

StruxureWare™ Power Monitoring Expert 8.0

Hierarchy Configuration Guide

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Safety information

Important information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please note

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Safety precautions

During installation or use of this software, pay attention to all safety messages that occur in the software and that are included in the documentation. The following safety messages apply to this software in its entirety.

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use the software for critical control or protection applications where human or equipment safety relies on the operation of the control action.
- Do not use the software to control time-critical functions because communication delays can occur between the time a control is initiated and when that action is applied.
- Do not use the software to control remote equipment without securing it with an authorized access level, and without including a status object to provide feedback about the status of the control operation.

Failure to follow these instructions can result in death or serious injury.

WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure the software, as this can lead to incorrect reports and/or data results.
- Do not base your maintenance or service actions solely on messages and information displayed by the software.
- Do not rely solely on software messages and reports to determine if the system is functioning correctly or meeting all applicable standards and requirements.
- Consider the implications of unanticipated transmission delays or failures of communications links.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

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Introduction

The Hierarchy Configuration utility is intended for Application Engineers or advanced users working with hierarchies in StruxureWare™ Power Monitoring Expert.

The utility is a command-line executable that allows you to save, restore, or add hierarchy content.

The primary purpose of the utility is to give you a way to add a large number of entries to a hierarchy rather than creating individual entries in Hierarchy Manager. This task consists of:

- Saving a skeleton hierarchy configuration in a CSV file.
- Editing the CSV file to associate the devices listed in the file to the nodes of the hierarchy.
- Populating Hierarchy Manager with the updated contents of the hierarchy configuration CSV file.

The utility also provides options for:

- Saving or replacing a hierarchy configuration currently defined in Hierarchy Manager.
- Installing or saving a hierarchy template.
- Refreshing a configuration cache to ensure that all devices are included when you save a hierarchy configuration.
- Deleting a hierarchy configuration prior to restoring a saved configuration.

Throughout this document, references to "configuration" and "template" should be interpreted as follows:

- configuration – the entries representing the node types, devices, and virtual meters that comprise the content of a hierarchy.
- template – defines the node names, attributes, relationships, and views in Hierarchy Manager.

Hierarchy Configuration utility command and options

Run the Hierarchy Configuration utility command, `HierarchyConfig.exe`, from a Command Prompt.

To open a Command Prompt window:

1. Use Windows Explorer to navigate to:

... \Program Files (x86) \Schneider Electric \Power Monitoring Expert \Applications on a 64-bit system,

or, ... \Program Files \Schneider Electric \Power Monitoring Expert \Applications on a 32-bit system.

2. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.

The command syntax is:

```
HierarchyConfig.exe option <file path>\<file name>, where:
```

- *option*: see "Command options" below.
- `<file path>`: the location of the file that the command runs on.
- `<file name>`: the name of the CSV or XML file, including the `.csv` or `.xml` file extension, respectively.

Command options

Use the command as follows (type the command and press **Enter**):

Running the command without options

- To see a brief description of available command options:

```
HierarchyConfig.exe
```

Running the command using the `config` option

- To create a skeleton configuration CSV file that you can use to define a hierarchy configuration:

```
HierarchyConfig.exe export config <file path>\<file name>.csv
```

Note that this process creates a header row in the CSV file with percentage, node type names, and virtual meter column headings. It also includes a list of the devices in the system that are **not** included in a hierarchy. This allows you to specify which devices you want to include in the hierarchy when you import the configuration.

Optional: Including all devices

Add the `alldevices` option at the end of the `export config` command to create a CSV file that lists all of the devices, whether or not they are included in a hierarchy. This option ensures that apportioned devices or devices that constitute a virtual meter are included in the file.

To include all devices, type the following:

```
HierarchyConfig.exe export config <file path>\<file name>  
alldevices
```

Note that the CSV file created with the `alldevices` option is intended for reference purposes only and not for updating an existing hierarchy.

- To add the contents of the updated skeleton configuration CSV file to Hierarchy Manager:

```
HierarchyConfig.exe import config <file path>\<file name>.csv
```

NOTICE

LOSS OF DATA

- Do not use the hierarchy configuration CSV file to incrementally update a hierarchy in Hierarchy Manager.
- Use the Hierarchy Manager application to incrementally update an existing hierarchy.

Failure to follow these instructions can result in the corruption of hierarchy data.

Optional: Adding a timestamp to configuration entries

You can also add a timestamp to the configuration entries. Adding year, month, and day information adds a start date to the imported references corresponding to the date entered. If no date information is provided, the start date of the hierarchy information is the system start date.

To add a timestamp, type `HierarchyConfig.exe import config <file path>\<file name> [yyyy/mm/dd]` where [yyyy/mm/dd] is the year, month and day that the imported hierarchy references use as a start date.

- To back up a complete representation of the hierarchy and all virtual meters in an XML file:

```
HierarchyConfig.exe export config <file path>\<file name>.xml
```

This creates a backup of the hierarchy before you modify the hierarchy entries in Hierarchy Manager.

- To restore a hierarchy configuration from a backup configuration XML file:

```
HierarchyConfig.exe import config <file path>\<file name>.xml
```

NOTICE

LOSS OF DATA

- Do not use the hierarchy configuration XML file to incrementally update a hierarchy in Hierarchy Manager.
- Use the Hierarchy Manager application to incrementally update an existing hierarchy.

Failure to follow these instructions can result in the corruption of hierarchy data.

This process deletes the current hierarchy configuration defined in Hierarchy Manager and replaces it with the hierarchy configuration in the XML file.

- To refresh a configuration cache to ensure that all devices are included in the saved configuration:

```
HierarchyConfig.exe refresh config
```

- To delete a hierarchy configuration:

```
HierarchyConfig.exe delete config
```

Only use this process if you have previously saved your configuration.

Running the command using the `template` option

- To save the hierarchy template used in Hierarchy Manager:

```
HierarchyConfig.exe export template <file path>\<file name>.xml
```

The template defines the node names, attributes, and relationships used in Hierarchy Manager.

- To replace an existing hierarchy template used in Hierarchy Manager with a different one:

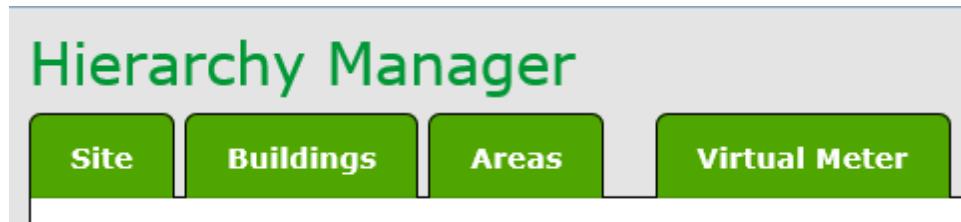
```
HierarchyConfig.exe import template <file path>\<file name>.xml
```

Populating a hierarchy

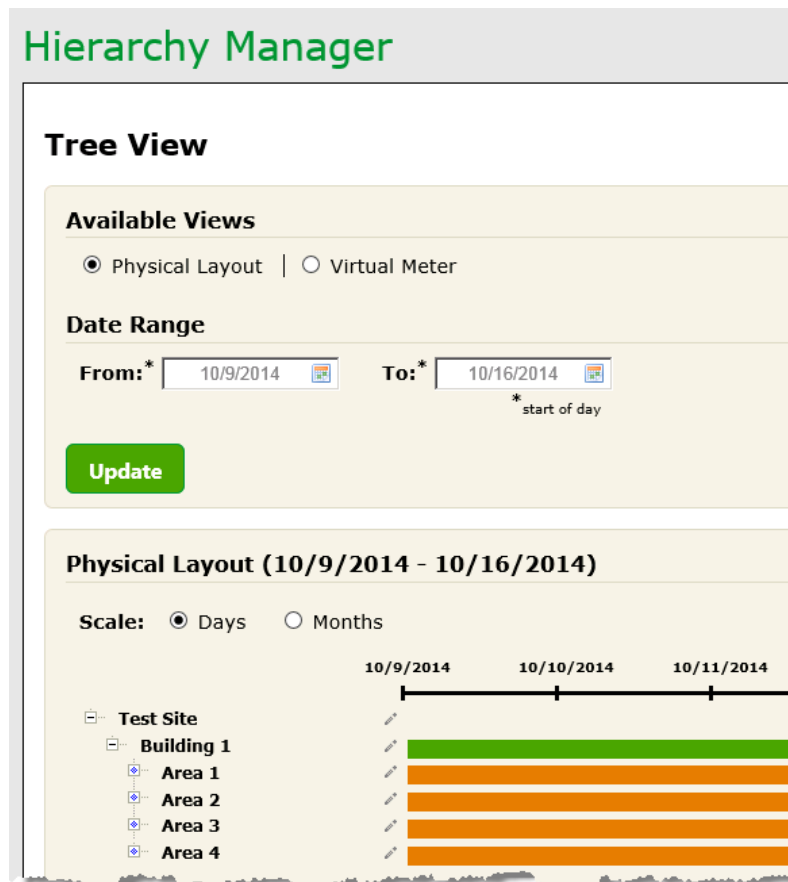
After installing and commissioning Power Monitoring Expert, you can populate Hierarchy Manager by associating devices to nodes in a skeleton configuration CSV file and importing the entries into Hierarchy Manager. Following a successful import, you can use Hierarchy Manager to modify your hierarchy information. You can then use hierarchies in other Power Monitoring Expert applications, such as in view-enabled reports in the Web-based Reports application, and in the Dashboards application.

For illustration purposes, the default hierarchy template in Hierarchy Manager is used as a reference for this task.

The default hierarchy template defines nodes types, which include the labels (display names) for the tabs in Hierarchy Manager.



The **Tree View** page for this hierarchy includes a physical layout view similar to the following image. Note that you need to associate at least one device to an area to enable the site, building, and area tree on the **Tree View** page.



The skeleton configuration CSV file created from the default hierarchy template used in Hierarchy Manager includes a header row with column headings of **Devices_Full Name**, **_Percentage**, **Site_Name**, **Buildings_Name**, **Areas_Name**, and **Virtual Meter_Name**. It also includes a list of the devices in the system that are **not** included in a hierarchy so that you can associate the devices to the hierarchy nodes.

	A	B	C	D	E	F	G
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name	
2	Test_Site.Test_8600_A						
3	Test_Site.Test_8600_B						
4	Test_Site.Test_8600_C						
5	Test_Site.Test_8600_D						
6	Test_Site.Test_8600_E						
7	Test_Site.Test_8600_F						
8	Test_Site.Test_8600_G						
9	Test_Site.Test_8600_H						
10	Test_Site.Test_8600_I						
11							

A	Header	B	Device List
----------	--------	----------	-------------

Different hierarchy templates can be used in Hierarchy Manager. Each hierarchy template determines the information that is included in the configuration CSV file. For example, the `Site Building Area Tenant.xml` hierarchy template file results in column headings of **Devices_Full Name**, **_Percentage**, **Site_Name**, **Buildings_Name**, **Areas_Name**, **Tenants_Name**, **Tenants_Contact**, **Tenants_email**, **Tenants_Phone**, and **Virtual Meter_Name** in the configuration CSV file.

(Sample and generic hierarchy templates are located in:

...\\Applications\HierarchyManager\SampleTemplates folder in the Schneider Electric install location.)

The procedure for updating a skeleton configuration CSV file follows a consistent pattern regardless of the template used in Hierarchy Manager.

The process for adding a large number of entries to a hierarchy consists of:

- Saving a skeleton hierarchy configuration in a CSV file.
- Editing the CSV file.
- Updating Hierarchy Manager with the new entries and verifying the outcome.

NOTICE

LOSS OF DATA

- Do not use the hierarchy configuration CSV file to incrementally update a hierarchy in Hierarchy Manager.
- Use the Hierarchy Manager application to incrementally update an existing hierarchy.

Failure to follow these instructions can result in the corruption of hierarchy data.

Editing and saving a localized version of a CSV file

If you edit and save a skeleton configuration CSV file that is created from a localized version of Hierarchy Manager with Excel, the UTF-8 encoding in the file is not preserved. This results in an unsuccessful update in Hierarchy Manager when you import the CSV file contents.

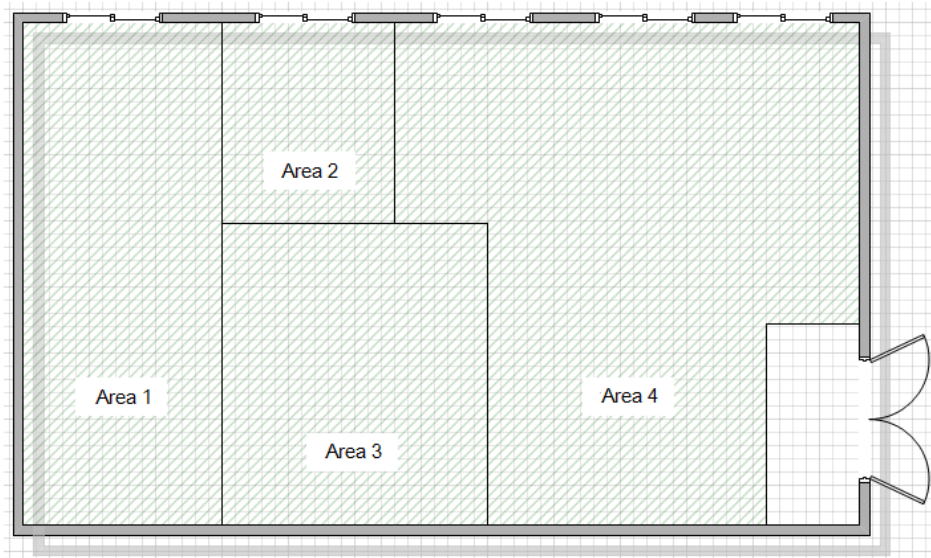
To resolve this situation, it is recommended that you use the Google Sheets spreadsheet application. Editing and saving a skeleton configuration CSV file with Google Sheets preserves the UTF-8 encoding, which results in a successful import of the CSV file contents to Hierarchy Manager.

Before you begin

Before you export the skeleton configuration CSV file from Hierarchy Manager, make sure that you complete the following tasks:

- Plan how the hierarchy is going to be configured, such as: naming conventions, which devices are going to be mapped to which Node, and how the different elements are grouped together. This can save time when you enter content in the configuration CSV file and it is very important when dealing with a large number of devices.

For illustration purposes in this task, devices are going to be mapped to a physical layout consisting of 4 areas within a building.



- Install Microsoft Excel, or another spreadsheet application that you can use to open and edit CSV files on your system. (See ["Editing and saving a localized version of a CSV file" on page 13](#) for information about editing and saving a skeleton configuration CSV file from a localized version of Hierarchy Manager.)
- Add devices, logical devices, and/or managed circuits to Power Monitoring Expert using Management Console. You can add additional devices at a later time, but you need to have an initial number of devices before you export the skeleton configuration CSV file. (See "Management Console" in the *StruxureWare Power Monitoring Expert 7.2 User Guide* for additional information regarding adding devices to Power Monitoring Expert.)

Saving a hierarchy configuration in a CSV file

This process creates a skeleton hierarchy configuration CSV file with a header row that includes percentage, node type names, and virtual meter column headings. It also includes a list of the devices in the system that are **not** included in a hierarchy. This allows you to specify which of those devices you want to include in the hierarchy when you import the contents of the hierarchy configuration CSV file.

If devices have recently been added to Management Console, use the refresh command to update the configuration cache before proceeding. (See ["Refreshing the hierarchy cache" on page 26](#) for more information.)

1. Open a Command Prompt window:
 - a. Use Windows Explorer to navigate to:
 - ... \Program Files (x86)\Schneider Electric\Power Monitoring Expert\Applications on a 64-bit system,
 - or, ... \Program Files\Schneider Electric\Power Monitoring Expert\Applications on a 32-bit system.
 - b. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.
2. Type `HierarchyConfig.exe export config <file path>\<file name>` and press **Enter**.

Where `<file path>` is the location for the exported CSV file, and `<file name>` is the name of the file, including the `.csv` file extension. If you do not specify a file path, the current directory is used.

NOTE: If you include spaces in the CSV file name and/or file path, you must enclose the file path and file name in quotation marks. For example, `HierarchyConfig.exe export config "C:\test file.csv"`.

The items in the skeleton hierarchy configuration CSV file includes a list of devices **not** included in a hierarchy, the heading **_Percentage**, headings for the node types, and the heading **Virtual Meter_Name**.

	A	B	C	D	E	F	G
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name	
2	Test_Site.Test_8600_A						
3	Test_Site.Test_8600_B						
4	Test_Site.Test_8600_C						
5	Test_Site.Test_8600_D						
6	Test_Site.Test_8600_E						
7	Test_Site.Test_8600_F						
8	Test_Site.Test_8600_G						
9	Test_Site.Test_8600_H						
10	Test_Site.Test_8600_I						
11							

A	Header	B	Device List
----------	--------	----------	-------------

Adding content to the configuration CSV file

The following steps describe:

- Defining the main elements (instances of a node) of the hierarchy.
- Associating devices to areas.
- Adding a virtual meters and associating devices.

Defining the main elements of the hierarchy

Define the site, building, and area names in the file as follows:

1. Open the hierarchy configuration CSV file in Excel.
2. On an empty row below the list of devices, type the names that you want to use for the site, the building, and an area association in their respective columns.

	A	B	C	D	E	F
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name
2	Test_Site.Test_8600_A					
3	Test_Site.Test_8600_B					
4	Test_Site.Test_8600_C					
5	Test_Site.Test_8600_D					
6	Test_Site.Test_8600_E					
7	Test_Site.Test_8600_F					
8	Test_Site.Test_8600_G					
9	Test_Site.Test_8600_H					
10	Test_Site.Test_8600_I					
11						
12			Test Site	Building 1	Area 1	
13						

As indicated in the previous description of the physical layout, there are 4 building areas. You now need to define the association of the 3 remaining areas to the building and site.

3. Repeat the previous step for each of **Area 2**, **Area 3** and **Area 4**, as shown in the following image.

	A	B	C	D	E	F
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name
2	Test_Site.Test_8600_A					
3	Test_Site.Test_8600_B					
4	Test_Site.Test_8600_C					
5	Test_Site.Test_8600_D					
6	Test_Site.Test_8600_E					
7	Test_Site.Test_8600_F					
8	Test_Site.Test_8600_G					
9	Test_Site.Test_8600_H					
10	Test_Site.Test_8600_I					
11						
12			Test Site	Building 1	Area 1	
13			Test Site	Building 1	Area 2	
14			Test Site	Building 1	Area 3	
15			Test Site	Building 1	Area 4	
16						

This completes the association of the 4 areas to the building instance, **Building 1**, and the site instance, **Test Site**.

If there are additional buildings on the site, you can repeat the pattern that you entered. For example, if there is a Building 2 on the site, your entries would include the same site name, **Test Site**, but the building name is **Building 2**. Note that you should use unique names for the areas. For example, for **Building 2**, define the area names like **B2-Area 1**, **B2-Area 2**, and so on.

Associating devices to areas

Complete the following steps to associate devices to specific areas:

1. Type the area name that you defined in the previous set of steps, in the **Areas_Name** column on the row identifying the device full name.

For example, to associate device **Test_Site.Test_8600_A** to **Area 1**, type **Area 1** in the **Areas_Name** column in that row.

	A	B	C	D	E	F
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name
2	Test_Site.Test_8600_A				Area 1	
3	Test_Site.Test_8600_B					
4	Test_Site.Test_8600_C					
5	Test_Site.Test_8600_D					
6	Test_Site.Test_8600_E					
7	Test_Site.Test_8600_F					
8	Test_Site.Test_8600_G					
9	Test_Site.Test_8600_H					
10	Test_Site.Test_8600_I					
11						
12			Test Site	Building 1	Area 1	
13			Test Site	Building 1	Area 2	
14			Test Site	Building 1	Area 3	
15			Test Site	Building 1	Area 4	

2. Continue to associate any of the remaining devices to their respective areas. Note that

you can assign multiple devices to the same area. For example, the following image shows two devices assigned to **Area 3** and two to **Area 4**.

	A	B	C	D	E	F
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name
2	Test_Site.Test_8600_A				Area 1	
3	Test_Site.Test_8600_B				Area 2	
4	Test_Site.Test_8600_C					
5	Test_Site.Test_8600_D					
6	Test_Site.Test_8600_E				Area 2	
7	Test_Site.Test_8600_F				Area 3	
8	Test_Site.Test_8600_G				Area 3	
9	Test_Site.Test_8600_H				Area 4	
10	Test_Site.Test_8600_I				Area 4	
11						
12			Test Site	Building 1	Area 1	
13			Test Site	Building 1	Area 2	
14			Test Site	Building 1	Area 3	
15			Test Site	Building 1	Area 4	

Adding a virtual meter and associating devices

To define a virtual meter:

1. Type the virtual meter name in the **Virtual Meter_Name** column on the row identifying each device full name that you want to associate with the virtual meter.

	A	B	C	D	E	F
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name
2	Test_Site.Test_8600_A				Area 1	
3	Test_Site.Test_8600_B				Area 2	
4	Test_Site.Test_8600_C					VM1
5	Test_Site.Test_8600_D					VM1
6	Test_Site.Test_8600_E				Area 2	
7	Test_Site.Test_8600_F				Area 3	
8	Test_Site.Test_8600_G				Area 3	
9	Test_Site.Test_8600_H				Area 4	
10	Test_Site.Test_8600_I				Area 4	
11						
12			Test Site	Building 1	Area 1	
13			Test Site	Building 1	Area 2	
14			Test Site	Building 1	Area 3	
15			Test Site	Building 1	Area 4	

2. To apportion a percentage of a device's value to the virtual meter, type a percent value for the applicable device in the **_Percentage** column. For example, apportion 25% of **Test_Site.Test_8600_C** and 75% of **Test_Site.Test_8600_D** to virtual meter **VM1**.

	A	B	C	D	E	F
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name
2	Test_Site.Test_8600_A				Area 1	
3	Test_Site.Test_8600_B				Area 2	
4	Test_Site.Test_8600_C	25				VM1
5	Test_Site.Test_8600_D	75				VM1
6	Test_Site.Test_8600_E				Area 2	
7	Test_Site.Test_8600_F				Area 3	
8	Test_Site.Test_8600_G				Area 3	
9	Test_Site.Test_8600_H				Area 4	
10	Test_Site.Test_8600_I				Area 4	
11						
12			Test Site	Building 1	Area 1	
13			Test Site	Building 1	Area 2	
14			Test Site	Building 1	Area 3	
15			Test Site	Building 1	Area 4	

- To associate a virtual meter to a specific area, add the virtual meter name to the **Devices_Full Name** column on a row defining the area. For example, to associate **VM1** to **Area 2**, add **VM1** to line **13** (in this example) in the CSV file.

	A	B	C	D	E	F
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name
2	Test_Site.Test_8600_A				Area 1	
3	Test_Site.Test_8600_B				Area 2	
4	Test_Site.Test_8600_C	25				VM1
5	Test_Site.Test_8600_D	75				VM1
6	Test_Site.Test_8600_E				Area 2	
7	Test_Site.Test_8600_F				Area 3	
8	Test_Site.Test_8600_G				Area 3	
9	Test_Site.Test_8600_H				Area 4	
10	Test_Site.Test_8600_I				Area 4	
11						
12			Test Site	Building 1	Area 1	
13	VM1		Test Site	Building 1	Area 2	
14			Test Site	Building 1	Area 3	
15			Test Site	Building 1	Area 4	

You can also associate a virtual meter (**VM1**) to another virtual meter by including the virtual meter name in the **Devices_Full Name** column and adding the additional virtual meter name on the same row under the **Virtual Meter_Name** column.

	A	B	C	D	E	F
1	Devices_Full Name	_Percentage	Site_Name	Buildings_Name	Areas_Name	Virtual Meter_Name
2	Test_Site.Test_8600_A				Area 1	
3	Test_Site.Test_8600_B				Area 2	
4	Test_Site.Test_8600_C	25				VM1
5	Test_Site.Test_8600_D	75				VM1
6	Test_Site.Test_8600_E				Area 2	
7	Test_Site.Test_8600_F				Area 3	
8	Test_Site.Test_8600_G				Area 3	
9	Test_Site.Test_8600_H				Area 4	
10	Test_Site.Test_8600_I				Area 4	
11	VM1					VM2
12			Test Site	Building 1	Area 1	
13	VM1		Test Site	Building 1	Area 2	
14			Test Site	Building 1	Area 3	
15			Test Site	Building 1	Area 4	

When you complete your updates in the hierarchy configuration CSV file, you can now update Hierarchy Manager by importing the contents of the CSV file.

Adding your entries to Hierarchy Manager

Complete the following steps to add the contents of the hierarchy configuration CSV file to Hierarchy Manager:

1. Open a Command Prompt window:
 - a. Use Windows Explorer to navigate to:
 - ... \Program Files (x86)\Schneider Electric\Power Monitoring Expert\Applications on a 64-bit system,
 - or, ... \Program Files\Schneider Electric\Power Monitoring Expert\Applications on a 32-bit system.
 - b. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.
2. Type `HierarchyConfig.exe import config <file path>\<file name>` and press **Enter**.

Where `<file path>` is the location of the file you are importing, and `<file name>` is the name of the file, including the `.csv` file extension. If you do not specify a file path, the current directory is used.

The import process provides feedback during each stage of the import. If the import operation is unsuccessful, the utility provides information about possible reasons for the unsuccessful operation.

NOTE: If the CSV file name and/or file path contains spaces, you must enclose the file path and file name in quotation marks. For example, `HierarchyConfig.exe import config "C:\test file.csv"`.

3. After you update the hierarchy with the contents of the configuration CSV file, verify that the updates have been added as expected by opening the Hierarchy Manager application from the Tools menu in Management Console. See the Hierarchy Manager online help for information about using the application.

Hierarchy Manager - Site tab

Hierarchy Manager

Site Buildings Areas Virtual Meter

Site

Name	Building
<Filter>	<Filter>
Test Site	Building 1

Hierarchy Manager - Buildings tab

Hierarchy Manager

Site Buildings Areas Virtual Meter

Buildings

Name	Site	Areas
<Filter>	<Filter>	<Filter>
Building 1	Test Site	Area 1, Area 2, Area 3, Area 4

Hierarchy Manager - Areas tab

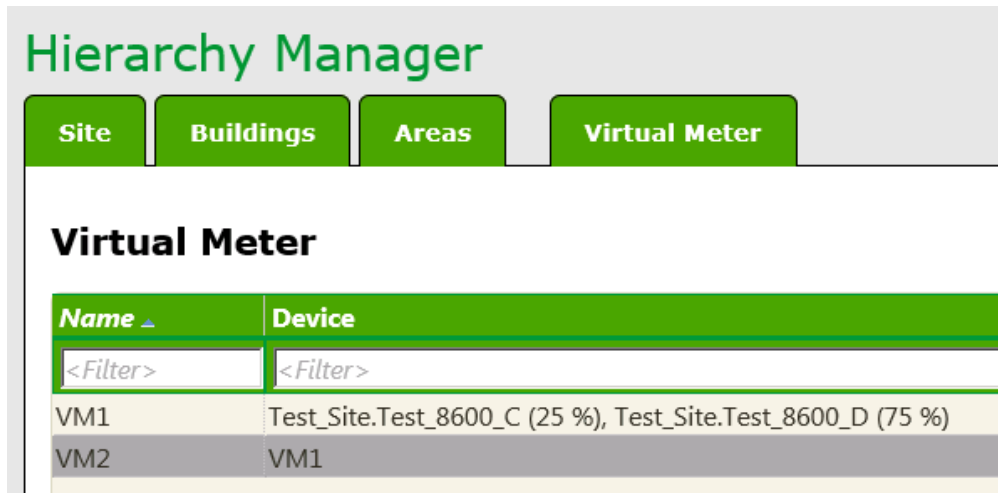
Hierarchy Manager

Site Buildings Areas Virtual Meter

Areas

Name	Building	Device
<Filter>	<Filter>	<Filter>
Area 1	Building 1	Test_Site.Test_8600_A
Area 2	Building 1	Test_Site.Test_8600_B, Test_Site.Test_8600_E, VM1
Area 3	Building 1	Test_Site.Test_8600_F, Test_Site.Test_8600_G
Area 4	Building 1	Test_Site.Test_8600_H, Test_Site.Test_8600_I

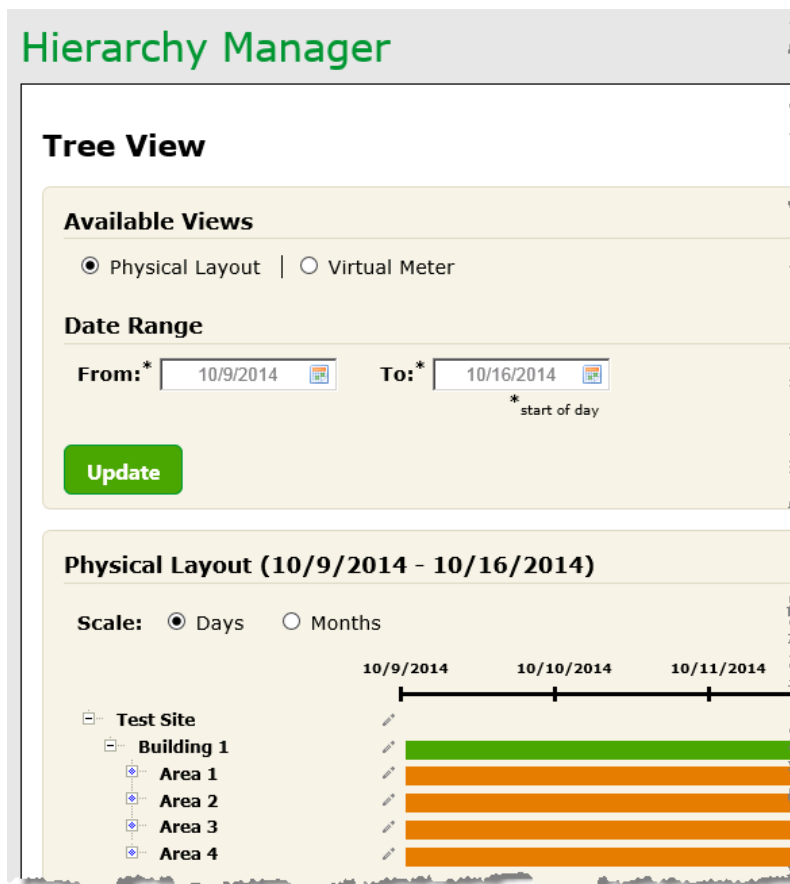
Hierarchy Manager - Virtual Meter tab



The screenshot shows the 'Hierarchy Manager' interface with the 'Virtual Meter' tab selected. Below the navigation tabs, the title 'Virtual Meter' is displayed. A table lists virtual meters with columns for 'Name' and 'Device'. The table contains two rows: VM1 and VM2.

Name	Device
<Filter>	<Filter>
VM1	Test_Site.Test_8600_C (25 %), Test_Site.Test_8600_D (75 %)
VM2	VM1

Hierarchy Manager - Tree View



The screenshot shows the 'Hierarchy Manager' interface with the 'Tree View' tab selected. It includes a section for 'Available Views' with radio buttons for 'Physical Layout' (selected) and 'Virtual Meter'. Below this is a 'Date Range' section with 'From' and 'To' date pickers set to 10/9/2014 and 10/16/2014, and an 'Update' button. The main area displays a 'Physical Layout (10/9/2014 - 10/16/2014)' with a scale set to 'Days'. A tree view on the left shows 'Test Site' expanded to 'Building 1', which contains 'Area 1', 'Area 2', 'Area 3', and 'Area 4'. A timeline on the right shows colored bars for each area: Area 1 is green, Area 2 is orange, Area 3 is orange, and Area 4 is orange.

Saving and restoring a hierarchy configuration

The Hierarchy Configuration utility allows you to save (export) the configuration as an XML file. The file contains a full representation of the current hierarchy in Hierarchy Manager, including:

- Nodes.
- Relationships between nodes, including their time dimensions.
- All apportionment nodes.

This lets you back up the hierarchy before modifying it in the Hierarchy Manager application. You can import the hierarchy configuration saved in the XML file to restore your hierarchy in Hierarchy Manager.

NOTE: Restoring (importing) a configuration XML file deletes the current hierarchy configuration and replaces it with the one represented in the file.

NOTICE

LOSS OF DATA

- Do not use the hierarchy configuration XML file to incrementally update a hierarchy in Hierarchy Manager.
- Use the Hierarchy Manager application to incrementally update an existing hierarchy.

Failure to follow these instructions can result in the corruption of hierarchy data.

Saving the entire hierarchy configuration in an XML file

To save a configuration XML file:

1. Open a Command Prompt window:
 - a. Use Windows Explorer to navigate to:
... \Program Files (x86)\Schneider Electric\Power Monitoring Expert\Applications on a 64-bit system,

or, ... \Program Files\Schneider Electric\Power Monitoring Expert\Applications on a 32-bit system.
 - b. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.
2. Run `HierarchyConfig.exe export config <file path>\<file name>`, where `<file path>` is the location where you want to save XML file, and `<file name>` is the name of the XML file, including `.xml` as the file extension. If you do not specify a file path, the current directory is used.

NOTE: If the XML file name and/or file path contains spaces, you must enclose the file path and file name in quotation marks. For example, `HierarchyConfig.exe export config "C:\test file.xml"`.

Restoring the entire hierarchy configuration from an XML file

NOTE: Restoring a configuration XML file deletes the current hierarchy configuration and replaces it with the one represented in the file.

NOTICE

LOSS OF DATA

- Do not use the hierarchy configuration XML file to incrementally update a hierarchy in Hierarchy Manager.
- Use the Hierarchy Manager application to incrementally update an existing hierarchy.

Failure to follow these instructions can result in the corruption of hierarchy data.

To restore the configuration XML file:

1. Open a Command Prompt window:
 - a. Use Windows Explorer to navigate to:

...\\Program Files (x86)\\Schneider Electric\\Power Monitoring Expert\\Applications on a 64-bit system,

or, ...\\Program Files\\Schneider Electric\\Power Monitoring Expert\\Applications on a 32-bit system.
 - b. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.
2. Type `HierarchyConfig.exe import config <file path>\\<file name>`, where `<file path>` is the location of the file you are importing, and `<file name>` is the name of the XML file, including `.xml` as the file extension, to be imported. If you do not specify a file path, the current directory is used.
3. After you import the configuration XML file content, verify that the content is what you expect by opening the Hierarchy Manager application from the Tools menu in Management Console. See the Hierarchy Manager online help for information about using the application.

Installing or saving a hierarchy template

The `import template` command option lets you install a hierarchy template as a replacement for the template used in Hierarchy Manager. The `export template` command option lets you save a copy of the hierarchy template used in Hierarchy Manager. Prior to using these commands, you should back up your existing hierarchy configuration (see "[Saving the entire hierarchy configuration in an XML file](#)" on page 22).

Installing a hierarchy template

Use the `import template` option to replace the template currently installed in your system with a different one.

NOTICE

LOSS OF DATA

The new template overwrites the existing template, which permanently removes all information contained in the original. Export the existing hierarchy template from Power Monitoring Expert before importing a new template.

Failure to follow these instructions can result in a loss of data.

When you import the hierarchy template XML file, the Hierarchy Configuration Utility performs a validation test on the file. If the file validation is not successful, the utility does not import the file and provides information indicating where the validation process stopped. Check for any discrepancies in the file, save the changes and reimport the file.

To import a hierarchy template XML file:

1. Open a Command Prompt window:
 - a. Use Windows Explorer to navigate to:

 ... \Program Files (x86)\Schneider Electric\Power Monitoring Expert\Applications on a 64-bit system,

 or, ... \Program Files\Schneider Electric\Power Monitoring Expert\Applications on a 32-bit system.
 - b. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.
2. Type `HierarchyConfig.exe import template <file path>\<file name>`, where `<file path>` is the location of the XML file, and `<file name>` is the name of the XML file, including `.xml` as the file extension, to be imported. If you do not specify a file path, the current directory of the Hierarchy Configuration Utility is used.

The utility provides feedback for each stage of the import. If the import operation is unsuccessful, the utility provides information about why the import is unsuccessful.

NOTE: If the XML file name and/or file path contains spaces, you must enclose the file path and file name in quotation marks. For example, `HierarchyConfig.exe import template "C:\test file.xml"`.

3. Confirm that the template has been successfully imported by opening the Hierarchy

Manager application from the Tools menu in Management Console.

Hierarchy Manager should now display the nodes defined in the newly imported template. (See the Hierarchy Manager online help for information about using the application.)

Saving a hierarchy template

Use the export template option to save the Hierarchy Manager template currently installed in the system as an XML file. The file defines the node names, attributes, relationships, and views for Hierarchy Manager.

To export a hierarchy template XML file:

1. Open a Command Prompt window:
 - a. Use Windows Explorer to navigate to:

... \Program Files (x86)\Schneider Electric\Power Monitoring Expert\Applications on a 64-bit system,

or, ... \Program Files\Schneider Electric\Power Monitoring Expert\Applications on a 32-bit system.
 - b. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.
2. Type `HierarchyConfig.exe export template <file path>\<file name>`, where `<file path>` is the location where you want to save the XML file, and `<file name>` is the name of the XML file, including `.xml` as the file extension. If you do not specify a file path, the current directory is used.

NOTE: If the XML file name and/or file path contains spaces, you must enclose the file path and file name in quotation marks. For example, `HierarchyConfig.exe export template "C:\test file.xml"`.

3. Navigate to the location you specified to confirm that the XML file is successfully saved.

Refreshing the hierarchy cache

Use the refresh config option to refresh the configuration cache. If you recently added new devices to Power Monitoring Expert, use this command before you export a hierarchy configuration CSV file so that an up-to-date list of devices is included in the file. If the refresh configuration is not run, there is a possibility that devices recently added to Power Monitoring Expert may not be present in the device list in the hierarchy configuration CSV file. The best practice is to run the refresh config command before exporting any CSV or XML file from Hierarchy Manager.

To refresh the configuration cache:

1. Open a Command Prompt window:
 - a. Use Windows Explorer to navigate to:
...\\Program Files (x86)\\Schneider Electric\\Power Monitoring Expert\\Applications on a 64-bit system,

or, ...\\Program Files\\Schneider Electric\\Power Monitoring Expert\\Applications on a 32-bit system.
 - b. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.
2. Run `HierarchyConfig.exe refresh config`.

The message `Configuration cache refresh complete` indicates that the refresh operation has finished.

Deleting hierarchy configuration content

Use the delete config option to remove all hierarchy configuration content from Hierarchy Manager, such as names and properties. This allows you to start with new content. Note that this delete process does not remove virtual meters. You need to use Hierarchy Manager to delete virtual meters.

NOTICE

LOSS OF DATA

Performing this operation permanently removes configuration content from the system. Ensure that this operation is necessary before proceeding. This procedure cannot be undone.

Failure to follow these instructions can result in a loss of data.

To delete configuration content:

1. Open a Command Prompt window:
 - a. Use Windows Explorer to navigate to:
... \Program Files (x86)\Schneider Electric\Power Monitoring Expert\Applications on a 64-bit system,

or, ... \Program Files\Schneider Electric\Power Monitoring Expert\Applications on a 32-bit system.
 - b. Click the bin folder and press **Shift + Right-click** and select **Open command window here** on the context menu.
2. Type `HierarchyConfig.exe delete config`. Type `yes` when prompted. The utility deletes all hierarchy configuration content. To confirm the deletion, open Hierarchy Manager. There should be no hierarchy content displayed.

Hierarchy template structure

Power Monitoring Expert includes a number of standard hierarchy templates that provide a structure for modeling the different aspects of your organization. This section describes the structure of a hierarchy template XML file.

Sample and generic hierarchy templates are included with your software. You can use any of these templates if they more closely represent the hierarchy organization you want to implement. However, you need to have a thorough understanding of the structure of a template before making any changes. Always back up your files before proceeding with any changes. The additional hierarchy templates are located in:

...\\Applications\\HierarchyManager\\SampleTemplates folder in the Schneider Electric install location.)

NOTE: Any time you change a hierarchy template, you need to import it into Hierarchy Manager before those changes take effect. See ["Installing or saving a hierarchy template" on page 24](#).

Localizing a hierarchy template XML file

You can localize a hierarchy template XML file to display national language text on the tabs and views in Hierarchy Manager, and also wherever hierarchies are enabled in the Web Applications component. For example, localized hierarchy node names will display in the **Source Selector** in the Reports application.

To localize the text you need to edit the `displayName` attribute that is used throughout a hierarchy template XML file. For example, the display name attribute for `Site` in the hierarchy template file is `displayName="Site"`. Change the text within the quotation marks to the national language equivalent.

The `displayName` attribute is used in `<Type>`, `<Attribute>`, `<Reference>`, and `<View>` xml elements in a hierarchy template file. (See ["The XML elements in the template file" on page 29](#) for descriptions of these elements.) In some cases the same text is used on `displayName` attributes more than once in the hierarchy template file. Be sure to change every occurrence in the file.

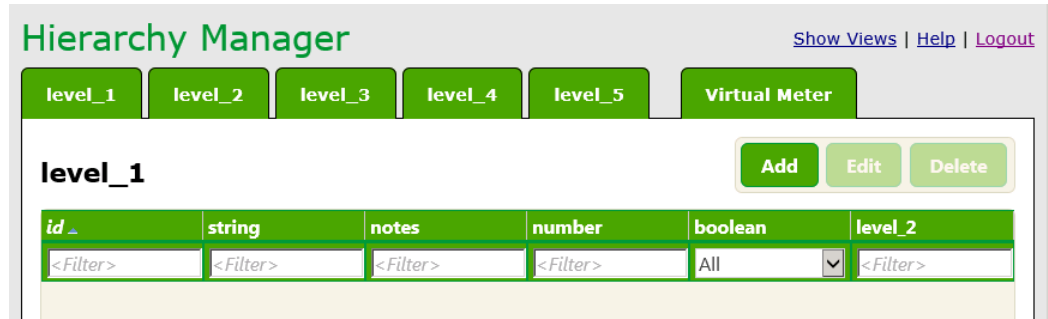
When you complete the edits, follow the process described in ["Installing a hierarchy template" on page 24](#) to update the hierarchy template used by Hierarchy Manager.

The hierarchy template

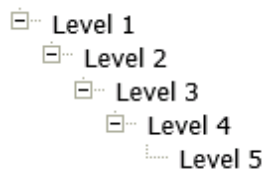
The hierarchy template XML file defines the Node types, attributes, and relationships used in Hierarchy Manager. Each element of the template is defined using information contained within the various XML tags. For example, assume that `Generic 5 Level Template.xml` is imported into Hierarchy Manager. (See the ["Generic 5 Level Template" on page 36](#).)

The initial page in Hierarchy Manager shows the node types and attributes defined in the hierarchy template file. The bottom three node types are configured for devices to be connected to them.

(See ["Additional notes" on page 34](#) for considerations related to associating devices to more than one node level in a hierarchy.)



The hierarchy view defined in the template is represented on the Hierarchy Manager **Tree View** page as a physical layout:



The following table summarizes the major elements in a hierarchy template XML file.

Tag	Description	Example
<Template>	Contains template namespace information	<Template version="1.0" xmlns="uri:application-modules/power/model/template#">
<Types>	Container tag for Type and Attribute elements	<Types> </Types>
<Type>	Defines elements that define characteristics used by the node. Each type represents a tab in Hierarchy Manager.	<Type displayName="level_1".../>
<Attribute>	Defines the characteristics used in each type.	<Attribute displayName="id" dataType="String" uri="uri::application-modules/power/model/attribute#name" />
<Reference>	Used to create relationships between nodes. For a relationship to exist between nodes, each Type element must contain reference information for every other element it is associated with.	<Reference displayName="level_2" isReverse="true" target="uri:application-modules/power/model/type#level_2" uri="uri:application-modules/power/model/relation#1_2" />
<Views>	Contains elements that define how the Node types are presented in different hierarchical views.	<Views> </Views>
<View>	Specifies the node type the view starts at. Contains Relation elements.	<View displayName="Generic Layout" rootNodeTypeUri="uri:application-modules/power/model/type#level_1">
<Relation>	Contained in a View element. Defines the order that the node types are displayed in.	<Relation follow="uri:application-modules/power/model/relation#1_2" reverse="true" />

The XML elements in the template file

This section describes each element in the template XML file.

<Template>

The <Template> element is the container for all of the XML tags.

```
<Template version="1.0" xmlns="uri:application-modules/power/model/template#">
```

<Types>

This is a containment tag for all <Type> elements. Make sure any <Type> elements are inside this containment tag.

```
<Types>
  <Type...>
  ...
  </Type>
  ...
</Types>
```

<Type>

The <Type> tag contains all the information required to define the Node. Each defined type adds a tab in Hierarchy Manager. The tab name is defined by `displayName`. The <Type> tag also contains one or more <Attribute> and <Reference> tags.

```
<Types>
  <Type displayName="level_1" uri="uri:application-modules/power/model/type#level_1">
    <Attribute... />
    <Attribute... />
    ...
    <Reference... />
    ...
  </Type>
  <Type>
    ...
  </Type>
</Types>
```

To change the tab name in Hierarchy Manager from `level_1` to `new_name`, modify `displayName` in the template file from:

```
<Type displayName="level_1" uri="uri:application-modules/power/model/type#level_1">
```

to:

```
<Type displayName="new_name" uri="uri:application-modules/power/model/type#new_name">
```

<Attribute>

The <Attribute> tag defines the characteristics of the <Type>. It uses `dataType` to determine the format of the edit dialog that opens in Hierarchy Manager.

You need to define at least one <Attribute> element with `attribute#name` in the uri:

```
uri:application-modules.com/power/model/attribute#name.
```

The datatypes on the `<Attribute>` element can be such things as name, floor number, or breaker ratings, depending on the template layout.

- `dataType="String"` - For short blocks of text (for example, name).
- `dataType="LongText"` - For long blocks of text (for example, notes, contact information).
- `dataType="Number"` - For numeric fields (for example, breaker rating in Amps).
- `dataType="Boolean"` - For checkboxes (for example Rack Circuit).

```
<Types>
  <Type displayName="level_1" uri="uri:application-modules/power/model/type#level_1">
    <Attribute displayName="id" dataType="String" uri="uri:application-modules/power/
      model/attribute#name" />
    <Attribute... />
    ...
    <Reference... />
    ...
  </Type>
  <Type>
    ...
  </Type>
</Types>
```

To add an attribute to a node, determine the characteristic you need to capture with that attribute, determine the appropriate `dataType`, and create the attribute. To define **Name** as one of the characteristics for a type, the `Attribute` tag is written as:

```
<Attribute displayName="Name" dataType="String" uri="uri:application-modules/power/model/
  attribute#name" />
```

<Reference>

The `<Reference>` tag defines the relationship between types. To establish a relationship, each `<Type>` element needs a `<Reference>` element, and each `<Reference>` element needs to refer to the `displayName` of the related `<Type>`.

The following example contains references establishing a relationship between the `<Type>` with `displayName="level_1"`, and the `<Type>` with `displayName="level_2"`.

Since the types are in a parent-child relationship, the reference in the child needs to contain `isReverse="true"`.

The last portion of the `<Reference>` element includes a relation name. It is used in the `Relation` element within the `<View>` structure to define what appears on the **Tree View** page in Hierarchy Manager.

```

<Types>
  <Type displayName="level_1" uri="uri:application-modules/power/model/type#level_1">
    <Attribute displayName="id" dataType="String" uri="uri:application-modules/power
      /model/attribute#name" />
    <Attribute... />
    ...
    <Reference displayName="level_2" uri="uri:applications-modules/power/model/
      relation#1_2" target="uri:application-modules/power/model/type#level_2" />
    ...
  </Type>
  <Type displayName="level_2" uri="uri:application-modules/power/model/type#level_2">
    <Attribute displayName="id" dataType="String" uri="uri:application-modules/
      power/model/attribute#name" />
    <Attribute... />
    ...
    <Reference displayName="level_1" isReverse="true" uri="uri:applications-modules/
      power/model/relation#1_2" target="uri:application-modules/power/model/
      type#level_1" />
    ...
  </Type>
</Types>

```

A physical or logical device, or managed circuit can be associated with any type. To configure a type to connect with a device, create a `Reference` tag similar to the example below. Note that `meteredBy` is a keyword, and it must be entered exactly as shown to correctly reference a device.

```

<Reference displayName="device" uri="uri:application-modules/power/model/relation#meteredBy"
  target="uri:application-modules/power/model/type#device" />

```

<Views>

This is a containment tag for all `<View>` elements. Views are the means by which other applications such as Dashboards and Reports discover the set of devices that are aggregated together. All `<View>` elements need to be inside this containment tag.

```

<Types>
  <Type...>
    ...
  </Type>
  <Type...>
    ...
  </Type>
</Types>
<Views>
  <View... >
  </View>
</Views>

```

<View>

The <View> tag defines how a hierarchy can be viewed in Power Monitoring Expert. These different views provide different ways that a hierarchy can be displayed, or different ways the device data associated with the hierarchy types can be grouped together.

The view `displayName` (for example **Generic Layout**) is defined here. The name appears on the **Tree View** page of Hierarchy Manager. You can select the view as a data source in the Dashboards and Reports applications.

The <View> tag groups together the <Relation> elements whose order determines how the view appears.

```
<Types>
  <Type>
    ...
  </Type>
  <Type...>
    ...
  </Type>
</Types>
<Views>
  <View displayName="Generic Layout" rootNodeTypeUri="uri:application-modules/power/model/
  type#level_1 >
    <Relation... />
    <Relation... />
    ...
  </View>
</Views>
```

<Relation>

The <Relation> tag is used to establish how the different views of the hierarchy are structured. The initial relation is defined in the <Reference> element within a <Type>. Specify the node type to start at (the initial <Relation> entry), then add <Relation> entries to complete the tree.

If a <View> element contains a <Relation> with `reverse="true"`, then the view presented follows the relationship in the reverse order.

```

<Types>
  <Type displayName="level_1" uri="uri:application-modules/power/model/type#level_1">
    <Attribute displayName="id" dataType="String" uri="uri:application-modules/power/
      model/attribute#name" />
    ...
    <Reference displayName="level_2" uri="uri:applications-modules/power/model/
      relation#1_2" target="uri:application-modules/power/model/type#level_2" />
  </Type>
  <Type displayName="level_2" uri="uri:application-modules/power/model/type#level_2">
    <Attribute displayName="id" dataType="String" uri="uri:application-modules/
      power/model/attribute#name" />
    <Attribute... />
    ...
    <Reference displayName="level_1" isReverse="true" uri="uri:applications-modules/
      power/model/relation#1_2" target="uri:application-modules/power/model/
      type#level_1" />
  </Type>
  <Type...>
    ...
  </Type>
</Types>
<Views>
  <View displayName="Generic Layout" rootNodeTypeUri="uri:application-modules/power/model/
    type#level_1" >
    <Relation follow="uri:application-modules/power/model/relation#1_2" />
    <Relation follow="uri:application-modules/power/model/relation#2_3" />
    <Relation follow="uri:application-modules/power/model/relation#3_4" />
    <Relation follow="uri:application-modules/power/model/relation#4_5" />
    ...
  </View>
</Views>

```

Additional notes

Considerations when selecting a hierarchy view in a Web-based report

If devices are associated with more than one node in a parent-child relationship in a hierarchy tree, only those devices first encountered in the tree are included in generated reports. All devices lower in the hierarchy tree are ignored in generated reports.

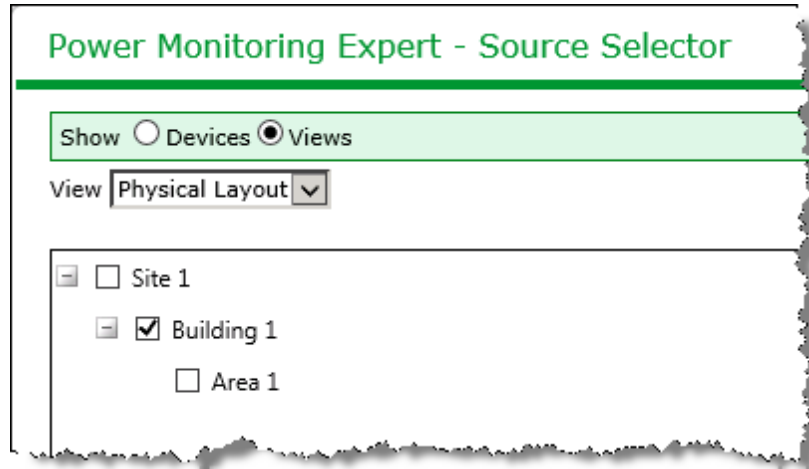
For example, if a hierarchy tree is structured as:

Site 1

Building 1 (including associated devices)

Area 1 (including associated devices)

and you select **Building 1** on the **Views** page of the **Source Selector** in a report,



the generated report includes data for the devices associated with **Building 1**, but not for devices in the lower node in the tree – **Area 1**.

Similarly, if you select **Site 1**, which does not include a device association in the hierarchy, the generated report includes data for the devices associated with the **Building 1** level only – the level in the hierarchy where devices are first encountered.

Using comment tags

If you do not require all the levels provided in the example hierarchy template XML file, you can comment out the types you do not need, from the bottom type up. Commenting out the type, rather than just deleting the type preserves the structure of the template file and allows you to reinstate the type with a minimum of effort. Enclose the `<Type>` element within the start comment tag `<!--` and the end comment tag `-->` to comment it out. For example:

```
<!-- <Type... >
...
</Type> -->
```

Remove the comment tags to restore the type.

If you want to remove one or more view elements defined in a template, add comment tags around the applicable `<View>` tags. Remove the comment tags to restore the View elements.

When you import the hierarchy template XML file, the Hierarchy Configuration utility performs a validation test on the file. If the file validation is not successful, the utility does not import the file and provides information indicating where the validation process stopped. Check for any discrepancies in the file, save the changes and reimport the file.

Generic 5 Level Template

```

<Template version="1.0" xmlns="uri:application-modules/power/model/template#">

<!-- This is a template for a simple 5 level hierarchy. All the relations and nodes have been pre-configured. To
customize for your purposes, search and replace "level_1" with the name of your top-level type (e.g. Site),
...
"level_5" with the name of your lowest-level type (e.g. Room)
With this template you can attach "devices" to the lower 3 levels.
-->

<Types>

<Type displayName="level_1" uri="uri:application-modules/power/model/type#level_1">
<!-- every Type must have attribute#name - change displayName as needed -->
<Attribute displayName="id" dataType="String" uri="uri:application-modules/power/model/attribute#name" />
<!-- use these elements to add attributes to nodes -->
<Attribute displayName="string" dataType="String" uri="uri:application-modules/power/model/attribute#str" />
<Attribute displayName="notes" dataType="LongText" uri="uri:application-
modules/power/model/attribute#note" />
<Attribute displayName="number" dataType="Number" uri="uri:application-
modules/power/model/attribute#num" />
<Attribute displayName="boolean" dataType="Boolean" uri="uri:application-
modules/power/model/attribute#bool" />

<!-- this is how to create one half of the relationship between two nodes, you need a similar reference on the other
end of the relationship -->

<Reference displayName="level_2" uri="uri:application-modules/power/model/relation#1_2"
target="uri:application-modules/power/model/type#level_2" />
</Type>

<Type displayName="level_2" uri="uri:application-modules/power/model/type#level_2">
<Attribute displayName="id" dataType="String" uri="uri:application-modules/power/model/attribute#name" />
<!-- this is the other end of the relationship marked above - isReverse is opposite, relation#... must be equal -->
<Reference displayName="level_1" isReverse="true" uri="uri:application-modules/power/model/relation#1_2"
target="uri:application-modules/power/model/type#level_1" />
<Reference displayName="level_3" uri="uri:application-modules/power/model/relation#2_3"
target="uri:application-modules/power/model/type#level_3" />
</Type>

<Type displayName="level_3" uri="uri:application-modules/power/model/type#level_3">
<Attribute displayName="id" dataType="String" uri="uri:application-modules/power/model/attribute#name" />
<Reference displayName="level_2" isReverse="true" uri="uri:application-modules/power/model/relation#2_3"
target="uri:application-modules/power/model/type#level_2" />
<Reference displayName="level_4" uri="uri:application-modules/power/model/relation#3_4"
target="uri:application-modules/power/model/type#level_4" />
<Reference displayName="device" uri="uri:application-modules/power/model/relation#meteredBy"
target="uri:application-modules/power/model/type#device" />
</Type>

<Type displayName="level_4" uri="uri:application-modules/power/model/type#level_4">
<Attribute displayName="id" dataType="String" uri="uri:application-modules/power/model/attribute#name" />
<Reference displayName="level_3" isReverse="true" uri="uri:application-modules/power/model/relation#3_4"
target="uri:application-modules/power/model/type#level_3" />
<Reference displayName="level_5" uri="uri:application-modules/power/model/relation#4_5"
target="uri:application-modules/power/model/type#level_5" />
<Reference displayName="device" uri="uri:application-modules/power/model/relation#meteredBy"
target="uri:application-modules/power/model/type#device" />

</Type>

```

```
<Type displayName="level_5" uri="uri:application-modules/power/model/type#level_5">
<Attribute displayName="id" dataType="String" uri="uri:application-modules/power/model/attribute#name" />
<Reference displayName="level_4" isReverse="true" uri="uri:application-modules/power/model/relation#4_5"
target="uri:application-modules/power/model/type#level_4" />
<!-- this is how to connect up a logical/physical device to provide metered data to a node this can appear
anywhere in the hierarchy e.g. main meter for building, metering points for specific loads, managed circuits for
multi-circuit monitors -->
<Reference displayName="device" uri="uri:application-modules/power/model/relation#meteredBy"
target="uri:application-modules/power/model/type#device" />
</Type>

</Types>

<Views>

<!-- View displayName shows up in the drop-down of Reports/Gadgets -->
<!-- specify the node type to start at, then add the relations to follow -->
<View displayName="Generic Layout" rootNodeTypeUri="uri:application-modules/power/model/type#level_1">
<Relation follow="uri:application-modules/power/model/relation#1_2" />
<Relation follow="uri:application-modules/power/model/relation#2_3" />
<Relation follow="uri:application-modules/power/model/relation#3_4" />
<Relation follow="uri:application-modules/power/model/relation#4_5" />
</View>

<!-- do not need to add the "meteredBy" relation in the View if a "meteredBy" relation has a mapped device no
matter what level of the hierarchy then the aggregation will return the value from the mapped device -->
</Views>
</Template>
```


StruxureWare™ Power Monitoring Expert 8.0
Hierarchy Configuration Guide

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