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## Cisco EnergyWise Management

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### Getting Started Guide

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Version 4.3



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## Introduction to Cisco EnergyWise Management

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Cisco EnergyWise Management helps optimize and reduce energy consumption across the enterprise. Whether you want to improve energy efficiency in the data center, manage energy usage across facilities and distributed office environments, or automate corporate sustainability reporting, Cisco EnergyWise Management can help. The product suite reduces energy costs by monitoring, analyzing, and controlling energy usage for all of your network-connected devices and systems—no client-side agents or hardware meters required. Unlike other technologies, Cisco EnergyWise Management is a single solution that provides a global view of energy consumption for devices such as:

- PCs, Macs, and thin clients
- Physical and Virtual Servers
- VoIP phones
- Printers and copiers
- Network switches and routers
- Power-over-Ethernet switches
- Heating, ventilating and air conditioning and lighting systems
- Storage devices
- And much more

The Cisco EnergyWise Management is a network-based software solution that enables a complete lifecycle of enterprise energy management. First, Cisco EnergyWise Management leverages a unique method to automatically discover and remotely measure all devices and systems on the corporate network.

After discovery, Cisco EnergyWise Management continually measures, tracks and reports energy usage, enabling you to baseline, monitor and analyze energy consumption across the enterprise. Based on the energy consumption metrics collected, you can also use Cisco EnergyWise Management to develop policies and rules designed to optimize energy usage and reduce costs on a massive scale.

## Setup & Installation

Cisco EnergyWise Management can be installed on any physical or virtual machine running within your network that meets the minimum System Requirements. Because Cisco EnergyWise Management provides remote monitoring and control capabilities to your network connected devices, specific access credentials will be required, based on the type of devices being managed.

Cisco EnergyWise Management 4.3 allows you to choose from two different deployment structures; single or multiple server deployments. For multi-server deployments, each server has its own management and monitoring consoles but are all joined to a central reporting server.

### System Requirements (Single Server Installation)

A Windows system (at least XP SP3, but also other Windows platforms are supported, as Windows 7) with a minimum of a 2 GHz Dual Core, 2 GB of RAM and 40 GB of hard drive space. This system can be virtualized within a VMware or Hyper-V Server. Cisco EnergyWise Management comes with a built-in database to collect energy information about all of your devices. The database can become quite large even for medium size installations and we recommend installing Cisco EnergyWise Management on a dedicated machine with 4 GB to 8 GB RAM and 250 GB high performance hard disk.

	Minimum	Recommended 5000 Devices	10,000+ Devices <sup>1)</sup>	50,000+ Devices	
Deployment	Single-Server	Single-Server	Single-Server	Multi-Server Central	Multi-Server per Controller
CPU	Dual Core, 2GHz	Dual Core, 2GHz	2 Quad CPUs	2 Quad CPUs	Quad Core, 2GHz
RAM	4 GB	8 GB	16 GB	16 GB	4 GB
Hard Disk <sup>2)</sup>	40 GB	250 GB	1 TB	1 TB	250 GB
Operating System	Windows 7 (32-Bit)	Win Server 2008 R2 (64-Bit)	Win Server 2008 R2 (64-Bit)	Win Server 2008 R2 (64-Bit)	Windows 7 or Server (64-Bit)

1) Recommended configuration for more than 30,000 devices: 12 Cores, 24GB RAM

2) Hard disk performance plays a critical role in a Cisco EnergyWise Management deployment. Cisco EnergyWise Management comes with its own database to store device data, power measurements and other data at a high rate. A local physical storage or high-performance SAN is recommended, especially when deploying on a VM.

Cisco EnergyWise Management has a browser-based management console for configuration, operation, and reporting. For the best user experience, it is recommended that you use an up-to-date browser, such as the latest version of Google Chrome (preferred), Mozilla Firefox or Internet Explorer 8 or better. Older browsers, especially IE 6 are not fully supported. Regardless of which browser is used, JavaScript will need to be enabled.

EnergyWise Controller uses Microsoft .NET 4.0 framework. If this framework is not present on the server prior to installation, it will be automatically downloaded and installed as part of the EnergyWise Controller installation. If the internet connection on the installation server is slow or unavailable, we recommend that you manually download and install the Microsoft .NET 4.0 framework prior to

beginning the EnergyWise Controller installation (Download here: <http://msdn.microsoft.com/en-us/netframework/>).

**Note:** Multiple .NET versions can be installed concurrently (e.g. .NET 4). Since EnergyWise Controller depends on the .NET 3.5 framework, .NET 3.5 will still be required.

Some Microsoft operating systems already include the .NET 3.5 framework. On Windows Server 2008 R2 the .NET framework is activated as a server feature via the Server Manager. If you have manually defined Port 80 as HTTP Port you are will not be able to activate IIS.

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### Installation

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Cisco EnergyWise Management can be installed on a physical or virtual machine running inside your network. Because Cisco EnergyWise Management monitors and controls your devices remotely, it requires certain access credentials, depending on the devices to be controlled. This section will guide you through the installation and software activation process of the Cisco EnergyWise Management.

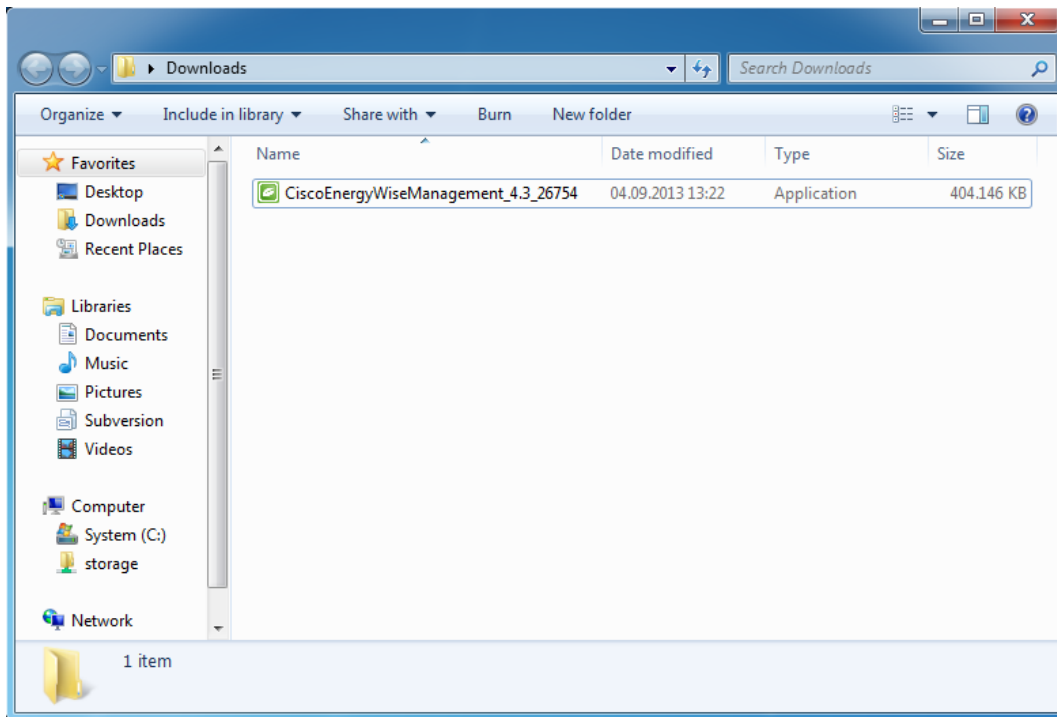
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### Download

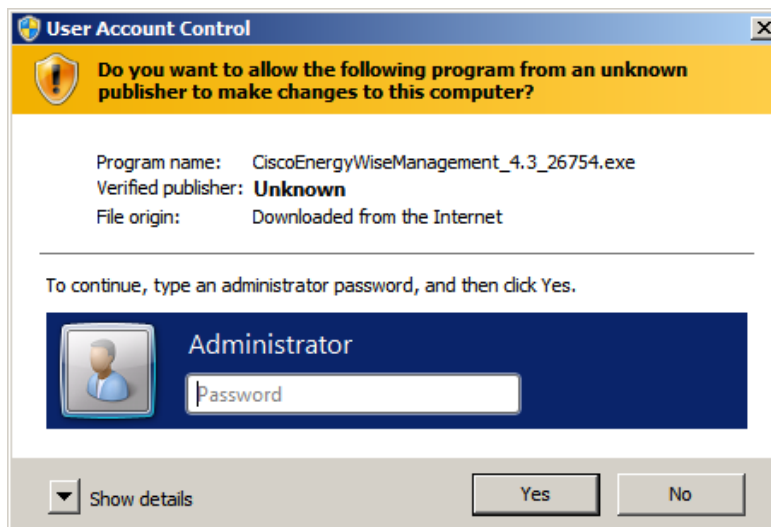
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First, you will need to download the latest Cisco EnergyWise Management 4.3 Build from Cisco.com.

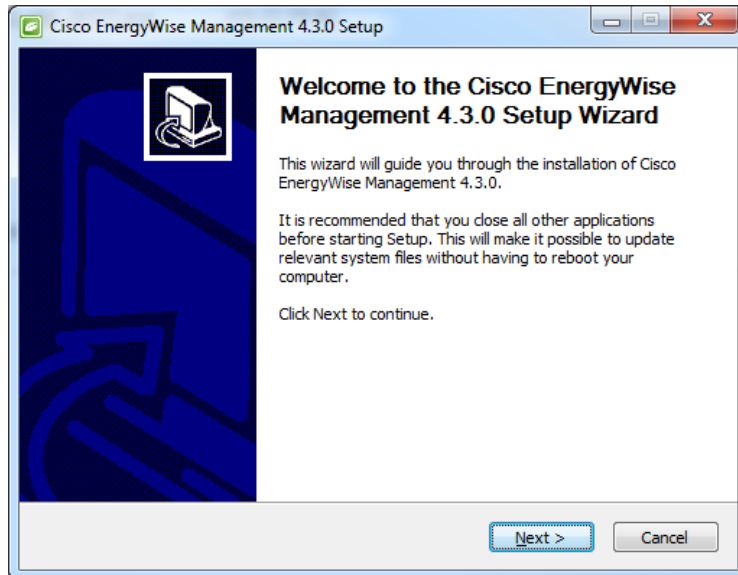
Open your download folder. And double click **CiscoEnergyWiseManagement\_4.3\_\*.exe** to start the installation wizard.



Depending on your user configuration, Windows may request permission to make changes to the system. If necessary enter your credentials and Click **Yes**.



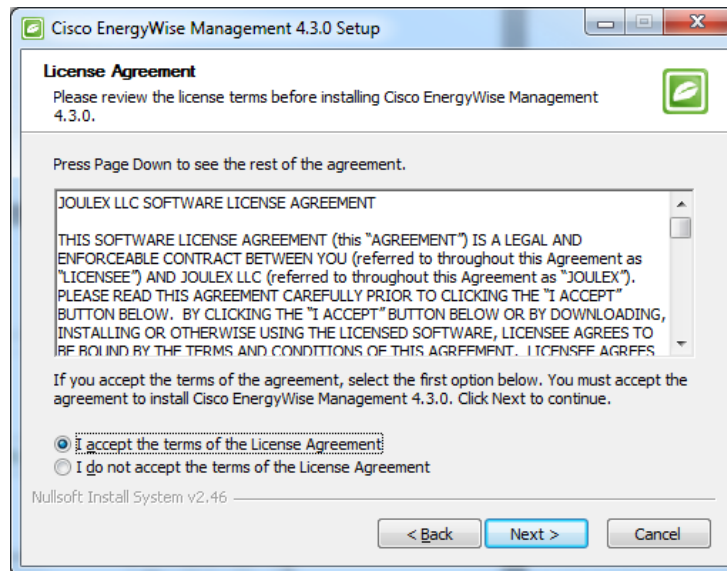
Click **Next**.





## License Agreement

You will need to review the License Agreement and accept the terms to move forward with the installation.

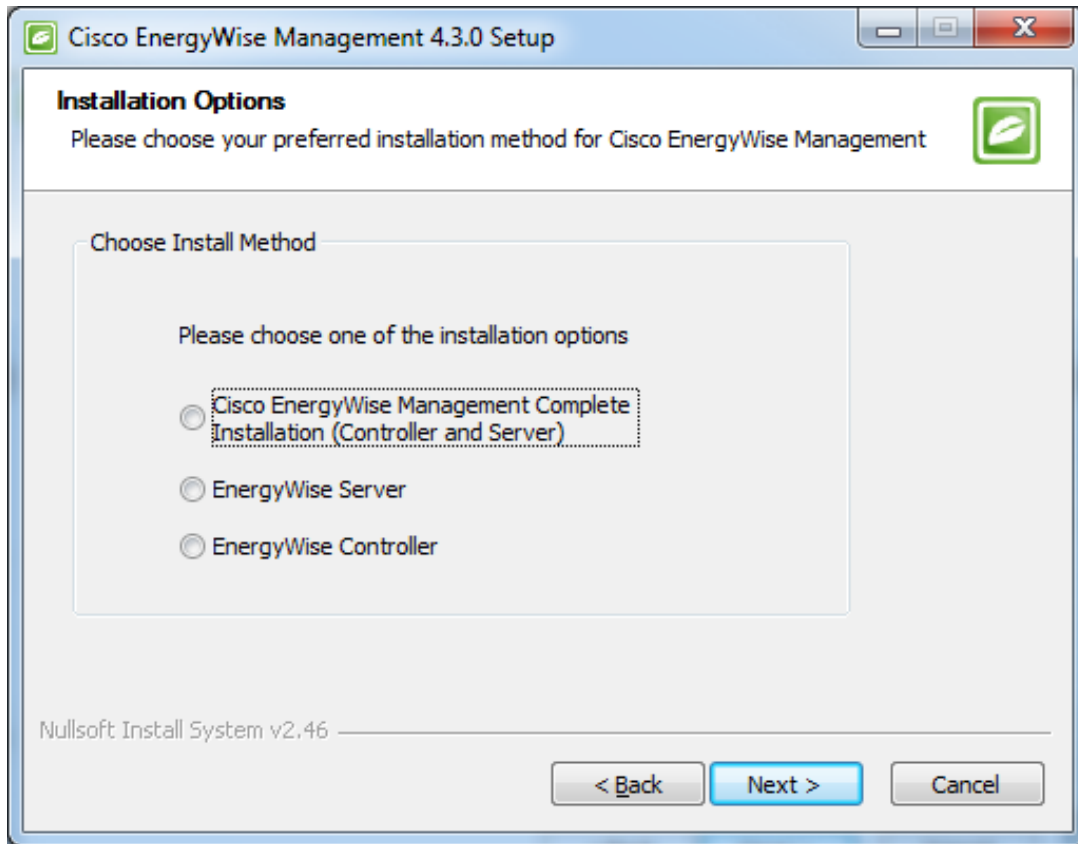


Click **Next**.

## Installation Method

In this section you will choose the type of installation that is appropriate for your network size and configuration.

Choose **Installation Method**.



**Cisco EnergyWise Management Complete Installation**

Both the *EnergyWise Controller* and the *EnergyWise Server* will be installed on the same server

**EnergyWise Server**

Choose this option if you plan to install the *EnergyWise Server* and the *EnergyWise Controller* on different servers.

**EnergyWise Controller**

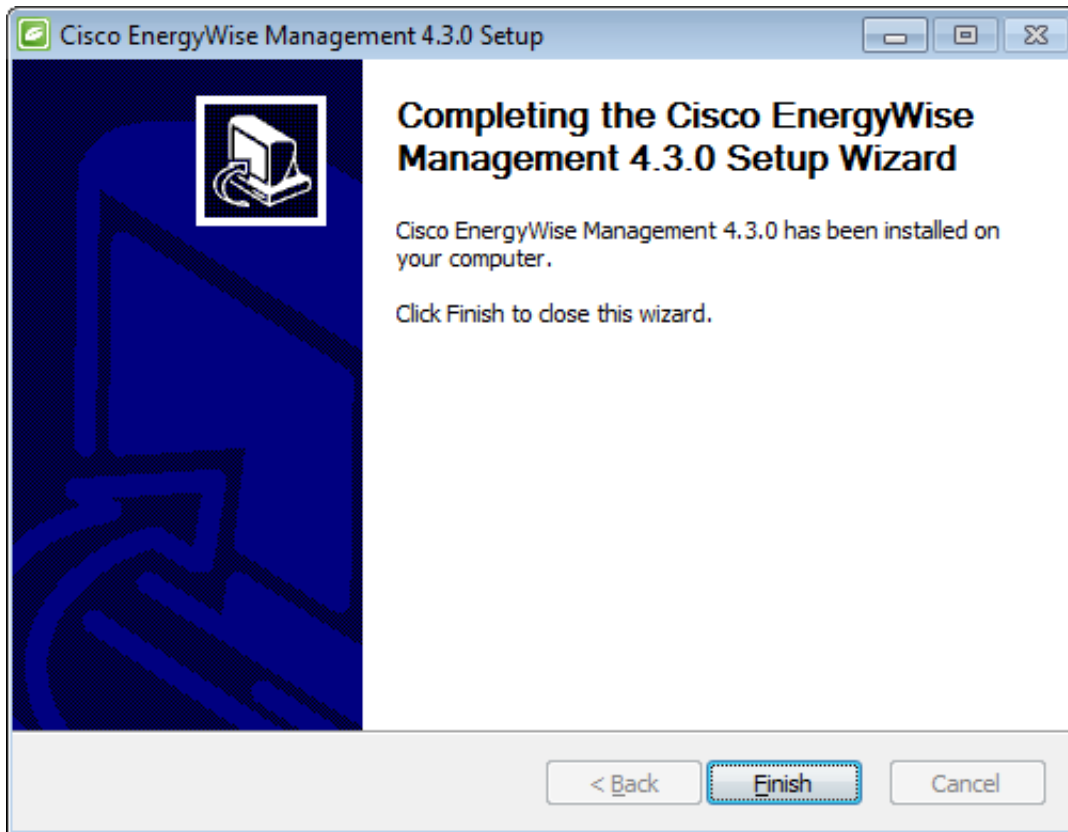
Choose this option when installing additional *EnergyWise Controllers* or when you plan to install the *EnergyWise Server* and the *EnergyWise Controllers* on different servers.

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Finish Installation

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Click **Finish**.



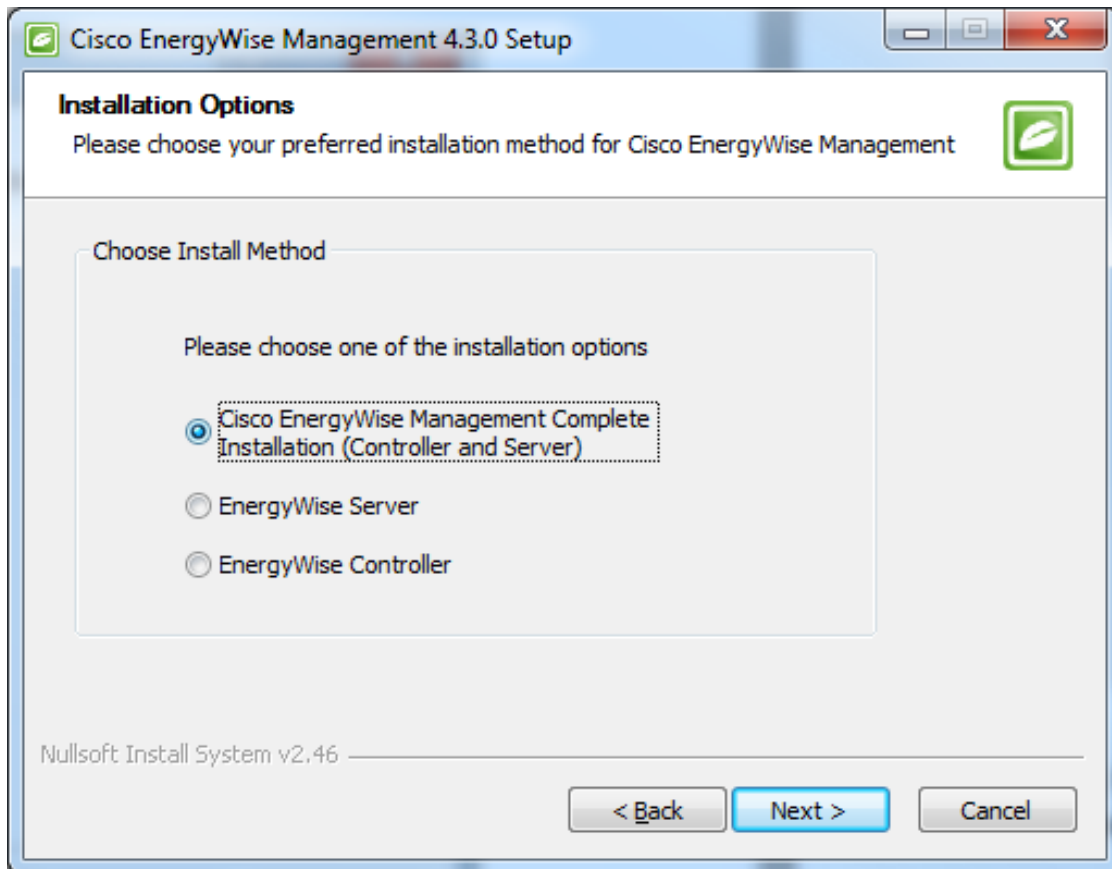
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## Install Cisco EnergyWise Management - Complete Installation

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For complete installation on one server, choose the **Cisco EnergyWise Management Complete Installation (Controller and Server)** option.

Click **Next**.

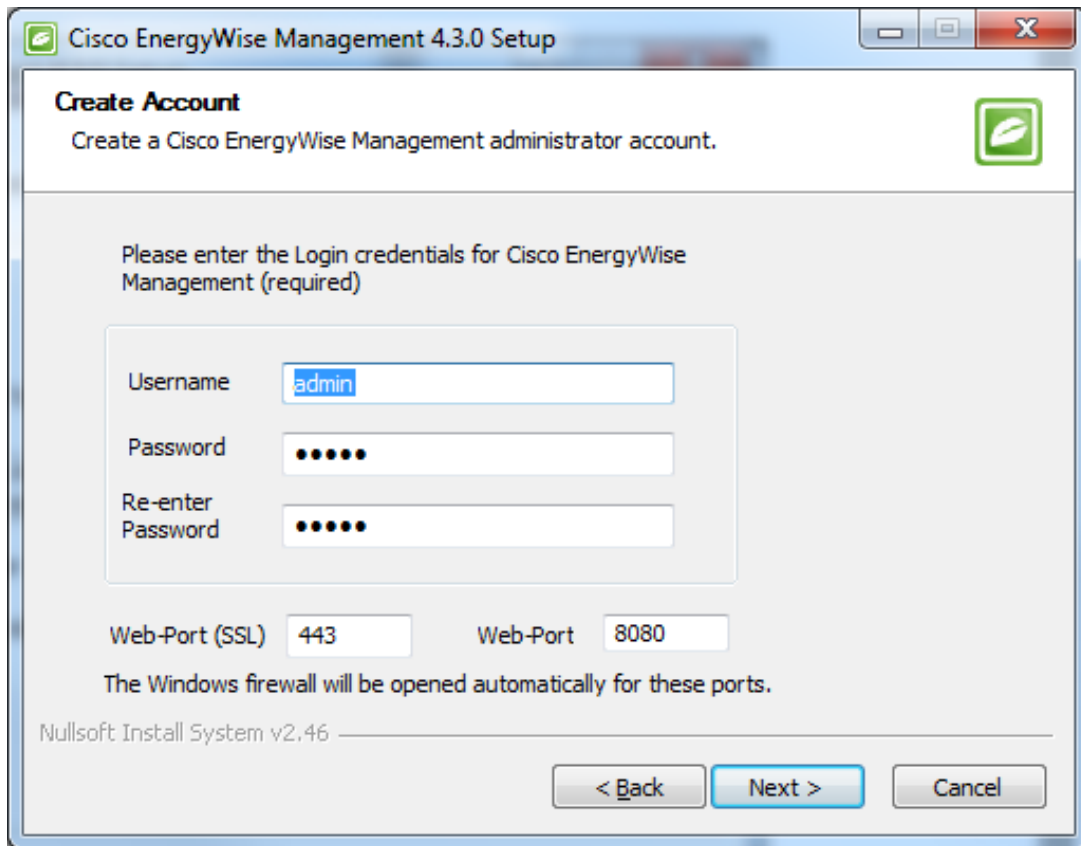


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## Administrator Account for Management Console

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At this point in the installation, you will need to create a user account to access the browser based **Management Console**. Choose a **Username** and a secure **Password** and **Re-enter** the password to confirm. The **Web-Port** specifies through which port the management console can be accessed. If port 443 is already in use, choose any other unused port (this will not change the SSL securitization). In the event that you need to deactivate SSL, this will need to be done manually. *If you choose a different port, remember to make note of the port used. You will need this information again when you access the Management Console.*



By default, the Cisco EnergyWise Management installer will configure the Windows Firewall settings to open the required ports for the web interface to be accessed from outside the server.

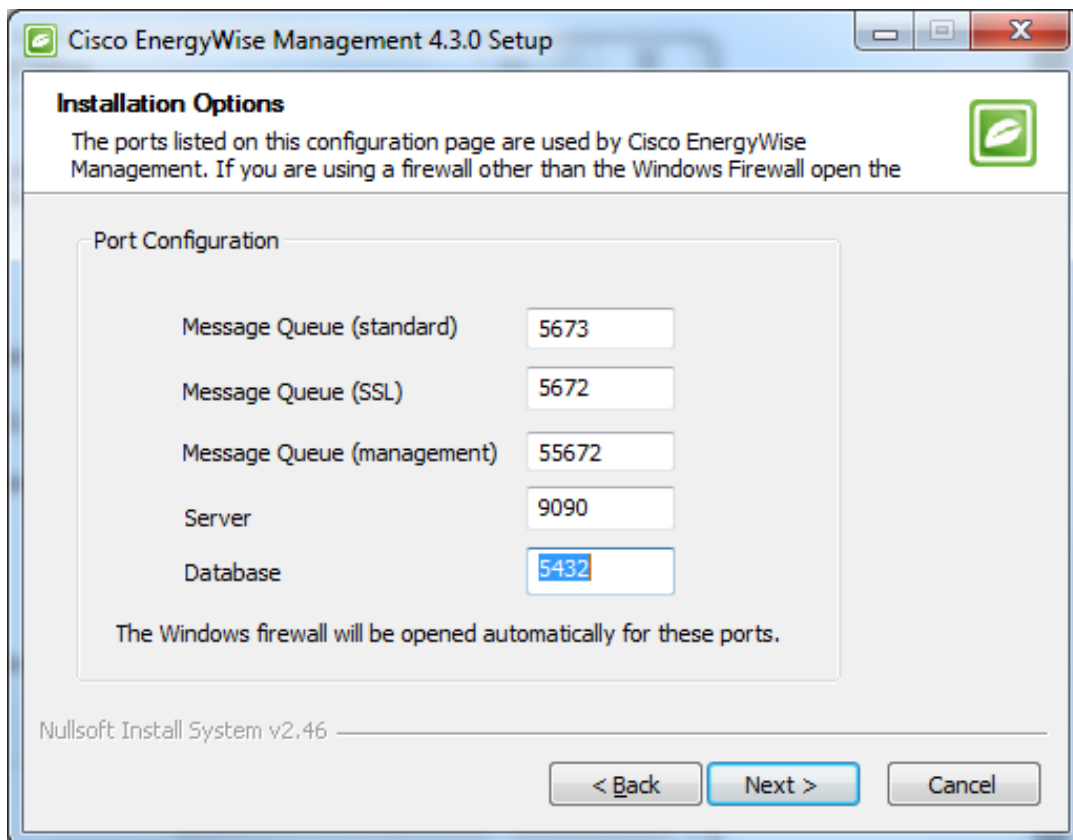
**Note:** If you do not use the Windows Firewall, Cisco EnergyWise Management will not be able to open these ports automatically. In this case, you will need to configure them manually.

### Internal Ports

For communication between the *EnergyWise Controller* and the *EnergyWise Server*, Cisco EnergyWise Management installs an EnergyWise Message Queue Server. The default port is SSL secured port (5672). You can also configure non-secured standard port (5673). The EnergyWise Message Queue server has a separate management console which requires an additional port (55672).

For internal communication, Cisco EnergyWise Management requires access to port 8000 and port 9090 on the installation machine. Port 8000 is fixed and not able to be changed by the user. A local EnergyWise database service will be installed along with other components. The default port is 5432.

It is recommended that you install Cisco EnergyWise Management using the default settings. These default port settings are used throughout this documentation. All ports can be modified manually during the installation procedure. Detailed instructions for modifying these ports after installation is complete can be found in our Ports section. If you wish to customize the ports, edit them and click **Next**.



**Note:** If you do not use the Windows Firewall, Cisco EnergyWise Management will not be able to open these ports automatically. In this case, you will need to configure them manually.

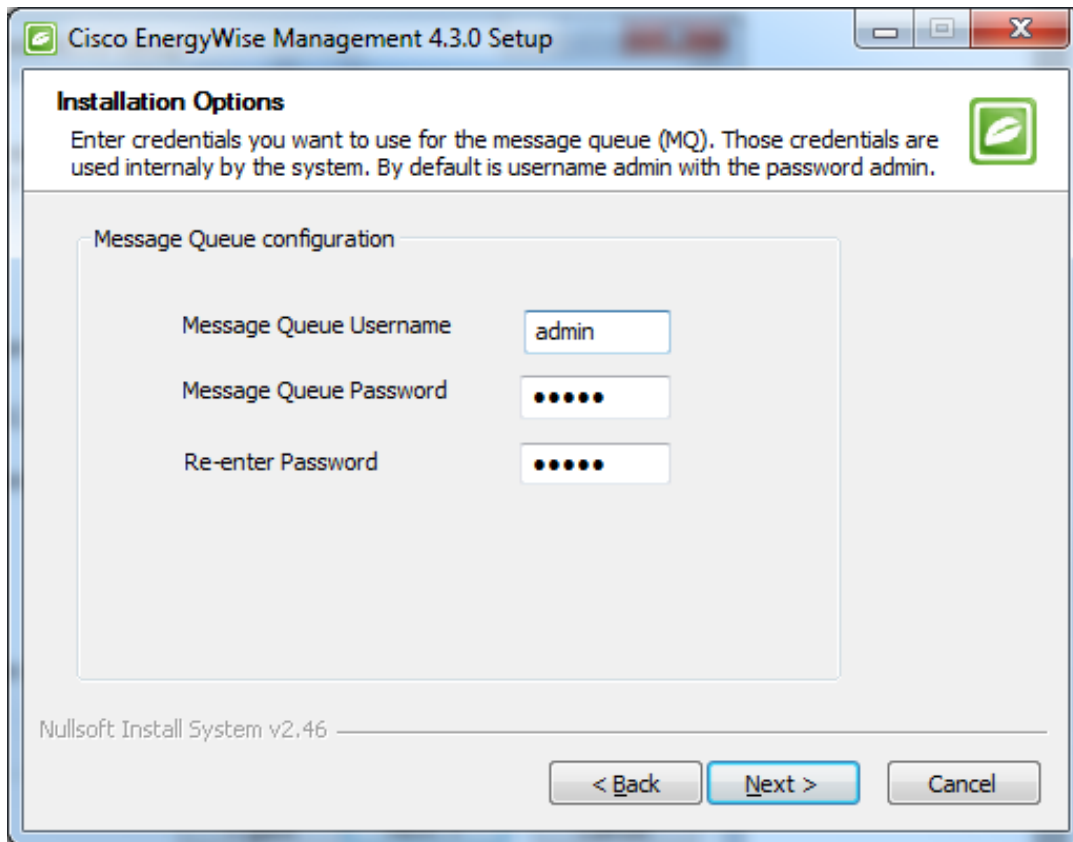
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### EnergyWise Message Queue Server

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During installation you will be able to customize the credentials for the EnergyWise Message Queue server.

Enter username and password in the EnergyWise Message Queue Configuration screen and click **Next** to continue.



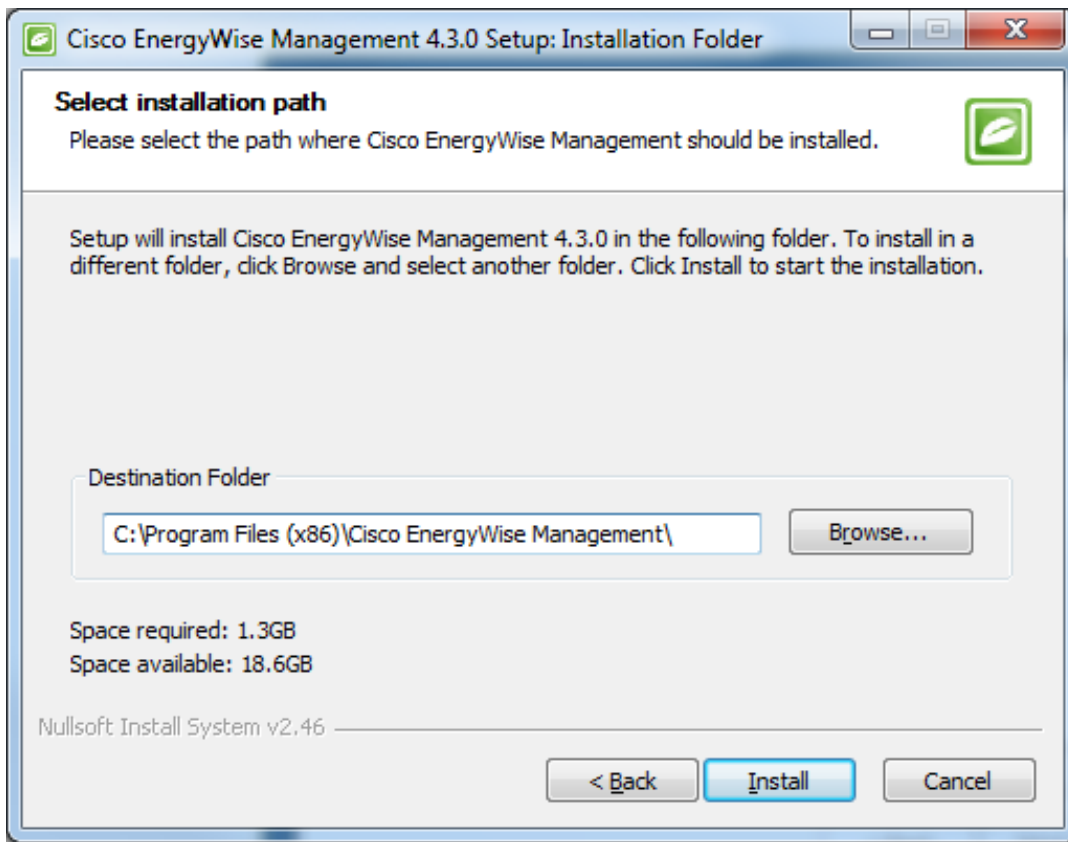
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### Installation Directory

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In this step, choose the installation directory. Make sure you have enough hard disk space, as the *EnergyWise Server* and other features require a large amount of disk space over time.

Click **Install**.

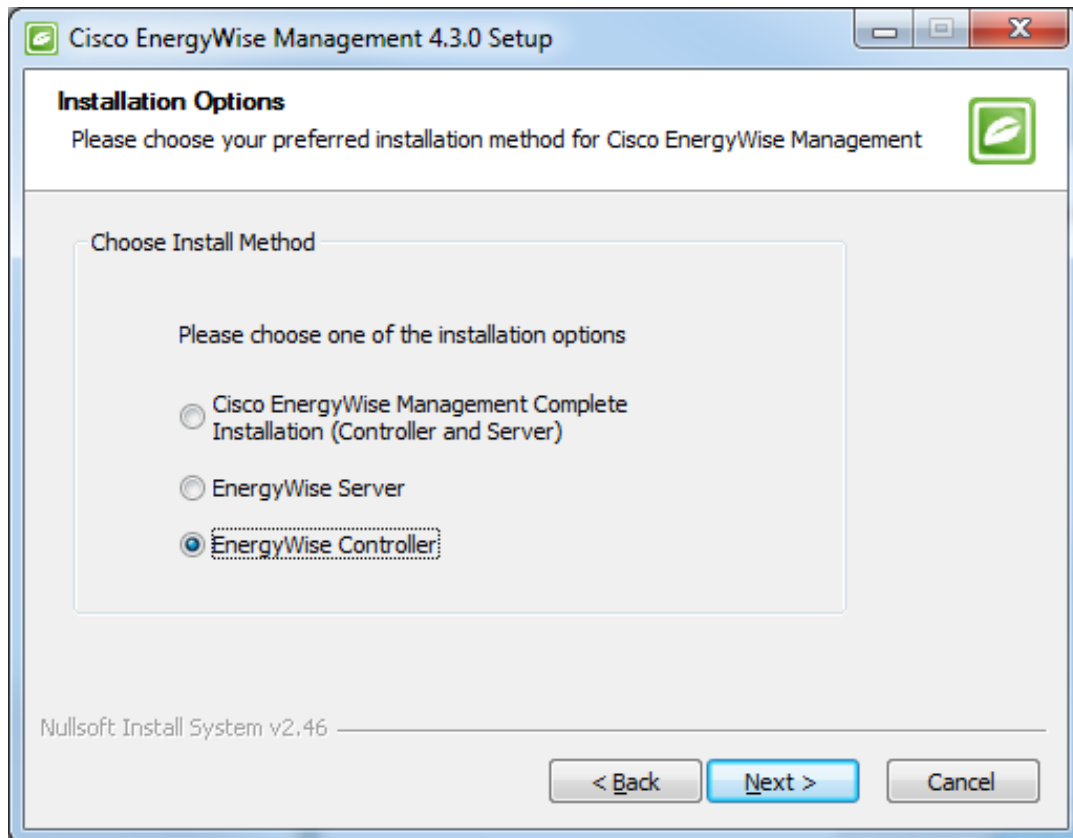




## Install Cisco EnergyWise Management - EnergyWise Controller

This option is generally used when installing additional *EnergyWise Controllers* or when an *EnergyWise Controller* should not be installed on the same server as the *EnergyWise Server*.

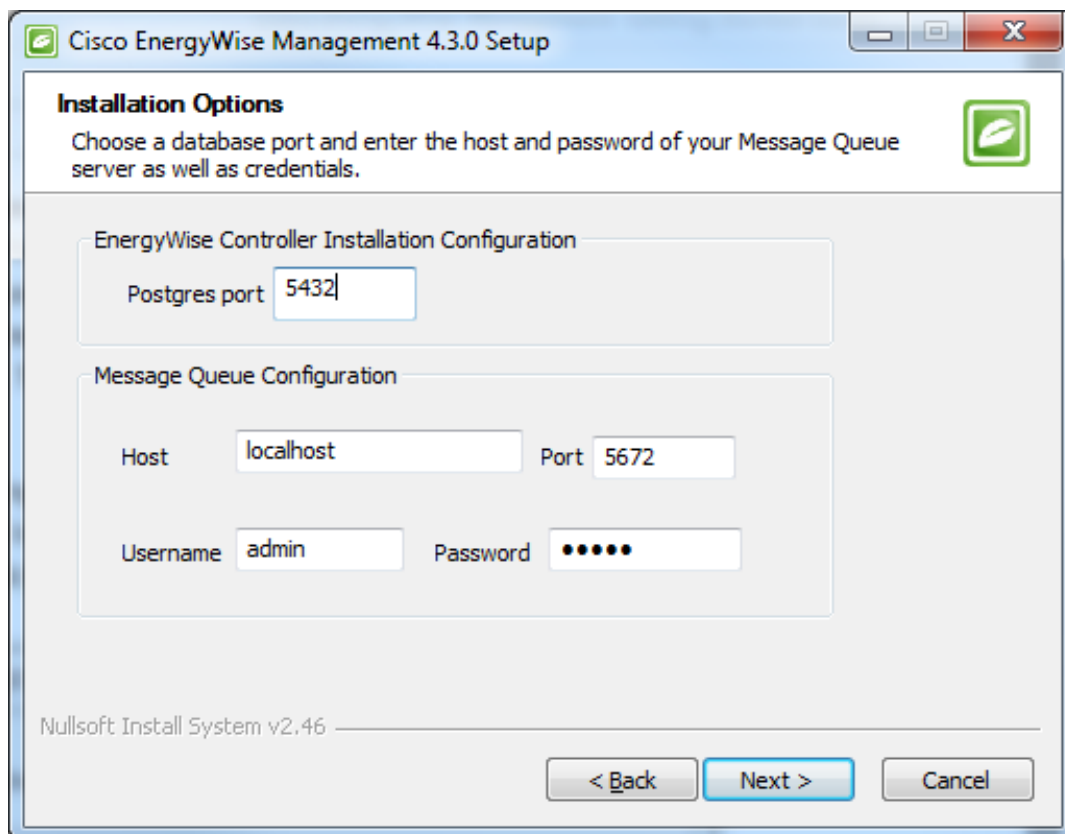
For *EnergyWise Controller* installation, please choose **EnergyWise Controller**.  
Click **Next**.



### Internal Ports

To ensure proper communication between the *EnergyWise Controller* and *Central Management Server*, Cisco EnergyWise Management also includes a Message Queuing Protocol. The default for this protocol is SSL secured port 5672. You may instead opt for non-secured port 5673. For management of the queuing protocol, port 55672 will also need to be available. A local EnergyWise database service will be installed along with other components. The default port is 5432 and, while modifiable, should only be changed if this port is already in use.

All ports can be modified manually during the installation procedure. Detailed instructions for modifying these ports after installation is complete can be found in our Ports section. If you wish to customize the ports, edit them and click **Next**.



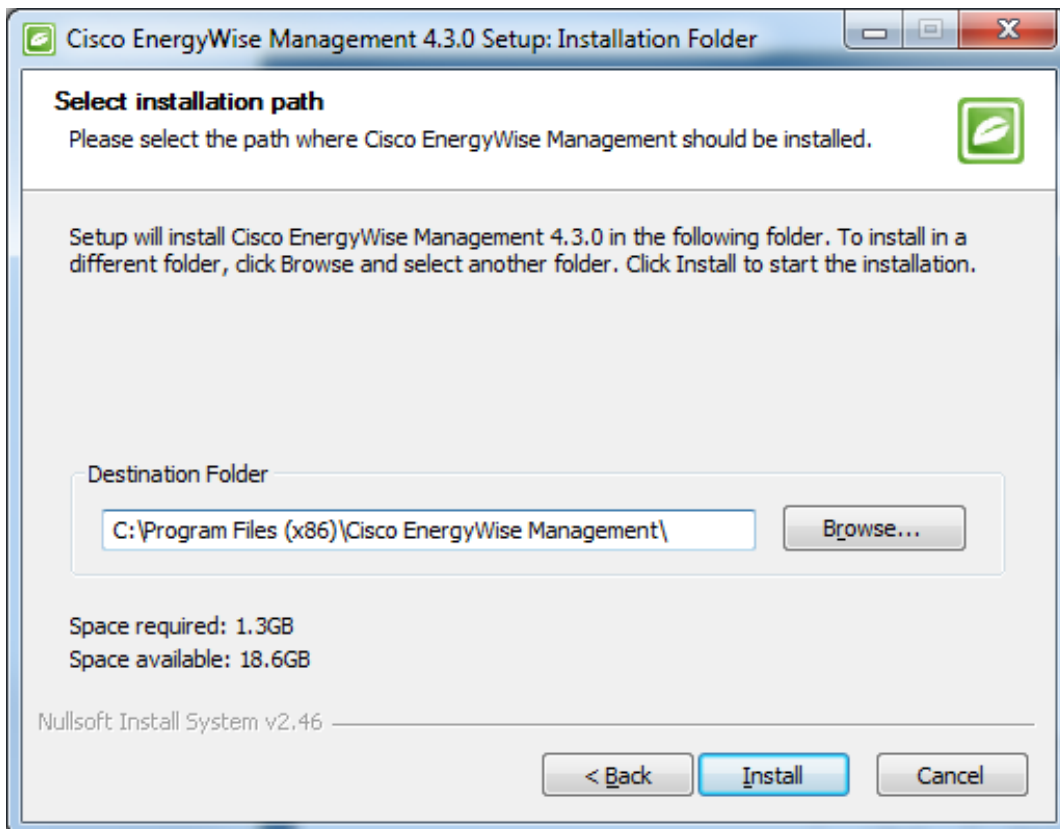
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### Installation Directory

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In this step, choose the target installation directory. Make sure you have ample hard disk space, as the *EnergyWise Controller* and other features require a large amount of disk space over time.

Click **Install**.



## Starting the Management Console

Cisco EnergyWise Management user utilizes a browser-based management console for configuration, operation, and reporting. The management console can be accessed using a standard modern web browser and opens automatically once the installation has finished. To access the management console manually, enter the default address in the address bar of your browser. The default address is:

**https://localhost** or **https://127.0.0.1**

You will have specified the port of the management console during installation. The default setting is HTTPS SSL secured port 443 (non-secured port 8080 is also available). If you chose an alternate port for the management console, make sure you enter the correct port. When entering the address manually, append the address as seen below. In this example, the default non-secure HTTP port is used.

**http://localhost:8080** or **http://127.0.0.1:8080**

To access Cisco EnergyWise Management from a remote location, enter the IP address or hostname of the remote machine on which you have installed Cisco EnergyWise Management into your address bar. See example below:

**http://<server-ip>:port** or **http://<hostname>:port**

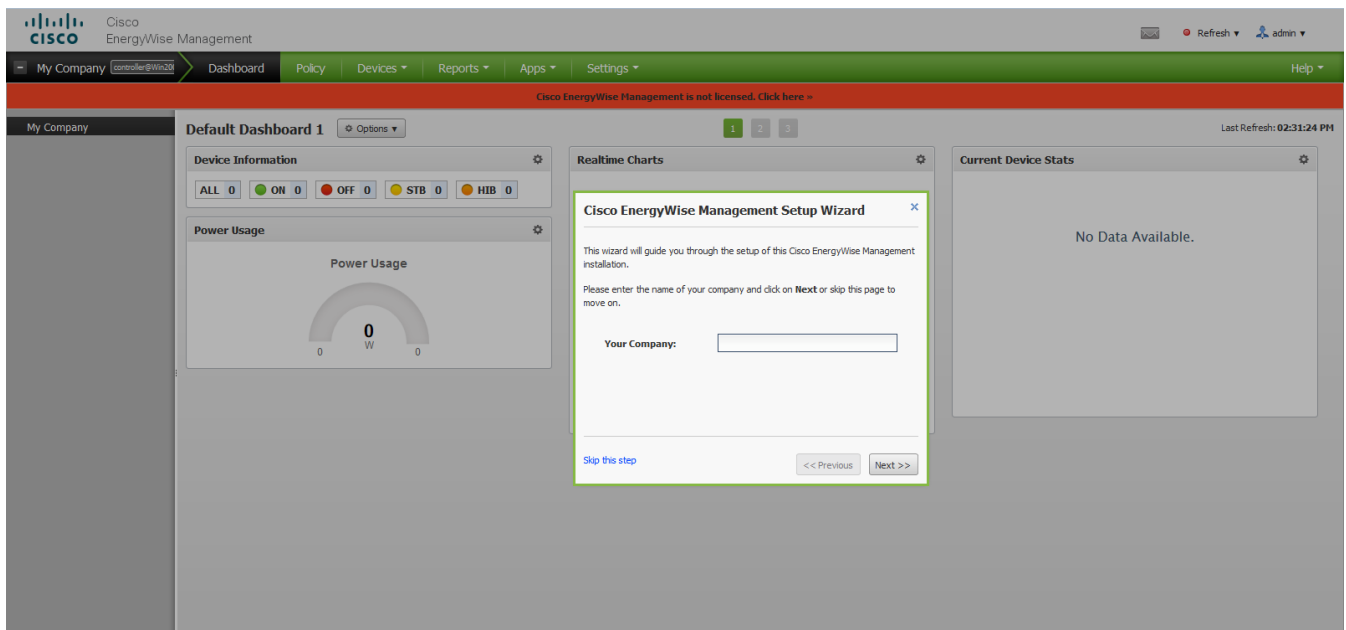


The image shows a login form for the Cisco EnergyWise Management console. At the top, there is the Cisco logo (a stylized bridge) and the word "CISCO" in blue. Below the logo, there are two input fields: "Username:" with a placeholder "Enter user name" and "Password:" with a placeholder of eight asterisks. A "Login" button is located at the bottom right of the form.

During the installation process, you will choose a username and password for the Cisco EnergyWise Management platform. You will need this username and a password to access the management console.

## Welcome Page

Once you have successfully logged into the management console, you'll see the Welcome page. From here, follow the on screen instructions for activation of Cisco EnergyWise Management. Activation of Cisco EnergyWise Management will be required upon first login. Once the License Activation has been completed, you will see the **Initial Setup Wizard**, which will help you to begin maximizing the capabilities of the Cisco EnergyWise Management platform.

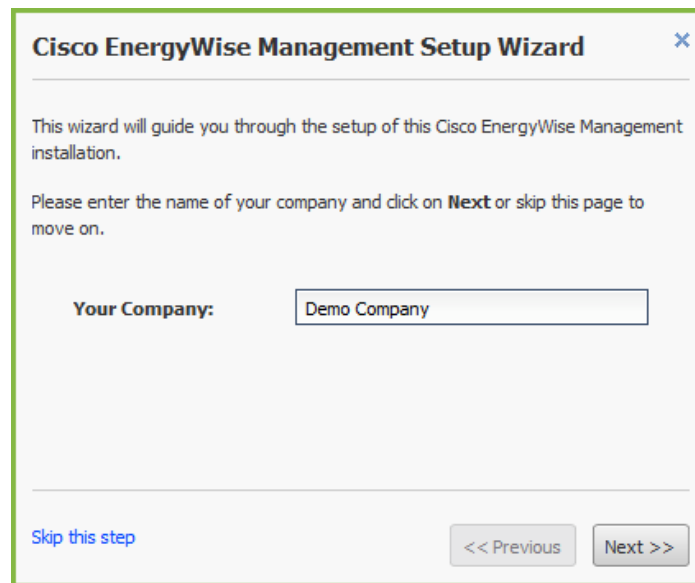


## Cisco EnergyWise Management Setup Wizard

The Cisco EnergyWise Management Setup Wizard will guide you through the first steps with your Cisco EnergyWise Management, and will assist in optimizing your initial configuration and customization.

### Your Company

Enter your company's name here. This name will be used later for naming the root folder in your folder structure within the Cisco EnergyWise Management environment. Click **Next**.



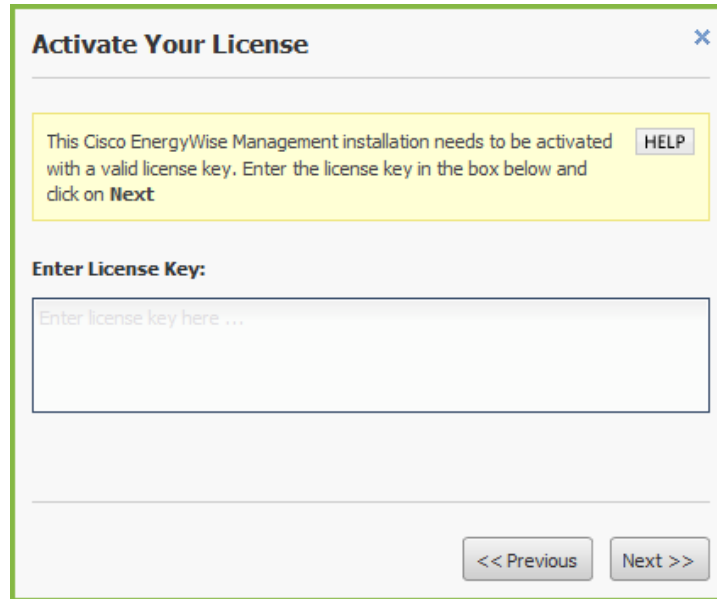
The screenshot shows a window titled "Cisco EnergyWise Management Setup Wizard" with a close button (X) in the top right corner. The main text reads: "This wizard will guide you through the setup of this Cisco EnergyWise Management installation." Below this, it says: "Please enter the name of your company and click on **Next** or skip this page to move on." There is a label "Your Company:" followed by a text input field containing "Demo Company". At the bottom left, there is a link "Skip this step". At the bottom right, there are two buttons: "<< Previous" and "Next >>".

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## Activate Your License

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Enter the license key and activate Cisco EnergyWise Management. Click **Next**.



**Activate Your License** ×

This Cisco EnergyWise Management installation needs to be activated with a valid license key. Enter the license key in the box below and click on **Next** HELP

**Enter License Key:**

Enter license key here ...

<< Previous Next >>

Once the license is activated, the corresponding license details will be displayed and the yellow warning message will disappear. Cisco EnergyWise Management will attempt to verify the license key once daily. If the license key is not able to be verified for 7 days consecutive days, Cisco EnergyWise Management will be disabled automatically. If you have internet connectivity problems, you will be redirected to the internet settings page.

**Note:** For licensing, your Cisco EnergyWise Management needs to be connected to the internet. If activation does not work, please check your Internet Connectivity/Proxy of the respective *Controller* in Settings and activate Cisco EnergyWise Management manually with the help of Software License in the Settings menu. If you don't have internet connectivity from your Cisco EnergyWise Management installation machine, please contact our technical support regarding a Cisco EnergyWise Management Offline License.

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## Import Devices

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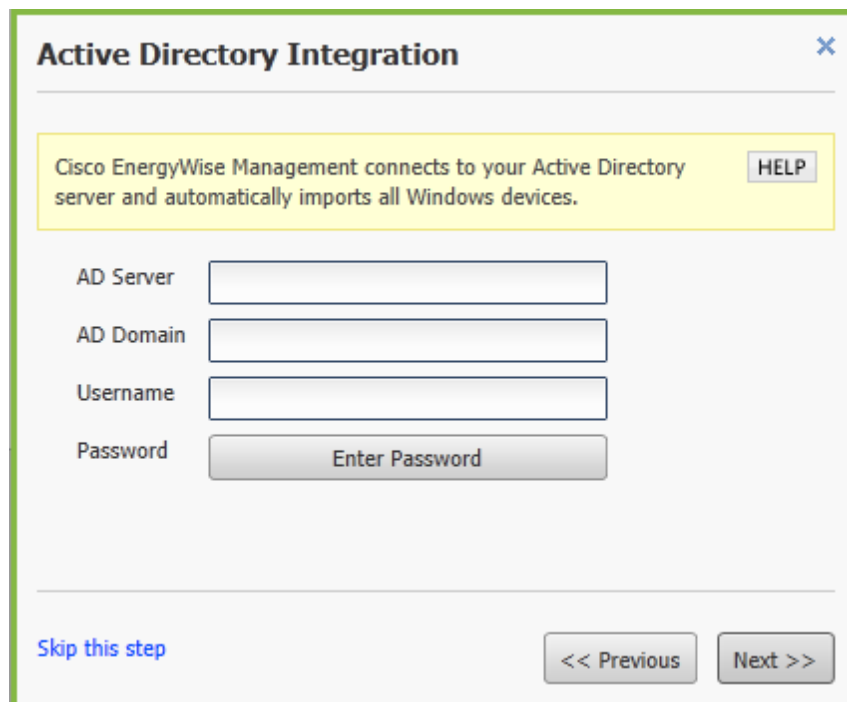
Cisco EnergyWise Management has the potential to automatically import your existing devices.

### Active Directory Integration

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The Cisco EnergyWise Management connects to your Active Directory (AD) server and automatically imports Windows devices. If you want to import any devices, enter the configuration credentials of your AD server. Click **Next**.

Otherwise click **Skip this step** and continue with the regular setup.



The screenshot shows a window titled "Active Directory Integration" with a close button (X) in the top right corner. Below the title bar is a yellow informational box containing the text: "Cisco EnergyWise Management connects to your Active Directory server and automatically imports all Windows devices." and a "HELP" button. Below this box are four input fields: "AD Server", "AD Domain", "Username", and "Password". The "Password" field has a button labeled "Enter Password" next to it. At the bottom left of the window is a blue link "Skip this step". At the bottom right are two buttons: "<< Previous" and "Next >>".

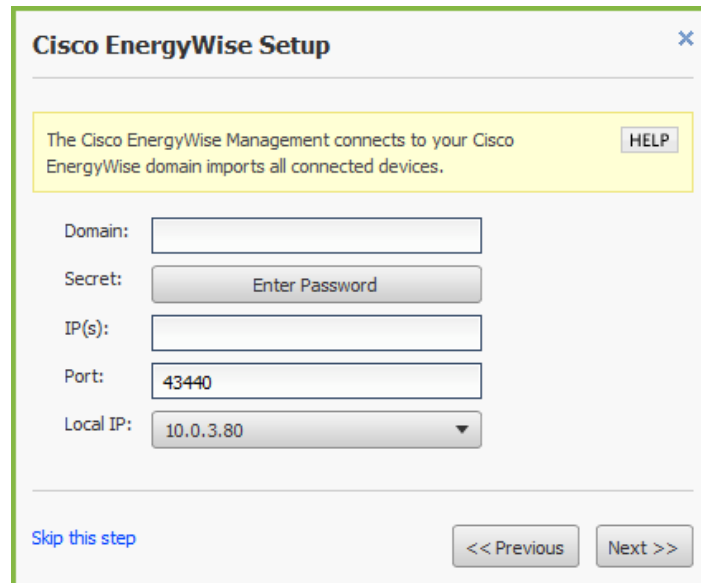


### Cisco EnergyWise Setup

The Cisco EnergyWise Management connects to your Cisco EnergyWise domain imports all connected devices.

If you want to import any devices, enter the configuration credentials of your Cisco EnergyWise domain. Click **Next**.

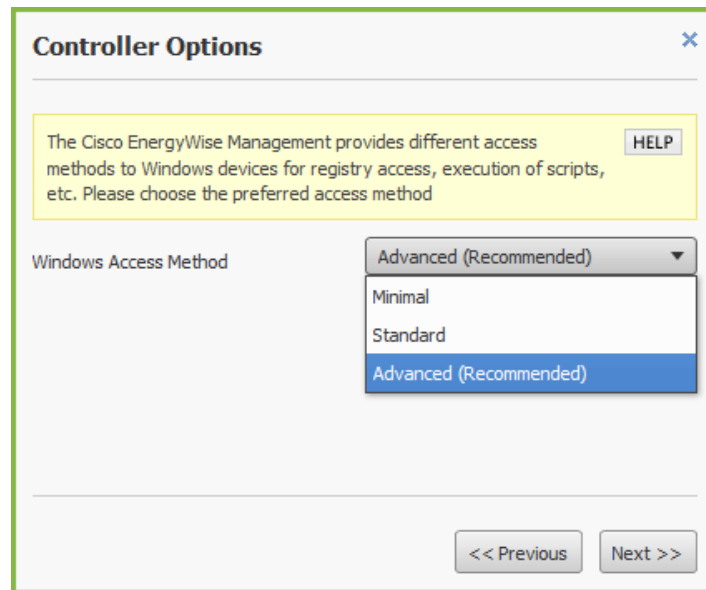
Otherwise click **Skip this step** and continue with the regular setup.



### Configuration Completed

You finished the basic settings now.

Select **Windows Access Method**.



If you wish to define the user and role settings, continue with the next wizard **Create Users & Roles**, otherwise click **Next** and close this wizard. You can edit role based access settings at any time from the User Management section.

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## Working with Devices

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Now that the Cisco EnergyWise Management is installed, you can start working with devices. Cisco EnergyWise Management is able to monitor, measure, and control a large variety of different device types in your network. This includes Windows, Linux or Mac based desktops and servers, Voice-over-IP (VoIP) phones, printers, switches, virtual machines, PDUs and many more.

Cisco EnergyWise Management has an “agentless” architecture which requires no additional software to be installed on the controlled devices. Instead, Cisco EnergyWise Management uses already existing network and system management protocols to monitor, measure, or control the power state of devices in your network. In many cases, the appropriate protocols are already in place and can be used out of the box, whereas in other cases you might need to adjust a few settings to make it work.

This section will just explain the basic steps on how to integrate devices to be used with Cisco EnergyWise Management. You will find detailed information about device integration in the Help Documentation.

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### Working with Devices

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Once the Cisco EnergyWise Management is installed, you can begin working with Devices. Cisco EnergyWise Management is able to monitor, measure, and control a wide variety of different Device Types on your network. This includes Windows, Linux, or Mac based desktop computers and servers, Voice-over-IP (VoIP) phones, printers, switches, virtual machines, PDUs, and many more.

Cisco EnergyWise Management is an "agentless" architecture which requires no additional software to be installed on the controlled devices. Instead, Cisco EnergyWise Management uses the existing network and system management protocols to monitor, measure, or control the power state of devices in your network. In most cases, the appropriate system management protocols are already in place and can be used without customization whereas, in other cases, it may be necessary to adjust a few settings to achieve full functionality.

This section will explain the basic steps of device integration for Cisco EnergyWise Management. You will be able to find detailed information about device integration in the online help system.

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### Importing Devices into Cisco EnergyWise Management


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This tutorial will explain how to integrate single devices manually, using the Management Console. Manual integration, however, is not the recommended approach when planning to integrate a large number of devices. You can import devices from existing system management tools and directory services, like Microsoft Active Directory, Cisco Works, Cisco CallManager, OpenScape DLS, etc., instead of manual integration. Cisco EnergyWise Management also supports mass import of devices via database connectors and CSV (Comma Separated Values) file import. The imported devices are periodically synchronized with your system management tools to ensure all device data is up-to-date, and new devices will be imported automatically into Cisco EnergyWise Management.

## Adding the First Device

This example describes the steps on how to manually add a Windows device to Cisco EnergyWise Management. To get started, you will need the following information for the Windows machine available:

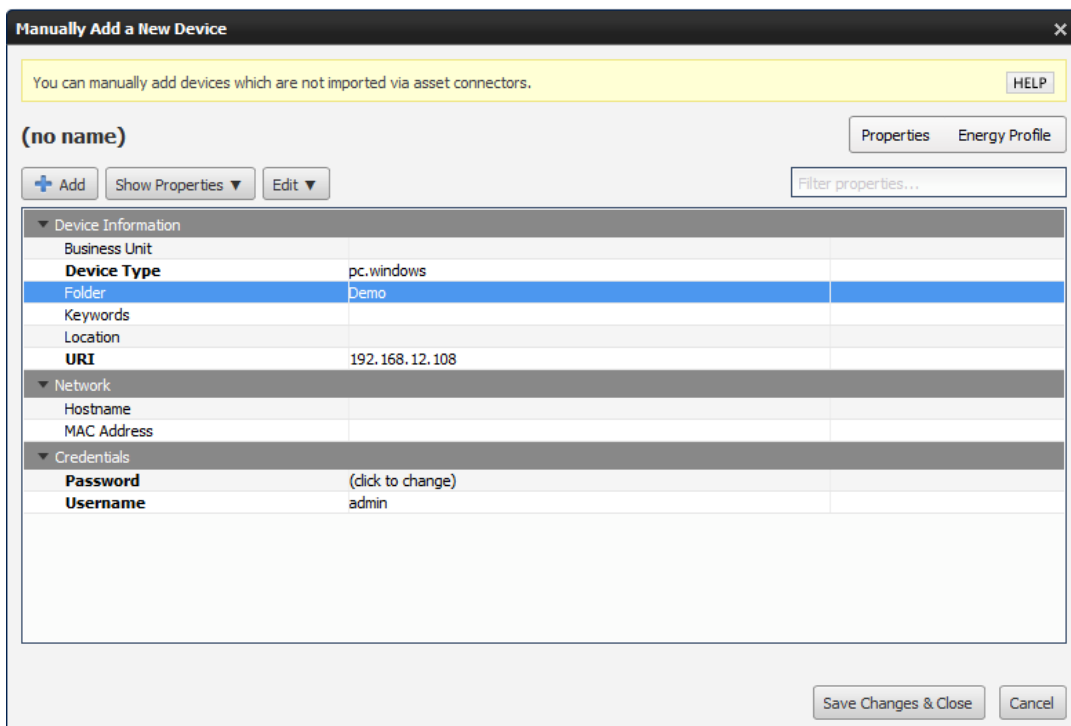
- Hostname or IP address
- Username and password for a local-admin account

To get started, open the Devices Page and click . Then enter basic information about the device in the Device tab. To identify the device, enter either the hostname of the device in the Hostname field or the IP address in the **URI** field. Usually, providing hostnames is sufficient as Cisco EnergyWise Management automatically resolves hostnames.

You will then choose the device type from the **Device Type Selector**. For this example, that is pc.windows (Windows).

The Device Information Field **Folder** name is populated automatically, based on the folder you are currently operating in. In our example, it is the root folder named **Demo**, which we created during the initial *Setup Wizard*.

Finally, enter the **Username** and **Password** to access the Windows machine. To do this, select the **Credentials** tab in the dialog and enter username and password into the respective fields. When finished, click **Save Changes & Close**.



**Manually Add a New Device**

You can manually add devices which are not imported via asset connectors. HELP

(no name) Properties Energy Profile

+ Add Show Properties ▾ Edit ▾ Filter properties...

▼ Device Information	
Business Unit	
<b>Device Type</b>	pc.windows
<b>Folder</b>	Demo
Keywords	
Location	
<b>URI</b>	192.168.12.108
▼ Network	
Hostname	
MAC Address	
▼ Credentials	
<b>Password</b>	(click to change)
<b>Username</b>	admin






Save Changes & Close Cancel

After you have integrated the device into Cisco EnergyWise Management, it should be visible in the device table. If you don't see the device, refresh the device table by clicking the Search button. Cisco EnergyWise Management displays different status levels for a device, depending on its current power state.

The screenshot shows the Cisco EnergyWise Management interface. The top navigation bar includes 'Demo Company', 'Dashboard', 'Policy', 'Devices', 'Reports', 'Apps', 'Settings', and 'Help'. The 'Devices' section is active, showing a list of 614 devices. The interface includes a search bar, a table of device details, and a sidebar with filters for Status, Location, Device Type, Business Unit, Model, System Type, Rule, Segments, and Saved Searches.

Power	URI	Hostname	Device Type	Location	Business Unit	Asset Connector
15.0 W	10.10.6.98		monitor	Munich	HR	test_default.csv
15.0 W	10.10.6.99		monitor	Munich	HR	test_default.csv
15.0 W	10.10.6.100		monitor	Munich	HR	test_default.csv
0.0 W	2001:4dd0:f9a8...	BUILD-CENTER	pc.windows			Real-AD
0.0 W	10.0.3.58	MUSTAFVM	pc.windows			Real-AD
0.0 W	10.0.3.58	XENSER-XPVM	pc.windows			Real-AD
0.0 W	2001:4dd0:f9a8...	PASCALVM	pc.windows	Hintertupfingen		Real-AD
59.7 W	10.0.3.206	WINXPTEST1	pc.windows			Real-AD
0.0 W		SYSTEMMANAG...	pc.windows			Real-AD
0.0 W	10.0.1.20	WIN2003SERVER	pc.windows	Kassel RZ	Domain Controll...	Real-AD
0.0 W	192.168.6.141	GOAT-PC02	pc.windows			Real-AD
0.0 W	10.0.3.62	ELIASVM	pc.windows			Real-AD
0.0 W		MULTIWIN7	pc.windows			Real-AD
0.0 W	192.168.3.200	IP_192.168.3.2...	printer	kaseldemo	Domain Controll...	Real-AD
0.0 W	192.168.2.112	192.168.2.112	printer	Kassel Office	Kassel1	Real-AD
25.0 W	192.168.2.160	192.168.2.160	printer	1.OG	Kassel1	Real-AD
0.0 W	192.168.2.112	IP_192.168.2.1...	printer		Domain Controll...	Real-AD

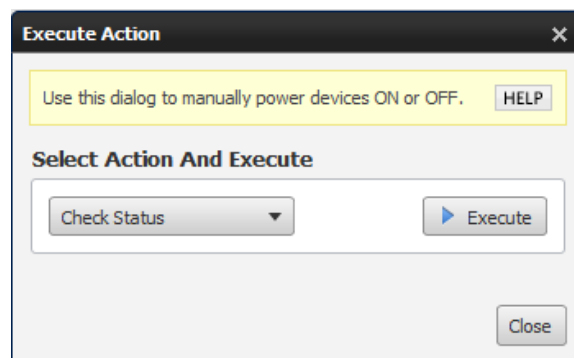
**Supported Power States and Descriptions:**

Device Status	Description
 UNKNOWN	The device status is currently unknown. This usually happens when a device was imported via an asset connector and not accessible in the network thereafter.
 OFF	The device is currently turned off.
 STANDBY	The device is currently in standby mode.
 HIBERNATE	The device is currently in hibernate mode.
 ON	The device is currently turned on.

If the Device Status is **UNKNOWN**, you can initiate a manual device status check using Cisco EnergyWise Management. To check the current device status, select the device in the device table then click **Execute**.



Select the Check Status action from the available actions list and click on the **Execute** button on the right.



If the device status is still **UNKNOWN** after the status check, verify your device settings. An Unknown Status can also be caused by incorrect user credentials, access rights, or WMI configuration. If the device is joined to an Active Directory domain, verify that the provided user account has administrator rights over the device by being a member of the local admin group or domain admin group. Another common error is the configuration of the WMI protocol settings on the Windows device.

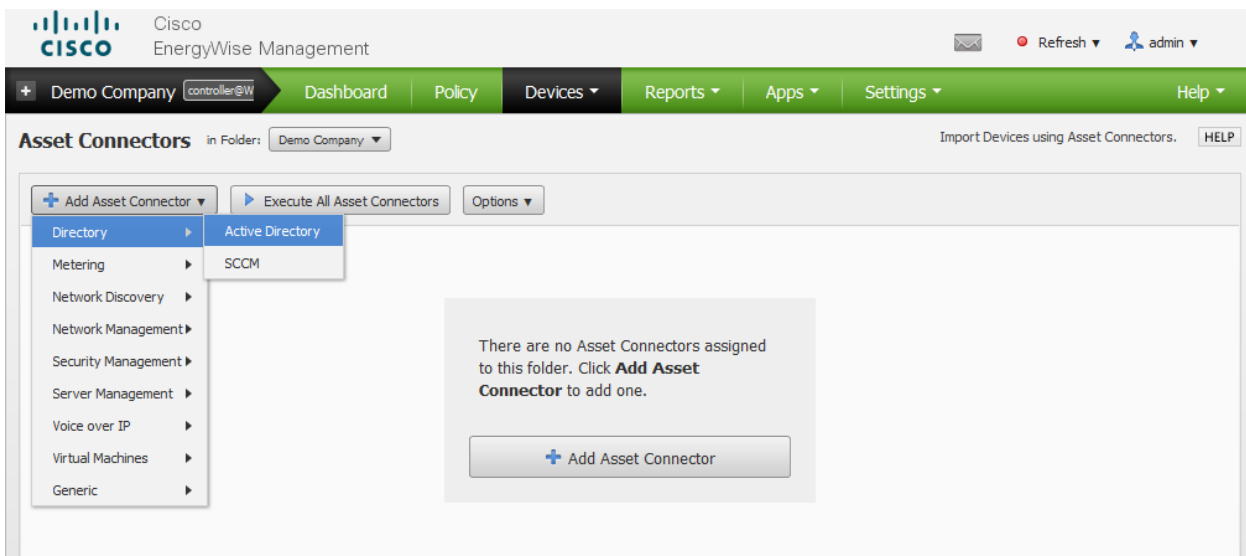
### A note about Windows devices

As mentioned earlier, Cisco EnergyWise Management uses existing software protocols to access remote devices. For Windows devices, Cisco EnergyWise Management uses a software protocol called WMI (Windows Management Instrumentation) to monitor, measure, and control Windows based devices. For security reasons, Windows requires a user account to be in the local admin group to use the WMI protocol remotely. In some cases, additional configuration steps might be required to enable full support for WMI on the remote machine.

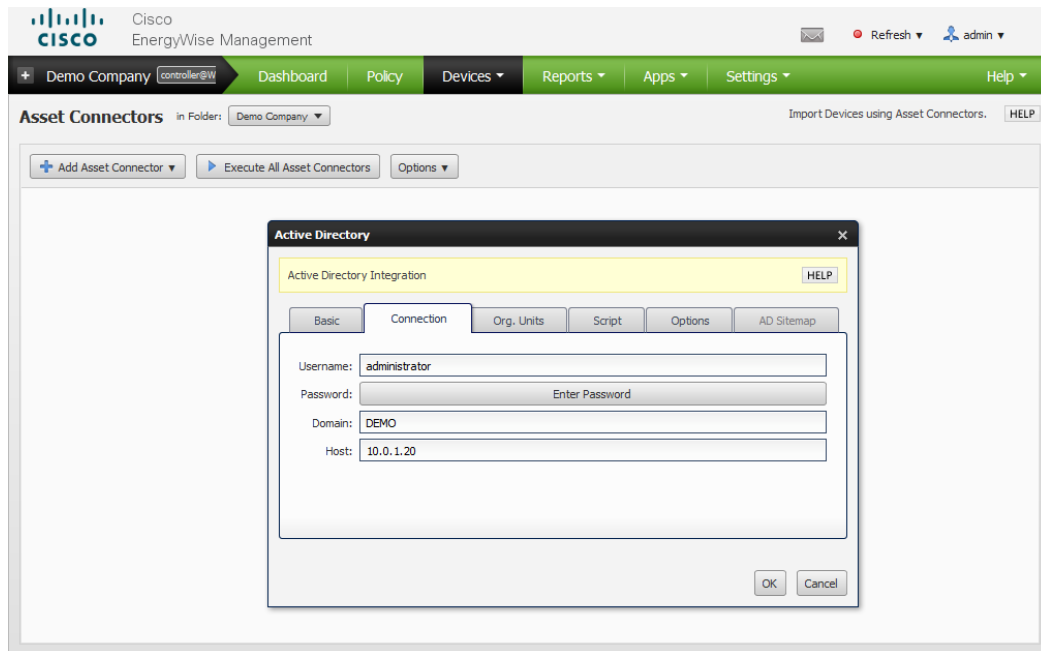
### Integration with Active Directory

A common designated use of Cisco EnergyWise Management is to monitor, measure, and power-manage Windows computers in the network. Cisco EnergyWise Management integrates into Windows Active Directory server to import and synchronize devices automatically.

To enable Active Directory integration, go to the Devices tab and choose **Import** from the list. Then click on **Add Asset Connector** and choose **Directory > Active Directory** from the menu.

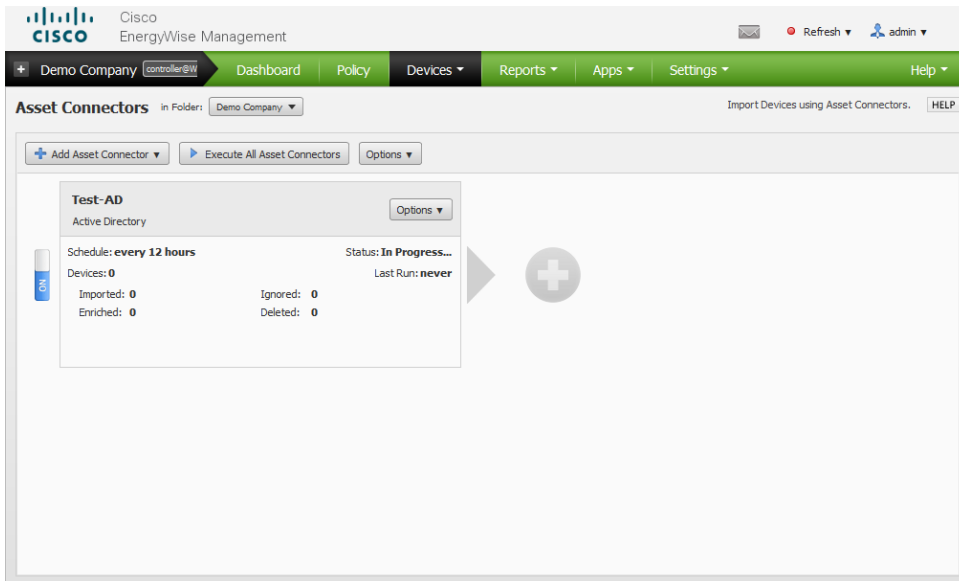


This will open a dialog box for the asset connector setup. From here, enter the requested information for the **Active Directory Integration**, like **Domain**, **Username**, **Password**, and the address of the **Active Directory Server (Host)** then click **OK** and **Save your Changes**.



Cisco EnergyWise Management will automatically connect to the Active Directory server and import all devices (Windows machines, printers, etc.) that it finds. Depending on the number of devices, this process might take a while to complete but generally finishes within an hour.

During the import process, Cisco EnergyWise Management will automatically try to retrieve location data from Active Directory and populate the location field for each device.

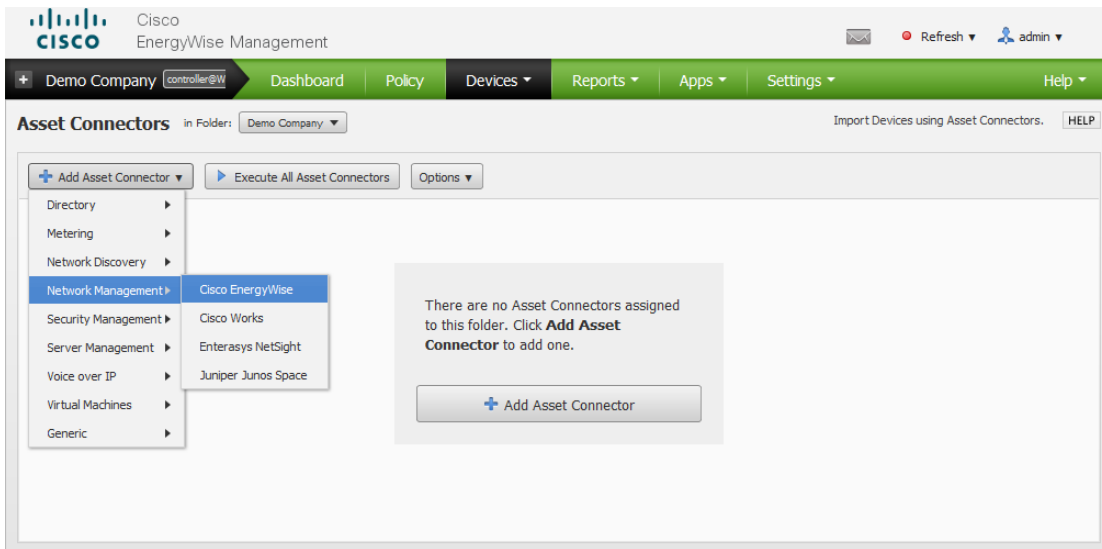




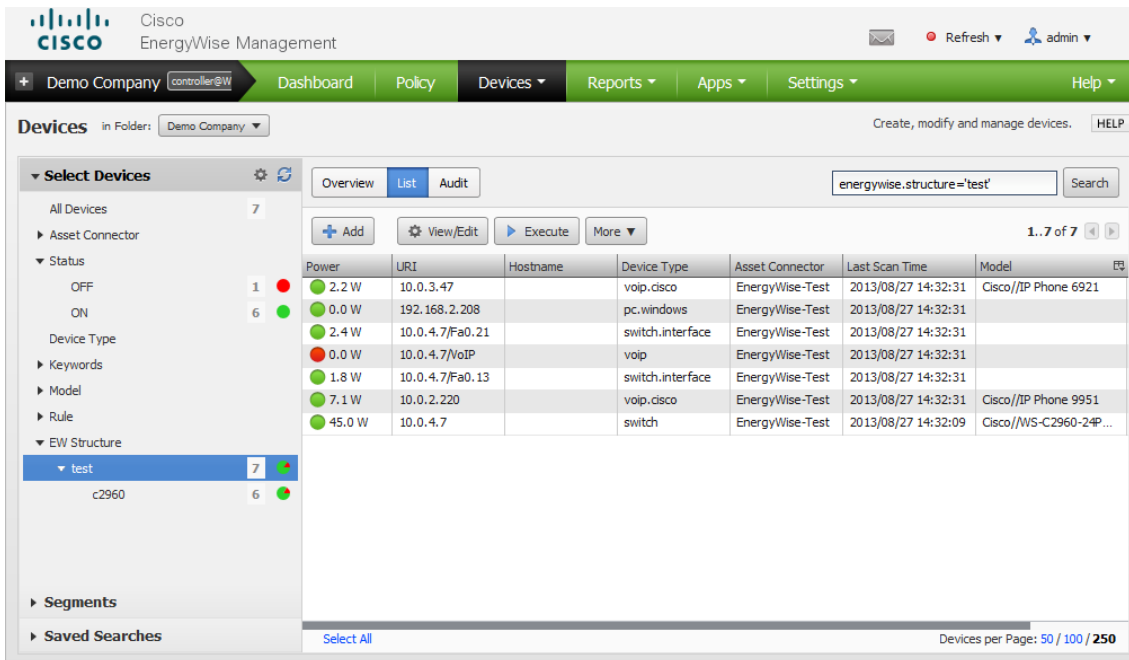
## Cisco EnergyWise Support

Cisco EnergyWise Management provides full monitoring, analysis, and control of Cisco EnergyWise enabled devices with specific EnergyWise reporting, to optimize energy consumption and reduce energy costs. Here are some Cisco EnergyWise Management features shown for EnergyWise Devices:

### EnergyWise Integration



### EnergyWise Monitoring and Controlling

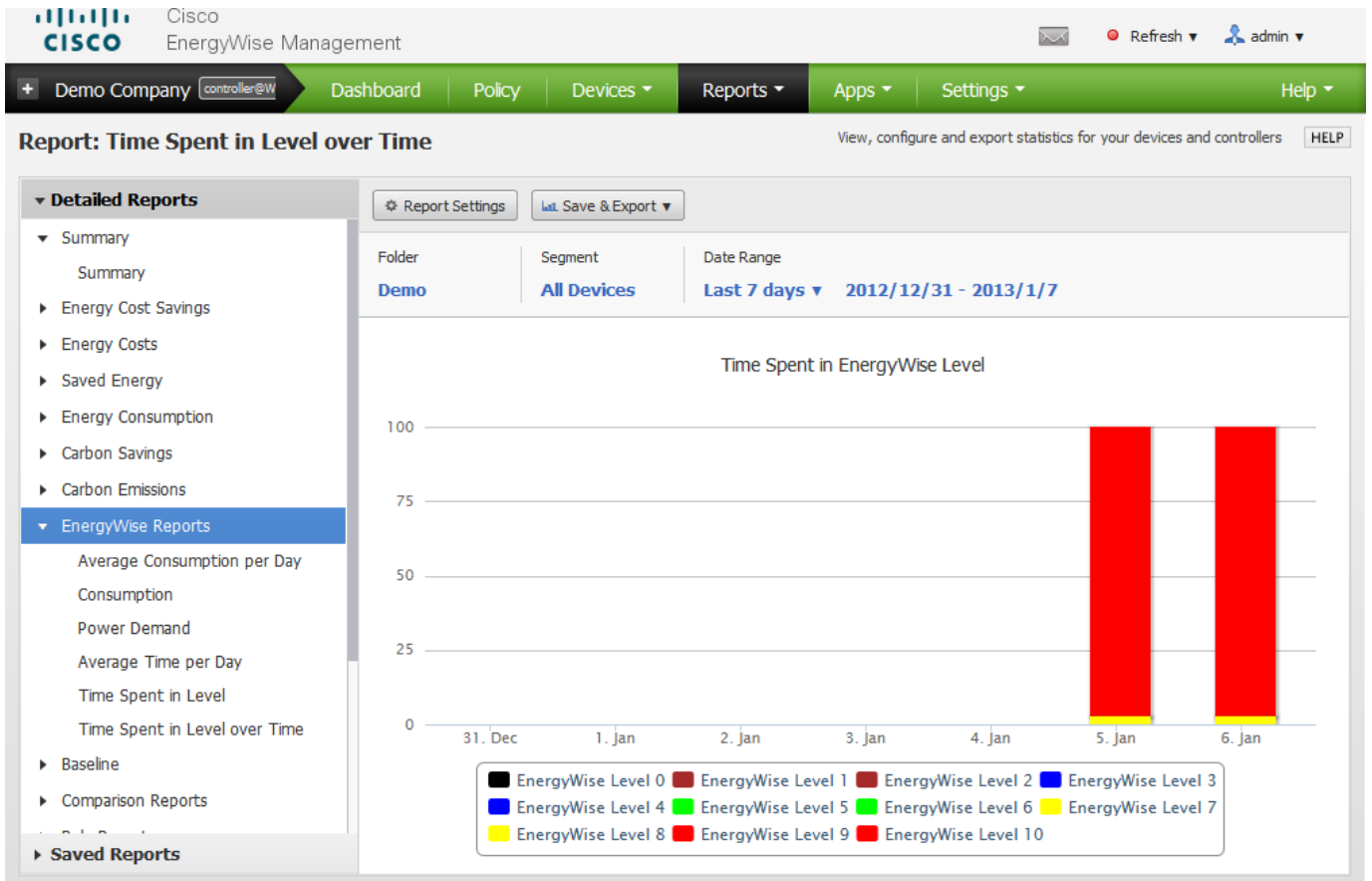


### EnergyWise Policies

The screenshot shows the Cisco EnergyWise Management web interface. The top navigation bar includes 'Dashboard', 'Policy', 'Devices', 'Reports', 'Apps', 'Settings', and 'Help'. The 'Policy' section is active, showing a list of policies. A yellow banner at the top of the policy list indicates 'You have made changes.' Below this, a policy named 'EnergyWiseLevel-Test' is displayed. It has a condition 'type=voip' and an 'Add' button for actions. A dropdown menu is open over the 'Add' button, listing various actions including 'Set EnergyWise Level'.

The 'Set EnergyWise Level' dialog box is shown. It contains a description: 'Sets the EnergyWise level for a EnergyWise enabled device'. Below the description is a dropdown menu for 'EnergyWise Level' with options: (none), 2 Sleep, 3 Standby, 4 Ready, 5 Low, 6 Frugal, 7 Medium, 8 Reduced, 9 High, and 10 Full. The '9 High' option is selected. There are 'OK' and 'Cancel' buttons at the bottom right.

## EnergyWise Reports



## Customizing Cisco EnergyWise Management

Now that early steps with Cisco EnergyWise Management have been completed, configuration of some additional Settings, which will become important once Cisco EnergyWise Management is expanded to support more devices, is recommended.

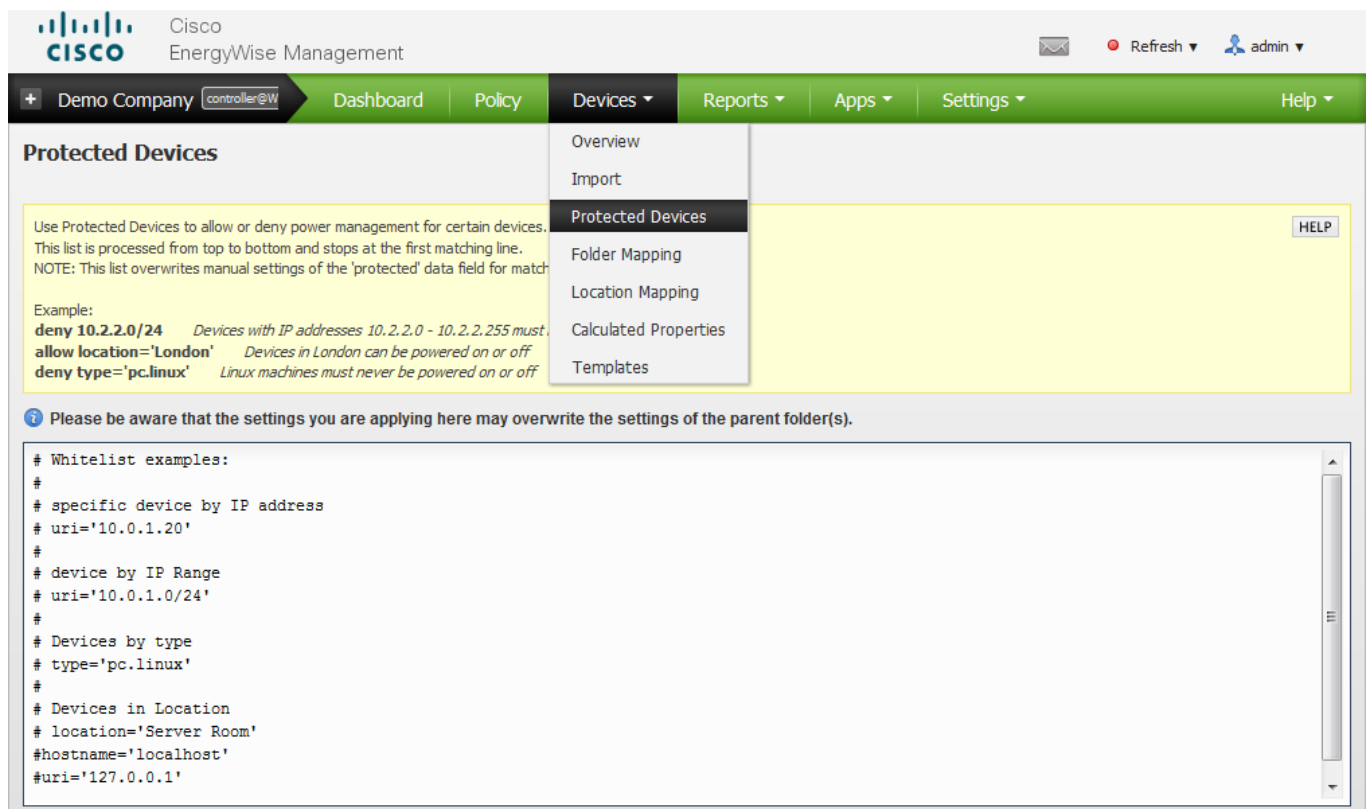
### Protect your most important devices

Cisco EnergyWise Management is a powerful software platform, capable of managing and controlling the energy usage across the entire network. In order to prevent important devices from being mistakenly powered down or put into hibernate status, the Protected Devices settings are important. Protected Devices, allows you to specify which devices should never be powered down, hibernated, or put in standby mode by policy rules or by manual actions.

To add a Protected Device, go to the **Devices** Tab and click Protected Devices then enter IP addresses, locations, device types or other filtering criteria to describe the device that should be protected. As in the example below, you will enter "deny \*" to project all devices from status changes by Cisco EnergyWise Management.

deny \*

Take a look at the examples below for other options. Don't forget to click on **Save Changes** to apply the protected devices settings.



**Protected Devices**

Use Protected Devices to allow or deny power management for certain devices. This list is processed from top to bottom and stops at the first matching line. NOTE: This list overwrites manual settings of the 'protected' data field for match

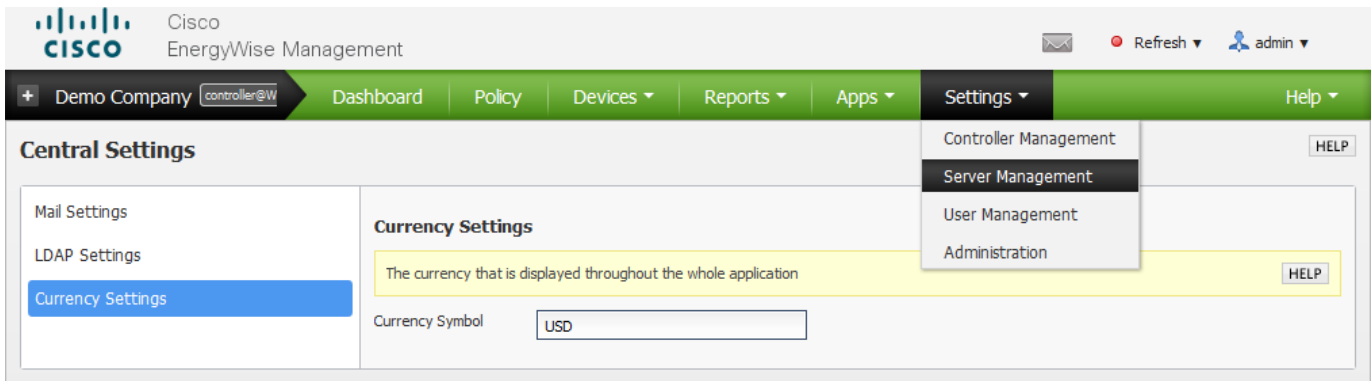
Example:  
**deny 10.2.2.0/24** *Devices with IP addresses 10.2.2.0 - 10.2.2.255 must*  
**allow location='London'** *Devices in London can be powered on or off*  
**deny type='pc.linux'** *Linux machines must never be powered on or off*

Please be aware that the settings you are applying here may overwrite the settings of the parent folder(s).

```
# Whitelist examples:
#
# specific device by IP address
# uri='10.0.1.20'
#
# device by IP Range
# uri='10.0.1.0/24'
#
# Devices by type
# type='pc.linux'
#
# Devices in Location
# location='Server Room'
#hostname='localhost'
#uri='127.0.0.1'
```

## Adjust Energy Utility Rates and Currency

For correct reporting of energy costs, energy savings, and carbon emissions, it is recommended that actual energy prices and carbon information be entered into Cisco EnergyWise Management. To do this, first go to the Central Settings page and choose the **Currency Settings**. Enter the appropriate currency symbol into the Currency field. This currency will be used across all Cisco EnergyWise Management reporting, cost and savings calculation, and simulation. Therefore, all monetary values entered should be consistently in one given currency.

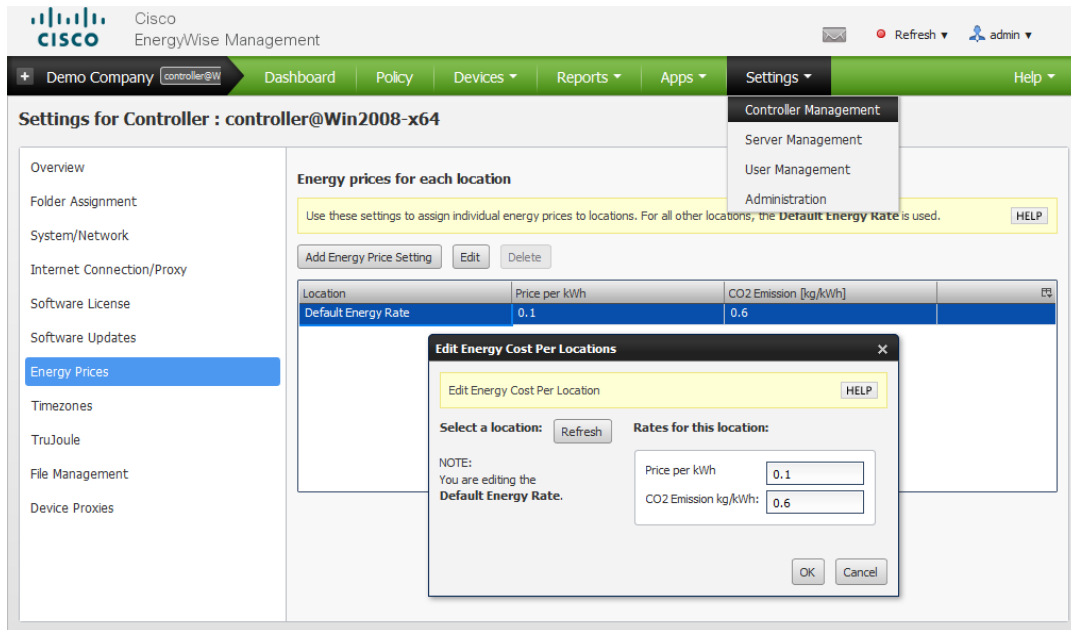


Cisco EnergyWise Management supports energy pricing and carbon accounting for multiple Locations. This is important for multiple locations with different energy prices and carbon emissions. To get started, first enter a meaningful value for the Default Energy Rate. To do this, go to **Settings > Controller Management** and click on **Edit Settings** of the respective Controller. Next, click on **Energy Prices** on the right, select the corresponding row in the energy prices table and click **Edit**. To enter specific energy prices and carbon emissions, you will need to provide the following data:

Price per kWh	This is the price you pay for one kWh (kilowatt hour).	Example: 0.10
CO2 Emission kg/kWh	This value represents the equivalent carbon emissions in kg for each kWh consumed.	Example: 0.6

These values can be obtained from your utility company or facilities department. The energy price information is imperative for correct energy cost and savings reporting, and the carbon emissions can be considered a Green metric to be used for sustainability reporting.

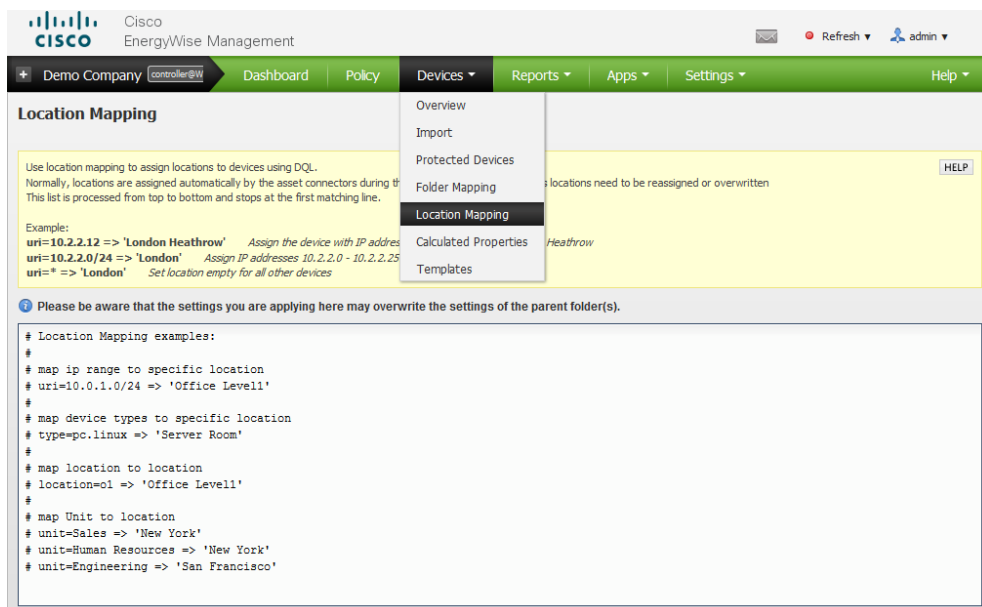
If no location-based energy pricing is entered into Cisco EnergyWise Management, the Default Energy Rate will be used.



## Managing Locations

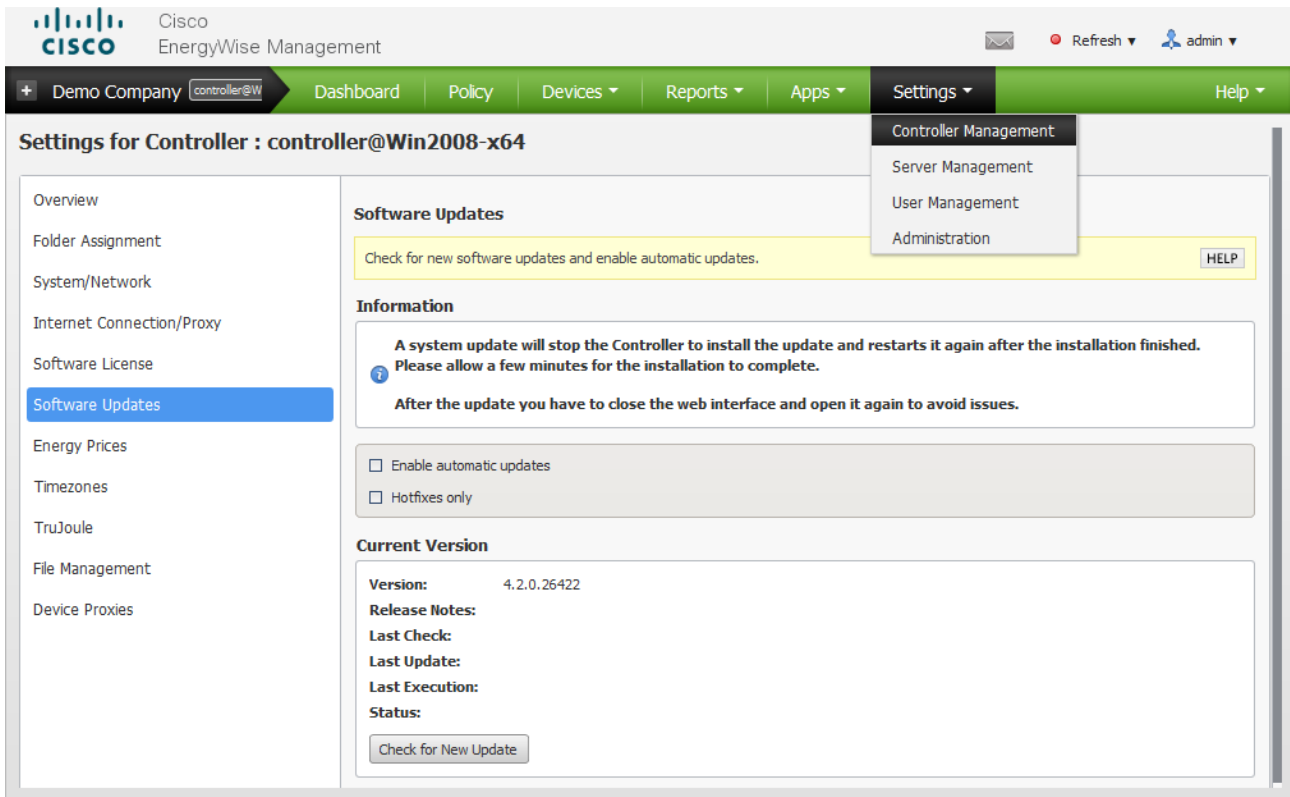
Locations play an important role in Cisco EnergyWise Management. For instance, you can assign energy utility prices to individual locations, create different power management rules on a per-location basis, or create location-based reports.

If you're using Active Directory, locations are imported automatically for all devices in AD. The location for a device can be manually set through the Device Viewer Dialog on the Devices page.



## Automated Software Updates

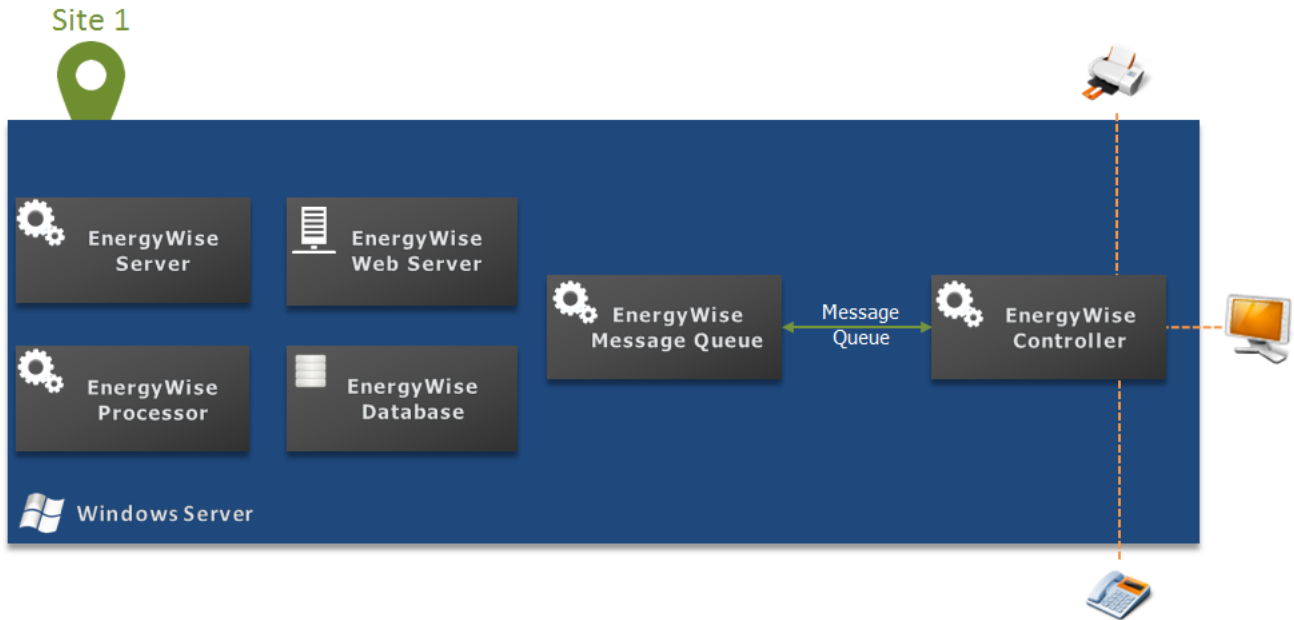
Cisco EnergyWise Management supports automated Software Updates. By default, automated software updates are disabled. However, we recommend enabling this feature in order to always have the most current version of Cisco EnergyWise Management. To enable this feature, go to the Settings page, click the **Edit** button of the respective Controller and select Software Updates. To generally enable software updates, check the Enable automatic updates box. If you only want the smaller releases and important hotfix updates should be automated, check **Hotfixes only** box.



The screenshot shows the Cisco EnergyWise Management web interface. The top navigation bar includes 'Demo Company', 'Dashboard', 'Policy', 'Devices', 'Reports', 'Apps', 'Settings', and 'Help'. The 'Settings' menu is open, showing options for 'Controller Management', 'Server Management', 'User Management', and 'Administration'. The main content area is titled 'Settings for Controller : controller@Win2008-x64' and features a left-hand navigation menu with 'Software Updates' selected. The 'Software Updates' section contains a yellow banner with the text 'Check for new software updates and enable automatic updates.' and a 'HELP' button. Below this is an 'Information' box with a warning icon and text: 'A system update will stop the Controller to install the update and restarts it again after the installation finished. Please allow a few minutes for the installation to complete. After the update you have to close the web interface and open it again to avoid issues.' Underneath are two checkboxes: 'Enable automatic updates' (unchecked) and 'Hotfixes only' (unchecked). The 'Current Version' section displays the following information: Version: 4.2.0.26422, Release Notes, Last Check, Last Update, Last Execution, and Status. A 'Check for New Update' button is located at the bottom of this section.

## Single-Server Deployment

This is the simplest form of deploying Cisco EnergyWise Management. All components (Server, Controller, EnergyWise Message Queue, Database, Web Server, etc.) are installed on a single Windows machine (physical server or virtual machine). This is recommended for smaller installations, pilots and trials to get familiar with Cisco EnergyWise Management.



For deployment, use the standard installer ([See Installation](#)) to install and configure all components.

### Upgrading

As mentioned before, this deployment works well up to 30,000 devices or endpoints, depending on the hardware configuration of the server. For scaling and distributed deployment, it is possible to add additional Controllers to this deployment which are connected to the existing central server. It is also possible to disable the Controller which was installed for the single-server deployment entirely and only use external controllers.

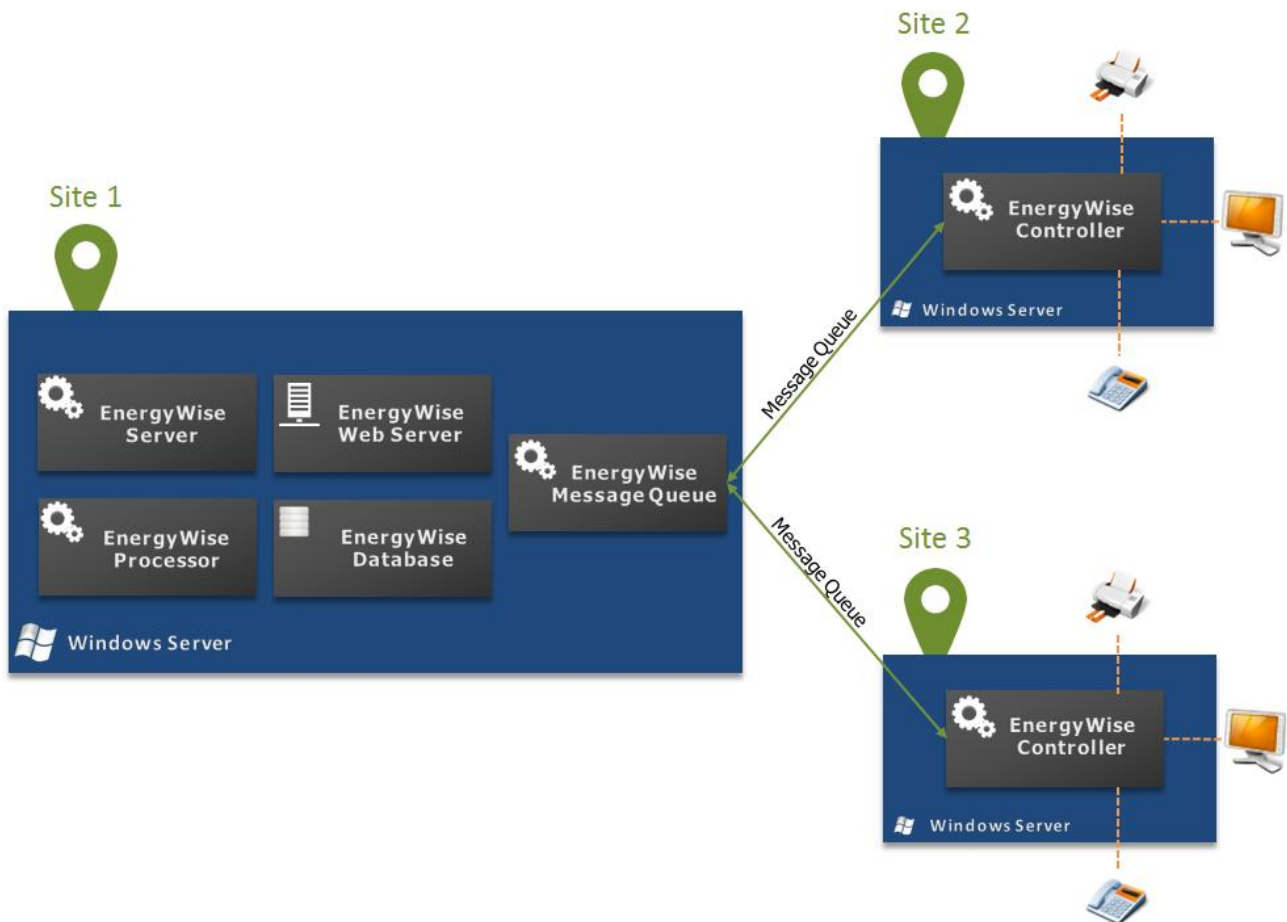
Each controller requires access to the EnergyWise Message Queue server for communication with the central server. This can be configured during the installation or afterwards.



## Multi-Server Deployment

Deploying Cisco EnergyWise Management across multiple servers is recommended when more than 50,000 devices or endpoints should be managed. This requires one instance of the Central Server and one or more Controller instances. Each Controller can handle up to 50,000 devices or endpoints on a selected, high-performance hardware server. A separate EnergyWise Server can scale up to 500,000 devices on a selected, high-performance hardware server. For larger installations, please contact Cisco support.

Multi-Server deployment also enables implementation of Cisco EnergyWise Management for geographically distributed sites or isolated networks. Individual EnergyWise Controllers can be deployed across your organization, preferably close to the endpoints in the network, so that network traffic, latency and scanning times are optimized. EnergyWise Controllers can also be deployed in isolated networks and only require a single connection with the central server via the message queue.



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## Multi-Server Installation

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Install EnergyWise Server on a high-performance hardware server.

- 1) See [Installation](#) for details and only install the **EnergyWise Server**  
Take note of port settings for the EnergyWise Message Queue server.

Install EnergyWise Controller on a separate server.

- 2) Follow the instructions in [EnergyWise Controller Installation](#) and use the EnergyWise Message Queue settings from step 1) to configure the communication between the EnergyWise Controller and the central server. Also make sure firewall and network settings are correct.

New EnergyWise Controllers will automatically appear in the Management Console under **Settings > Controller Management** and need to be assigned to a folder.

- 3) Repeat step 2) for multiple EnergyWise Controllers

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## Appendix

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### Frequently Asked Questions

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#### What is WMI?

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Cisco EnergyWise Management uses the Microsoft WMI protocol for remote management of Windows devices. Starting from Windows XP, WMI is a central component of all Windows operating systems which provides a secure way to interact with Windows machines to retrieve device information (hardware configuration, CPU utilization, etc.) as well as to remotely control the power state.

For more information on how to enable WMI, please see the Help Documentation.

#### What is WoL (Wake-on-LAN)?

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Wake-On-LAN is a widely adopted technology which allows computer systems (Windows, Linux and Mac) to be powered on (waked up) remotely via (wired) network. In some case, WoL is disabled through factory default settings and must be enabled manually in the BIOS settings of the device. Some device types (Mac OS X) also support Wake-On-WLAN. Please refer to the individual system documentation on how to enable WoL features.

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## Online Help Resources

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### Integrated Online Help Documentation

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Cisco EnergyWise Management has a built-in context sensitive online help. Click on HELP or the question mark in widgets, windows, views and dialog boxes.

### External Knowledge Base

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You can also find additional information on special topics, FAQ and technical articles in the Cisco knowledge base under: <http://docs.JouleX.net>

## Contacting Cisco

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For product information, sales information or technical support\* please use the following contact information:

### General Inquires

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For general information about our products and service, please contact us via email at:

[www.cisco.com/cisco/web/siteassets/contacts](http://www.cisco.com/cisco/web/siteassets/contacts)

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**[tac@cisco.com](mailto:tac@cisco.com)**

\*) Availability of technical support levels and priorities depend on your service agreement with Cisco or one of its partners.