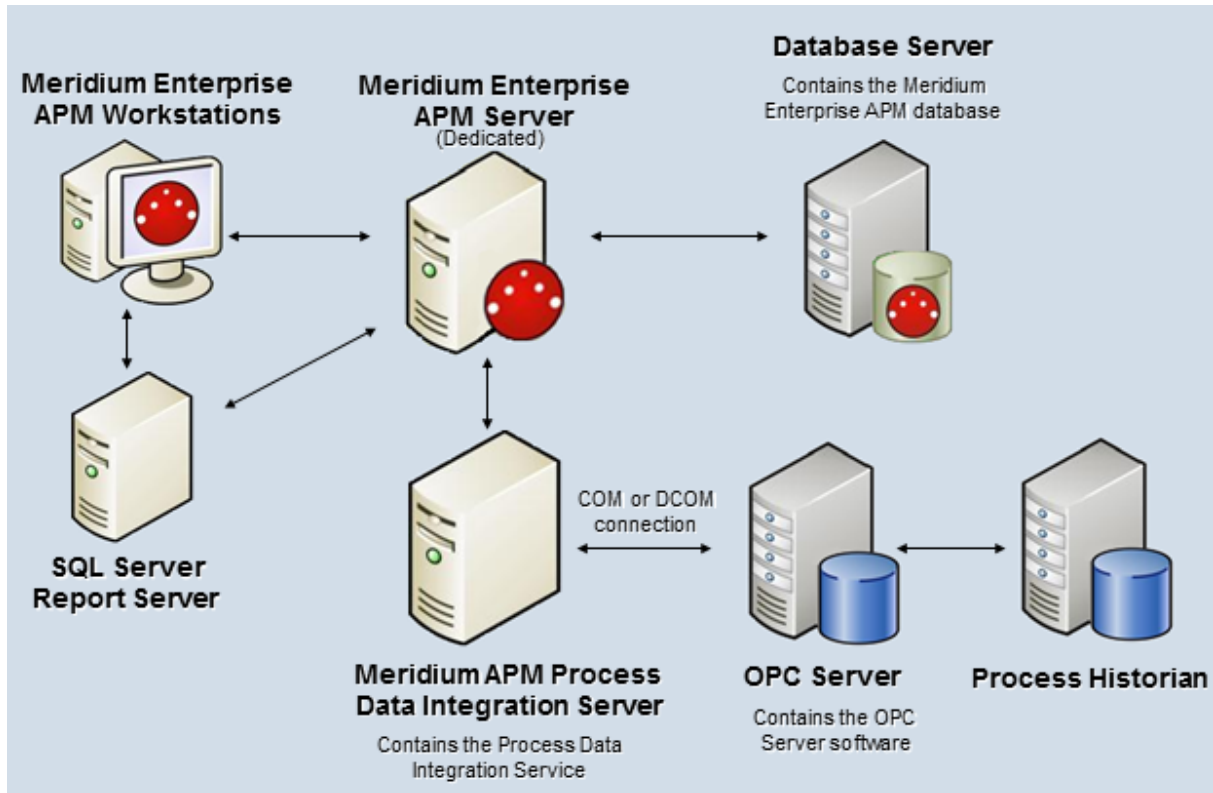
**📄 Note:** Tag browsing must be enabled on the machine on which the Honeywell Uniformance® Process History Database (PHD) OPC Server software is installed. To enable tag browsing, change the BrowseMode registry setting to *1*, and then restart the machine. For more information, refer to the Honeywell Uniformance® PHD OPC Server User Guide.

## System Architecture

The following image shows how these machines should be incorporated into the basic Meridium Enterprise APM system architecture if you implement the standard configuration where the OPC Server software and the Meridium APM Process Data Integration Service are installed on the same machine.



The following image shows the alternate configuration of these machines when the OPC Server software is installed on a *separate* machine from the Meridium APM Process Data Integration Service.



## Deploying Process Data Integration

After you have installed and configured the basic Meridium Enterprise APM system architecture, you will need to perform some configuration steps specifically for Process Data Integration.

If you want to use Process Data Integration with [Asset Health Manager](#) and [Policy Designer](#), you must also configure the services associated with these modules. For additional information on how services used by these three modules interact, select this link.

# Production Loss Analysis (PLA) System Requirements

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## License Requirements

The *Production Loss Accounting* license is required to take advantage of PLA functionality.

## Additional Components Required

If you want to:

- Access and create a Root Cause Analysis (RCA) from PLA, you will need to make sure that the [license for Root Cause Analysis](#) is *active*.
- Access and create a Production Analysis from PLA, you will need to make sure that the [license for Reliability Analytics](#) is *active*.

# R Scripts System Requirements

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## License Requirements


This feature is available with the core Meridium Enterprise APM application; no specific license is required.

## Additional Components Required

In addition to the basic Meridium Enterprise APM system architecture, your system must also contain the following additional components:

- **R Server:** A machine on which the DeployR software is installed. The software requirements of this server are determined by the third-party distributor of the software. You can find more information about this software, including required software dependencies and installation instructions, on the [DeployR website](#).

The Meridium Enterprise APM testing environment uses DeployR Open 8.0.0.


 **Note:** The World Wide Web Publishing service must be *enabled* on the R Server in order to use R scripts in Meridium Enterprise APM. If this setting is disabled during the installation of DeployR, you must enable it.

# RBI 581 System Requirements

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## License Requirements

The *RBI 581* license is required to take advantage of RBI 581 functionality.

 **Note:** Because the RBI 581 and RBI modules share the same user interface, if you only have the RBI 581 license, various features normally available with the Risk Based Inspection license will be disabled. The following list indicates which features normally available with Risk Based Inspection are disabled.

If you only have the RBI 581 license:

- Semi-Quantitative (580) Analyses are disabled.
- On the **Risk Based Inspection Overview** page:
  - **Generate Recommendations** is disabled.
  - The **Current Risk Overview** and **Past Risk Overview** charts will only display Semi-Quantitative Analyses.
  - The **Current Risk** and **Past Risk** widgets will only list Semi-Quantitative Analyses.
- In the **Asset Summary** workspace:
  - The MI Asset and Asset Risk Reports are disabled.
  - **Generate Recommendations** is disabled.
  - **Calculate All Analyses** is disabled.
- In the **Analysis Details** section of the **Analysis** workspace:
  - **Generate Recommendations** is disabled.
  - The ability to create What If Analyses is disabled.

## Additional Components Required

The RBI 581 module utilizes R script functionality. Therefore, your system must also meet the system requirements for [R scripts](#).




# Risk Based Inspection (RBI) System Requirements

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## License Requirements

The *Risk Based Inspection* license is required to take advantage of RBI functionality.

 **Note:** Because the RBI 581 and RBI modules share the same user interface, if you only have the Risk Based Inspection license, various features normally available with the RBI 581 license will be disabled. Specifically, Quantitative Analyses are disabled.

If you want to take advantage of the expanded RBI functionality for pipelines, the *Pipeline Management* license is also required.

# Root Cause Analysis (RCA) System Requirements

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## License Requirements

The *PROACT* license is required to take advantage of RCA functionality.

## Additional Components Required

Only the basic Meridium Enterprise APM system architecture is required for this feature to work correctly. No additional components are required.

# Rounds System Requirements

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## System Requirements

The *Operator Rounds* license and the *Lubrication Management* license is required to take advantage of the Rounds functionality.


## Additional Components Required

In addition to the basic Meridium APM system architecture, your system must also contain the following additional components if you wish to use *Operator Rounds* on Windows Mobile handheld devices:

- Meridium APM Sync Services
- Microsoft Sync Framework

In addition, if you wish to use *Operator Rounds* on the Windows Mobile handheld device, it must contain:

- .NET Compact Framework 3.5
- Microsoft SQL CE 3.5 SP1
- Microsoft Sync Services for ADO.NET 1.0 SP1

 **Note:** The .NET Compact Framework, Microsoft SQL CE, and Microsoft Sync Services for ADO.NET are included in the Meridium APM Sync Services installation. They can be downloaded from the Meridium APM Sync Server to a device after Meridium APM Sync Services has been installed.

Meridium Enterprise APM must be installed on each Windows Mobile handheld device, and there is no restriction on the number of Windows Mobile handheld devices that can be used. The type of Windows Mobile handheld device used depends on the Operator Rounds add-on(s) that are used. The following table lists the supported devices associated with each add-on, and information on the devices used in the testing environment.

Operator Rounds Add-on	Supported devices	Device used in the Meridium, Inc. testing environment	Supported ID Types
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Barcode	Intermec and Motorola scanners	<ul style="list-style-type: none"> <li>• Intermec CN70 device</li> <li>• Motorola MC9500-k series device</li> <li>• Motorola / Psion Omnii XT15 with 1-D barcode reader</li> </ul>	Code 39 barcodes
RFID	<ul style="list-style-type: none"> <li>• Intermec 70 series scanners with Intermec IP30 Handheld RFID reader</li> <li>• i.roc Ci70-Ex device with eCom HF RFID reader (UN13)</li> </ul>	<ul style="list-style-type: none"> <li>• Intermec CN70 device with an Intermec IP30 Handheld RFID reader</li> <li>• i.roc Ci70-Ex device with eCom LF RFID reader (TLB30)</li> <li>• i.roc Ci70-Ex device with eCom HF RFID reader (UN113)</li> </ul>	<ul style="list-style-type: none"> <li>• International Standards Organization 18000-6B Generation 2</li> <li>• Electronic Product Code Global Class 1, Generation 2</li> </ul>

In addition, if you wish to use Barcode scanning and RFID scanning on the Windows Mobile handheld device, then the device must meet the specifications listed in the supported software and devices topic.

# Reliability Analytics System Requirements

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## License Requirements

The *Reliability Manager* license is required to take advantage of Reliability Analytics functionality.

## Additional Components Required

Only the basic Meridium Enterprise APM system architecture is required for this feature to work correctly. No additional components are required.

# Reliability Centered Maintenance (RCM) System Requirements

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## License Requirements

The *RCM* license is required to take advantage of RCM functionality.

## Additional Components Required

Only the basic Meridium Enterprise APM system architecture is required for this feature to work correctly. No additional components are required.

# Reports System Requirements

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## License Requirements

This feature is available with the core Meridium Enterprise APM application; no specific license is required.

## Additional Components Required

- Microsoft Visual Studio 2012 or 2013 Professional must be installed on all workstations that need to work with Reports in the Meridium Enterprise APM system.
- Microsoft SQL Server Data Tools - Business Intelligence for Visual Studio 2013.
- Meridium SSRS Data Processing Extension plugin for Visual Studio from the Admin Installer.

# Rules System Requirements

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## License Requirements

A Developers License is required in order to use Rules Editor.

## Additional Components Required

- Microsoft Visual Studio 2013 Professional or Microsoft Visual Studio 2015 Professional must be installed on every workstation where you want to work with Meridium, Inc. rules in the Meridium Enterprise APM system.
- MSXML must also be installed on all the workstations.
- Meridium APM Rules Editor Extension plugin for Visual Studio from the Admin Installer.



# SIS Management System Requirements

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## License Requirements

The *SIS Management* license is required to take advantage of the SIS Management functionality.

In order to use the integration between SIS Management and Hazards Analysis, the *Hazards Analysis* license is also required.

## Additional Components Required

Only the basic Meridium Enterprise APM system architecture is required for this feature to work correctly. No additional components are required.

# Thickness Monitoring (TM) System Requirements

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## License Requirements

The *Thickness Monitoring* license is required to take advantage of TM functionality.

## Additional Components Required

In addition to Thickness Monitoring, if you will use devices to collect data that you will transfer to Meridium Enterprise APM, the machine that will connect to these devices must have the Meridium Device Service installed. The following devices are supported:

- GE DMS Go
- GE DMS Go+
- GE DMS2
- Olympus 37DL Plus Ultrasonic Thickness Gage
- Olympus 38DL Plus Ultrasonic Thickness Gage

These devices may require additional drivers provided by the manufacturer.

## Contact Meridium, Inc.

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### Meridium, Inc. Offices and Regional Contacts

For mailing addresses, phone, fax, and contact form: <https://www.meridium.com/about/locations>

### Global Support Services

For technical product support: <https://www.meridium.com/support>