


meridium

Asset Health Manager

V3.6.0.0.0



Meridium APM Asset Health Manager V3.6.0.0.0

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About This Document

This file is provided so that you can easily print the **Asset Health Manager** section of the Meridium APM Help system. This document is not meant to be read electronically using the PDF. If you want to read the documentation electronically, you should use the Help system. This file is set up to facilitate double-sided printing and includes blank pages between sections so that each section will begin on an odd page and will be printed on the *front* of the page.

Because this file represents an excerpt from the Help system, parts of this document may seem incomplete outside of the Help system itself. When you read the documentation via the Help system, you will see links which serve as cross-references to other areas of the documentation. These cross-references are not available in this document.

To access the Meridium APM Help, in the Meridium APM Framework application, click the **Help** menu, and then click **Meridium APM Framework Help**.

Documentation Conventions

Throughout the documentation, we use various stylistic conventions that make it easier to interpret information and instructions. The following table provides a list and description of the conventions that are used throughout the Meridium APM documentation.

Convention	Description	Example
Bold	Identifies labels that appear on the screen. Identifies folder paths and file names when the folder path or file name is included in step-by-step instructions.	The Save As dialog box appears. Click Cancel . In the Catalog folder \\Public\Meridium\Modules\Core\Queries , open the query Field History Records .
\\	Identifies the beginning of a folder path.	The query is located in the following Catalog folder: \\Public\Meridium\Modules\Core\Queries .
Courier New	Identifies text that you must type.	Type root .
<>	Indicates that the data inside the angle brackets is variable.	Click Expand/Collapse <Record>'s Children , where <Record> is the ID of the selected record.

Convention	Description	Example
[]	Indicates that the data inside the square brackets is optional.	Type the following text: <Meridium APM Catalog Path>,[Query Parameters] ...where: <ul style="list-style-type: none">• <Meridium APM Catalog Path> is the Catalog path of the desired query.• [Query Prompt Value] is a value that you want to supply for a prompt in the query. If you do not pass in query prompt values, you will be prompted to supply them when you run the query.

Basics

Overview of Asset Health Manager

The Meridium APM Asset Health Manager (AHM) module provides tools that help you evaluate the overall health of equipment. Using AHM, you can view a graphical representation of a piece of equipment's health and then make decisions about what action to take in order to mitigate risk, if necessary.

In AHM, a piece of equipment's health is determined by data that exists in various records in the Meridium APM database. You can determine which records contain information that indicate the piece of equipment's health and then create a Health Indicator record that is linked to those records.

In the baseline AHM database, you can use AHM to view a graphical representation of data in the following types of records:

- Measurement Location records and their linked Reading records
- KPI records and their linked KPI Measurement records
- Xi Tag records and their linked Xi Reading records
- Health Indicator records and their linked Health Indicator Value records

AHM System Requirements

AHM is a feature that can be used to its complete potential only when it is integrated with the following modules:

- Operator Rounds
- Metrics and Scorecards
- Asset Strategy Management

- Process Data Integration

Note: To integrate AHM with these modules, you will also need to complete the installation and configuration tasks that are required for them.

The *Meridium APM Framework Tools* license and the licenses for the modules that you want to use with AHM are required to take advantage of AHM functionality.

In addition, your system must contain the basic Meridium APM architecture and additional machines and components for PDI users, which are described in the *Additional Requirements for PDI Users* section in this topic.

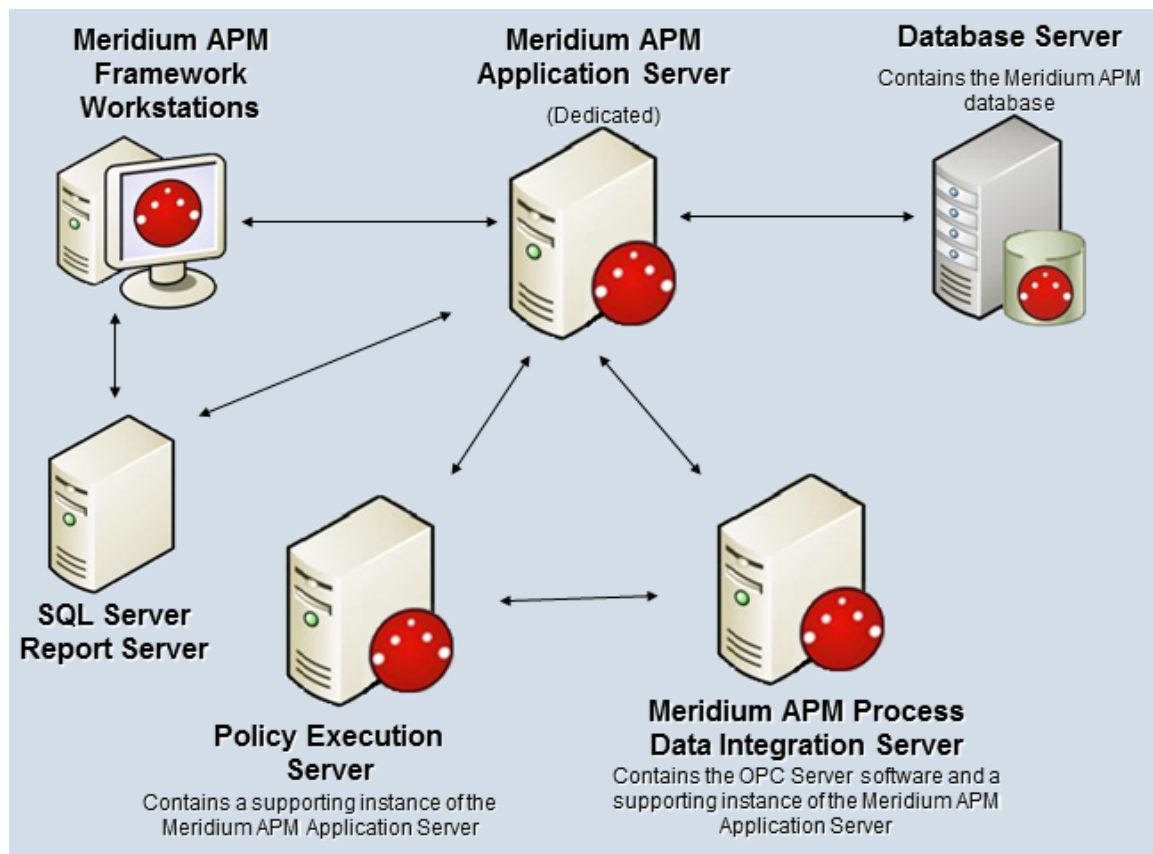
When you install the Meridium APM Application Server, the Meridium AHM Service is installed automatically. After you have installed and configured the basic system architecture, you will need to perform some configuration tasks specifically for AHM. In order for the AHM Service to function as described within this documentation, you must first modify the file *Meridium.AHI.Service.exe.config*. After you configure the settings in this file, the AHM Service will allow the Health Indicator status values to be updated automatically.

Additional Requirements

If you want to use AHM with Process Data Integration and Policy Manager, in addition to the basic Meridium 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. This machine is required by the AHM module only if you want to create Health Indicator records from Xi Tag records.
- **Meridium APM Policy Execution Server:** A machine on which the Meridium APM Policies Execution Service is installed. This machine is required by the AHM module only if you want to use Policy Manager to modify health indicators.

The following image provides an illustration of the architecture components that are required for deploying AHM, assuming that you are also deploying Process Data Integration and Policy Manager.



Assumptions Made in the AHM Documentation

The AHM documentation assumes that:

- An Equipment record already exists to identify the piece of equipment whose health you want to evaluate.
- The Equipment record is linked to a Functional Location record representing the location in which it is installed, and that Functional Location record is linked to another Functional Location record representing the higher-level location to which it belongs.
- You want to access AHM from *outside* of Asset Strategy Management.
- The AHM Service is installed and running at all times on the Meridium APM Application Server.

- You will use the records listed in the table below as the primary and secondary source records to new Health Indicator records, and these records already exist.

Primary source record	Linked to secondary source record
Measurement Location	Reading
Xi Tag	Xi Reading
KPI	KPI Measurement
Health Indicator (created via Policy Manager)	Health Indicator Value

- The Equipment record is linked to the associated primary source records.

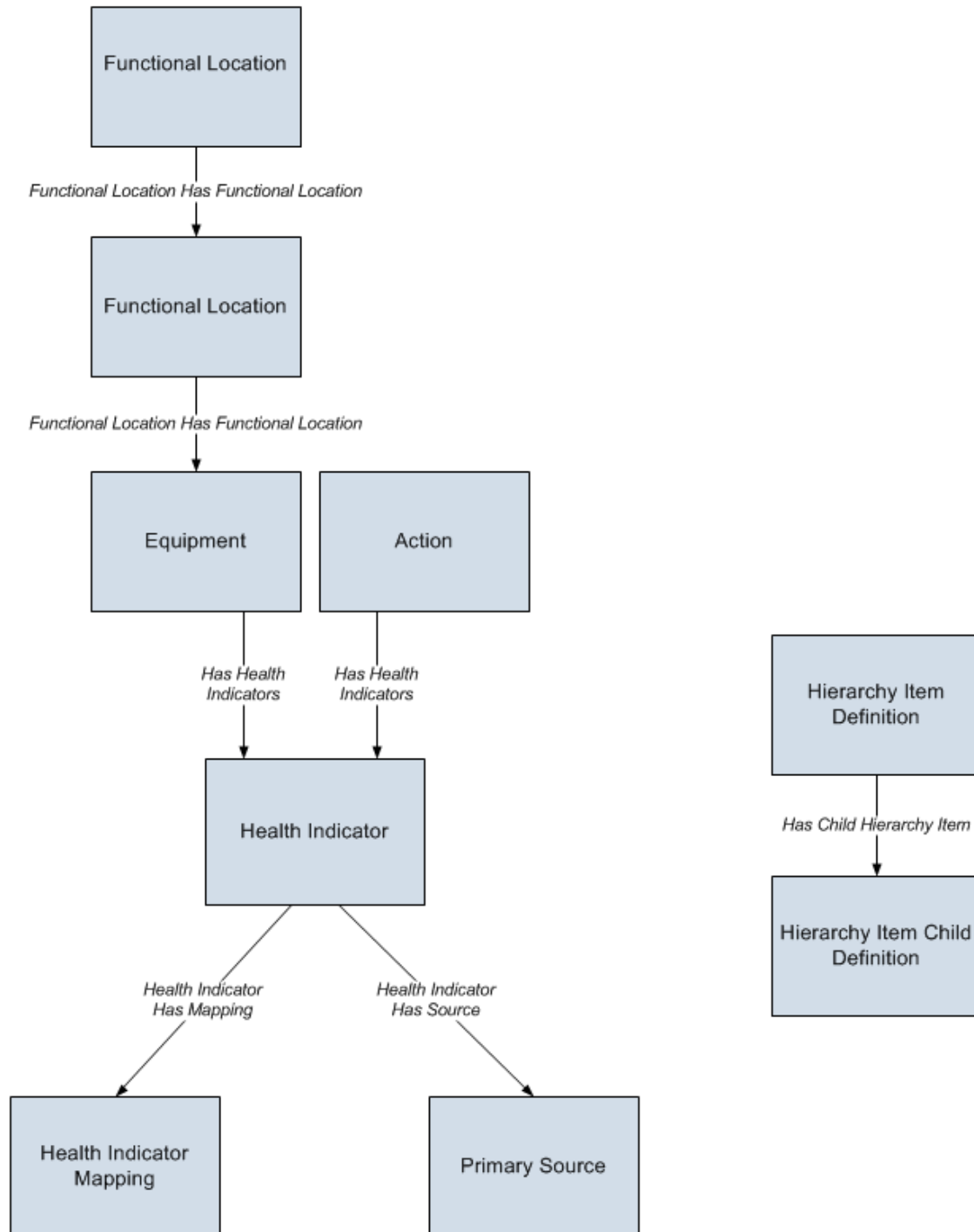
Data Structure

AHM Data Model

Like all Meridium APM modules, the Meridium APM Asset Health Manager feature consists of entity families, relationship families, and business rules. The **Asset Health Manager** page in AHM provides you with a custom view of Health Indicator records that exist in the database. This page also facilitates the creation of new records and displays data that will inform decisions that a user will make based upon the health of equipment.

When attempting to understand and make use of the Meridium APM AHM functionality, it can be helpful to visualize the AHM data model. Because you should already be familiar with the concept of records and viewing records in the Meridium APM Record Manager, during your introduction to AHM, it may be useful to remember that AHM is simply a customized view of individual records.

The following diagram illustrates how families are related to one another within the AHM data model. In the following image, boxes represent entity families, and arrows represent relationship families that are configured in the baseline database.



Note that the *Primary Source* box in this image does not represent a family with the caption *Primary Source*. Instead, it represents a family containing a record that will be linked to a Health Indicator record. In the Meridium APM baseline database, Health Indicator records can be linked to the following types of records through the Health Indicator Has Source relationship:

- Measurement Location
- Xi Tag
- KPI
- Health Indicator

If desired, you can configure this relationship definition to include other families as successors to the Health Indicator family.

Health Indicator Mapping Records

Health Indicator Mapping records are used to determine how values will be mapped from primary source records (e.g., Measurement Location, Xi Tag) to the Health Indicator records that they are used to create. They are also used to help determine the status of the Health Indicator record after it exists and how data will be displayed on the **Asset Health Manager** page.

The following table lists the Health Indicator Mapping records that are provided in the baseline database and a description of which types of values each record maps to Health Indicator records.

Record ID	Description
Character mapping for Xi Tag ~ Character	Used to map values from Xi Tag records that accept character values.
Health Indicator ~ Self Mapping ~ Numeric	Used to map values from Health Indicator records that accept numeric values and are created via the Policy Manager module.
KPI A - High Is Good ~ Numeric	Used to map values from KPI records where high values are good, (e.g., profit).

Record ID	Description
KPI B - Low Is Good ~ Numeric	Used to map values from KPI records where low values are good, (e.g., MTBF).
Measurement Location ~ Character Mapping for Measurement Location ~ Character	Used to map values from Measurement Location records that accept character values.
Measurement Location ~ Numeric Mapping for Measurement Location ~ Numeric	Used to map values from Measurement Location records that accept numeric values.
Numeric mapping for Xi Tag ~ Numeric	Used to map values from Xi Tag records that accept numeric values.

If you are using the standard AHM workflow, you do not need to create Health Indicator Mapping records. The baseline records provide the functionality that you need to complete the AHM workflow.

The Structure of the Tree in the AHI Explorer Pane

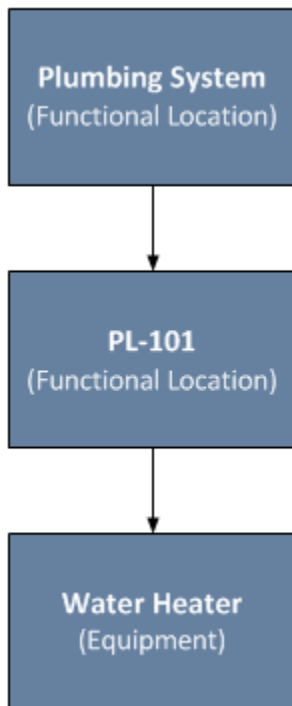
If you are using the Meridium APM product according to the Meridium APM Best Practice:

- *Equipment* records will store information about pieces of equipment.
- *Functional Location* records will store information about locations.
- Functional Location records will be linked together, where the predecessor Functional Location record represents a higher-level location in your location hierarchy.

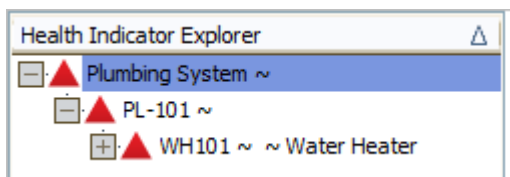
The AHM module is configured assuming your data is structured in this way. Specifically, several baseline Hierarchy Item Definition and Hierarchy Item Child Definition records are provided in the database to support this assumption.

As a result of the values in these baseline configuration records, in the tree on the **Asset Health Manager** page, you can view Functional Location record representing the higher-level location as the root node, the Functional Location record representing the lower-level location as a subnode of the root node, and the Equipment record as a subnode of the lower-level location node.

For example, suppose that your database contains the following records and links, where the squares represent records, and the family caption is listed in parentheses.



Based on this example, you would want the tree to be structured like the one shown in the following image.



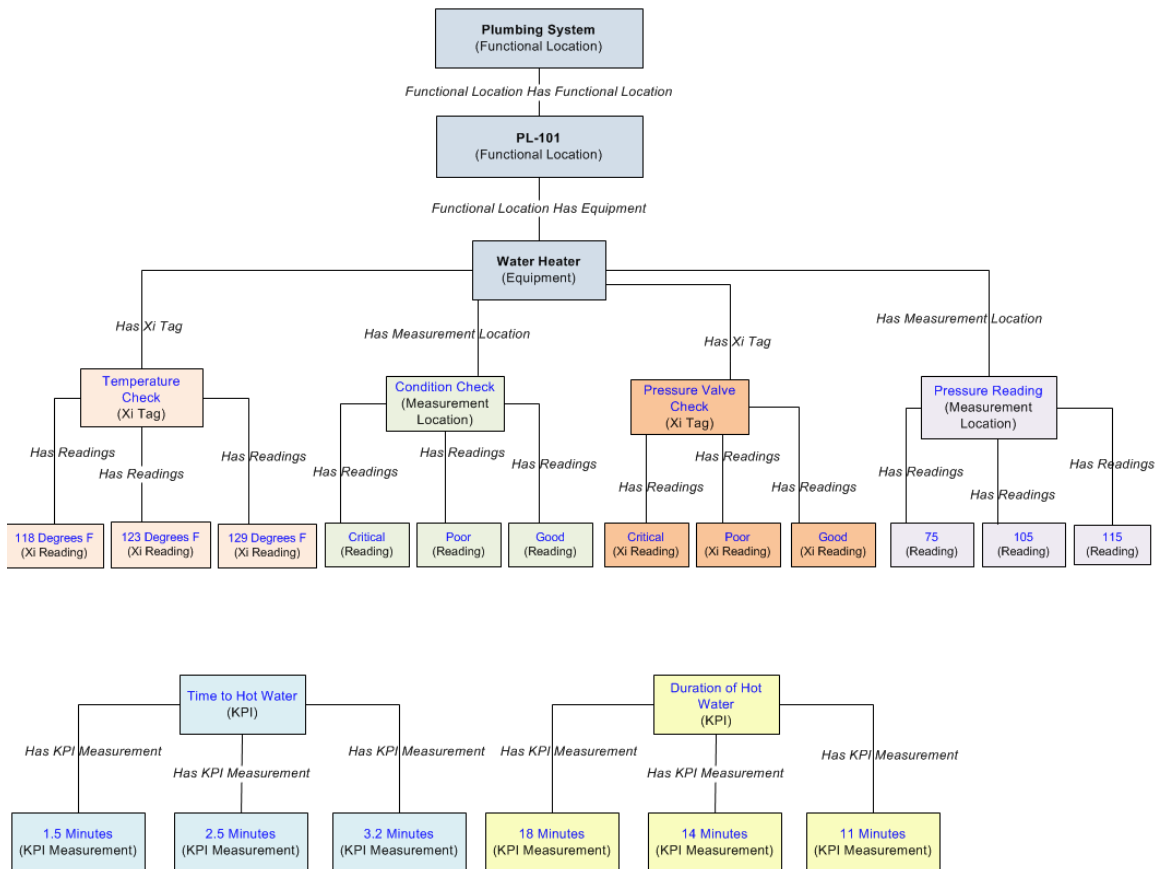
You could then add Health Indicator records that would be linked to the *Water Heater* Equipment record.

Example Used in the AHM Documentation

Throughout this documentation, we use an example of how you might use AHM to assess the health of a water heater. In this illustration, a house (the unit) contains a plumbing system, which contains a water heater. Throughout this documentation, we assume that:

- An Equipment record exists to define the water heater.
- The Equipment record is linked to a predecessor Functional Location record representing the plumbing system.
- The Functional Location record representing the plumbing system is linked to a predecessor Functional Location record representing the house.
- The Equipment record is linked to multiple Measurement Location records and Xi Tag records (primary source records).
- Each Measurement Location record is linked to multiple Reading records (secondary source records) that contain reading values.
- Each Xi Tag record is linked to multiple Xi Reading records (secondary source records) that contain reading values.
- A KPI record (primary source) exists to track information about the water heater. In addition, this KPI record is linked to at least one KPI Measurement record (secondary source record).

More specifically, the example presented throughout this documentation assumes that the records and links exist as illustrated in the following diagram.



Accessing AHM

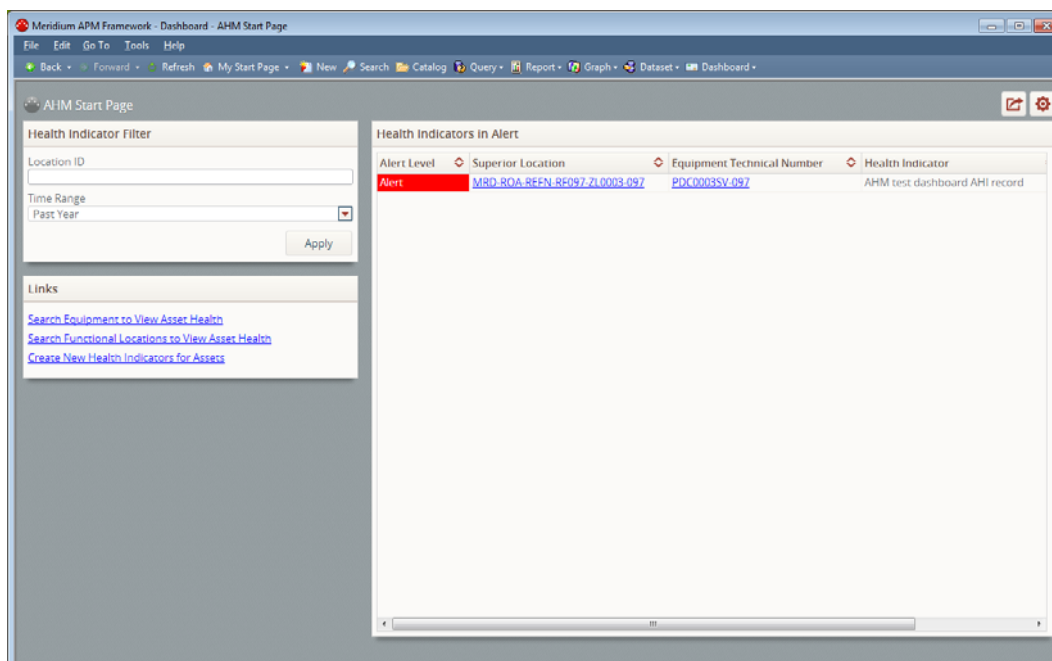
Accessing the AHM Start Page

The AHM Start Page provides access to the features associated with the Asset Health Manager module.

To access the AHM Start Page:

- On the Meridium APM Framework main menu, click **Go To**, point to **APM Foundation**, and then click **Asset Health Manager**.

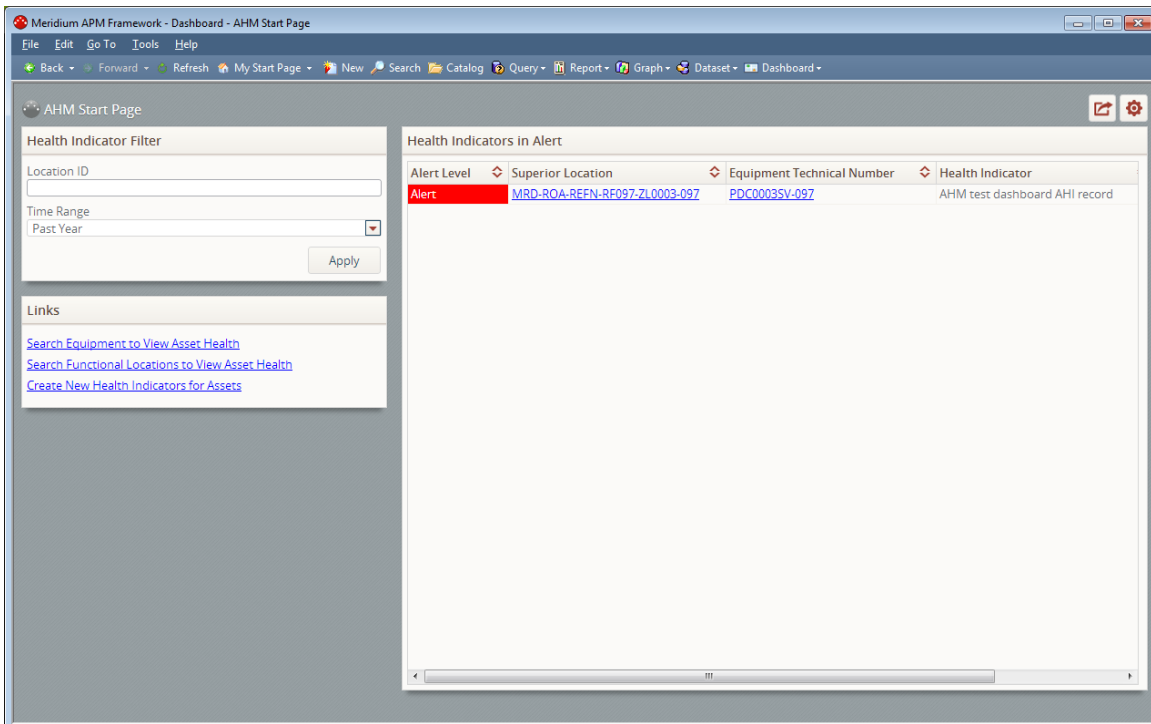
The AHM Start Page appears.



Aspects of the AHM Start Page

Overview of the AHM Start Page

The Dashboard - AHM Start Page is different from other module start pages in the Meridium APM Framework in that it displays the contents of the following dashboard Catalog item and its underlying queries on the Dashboard page: \\Public\Meridium\Modules\AHI\Dashboards\AHM Start Page. Throughout the documentation, we refer to the Dashboard - AHM Start Page simply as the *AHM Start Page*.

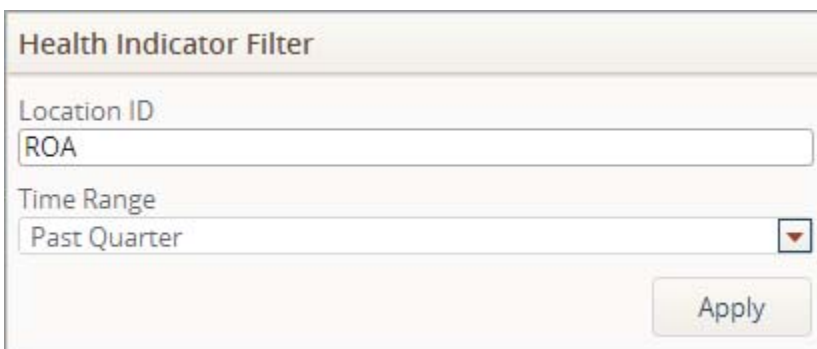


The AHM Start Page displays the following sections by default:

- Health Indicator Filter
- Links
- Health Indicators in Alert

Health Indicator Filter Section

The Health Indicator Filter section is a configured Content Filter dashboard section that contains a list and text box that are used to filter the data that is displayed in the **Health Indicators in Alert** section on the dashboard.

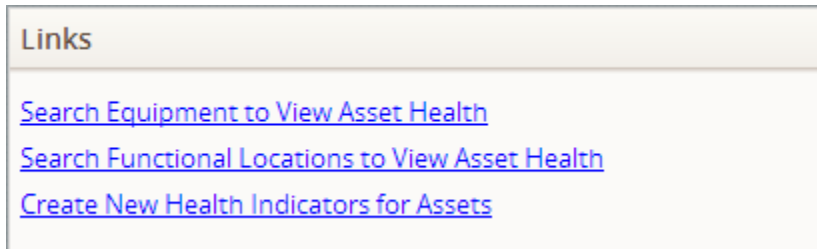


The **Health Indicator Filter** section contains the following items:

- **Location ID text box:** Lets you specify the value that exists in the Superior Function Location field in the Functional Location record that is linked to the Equipment record whose Health Indicator records whose data you want to see in the **Health Indicators in Alert** section. Using our AHM example, you would type the value in the Superior Function Location field in the *Plumbing System* Functional Location record.
- **Time Range list:** Determines the period of time associated with the Last Reading Date value in the Health Indicator records that you want to see in the **Health Indicators in Alert** section. This list contains the following values:
 - **Past Day:** Causes the **Health Indicators in Alert** section to display Health Indicator records with today's or yesterday's date in the Last Reading Date field.
 - **Past Week:** Causes the **Health Indicators in Alert** section to display Health Indicator records with today's or the one of the past seven days in the Last Reading Date field.
 - **Past Month:** Causes the **Health Indicators in Alert** section to display Health Indicator records with today's or the one of the past thirty days in the Last Reading Date field. This value is selected by default.
 - **Past Quarter:** Causes the **Health Indicators in Alert** section to display Health Indicator records with today's or the one of the past 90 days in the Last Reading Date field.
 - **Past Year:** Causes the **Health Indicators in Alert** section to display Health Indicator records with today's or the one of the past 365 days in the Last Reading Date field.
- **Apply button:** Applies the filter (your selections in the **Location ID** text box and **Time Range** list) to the content that is displayed in the **Health Indicators in Alert** section.

Links Section

The **Links** section on the **AHM Start Page** is a configured **Hyperlinks** dashboard section that contains various links that provide navigation to areas in the Meridium APM Framework.



The **Links** section contains the following links:

- **Search Equipment to View Asset Health:** Displays the **Find Items** window, where you can search for Equipment records whose associated Health Indicator record(s) you want to view on the **Asset Health Manager** page. If you access the **Asset Health Manager** page using this link, the top node of the tree will represent the *Equipment* record, not the Functional Location record representing the location to which it belongs.
- **Search Functional Locations to View Asset Health:** Displays the **Find Items** window, where you can search for Functional Location records that are associated with (i.e., linked directly or indirectly to) the Equipment record whose Health Indicator record(s) you want to view on the **Asset Health Manager** page. If you access the **Asset Health Manager** page using this link, the top node of the tree will represent the selected Functional Location record.
- **Create New Health Indicators for Assets:** Displays the **Mass Health Indicator Builder**, which you can use to create new Health Indicator records.

Health Indicators in Alert Section

The **Health Indicators in Alert Section** is a configured **List - Query Result** dashboard section that contains a grid that displays information according to your selections in the **Health Indicator Filter** section. Specifically, this section displays information about Health Indicator records whose Alert Level field contains the value *1* or *2* (where *1* represents *Alert* and *2* represents *Warning*)

and the Equipment and Functional Location records that are linked to those Health Indicator records (directly or indirectly).

The following image shows an example of the **Health Indicators in Alert** section as it appears using the AHM example data.

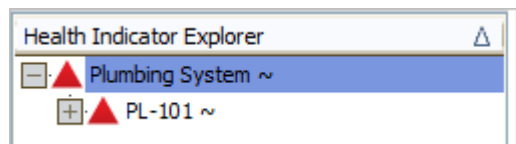
Health Indicators in Alert			
Alert Level	Superior Location	Equipment Technical Number	Health Indicator
Alert	MRD-ROA-REFN-RF097-ZL0003-097	PDC0003SV-097	AHM test dashboard AHI record

Each row in the grid represents a separate Health Indicator record that meets *Alert* or *Warning* status criteria and the criteria that you defined in the **Health Indicator Filter** section.

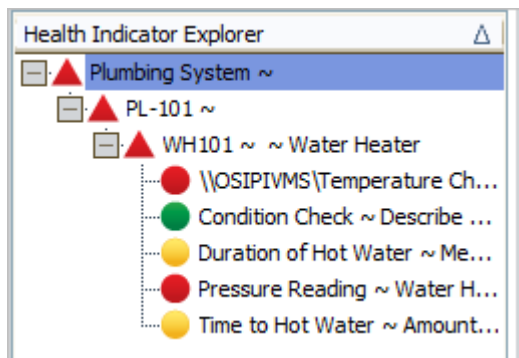
The grid contains the following columns of information:

- **Alert Level:** Identifies the status of the health indicator. The background color of these cells corresponds to the status of the Health Indicator record.
- **Superior Location:** Displays the value in the Superior Function Location field in the Functional Location record that is linked to Equipment record to which the Health Indicator record is linked. The values in this column appear as hyperlinks, which you can click to open the **Asset Health Manager** page and display that Functional Location record as the root node in the tree.

Using our AHM example data, this column displays the value *Plumbing System*, which appears in the Superior Function Location field in the lower-level Functional Location record *PL-101*. When you click the link, the tree on the **Asset Health Manager** page displays the *Plumbing System* node as the root node.

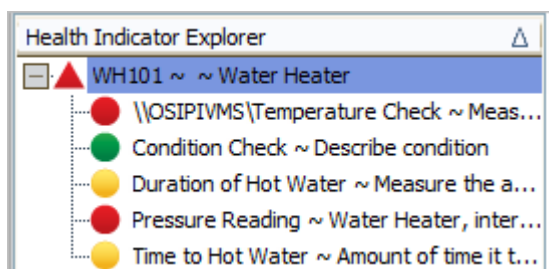


You would need to expand the tree fully to see the Equipment node and the Health Indicator nodes.



- **Equipment Technical Number:** The value in the Equipment Technical number field in the Equipment record that is linked to the Health Indicator record. The values in this column appear as hyperlinks, which you can click to open the **Asset Health Manager** page and display that Equipment record as the root node in the tree.

Using our AHM example data, this column displays the value *WH101*, which appears in the Equipment Technical Number field in the *Water Heater* Equipment record. When you click the link, the tree on the **Asset Health Manager** page displays the *Water Heater* node as the root node.



- **Health Indicator:** The value in the Name field in the Health Indicator record.
- **Last Reading Date:** The value in the Last Reading Date field in the Health Indicator record.

Installation, Upgrade, and Configuration

First-Time Deployment Workflow

Deploying and configuring Asset Health Manager (AHM) for the first time includes completing multiple steps, which are outlined in the table in this topic. The steps in this section of the documentation provide all the information that you need to deploy AHM within the basic Meridium APM system architecture.

The location where you will need to perform each step, (i.e., in the APM Framework application, in an administrative application, or on a server machine) is indicated in the **Location** cell in the table. Whether a step is required or optional is indicated in the **Required/Optional** cell. Steps are marked as *Required* if you must perform the step to take advantage of AHM functionality.

The person responsible for completing each task may vary within your organization. We recommend, however, that each step be performed in relatively the same order in which they are listed in the following table.

Step	Task	Location	Required/Optional	Notes
1	Specify settings in the file <i>Meridium.AHI.Service.exe.config</i> .	Meridium APM Application Server, Meridium APM Process Data Integration Server, and Meridium APM Policy Execution Server	Required	Always required on the Application Server. Required on the Process Data Integration Server only if you want to create Health Indicator records from Xi Tag records. Required on the Policy Execution Server only if you want to use Policy Manager to modify health indicators.
2	Review the AHM data model to determine which relationship definitions you will need to modify to include your custom equipment and location families.	Configuration Manager	Optional	This task is necessary only if you store equipment and location information in families other than the baseline Equipment and Functional Location families.
3	Assign Security Users to the MI AHI Administrator or MI AHI User Security Group.	Configuration Manager	Required	None

Step	Task	Location	Required/Optional	Notes
4	<p>Determine the equipment whose overall health you want to evaluate, and make sure that an Equipment record and Functional Location record (representing the location in which the equipment is installed) exist in the database for this equipment.</p> <p>Also, make sure that the Functional Location record is linked to a predecessor Functional Location record.</p>	APM Framework	Required	In the example used throughout this documentation, the piece of equipment is the <i>water heater</i> .
5	<p>Determine which of the following existing, primary source records provide an indication of the equipment's health:</p> <ul style="list-style-type: none"> • Measurement Location records: Created using Operator Rounds • KPI records: Created using Metrics and Scorecards • Xi Tag records: Created using Process Data Integration • Health Indicator Value records: Created using Policy Manager. 	APM Framework	Required	None
6	Create a new Health Indicator record for each primary source record that you chose in the previous step.	APM Framework	Required	None

Upgrade Workflow

Upgrade Workflow

You can upgrade to V3.6.0.0.0 using the instructions that are provided in this section of the documentation. To access these instructions, click the starting version from which you are upgrading:

- V3.5.1
- V3.5.0 SP1 LP
- V3.5.0
- V3.4.5

Upgrading Asset Health Manager From V3.5.1 to V3.6.0.0.0

The following table lists the step that is required to upgrade and configure AHM for V3.6.0.0.0. This step assumes that you have completed the steps for upgrading the basic Meridium APM architecture.

Step	Task	Location	Required/Optional	Notes
1	Specify settings in the file <i>Meridium.AHI.Service.exe.config</i> .	Meridium APM Application Server -and- Meridium APM Process Data Integration Server	Required	During the server upgrade process, a backup of your previously used configuration file was created. You can use this pre-upgrade file as a reference to modify the new baseline configuration file. You should <i>not</i> overwrite the baseline configuration file, as changes may have been made that are required for the service to work correctly. After you modify the baseline configuration file, you can delete the pre-upgrade configuration file.

Upgrading Asset Health Manager From V3.5.0 SP1 LP to V3.6.0.0.0

The following table lists the step that is required to upgrade and configure AHM for V3.6.0.0.0. This step assumes that you have completed the steps for upgrading the basic Meridium APM architecture.

Step	Task	Location	Required/Optional	Notes
1	Specify settings in the file <i>Meridium.AHI.Service.exe.config</i> .	Meridium APM Application Server -and- Meridium APM Process Data Integration Server	Required	During the server upgrade process, a backup of your previously used configuration file was created. You can use this pre-upgrade file as a reference to modify the new baseline configuration file. You should <i>not</i> overwrite the baseline configuration file, as changes may have been made that are required for the service to work correctly. After you modify the baseline configuration file, you can delete the pre-upgrade configuration file.

Upgrading Asset Health Manager From V3.5.0 to V3.6.0.0.0

The following table lists the step that is required to upgrade and configure AHM for V3.6.0.0.0. This step assumes that you have completed the steps for upgrading the basic Meridium APM architecture.

Step	Task	Location	Required/Optional	Notes
1	Specify settings in the file <i>Meridium.AHI.Service.exe.config</i> .	Meridium APM Application Server -and- Meridium APM Process Data Integration Server	Required	During the server upgrade process, a backup of your previously used configuration file was created. You can use this pre-upgrade file as a reference to modify the new baseline configuration file. You should <i>not</i> overwrite the baseline configuration file, as changes may have been made that are required for the service to work correctly. After you modify the baseline configuration file, you can delete the pre-upgrade configuration file.

Upgrading Asset Health Manager From V3.4.5 to V3.6.0.0.0

The following table lists the step that is required to upgrade and configure AHM for V3.6.0.0.0. This step assumes that you have completed the steps for upgrading the basic Meridium APM architecture.

Step	Task	Location	Required/Optional	Notes
1	Specify settings in the file <i>Meridium.AHI.Service.exe.config</i> .	Meridium APM Application Server -and- Meridium APM Process Data Integration Server	Required	During the server upgrade process, a backup of your previously used configuration file was created. You can use this pre-upgrade file as a reference to modify the new baseline configuration file. You should <i>not</i> overwrite the baseline configuration file, as changes may have been made that are required for the service to work correctly. After you modify the baseline configuration file, you can delete the pre-upgrade configuration file.

Installation, Upgrade, and Configuration Steps

Modifying the File *Meridium.AHI.Service.exe.config*

When you install the Meridium APM Application Server or the Meridium APM Process Data Integration Service, the Meridium AHM Service and the file *Meridium.AHI.Service.exe.config* are installed automatically. The Meridium AHM Service allows the values in the following Health Indicator record fields to be updated automatically when values change in the primary source record.

- Alert Level
- Last Reading Date
- Last Char Reading Value (for records that accept character values)
- Last Numeric Reading Value (for records that accept numeric values)

Before these values can be updated in this way, you will need to specify settings in the file *Meridium.AHI.Service.exe.config* on *both* machines.

The following instructions provide details on modifying the file *Meridium.AHI.Service.exe.config* manually on the Meridium APM Application Server machine, the Meridium APM Process Data Integration Server, or the Meridium APM Policy Execution Server.

Note: The Application Server and data source that you specify in file *Meridium.AHI.Service.exe.config* must match *exactly* the Application Server and data source in the file *Meridium.PDI.Service.exe.config*.

To modify the file *Meridium.AHI.Service.exe.config*:

1. On the machine on which you are configuring the Meridium AHM Service, navigate to the folder where the Meridium APM Application Server software or the Meridium APM Process Data Integration Service is installed. If you installed the software in the default location, you can locate this file in the following location: **C:\Program Files\Meridium\Services**.

2. Open the file `Meridium.AHI.Service.exe.config` in an application that you can use to modify XML script (e.g., Notepad).
3. In the file, within the `<configuration>` tags, locate the following text:

`<meridiumconnections>`

4. Within the `<meridiumconnections>` tags, uncomment the example connection tag by deleting `<!--EXAMPLE:` and the corresponding `-->` from the beginning and end of the string.
5. Within `<meridiumconnections>` tags, within the `connection name` attribute, replace `TEST` with a name for the connection to the database. This value is used only by the configuration file.
6. If you are modifying the file on the *Meridium APM Process Data Integration Server* or the *Policy Execution Server*:
 - a. Within the `<meridiumconnections>` tags, locate the `applicationServer` attribute.
 - b. Between the quotations, type the name or IP Address of the Meridium APM Application Server.

-or-

If you are modifying the file on the *Meridium APM Application Server*:

- a. Within the `<meridiumconnections>` tags, locate the `applicationServer` attribute.
- b. If you want the Meridium AHM Service to use a remote connection to the Meridium APM Application Server, between the quotations, type the name or IP Address of the Meridium APM Application Server.

-or-

If you want the AHM Service to use a local connection to the Meridium APM Application Server, accept the default setting (i.e., an empty value).

7. Within the <meridiumconnections> tags, within the **datasource** attribute, replace **DVB_ALL_350** with the name of the Meridium APM database that you will use to store your Health Indicator records.
8. Within the <meridiumconnections> tags, within the **userId** attribute, replace **meridiumUser** with the user name of the user whose credentials should be used to log in to the Meridium APM database specified as the **datasource** value.
9. Within the <meridiumConnections> tags, within the **password** attribute, replace **PaSsWoRd** with the password that is associated with the user name specified as the **userId** value. Note that you should not delete the **!** in front of the password. This symbol is not part of the password itself. Instead, this symbol will cause the password to be encrypted automatically when the service is restarted.
10. Save the file.

Your settings will be applied when you start or restart the Asset Health Indicator Service.

AHM Security Groups

MI AHI Administrator

The following table lists the baseline family-level privileges that exist for the MI AHI Administrator Security Group.

Family	Privileges
Entity Families	
Checkpoint Task	View, Update, Insert
Health Indicator	View, Update, Insert, Delete
Health Indicator Mapping	View, Update, Insert, Delete
Health Indicator Value	View, Update, Insert, Delete
Hierarchy Item Child Definition	View, Update, Insert, Delete
Hierarchy Item Definition	View, Update, Insert, Delete
Measurement Location	View

Family	Privileges
KPI	View
KPI Measurement	View
Measurement Location Template	View
Operator Rounds Allowable Values	View
Policy	View
Policy Instance	View
Reading	View
Recommendation	View, Update, Insert, Delete
Timestamped Value	View, Update, Insert, Delete
Xi Reading	View
Xi System	View
Xi Tag	View
Relationship Families	
Has Checkpoint	View
Has Child Hierarchy Item	View, Update, Insert, Delete
Has Health Indicators	View, Update, Insert, Delete
Has Readings	View
Has Recommendations	View, Update, Insert, Delete
Has Timestamped Value	View, Update, Insert, Delete
Has Xi Reading	View
Has Xi Tag	View
Health Indicator Has Mapping	View, Update, Insert, Delete
Health Indicator Has Source	View, Update, Insert, Delete

MI AHI User

The following table lists the baseline family-level privileges that exist for the MI AHI User Security Group.

Family	Privileges
Entity Families	
Checkpoint Task	View, Update, Insert
Health Indicator	View, Update
Health Indicator Mapping	View
Health Indicator Value	View
Hierarchy Item Child Definition	View
Hierarchy Item Definition	View
KPI	View
KPI Measurement	View
Measurement Location	View
Measurement Location Template	View
Operator Rounds Allowable Values	View
Policy	View
Policy Instance	View
Reading	View
Recommendation	View, Update, Insert, Delete
Timestamped Value	View
Xi Reading	View
Xi System	View
Xi Tag	View
Relationship Families	
Has Checkpoint	View
Has Child Hierarchy Item	View
Has Health Indicators	View
Has Readings	View
Has Recommendations	View, Update, Insert, Delete
Has Timestamped Value	View
Has Xi Reading	View
Has Xi Tag	View

Family	Privileges
Health Indicator Has Mapping	View
Health Indicator Has Source	View

User Instructions

AHM User Workflow

The following workflow represents the basic steps that you might use when evaluating a piece of equipment's health using AHM. After you have completed this workflow, you will probably find that you need to repeat certain steps at various times depending on your company's specific needs, changing conditions, and your role within the organization.

These steps assume that Health Indicator records have already been created for the Equipment record identifying the piece of equipment whose health you are evaluating.

1. Access the **Asset Health Manager** page for the piece of equipment whose health you want to evaluate. You can do so in either of the following ways:
 - By selecting to view the Equipment record as the root node.
 - By selecting to view the Functional Location record representing the location to which the equipment belongs as the root node.
2. Evaluate the piece of equipment's health using the images and data that are displayed on the **Asset Health Manager** page.
3. Acknowledge any warning or alert statuses.
4. If needed, create Meridium General Recommendation records to recommend action for the equipment.

Asset Health Manager Page

About Accessing the Asset Health Manager Page

From the **AHM Start Page**, you can access the **Asset Health Manager** page in the following ways:

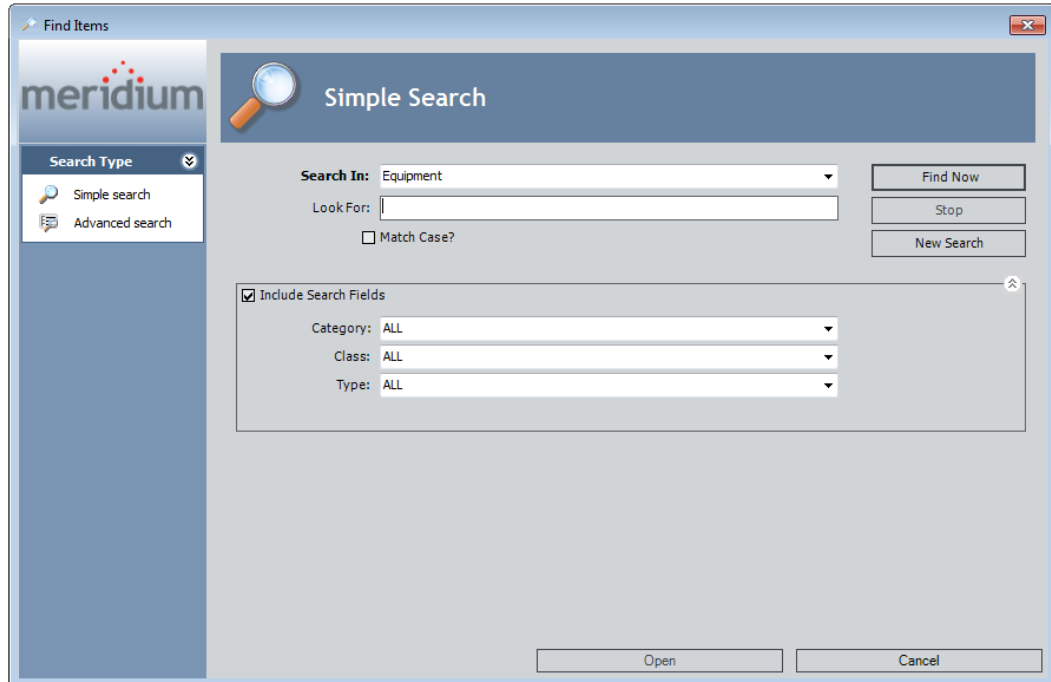
- By searching for the specific piece of equipment whose health you want to evaluate.
- By searching for the location containing the equipment whose health you want to evaluate.
- By clicking a link in the **Equipment Technical Number** column in the **Health Indicators in Alert** section.
- By clicking a link in the **Superior Location** column in the **Health Indicators in Alert** section.

Accessing the Asset Health Manager Page for a Single Piece of Equipment

To access the **Asset Health Manager** page for a single piece of equipment:

1. Access the **AHM Start Page**.
2. In the **Links** section, click the **Search Equipment to View Asset Health** link.

The **Find Items** window appears, displaying the **Simple Search** workspace.



3. In the **Search In** list, select the **Equipment** family.
4. In the **Look For** text box, type a keyword to limit your results to records containing that word within the Record ID. If you specify a keyword, your results will contain records that match your family criteria and contain the keyword that you specified. A keyword can contain any number of characters, any alphanumeric value, and any special character. A keyword is optional.
5. If you want the search to be case-sensitive, select the **Match Case** check box. Selecting the check box indicates that you want to return only the records that contain the keyword you specified using the exact case that you specified in the **Look For** text box.

-or-

If you do not want the search to be case-sensitive, do not select the **Match Case** check box.

Note: The **Match Case** option works only on Oracle schemas. When you perform a search using a SQL Server database, the search will be case-*insensitive* even when the **Match Case** check box is selected.

6. If additional search criteria appear below the **Match Case** check box:

- If you want to refine the search results further to include only records with specific values in those fields, select the desired values in the available prompts.

-or-

If you do not want to refine the search results further to include only records with specific values in those fields, clear the Include Search Fields check box

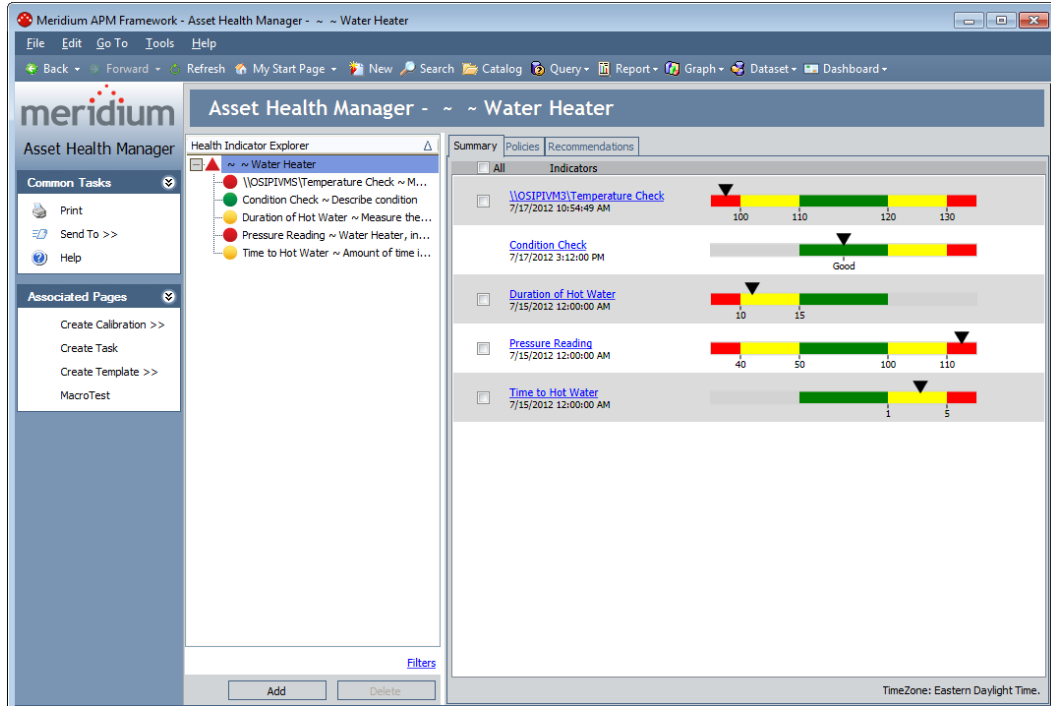
Note: If the underlying query prompts have been configured to contain the value *All* by default, if you do not want to refine the search results further, you can accept the default prompt values without clearing the Include Search Fields check box.

7. Click the Find Now button.

The search results appear in a grid on the window.

8. Select the Equipment record that represents the piece of equipment whose health you want to evaluate, and click the Open button.

The Asset Health Manager <Entity ID> page appears, where <Entity ID> is the Record ID of the selected Equipment record. In addition, the Equipment record is represented by the root node in the Health Indicator Explorer pane. The Health Indicator records that are linked to the Equipment record are represented by nodes below the root Equipment node.

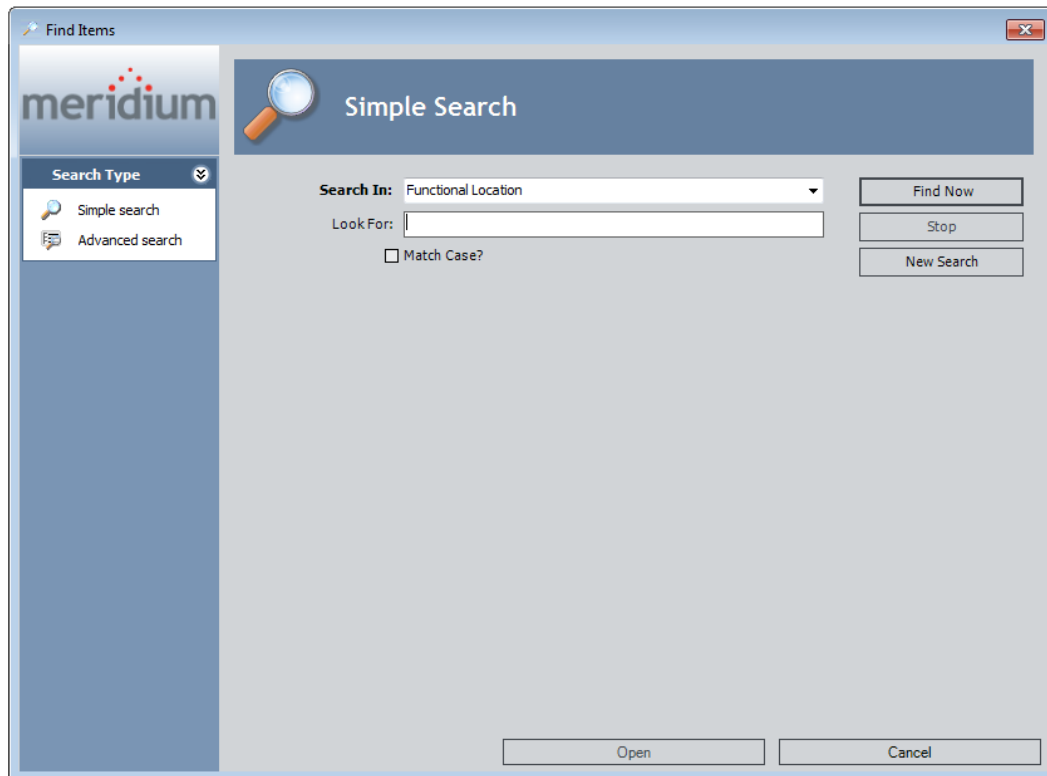


Accessing the Asset Health Manager Page for All Equipment Belonging to a Location

To access the Asset Health Manager page for all equipment belonging to a location:

1. Access the AHM Start Page.
2. In the Links section, click the Search Functional Locations to View Asset Health link.

The Find Items window appears, displaying the Simple Search workspace.



The value in the **Search In** list is set automatically to *Functional Location*. You do not need to modify this value.

3. In the **Look For** text box, type a keyword to limit your results to records containing that word within the Record ID. If you specify a keyword, your results will contain records that match your family criteria and contain the keyword that you specified. A keyword can contain any number of characters, any alphanumeric value, and any special character. A keyword is optional.
4. If you want the search to be case-sensitive, select the **Match Case** check box. Selecting the check box indicates that you want to return only the records that contain the keyword you specified using the exact case that you specified in the **Look For** text box.

-or-

If you do not want the search to be case-sensitive, do not select the **Match Case** check box.

Note: The Match Case option works only on Oracle schemas. When you perform a search using a SQL Server database, the search will be case-*insensitive* even when the Match Case check box is selected.

5. If additional search criteria appear below the Match Case check box:

- If you want to refine the search results further to include only records with specific values in those fields, select the desired values in the available prompts.

-or-

If you do not want to refine the search results further to include only records with specific values in those fields, clear the Include Search Fields check box

Note: If the underlying query prompts have been configured to contain the value *All* by default, if you do not want to refine the search results further, you can accept the default prompt values without clearing the Include Search Fields check box.

6. Click the Find Now button.

The search results appear in a grid on the window.

7. Select the Functional Location record that represents the location containing the equipment whose health you want to evaluate, and click the Open button.

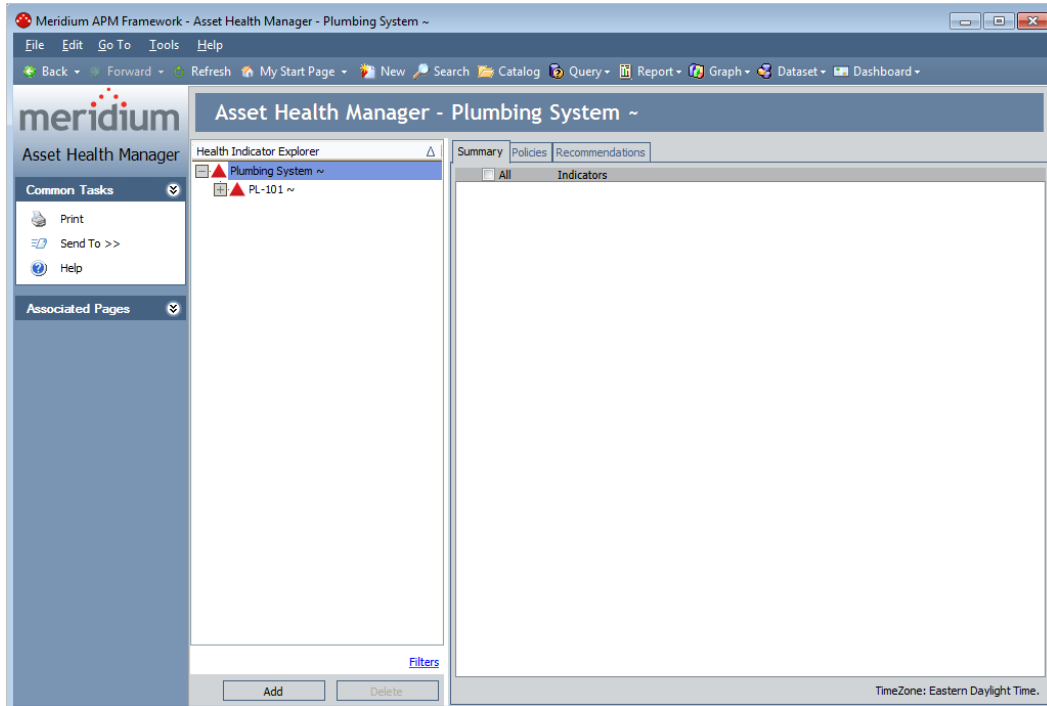
The Asset Health Manager <Entity ID> page appears, where <Entity ID> is the Record ID of the selected Functional Location record. In addition:

- The selected Functional Location record is represented by the root node in the Health Indicator Explorer pane.
- The successor Functional Location records that are linked to that Functional Location record are represented by nodes below the root node.
- The Equipment records that are linked to the Functional Location records are represented by nodes below those location nodes.

Note: You will need to expand the tree manually to see the Equipment records.

- Health Indicator records that are linked to the Equipment records are represented by nodes below the Equipment nodes.

Note: You will need to expand the tree manually to see the Health Indicator records.



Accessing the Asset Health Manager Page for a Single Piece of Equipment in Alert Condition

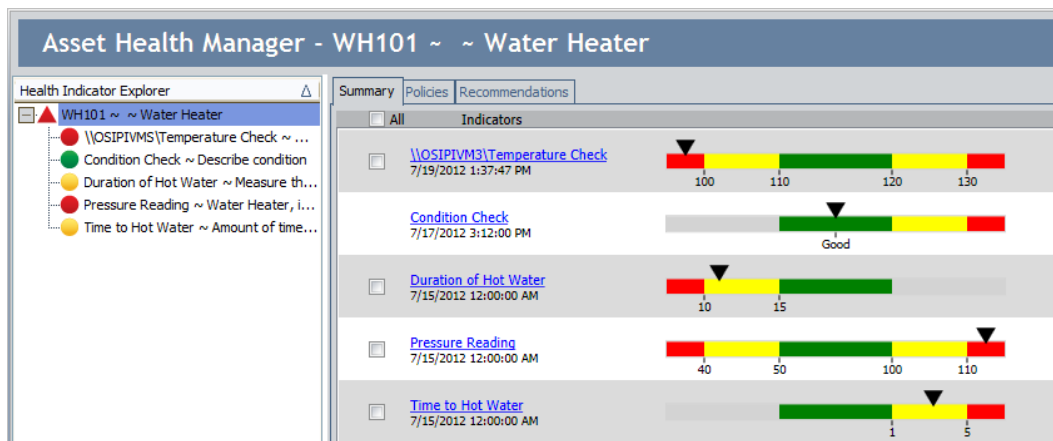
The following instructions assume that:

- You have accessed the AHM Start Page.
- The Health Indicators in Alert section on the AHM Start Page displays the Health Indicator records for the piece of equipment whose health you want to evaluate.

To access the Asset Health Manager page for a single piece of equipment that is in alert condition:

- In the Health Indicators in Alert section, in the Equipment Technical Number column, click the hyperlinked ID of the Equipment record representing the piece of equipment whose health you want to evaluate.

The Asset Health Manager page appears, where the Equipment record is represented by the root node in the Health Indicator Explorer pane. The Health Indicator records that are linked the Equipment record are represented by nodes below the root node in the tree.



Accessing the Asset Health Manager Page for a Location With at Least One Piece of Equipment in Alert Condition

The following instructions assume that:

- You have accessed the AHM Start Page.
- The Health Indicators in Alert section on the AHM Start Page displays the Health Indicator records for the equipment belonging to the location containing the equipment whose health you want to evaluate.

To access the Asset Health Manager page for a location with at least one piece of equipment in alert condition:

- In the **Health Indicators in Alert** section, in the **Superior Location** column, click the hyperlinked ID of the location containing the equipment whose health you want to evaluate.

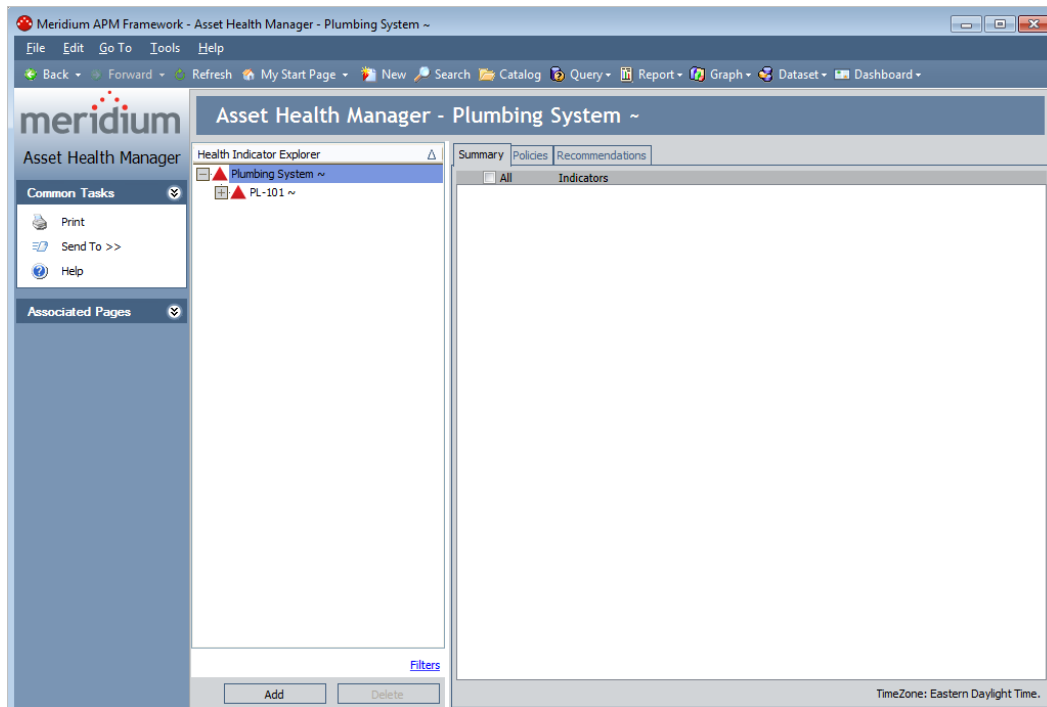
The **Asset Health Manager** page appears, where the Functional Location record is the root node in the **Health Indicator Explorer** pane. In addition:

- The successor Functional Location records that are linked to that Functional Location record are represented by nodes below the root node.
- The Equipment records that are linked to the lower-level Functional Location records are represented by nodes below those location nodes.

Note: You will need to expand the tree manually to see the Equipment records.

- Health Indicator records that are linked to the Equipment records are represented by nodes below the Equipment nodes.

Note: You will need to expand the tree manually to see the Health Indicator records.



Aspects of the Asset Health Manager Page

The Asset Health Manager - <Entity ID> page, where <Entity ID> is the field that stores the Record ID of the record represented by the root, contains the following items:

- **Task menus:** Menus that provide specific functionality. The following task menus are available: **Common Tasks** and **Associated Pages**.
- **Health Indicator Explorer pane:** Displays a tree that contains nodes representing Functional Location records, Equipment records, and the Health Indicator records to which the Equipment records are linked.
- Various tabs that appear or not depending upon the type of node that is selected in the **Health Indicator Explorer** pane.

Throughout the documentation, we refer to the **Asset Health Manager - <Entity ID>** page simply as the *Asset Health Manager page*.

Refreshing the Asset Health Manager Page

You can refresh the Asset Health Manager page to ensure that the information displayed on the page for all records reflects up-to-date data from the application server.

To refresh the Asset Health Manager page:

- On the Meridium APM Framework toolbar, click the Refresh link.

The Asset Health Manager page is refreshed, and the page is displayed according to how it appears when it is first accessed.

For example, the following image shows an example of the Asset Health Manager page where the node representing the Health Indicator record *Pressure Reading* is selected in the Health Indicator Explorer pane, and the Stored Data tab is selected in the workspace.

The screenshot shows the 'Asset Health Manager - Plumbing System' window. On the left, the 'Health Indicator Explorer' pane shows a tree view with 'Plumbing System' expanded to 'PL-101', which is further expanded to 'WH101 ~ Water Heater'. Under 'WH101', several indicators are listed, with 'Pressure Reading ~ Water H...' selected. The main workspace has tabs for 'Details', 'Trend', 'Stored Data', and 'Source', with 'Stored Data' selected. A table displays the following data:

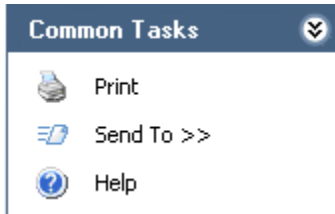
Reading Date	Reading Value	Status
7/15/2012 12:00 AM	115	Red
7/14/2012 12:00 AM	105	Yellow
7/13/2012 12:00 AM	75	Green

Continuing with the example, when you click the Refresh link, the page is displayed according to how it appears when it is first accessed, as shown in the following image.

The screenshot shows the 'Asset Health Manager - Plumbing System' window after a refresh. The 'Health Indicator Explorer' pane shows 'Plumbing System' expanded to 'PL-101'. The main workspace has tabs for 'Summary', 'Policies', and 'Recommendations', with 'Summary' selected. Under 'Summary', there is a sub-tab for 'All Indicators'.

Task Menus

Common Tasks Menu



The **Common Tasks** menu on the **Asset Health Manager** page contains the following links:

- **Print:** Displays the **Print** dialog box, where you can select the desired printer and settings.
- **Send To:** Displays a submenu with options that let you send a link to the current page to your desktop (create shortcut), in an email message, or a Home Page.
- **Help:** Displays the context-sensitive **Help** topic for the **Asset Health Manager** page.

Associated Pages Menu

The **Associated Pages** menu on the **Asset Health Manager** page displays **Associated Pages** that are configured for the family of the currently selected node. For example, if you select the root node that represents an **Equipment** record, the **Associated Pages** menu will display **Associated Pages** that are configured for the **Equipment** family.

Health Indicator Explorer Pane

About the Health Indicator Explorer Pane

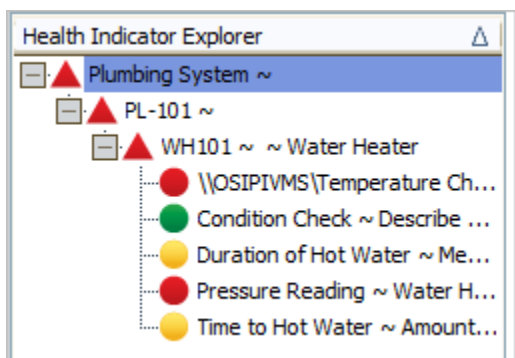
The **Health Indicator Explorer** pane on the **Asset Health Manager** page displays a tree that contains nodes representing an **Equipment** or **Functional Location** record and the **Health Indicator** records to which the **Equipment**

record is linked. By default, the Health Indicator nodes are listed in alphabetical order. If desired, you can also sort the Health Indicator nodes in descending order.

In the tree, the root node either represents a Functional Location record or an Equipment record, depending upon the way in which you accessed the page. Below the Equipment node are nodes representing the Health Indicator records to which that Equipment record is linked.

For example, in the following image:

- The root node *Plumbing System* ~ represents a Functional Location record.
- Its subnode *PL-101* ~ represents a Functional Location record that is linked as a successor to the *Plumbing System* ~ Functional Location record.
- Its subnode *WH101* ~ ~ *Water Heater* represents an Equipment record.
- Its subnodes represent Health Indicator records that are linked to the Equipment record.



All Functional Location and Equipment nodes are represented by a colored triangle, and the Health Indicator nodes are represented by colored circles.

A circle can be any of the following colors:

- **Red:** Indicates that the corresponding Health Indicator record meets Alert status criteria.

Note: A red circle that contains a green check mark represents a Health Indicator record that has been acknowledged.

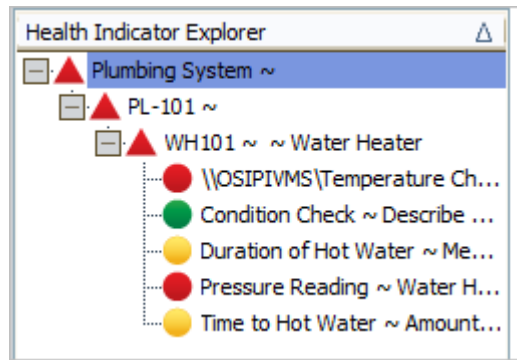
- **Yellow:** Indicates that the corresponding Health Indicator record meets Warning status criteria.

Note: A yellow circle that contains a green check mark represents a Health Indicator record that has been acknowledged.

- **Green:** Indicates that the corresponding Health Indicator record meets Normal status criteria.
- **White:** Indicates that the corresponding Health Indicator record is not linked to a primary source record.
- **Gray:** Indicates that the primary source record of the corresponding Health Indicator record is not associated with any secondary source records. For example, if the primary source record is a Measurement Location record, the circle will be gray if the Measurement Location record is not linked to any Reading records.

The triangles for the nodes representing the Equipment and Functional Location records can be any of the following colors:

- **Gray:** Indicates that the Equipment record is not linked to any Health Indicator records.
- **Green:** Indicates that the Equipment record is linked only to Health Indicator records that meet Normal status criteria.
- **Yellow or Red:** Indicates the *worst* status among all of the Health Indicator records that are linked to the Equipment record. If the Equipment record is linked to one or more Health Indicator records that meet Warning or Alert status criteria, the triangle for the associated Functional Location and Equipment nodes will be colored according to the worst status of those Health Indicator records. Consider the following image.



In this image, the triangles are red because at least one of the Health Indicator nodes has a red circle, indicating that the Health Indicator record meets Alert status criteria.

The following options appear below the tree in the Health Indicator Explorer pane:

- **Filter link:** Displays the **Manage Filters** window, which provides options you can use to limit the nodes that appear in the **Health Indicator Explorer** pane.

Note: After you apply a filter, text identifying the filter will appear below the tree. In addition, a **Clear All** link will also appear, which you can use to remove all the filters that you have applied.

- **Add button:** Displays the **Health Indicator Builder**, where you can create new Health Indicator records that are linked to the Equipment record represented by the selected Equipment node.

Note: The **Add** button is enabled only if you are a member of the MI AHI Administrator Security Group.

- **Delete button:** After asking for confirmation, deletes the selected Health Indicator record.

Note: The **Delete** button is enabled only if you are a member of the MI AHI Administrator Security Group.

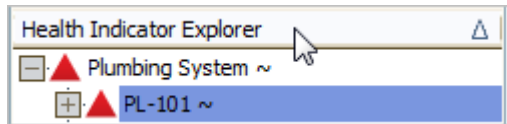
Sorting Nodes in the Health Indicator Explorer Pane

By default, the Health Indicator nodes that are displayed in the tree in the **Health Indicator Explorer** pane are sorted alphabetically. In addition, on the

Summary tab, the gauges that are associated with the nodes are sorted alphabetically.

To sort the nodes and their associated gauges in descending order:

- Click the bar that displays the title of the **Health Indicator Explorer** pane.



The Health Indicator nodes and the gauges are sorted in descending order.

Filtering Nodes in the Health Indicator Explorer Pane

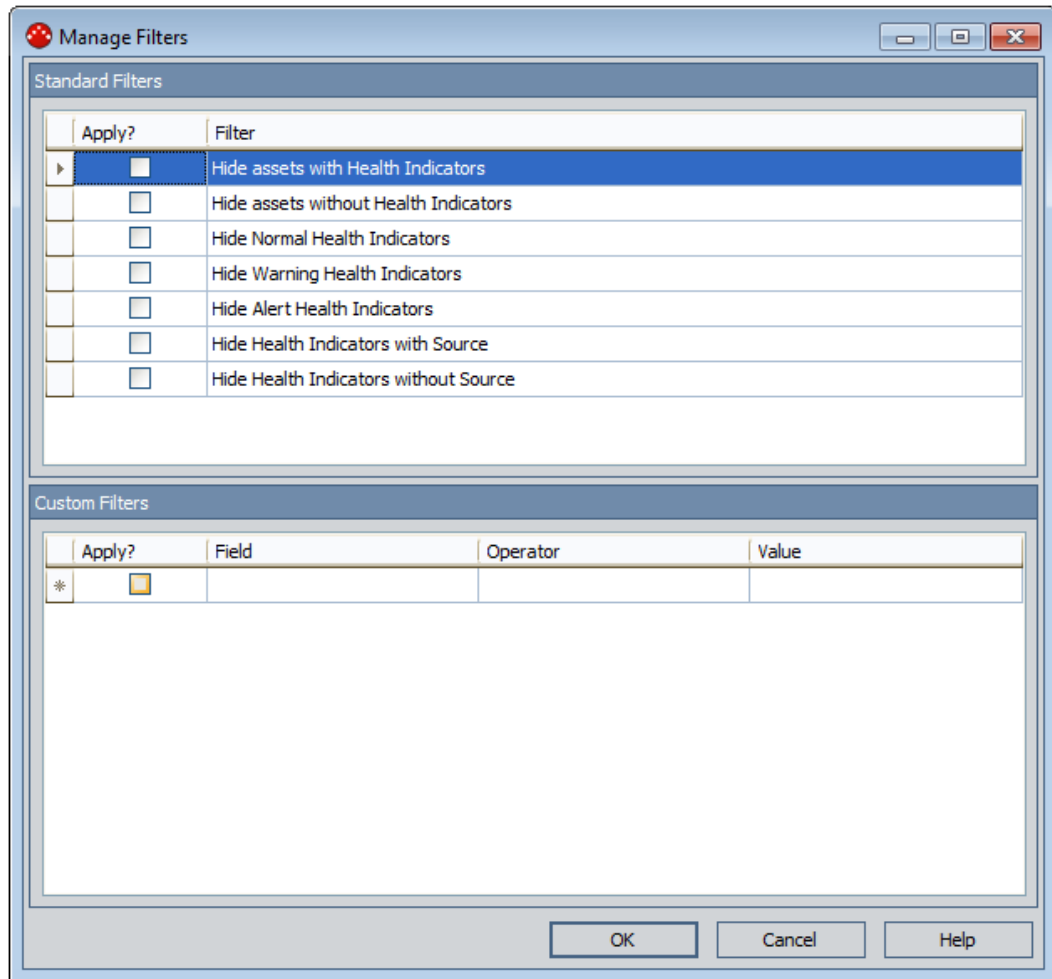
Accessing the Manage Filters Window

You can use the **Manage Filters** window to select the filters that you want to use to limit the Health Indicator nodes that are displayed in the **Health Indicator Explorer** pane.

To access the **Manage Filters** window:

- In the **Health Indicator Explorer** pane, below the tree, click the **Filters** link.

The **Manage Filters** window appears.



Aspects of the Manage Filters Window

The Manage Filters window contains the following sections:

- **Standard Filters:** Displays a list of baseline filters that you can apply to the nodes in the Health Indicator Explorer pane.
- **Custom Filters:** Displays a grid where you can create custom filters that you can apply to the nodes in the Health Indicator Explorer pane.

Applying Filters

To apply one or more filters to the Health Indicator nodes in the tree:

1. Access the **Manage Filters** window.

2. In either section, in the row containing the filter that you want to apply to the Health Indicator nodes, select the **Apply** check box.
3. Click **OK**.

The tree in the **Health Indicator Explorer** pane is refreshed and displays only the Health Indicator nodes whose Health Indicator records meet the filtering criteria. In addition, the **Summary** tab is updated to show information only for nodes that are displayed in the tree.

In addition, at the bottom of the tree, you will see text describing the selected filters and an option to clear the filters.

Note: If you selected the **Hide assets with Health Indicators** or **Hide assets without Health Indicators** filter and the filter should hide a parent node but not its child node, the parent node will still appear in the tree.

Clearing Filters

Filters that have been applied to the tree in the **Health Indicator Explorer** pane can be cleared one at a time or all at once using the following methods:

To clear a single filter:

- Below the tree in the **Health Indicator Explorer** pane, beside the filter that you want to remove, click the **X** button.

The **Health Indicator Explorer** pane is refreshed to show the nodes that were previously filtered.

To clear all filters:

- Below the tree in the **Health Indicator Explorer** pane, click the **Clear All** link.

The **Health Indicator Explorer** pane is refreshed to show the nodes that were previously filtered.

Creating Custom Filters

When you create and apply custom filters, rather than *excluding* the Health Indicator nodes that you do not want to see in the tree, the filter criteria that



you choose will determine which Health Indicator nodes you want to *include* in the tree.

For example, when you apply the standard filter *Hide Normal Health Indicators*, any Health Indicator node whose Health Indicator record meets the *Normal* status will be hidden, and only Health Indicator nodes whose Health Indicator records meet either the *Warning* or *Alert* status will appear in the tree.




By contrast, if you create and apply the custom filter *Acknowledged = True*, the only Health Indicator nodes that will be represented in the tree are those that have been acknowledged.

Note: If you create a custom filter from scratch, it will be applied automatically to the tree in the **Health Indicator Explorer** pane. If you clear the filter, you can still select it on the **Manage Filters** window to apply it to the tree. In addition, you can modify or delete the custom filter via this window.

To create a custom filter:

1. Access the **Manage Filters** window.
2. In the **Custom Filters** section, in the first empty row, define the desired filter. To do so:
 - a. In the **Field** cell, click the  button, and select the field that applies to the filter you want to create. The list displays all fields in the Health Indicator family.
 - b. In the **Operator** cell, click the  button, and select the operator that you want to apply to the selected field.
 - c. In the **Value** cell, type or select the value to which the selected operator should be applied.

For example, to display only Health Indicator nodes that have not been acknowledged, the filter would look like this:


Apply?	Field	Operator	Value
	 Acknowledged	=	 False

3. Click OK.

The **Health Indicator Explorer** pane is refreshed, and the tree displays the nodes that meet the filtering criteria.

Deleting Custom Filters

To delete a custom filter:

1. Access the **Manage Filters** window.
2. In the row containing the filter that you want to remove, in the **Field** cell, click the  button, and select the empty value at the top of the list.
3. Click OK.

The filter is removed from the **Manage Filters** window.

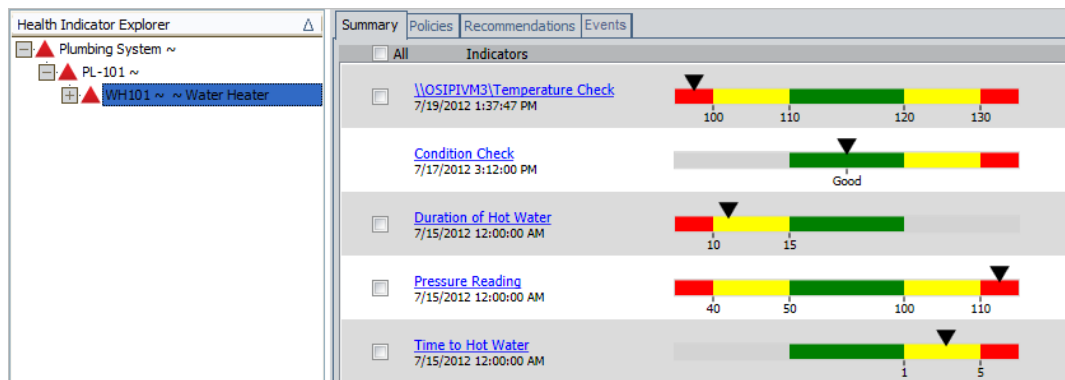
Tabs

About the Tabs

The tabs that appear on the **Asset Health Manager** page change depending upon the node that is selected in the **Health Indicator Explorer** pane.

- When an Equipment node is selected in the **Health Indicator Explorer** pane, the following tabs are displayed:
 - **Summary:** Displays a graphical representation of the overall health of the piece of equipment.
 - **Policies:** Displays the policy instances that include that Equipment record.
 - **Recommendations:** Displays the Recommendation records that are linked to the Equipment record.
 - **Events:** Displays event data in source event records that are linked to the Equipment record.

In the following image, you can see that the Equipment node is selected in the Health Indicator Explorer pane, and the tabs described above are displayed to the right of the tree.



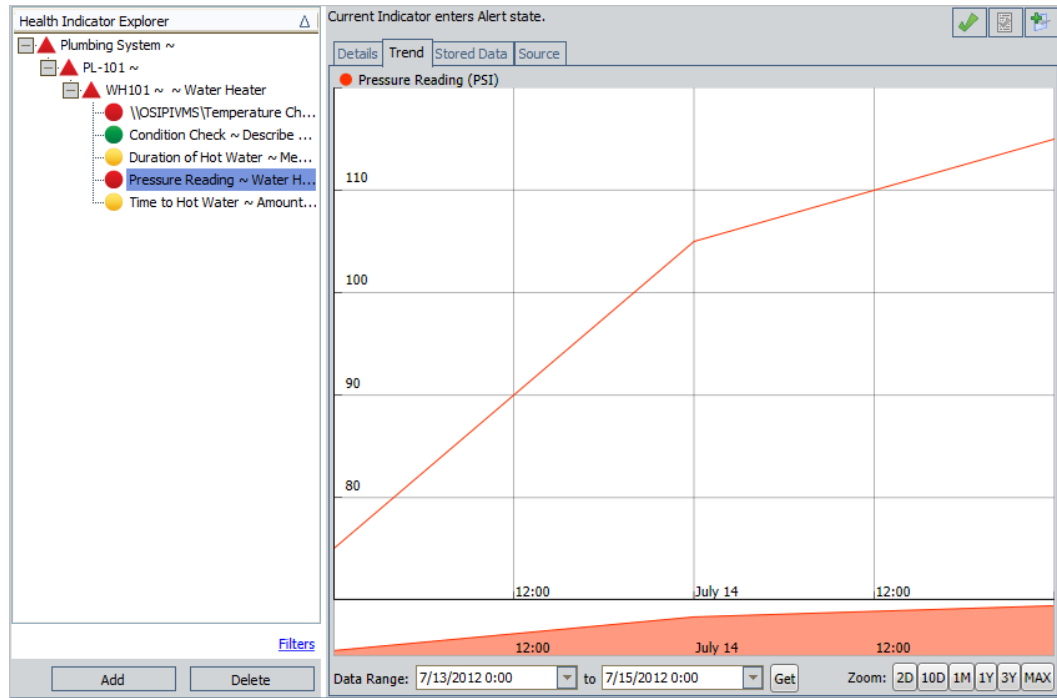
- When a Health Indicator node is select in the Health Indicator Explorer pane, the following tabs are displayed:
 - **Details:** Displays the values in the Name and Description fields in the Health Indicator record represented by the selected node. If the Health Indicator record was created via Policy Manager, additional information is also displayed on this tab.
 - **Trend:** Displays a graph that provides a historical view of the data that is stored in the associated reading records or process historians.
 - **Stored Data:** Displays reading values that are stored in the associated reading records.
 - **Snapshot:** Displays reading values that are stored in a process historian.

Note: This tab appears only when the primary source record is an Xi Tag record.



- **Source:** Displays the datasheet of the primary source record that is linked to the Health Indicator record represented by the selected node.



In the following image, you can see that a Health Indicator node is selected in the Health Indicator Explorer pane, and the tabs described above are displayed to the right of the tree. Note that the Snapshot tab

is not available because the primary source record that is represented by the selected node is a Measurement Location record.



Several buttons appear above the tabs, depending upon the status of the Health Indicator record that is represented by the selected node. The following table describes the buttons that are available and information about when those buttons appear.

Button	Description	Notes
	Displays the Acknowledgement Note dialog box, where you can acknowledge the condition.	This button appears only if the selected Health Indicator node represents a Health Indicator record with a status other than Normal (e.g., Alert) that has not been acknowledged.
	After displaying a confirmation message, revokes the acknowledgement.	This button appears only if the selected node represents a Health Indicator record whose status is currently acknowledged.

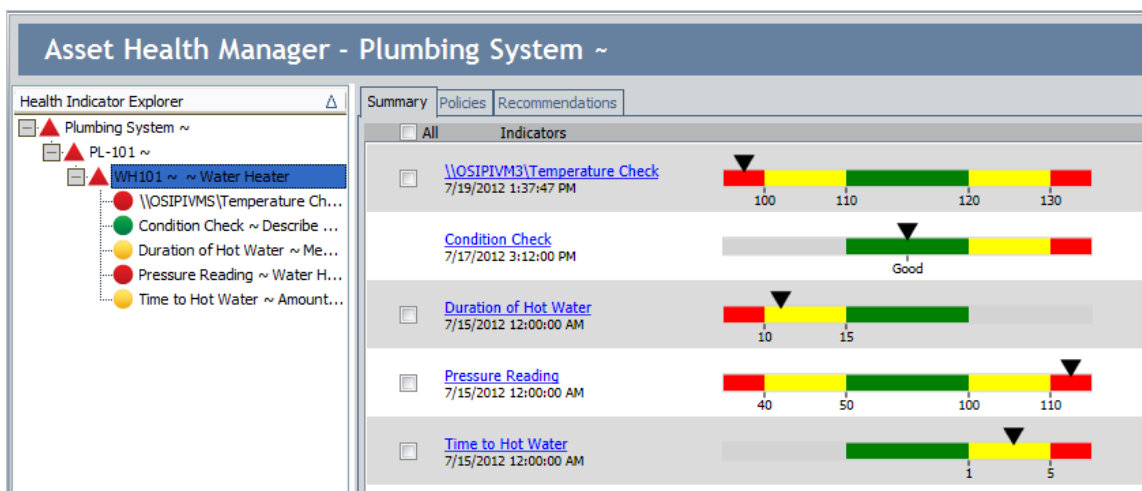
Button	Description	Notes
	Displays the Acknowledgement Note dialog box, where you can modify the note that is currently associated with a Health Indicator record.	This button appears and is enabled only if the selected node represents a Health Indicator record whose status is currently acknowledged. If the selected node represents a Health Indicator record whose status is Alert or Warning but has not been acknowledged, this button appears but is disabled.
	Displays a new Meridium General Recommendation record that you can use to recommend action for the piece of equipment whose health you are evaluating.	This button always appears.

Summary Tab

About the Summary Tab

The **Summary** tab is displayed when an Equipment node is selected in the **Health Indicator Explorer** pane. The **Summary** tab is displayed by default when you access the **Asset Health Manager** page.

The following image shows an example of the **Summary** tab.





The **Summary** tab displays various rows, where each row represents a Health Indicator record that is linked to the Equipment record represented by the selected node.

Each row contains the following items:

- A check box that appears if the Health Indicator record's status:
 - Is either Warning or Alert.
 - - and -
 - Has not been acknowledged.

When you select the check box, the following additional buttons appear above the top row (on the far right):

- : Displays the **Acknowledgement Note** dialog box where you can acknowledge the condition.
- : Displays a new Meridium General Recommendation record.

Note: You can select the Health Indicators individually or all at once by selecting the **All** check box above the grid.

- The Health Indicator Record ID as it appears in the **Health Indicator Explorer** pane. The Health Indicator Record IDs are hyperlinks that you can click to access the **Trend** tab for that Health Indicator record.
- A gauge that represents the current health of the equipment with respect to that indicator.

Interpreting Gauges

About the Gauges

Gauges appear on the **Summary** tab when an Equipment node is selected in the **Health Indicator Explorer** pane. Each gauge contains:

- Various colored sections that represent the status criteria that the Health Indicator record could meet.

- Specific values depending upon the type of primary source record that is linked to the Health Indicator record. These values indicate one of the following items:
 - Target and critical reading values (i.e., in KPI records).
 - The current reading value (i.e., in Measurement Location and Xi Tag records that accept character values).
 - Upper and lower level limits (i.e., in Measurement Location and Xi Tag records that accept numeric values).
- A black triangle that identifies the most recent reading value for the Health Indicator.

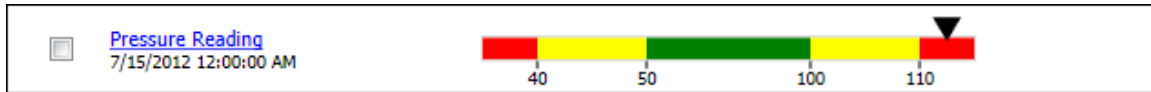
Note: If there is not a reading value stored in the Health Indicator record, the black triangle will not appear above the gauge.

The following types of gauges will appear on the **Summary** tab:

- Gauges representing data in Measurement Location records that accept numeric readings.
- Gauges representing data in Measurement Location records that accept character readings.
- Gauges representing data in KPI records where low values are good.
- Gauges representing data in KPI records where high values are good.
- Gauges representing data in Xi Tag records that accept numeric readings.
- Gauges representing data in Xi Tag records that accept character readings.

Interpreting Gauges Representing Numeric Measurement Locations

The following image shows an example of a gauge that represents a Measurement Location record that accepts numeric reading values.



In this image, you can see that the gauge contains various colored sections that correspond to status criteria that the Health Indicator record could meet. Note that the status of a Health Indicator record that is linked to a Measurement Location record that accepts numeric values is determined based upon:

- The value stored in the Last Numeric Reading Value field in the Health Indicator record.
- The limit values in the Measurement Location record (which are displayed on the **Limit Values** tab on the Measurement Location datasheet).

The black triangle on the gauge represents the value stored in the Last Numeric Reading Value field in the Health Indicator record. If the *Meridium.AHI.Service.exe.config* file has been configured properly, this value is updated automatically by the AHM Service.

On gauges that represent Measurement Location records that accept numeric readings, the values that appear below the gauge represent limit values, which are displayed on the **Limit Values** tab of the Measurement Location datasheet. Note, however, that the *Numeric Upper Level 3* and *Numeric Lower Level 3* values are not shown below the gauge. These values represent the highest and lowest reading values that can be recorded.

- Numeric Upper Level 3 = 120
- Numeric Upper Level 2 = 110
- Numeric Upper Level 1 = 100
- Numeric Lower Level 1 = 50
- Numeric Lower Level 2 = 40
- Numeric Lower Level 3 = 30

The following table describes the classifications of reading values that appear on gauges that represent this type of record and their associated color on the gauge.

Range	Description	Section color on gauge
Normal	The reading value falls between the values in the Lower Level 1 field and the Upper Level 1 field in the Measurement Location record.	Green
Warning	<p>The reading values meets either of the following conditions:</p> <ul style="list-style-type: none"> • The reading value is greater than or equal to the value in the Lower Level 1 field and less than the value in the Lower Level 2 field in the Measurement Location record. <p>-or-</p> <ul style="list-style-type: none"> • The reading value is greater than or equal to the value in the Upper Level 1 field and less than the value in the Upper Level 2 field in the Measurement Location record. 	Yellow
Alert	<p>The reading value meets either of the following conditions:</p> <ul style="list-style-type: none"> • The reading value is greater than or equal to the value in the Lower Level 2 field in the Measurement Location record. • The reading value is greater than or equal to the value in the Upper Level 2 field in the Measurement Location record. 	Red

Note that the gauge does not display the actual reading value. Instead, its purpose is to indicate where the current reading value falls within a range of acceptable and unacceptable values. In the example image, you can see that the black triangle falls within a red section, meaning that the Health Indicator record meets the Alert status criteria.

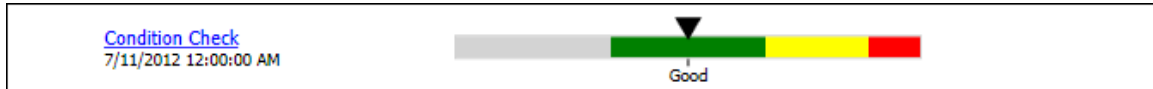
To the left of the gauge, you can see:

- The hyperlinked name of the Health Indicator record that is linked to the Measurement Location record. You can click the hyperlink to access the Trend tab, where you can view a graph that shows historical data for the health indicator.

- The date and time on which the reading value represented on the gauge was recorded, as stored in the Last Reading Date field in the Health Indicator record.

Interpreting Gauges Representing Character Measurement Locations

The following image shows an example of a gauge that represents a Measurement Location record that accepts character reading values.



In this image, you can see that the gauge contains various colored sections that correspond to status criteria that the Health Indicator record could meet. Note that the status of a Health Indicator record that is linked to a Measurement Location record that accepts character values is determined based upon:

- The value stored in the Last Char Reading Value field in the Health Indicator record.
- The limit values in the Measurement Location record (which are displayed on the **Limit Values** tab on the Measurement Location datasheet).

The black triangle on the gauge represents the value stored in the Last Char Reading Value field in the Health Indicator record. If the *Meridium.AHI.Service.exe.config* file has been configured properly, this value is updated automatically by the AHM Service.

In this example, the Measurement Location record measures the condition of a water heater via a visual check by an operator. In this case, the allowable values are *Good*, *Poor*, and *Critical*. Note that for Measurement Location records that accept character values, the gauge displays the latest reading value. In the example shown above, the most recent reading value is *Good*.

The following table describes the classifications of reading values that appear on gauges that represent this type of record and their associated color on the gauge.

Range	Description	Section color on gauge
Normal	The reading value does not appear on the Limit Values tab in the Measurement Location record. In the example, the value <i>Good</i> is consistent with the status <i>Normal</i> .	Green
Warning	The reading value appears on the Limit Values tab in either the Lower Level 1 or Upper Level 1 cells in the Measurement Location record. In the example, the value <i>Poor</i> is consistent with the status <i>Warning</i> .	Yellow
Alert	The reading value appears on the Limit Values tab in the Lower Level 2, Upper Level 2, Lower Level 3, or Upper Level 3 cells in the Measurement Location record. In the example, the value <i>Critical</i> is consistent with the status <i>Alert</i> .	Red

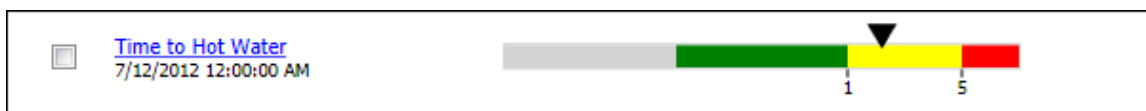
Notice that the gauge also displays a gray section to the left of the green section. This section is shaded gray because a value cannot be better than normal.

To the left of the gauge, you can see:

- The hyperlinked name of the Health Indicator record that is linked to the Measurement Location record. You can click the hyperlink to access the Trend tab, where you can view a graph that shows historical data for the health indicator.
- The date and time on which the reading value represented on the gauge was recorded, as stored in the Last Reading Date field in the Health Indicator record.

Interpreting Gauges Representing KPIs Where Low Values are Good

The following image shows an example of a gauge that represents a KPI record where low values are good.



In this image, you can see that the gauge displays various colored sections that correspond to status criteria that the Health Indicator record could meet. For KPI data where low values are good, the status colors are organized left to right, from best status to worst status. Note that the status of Health Indicator record that is linked to a KPI record is determined based upon:

- The value stored in the Last Numeric Reading Value field in the Health Indicator record.
- The Target and Critical values that are stored in the most recent KPI Measurement record that is linked to the KPI record.

Note: Because these limit values are stored in secondary source records (i.e., KPI Measurement records), they are not displayed on the KPI datasheet. Instead, you can view these values by opening the most recent KPI Measurement record in Record Manager.

The black triangle on the gauge represents the value stored in the Last Numeric Reading Value field in the Health Indicator record. If the *Meridium.AHI.Service.exe.config* file has been configured properly, this value is updated automatically by the AHM Service.

The values displayed on the gauge represent limit values that are stored in the linked KPI Measurement record. In the preceding image, the value 7 represents the Target value, and the value 5 represents the Critical value. In this example, the KPI measures the time it takes for the faucet to yield hot water, where a low number is preferred.

The following table describes the classifications of reading values that appear on gauges that represent this type of record and their associated color on the gauge.

Range	Description	Section color on gauge
Normal	The value stored in the Last Numeric Reading Value field is less than the Target value.	Green
Warning	The value stored in the Last Numeric Reading Value field is greater than or equal to the Target value and less than the Critical value.	Yellow

Range	Description	Section color on gauge
Alert	The value stored in the Last Numeric Reading Value field is greater than or equal to the Critical value.	Red

Notice that the gauge also displays a gray section to the left of the green section. This section is shaded gray because a value cannot be better than normal. When a low number is preferred for a KPI, *any* number below the Target value is considered *Normal*.

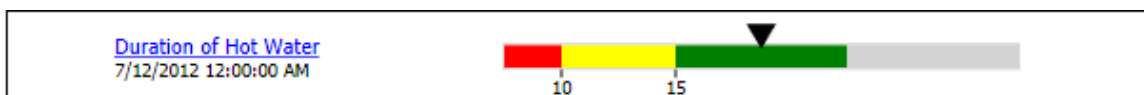
Note that the gauge does not display the actual measurement value. Instead, its purpose is to indicate where the value falls within a range of acceptable and unacceptable values. In the image, you can see that the black triangle falls within a yellow section, meaning that the Health Indicator record meets the Warning status criteria.

To the left of the gauge, you can see:

- The hyperlinked name of the Health Indicator record that is linked to the KPI record. You can click the hyperlink to access the Trend tab, where you can view a graph that shows historical data for the health indicator.
- The date and time on which the reading value represented on the gauge was recorded, as stored in the Last Reading Date field in the Health Indicator record.

Interpreting Gauges Representing KPIs Where High Values are Good

The following image shows an example of a gauge that represents a KPI record where high values are good.



In this image, you can see that the gauge displays various colored sections that correspond to status criteria that the Health Indicator record could meet. For KPI data where high values are good, the status colors are organized left to right, from worst status to best status. Note that the status of Health Indicator record that is linked to a KPI record is determined based upon:

- The value stored in the Last Numeric Reading Value field in the Health Indicator record.
- The Target and Critical values that are stored in the most recent KPI Measurement record that is linked to the KPI record.

Note: Because these limit values are stored in secondary source records (i.e., KPI Measurement records), they are not displayed on the KPI datasheet. Instead, you can view these values by opening the most recent KPI Measurement record in Record Manager.

The black triangle on the gauge represents the value stored in the Last Numeric Reading Value field in the Health Indicator record. If the *Meridium.AHI.Service.exe.config* file has been configured properly, this value is updated automatically by the AHM Service.

The values displayed on the gauge represent limit values that are stored in the linked KPI Measurement record. In the preceding image, the value *15* represents the Target value, and the value *10* represents the Critical value. In this example, the KPI measures the number of minutes that the faucet yields hot water, where a high number is preferred.

The following table describes the classifications of reading values that appear on gauges that represent this type of record and their associated color on the gauge.

Range	Description	Section color on gauge
Normal	The value stored in the Last Numeric Reading Value field is greater than the Target value.	Green
Warning	The value stored in the Last Numeric Reading Value field is less than or equal to the Target value and greater than the Critical value.	Yellow
Alert	The value stored in the Last Numeric Reading Value field is less than or equal to the Critical value.	Red

Notice that the gauge also displays a gray section the right of the green section. This section is shaded gray because a value cannot be better than normal. When a high number is preferred for a KPI, *any* number above the Target value is considered *Normal*.

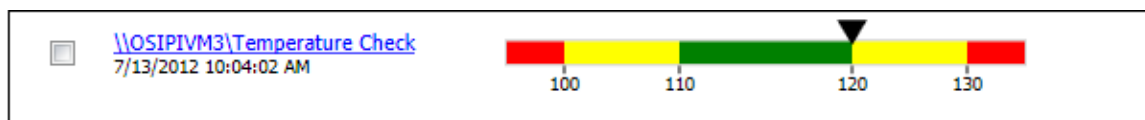
Note that the gauge does not display the actual measurement value. Instead, its purpose is to indicate where the value falls within a range of acceptable and unacceptable values. In the image, you can see that the black triangle falls within a green section, meaning that the Health Indicator record meets the Normal status criteria.

To the left of the gauge, you can see:

- The hyperlinked name of the Health Indicator record that is linked to the KPI record. You can click the hyperlink to access the Trend tab, where you can view a graph that shows historical data for the health indicator.
- The date and time on which the reading value represented on the gauge was recorded, as stored in the Last Reading Date field in the Health Indicator record.

Interpreting Gauges Representing Numeric Xi Tags

The following image shows an example of a gauge that represents an Xi Tag record that accepts numeric reading values.



In this image, you can see that the gauge displays various colored sections that correspond to status criteria that the Health Indicator record could meet. Note that the status of a Health Indicator record that is linked to an Xi Tag record that accepts numeric values is determined based upon:

- The value stored in the Last Numeric Reading Value field in the Health Indicator record.
- The limit values in the Xi Tag record (which are displayed on the **Limit Values** tab on the Xi Tag datasheet).

The black triangle on the gauge represents the value stored in the Last Numeric Reading Value field in the Health Indicator record. If the *Meridium.AHI.Service.exe.config* file has been configured properly, this value is updated automatically by the AHM Service.

On gauges that represent Xi Tag records that accept numeric readings, the values that appear below the gauge represent readings that are displayed on

the **Limit Values** tab on the Xi Tag datasheet. In this example, the values that are shown on the image are stored in the Xi Tag record as described in the following list. Note that the *Numeric Upper Level 3* and *Numeric Lower Level 3* values are not shown below the gauge. These values represent the highest and lowest reading values that can be recorded.

- Numeric Upper Level 3 = 140
- Numeric Upper Level 2 = 130
- Numeric Upper Level 1 = 120
- Numeric Lower Level 1 = 110
- Numeric Lower Level 2 = 100
- Numeric Lower Level 3 = 90

The following table describes the classifications of reading values that appear on gauges that represent this type of record and their associated color on the gauge.

Range	Description	Section color on gauge
Normal	The reading value falls between the values in the Numeric Lower Level 1 field and the Numeric Upper Level 1 field in the Xi Tag record.	Green
Warning	The reading value meets either of the following conditions: <ul style="list-style-type: none"> • The reading value is greater than or equal to the value in the Numeric Lower Level 1 field and less than the value in the Numeric Lower Level 2 field in the Xi Tag record. -or- • The reading value is greater than or equal to the value in the Numeric Upper Level 1 field and less than the value in the Numeric Upper Level 2 field in the Xi Tag record. 	Yellow

Range	Description	Section color on gauge
Alert	The reading value meets either of the following conditions: <ul style="list-style-type: none"> • The reading value is greater than or equal to the value in the Numeric Lower Level 2 field in the Xi Tag record. • The reading value is greater than or equal to the value in the Numeric Upper Level 2 field in the Xi Tag record. 	Red

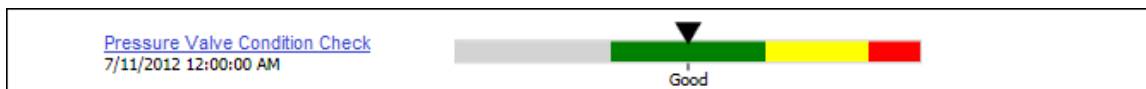
Note that the gauge does not display the actual reading value. Instead, its purpose is to indicate where the reading value falls within a range of acceptable and unacceptable values. In the image, you can see that the black triangle falls within a yellow section, meaning that the Health Indicator record meets the Warning status criteria.

To the left of the gauge, you can see:

- The hyperlinked name of the Health Indicator record that is linked to the Xi Tag record. You can click the hyperlink to access the Trend tab, where you can view a graph that shows historical data for the health indicator.
- The date and time on which the reading value represented on the gauge was recorded, as stored in the Last Reading Date field in the Health Indicator record.

Interpreting Gauges Representing Character Xi Tags

The following image shows an example of a gauge that represents an Xi Tag record that accepts character reading values.



In this image, you can see that the gauge contains various colored sections that correspond to the status criteria that the Health Indicator record could meet. Note that the status of the Health Indicator record is linked to an Xi Tag record that accepts character values is determined based upon:

- The value stored in the Last Char Reading Value field in the Health Indicator record.
- The limit values in the Xi Tag record (which are displayed on the **Limit Values** tab on the Xi Tag datasheet).

The black triangle on the gauge represents the value that is stored in the Last Char Reading Value field in the Health Indicator record. If the *Meridium.AHI.Service.exe.config* file has been configured properly, this value is updated automatically by the AHM Service.

In this example, the Xi Tag record measure the condition of the pressure valve on a water heater. In this case, the allowable values for the visual check are *Good*, *Poor*, and *Critical*. Note that for Xi Tag records that accept character values, the gauge displays the most recent reading value. In the image displayed in this topic, the most recent reading value is *Good*.

The following table describes the classifications of reading value ranges that appear on gauges that represent this type of record and their associated color on the gauge.

Range	Description	Section color on gauge
Normal	The reading value does not appear on the Limit Values tab in the Xi Tag record. In the example, the value <i>Good</i> is consistent with the status <i>Normal</i> .	Green
Warning	The reading value appears on the Limit Values tab in either the Lower Level 1 or Upper Level 1 cells in the Xi Tag record. In the example, the value <i>Poor</i> is consistent with the status <i>Warning</i> .	Yellow
Alert	The reading value appears on the Limit Values tab in the Lower Level 2 , Upper Level 2 , Lower Level 3 , or Upper Level 3 cells in the Xi Tag record. In the example, the value <i>Critical</i> is consistent with the status <i>Alert</i> .	Red

Notice that the gauge also displays a gray section to the left of the green section. This section is shaded gray because a value cannot be better than normal.

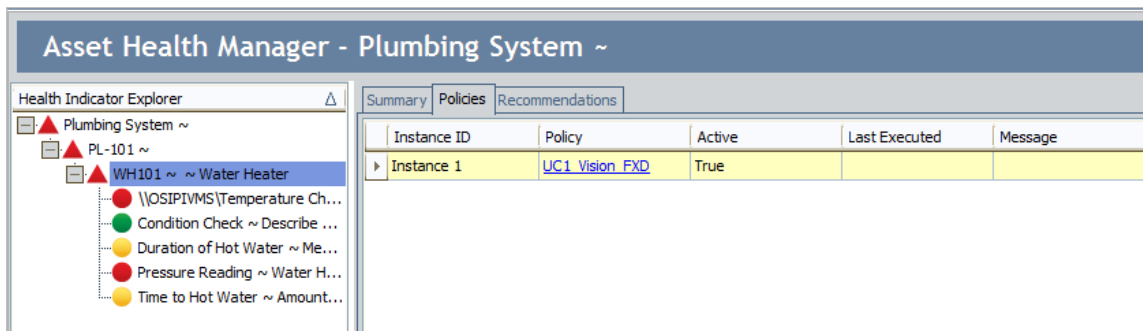
To the left of the gauge, you can see:

- The hyperlinked name of the Health Indicator record that is linked to the Xi Tag record. You can click the hyperlink to access the Trend tab, where you can view a graph that shows historical data for the health indicator.
- The date and time on which the reading value represented on the gauge was recorded, as stored in the Last Reading Date field in the Health Indicator record.

Policies Tab

The **Policies** tab appears when an Equipment node is selected in the **Health Indicator Explorer** pane. The **Policies** tab contains a grid that displays the results of the Policy query, which is stored in the Catalog folder \\Public\Meridium\Modules\AH\Queries.

The following image shows an example of the **Policies** tab as it appears on the Asset Health Manager page.



The grid that appears on the **Policies** tab contains a separate row for each policy instance that includes the Equipment record. The grid contains the following columns:

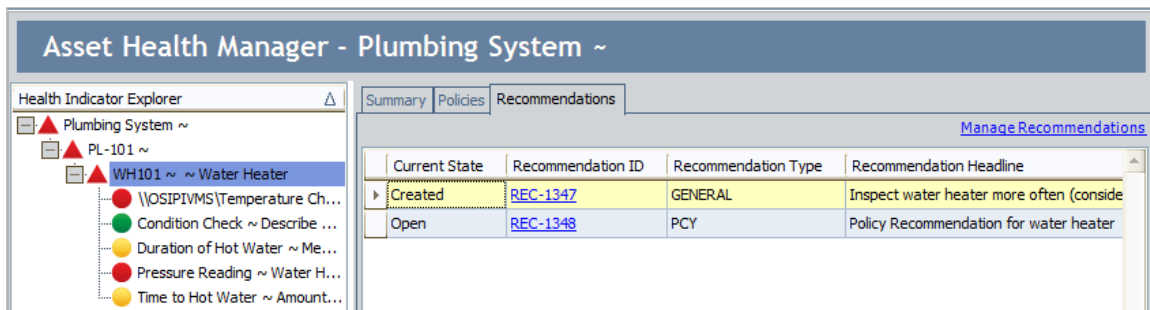
- **Instance ID:** The ID of the policy instance (as it is stored in the ID field in the Policy Instance record).
- **Policy:** The name of the policy (as it is stored in the Name field in the Policy record) that is associated with the policy instance.

Note: The values in the Policy column appear as hyperlinks, which you can click to access the Policy page for that policy.

- **Active:** A value that indicates whether the policy instance is *active* (Yes) or *inactive* (No). This value is stored in the Active field in the associated Policy Instance record. You can activate an inactive policy instance by clicking the Activate button, which appears when you click inside the Active cell.
- **Last Executed:** The date and time that the policy instance was last executed.
- **Message:** Details about the last execution of the policy instance.

Recommendations Tab

The Recommendations tab is displayed when an Equipment record is selected in the Health Indicator Explorer pane. The following image shows an example of the Recommendations tab as it appears on the Asset Health Manager page.



The Recommendations tab contains a grid that displays the results of the Recommendations query that is stored in the Catalog location \\Public\Meridium\Modules\AHI. One row is displayed in the grid for each Recommendation record that is linked to the selected Equipment record. The grid contains the following columns that correspond with values in the Recommendation record:

- Recommendation ID
- Recommendation Type
- Recommendation Headline

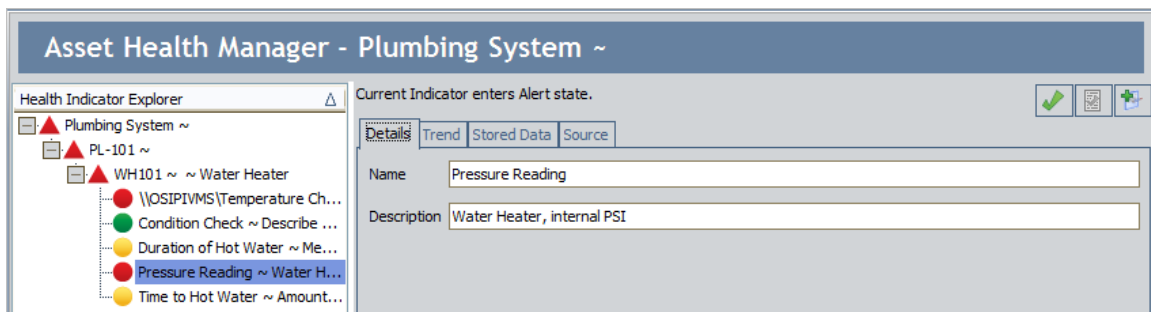
- Recommendation Description

One additional column, **Current State**, is displayed, which corresponds with the state of the Recommendation record.

Above the grid, the **Manage Recommendations** link appears, which provides access the **Recommendation Management** page where you can view and manage the Recommendation records that are linked to the selected Equipment record.

Details Tab

The **Details** tab appears when a Health Indicator node is selected in the **Health Indicator Explorer** pane. The following image shows an example of the **Details** tab as it appears on the **Asset Health Manager** page.



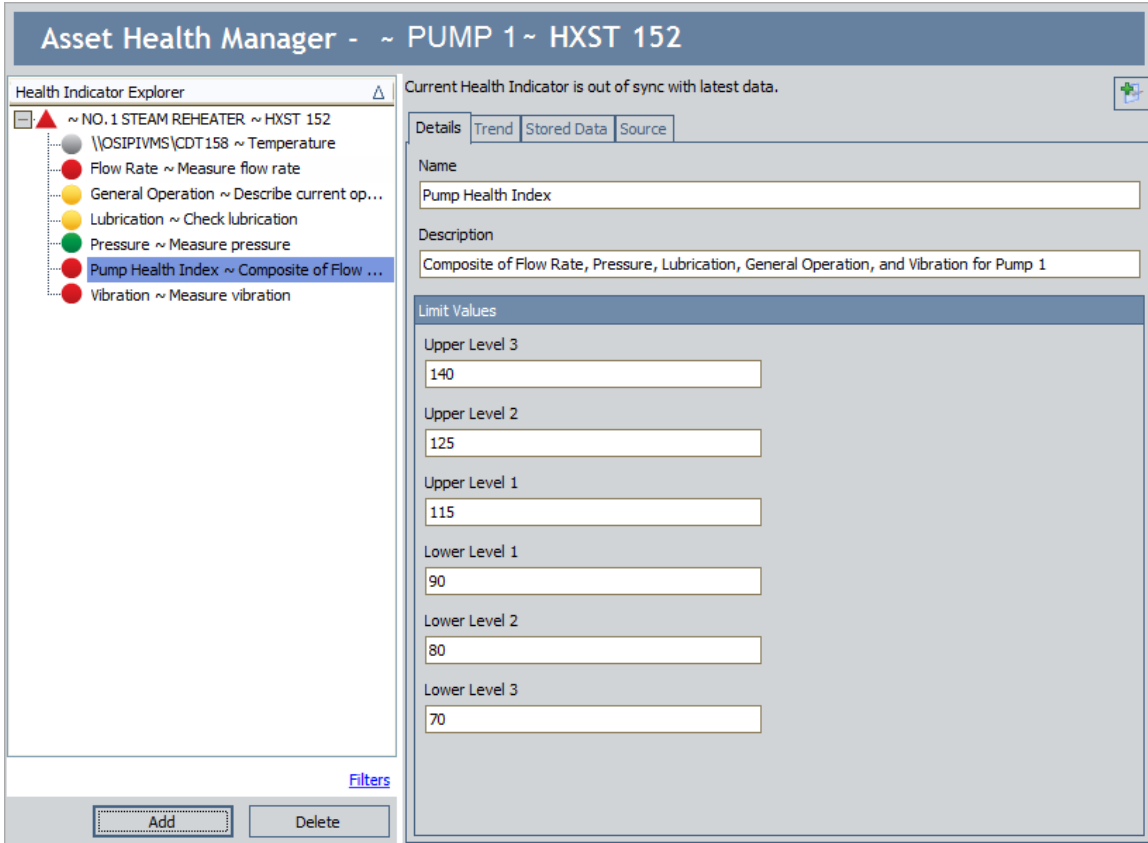
The **Details** tab contains the following text boxes:

- **Name:** Displays the name of the Health Indicator record that is represented by the selected node. The **Name** text box is populated automatically with the value stored in the Source Name Field field in the Health Indicator Mapping record.
- **Description:** Displays a description of the Health Indicator record that is represented by the selected node. The value in this text box is stored in the Description field in the Health Indicator record.

Note: The **Description** text box is empty when the Health Indicator record is created in AHM (as opposed to Policy Manager).

If you want to change the name or description of a Health Indicator record, you can modify the values that appear in the **Name** and **Description** text boxes.

When a Health Indicator record that was created via Policy Manager is selected in the **Health Indicator Explorer** pane, the **Limit Values** workspace is displayed below the text boxes on the **Details** tab. The following image shows an example of the **Limit Values** workspace.



The **Limit Values** workspace contains the text boxes that correspond with fields in the Health Indicator record, which are outlined in the following table.

Text box	Health Indicator field
Upper Level 3	Upper Level 3 Alert
Upper Level 2	Upper Level 2 Alert
Upper Level 1	Upper Level 1 Alert
Lower Level 1	Lower Level 1 Alert
Lower Level 2	Lower Level 2 Alert
Lower Level 3	Lower Level 3 Alert

You can use these text boxes to modify the limit values in the Health Indicator record.

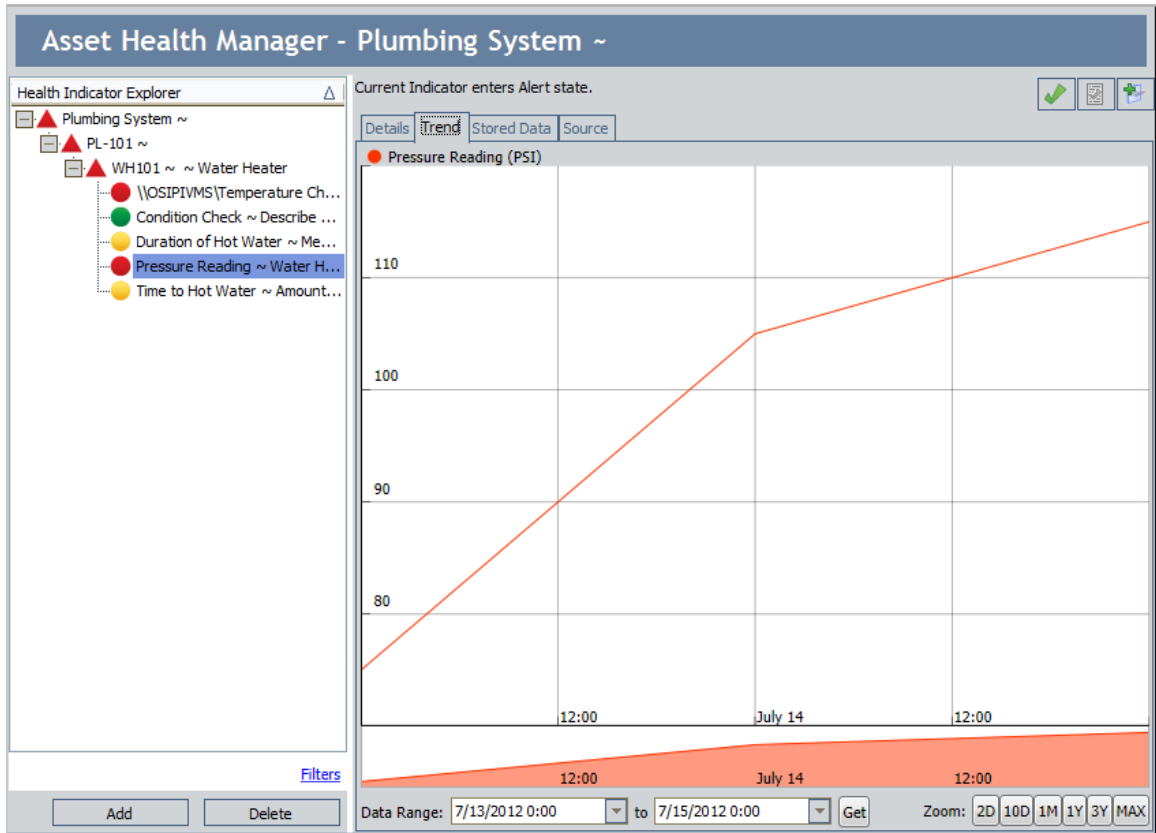
Trend Tab

About the Trend Tab

The **Trend** tab appears when the following criteria are satisfied:

- A Health Indicator node is selected in the **Health Indicator Explorer** pane.
- and -
- The primary source record of the corresponding Health Indicator record is linked to at least one secondary source record or process historian that contains reading values.

If these conditions are met, the **Trend** tab will appear by default when you select a Health Indicator node in the tree. The following image shows an example of the **Trend** tab.



The Trend tab contains the following items:

- **Graph:** A line graph that illustrates how readings have fluctuated over time for a particular health indicator. The graph that is displayed on the Trend tab is built using the same graphing tool that is used to display data on the Process Data Viewer window, which is used to display reading values for tags represented by Xi Tag records.

Note: The graph on the Trend tab does not offer the same options that are available for standard graphs throughout the rest of the Meridium APM Framework application.

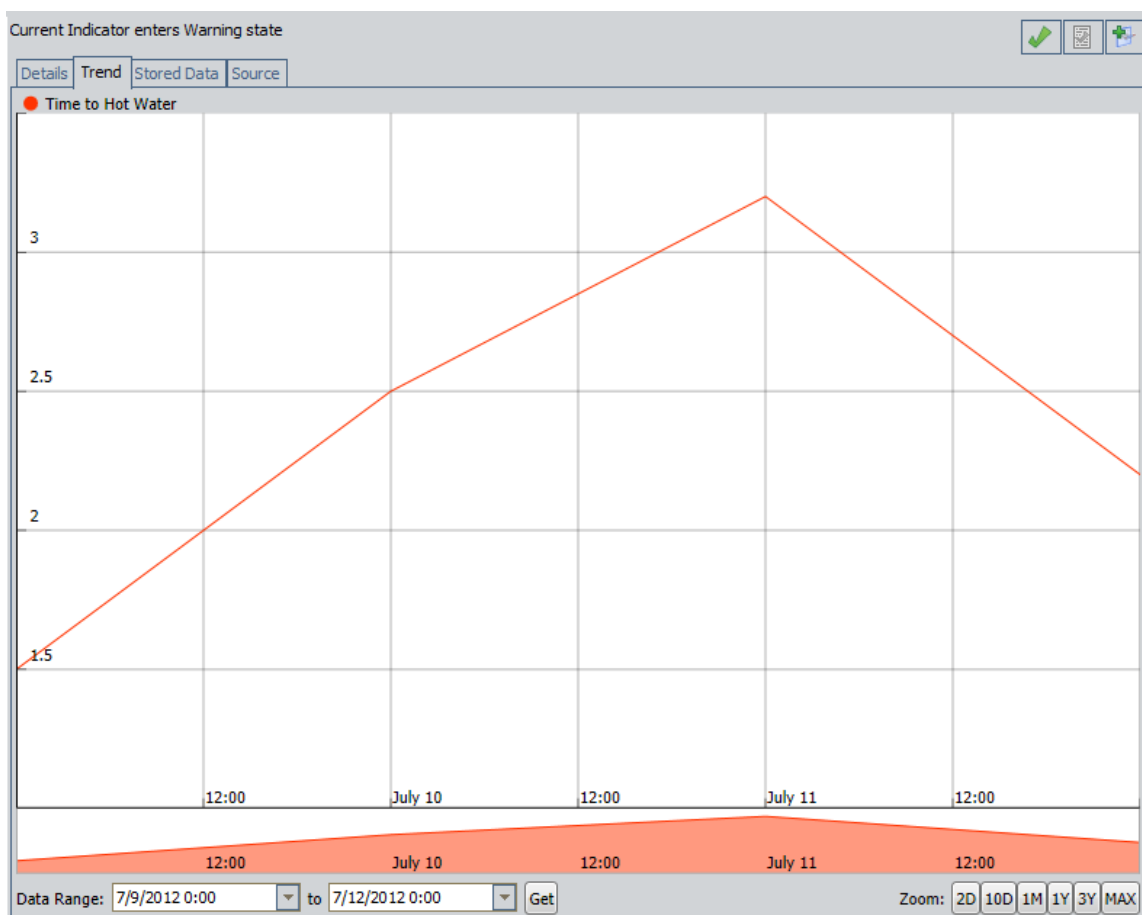
- **Data Range criteria:** Defines the specific date range for which data will be displayed on the graph.
- **Zoom buttons:** Allow you to select a predetermined amount of data that will be displayed on the graph.

The graph plots the readings values that exist for the health indicator. Specifically:

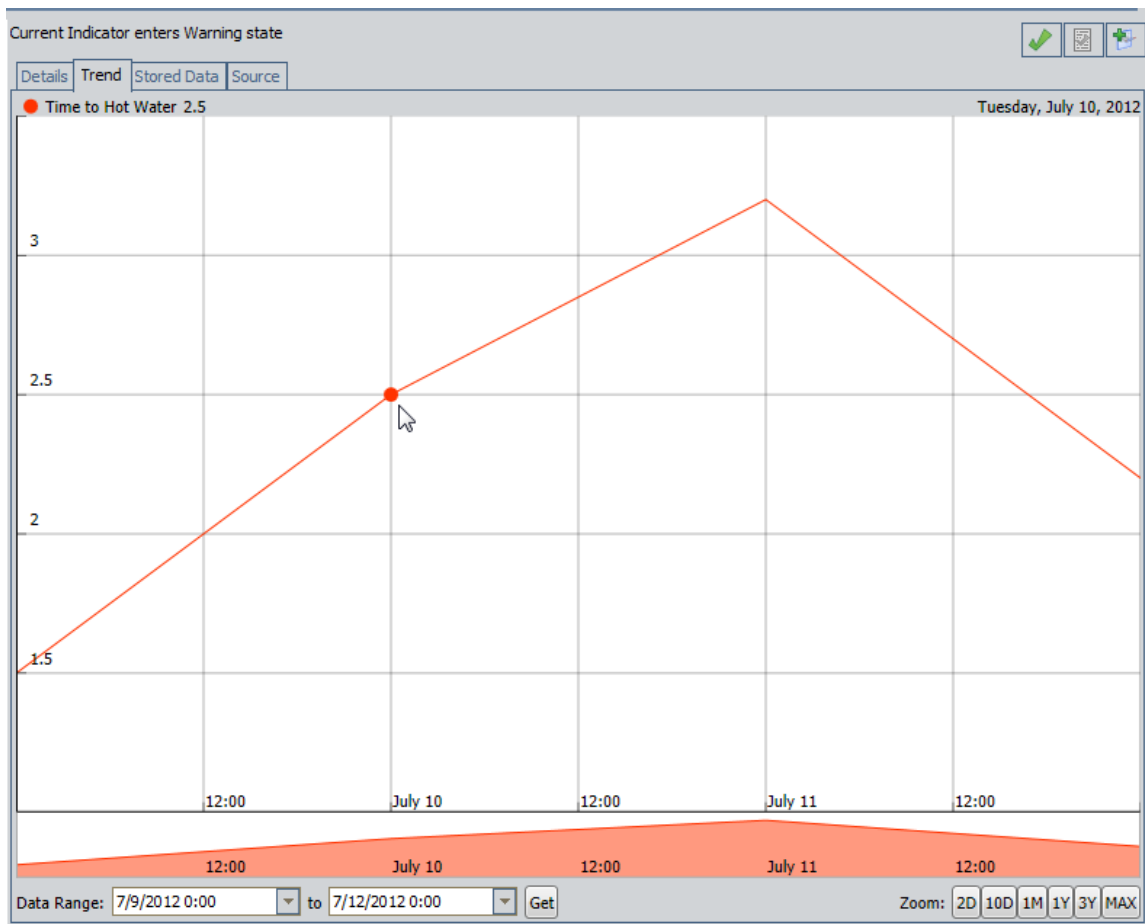
- If the primary source record is a Measurement Location record, the graph displays a history of reading values that are stored in secondary source records, (i.e., Reading records that are linked to the Measurement Location record).
- If the primary source record is a KPI record, the graph displays a history of measurement values that are stored in secondary source records, (i.e., KPI Measurement records that are linked to the KPI record).
- If the primary source record is an Xi Tag record, the graph displays a history of reading values that were collected by the process historian and stored in secondary source records, (i.e., Xi Reading records that are linked to the Xi Tag record).


About the Graph

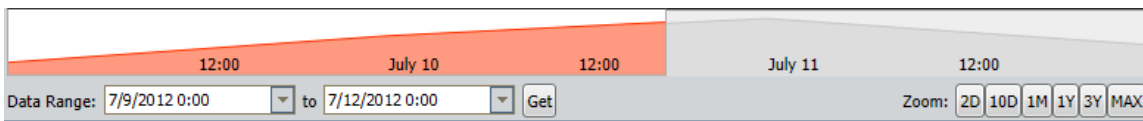
The following image shows an example of the graph that is displayed on the Trend tab.



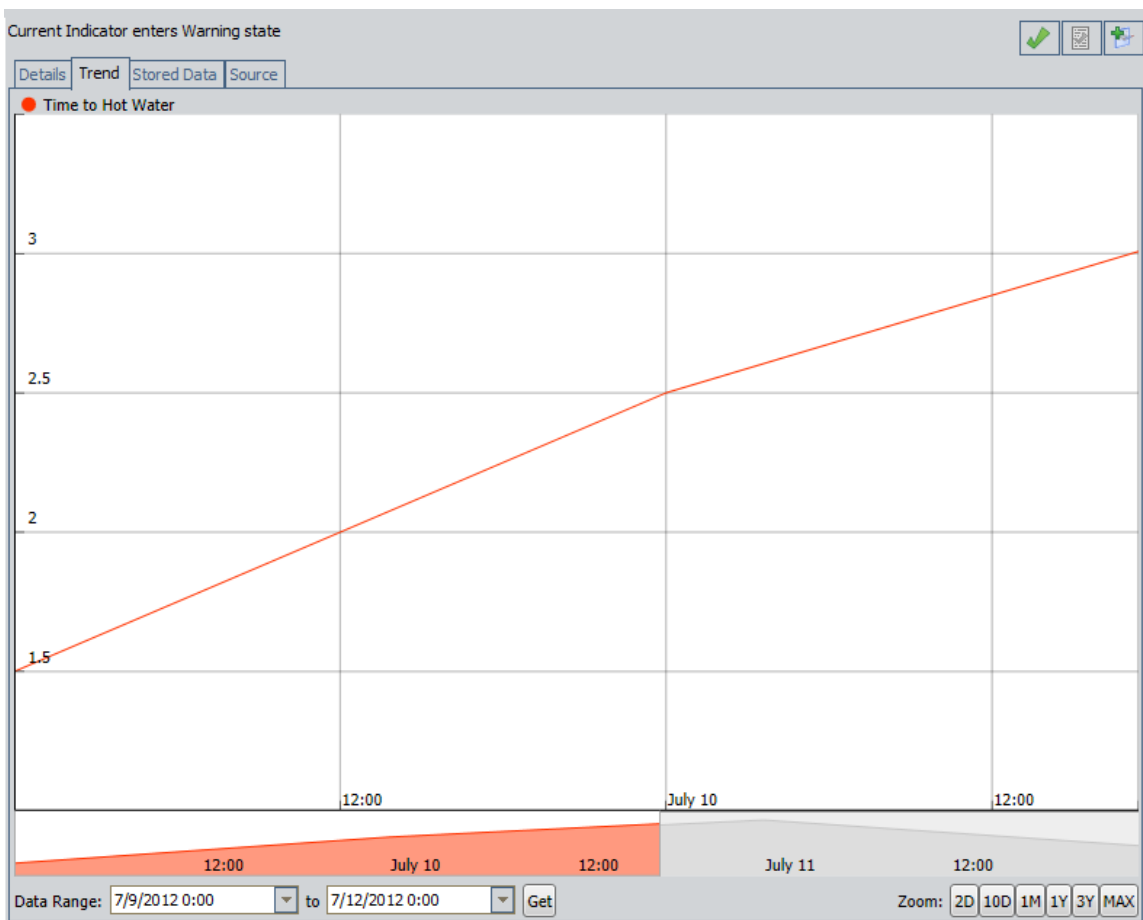
The y-axis displays numbers representing reading values. The x-axis displays dates and times, using a 24-hour clock. When you point to the line plotted on the graph, datapoints appear that represent the readings taken at specific dates and times. For each datapoint, the exact reading value for that particular reading appears above the graph, on the left. The date on which the reading was taken also appears above the graph, on the right. The following image shows an example of a datapoint for a Health Indicator whose primary source record is a KPI record. In this example, the reading value that appears above the graph is 2.5, indicating that on Tuesday, July 10, 2012, the time it took for a water heater to yield hot water was 2.5 minutes.



Below the graph, you will see another secondary graph with identical dates and times. This secondary graph allows you to shrink or expand the main graph to display only the portion that you want to see. When you pause on this secondary graph, your pointer appears as . You can drag the left or right border of the secondary graph to emphasize a given area, as shown in the following image.

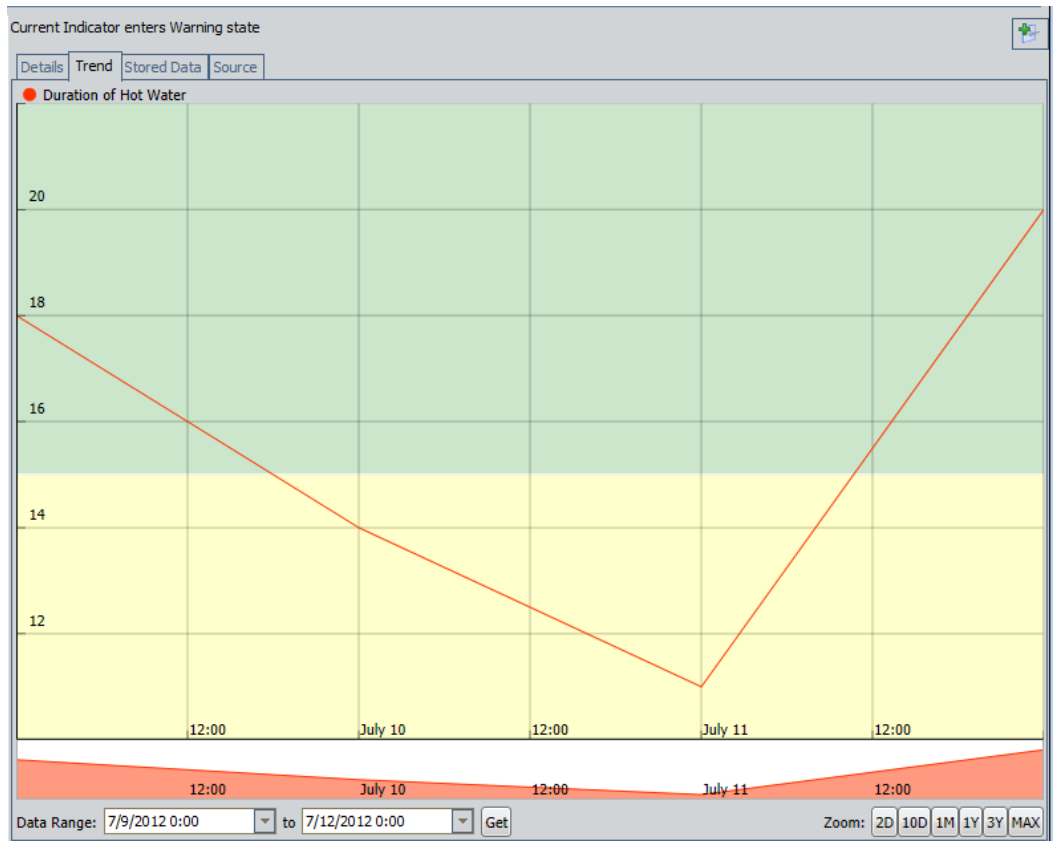


As you drag the secondary graph borders, the amount of data that appears in main graph area changes accordingly. In the following image, you can see that the right border of the secondary graph is positioned at the end of the day on July 10. The left border of the main graph, therefore, ends at the end of the day on July 10.



You can right-click the main graph to see the following options:

- **Show In Full Resolution:** Displays the graph in high resolution.
- **Show Limits (Primary Tag Only):** Displays shaded areas on the graph that correspond to the status colors and limit values on the gauges. The following image shows an example of the Show Limits feature for a graph that displays readings for a KPI record where high values are good.

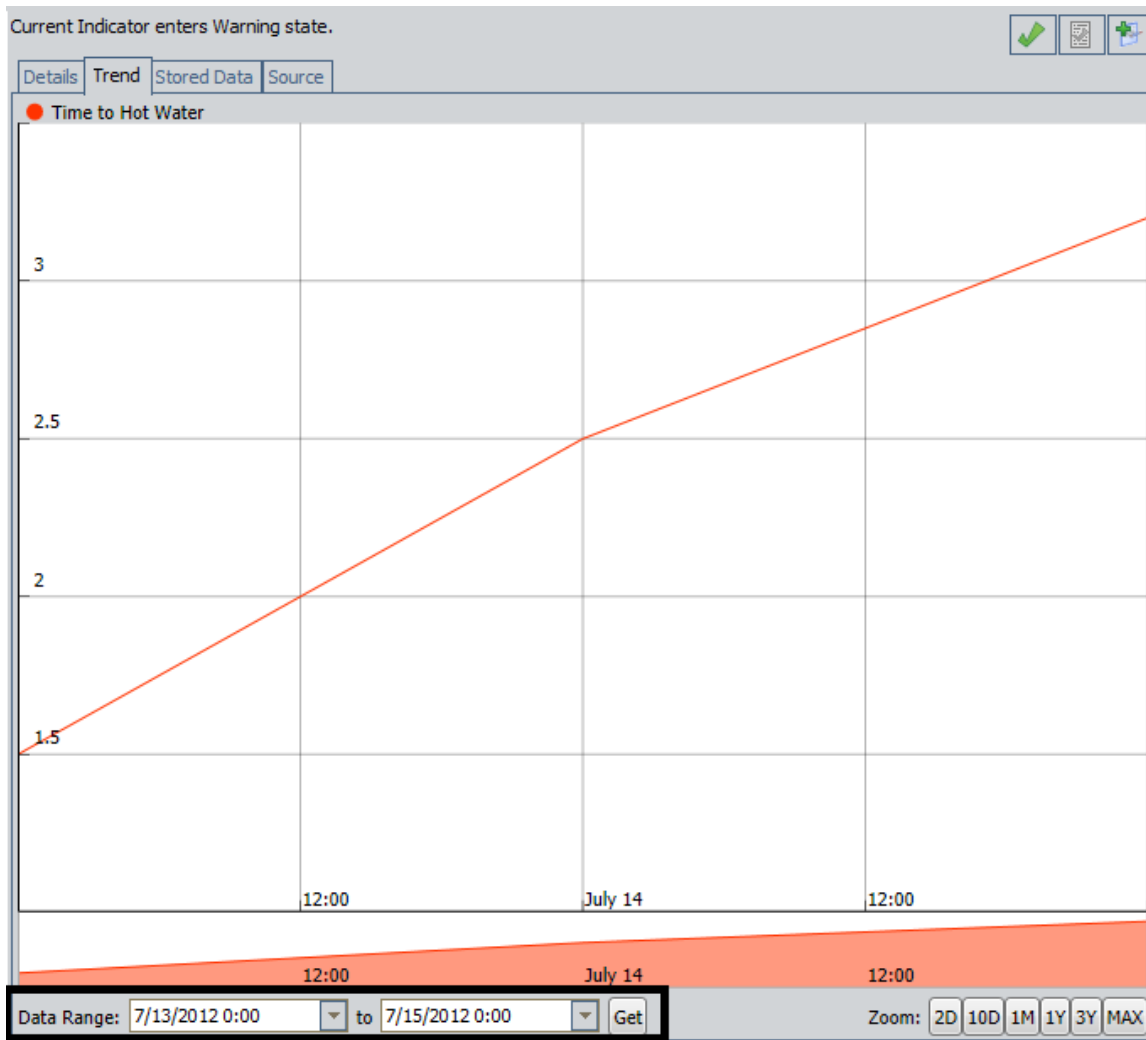


Below the graph itself, the following items appear:

- **Data range criteria:** Determines which readings are displayed on the graph.
- **Zoom buttons:** Let you control how much data you want to see on the graph.

About the Data Range Criteria

On the Trend tab, the data range criteria is displayed below the graph. The data range criteria is outlined in black in the following image.



When you access the Trend tab, the data range is set by default, based on the following criteria:

- If the primary source record for the Health Indicator record that is represented by the selected node is a Measurement Location record or a KPI record, all of the stored readings are displayed on the graph automatically.
- If the primary source record for the Health Indicator record that is represented by the selected node is an Xi Tag record, the readings for the previous *two days* will be displayed on the graph automatically as long as that number of readings does not exceed the limit of 10,000.

You can change the date and time in either date list and click the Get button to display the readings for that time period as they are stored in one of the following locations (depending upon the primary source record type)

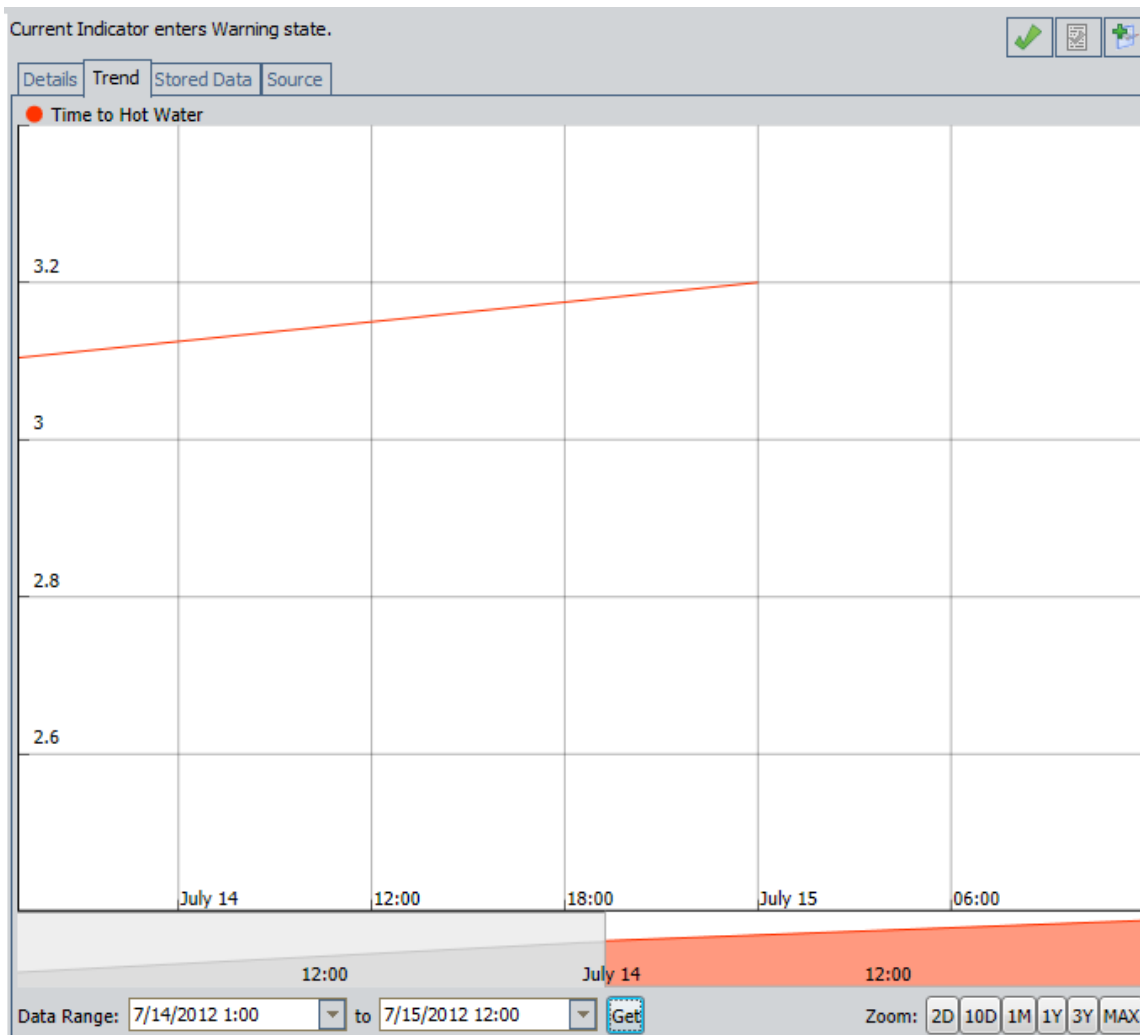
- Reading records, if the primary source record is a Measurement Location record.
- KPI Measurement records, if the primary source record is a KPI record.
- A Process historian, if the primary source record is an Xi Tag record.

For example, if you wanted to view only the readings as they were stored in the KPI record *Time to Hot Water* from July 14, 2012 at 1:00 a.m. and July 15, 2012 at 12:00 p.m., you would select these dates and times in the **Data Range** lists, as shown in the following image.



Data Range: 7/14/2012 1:00 to 7/15/2012 12:00 Get

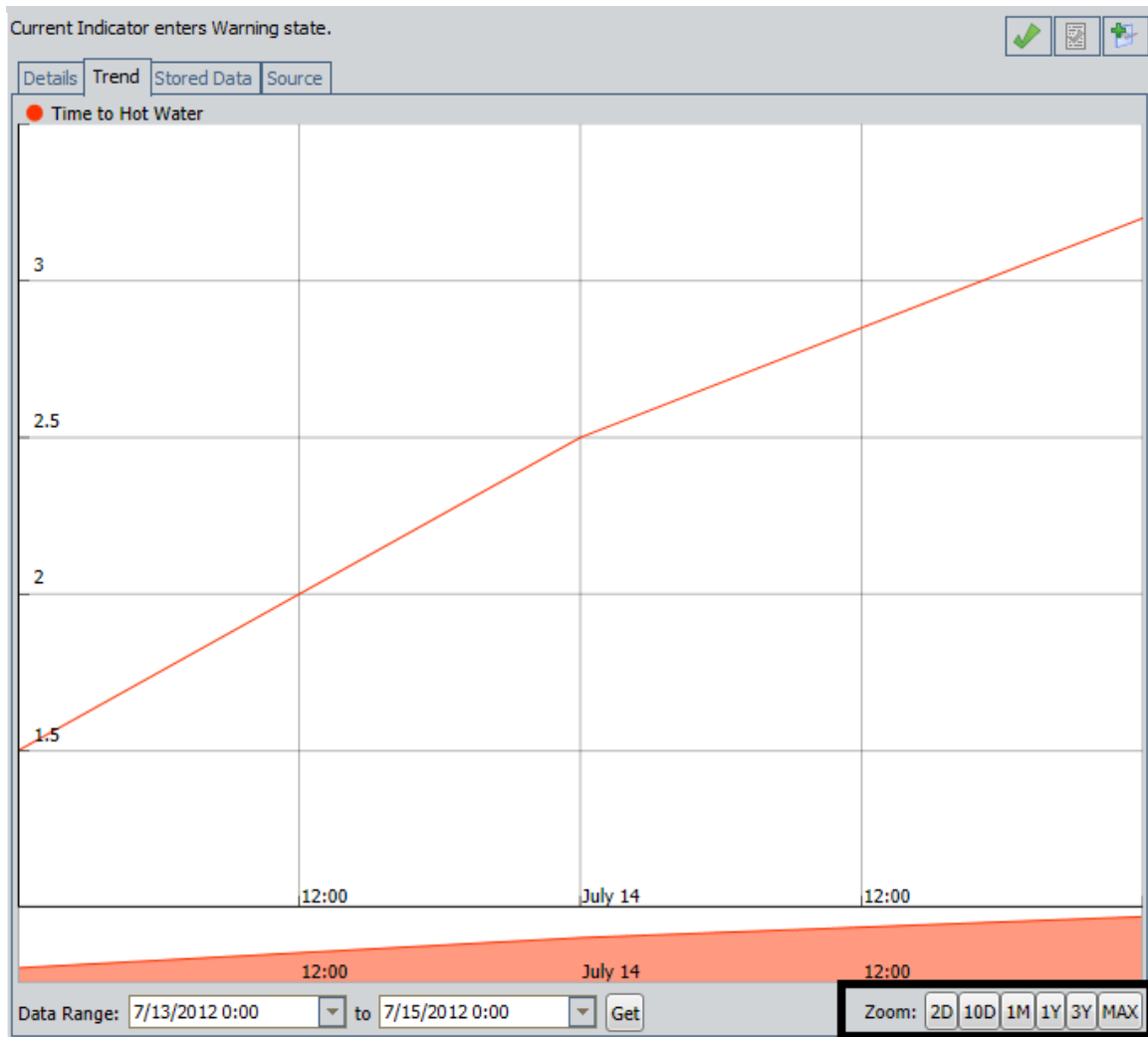
In this case, after you clicked the **Get** button, the graph would be updated to display the readings that were collected during this time range, as shown in the following image.



Note that if you use the **Zoom** buttons to control the data that is displayed on the graph, the date range will be updated automatically to reflect the selected zoom option.

About the Zoom Buttons

On the **Trend** tab, the **Zoom** buttons are displayed below the graph. The **Zoom** buttons are outlined in black in the following image.



The following **Zoom** buttons are available:

- **2D**: Displays the readings for the previous two days.
- **10D**: Displays the readings for the previous ten days.
- **1M**: Displays the readings for the previous one month.
- **1Y**: Displays the readings for the previous one year.
- **3Y**: Displays the readings for the previous three years.
- **MAX**: Expands the boundaries of the graph to display all the readings that have been taken and stored in a record in the Meridium APM database.

Note: When the primary source record for the Health Indicator record that is represented by the selected node is an Xi Tag record, the maximum number of reading values that can be downloaded to the graph is 10,000 readings.

When you access the Trend tab:

- If the primary source record for the Health Indicator record that is represented by the selected node is a Measurement Location record or a KPI record, all of the stored readings are displayed on the graph automatically.
- If the primary source record for the Health Indicator record that is represented by the selected node is an Xi Tag record, the readings for the previous *ten years* will be displayed on the graph automatically as long as that number of readings does not exceed the limit of 10,000.

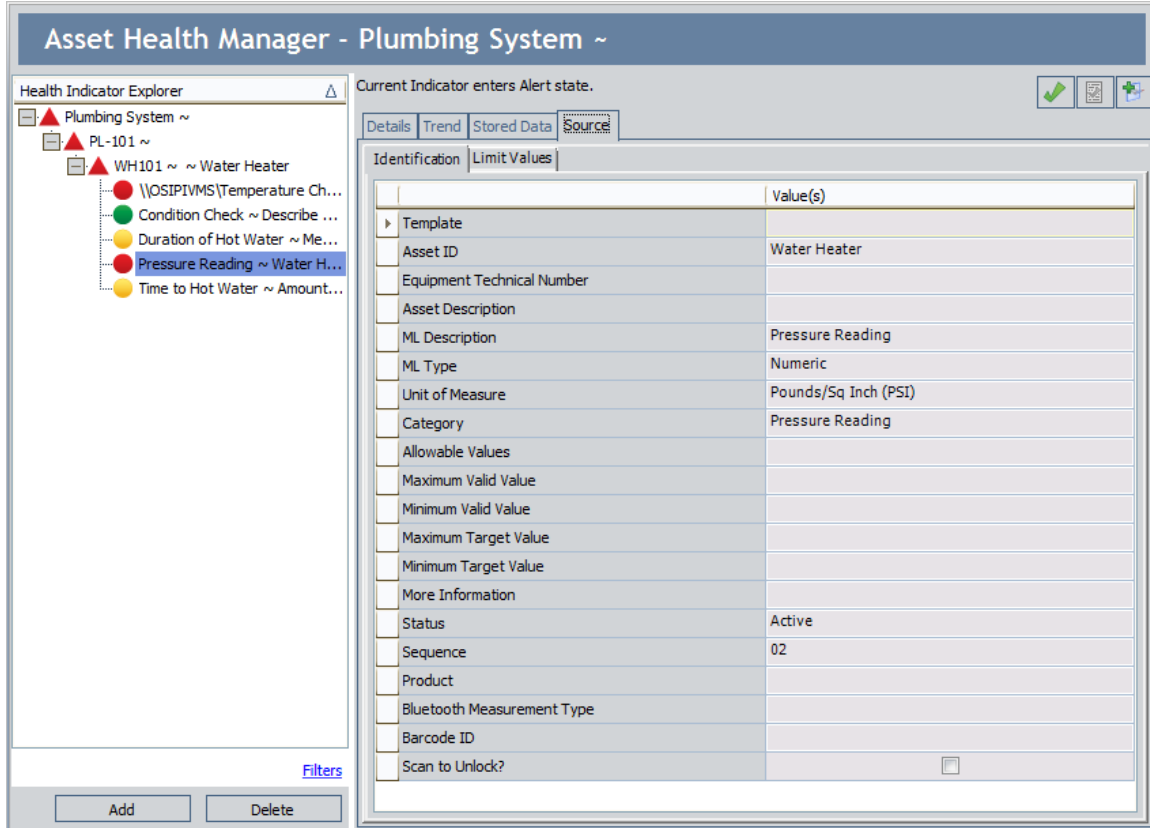
To display more or fewer readings, you can click the desired **Zoom** button. If you use the **Zoom** buttons to control the amount of data that is displayed on the graph, the data range will be updated automatically to reflect the selected zoom option.

Source Tab

The **Source** tab appears when a Health Indicator node is selected in the **Health Indicator Explorer** pane. This tab displays the datasheet of the primary source record of the Health Indicator record represented by the selected node.

Note: The datasheet that appears on the **Source** tab is read-only.

The following image shows an example of the **Source** tab as it appears on the Asset Health Manager page.



Stored Data

The **Stored Data** tab appears when the following criteria are satisfied:

- A Health Indicator node is selected in the Health Indicator Explorer pane.
- and -
- The corresponding Health Indicator record is linked to at least one record that contains reading values.

The **Stored Data** tab contains a grid that displays the following columns:

- **Reading Date:** The date and time of the reading as it is stored in the associated reading record.
- **Reading Value:** The reading value as stored in the associated reading record.

- **Status:** The status of the Health Indicator record based upon the reading value.

The following image shows an example of the **Stored Data** tab as it appears on the **Asset Health Manager** page.

The screenshot shows the 'Asset Health Manager - Plumbing System' interface. On the left is the 'Health Indicator Explorer' tree view showing a hierarchy: Plumbing System > PL-101 > WH101 > Water Heater > \\OSIP\IVMS\Temperature Ch... (red dot), Condition Check ~ Describe ... (green dot), Duration of Hot Water ~ Me... (yellow dot), Pressure Reading ~ Water H... (red dot), and Time to Hot Water ~ Amount... (yellow dot). The main area shows 'Current Indicator enters Alert state.' with a green checkmark icon. Below this are tabs for 'Details', 'Trend', 'Stored Data', and 'Source'. The 'Stored Data' tab is active, displaying a table with the following data:

Reading Date	Reading Value	Status
7/15/2012 12:00 AM	115	Red
7/14/2012 12:00 AM	105	Yellow
7/13/2012 12:00 AM	75	Green

Snapshot Tab

The **Snapshot** tab appears when the following criteria are satisfied:

- A Health Indicator node is selected in the **Health Indicator Explorer** pane.
- and -
- The primary source record to the corresponding Health Indicator record is an Xi Tag record.

The **Snapshot** tab captures readings at certain intervals based on the data that is collected by a process historian. These values are not necessarily stored in Xi Reading records. Instead, they provide a textual representation of the historical data that is available on the **Trend** tab for a Health Indicator whose primary source record is an Xi Tag record.

Events Tab

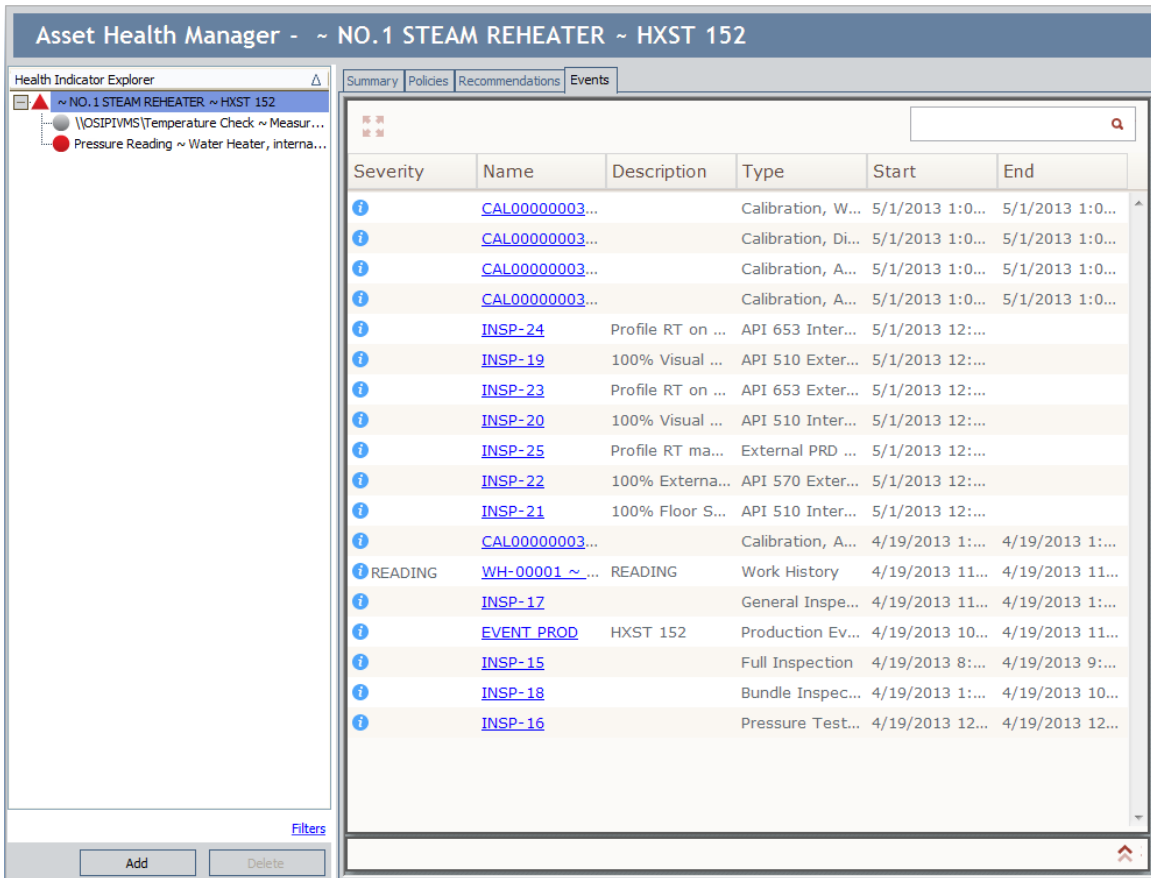
About the Events Tab

The **Events** tab displays event data for the Equipment or Functional Location record that is selected in the **Health Indicator Explorer** pane. Specifically, in the baseline Meridium APM database, the **Events** tab contains a grid that displays values that come from:

- The *Event Mappings* that are defined for the families that store the event data.
- The *source event records* themselves (i.e., the records that store the event data).

You can view data on the **Events** tab to monitor the condition of a piece of equipment or location or look for trends in the events. For example, you might look at the data on this tab to determine the number of times a piece of equipment was operating outside of normal operating conditions and for how long.

The following image shows an example of what the **Events** tab looks like.

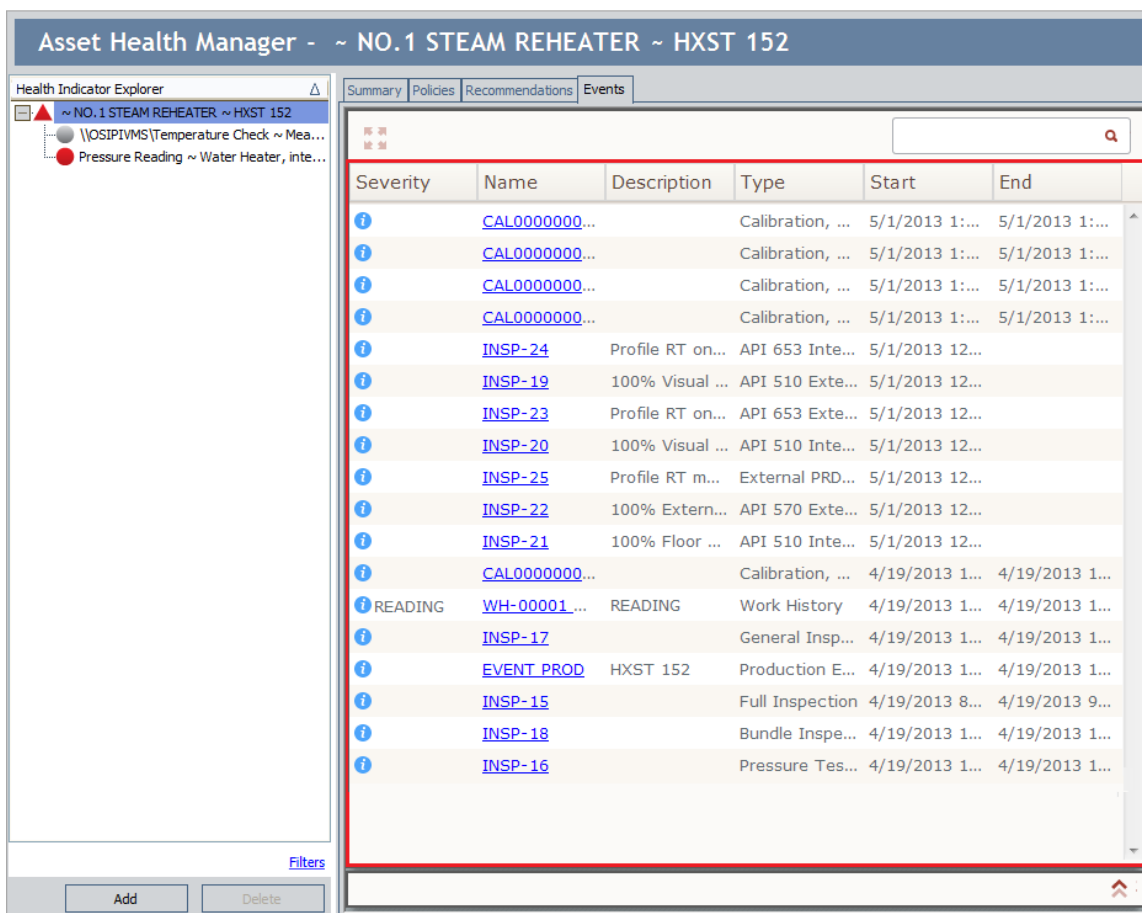


The **Events** tab contains a grid that displays the event data and a Filter section that can be used to filter the data that is displayed in the grid.

Grid

The grid on the Events tab displays event data that is associated with the Equipment or Functional Location record that is selected in the **Health Indicator Explorer** pane. Specifically, the grid displays information stored in source event records according to the Event Mappings that are defined for source event families. Each row in the grid represents one source event record.

A red outline has been added to the following image to highlight the grid on the Events tab.





The grid contains the following columns that display values in the source event records, according to the mappings that exist for the source event families:

- Severity
- Name

- Description
- Start
- End

The grid also contains the **Type** column, which displays the family caption of the source event family represented by the source event record in each row. Additionally, the grid contains the **Severity** column, which contains the combination of an icon that corresponds with the event severity and a value that is stored in the source event record.

Above the grid to the right, an unlabeled text box containing the  icon appears that you can use to filter the records in the grid according to values that are displayed in the **Name** and **Description** columns.

Above the grid to the left, the  button is displayed, which can be used to view the **Events** tab in full screen mode.

Filter Section

Below the grid on the **Events** tab, an unlabeled, collapsible section appears that can be used to filter the data that is displayed in the grid. Throughout the documentation, we refer to this unlabeled section as the *Filter section*.

The Filter section is collapsed by default. A red outline has been added to the following image to highlight the collapsed Filter section.

Asset Health Manager - ~ NO.1 STEAM REHEATER ~ HXST 152

Health Indicator Explorer

- ~ NO.1 STEAM REHEATER ~ HXST 152
 - \OSIPIVMS\Temperature Check ~ Measure in Cel...
 - Pressure Reading ~ Water Heater, internal PSI

Summary Policies Recommendations Events

Severity	Name	Description	Type	Start	End
	CAL000000345...	Calibration, Wei...	Calibration, Wei...	5/1/2013 1:09:...	5/1/2013 1:09:...
	CAL000000344...	Calibration, Disc...	Calibration, Disc...	5/1/2013 1:09:...	5/1/2013 1:09:...
	CAL000000343...	Calibration, Ana...	Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
	CAL000000342...	Calibration, Ana...	Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00...	
	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00...	
	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00...	
	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00...	
	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00...	
	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00...	
	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00...	
	CAL000000321...	Calibration, Ana...	Calibration, Ana...	4/19/2013 1:37...	4/19/2013 1:37...
	READING	WH-00001 ~ R...	READING	4/19/2013 11:2...	4/19/2013 11:1...
	INSP-17	General Inspect...	General Inspect...	4/19/2013 11:0...	4/19/2013 1:00...
	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:0...	4/19/2013 11:0...
	INSP-15	Full Inspection	Full Inspection	4/19/2013 8:00...	4/19/2013 9:00...
	INSP-18	Bundle Inspection	Bundle Inspection	4/19/2013 1:00...	4/19/2013 10:0...
	INSP-16	Pressure Test I...	Pressure Test I...	4/19/2013 12:0...	4/19/2013 12:0...

Filters

Add Delete

When you click the button at the top of the Filter section, the section is expanded, and the button changes to . A red outline has been added to the following image to highlight the expanded Filter section.

The screenshot displays the 'Asset Health Manager' interface for 'NO.1 STEAM REHEATER ~ HXST 152'. The main window is titled 'Events' and contains a table of event records. Below the table is a filter section with checkboxes for severity and type, and a date range selector.

Severity	Name	Description	Type	Start	End
Information	CAL0000000345...	Calibration, Wei...	Calibration, Wei...	5/1/2013 1:09:...	5/1/2013 1:09:...
Information	CAL0000000344...	Calibration, Disc...	Calibration, Disc...	5/1/2013 1:09:...	5/1/2013 1:09:...
Information	CAL0000000343...	Calibration, Ana...	Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
Information	CAL0000000342...	Calibration, Ana...	Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
Information	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00:...	
Information	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00:...	
Information	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00:...	
Information	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00:...	
Information	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00:...	
Information	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00:...	
Information	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00:...	
Information	CAL0000000321...	Calibration, Ana...	Calibration, Ana...	4/19/2013 1:37:...	4/19/2013 1:37:...
READING	WH-00001 ~ R...	READING	Work History	4/19/2013 11:2:...	4/19/2013 11:1:...
Information	INSP-17	General Inspect...	General Inspect...	4/19/2013 11:0:...	4/19/2013 1:00:...
Information	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:0:...	4/19/2013 11:0:...


The filter section includes the following sub-sections:

- Severity:**
 - Alert
 - Warning
 - Information
- Type:**
 - Calibration events
 - Inspection events
 - Policy Event
 - Production Event
 - Work History
- Date Range:**
 - From: 05/09/2012 09:57
 - To: 05/09/2013 09:57
 - Get

The Filter section contains the following sub-sections:

- **Severity:** Displays check boxes that can be used to filter the data in the grid according to the event severity. The icon for each check box corresponds with the icon that is displayed in the **Severity** column for each event in the grid. When a check box is selected, events with the associated severity will be displayed in the grid. When a check box is cleared, events with the associated severity will be removed from the grid. The following check boxes are displayed in this sub-section:
 - Alert
 - Warning
 - Information

- **Type:** Displays a check box for each source event family that is represented in the grid. In the baseline Meridium APM database, the following check boxes are displayed in this sub-section:
 - **Calibration events:** When this check box is selected, data in records in Calibration subfamilies will be displayed in the grid. When this check box is cleared, this data will be removed from the grid. You can click the ▶ button to the left of this check box to display one check box for each Calibration subfamily.
 - **Inspection events:** When this check box is selected, data in records in the Inspection family *and* Inspection subfamilies will be displayed in the grid. When this check box is cleared, this data will be removed from the grid. You can click the ▶ button to the left of this check box to display one check box each for the Inspection family and certain Inspection subfamilies.
 - **Policy Event:** When this check box is selected, data in Policy Event records will be displayed in the grid. When this check box is cleared, this data will be removed from the grid.
 - **Production Event:** When this check box is selected, data in Production Event records will be displayed in the grid. When this check box is cleared, this data will be removed from the grid.
 - **Work History:** When this check box is selected, data in Work History records will be displayed in the grid. When this check box is cleared, this data will be removed from the grid.

At the top of the **Type** sub-section, the **Select All** text box is displayed, which can be used to select and clear all of the check boxes in the **Type** sub-section. To the right of the **Select All** check box, the  button is displayed when you are logged in as a Super User or a member of the MI AHI Administrator Security Group. These users can click this button to access the **Event Mappings** window.

- **Date Range:** Displays the following items that are used to filter the data that is displayed in the grid according to the date that you specify:
 - **From box:** Displays a calendar that you can use to specify the beginning of the date range on which you want to filter the data in the grid. By default, this box contains a date that is one year

earlier from the current date. For example, if the current date is *05/09/2013*, this box contains the value *05/09/2012*.



- **To box:** Displays a calendar that you can use to specify the end of the date range on which you want to filter data in the grid. This box contains the current date by default.
- **Get button:** Refreshes the grid to display data for events whose associated start date falls within the date range specified in the From and To boxes.

Viewing the Event Tab in Full Screen Mode

You can view the **Events** tab in full screen mode to view the contents of the tab on the entire screen. The following instructions assume that the **Events** tab is selected on the **Asset Health Manager** page.

To view the Event tab in full screen mode:

- At the top of the **Events** tab, click the  button.

The **Events** tab expands to full screen mode, and the  button changes to .

Severity	Name	Description	Type	Start	End
	CAL0000000345 ~		Calibration, Weight Scale	5/1/2013 1:09:53 PM	5/1/2013 1:09:53 PM
	CAL0000000344 ~		Calibration, Discrete	5/1/2013 1:09:19 PM	5/1/2013 1:09:19 PM
	CAL0000000343 ~		Calibration, Analyzer Single ...	5/1/2013 1:08:49 PM	5/1/2013 1:08:49 PM
	CAL0000000342 ~		Calibration, Analyzer Multi-C...	5/1/2013 1:08:25 PM	5/1/2013 1:08:25 PM
	INSP-24	Profile RT on the inner pipe ...	API 653 Internal Checklist	5/1/2013 12:00:00 AM	
	INSP-19	100% Visual Coverage of th...	API 510 External Checklist	5/1/2013 12:00:00 AM	
	INSP-23	Profile RT on the inner pipe ...	API 653 External Checklist	5/1/2013 12:00:00 AM	
	INSP-20	100% Visual Coverage of th...	API 510 Internal Exchanger ...	5/1/2013 12:00:00 AM	
	INSP-25	Profile RT may be used for p...	External PRD Checklist	5/1/2013 12:00:00 AM	
	INSP-22	100% External Visual of the ...	API 570 External Checklist	5/1/2013 12:00:00 AM	
	INSP-21	100% Floor Scan with 100%...	API 510 Internal Checklist	5/1/2013 12:00:00 AM	
	CAL0000000321 ~		Calibration, Analog	4/19/2013 1:37:54 PM	4/19/2013 1:37:54 PM
	WH-00001 ~ READING ~ ~	READING	Work History	4/19/2013 11:26:02 AM	4/19/2013 11:18:23 AM
	INSP-17		General Inspection	4/19/2013 11:00:00 AM	4/19/2013 1:00:00 PM
	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:00:00 AM	4/19/2013 11:00:00 AM
	INSP-15		Full Inspection	4/19/2013 8:00:00 AM	4/19/2013 9:00:00 AM
	INSP-18		Bundle Inspection	4/19/2013 1:00:00 AM	4/19/2013 10:00:00 AM
	INSP-16		Pressure Test Inspection	4/19/2013 12:00:00 AM	4/19/2013 12:00:00 AM

Severity <input checked="" type="checkbox"/> Alert <input checked="" type="checkbox"/> Warning <input checked="" type="checkbox"/> Information	Type <input checked="" type="checkbox"/> Calibration events <input checked="" type="checkbox"/> Policy Event <input checked="" type="checkbox"/> Work History	<input checked="" type="checkbox"/> Inspection events <input checked="" type="checkbox"/> Production Event	<input checked="" type="checkbox"/> Select All	Date Range From: 05/13/2012 10:58 To: 05/13/2013 10:58 <input type="button" value="Get"/>
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When you are viewing the Events tab in full screen mode, you can close the full screen mode to view the Events tab on the Asset Health Manager page.

To close the full screen mode:

- At the top of the Events tab, click the button.

The full screen mode closes, the Events tab is displayed on the Asset Health Manager page, and the changes to .


The screenshot displays the Meridium Asset Health Manager interface for 'NO.1 STEAM REHEATER - HXST 152'. The main content area shows a table of events with columns for Severity, Name, Description, Type, Start, and End. Below the table, a filter section is expanded, showing options for Severity (Alert, Warning, Information), Type (Calibration events, Inspection events, Policy Event, Production Event, Work History), and Date Range (From: 05/13/2012 10:58, To: 05/13/2013 10:58). The filter section is currently expanded, showing the 'Type' and 'Date Range' options.



Severity	Name	Description	Type	Start	End
Information	CAL0000000345...	Calibration, Wei...	Calibration, Wei...	5/1/2013 1:09:...	5/1/2013 1:09:...
Information	CAL0000000344...	Calibration, Disc...	Calibration, Disc...	5/1/2013 1:09:...	5/1/2013 1:09:...
Information	CAL0000000343...	Calibration, Ana...	Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
Information	CAL0000000342...	Calibration, Ana...	Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
Information	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00:...	
Information	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00:...	
Information	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00:...	
Information	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00:...	
Information	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00:...	
Information	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00:...	
Information	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00:...	
Information	CAL0000000321...	Calibration, Ana...	Calibration, Ana...	4/19/2013 1:37:...	4/19/2013 1:37:...
Information	WH-00001 ~ B...	READING	Work History	4/19/2013 11:2...	4/19/2013 11:1...
Information	INSP-17	General Inspect...	General Inspect...	4/19/2013 11:0...	4/19/2013 1:00:...
Information	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:0...	4/19/2013 11:0...

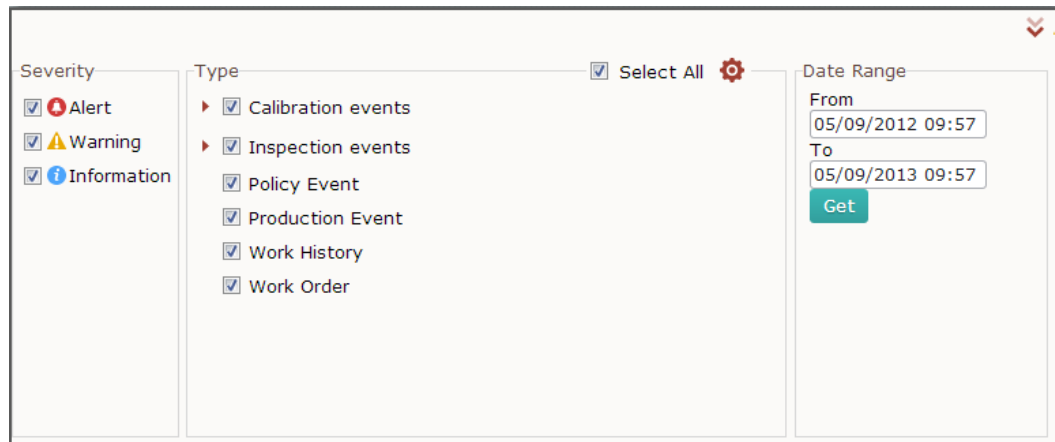
Expanding and Collapsing the Filter Section

You can expand and collapse the Filter section on the Events tab depending on whether or not you want to see the content of the Filter section. The following instructions assume that the Events tab is selected on the Asset Health Manager page.


To expand the Filter section:



- At the top of the Filter section, click the  button.

The  button changes to , and the Filter section expands.



To collapse the Filter section:

- At the top of the Filter section, click the  button.

The  button changes to , and the Filter section collapses.



Filtering the Grid By Event Severity

You can filter the grid on the Events tab according to values in the Name and Description columns by typing in the unlabeled text box above the grid. Additionally, if you want to view events associated with a particular severity, you can filter the grid according to event severity. The following instructions assume that you are viewing the Events tab for the Equipment or Functional Location record whose event data you want to filter and the Filter section is expanded.

To filter the grid on the Events tab according to event severity:

- In the Filter section, in the Severity sub-section, select the check boxes associated with the event severities that you want to be displayed in the grid.

The grid is refreshed and displays event data according to your selections.

For example, in the following image, events associated with *Warning* and *Information* severities are displayed in the grid.

Severity	Name	Description	Type	Start	End
Warning	CAL0000000345...		Calibration, Wei...	5/1/2013 1:09:...	5/1/2013 1:09:...
Warning	CAL0000000344...		Calibration, Disc...	5/1/2013 1:09:...	5/1/2013 1:09:...
Warning	CAL0000000343...		Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
Warning	CAL0000000342...		Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
Information	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00...	
Information	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00...	
Information	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00...	
Information	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00...	
Information	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00...	
Information	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00...	
Information	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00...	
Warning	CAL0000000321...		Calibration, Ana...	4/19/2013 1:37...	4/19/2013 1:37...
Information	READING	WH-00001 ~ R...	READING	Work History	4/19/2013 11:2... 4/19/2013 11:1...
Information	INSP-17		General Inspect...	4/19/2013 11:0...	4/19/2013 1:00...
Information	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:0...	4/19/2013 11:0...

Severity

Alert

Warning

Information

Type

Calibration events

Inspection events

Policy Event

Production Event

Work History

Select All

Date Range

From:

To:

Continuing with the example, the following image shows what the grid looks like when you specify that only events associated with *Information* severities should be displayed.

The screenshot displays the Meridium APM Asset Health Manager interface. The top section shows a table of events with columns for Severity, Name, Description, Type, Start, and End. Below the table is a filter section with three main areas: Severity, Type, and Date Range.

Severity	Name	Description	Type	Start	End
	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00...	
	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00...	
	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00...	
	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00...	
	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00...	
	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00...	
	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00...	
	READING	WH-00001 ~ R...	READING	4/19/2013 11:2...	4/19/2013 11:1...
	INSP-17		General Inspect...	4/19/2013 11:0...	4/19/2013 1:00...
	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:0...	4/19/2013 11:0...
	INSP-15		Full Inspection	4/19/2013 8:00...	4/19/2013 9:00...
	INSP-18		Bundle Inspection	4/19/2013 1:00...	
	INSP-16		Pressure Test I...	4/19/2013 12:0...	4/19/2013 12:0...

The filter section below the table includes:

- Severity:**
 - Alert
 - Warning
 - Information
- Type:**
 - Calibration events
 - Inspection events
 - Policy Event
 - Production Event
 - Work History
- Date Range:**
 - From: 05/10/2012 08:15
 - To: 05/10/2013 08:15
 - Get

Filtering the Grid By Event Type

You can filter the grid on the **Events** tab according to values in the **Name** and **Description** columns by typing in the unlabeled text box above the grid. Additionally, if you want to view only certain types of events associated with an Equipment or Functional Location record, you can filter the grid according to event type. The following instructions assume that you are viewing the Events tab for the Equipment or Functional Location record whose event data you want to filter and the Filter section is expanded.

To filter the grid on the Events tab according to event type:

- In the Filter section, in the **Type** sub-section, select the check boxes associated with the types of events that you want to be displayed in the grid.

The grid is refreshed and displays event data according to your selections.

For example, in the following image, *all* event types are displayed in the grid.

Severity	Name	Description	Type	Start	End
	CAL0000000345...		Calibration, Wei...	5/1/2013 1:09:...	5/1/2013 1:09:...
	CAL0000000344...		Calibration, Disc...	5/1/2013 1:09:...	5/1/2013 1:09:...
	CAL0000000343...		Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
	CAL0000000342...		Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00...	
	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00...	
	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00...	
	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00...	
	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00...	
	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00...	
	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00...	
	CAL0000000321...		Calibration, Ana...	4/19/2013 1:37...	4/19/2013 1:37...
READING	WH-00001 ~ R...	READING	Work History	4/19/2013 11:2...	4/19/2013 11:1...
	INSP-17		General Inspect...	4/19/2013 11:0...	4/19/2013 1:00...
	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:0...	4/19/2013 11:0...

Severity Alert Warning Information

Type Calibration events Inspection events Policy Event Production Event Work History

Select All

Date Range
 From:
 To:

Continuing with the example, the following image shows what the grid looks like when you specify that data associated with all types of events *except* Calibration events should be displayed in the grid.

The screenshot displays the Meridium APM Asset Health Manager interface. The top section shows a table of event data with columns for Severity, Name, Description, Type, Start, and End. Below the table is a filter section with three sub-sections: Severity, Type, and Date Range.

Severity	Name	Description	Type	Start	End
	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00...	
	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00...	
	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00...	
	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00...	
	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00...	
	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00...	
	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00...	
	READING	WH-00001 ~ R...	READING	4/19/2013 11:2...	4/19/2013 11:1...
	INSP-17		General Inspect...	4/19/2013 11:0...	4/19/2013 1:00...
	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:0...	4/19/2013 11:0...
	INSP-15		Full Inspection	4/19/2013 8:00...	4/19/2013 9:00...
	INSP-18		Bundle Inspection	4/19/2013 1:00...	
	INSP-16		Pressure Test I...	4/19/2013 12:0...	4/19/2013 12:0...

The filter section below the table includes:

- Severity:**
 - Alert
 - Warning
 - Information
- Type:**
 - Calibration events
 - Inspection events
 - Policy Event
 - Production Event
 - Work History
- Date Range:**
 - From: 05/10/2012 08:15
 - To: 05/10/2013 08:15
 - Get

Filtering Event Data by Date

You can filter the grid on the **Events** tab according to values in the **Name** and **Description** columns by typing in the unlabeled text box above the grid. Additionally, if you want to view events associated with a particular date range, you can filter the grid according to date. The following instructions assume that you are viewing the **Events** tab for the Equipment or Functional Location record whose event data you want to filter and the **Filter** section is expanded.

To filter the grid on the **Events** tab according to date:

1. In the **Filter** section, in the **Date Range** sub-section, click in the **From** box, and use the calendar to specify the date that represents the beginning of the date range on which you want to filter data in the grid.

2. Click in the **To** box, and use the calendar to specify the date that represents the end of the date range on which you want to filter data in the grid.
3. Click the **Get** button.

The grid is refreshed to display data for events whose associated start date falls within the specified date range.

For example, the following image shows an example of the grid when the following values have been specified in the **From** and **To** boxes:

- **From:** 05/10/2012 08:15
- **To:** 05/10/2013 08:15

Severity	Name	Description	Type	Start	End
	CAL0000000345...		Calibration, Wei...	5/1/2013 1:09:...	5/1/2013 1:09:...
	CAL0000000344...		Calibration, Disc...	5/1/2013 1:09:...	5/1/2013 1:09:...
	CAL0000000343...		Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
	CAL0000000342...		Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00...	
	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00...	
	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00...	
	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00...	
	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00...	
	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00...	
	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00...	
	CAL0000000321...		Calibration, Ana...	4/19/2013 1:37...	4/19/2013 1:37...
READING	WH-00001 ~ R...	READING	Work History	4/19/2013 11:2...	4/19/2013 11:1...
	INSP-17		General Inspect...	4/19/2013 11:0...	4/19/2013 1:00...
	EVENT_PROD	HXST 152	Production Event	4/19/2013 10:0...	4/19/2013 11:0...

Severity: Alert, Warning, Information

Type: Calibration events, Inspection events, Policy Event, Production Event, Work History

Select All

Date Range: From To

Continuing with the example, the following image shows what the grid looks like when the following values have been specified in the From and To boxes:

- From: 04/21/2013 08:15
- To: 05/10/2013 08:15

The screenshot displays a table of Health Indicator records with the following columns: Severity, Name, Description, Type, Start, and End. Below the table is a filter panel with sections for Severity, Type, and Date Range.

Severity	Name	Description	Type	Start	End
	CAL0000000345...		Calibration, Wei...	5/1/2013 1:09:...	5/1/2013 1:09:...
	CAL0000000344...		Calibration, Disc...	5/1/2013 1:09:...	5/1/2013 1:09:...
	CAL0000000343...		Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
	CAL0000000342...		Calibration, Ana...	5/1/2013 1:08:...	5/1/2013 1:08:...
	INSP-24	Profile RT on th...	API 653 Interna...	5/1/2013 12:00...	
	INSP-19	100% Visual Co...	API 510 Externa...	5/1/2013 12:00...	
	INSP-23	Profile RT on th...	API 653 Externa...	5/1/2013 12:00...	
	INSP-20	100% Visual Co...	API 510 Interna...	5/1/2013 12:00...	
	INSP-25	Profile RT may ...	External PRD Ch...	5/1/2013 12:00...	
	INSP-22	100% External ...	API 570 Externa...	5/1/2013 12:00...	
	INSP-21	100% Floor Sca...	API 510 Interna...	5/1/2013 12:00...	

Filter Panel:

- Severity:**
 - Alert
 - Warning
 - Information
- Type:**
 - Calibration events
 - Inspection events
 - Policy Event
 - Production Event
 - Work History
- Date Range:**
 - From: 04/21/2013 08:15
 - To: 05/21/2013 08:15
 -

Health Indicator Record Statuses

About Health Indicator Statuses

The status of a Health Indicator record is based upon values that are stored in the Health Indicator record and the primary source record to which the Health Indicator record is linked.

The status of a Health Indicator is determined differently, depending on the primary source record type, which can be:

- A Measurement Location record that accepts numeric values.

- A Measurement Location record that accepts character values.
- A KPI record where a low value is good.
- A KPI record where a high value is good.
- An Xi Tag record that accepts numeric values.
- An Xi Tag record that accepts character values.

The status of the Health Indicator record is stored as a number in the Alert Level field in the Health Indicator family. If the *Meridium.AHI.Service.exe.config* file has been configured properly, this value is updated automatically by the AHM Service.

- Health Indicator records that meet *Normal* status criteria contain the number *zero* (0) in the Alert Level field.
- Health Indicator records that meet *Warning* status criteria contain the number *1* in the Alert Level field.
- Health Indicator records that meet *Alert* status criteria contain the number *2* in the Alert Level field.

Each status is associated with a color, which you will see in the **Health Indicator Explorer** pane and in gauges that represent a range of acceptable values.

Statuses of Health Indicators Based on Numeric Measurement Locations

If a Health Indicator record is linked to a Measurement Location record that accepts numeric values, its status is determined based upon the two following things:

- The value stored in the Last Numeric Reading Value field in the Health Indicator record.
- The limit values in the Measurement Location record (which are displayed on the **Limit Values** tab on the Measurement Location datasheet).

Note: Readings with a non-compliant status do not have a corresponding Health Indicator status and do not affect the Alert status shown in the Health Indicator Explorer pane.

The Health Indicator record is classified as meeting one of the following status criteria:

- **Normal:** The reading value falls between the values in the Lower Level 1 and Upper Level 1 fields. Health Indicator records that meet the Normal status criteria are represented by a green circle.

- **Warning:** The reading value meets either of the following conditions:
 - The reading value is less than or equal to the value in the Lower Level 1 field and greater than the value in the Lower Level 2 field.

 - or-

 - The reading value is greater than or equal to the value in the Upper Level 1 field and less than the value in the Upper Level 2 field.

Health Indicator records that meet the Warning status criteria are represented by a yellow circle.

- **Alert:** The reading value meets either of the following conditions:
 - The reading value is less than or equal to the value in the Lower Level 2 field.

 - The reading value is greater than or equal to the value in the Upper Level 2 field.

Health Indicator records that meet the Alert status criteria are represented by a red circle.

For example, consider the following Measurement Location limit values:

- Upper Level 3 = 140

- Upper Level 2 = 130

- Upper Level 1 = 120
- Lower Level 1 = 110
- Lower Level 2 = 100
- Lower Level 3 = 90

Given these values:

- **Alert** = Any reading value greater than or equal to 130 (130 and above)
- **Warning** = Any reading value greater than or equal to 120 and less than 130 (120 - 129)
- **Normal** = Any reading value greater than 110 and less than 120 (111 - 119)
- **Warning** = Any reading value less than or equal to 110 and greater than 100 (101 - 110)
- **Alert** = Any reading value less than 100 (100 and below)

Statuses of Health Indicators Based on Character Measurement Locations

If a Health Indicator record is linked to a Measurement Location record that accepts character values, its status is determined based upon the two following things:

- The value stored in the Last Char Reading Value field in the Health Indicator record.
- The limit values in the Measurement Location record (which are displayed on the **Limit Values** tab on the Measurement Location datasheet).

Note: Readings with a non-compliant status do not have a corresponding Health Indicator status and do not affect the Alert status shown in the Health Indicator Explorer pane.

The Health Indicator record is classified as meeting one of the following status criteria:

- **Normal:** The reading value does not appear on the **Limit Values** tab. Health Indicator records that meet the Normal status criteria are represented by a green circle.
- **Warning:** The reading value appears on the **Limit Values** tab in either the **Lower Level 1** or **Upper Level 1** cells. Health Indicator records that meet the Warning status criteria are represented by a yellow circle.
- **Alert:** The reading value appears on the **Limit Values** tab in the **Lower Level 2**, **Upper Level 2**, **Lower Level 3**, or **Upper Level 3** cells. Health Indicator records that meet the Alert status criteria are represented by a red circle.

Statuses of Health Indicators Based on KPIs Where Low Values are Good

If a Health Indicator record is linked to a KPI record, its status is determined based upon the two following things:

- The value stored in the Last Numeric Reading Value field in the Health Indicator record.
- The Target and Critical values that are stored in the most recent KPI Measurement record that is linked to the KPI record.

Note: Because these limit values are stored in secondary source records (i.e., KPI Measurement records), they are not displayed on the KPI datasheet. Instead, you can view these values by opening the most recent KPI Measurement record in Record Manager.

The Health Indicator record is classified as meeting one of the following status criteria:

- **Normal:** The value stored in the Last Numeric Reading Value field is less than the Target value. Health Indicator records that meet the Normal status criteria are represented by a green circle.

- **Warning:** The value stored in the Last Numeric Reading Value field is greater than or equal to the Target value and less than the Critical value. Health Indicator records that meet the Warning status criteria are represented by a yellow circle.
- **Alert:** The value stored in the Last Numeric Reading Value field is greater than or equal to the Critical value. Health Indicator records that meet the Alert status criteria are represented by a red circle.

For example, consider the following KPI Measurement values:

- Target = 5
- Critical = 10

Given these values:

- **Normal** = Any measurement value less than 5 (4 and below)
- **Warning** = Any measurement value greater than or equal to 5 and less than 10 (5 -9)
- **Alert** = Any measurement value greater than or equal to 10 (10 and above)

Statuses of Health Indicators Based on KPIs Where High Values are Good

If a Health Indicator record is linked to a KPI record, its status is determined based upon the two following things:

- The value stored in the Last Numeric Reading Value field in the Health Indicator record.
- The Target and Critical values that are stored in the most recent KPI Measurement record that is linked to the KPI record.

Note: Because these limit values are stored in secondary source records (i.e., KPI Measurement records), they are not displayed on the KPI datasheet. Instead, you can view these values by opening the most recent KPI Measurement record in Record Manager.

The Health Indicator record is classified as meeting of the following status criteria:

- **Normal:** The value stored in the Last Numeric Reading Value field is greater than the Target value. Health Indicator records that meet the Normal status criteria are represented by a green circle.
- **Warning:** The value stored in the Last Numeric Reading Value field is less than or equal to the Target value and greater than the Critical value. Health Indicator records that meet the Warning status criteria are represented by a yellow circle.
- **Alert:** The value stored in the Last Numeric Reading Value field is less than or equal to the Critical value. Health Indicator records that meet the Alert status criteria are represented by a red circle.

For example, consider the following KPI Measurement values:

- Target = 10
- Critical = 5

Given these values:

- **Normal** = Any measurement value greater than 10 (11 and above)
- **Warning** = Any measurement value less than or equal to 10 and greater than 5 (6 -10)
- **Alert** = Any measurement value less than or equal to 5 (5 and below)

Statuses of Health Indicators Based on Numeric Xi Tags

If a Health Indicator record is linked to an Xi Tag record that accepts numeric values, its status is determined based upon two things:

- The value stored in the Last Numeric Reading Value field in the Health Indicator record.

- The limit values in the Xi Tag record (which are displayed on the **Limit Values** tab on the Xi Tag datasheet).

The Health Indicator record is classified as meeting one of the following status criteria:

- **Normal:** The reading value falls between the values in the Numeric Lower Level 1 and Numeric Upper Level 1 fields. Health Indicator records that meet the Normal status criteria are represented by a green circle.
- **Warning:** The reading value meets either of the following conditions:
 - The reading value is less than or equal to the value in the Numeric Lower Level 1 field and greater than the value in the Numeric Lower Level 2 field.
 - or-
 - The reading value is greater than or equal to the value in the Numeric Upper Level 1 field and less than the value in the Numeric Upper Level 2 field.

Health Indicator records that meet the Warning status criteria are represented by a yellow circle.

- **Alert:** The reading value meets either of the following conditions:
 - The reading value is less than or equal to the value in the Numeric Lower Level 2 field.
 - The reading value is greater than or equal to the value in the Numeric Upper Level 2 field.

Health Indicator records that meet the Alert status criteria are represented by a red circle.

For example, consider the following Xi Tag limit values:

- Numeric Upper Level 3 = 140
- Numeric Upper Level 2 = 130

- Numeric Upper Level 1 = 120
- Numeric Lower Level 1 = 110
- Numeric Lower Level 2 = 100
- Numeric Lower Level 3 = 90

Given these values:

- **Alert** = Any reading value greater than or equal to 130 (130 and above)
- **Warning** = Any reading value greater than or equal to 120 and less than 130 (120 - 129)
- **Normal** = Any reading value greater than 110 and less than 120 (111 - 119)
- **Warning** = Any reading value less than or equal to 110 and greater than 100 (101 - 110)
- **Alert** = Any reading value less than 100 (100 and below)

Statuses of Health Indicators Based on Character Xi Tags

If a Health Indicator record is linked to an Xi Tag record that accepts character values, its status is determined based upon two things:

- The value stored in the Last Char Reading Value field in the Health Indicator record.
- The limit values in the Xi Tag record (which are displayed on the **Limit Values** tab on the Xi Tag datasheet).

The Health Indicator record is classified as meeting one of the following status criteria:


- **Normal:** The reading value does not appear on the **Limit Values** tab. Health Indicator records that meet the Normal status criteria are represented by a green circle.
- **Warning:** The reading value appears on the **Limit Values** tab in either the **Character Lower Level 1** or **Character Upper Level 1** cells. Health Indicator records that meet the Warning status criteria are represented by a yellow circle.
- **Alert:** The reading value appears on the **Limit Values** tab in the **Character Lower Level 2**, **Character Upper Level 2**, **Character Lower Level 3**, or **Character Upper Level 3** cells. Health Indicator records that meet the Alert status criteria are represented by a red circle.

Acknowledging Health Indicator Record Statuses

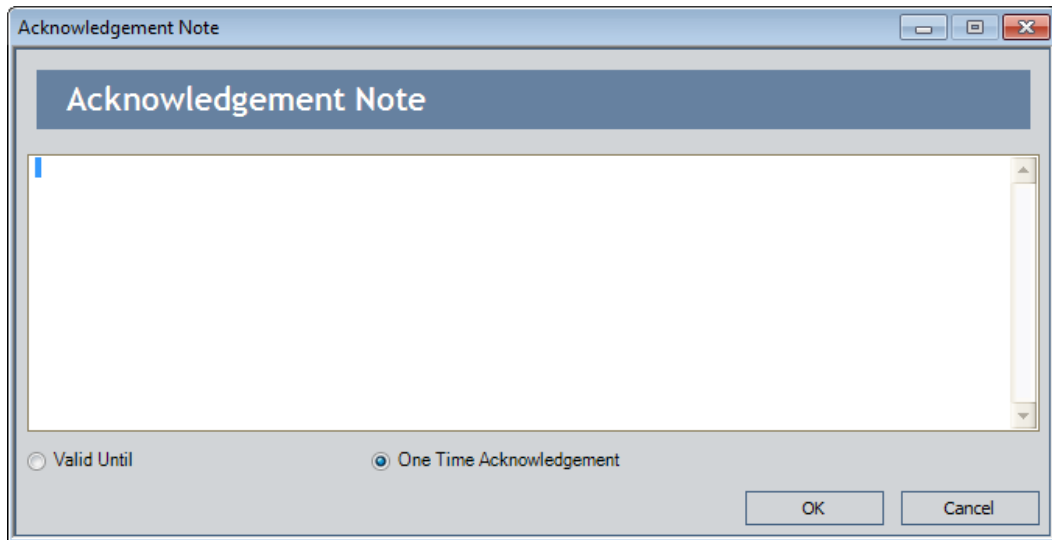
Acknowledging a Single Health Indicator Record's Status

If a Health Indicator record meets Warning or Alert status, you can acknowledge the status, which will change it to Normal. The following instructions provide details on acknowledging a single Health Indicator status. You can also acknowledge multiple Health Indicator records' statuses at once.

To acknowledge a single Health Indicator record's status:

1. On the **Asset Health Manager** page, in the **Health Indicator Explorer** pane, select the Health Indicator node representing the record whose status you want to acknowledge.
2. To the right of the **Health Indicator Explorer** pane, on any tab, click the  button.

The **Acknowledge Note** window appears.



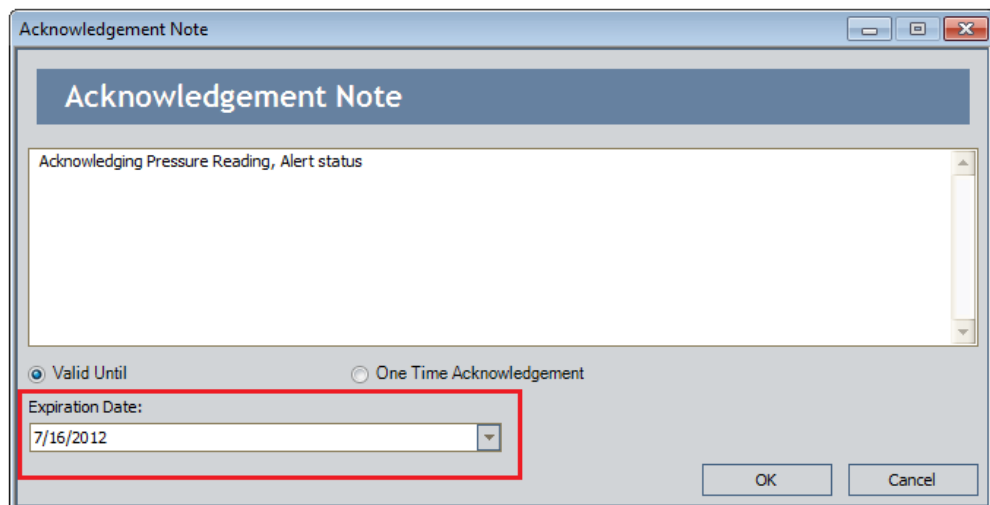
3. In the text area, type your comments.
4. If you want the acknowledgement to remain valid only until a new reading is taken, click **OK**.

- or -




If you want to set an expiration date for the acknowledgement:



- a. Select the **Valid Until** option.

The **Expiration Date** list appears, as shown in the following image. A red outline has been added to the image to highlight this area.



- b. In the **Expiration Date** list, select an expiration date from the calendar, and click **OK**.

The status indicator of the Health Indicator node changes to include a check mark inside the circle (e.g., ) , and the  button is replaced by the  button, which you can use to revoke the acknowledgement at any time.

In addition, beside the  button, the  button becomes enabled. You can click this button to view and modify the contents of the **Acknowledgement Note** window.

Note: Acknowledged, Acknowledgement Note, Acknowledged By, and Acknowledged Date are fields on the Health Indicator family. If desired, you can include them in a query that returns Health Indicator records.

Acknowledging Multiple Health Indicator Records' Statuses

If multiple Health Indicator records meet Warning or Alert status, you can acknowledge their statuses all at once, which will change them all to Normal. The following instructions provide details on acknowledging the statuses of multiple Health Indicator records at once. You can also acknowledge an individual Health Indicator record status.




To acknowledge multiple Health Indicator record's statuses:

1. On the **Asset Health Manager** page, in the **Health Indicator Explorer** pane, select the **Equipment** node.
2. On the **Summary** tab, for the Health Indicator records whose statuses you want to acknowledge, select the check box to the left of the Health Indicator Record ID.

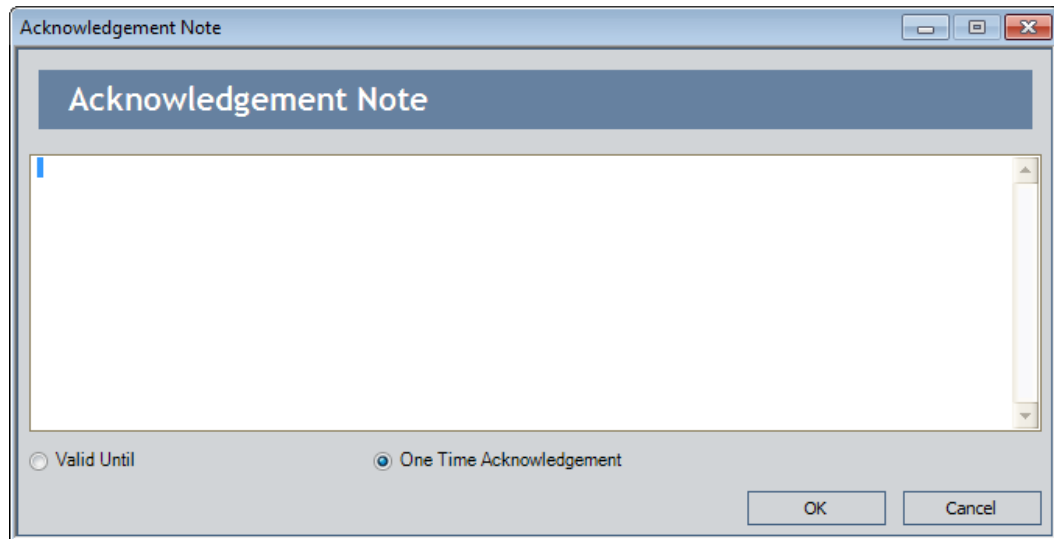
- or -

On the **Summary** tab, above the gauges, select the **All** check box.

A status message and the following buttons appear above the Asset Health gauges.

- : Lets you acknowledge the status.
 - : Lets you create a Meridium General Recommendation record, which will be linked to the Health Indicator records you select.
3. Click the  button.

The **Acknowledgement Note** window appears.



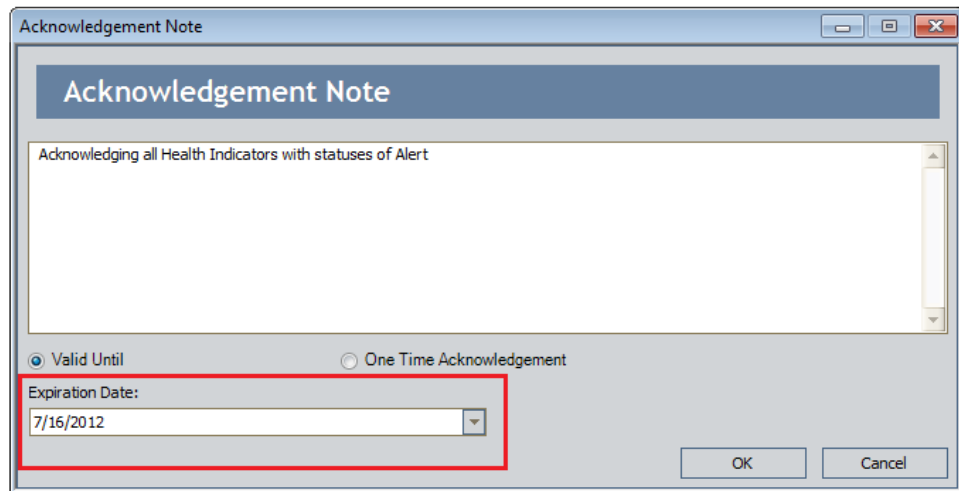
4. In the text area, type your comments.
5. If you want the acknowledgement to remain valid only until a new reading is taken, click **OK**.

- or -


If you want to set an expiration date for the acknowledgement:

- a. Select the **Valid Until** option.

The **Expiration Date** list appears, as shown in the following image. A red outline has been added to the image to highlight this area.



- b. In the **Expiration Date** list, select an expiration date from the calendar, and click **OK**.

For each Health Indicator record whose status you acknowledged, the status indicator of the Health Indicator node changes to include a check mark inside the circle (e.g., ) and a green check mark appears to the left of the associated gauge.

Unless you revoke an acknowledgement, it will remain valid until the expiration date or a reading is taken that satisfies Normal status criteria, depending on your selection in step 5.

Note: Acknowledged, Acknowledgement Note, Acknowledged By, and Acknowledged Date are fields on the Health Indicator family. If desired, you can include them in a query that returns Health Indicator records.

Revoking the Acknowledgement of a Health Indicator Record's Status

Regardless of whether you acknowledged a Health Indicator record's status individually or as part of a group of Health Indicator records, if you want to revoke the acknowledgement, you must do so for each individual Health Indicator record whose status has been acknowledged.

To revoke the acknowledgement of a Health Indicator record's status:

1. On the **Asset Health Manager** page, in the **Health Indicator Explorer** pane, select the Health Indicator node representing the record whose acknowledgement you want to revoke.

2. Click the  button.

A confirmation message appears asking if you are sure you want to revoke the acknowledgement.

3. Click the **Yes** button.

The status of the Health Indicator record returns to either *Warning* or *Alert*, and the green check mark (e.g., ✓) that was displayed beside the associated gauge on the **Summary** tab is replaced with a check box.

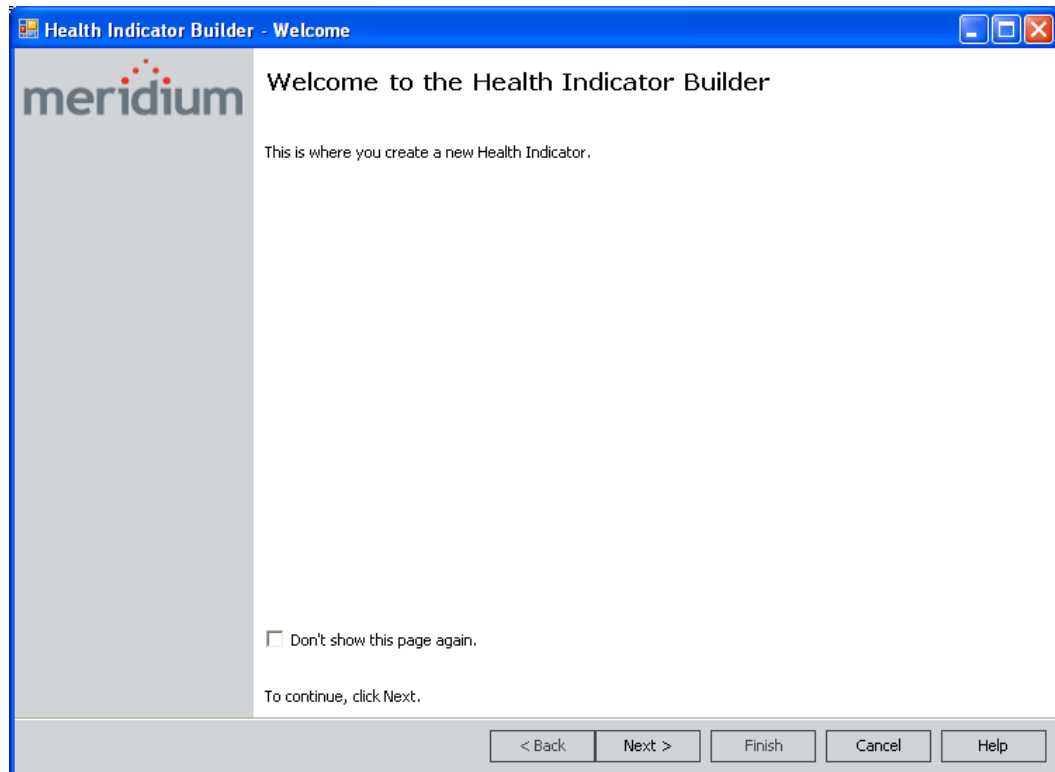
Creating Health Indicator Records via the Asset Health Manager Page

Note: You can create a Health Indicator record only if you are a member of the MI AHI Administrator Security Group.

To create a Health Indicator record:

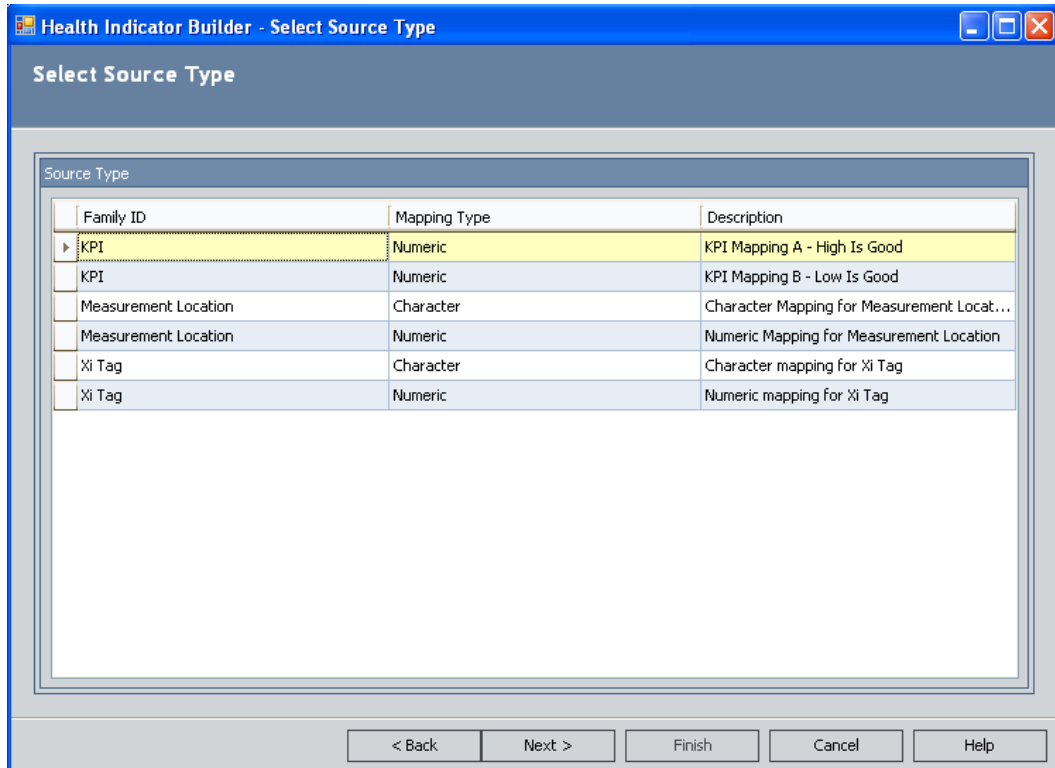
1. On the **Asset Health Manager** page, below the **Health Indicator Explorer** pane, click the **Add** button.

The **Health Indicator Builder** appears, displaying the **Welcome** screen.



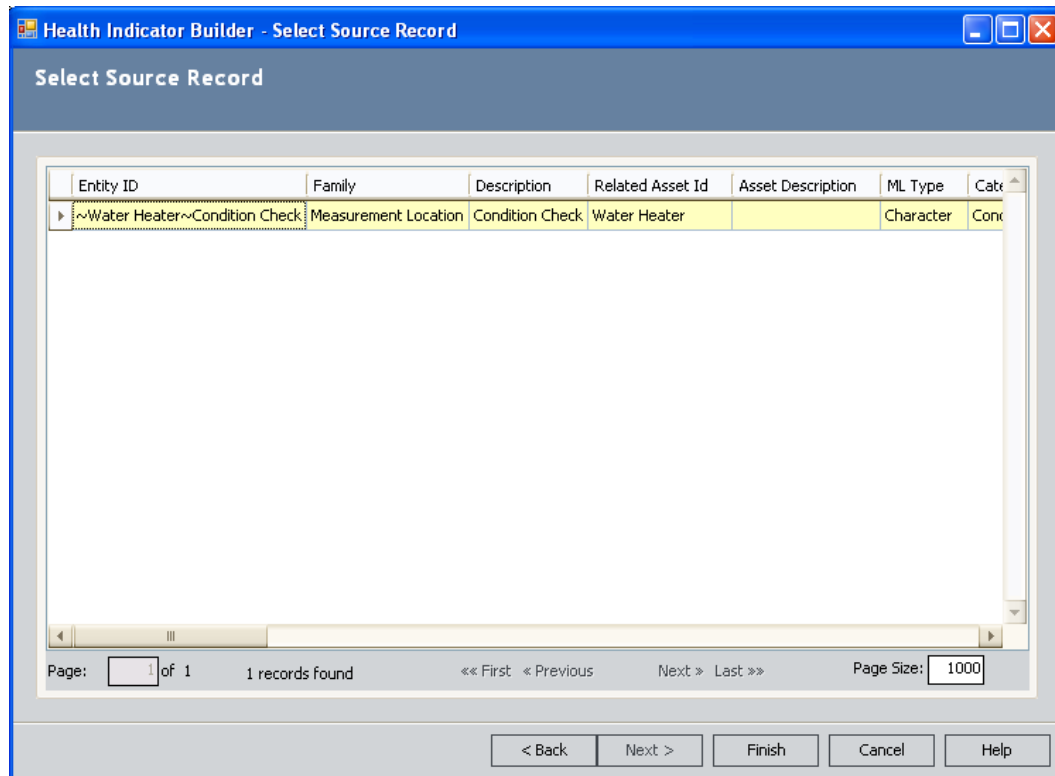
2. Click the **Next** button.

The **Select Source Type** screen appears.



3. In the grid in the **Source Type** section, select the row representing the type of primary source record to which you want to link the Health Indicator record.
4. Click the **Next** button.

The **Select Source Record** screen appears, displaying a list of records that meet criteria for the primary source record type that you selected in the previous screen. Note that if you have already created a Health Indicator from a record, that record will not be displayed in the list.



Note: If desired, you can filter the records.

5. Select the rows containing the records that you want to link to the new Health Indicator record.
6. Click the **Finish** button.

The **Health Indicator Builder** closes, and a node representing the new Health Indicator record appears in the **Health Indicator Explorer** pane below the root record. In addition, the new Health Indicator record is linked to the primary source records that you selected in the **Health Indicator Builder**.

Note: The Health Indicator name is determined using the Health Indicator Mapping record that was used to create the Health Indicator record.

Creating Health Indicator Records from the AHM Start Page

Note: You can create Health Indicator records only if you are a member of the MI AHI Administrator Security Group.

The following instructions provide details on creating multiple Health Indicator records from the **AHM Start Page**. Additionally, these instructions assume that you want to create Health Indicator records using one or both of the following types of primary source records:

- Measurement Location records
- Xi Tag records

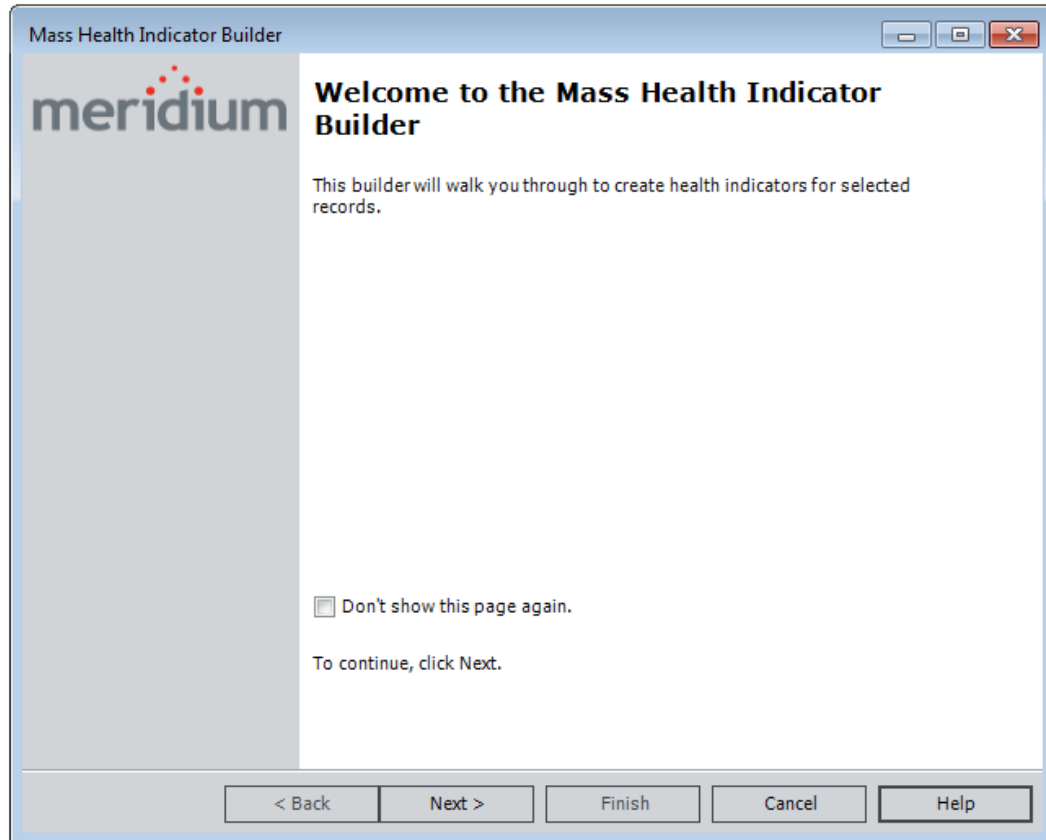
You can add additional Health Indicator records individually via the **Asset Health Manager** page.

Note: If you want to create a Health Indicator record whose primary source record is a KPI record, you will need to do so from the **Asset Health Manager** page.

To create Health Indicator records from the **AHM Start Page**:

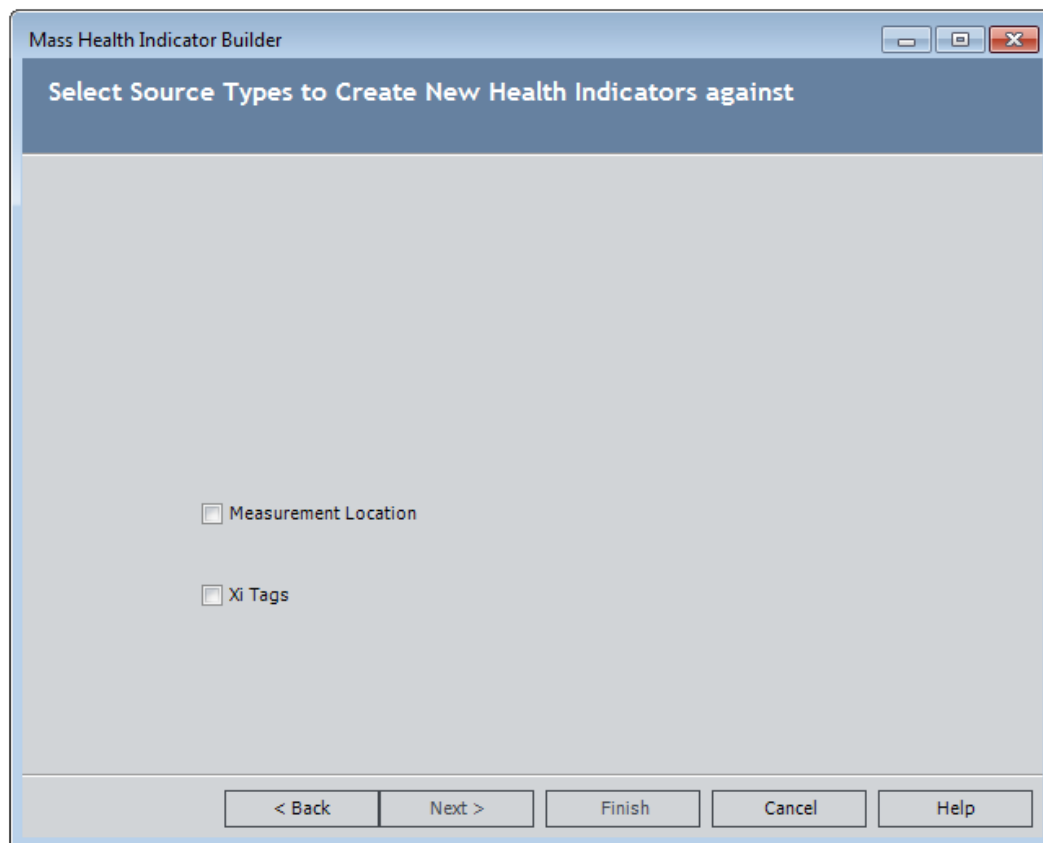
1. Access the **AHM Start Page**.
2. In the **Links** section, click the **Create New Health Indicators for Assets** link.

The **Mass Health Indicator Builder** appears, displaying the Welcome screen.



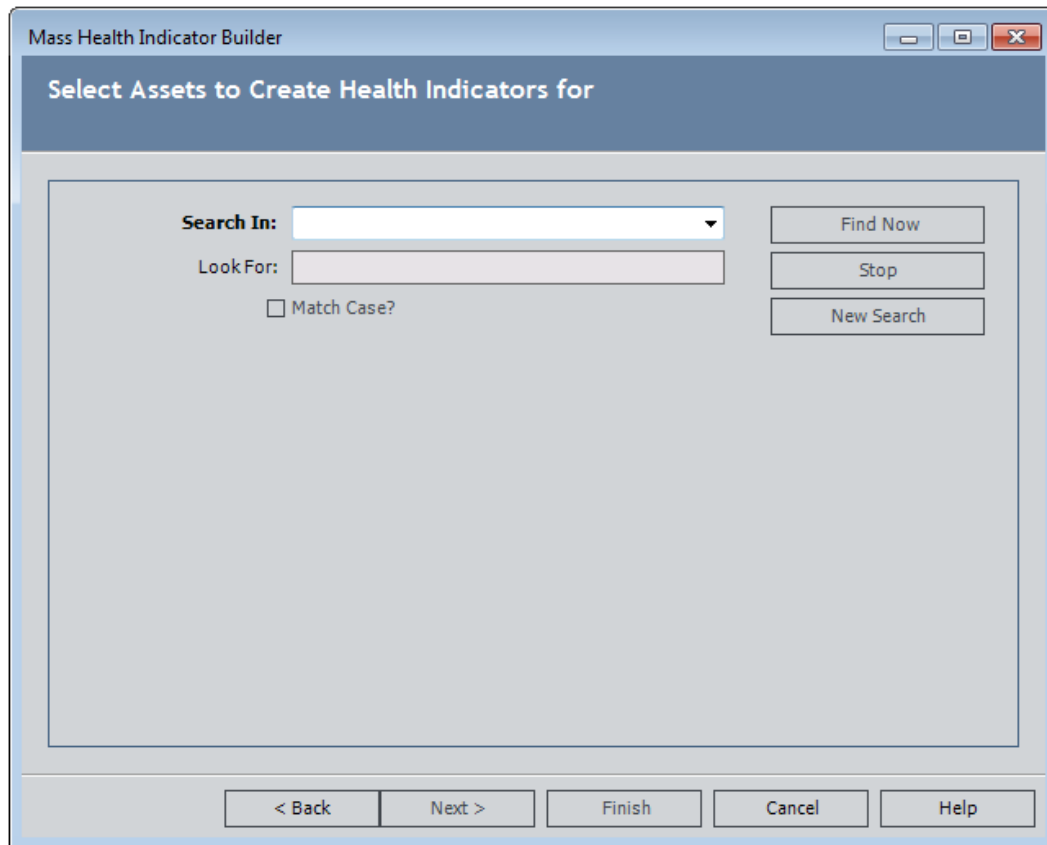
3. Click the **Next** button.

The **Select Source Types to Create New Health Indicators** against screen appears.



4. If you want to create Health Indicator records from Measurement Location records, select the **Measurement Location** check box.
5. If you also want to create Health Indicator records from Xi Tag records, select the **Xi Tags** check box.

The **Select Assets to Create Health Indicators for** screen appears.

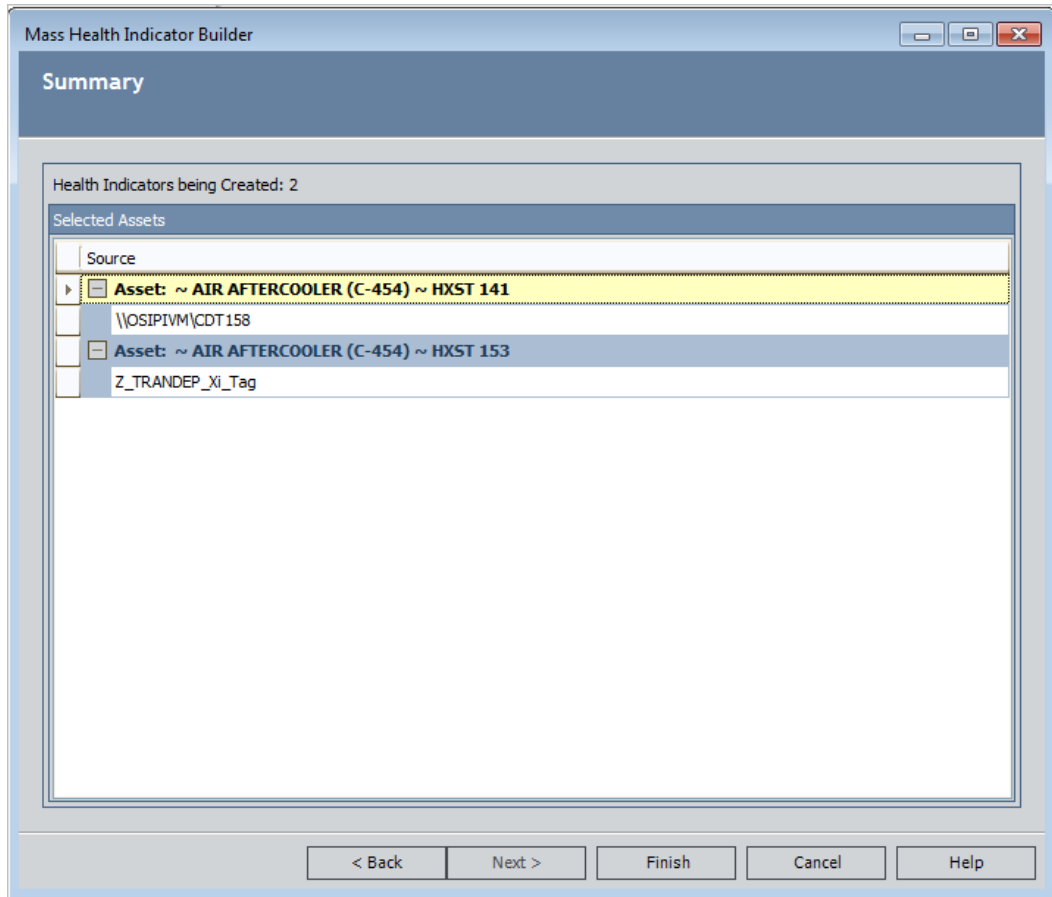


6. In the **Search In** list, select the **Equipment** family, and click the **Find Now** button.

The search results appears in a grid on the screen.

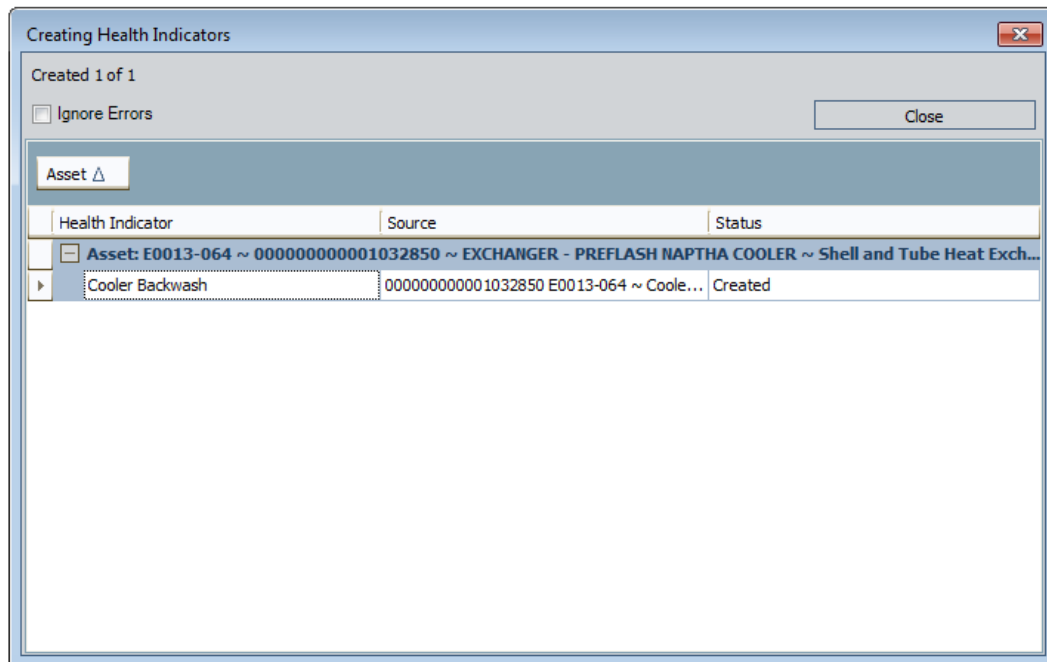
7. Select from the results grid the Equipment records to which you want to link the new Health Indicator records, and click the **Next** button.

The **Summary** screen appears, displaying the Equipment records you selected in the previous step and the primary source records to which they are linked.



8. Click the **Finish** button.

The **Creating Health Indicator** window appears, displaying the progress of the creation process. Once the Meridium APM system has completed this process, the **Creating Health Indicators** window is refreshed, and the **Close** button appears, as shown in the following image.



9. Click the Close button.

The Health Indicator records are created and linked to the selected Equipment records, and the **AHM Start Page** returns to focus. To view the new Health Indicator records, you can access the **Asset Health Manager** page for those Equipment records.

About Creating Health Indicator Records via Policy Manager

Via the Policy Manage module, you can create a Health Indicator record whose:

- Primary source record is another Health Indicator record.
- Secondary source record is a Health Indicator Value record.

Managing Existing Health Indicator Records

Changing the Name or Description of a Health Indicator Record

To change the name or description of a Health Indicator record:

1. On the **Asset Health Manager** page, in the **Health Indicator Explorer** pane, select the Health Indicator node representing the record whose name or description you want to change.
2. Select the **Details** tab.
3. To change the *name* of the Health Indicator record, in the **Name** text box, type the desired name.
4. To change the *description*, in the **Description** text box, type the desired description.

Your changes are saved automatically and applied to the Health Indicator record.

Recommending Action Based Upon Health Indicator Statuses

Creating a Recommendation Record Based Upon a Single Health Indicator


As you review the information for a Health Indicator record, you might want to recommend that some action be taken against the associated piece of equipment.

For example, suppose the Health Indicator record is linked to a Measurement Location record that is linked to a *Water Heater* Equipment record. Suppose that the Measurement Location record is also linked to Reading records whose values indicate that the water in the water heater has been losing heat. The

historical values will be represented on the **Trend** tab. Based upon these values, you might want to create a Meridium General Recommendation record that recommends that an insulation blanket be purchased to insulate the water heater and prevent heat loss.

The following instructions provide details about creating a Meridium General Recommendation record based upon the data in a single Health Indicator record and assume that you are viewing the **Asset Health Manager** page for its associated Equipment record. You can also create a Meridium General Recommendation record that is based upon data in multiple Health Indicator records.

To create a Meridium General Recommendation record based upon data in a single Health Indicator record:

1. In the **Health Indicator Explorer** pane, select the Health Indicator node representing the record that you want to use as the basis for creating a Meridium General Recommendation record.
2. On the **Summary** tab, click the  button.

The <Recommendation ID> (new Meridium General Recommendation) window appears, where <Recommendation ID> is the automatically generated Recommendation ID of the new record, displaying the Meridium General Recommendation datasheet.

The Meridium General Recommendation record is populated with values that are stored in the source Health Indicator record and records to which it is linked.

3. Complete additional fields as desired.
4. Click **OK**.

The **Asset Health Manager** page returns to focus. If the Health Indicator record meets *Warning* or *Alert* status criteria, a message appears, asking if you want to acknowledge the status (change the status to *Normal*).

5. If you:
 - Want to acknowledge the status, click the **Yes** button.
 - Do not want to acknowledge the status, click the **No** button.

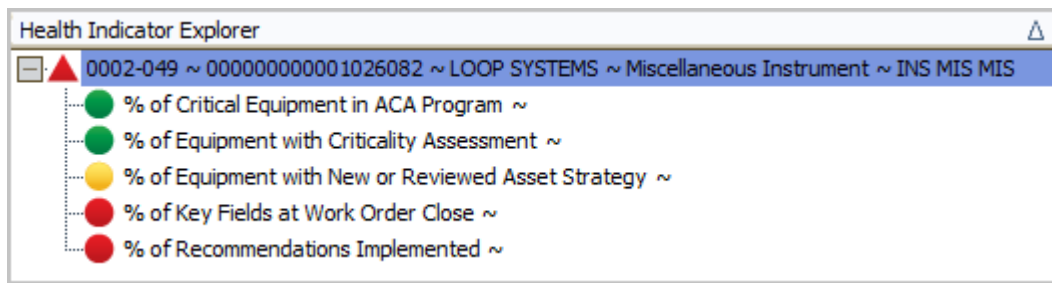
Creating a Recommendation Record Based Upon Multiple Health Indicators

The following instructions assume that you are viewing the **Asset Health Manager** page for the Equipment record whose associated Health Indicator records you want to use as the basis for a Meridium General Recommendation record.

To create a Meridium General Recommendation record based upon the status of multiple Health Indicator records:

1. In the **Health Indicator Explorer** pane, select the Equipment record whose associated Health Indicator records you want to use as the basis for a Meridium General Recommendation record.

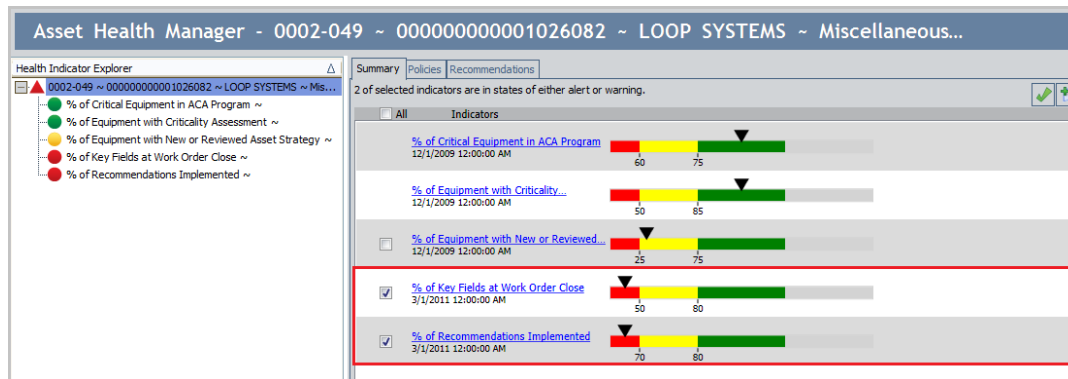
For example, the node representing the Equipment record *0002-049 ~ 000000000001026082 ~ LOOP SYSTEMS ~ Miscellaneous Instrument ~ INS MIS MIS* is selected in the following image.



2. On the **Summary** tab, select the Health Indicator records that you want to use as the basis for the Meridium General Recommendation record.

For example, a red outline has been added to the following image to highlight the selection of the following Health Indicator records:

- % of Key Fields at Work Order Close
- % of Recommendations Implemented



3. Click the  button.

The <Recommendation ID> (new Meridium General Recommendation) window appears, where <Recommendation ID> is the automatically generated Recommendation ID of the new record, displaying the Meridium General Recommendation datasheet.

The screenshot shows a window titled 'REC-1128 (new Meridium General Recommendation)'. It contains a 'General Information' section with a table of fields and values. The 'Target Completion Date' field is highlighted in red.

Field	Value(s)
Recommendation ID	REC-1128
Recommendation Headline	
Recommendation Description	% of Key Fields at Work Order Close ~ Alarm ~ 3/1/2011 12:00:00 AM ~ 0 % of Recommendations Implemented ~ Alarm ~ 3/1/2011 12:00:00 AM ~ 70
Recommendation Basis	
Asset ID	000000000001026082
Equipment Technical Number	0002-049
Function ID	MRD-ROA-REFN-RF049-0002-049
Required Equipment Status	
Business Impact	
Target Completion Date	
Mandatory Date	
Recommendation Priority	
Author Name	Administrator, Meridium MIADMIN
Create Work Request?	<input type="checkbox"/>
Work Request Reference	
Work Request Equipment	
Work Request Functional ...	
Implemented Date	

The Meridium General Recommendation record is populated with values that are stored in the source Health Indicator record and records to which it is linked.

4. Complete additional fields as desired.
5. Click **OK**.

The **Asset Health Manager** page returns to focus. If the Health Indicator record meets *Warning* or *Alert* status criteria, a message appears, asking if you want to acknowledge the status (change the status to *Normal*).

6. If you:
 - Want to acknowledge the status, click the **Yes** button.
 - Do not want to acknowledge the status, click the **No** button.

Values Mapped to Meridium General Recommendation Records

When you create a Meridium General Recommendation record based upon a single or multiple Health Indicator records, various fields in the Meridium General Recommendation record are populated automatically by the Meridium APM System with values from records that are associated with the source Health Indicator record(s).

One additional field, Recommendation Description, is populated with a combination of values in records that are associated with the Health Indicator record(s). The following table lists the values that make up the value *Health Indicator Name* ~ *Alert Status* ~ *Current Reading Date* ~ *Current Reading* that is populated in the Recommendation Description field.

<Health Indicator Name>	The value in the Name field in the Health Indicator record.
<Alert Status>	The value in the Alert Status field in the Health Indicator record.

<Health Indicator Name>	The value in the Name field in the Health Indicator record.
<Current Reading Date>	<p>One of the following values, depending upon the type of record that is linked to the Health Indicator record. If the Health Indicator is linked to:</p> <ul style="list-style-type: none"> • A Measurement Location record, this value is the most recent Reading Taken Date value in the associated Reading records. • A KPI record, this value is the most recent Measurement Date value in the associated KPI Measurement records. • An Xi Tag record, this value is the most recent Time Stamp value in the associated Xi Reading records.
<Current Reading>	<p>One of the following values, depending upon the type of record that is linked to the Health Indicator record. If the Health Indicator is linked to:</p> <ul style="list-style-type: none"> • A Measurement Location record, this value is the Reading Value Character or Reading Value Numeric value in the most recent associated Reading record. • A KPI record, this value is the Actual value in the most recent associated KPI Measurement record. • An Xi Tag record, this value is the Value or Value CHR value in the most recent associated Xi Reading record.

For Meridium General Recommendation records that are created from *more than* one Health Indicator record, the Recommendation Description field contains the combination of values listed above for *each* associated Health Indicator record. For example, the following image shows an example of a Meridium General Recommendation record that was created from the following Health Indicator records:

- % of Key Fields at Work Order Close
- % of Recommendations Implemented

REC-1128 (new Meridium General Recommendation)

REC-1128 (new Meridium General Recommendation)

Datasheet Meridium General Recommendation

Operations :

General Information

	Value(s)
Recommendation ID	REC-1128
Recommendation Headline	
Recommendation Description	% of Key Fields at Work Order Close ~ Alarm ~ 3/1/2011 12:00:00 AM ~ 0 % of Recommendations Implemented ~ Alarm ~ 3/1/2011 12:00:00 AM ~ 70
Recommendation Basis	
Asset ID	000000000001026082
Equipment Technical Number	0002-049
Function ID	MRD-ROA-REFN-RF049-0002-049
Required Equipment Status	
Business Impact	
Target Completion Date	
Mandatory Date	
Recommendation Priority	
Author Name	Administrator, Meridium MIADMIN
Create Work Request?	<input type="checkbox"/>
Work Request Reference	
Work Request Equipment	
Work Request Functional ...	
Implemented Date	

OK Cancel

Viewing Existing Recommendation Records

If an Equipment record that you are working with on the Asset Health Manager page is linked to Recommendation records, you can view those records on the Recommendations tab.

To view Recommendation records that are linked to the Equipment record:

1. In the Health Indicator Explorer pane, select the Equipment node.
2. Select the Recommendations tab.

The results of the **Recommendations** query that is stored in the Catalog folder \\Public\Meridium\Modules\AHI are displayed in a grid on the **Recommendations** tab.

Activating an Inactive Policy Instance

The following instructions assume that there is at least one policy instance associated with the Equipment record that you are evaluating on the **Asset Health Manager** page.

To activate a policy instance:

1. On the **Asset Health Manager** page, in the **Health Indicator Explorer** pane, select the **Equipment** node.
2. Select the **Policies** tab.

The policy instances that include that Equipment record are displayed in a grid.

3. In the results grid, in the row representing the policy instance that you want to activate, select the **Active** cell.

The **Activate** button appears, as shown in the following image.

Summary Policies Recommendations					
Instance ID	Policy	Active	Last Executed	Message	
Instance 1	Xi tag 2	True			
Instance 2	Xi tag 2	True			
/ Instance 3	Xi tag 2	False	Activate		

4. Click the **Activate** button.

The policy instance is activated, and the value in the **Active** cell changes to *True*.

Deleting a Health Indicator Record

To delete a Health Indicator record:

1. On the **Asset Health Manager** page, in the **Health Indicator Explorer** pane, select the Health Indicator node representing the record that you want to delete.
2. Below the **Health Indicator Explorer** pane, click the **Delete** button.

A message appears, asking if you are sure that you want to delete the record.

3. Click the **Yes** button.

The Health Indicator record is deleted.

About Modifying Limit Values in Health Indicator Records

When you create Health Indicator records via the Policy Manager module, you can modify the limit values in these Health Indicator records via AHM. Specifically, you can modify the following values in these Health Indicator records via AHM:

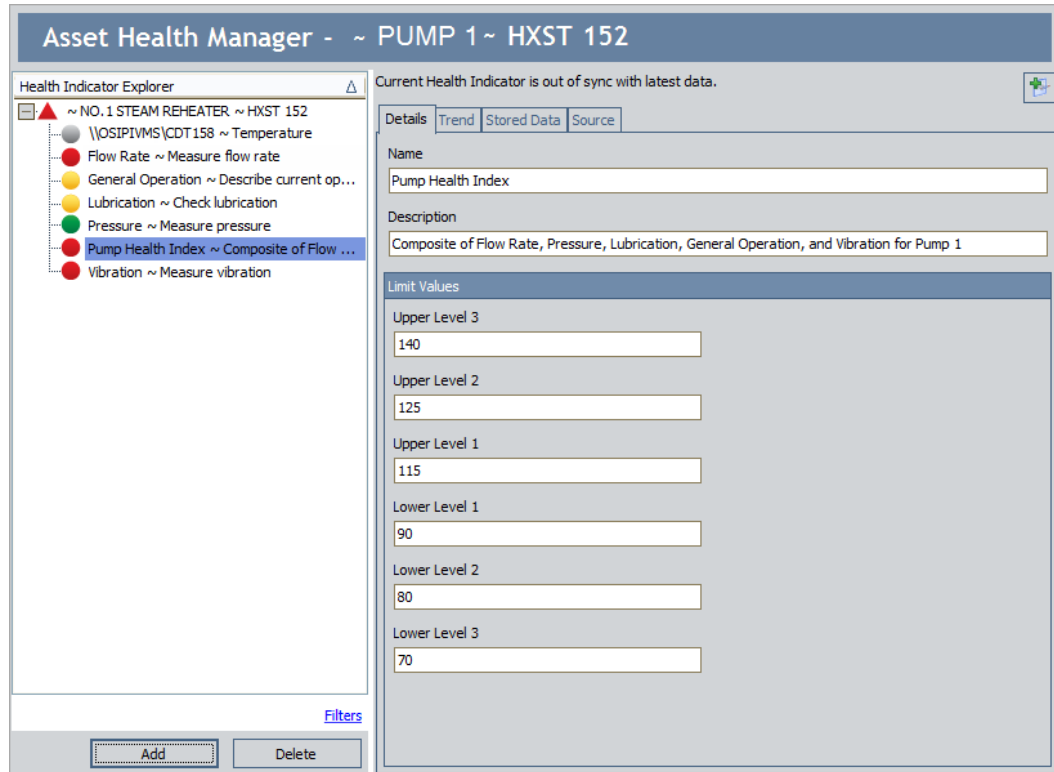
- Lower Level 1 Alert
- Lower Level 2 Alert
- Lower Level 3 Alert
- Upper Level 1 Alert
- Upper Level 2 Alert
- Upper Level 3 Alert

You may want to do this if conditions have changed since you created the policy (whose execution resulted in the creation of the Health Indicator record) and defined the limit values for the Health Indicator record (via the Policy Manager module). The following instructions assume that you have accessed the **Asset Health Manager** page for the Equipment or Functional Location record that is linked to the Health Indicator record that was created via Policy Manager whose limit values you want to modify.

To modify the limit values in a Health Indicator record created via Policy Manager:

1. In the **Health Indicator Explorer** pane, select the Health Indicator record whose limit values you want to modify.

In the following image, the Health Indicator record named *Pump Health Index* is selected in the **Health Indicator Explorer** pane.



2. In the **Limit Values** workspace, in the text box that corresponds with the field in the Health Indicator record whose value you want to modify, type the limit value that you want to use.

The Health Indicator values are updated automatically when you navigate away from the **Asset Health Manager** page.

Reference Information

Catalog Folder Structure

AHM Catalog Folder Structure

The following table lists the query that is stored in the Catalog location \\Public\Meridium\Modules\AHI. The query name is listed in the table. The query name and caption are the same.

Query	Behavior and Usage
Recommendations	Returns all Recommendation records <i>except</i> RCM FMEA Recommendation and RBI Recommendations records that are linked to a specific Equipment record. The results of this query are displayed on the on the Recommendations tab in the on the Asset Health Manager page.

Dashboards Folder

The following table lists the dashboard that is stored in the Catalog location \\Public\Meridium\Modules\AHM\Dashboards. The dashboard name is listed in the table. The dashboard name and caption are the same.

Dashboard	Behavior and Usage
AHM Start Page	Displays the baseline Asset Health Manager dashboard on the Dashboard page, which serves as the start page for the AHM module.

Queries Folder

The following table lists the query that is stored in the Catalog location \\Public\Meridium\Module\AHI\Queries. The query name is listed in the table.

The query name and caption are the same. The Queries folder also contains one subfolder, Dashboard Queries.

Query	Behavior and Usage
Policy Integration	Returns all Policy records that are associated with a policy instance that includes a specific Equipment record. The results of this query are displayed on the Policies tab on the Asset Health Manager page.

Dashboard Queries Folder

The following table lists the queries that are stored in the following Catalog location \\Public\Meridium\Module\AHM\Queries\Dashboard Queries. The queries are listed in the table by name. The query name and caption are the same unless otherwise noted.

Query	Behavior and Usage
AHM Assets in Alert	Returns all Health Indicator records whose Alert Level field contains the value 1 or 2. This query contains prompts on: <ul style="list-style-type: none"> <li>• The Superior Function Location field in the Functional Location record that is linked to the Equipment record that is associated with the Health Indicator record. <li>• The Last Reading Date field in the Health Indicator record. The results of this query are displayed in the Health Indicators in Alert section on the AHM Start Page .
AHM Parameters Query	Used to build the Health Indicator Filter section on the AHM Start Page .

Family Field Descriptions

Event Mapping

Event Mapping records store information that determine the values in source event families that are displayed on the **Events** tab on the **Asset Health Manager** page. Field descriptions are not provided for this family because you will not view or modify data in records in this family via the datasheet. Rather, you will view and modify data in these records via the **Event Mappings** window.

Health Indicator

Health Indicator records store information for individual factors that are used to determine the health of equipment. The following table provides an alphabetical list and description of the fields that exist in the Health Indicator family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

Field	Data Type	Description	Behavior and Usage
Acknowledged	Logical	Indicates whether or not the status of the Health Indicator has been acknowledged.	When this field is set to: <ul style="list-style-type: none"> <i>True</i>, the status of the Health Indicator record has been acknowledged. <i>False</i>, the status of the Health Indicator record has not been acknowledged.

Field	Data Type	Description	Behavior and Usage
Alert Level	Number	Indicates the status of the Health Indicator record.	<p>If the Meridium.AHI.Service.exe.config file has been configured properly, this value is populated automatically by the AHM Service with one of the following values:</p> <ul style="list-style-type: none"> • 0 (zero): Indicates that the Health Indicator record meets the <i>Normal</i> status criteria. • 1: Indicates that the Health Indicator record meets the <i>Warning</i> status criteria. • 2: Indicates that the Health Indicator record meets the <i>Alert</i> status criteria. <p>This field is not displayed on the baseline Health Indicator datasheet.</p>
Description	Character	A description of the Health Indicator record.	This field is displayed on the Main tab of the Health Indicator datasheet.
Name	Character	The record ID of the Health Indicator record.	This value must be unique. This field is displayed on the Main tab of the Health Indicator datasheet.
ML Type	Character	For Health Indicator records whose primary source records are Measurement Location records, indicates the type of data stored in the associated secondary source records (Reading records).	<p>On the datasheet, this field appears as a list labeled ML Type and contains the following values:</p> <ul style="list-style-type: none"> • Character • Numeric

Health Indicator Mapping

Health Indicator Mapping records are used to determine how values will be mapped from primary source records to the Health Indicator records that they are used to create. The following table provides an alphabetical list and description of the fields that exist in the Health Indicator Mapping family. The information in the table reflects the baseline state and behavior of these fields. This list is not comprehensive.

Field	Data Type	Description	Behavior and Usage
Description	Character	The purpose of the Health Indicator Mapping record.	This value is not used when mapping data from primary source records to Health Indicator records.
Family ID	Character	The family caption of the primary source family.	The list in this field contains all families that are successors to the Health Indicator family through the Health Indicator Has Source relationship.
Mapping Type	Character	The type of data that will be evaluated in the primary source record to determine the status of the Health Indicator record.	The list in this field contains the values <i>Character</i> and <i>Numeric</i> .

Field	Data Type	Description	Behavior and Usage
Reading Family ID	Character	The secondary source family that contains the value that the Meridium APM rule logic will use to determine the status of the Health Indicator record.	The list in this field contains all families that are successors to the primary source family through any relationship.
List of Values Field	Character	The field in the primary source family whose values can be entered into secondary source records. For example, Measurement Location records (primary source records) can accept either numeric or character values. If they are configured to accept character values, the Allowable Values field in the Measurement Location record stores values that can be entered in the Reading records (secondary source records) to which it is linked.	The list in this field contains fields that are stored in primary source records.
Source Name Field	Character	The field in the primary source family whose value will be mapped to the Name field in the Health Indicator record that is created.	The list in this field contains fields that are stored in primary source records.
Reading Date Field	Character	The field in the secondary source family that contains the value that the Meridium APM rule logic will use to present information on the Asset Health Manager page for a Health Indicator record that is created from the associated primary source record.	The list in this field contains fields that are stored in secondary source records.

Field	Data Type	Description	Behavior and Usage
Reading Value Field	Character	The field in the secondary source family that contains the value that the Meridium APM rule logic will use to determine the status of the Health Indicator record.	The list in this field contains fields that are stored in secondary source records.
Target Field	Character	This field is not currently used.	N/A
Asset to Source Relationship Family ID	Character	The relationship family used to link the Equipment record to the primary source record.	The list in this field contains all Relationship families delivered in the baseline database.
Reading UOM Field	Character	The unit of measure that is associated with the secondary source record.	The list in this field contains fields that are stored in secondary source records.

Event Mappings

Event Mappings Overview

Event Mappings allow you to view data about multiple events for a single piece of equipment or location on the **Events** tab on the **Asset Health Manager** page. This concept is best illustrated through an example.

Suppose that you use AHM to analyze an Equipment record that is linked to the following records that store information about events that took place for that piece of equipment:

- A Work History record that identifies a repair that took place.
- An Inspection record that identifies a visual inspection that was performed.

In this case, on the **Events** tab on the **Asset Health Manager** page, you can view data that is stored in *both* of these records so that you can monitor the condition of the piece of equipment or look for trends in the events.

Note: Throughout this documentation, we refer to records that represent events that took place for a piece of equipment or location as *source event records*.

Event Mappings are used to specify the values in source event records (e.g., Work History records) and other values that should be displayed on the **Events** tab on the **Asset Health Manager** page. Specifically, each Event Mapping consists of the following items:

- One Event Mapping record.
- At least one event severity.
- Multiple event severity mappings (optional).

Event Mapping records specify the values in source event records that should be displayed on the **Events** tab. The baseline Meridium APM database contains Event Mapping records that identify values in the following source event families:

- Bundle Inspection
- Full Inspection
- General Inspection
- Inspection
- Policy Event
- Pressure Test Inspection
- Production Event

- All Calibration subfamilies
- All Checklists subfamilies
- Work History

An *event severity* specifies the severity that is associated with the event (i.e., the gravity or seriousness of the events) that is represented by a record belonging to the family that is identified by that Event Mapping record. For example, the severity of a routine inspection on a piece of equipment or a preventive maintenance activity would be different from the severity of a repair that took place after a failure. The default event severity for *every* baseline Event Mapping record is *Information*. You can define additional event severities (*Warning* and *Alarm*) when you create event severity mappings. Event severities are *not* stored in the Event Mapping record or any record belonging to an entity family in the Meridium APM database.

Event severity mappings identify the specific values in source event records that correspond with a particular event severity. Each Event Mapping can have *up to* three event severity mappings, one for each of the following event severities: *Information*, *Warning*, and *Alarm*. If an Event Mapping does not contain *any* event severity mappings, then all source event records that belong to the family that is represented by the corresponding Event Mapping record will be assigned the *same* event severity, which is identified by the default event severity. For example, in the baseline database, all Inspection records that are used in AHM will be assigned the same event severity (*Information*), which is identified by the default event severity associated with the Event Mapping record with the Record ID *Inspection*. In the baseline Meridium APM database, event severity mappings are defined *only* for the Event Mapping records that are associated with the Policy Event family and the Work History family. Event severity mappings are also *not* stored in the Event Mapping record or any record belonging to an entity family in the Meridium APM database.


While both an Event Mapping record and default event severity are *required* in order to view event data in a source event record on the **Events** tab, event severity mappings are *not* required to view event data in a source event family on the **Events** tab.

Event Mappings Window

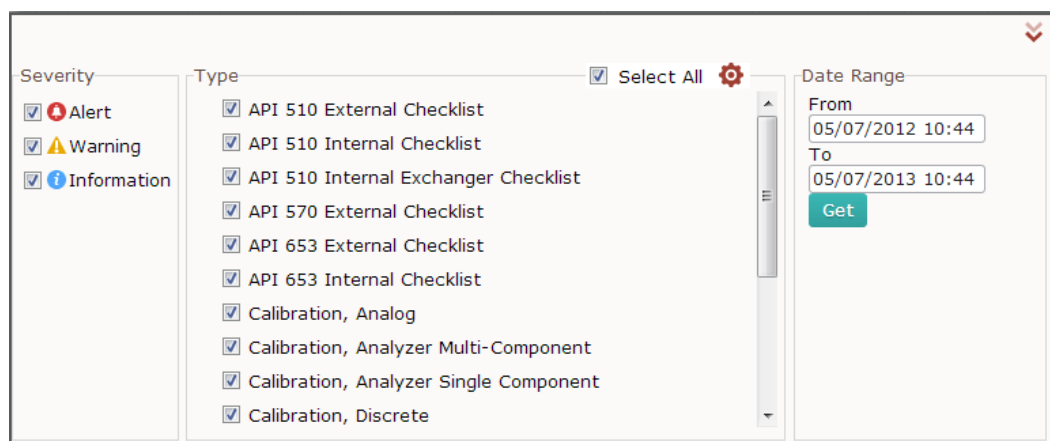
Accessing the Event Mappings Window


Super Users and members of the MI AHM Administrator Security Group can access the **Event Mappings** window via the **Asset Health Manager** page.

To access the Event Mappings window:

1. On the **Asset Health Manager** page, select the **Events** tab.
2. On the **Events** tab, click the  button to expand the Filter section.

The Filter section expands.



3. In the Filter section, click the  button.

The **Event Mappings** window appears, and the first family is selected in the Source Event Family pane by default.

Event Mappings

Add Remove Cancel Save

API 510 External Checklist
 API 510 Internal Checklist
 API 510 Internal Exchan...
 API 570 External Checklist
 API 653 External Checklist
 API 653 Internal Checklist
 Bundle Inspection
 Calibration, Analog
 Calibration, Analyzer Mul...
 Calibration, Analyzer Sin...
 Calibration, Discrete
 Calibration, Functional T...
 Calibration, Weight Scale
 External PRD Checklist
 Full Inspection
 General Inspection
 Inspection
 Policy Event
 Pressure Test Inspection
 Production Event
 Work History

*Mapped Family
 API 510 External Checklist

Event Field	Mapped Field
*Event Relationship	Has Inspections
*Start Time Field	Completion Date
End Time Field	(select)
Name Field	Inspection Reference
Description Field	Scope
Has Duration Field	(select)
Severity Field	(select)

*Default Severity
 Information

*Event Severity	*Mapped Severity Code
(Add Mapping)	

Aspects of the Event Mappings Window

You can use the Event Mappings window to create, modify, or delete:

- Event Mapping records.
- The default event severity.
- Event severity mappings.

The Event Mappings window contains the following panes:

- **The left pane:** Displays the caption of each source event family for which Event Mappings have been created.
- **The right pane:** Displays grids and lists that are used to define the Event Mappings for the family that is selected in the left pane.

Source Event Family Pane

On the left side of the **Event Mappings** window, an unlabeled pane appears that displays the caption of each source event family for which an Event Mappings exists. Throughout the documentation, we refer to this unlabeled pane as the *Source Event Family pane*.

The following image shows an example of what the Source Event Family pane looks like. A red outline has been added to the image to highlight the Source Event Family pane.

The screenshot shows the **Event Mappings** window. On the left, a list of source event families is displayed, with **API 510 External Checklist** selected and highlighted. This list is enclosed in a red rectangular outline. The main area of the window contains configuration options for the selected family, including a dropdown for ***Mapped Family** (set to API 510 External Checklist), a table for mapping event fields to system fields, a ***Default Severity** dropdown (set to Information), and a table for mapping event severity to system severity codes.

Event Field	Mapped Field
*Event Relationship	Has Inspections
*Start Time Field	Completion Date
End Time Field	(select)
Name Field	Inspection Reference
Description Field	Scope
Has Duration Field	(select)
Severity Field	(select)

*Event Severity	*Mapped Severity Code
(Add Mapping)	

The captions of the families for which Event Mappings exist are displayed in the Source Event Family pane if the license for the associated module is active *and* you have View privileges for the family. For example, a baseline Event

Mappings exists for the Production Event family. If the Production Loss Accounting license is active and you have View privileges to the Production Event family, *Production Event* will be listed in the Source Event Family pane. If the Production Loss Accounting license is *not* active or you do not have View privileges to the Production Event family, *Production Event* will *not* be listed in this pane.

The following buttons are displayed above the Source Event Family pane:

- **Add:** Adds the entry (*new mapping*) at the top of the Source Event Family pane and refreshes the Mappings pane to display empty lists that you can use to create a new Event Mapping.
- **Remove:** After displaying a confirmation message, deletes the selected entry from the Source Event Family pane and deletes the Event Mapping associated with the selected family.

Mappings Pane

On the right side of the **Event Mappings** window, an unlabeled pane appears that contains items that are used to define the Event Mapping for the family that is selected in Source Event Family pane. Throughout the documentation, we refer to this unlabeled pane as the *Mappings pane*.

The following image shows an example of the Mappings pane when the family *API 510 External Checklist* is selected in the Source Event Family pane. A red outline has been added to the image to highlight the Mappings pane.

Event Mappings

Add Remove Cancel Save

*Mapped Family
API 510 External Checklist

Event Field	Mapped Field
*Event Relationship	Has Inspections
*Start Time Field	Completion Date
End Time Field	(select)
Name Field	Inspection Reference
Description Field	Scope
Has Duration Field	(select)
Severity Field	(select)

*Default Severity
Information

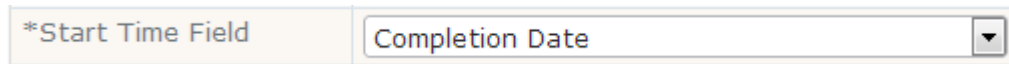
*Event Severity	*Mapped Severity Code
(Add Mapping)	

The Mappings pane contains the following items:

- Mapped Family list:** Contains the caption of every entity family in the database for which an Event Mapping does *not* exist *and* for which you have View privileges. The caption of the source event family that is selected in the Source Event Family pane is selected by default. If you are creating a new Event Mapping, the value (*select*) is selected by default. You must select a value in this list in order to save the Event Mapping.
- First Grid:** Displays rows that are used to specify the source event family fields whose values will be displayed in the grid on the **Events** tab on the **Asset Health Manager** page. In the first grid, one row is displayed for each column that appears in the grid on the **Events** tab. In other words, each *row* in the first grid represents a *column* in the grid on the **Events**

tab. Throughout this documentation, we refer to the rows by the value in the Event Field cell in these rows.

For example, the following image illustrates the *Start Time Field* row.



The following table identifies each row in the first grid, the columns to which they correspond (in the grid on the Events tab), and the values that are available in the Mapped Field column.

Row	Corresponding Column	Mapped Field List
Start Time Field	Start Time	Every date field in the source event family.
End Time Field	End Time	Every date field in the source event family.
Name Field	Name	Every field in the source event family <i>except</i> date fields.
Description Field	Description	Every field in the source event family <i>except</i> date fields.
Severity Field	Severity	Every field in the source event family <i>except</i> date fields.

Notice that the **Event Relationship** row and the **Has Duration** row are excluded from this table. These rows are unique to the first grid in that they do *not* represent columns in the grid on the Events tab. Instead, these rows serve the following functions:

- **Event Relationship:** Specifies the relationship family that links the piece of equipment or location to the source event record. The **Mapped Field** list in this row displays every relationship family for which the source event family is a successor in the relationship definition.

- **Has Duration:** Specifies whether or not the source event record represents an event that has duration. The **Mapped Field** list in this row contains every logical field in the source event family.

Note: You must select an *Event Relationship* and *Start Time Field* in order to save the Event Mapping.

- **Default Severity list:** Specifies the severity that is associated with the source event family by default. The default severity determines the icon that is displayed in the grid on the **Events** tab for events of this type (i.e., for records in the source event family). This list contains the following values:
 - **Information:** Indicates that records in the source event family represent routine activities conducted for the piece of equipment or location. For example, if the source event record represents a routine inspection on the piece of equipment, you might select *Information* in this list. This value is selected in this list by default.
 - **Warning:** Indicates that records in the source event family represent events that convey a low-risk warning about the piece of equipment or location. For example, if the source event record represents activity that indicates that the piece of equipment is nearing its end of life, you might select *Warning* in this list.
 - **Alert:** Indicates that records in the source event family represent events that convey a high-risk warning about the piece of equipment or location. For example, if the source event record represents activity that indicates that the piece of equipment is about to fail, you might select *Alert* in this list.
- **Second Grid:** Displays one row for each event severity mapping that you have defined. The grid contains the following columns:
 - **Event Severity:** Contains a list in which one of following values is selected that corresponds with the event severity for which you have defined a mapping:
 - **Information**
 - **Warning**

- Alert

If you have not defined any event severity mappings, this column contains the entry (*Add Mapping*), which appears as a hyperlink that you can click to add a row to the grid.

- **Mapped Severity Code:** Contains text boxes in which you should type the value that is stored in the field in the source event record that is mapped to the Severity Field ID field in the Event Mapping record that corresponds with the severity in that row. When you click (*Add Mapping*) in the **Event Severity** column to define an event severity mapping, you must type a value in the text box in the **Mapped Severity Code** column in order to save the Event Mapping. This value appears to the right of the icon in the **Severity** column in the grid on the **Events** tab.

For example, in the baseline Meridium APM database, an Event Mapping record specifies that the value in the Severity field in the Policy Event family is mapped to the Severity Field ID field in the associated Event Mapping record. Continuing with this example, in the baseline Meridium APM database, the event severity mappings shown in the following image are defined for the Policy Event family.

*Event Severity	*Mapped Severity Code	
Information ▼	INF	✕
Warning ▼	WRN	✕
Alert ▼	ALT	✕

Based upon the event severity mappings shown in the preceding image, when the Severity field in a Policy Event record contains the value *INF*, the Information icon and the value that is specified for events with a severity of *Information* (i.e., *INF*) is displayed on the Events tab, as illustrated in the following image.

Severity	Name	Description	Type	Start	End
INF	POLICY EVENT - 1			5/1/2013 1:09:...	5/1/2013 1:09:...

The following buttons are displayed above the Mappings pane:

- **Cancel:** Displays a confirmation message, confirming that you do not want to save the Event Mapping.

- **Save:** Closes the Event Mappings window and saves the Event Mapping.

Event Mappings Page

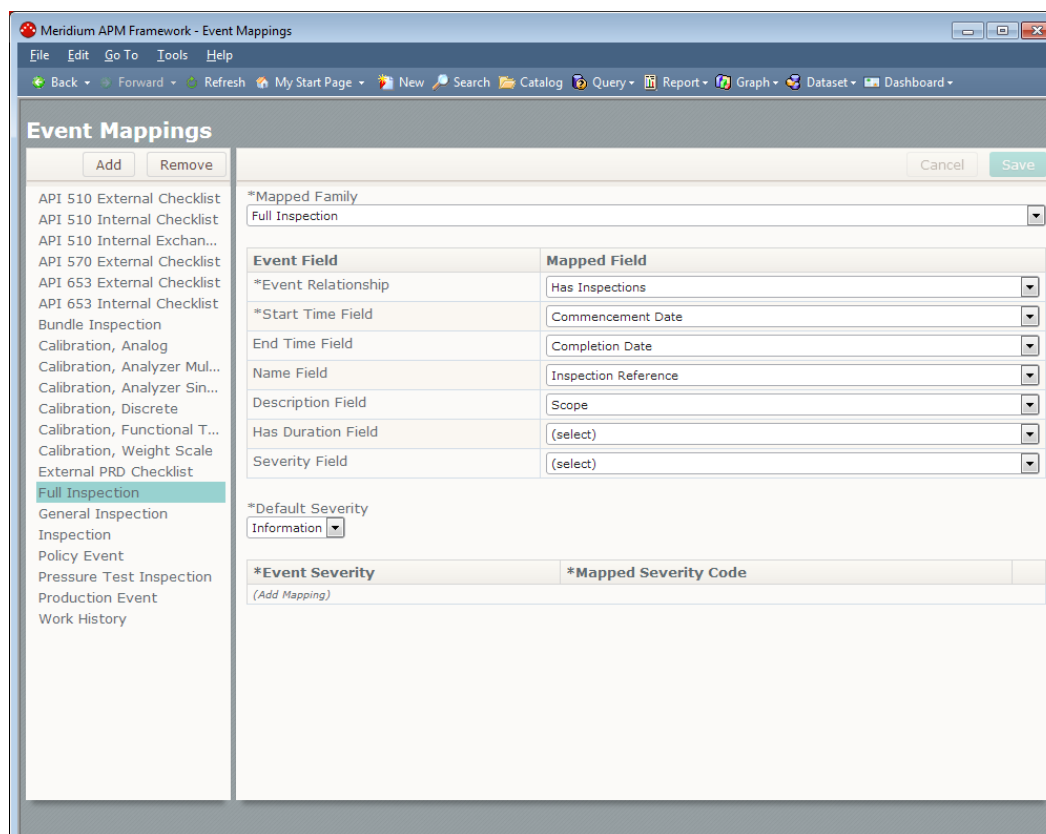
Accessing the Event Mappings Page

Super Users and members of the MI AHM Administrator Security Group can access the Event Mappings page via Record Manager.

To access the Event Mappings page:

1. Open an Event Mapping record in Record Manager.
2. Click the hyperlink that appears about the Event Mapping datasheet.

The Event Mapping page appears.



The source event family associated with Event Mapping record for which you accessed the **Event Mapping** page is selected in the Source Event Family pane, and the Mappings pane displays lists whose selections correspond with values in the Event Mapping record.

Aspects of the Event Mappings Page

The **Event Mappings** page contains all of the same items that are displayed on the **Event Mappings** window. The **Event Mappings** page does *not* contain any task menus.

Because the Meridium APM Asset Health Manager Best Practice assumes that you will use the **Event Mappings** window to create, modify, and delete Event Mappings, and because the functionality of the **Event Mappings** page is the same as the **Event Mappings** window, no further documentation is provided for the **Event Mappings** page.

Working with Event Mappings

Event Mapping Records

Creating New Event Mapping Records

Super Users and members of the MI AHM Administrator Security Group can create Event Mapping records to specify the values in source event families that should be displayed on the **Events** tab on the **Asset Health Manager** page. Additionally, these users can specify the severity that is associated with an event by default. Although this value (the default event severity) is not stored in the Event Mapping record or any record in the Meridium APM database, we provide instructions on specifying this value at the time that you create an Event Mapping record because you will use the same interface to perform both of these actions (creating an Event Mapping record and specifying the default event severity), and because an event severity cannot exist without an associated Event Mapping record.

Event Mapping records can be created using the **Event Mappings** page or the **Event Mappings** window. The Meridium APM Asset Health Manager Best Practice and these instructions assume that you will create Event Mapping records via the **Event Mappings** window.

To create a new Event Mapping record:

1. Access the Event Mappings window.
2. Above the Source Event Family pane, click the **Add** button.

The entry (*new mapping*) appears at the top of the Source Event Family pane, the Mappings pane displays lists in which values are not selected, and validation messages for required fields are displayed at the top of the window.

Event Mappings ✕

3 of 3 [\(View Details\)](#) The Start Time field is required.

Add **Remove** **Cancel** **Save**

(new mapping)

- API 510 External Checklist
- API 510 Internal Checklist
- API 510 Internal Exchan...
- API 570 External Checklist
- API 653 External Checklist
- API 653 Internal Checklist
- Bundle Inspection
- Calibration, Analog
- Calibration, Analyzer Mul...
- Calibration, Analyzer Sin...
- Calibration, Discrete
- Calibration, Functional T...
- Calibration, Weight Scale
- External PRD Checklist
- Full Inspection
- General Inspection
- Inspection
- Policy Event
- Pressure Test Inspection
- Production Event
- Work History

Event Field	Mapped Field
*Mapped Family	(select)
*Event Relationship	(select)
*Start Time Field	(select)
End Time Field	(select)
Name Field	(select)
Description Field	(select)
Has Duration Field	(select)
Severity Field	(select)

*Default Severity
Information

*Event Severity	*Mapped Severity Code
(Add Mapping)	

3. In the Mappings pane, in the **Mapped Family** list, select the source event family for which you want to create an Event Mapping record.
4. In the first grid, select the fields in the source event family that you want to be mapped to fields in the Event Mapping record.

5. In the **Default Severity** list, select the value that corresponds with the severity that is associated with the source event record by default.
6. Optionally create event severity mappings for the Event Mapping.
7. Click the **Save** button at the top of the window.

The Event Mapping record is saved. Event data for the source event family, the default event severity, and any event severity mappings that you have defined will now be displayed on the **Events** tab on the **Asset Health Indicator** page when an Equipment or Functional Location record that is linked to that source event family is selected in the **Health Indicator Explorer** pane. Additionally, a check box labeled with the source event family caption will now be displayed in the Filter section on the **Events** tab.

Modifying Existing Event Mappings

Super Users and members of the MI AHM Administrator Security Group can modify existing Event Mapping records to modify the values that are displayed on the **Events** tab on the **Asset Health Manager** page for a source event family. Additionally, these users can modify the severity that is associated with an event by default. Although this value (the default event severity) is not stored in the Event Mapping record or any record belonging to an entity family in the Meridium APM database, we provide instructions on modifying this value at the time that you modify an Event Mapping record because you will use the same interface to perform both of these actions (modifying an Event Mapping record and modifying the default event severity), and because an event severity cannot exist without an associated Event Mapping record.

Event Mapping records can be modified using the **Event Mappings** page or the **Event Mappings** window. The Meridium APM Asset Health Manager Best Practice and these instructions assume that you will modify Event Mapping records via the **Event Mappings** window.

To modify an existing Event Mapping record:

1. Access the **Event Mappings** window.
2. In the **Source Event Family** pane, select the source event family whose associated Event Mapping record you want to modify.

The Mappings pane is refreshed to display the selections for the family selected in the Source Event Family pane. For example, in the following image, *Bundle Inspection* is selected in the Source Event Family pane.

Event Field	Mapped Field
*Event Relationship	Has Inspections
*Start Time Field	Commencement Date
End Time Field	Completion Date
Name Field	Inspection Reference
Description Field	Scope
Has Duration Field	(select)
Severity Field	(select)

3. If you want to modify the:

- Fields in source event records that are mapped to fields in the Event Mapping record, in the Mappings pane, in the first grid, modify the selections in the associated lists.
- Severity that is associated with the source event record by default, in the Mappings pane, modify the selection in the **Default Severity** list.

4. Optionally modify the associated event severity mappings.

5. Click the **Save** button at the top of the window.

Your modifications to the Event Mapping record are saved. Event data for the source event family, the default event severity, and any event severity mappings that you have defined will now be displayed on the **Events** tab on the **Asset Health Indicator** page when an Equipment or Functional Location record that is linked to the source event family is selected in the **Health Indicator Explorer** pane.

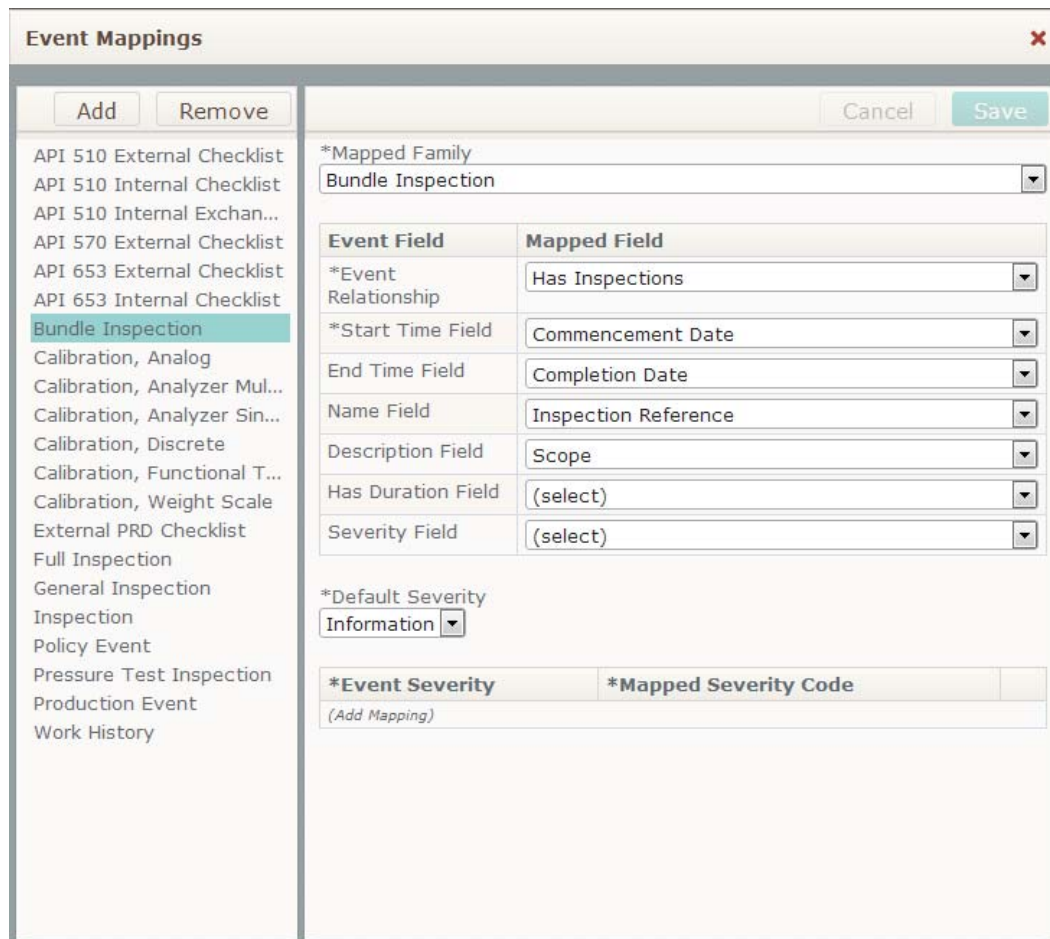
Deleting Event Mapping Records

Super Users and members of the MI AHM Administrator Security Group can delete existing Event Mapping records that are associated with source event families whose values you do *not* want displayed in the grid on the **Events** tab on the **Asset Health Manager** page. When you delete an Event Mapping record, the associated event severities and event severity mappings are also deleted because event severities and event severity mappings cannot exist without an associated Event Mapping record.

Event Mapping records can be deleted using the **Event Mappings** page or the **Event Mappings** window. The Meridium APM Asset Health Manager Best Practice and these instructions assume that you will delete Event Mapping records via the **Event Mappings** window.

To delete an Event Mapping record:

1. Access the **Event Mappings** window.
2. In the Source Event Family pane, select the source event family whose associated Event Mapping record you want to delete. For example, in the following image, *Bundle Inspection* is selected in the Source Event Family pane.



3. At the top of the Source Event Family pane, click the **Remove** button.

A confirmation message appears, asking if you are sure you want to delete the Event Mapping record.

4. Click **OK**.

The Event Mapping record is deleted, and the corresponding value is removed from the Source Event Family pane.

Event Mappings

Add Remove Cancel Save

*Mapped Family
API 510 External Checklist

Event Field	Mapped Field
*Event Relationship	Has Inspections
*Start Time Field	Completion Date
End Time Field	(select)
Name Field	Inspection Reference
Description Field	Scope
Has Duration Field	(select)
Severity Field	(select)

*Default Severity
Information

*Event Severity	*Mapped Severity Code
(Add Mapping)	

Additionally, the associated event severities and event severity mappings are deleted, and the corresponding check box in the Filter section on the Events tab is removed.

Baseline Event Mapping Records

Calibration Subfamilies

The table in this topic lists the fields in Calibration subfamilies that are mapped to fields in their associated Event Mapping record and the:

- Column in the grid on the Events tab that corresponds with each field.
- List in the Mappings pane on the Event Mappings window that corresponds with each field.

Note: The following table lists Calibration subfamily field captions, some of which may differ from the datasheet captions for these fields.

Mapped Calibration subfamily field	Column in grid on the Event tab	List in the Mappings pane on the Event Mappings window
This field does not have a mapped Calibration field. This field displays the caption of the relationship family that links the Calibration subfamily to the Equipment or Functional Location family (i.e., Has Calibration).	N/A	Event Relationship
Event End Date	End	End Time Field
This field does not have a mapped Calibration field. This field displays the family caption of the associated Calibration subfamily.	Type	Mapped Family
Event Long Description	Description	Description Field

Mapped Calibration subfamily field	Column in grid on the Event tab	List in the Mappings pane on the Event Mappings window
<p>This field does not have a mapped Calibration field. The Name column in the grid on the Events tab displays the Record ID of the Calibration record by default.</p> <p>You can modify the Event Mapping record if you want to specify a mapped field.</p>	Name	Name Field
<p>This field does not have a mapped Calibration field. The Severity column in the grid on the Events tab displays an icon that corresponds with an event severity of <i>Information</i> by default.</p> <p>You can modify the Event Mapping record if you want to specify a mapped field.</p>	Severity	Severity Field
Event Start Date	Start	Start Time Field

Inspection Families

Inspection Families

The table in this topic lists the fields in the Inspection family and the following Inspection subfamilies that are mapped to fields in their associated Event Mapping record, the corresponding column in the grid on the **Events** tab, and the corresponding list in the Mappings pane on the **Event Mappings** window:

- Bundle Inspection
- Full Inspection
- General Inspection
- Pressure Test Inspection

Note: The following table lists Inspection family and subfamily field captions, some of which may differ from the datasheet captions for these fields.

Mapped Inspection family and subfamily field	Column in grid on the Event tab	List in the Mappings pane on the Event Mappings window
This field does not have a mapped Inspection field. This field displays the caption of the relationship family that links the Inspection family to the Equipment or Functional Location family (i.e., Has Inspections).	N/A	Event Relationship
Completion Date	End	End Time Field
This field does not have a mapped Inspection field. This field displays the family caption of the associated Inspection family.	Type	Mapped Family
Scope	Description	Description Field
Inspection Reference	Name	Name Field

Mapped Inspection family and subfamily field	Column in grid on the Event tab	List in the Mappings pane on the Event Mappings window
<p>This field does not have a mapped Inspection field. The Severity column in the grid on the Event tab displays an icon that corresponds with an event severity of <i>Information</i> by default.</p> <p>You can modify the Event Mapping record if you want to specify a mapped field.</p>	Severity	Severity Field
Commencement Date	Start	Start Time Field

Checklists Subfamilies

The table in this topic lists the fields in Checklists subfamilies that are mapped to fields in their associated Event Mapping record and the:

- Column in the grid on the **Events** tab that corresponds with each field.
- List in the Mappings pane on the **Event Mappings** window that corresponds with each field.

Note: The following table lists Checklists subfamily field captions, some of which may differ from the datasheet captions for these fields.

Mapped Checklists subfamily field	Column in the grid on the Event tab	List in the Mappings pane on the Event Mappings window
<p>This field does not have a mapped Checklists subfamily field. This field displays the caption of the relationship family that links the Checklists subfamily to the Equipment or Functional Location family (i.e., Has Inspections).</p>	<p>N/A</p>	<p>Event Relationship</p>
<p>Scope</p>	<p>Description</p>	<p>Description</p>
<p>This field does not have a mapped Checklists subfamily field. This field displays the family caption of the associated Checklists subfamily.</p>	<p>End</p>	<p>End Time Field</p>
<p>This field does not have a mapped Checklists subfamily field. This field displays the family caption of the associated Checklists subfamily.</p>	<p>Type</p>	<p>Mapped Family</p>
<p>Inspection Reference</p>	<p>Name</p>	<p>Name Field</p>

Mapped Checklists subfamily field	Column in the grid on the Event tab	List in the Mappings pane on the Event Mappings window
<p>This field does not have a mapped Checklists subfamily field. The Severity column in the grid on the Events tab displays an icon that corresponds with an event severity of <i>Information</i> by default.</p> <p>You can modify the Event Mapping record if you want to specify a mapped field.</p>	Severity	Severity Field
Completion Date	Start	Start Time Field

Policy Event Family

The table in this topic lists the fields in the Policy Event family that are mapped to fields in their associated Event Mapping record and the:

- Column in the grid on the Events tab that corresponds with each field.
- List in the Mappings pane on the Event Mappings window that corresponds with each field.

Note: The following table lists Policy Event field captions, some of which may differ from the datasheet captions for these fields.

Mapped Policy Event field	Column in grid on the Event tab	List in the Mappings pane on the Event Mappings window
This field does not have a mapped Policy Event field. This field displays the caption of the relationship family that links the Policy Event family to the Equipment or Functional Location family (i.e., Has Event).	N/A	Event Relationship
Description	Description	Description
End Time	End	End Time Field
This field does not have a mapped Policy Event field. This field displays the Policy Event family caption.	Type	Mapped Family
Name	Name	Name Field
Severity	Severity	Severity Field
Start Time	Start	Start Time Field

Production Event Family

The table in this topic lists the fields in the Production Event family that are mapped to fields in their associated Event Mapping record and the:

- Column in the grid on the Events tab that corresponds with each field.

- List in the Mappings pane on the Event Mappings window that corresponds with each field.

Note: The following table lists Production Event field captions, some of which may differ from the datasheet captions for these fields.

Mapped Production Event field	Column in grid on the Event tab	List in the Mappings pane on the Event Mappings window
This field does not have a mapped Production Event field. This field displays the caption of the relationship family that links the Production Event family to the Equipment or Functional Location family (i.e., Has Production Event).	N/A	Event Relationship
Description	Description	Description
End Date	End	End Time Field
This field does not have a mapped Production Event field. This field displays the Production Event family caption.	Type	Mapped Family
Headline	Name	Name Field

Mapped Production Event field	Column in grid on the Event tab	List in the Mappings pane on the Event Mappings window
<p>This field does not have a mapped Production Event field. The Severity column in the grid on the Events tab displays an icon that corresponds with an event severity of <i>Information</i> by default.</p> <p>You can modify the Event Mapping record if you want to specify a mapped field.</p>	Severity	Severity Field
Start Date	Start	Start Time Field

Work History Family

The table in this topic lists the fields in the Work History family that are mapped to fields in their associated Event Mapping record and the:

- Column in the grid on the **Events** tab that corresponds with each field.
- List in the Mappings pane on the **Event Mappings** window that corresponds with each field.

Note: The following table lists Work History field captions, some of which may differ from the datasheet captions for these fields.

Mapped Work History field	Column in grid on the Event tab	List in the Mappings pane on the Event Mappings window
This field does not have a mapped Work History field. This field displays the caption of the relationship family that links the Work History family to the Equipment or Functional Location family (i.e., Has Work History).	N/A	Event Relationship
Event Short Description	Description	Description
Maintenance Completion Date	End	End Time Field
This field does not have a mapped Work History field. This field displays the Work History family caption.	Type	Mapped Family
Request Type Description	Name	Name Field
Event Type	Severity	Severity Field
Event Start Date	Start	Start Time Field

System Code Tables Used by AHM

The following table lists the System Code Tables that are used by AHM.

Table ID	Table Description	Function
MI_AHM_STATUS	Health Indicator Status	Populates the Alert Level field in Health Indicator records.
MI_AHM_TIME	AHM Search Time Range	Populates the Time Range list in the Health Indicator Filter section on the AHM Start Page.
MI_HIER_ITM_GROUP	Hierarchy Item Groups	Populates the Group Name list in Hierarchy Item Definition records.

URLs

Parameters for the AHM URLs

There are two root URLs associated with Asset Health Manager (AHM): `meridium://Registry/AssetHealthIndicators` and `meridium://AHM`. A link constructed from the path of either URL alone will open the **AHM Start Page**. The following table lists the parameters that these URLs accept.

Parameter Name	Description	Accepted Value(s)	Notes
EntityKey	Specifies the Entity Key of the record that will appear at the root level of the Health Indicator Explorer pane.	The Entity Key of the desired record.	If the record that you specify is linked to any Health Indicator records, they will appear below the root node in the tree. <i>Both</i> root URLs associated with AHM support this parameter.

Parameter Name	Description	Accepted Value(s)	Notes
EventMapping	Displays the Event Mappings page.	N/A	<i>Only</i> the root URL <code>meridium://AHM</code> accepts this parameter.

Examples of the AHM URLs

- `meridium://AHM?EntityKey=1234567`

Displays the **Asset Health Manager** page, where the record with the Entity Key 1234567 is displayed at the root level of the **Health Indicator Explorer** pane. If the record that is represented by the root node in the tree is linked to Health Indicator records, those records will also appear in the tree.

- `meridium://Registry/AssetHealthIndicators`

Displays the **Dashboard - AHM Start Page**, which operates as the start page for AHM. From this location, you can search for an Equipment or Functional Location record in order to evaluate the health of a particular piece of equipment or view data associated with Health Indicator records currently in states of *Warning* and *Alert*.

- `meridium://AHM/EventMapping`

Displays the **Event Mappings** page, which you can use to work with Event Mapping records.

Note: The Meridium APM Asset Health Manager Best Practice assumes that you will use the **Event Mappings** window, as opposed to the **Event Mappings** page, to work with Event Mapping records.

Glossary

Event Mapping

A combination of the following items that determine the data that is displayed on the Events tab on the **Asset Health Manager** page:

- An Event Mapping record.
- At least one event severity.
- Multiple event severity mappings (optional).

Event Severity

The gravity or seriousness associated with an event (e.g., an inspection, a repair) that has taken place for a piece of equipment or location. For each Event Mapping, a default event severity must be specified.

Primary Source Record

A record that is linked as a predecessor to other records whose values are used to determine Health Indicator record statuses. In the baseline database, the following records are considered to be primary source records:

- Measurement Location records
- Xi Tag records
- KPI records
- Health Indicator records created via the Policy Manager module

Primary source records are linked to directly to Health Indicator records through the Health Indicator Has Source relationship family.

Secondary Source Record

A record whose values are used to determine Health Indicator record statuses. In the baseline database, the following records are considered to be secondary source records:

- Reading records
- Xi Reading records

- KPI Measurement records
- Health Indicator Value records

Each secondary source record is linked as a successor to a primary source record.

Source Event Record

A record representing an event that has taken place for a piece of equipment or location (e.g., an inspection, a repair) that is linked to the Equipment or Functional Location record that represents the piece of equipment or location. Data in source event records is displayed on the **Events** tab on the **Asset Health Manager** page when Event Mappings have been defined for the source event family. In the baseline Meridium APM database, the following families are considered to be source event families:

- Bundle Inspection
- Full Inspection
- General Inspection
- Inspection
- Policy Event
- Pressure Test Inspection
- Production Event
- Calibration subfamilies
- Checklists subfamilies
- Work History