

CHAPTER 5

Managing Policies

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Policies

A policy is a collection of the settings that Orchestrator uses to enforce power management in your network. You can assign the same policy to multiple PCs or devices in a network.



All power settings in policies apply to PCs. For other types of devices, only scheduled power level changes apply. Orchestrator collects data for all device types for reporting purposes.

Policies can have these settings:

- A background scheme, which is a power scheme that runs 24 hours a day, 7 days a week, when no other schemes are explicitly scheduled.
 - You can create a policy with just the background power scheme to serve as a default for simple PC power management.
- One or more power schemes, each with a unique schedule. Each scheme can also include one or
 more power-state change rules for different applications. Power state transition rules can prevent a
 PC from transitioning to standby or shut down while a specified application is running.
- One or more power level changes (such as wake, sleep, or restart), each with a unique schedule.

- Power-state change rules, which tell Orchestrator what action to take when a particular application
 (such as iexplore.exe or firefox.exe) is running on a PC, and when Orchestrator attempts to change
 the PC to standby or shut down. Rules can run unscheduled as part of the background settings or as
 part of a scheduled scheme. The rules take effect whenever their associated scheme takes effect,
 including the background scheme.
- Device wake-up settings.
- Logging and monitoring settings for PC clients.

Each device is assigned the default *No Enforcement* policy until you explicitly assign a different policy. Orchestrator captures data and events for devices using the *No Enforcement* policy, but does not enforce any power schemes.

Baseline Mode and Operational Mode

Orchestrator can run in two server modes: *Operational* and *Baseline*. These are set in the Configure Server Settings page (Server menu). Policies are enforced in *Operational* mode. *Baseline* mode is used for measuring energy use only.

- In Baseline server mode, Orchestrator begins collecting data for all devices as each device connects to the system. The data updates each time a device checks in. You can then display this data in different reports and device views.
- In Operational server mode, in addition to data collection, Orchestrator enforces policies either
 manually or through assignment rules that you create. Each device can have only one policy
 assigned to it, but each policy can contain multiple schemes and power state changes, each with its
 own schedule.

New devices that do not match the criteria defined in the policy assignment rules are assigned the default policy when they first connect to Orchestrator. Typically, the default policy is not enforced and no schemes are associated with the default policy.

Setting Up New Policies

When you create a new policy, it uses the policy default settings for wake settings and data collection. You can then select:

- The background scheme and power state transition rules that are in effect when the background scheme is in effect.
- Power schemes, power state changes, and power state transition rules that run according to schedule and override background settings.

New polices that you create inherit policy default settings. To change these settings, you must deselect the option **Use policy default settings** on the Wake and Data Collection tabs.

Table 5-1 General Steps for Setting Up a Policy

Step	Tasks	Procedure	
1	Create a policy.	On the Policies menu, select Edit Policies , and then click New Policy .	
2	Set the power scheme that should run when no other schemes are scheduled. Set any transition rules that should run when no other schemes are scheduled.	Click the Background tab.	
3	Create a comprehensive schedule for the policy. The schedule can include one or more schemes that run during specific days and times and one or more power state changes that run on specific days and times. Note Scheduled power schemes	While editing a policy: Click the Schedule tab, and click Insert Scheme or Insert <wake down="" energywise="" hibernate="" level="" power="" restart="" shut="" sleep="">. Note Insert EnergyWise Power Level automatically maps to</wake>	
	cannot overlap. If you need to create or edit a power scheme, click Power Schemes on the	PC power states and works for PCs as well as non-PC devices.	
	top right button bar.	The options for omitting, delaying, or forcing a change, or displaying a message are ignored for non-PC devices.	
4	Add one or more transition rules if necessary.	While editing a policy: Click the Schedule tab, click Insert Scheme, and click the Power State Transition Rules tab.	
5	Review the wake settings. If you need wake settings that are different from the policy default settings, clear the <i>Use policy default settings</i> option.	While editing a policy: Click the Wake Settings tab.	
6	Review settings for logging and data collection. If you need settings that are different from the policy default settings, clear the <i>Use policy default settings</i> option.	While editing a policy, Click the Data Collection tab.	
7 (optional)	Create, edit, or reorder policy assignment rules.	Click Assignment Rules in the top right corner of the Edit Policies page.	
8 (optional)	Create or edit power state transition rules.	Click Power State Transition Rules in the top right corner of the Edit Policies page.	

Policy Inheritance

All policies initially inherit wake and data collection settings from the policy default settings: these are the wake settings, logging, and data collection settings without a scheduled component. The settings apply to all policies that use the *Use policy default settings* option.

You can apply the same wake and data collection settings for all policies and customize wake and data collection settings for specific policies as needed by deselecting the *Use policy default settings* option on Wake and Data Collection tabs for that policy.

Each policy that you create must include a background scheme, which can include a scheme and power-state change rules automatically applied 24 hours a day, 7 days a week, unless you schedule other schemes and rules.

The background scheme and scheduled power schemes can also have associated power state transition rules that are active when the particular schemes are active.

Any scheduled power settings that you specify (schemes, power state changes, or power state change rules) and unique wake and data collection settings take precedence over default policy settings and background settings.

Strategies for Creating Policies

The policies that you create should be based on your knowledge of the energy that PCs and devices in use, why, the times of day that users are most active, and patch management needs.

Analyzing the Operational State report and Event Summary report during the baseline period can help you gain understanding of when devices are On but are not actively being used.

For details on implementing power management through policies, see Chapter 2, "Gathering Data for Initial Power Management Policies."

Figure 5-1 shows a new policy that was created to address most power management needs.



Figure 5-1 New Policy Example

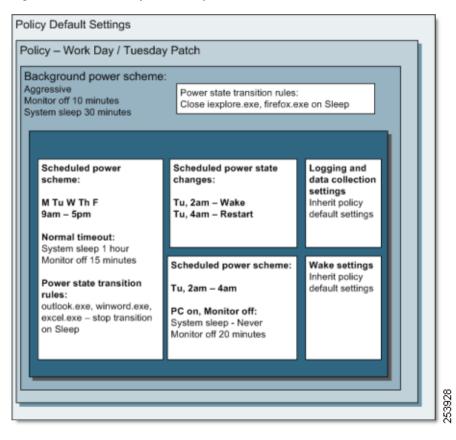


Figure 5-2 Example of Policy Inheritance

Settings for policy called Work Day/Tuesday Patch:

- Inherit policy default settings for wake and data collection settings.
- Enforce an aggressive scheme for any day and time that another scheme is not in effect (background).
- Enforce a normal scheme for work hours 0900 to 1800 during the week.
- Enforce a PC on, Monitor off scheme during a Tuesday early morning patch maintenance window.

On Tuesday, two power state changes are scheduled to wake machines for patching and to restart computers when patching should be complete (Figure 5-3).

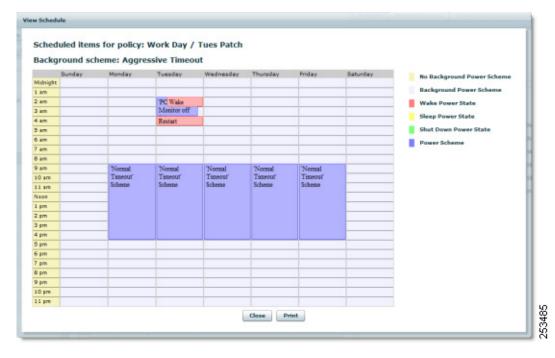


Figure 5-3 Power State Changes in a Policy Example

After you create the policy, you can manually assign it to one or more devices in the device list or automatically through policy assignment rules.

Recurrence Settings

EnergyWise recurrence strings that you set for devices on the switch through the CLI or another management application are overwritten when the Orchestrator server updates the policy that is assigned to the device:

- Orchestrator changes from baseline to operational server mode, and Orchestrator begins policy enforcement.
- An administrator clears the *Do not enforce this policy* option for an assigned policy for a device while Orchestrator is in Operational mode.
- A policy is modified and saved in operational mode, and Orchestrator sends the updated policy information to a device.



If previously set recurrences exist on any ports when EnergyWise proxy service is started for the first time, the recurrences still exist on the ports. If the **No Enforcement** policy is assigned to these ports and you need to clear the preexisting recurrences, follow these steps:

- **Step 1** In Orchestrator Administrator console, on the Policies menu, select **Edit Policies**.
- Step 2 Select the No Enforcement policy.
- Step 3 Clear the **Do not enforce this policy** option.
- **Step 4** Click **Save**. Wait until the recurrences have cleared. You can check this by using show EnergyWise recurrences command on the switch CLI.

Step 5 Select the Do not enforce this policy option again.

Step 6 Click Save.

Power State Changes

A power state change is part of a policy that can be scheduled and instructs a device to wake, sleep, hibernate, shut down, restart, or change its EnergyWise power level.

You can also change the power levels of devices directly, outside of policy settings, from the device list.

Options for power state changes are available on the Edit Policies page on the Schedule tab (Policies > Edit Policies > Insert < Wake / Sleep / Hibernate / Shutdown / Restart / EnergyWise Power Level > and in the Manage Devices page on the Devices tab (Devices > Set Power Level < Wake / Shutdown / Sleep / Restart / EnergyWise Power Level>).



Insert EnergyWise Power Level and Set EnergyWise Power Level automatically map to PC power states and work for PCs as well as non-PC devices.

When you specify a power state change to a PC to sleep, hibernate, shut down, or restart, you can also specify options to force a change (directly or in a policy) to allow a user to delay or omit a change for a specified period of time (policies only).



- The options for skipping, delaying, or forcing a transition, or displaying a message are ignored for non-PC devices.
- Use Force transition only when necessary. Some applications might block normal Windows shut down requests. For example, Word or Notepad display a dialog box asking the PC user to save document changes. When you select Force transition, applications are prevented from blocking shut down and any unsaved changes in the user's application are lost.

Configuring Policies

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Setting New Policies

When you create a policy, Orchestrator uses the policy default settings for wake settings and data collection. You can select:

• The background scheme and power state transition rules that are in effect 24 hours a day, 7 days a week, when no other schemes or rules are explicitly scheduled.

• Power schemes, power state changes, and power state change rules that run according to schedule and that override background settings.



Policies that you create inherit policy default settings. To change settings, you deselect **Use policy default settings** on the Wake and Data Collection tabs.

	Task	Description
Step 1	From the Policies menu, choose Edit Policies , and click New Policy .	Create a policy.
Step 2	Click the Background tab.	Set the power scheme to run when no other schemes are scheduled. Set any change rules to run when no other schemes are scheduled.
Step 3	While editing a policy, click the Schedule tab, and click Insert Scheme or Insert <wake down="" energywise="" hibernate="" level="" power="" restart="" shut="" sleep=""></wake> .	Create a schedule for the policy. The schedule can include one or more schemes that run during specific days and times and one or more power state changes that run on specific days and times.
		Note If you need to create or edit a power scheme, click Power Schemes in the top right button bar.
Step 4	While editing a policy, click the Schedule tab, click Insert Scheme , and click the Power State Transition Rules tab.	Add one or more change rules if necessary.
Step 5	While editing a policy, click the Wake Settings tab.	Review the wake settings. If you need different wake settings, clear the <i>Use policy default settings</i> option.
Step 6	While editing a policy, click the Data Collection tab.	Review settings for logging and data collection. If you need different settings, clear the <i>Use policy default settings</i> option.
Step 7	(Optional) Click Assignment Rules in the top right corner of the Edit Policies page.	Create, edit, or reorder policy assignment rules.
Step 8	(Optional) Click Power State Transition Rules in the top right corner of the Edit Policies page.	Create or edit power state change rules.

Creating and Editing Policies

A policy is a collection of settings that Orchestrator uses to enforce power management in your network. You can assign the same policy to multiple PCs or devices in a network.



All power settings in policies apply to PCs. For other types of devices, only scheduled power level changes apply. For non-PC devices, it is likely a scheduled power level change would be the only setting that you apply by using a policy.

Step 1 From the Policies menu, choose **Edit Policies**.

- **Step 2** Click **New Policy**, or select a policy in the list. You can also click **Copy** to start with an existing policy as your template.
- **Step 3** For a new policy, enter the policy name and a description.
- **Step 4** On the Schedule tab, select the background power scheme to use whenever no other scheme is scheduled.

You can also click the Background tab to select a background power scheme and specify power state change rules that run when no other power state change rules are scheduled.

- **Step 5** Click the **Insert Scheme** to add a scheduled power scheme to the policy.
- **Step 6** Select the scheme, days, and time range, and click **Insert**.

Continue to add schemes as needed for the policy. Scheduled power schemes cannot overlap.

If you want to include power state change rules that accompany the scheduled scheme, click the **Power State Transition Rule** tab.

- a. Click the Power State Transition Rule tab.
- b. Click **Insert**, select the rule that you want to add, and then click **Add**.

Click New Rule to add a rule to the list.

Power state transition rules can apply to applications running locally, on the network, or both. The application name that you provide should be the executable name as it appears in the Windows Task Manager under Processes, for example: firefox.exe.

- c. Click the Schedule tab when you are done.
- **d.** Repeat these steps to configure another power state transition rule.
- **Step 7** On the Insert Power State menu, click a power state change to add it to the policy.





Note

Insert EnergyWise Power Level automatically maps to PC power states and works for PCs as well as non-PC devices.

(PCs only) If you select **Insert Sleep**, **Insert Hibernate**, **Insert Shutdown**, **Insert Restart**, or **Insert EnergyWise Power**, you can choose whether you want to force the change of power state by selecting **Force transition**. You also can choose to force a transition for Wake on WAN proxies.



Note

Use Force transition only when necessary. Some applications might block normal Windows shut down requests. For example, Word or Notepad might display a dialog box asking a PC user to save document changes. When you select Force transition, applications are prevented from blocking shut down, and any unsaved changes in the user's application are lost.

(PCs only) You can specify whether users can omit or delay a change and change the message displayed for a Sleep, Hibernate, Shut Down, or Restart change.



The options for skipping, delaying, or forcing a transition, or displaying a message are ignored for non-PC devices.

- **Step 8** Select the days and time, and click **Insert**.
 - Continue to add power state changes as needed for the policy.
- **Step 9** Adjust the Wake and Data Collection tab settings, if needed. These settings affect PCs only. You need to clear the *Use policy default settings* option to edit the settings.

If you clear the Collect power state data option, PC power state change data is not available in reports.

Step 10 Click Save.

You can also configure power schemes and power state transition results for the policy. See the "Using Power Schemes" section on page 5-12 and the "Creating and Editing Power State Change Rules" section on page 5-14.

Configuring Policy Assignment Rules

After you create policies, you can configure Orchestrator to automatically assign the appropriate policies to new devices when the devices connect to the server.

When you configure policy assignment rules, policies are automatically assigned to specific devices based on a set of criteria. Because rules that you set up for automatically assigning policies to devices are saved as a set, the order is important, and you need to consider the best order to get the results that you want.

You can only run the rule set automatically when new devices connect, or for all connections. This means that rules run whenever a device wakes or whenever the device moves from one network card to another (such as a PC moving from a network line to a wireless connection).

Each rule can contain a set of criteria that a policy must meet to be assigned to the device. When you connect new devices to the server, they must comply with the policy criteria for the policy to be automatically assigned to a set of devices.



If a device does not meet any of the criteria in the rule, the device is assigned to the default policy.

- Step 1 In the Administrator console, from the Devices menu, choose Configure Policy Assignment Rules.
- **Step 2** Click **New Rule**. Enter a name and a description for the rule, and select the name of the policy to be assigned when the rule runs.
- **Step 3** Click **Add condition** to add as many criteria as necessary.

As you add criteria, you can see what the result would be by clicking the **Test Conditions** tab.

- **Step 4** Specify whether the rule should be enforced when all criteria are satisfied or when any criteria is satisfied.
- Step 5 Click Done.
- **Step 6** For Enforcement, specify whether the rule runs automatically when new devices connect to the server or when all devices connect to the server.



With *All connections*, the rules run whenever a computer wakes up or whenever a computer moves from one network card to another, such as from a network line to a wireless connection or back.

- **Step 7** Reorder rules by selecting a rule and clicking **Move Up** or **Move Down**.
- **Step 8** Click **Save Rule Set** to save all changes.

Disabling a Policy

To disable a policy for all PCs and devices that use that policy, select the **Do not enforce this policy** option on the Edit Policies page.



You can also create a new policy for a specific set of devices to which you can apply the *Do not enforce this policy* option as needed.

Notify your Orchestrator administrator when you make this change to ensure that the PCs or devices receive the correct enforcement instructions for your organization.



The *No enforcement* policy in Orchestrator is the default policy that is applied to new devices that do not meet the criteria of a policy assignment rule. The default settings use *Do not enforce this policy* option. You can apply the No enforcement policy to devices to disable policy enforcement if it is still using the default settings.

- **Step 1** In the Policies menu, click **Edit Policies**.
- **Step 2** In the policy list, select the policy that you want to disable.
- **Step 3** Select **Do not enforce this policy**.
- Step 4 Click Save.

Enforcing Policies

After you determine initial policies and assign them to devices, you can take the server out of Baseline mode and start measuring and managing power use on the devices.

This topic assumes either of these situations:

- You have created initial power management policies after completing the baseline data collection phase, and you have assigned the policies to devices.
- You have set the server to Baseline mode for another reason, such as at the suggestion of a Technical Support representative for troubleshooting purposes.

If you have not obtained baseline numbers or created initial policies, see an overview of the process at Establishing the baseline level of energy use.

Step 1 Make sure that the policies you are using are not disabled:

- a. On the Policies menu, click Edit Policies, and select a policy name in the list.
- **b.** Confirm that the **Do not enforce this policy** box is not selected.

Figure 5-4 Box for Do Not Enforce This Policy



- Step 2 On the Server menu in the Administrator console, click Configure Server Settings.
- **Step 3** For *Server mode*, select **Operational**.

When the server is in Operational mode, devices follow policy instructions, and device data is reported to the Orchestrator database.

Using Power Schemes

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Power Schemes

A power scheme is part of a policy scheduled for PCs, and provides instructions about when a PC should change power levels, such as transitioning the system to sleep after 1 hour of no activity, or turning the monitor off after 15 minutes.

Schemes include these settings:

• Basic settings for system standby, monitor (on or off), and narcolepsy timeout.



Narcolepsy timeout refers the period of time in which the Windows operating system is prevented from putting a PC back to sleep during a period of no activity (such as during maintenance windows). You can also disable narcolepsy behavior completely.

• Idle timer settings for Windows and Orchestrator.



PC insomnia is a condition in which a computer initiates a low power state, but something on the system erroneously keeps the computer awake. PC insomnia is generally caused by various applications and processes that can reset the Windows idle timer. Using the Orchestrator idle timer helps to ensure accurate and predictable sleep transitions. The Orchestrator idle timer is enabled by default in schemes. The Orchestrator idle timer must be enabled to use power state transition rules in a scheme.

• Advanced settings that apply to specific versions of Windows (XP, Vista, or Windows 7).

Default Power Schemes in Orchestrator

Orchestrator includes several predefined schemes to use in policies or to modify You can edit or create your own schemes as needed. Click **Power Schemes** in the top right corner of the Edit Policies page.

You apply schemes to policies by using the Schedule tab in the Edit Policies page. Table 5-2 lists the default power schemes.

Table 5-2 Default Power Schemes

Scheme	Description	
Very aggressive timeout	System sleep after 15 minutes.	
	• Turn off monitor after 5 minutes.	
	• Narcolepsy timeout after 4 hours.	
	• Orchestrator idle timer on by default (Windows idle timer disabled).	
Aggressive timeout	System sleep after 30 minutes.	
	• Turn off monitor after 10 minutes.	
	• Narcolepsy timeout after 4 hours.	
	• Orchestrator idle timer on by default (Windows idle timer disabled).	
Normal timeout	System sleep after 1 hour.	
	• Turn off monitor after 15 minutes.	
	• Narcolepsy timeout after 4 hours.	
	• Orchestrator idle timer on by default (Windows idle timer disabled).	
Conservative timeout	System sleep after 2 hours.	
	• Turn off monitor after 20 minutes.	
	• Narcolepsy timeout after 4 hours.	
	• Orchestrator idle timer on by default (Windows idle timer disabled).	
PC on, monitor off	System sleep is never.	
	• Turn off monitor after 20 minutes.	
	• Narcolepsy timeout after 4 hours.	
	• Orchestrator idle timer on by default (Windows idle timer disabled).	
PC on, monitor on	System sleep is never.	
	• Turn off monitor is never.	
	• Narcolepsy timeout after 4 hours.	
	• Orchestrator idle timer on by default (Windows idle timer disabled).	

Creating and Editing Power Schemes

A power scheme is a part of a policy that can be scheduled and provides instructions about when a device should change power levels, such as changing the system to sleep after 1 hour of no activity or turning the monitor off after 15 minutes.

The process of creating or editing a power scheme is separate from assigning the scheme to a policy. You must first create a power scheme to be able to add it to a policy.

- Step 1 On the Policies menu, click Edit Policies.
- **Step 2** Click **Power Schemes** in the top right corner of the page.
- **Step 3** Click **New Scheme**, or select an existing scheme to edit it. You can also click **Copy** to start with an existing policy as your template.
- **Step 4** For a new scheme, enter the scheme name and a description.
- **Step 5** On the Basic Settings tab, select the main settings for the scheme.

You can optionally click the Advanced Settings tab to specify settings that affect specific versions of Windows.

Step 6 On the Idle Timer Settings tab, select whether the scheme should use the Windows idle timer or the Orchestrator idle timer.

Select options for refining how the Orchestrator idle timer behaves.

The Orchestrator idle timer must be enabled to use power state transition rules in a scheme. The Orchestrator idle timer is enabled by default in schemes.

For background information on PC insomnia, the Windows idle timer, and the Orchestrator idle timer, see Addressing PC insomnia through the Orchestrator idle timer.

Step 7 Click Save.

Creating and Editing Power State Change Rules

Power state change rules tell Orchestrator the action to take when a particular application (such as iexplore.exe or firefox.exe) is running on a PC and Orchestrator tries to change the PC to standby or shut down. Unscheduled rules can run as part of the background settings or as part of a scheduled power scheme. The rules take effect whenever their associated scheme takes effect, including the background scheme.

Power state transition rules can prevent a PC from transitioning to standby or shut down while a specified application is running.

Power state change rules can prevent data loss, such as when a user forgets to save changes in an open document. They can be useful for ending applications (such as some media applications) that are known to cause problems when you restart a machine to install a patch.



The Orchestrator idle timer must be enabled to use power state change rules in a scheme. (The Orchestrator idle timer is enabled by default in schemes.)

This procedure creates or edits rules that become available for assignment to a background or a scheduled power scheme. You can assign a rule to a policy or background. For details, see the "Creating and Editing Policies" section on page 5-8.

- Step 1 On the Policies menu, click Edit Policies.
- Step 2 Click Power State Transition Rules in the top right corner of the page.
- **Step 3** Click **New Rule** or select an existing scheme, and click **Edit**.
- **Step 4** For a new rule, enter the name for the transition rule and the name of the executable file for the application, for example, firefox.exe.

Power state transition rules can apply to applications running locally, or on the network, or both. The application name that you provide should be the executable name as it appears in the Windows Task Manager under Processes.

- **Step 5** Select the executable location.
 - Local
 - Network
 - Local and network
- **Step 6** Select the affected changes.
 - Shutdown
 - Sleep
- **Step 7** Select the action that should be taken.
 - Report only
 - Terminate application



Note

Use **Terminate application** only when necessary. Some applications might block normal Windows shut down requests. For example, Word or Notepad might display a dialog box asking the PC user to save document changes. When you select **Terminate application**, applications are prevented from blocking shut down, and any unsaved changes in the user's application are lost.

- Ignore transition
- Step 8 Click Save.

Creating and Editing Power State Change Rules