BigFix Lifecycle
Power ManagementUser's Guide

Special notice

Before using this information and the product it supports, read the information in Notices *(on page 42)*.

Edition notice

This edition applies to version 9.5 of BigFix and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview

With the BigFix® Power® Management solution, IT organizations can enforce conservation policies across the enterprise, while providing granularity that enables application of these policies to a single computer. Specifically, you can monitor, manage, and control the power usage settings on the computers in your network

The *User's Guide* describes some of the primary features of Power Management and how to optimize its benefits in your deployment. For information about installing and activating Power Management components in your environment, see the Power Management *Setup Guide.*

Power Management supports many features, including:

- Managing computer power settings and policies
- Tracking and reporting on computer power usage that includes measuring power usage, potential power savings, and more
- Tracking of computer states, which allows you to create power policies that maximize power savings
- Advanced Wake-on-LAN capabilities (that require no network modifications) including Last Man Standing, Wake-on-LAN Medic, scheduled wake-up times, and more
- Support for PC Insomnia detection and prevention
- A client-side dashboard to view power usage

New Features

BigFix Power Management has extended support to include the following Microsoft Windows and Mac OS X versions.

- Windows 8.1
- Windows 10
- Windows Server 2016
- OS X 10.9
- OS X 10.10
- OS X 10.11
- macOS 10.12
- macOS 10.13
- macOS 10.14
- macOS 10.15

System requirements

BigFix Power Management supports the following Windows and Mac versions.

Windows

- Windows 2008
- Windows 2008 R2
- Windows Server 2012 R2
- Windows 7
- Windows 8
- Windows 8.1
- Windows 10

Mac OS

- Mac OS 10.4
- Mac OS 10.5
- Mac OS 10.6
- Mac OS 10.7
- Mac OS 10.8
- OS X 10.9
- OS X 10.10
- OS X 10.11
- macOS 10.12
- macOS 10.13
- macOS 10.14
- macOS 10.15

*Microsoft XP, Windows Vista, and Windows 2003 have reached end of life (EOL). Microsoft products have a lifecycle that ends when the product is no longer supported. When a product reaches EOL or its end of support date, Microsoft no longer supports and releases updates for the product, including automatic fixes, updates, and online technical assistance.

BigFix, in turn, no longer provides security and non-security content and support for products that reached its end of support date. However, users of existing Windows content can use the standard HCL support channels to raise concerns and for troubleshooting support.

Microsoft provides extended support for some products that have reached their end of life. If you signed for extended support with Microsoft, it is suggested that you contact your HCL account representative. To see information about product offerings, see https://www.hcltech.com/software#products.

Definitions

This section defines common Power Management terms:

Active power state

A computer is in the Active power state when a user is working on the computer and is using one of the input devices (specifically the mouse or keyboard). The computer is considered to be using full power in this state.

CO2 Emissions

Carbon dioxide (CO2) is one of the primary greenhouse gases and power generation is one of the largest sources of carbon dioxide emissions. The amount of carbon dioxide emitted per kWh generated varies significantly based on how the electricity is generated. For example, hydroelectric and nuclear power plants do not emit carbon dioxide, but coal-fired power plants emit significant carbon dioxide.

Idle power state

This state is considered to be using full power but the user is not actively interacting with the system. In many cases, the idle power state is considered to be wasted electricity because the computer is not using low power modes, but is not being used.

Power off state

The computer is off.

Power States

System Power States define the overall power consumption of a system. BigFix Power Management tracks four main power states: Active, Idle, Standby or Hibernation, and Power Off. See the definition entries for Active, Idle, Standby, and Power-off.

Price per kWh

This is the amount you pay for electricity. One kWh is equal to 1,000 watts used for one hour. As a reference point, a standard desktop and monitor runs for approximately six hours on one kWh of electricity. A typical cost for a kWh is $0.10 in many regions of North America. However, electricity costs vary significantly depending on region and power provider, and different computer models have different power usage.

Standby power state

Also known as "Sleep" or "Hibernation". This state is the low power mode where the user's working session is saved in the memory or to the disk.

Wake-on-LAN

Wake-on-LAN (WoL) is a standard mechanism for waking computers by sending them a specific network packet which is known as the magic packet. Wake-on-LAN is difficult in many network environments because of network restrictions regarding broadcasts from other subnets. BigFix Power Management handles these complexities by sending WoL packets from nearby agents in the same subnet.

Wake-from-Standby

Windows™ and other operating systems allow applications to wake a computer from standby at predefined times. Using Wake-from-Standby, a computer wakes itself without the need for Wake-on-LAN.

Key features

This section defines the purpose and function of key features of Endpoint Manager Power Management:

PC Insomnia Prevention

Computers can be set to go into sleep states after configurable amounts of user idle time. The term PC Insomnia is used to describe a situation where applications prevent a computer from sleeping. *PC Insomnia Prevention* is a mechanism that the BigFix agent uses to monitor user idle time and force the computer to sleep at the appropriate times.

Wake-on-LAN Forwarder (WoLF)

Many enterprise networks do not allow broadcasting from different subnets, which makes Wake-on-LAN difficult. To solve this issue, BigFix agents can be designated as Wake-on-LAN Forwarders (WoLFs), which send the Wake-on-LAN packets to nearby computers in the same subnet. This method allows organizations to use Wake-on-LAN without requiring network changes.

Last Man Standing (LMS)

Wake-on-LAN technology requires at least one computer in a subnet to be active to serve as Wake-on-LAN Forwarder for other computers. An LMS-designated computer ensures that a computer is always active by resisting shutdowns and by automatically being awakened if powered off.

Power Management Efficiency

A measure of how efficiently a computer spends its non-active time, whereby *Idle Time* is considered inefficient and *standby* is efficient. The formula is: Standby Time / (Standby Time + Idle Time).

Minimum Power Consumption

The amount of power used by a computer if it is only powered on when in active use and powered off at all other times.

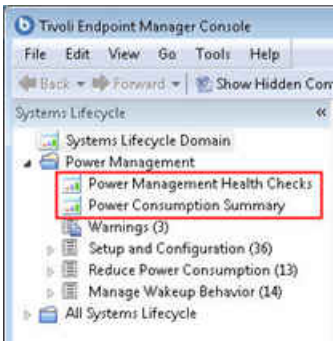
Full Power Consumption

The amount of power used if a computer was powered on all day without any power management settings enabled.

Dashboards overview

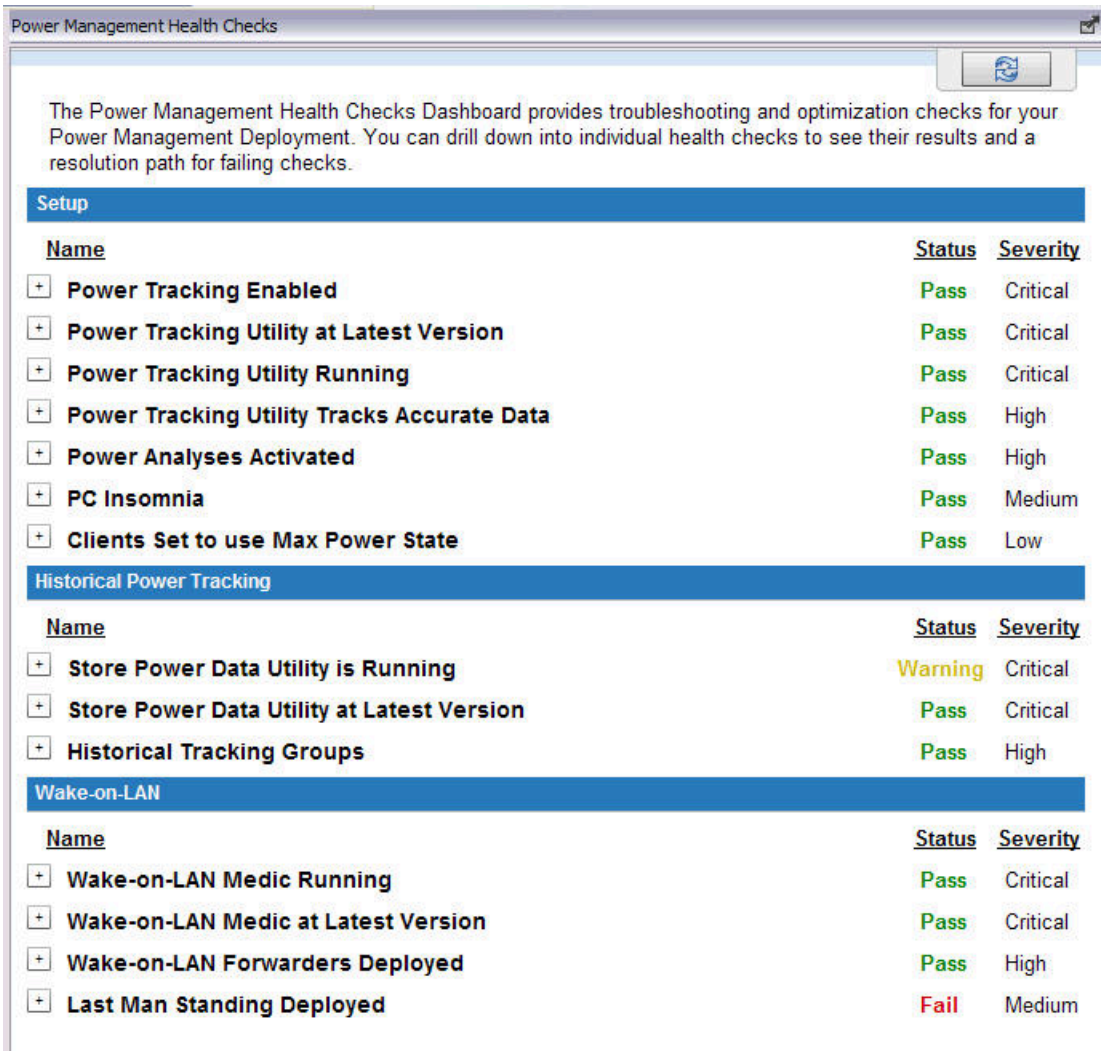
BigFix Power Management includes the following dashboards for viewing power settings summaries in your deployment:

- Power Management Health Checks
- Power Consumption Summary

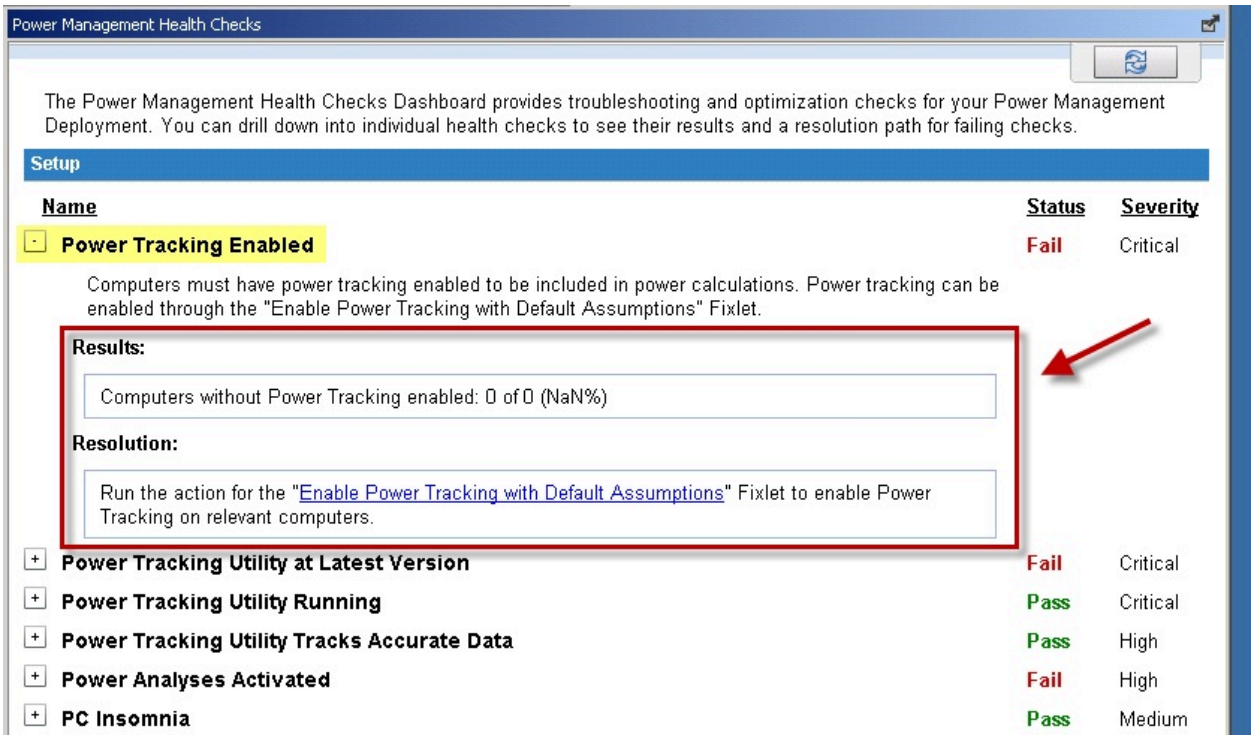


Power Management Health Checks dashboard

The *Power Management Health Checks* dashboard provides troubleshooting and optimization checks for your Power Management Deployment. The dashboard is organized into *Setup, Historical Power Tracking,* and *Wake-on-LAN* sections.



You can drill down into individual health checks to see their results and a resolution path for failing checks. Expand each item to see the detailed results and resolution.



Power Consumption Summary dashboard

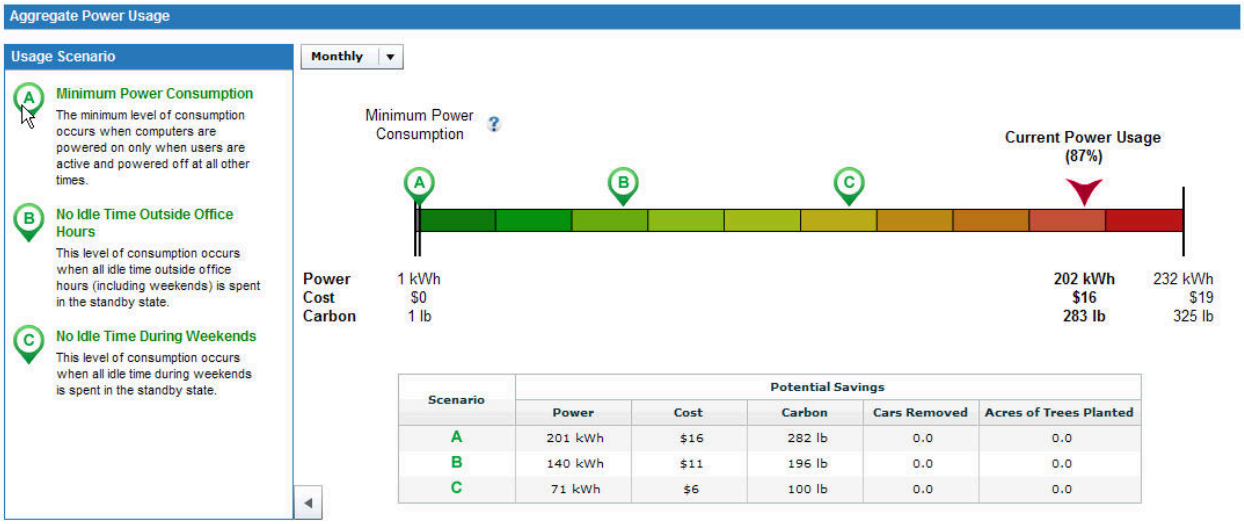
The *Power Consumption Summary* dashboard is a composite report that includes separate sections highlighting different aspects of your power usage. The Power Consumption Summary dashboard captures the following information:

- Aggregate Power Usage
- Average day breakdown of the activity states (Idle, Active, Standby, Powered off)
- Power Management (PM) Efficiency Rating
- Idle Time breakdown for last week
- Total tracked computers and computers removed from calculations
- Power profile settings
- Average Statistics
- PM Efficiency Rating
- Powered on computers

Aggregate Power Usage

The Aggregate Power Usage section displays the overall power used by your deployment and compares it with your estimated Minimum Power Consumption. The section shows the different scenarios of your power usage, in terms of power, cost, and carbon for various computer types in your deployment.

The following image shows the Aggregate Power Usage section:



In the power spectrum, the letters A, B, and C correspond to usage scenarios that are described on the left side of the Aggregate Power Usage section.

Minimum Power Consumption

The amount of power used when computers are powered on only when users are active, as opposed to idle, standby, or hibernate modes, and powered off at all other times.

No Idle Time Outside Office hours

The amount of power used when there is no idle time outside office hours. Power usage is calculated by converting idle state to standby state.

No Idle Time During Weekends

Occurs when there is no idle time during weekends. Power usage is calculated by converting idle state to standard state.

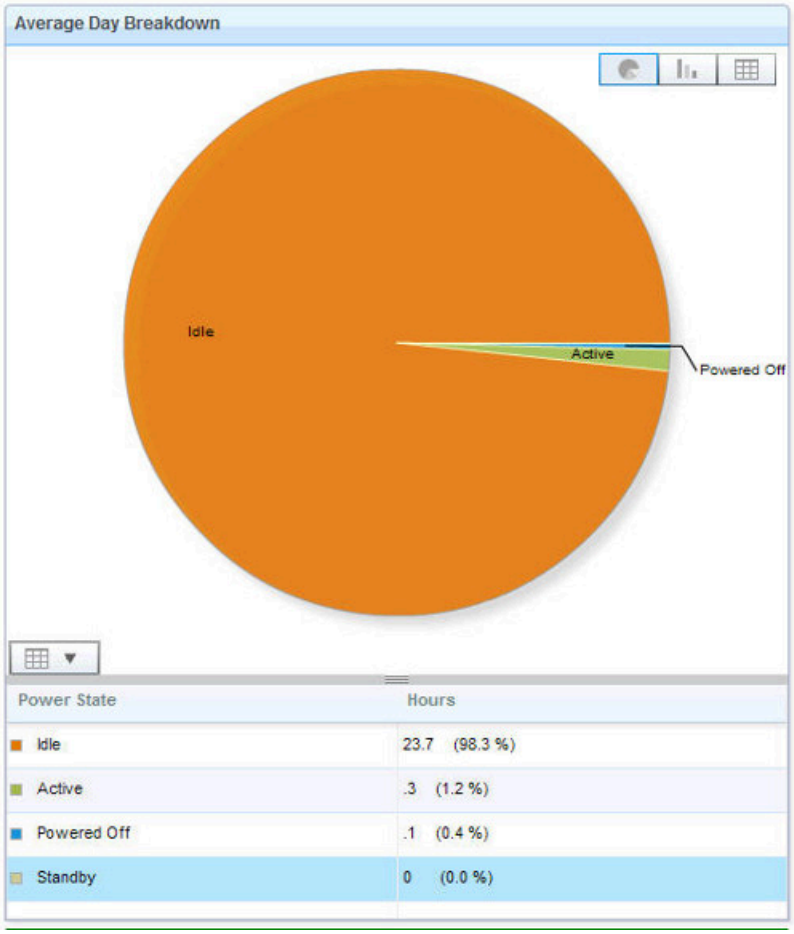
You can also view potential savings in the table found under the power spectrum.

Average day breakdown of the activity states

This section shows the amount of time the average computer spends in various power states in an average day. The computers can be in Idle, Active, Standby, or Powered off power states. Move the mouse

pointer over the pie chart sections to see the values for each power state. You can also view the Average Day Breakdown values in pie chart, graph, or tabular form.

Note: Ensure that RESTAPI is set up correctly to avoid results that are not accurate in the Power Consumption Summary dashboard and the Power Consumption Analysis result. RESTAPI is supported by BigFix server version 9.0 and later.



PM Efficiency Rating

The Efficiency Rating measures the total amount of user idle time that is spent in the standby power state. The lower the rating, the more opportunity an organization has to save power. The rating is calculated as follows: standby time / (standby time + idle time).

Average Idle Time breakdown for last week

Shows the weekly idle time breakdown per computer over a selected period of time.

Total tracked computers and computers removed from calculations

This table captures the distribution of computer types such as notebooks, desktops, and servers, in the deployment, and computers excluded from power calculations due to errors and insufficient data. Click the values in the System column to see details of the endpoints under a particular computer type.

Power profile settings

The *Power Profile Settings* displays the distribution of the following power management settings in your deployment:

- Computers with system standby enabled
- Computers with monitor standby enabled
- Computers with hard drive spindown enabled

Average Statistics

Daily power consumption of an average computer in your deployment.

Idle Time Breakdown for Last Week

	Office Hours	Outside Office Hours		Full Week
		Weekends	Workdays	
Idle Time (hours)	45	62.73	59.99	**167.72**
Total Hours/Week	45	63	60	**168**
Idle Time (%)	**100 %**	**99.57 %**	**99.98 %**	**99.83 %**

Total Tracked Computers

Type	Systems
Notebooks	0 (0 %)
Desktops	1,000 (99 %)
Servers	2 (0 %)
Totals	1,002 (100 %)
Removed due to errors	1
Removed due to insufficient data	500

Power Profile Settings

Computers with System Standby Enabled:	0 of 1,002 - 0%
Computers with Monitor Standby Enabled:	1,002 of 1,002 - 100%
Computers with Hard Drive Spindown Enabled:	1 of 1,002 - 0%

Average Statistics

Average Cost per kWh:	$0.08
Daily Usage per Computer:	
Power:	1.71 kWh
Cost:	$0.14
Carbon:	2.39 lb

Powered on computers

The *Powered on Computers* section shows the number of computers that were powered on during various periods. The graph displays the following settings:

Minimum

Shows computers that were on continuously through the whole interval.

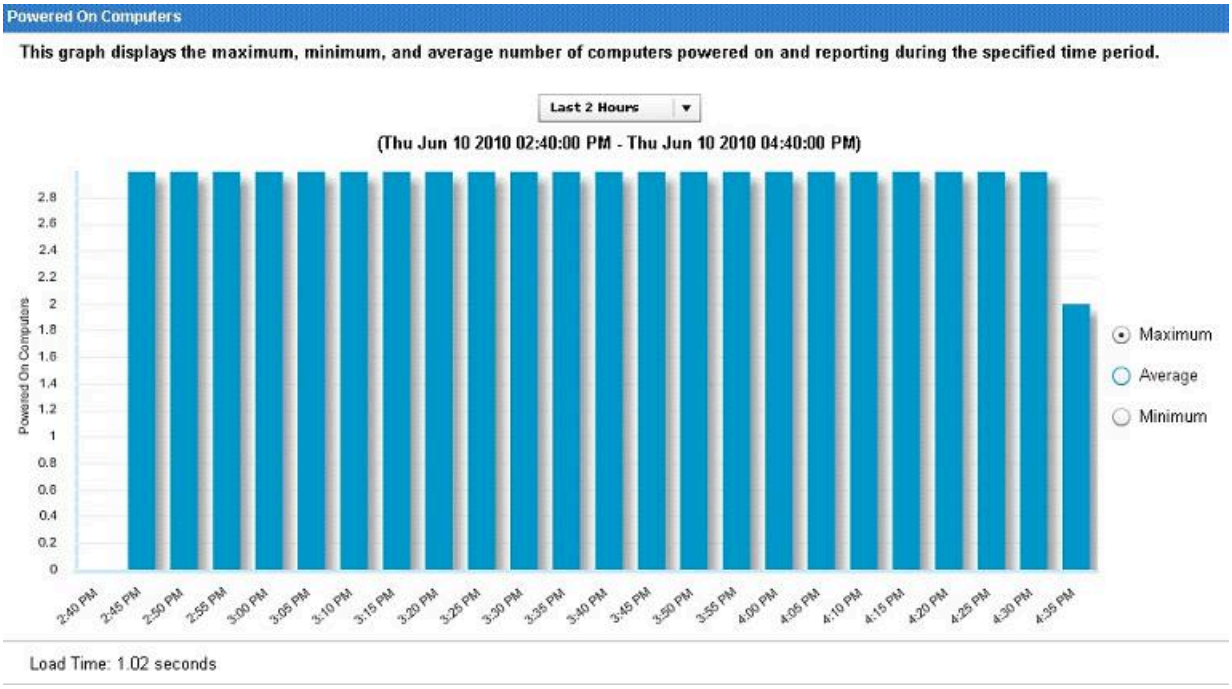
Maximum

Shows computers that reported on at least once during the interval.

Average

Shows computers that were on more often than off during the interval.

The graph displays trends of when users turn off their computers throughout different intervals: hour, day, week, or month.



Note: The Powered On Computers graph cannot be filtered.

Chapter 2. Use Power Management

Power Management provides a suite of Fixlets and wizards to help control computer power states and minimize waste caused by computers running while not in use. You can manage sleep, hibernation, and standby states on your running computers in the *Reduce Power Consumption* node in the navigation tree.

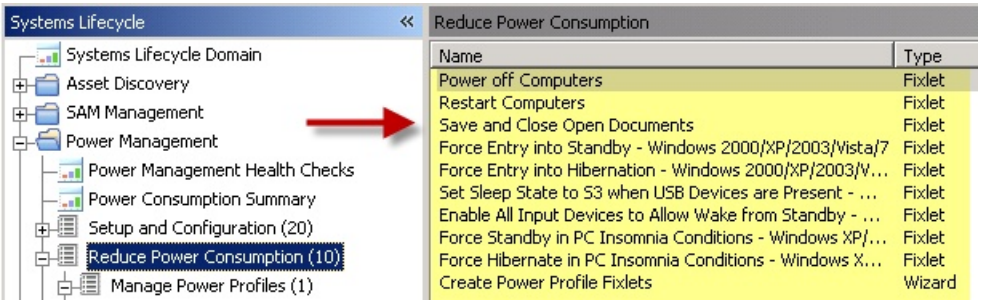
Power savings strategies

BigFix includes a number of strategies for saving power. The following list includes some common power saving strategies, though it is not comprehensive.

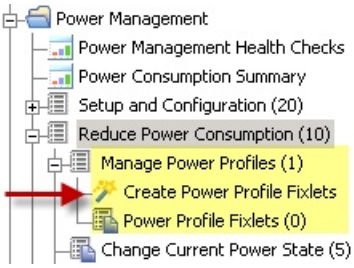
- **Enable Monitor Standby**: Monitors represent a significant portion of power usage for desktops and laptops. Enabling Monitor Standby has minimal end-user impact because most monitors recover quickly from low power mode. Monitor Standby can be easily combined with the System Standby or Power-off strategies below. Use the Power Profile Wizard to change monitor standby policies.
- **Enable System Standby**: As computers use very low power in standby mode, System Standby is considered the best approach to power management. Users must wake computers with a mouse click or keyboard strike before using them, but most computers wake from standby within 10 seconds.
- **Power-off Computers**: You can power off computers at predefined times to save electricity. Powering off computers has the most end user impact, as this method can potentially cause work to be lost.

Reduce Power Consumption

The Reduce Power Consumption section gives tools to implement the power savings strategies.



In the *Reduce Power Consumption* node, the Manage Power Profiles subnode includes a wizard for creating power profile Fixlets and a listing of the Fixlets already created.



Manage power profiles

Use power profiles so that computers can go into a low-power state when the user is idle for a predetermined amount of time. You can manage the power profiles for your deployment by using the *Create Power Profile Fixlets* wizard. Click the wizard from the *Manage Power Profiles* node in the navigation tree.

The wizard for creating Power Profile Fixlets is organized into parts: selecting a power profile, and setting power profile options. You can choose to create single or multiple power profiles.

Creating single power profiles

To create a single power profile, go to the *Single Profile Policy* tab. Select a power profile from the drop-down list. You can also select *Custom* and create a power profile name. Select the Power Profile options.

You can create a one-time action or create a Fixlet that can later be reused. You can also choose to apply the action only if the proposed setting is more aggressive than the existing setting.

Click *Create Fixlet*. In the Fixlet window, click in the Actions box to initiate the deployment. Click *OK* when complete.

Creating multiple power profiles

To create a policy with multiple power profiles, go to the *Multiple Profile Policy* tab. Click the **Add Profile** button. The *Power Settings* window opens. Set the time and day settings. Click the *All remaining time windows on all days* checkbox to set power profiles for the remaining time windows you have not set in the options. This is required to set power profiles by time of day and by day of week.

In the same way as for creating a single power profile, select the power profile and the power profile actions. Click **Add to List**. The profile is now added to the list. You have the option of creating a one-time action. To create a Fixlet you can reuse, leave the box unchecked and the power profile remains in the list.

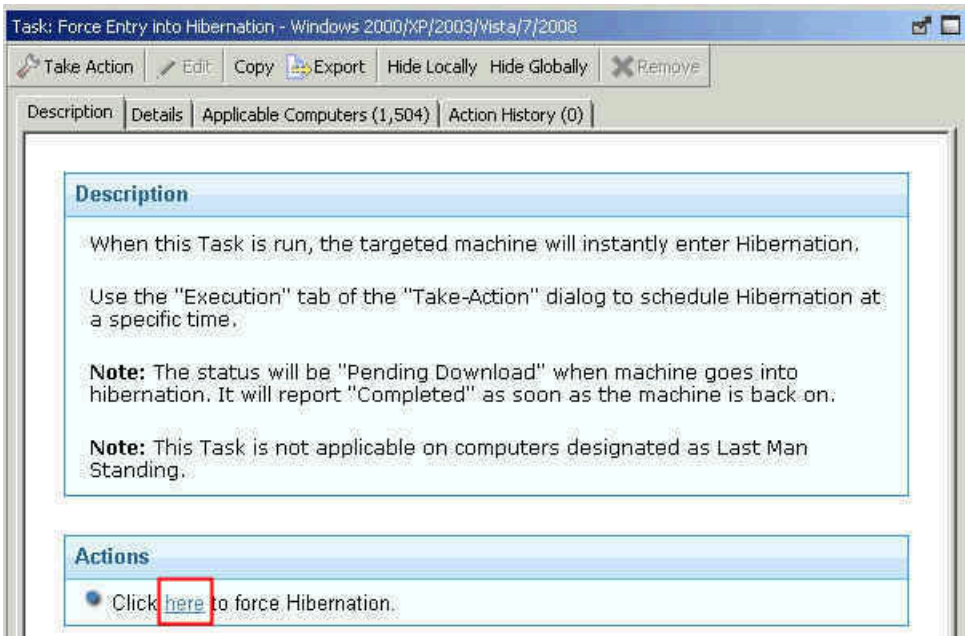
Click **Create Fixlet**. In the Fixlet window, click in the Actions box to start the deployment. Click *OK* when complete.

Note: The action must be taken as a policy to allow it to keep applying multiple power profiles. In the Take Action dialog, select Policy from the Present drop-down menu to enable the policy action.

Change current power state

You can force your computer into a low power mode, such as standby or hibernation. The tasks to do this can be used to immediately force systems into low power mode or schedule low power modes regardless of the power profile or user activity on that particular computer.

Note: There is also a Force Entry into Standby version of this Task.

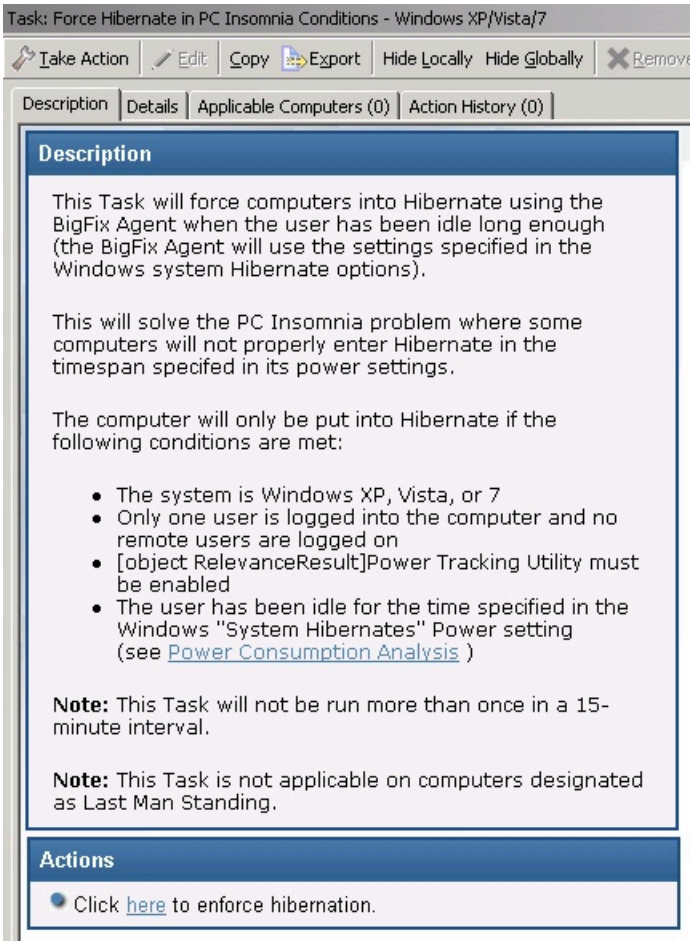


Manage PC Insomnia

Some Windows computers fail to enter hibernate or standby mode after the appropriate amount of user idle time, due to PC Insomnia. The Manage PC Insomnia Fixlets force a computer to enter standby or hibernate once the amount of user idle time specified in the power profile has elapsed. Forcing a computer into Standby will allow for faster wake times. Forcing a computer into hibernation causes longer wake-up times, but allows for slightly greater power savings.

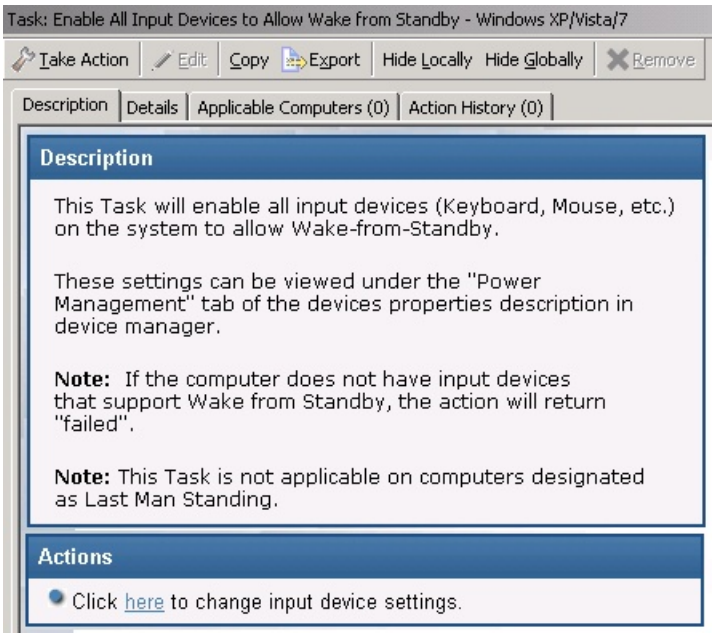
Note: The *Force Hibernate in PC Insomnia Conditions* task is not run more than once in a 15-minute interval.

Note: The *Force Hibernate in PC Insomnia Conditions* task is not applicable on computers designated as Last Man Standing.



Manage standby behavior

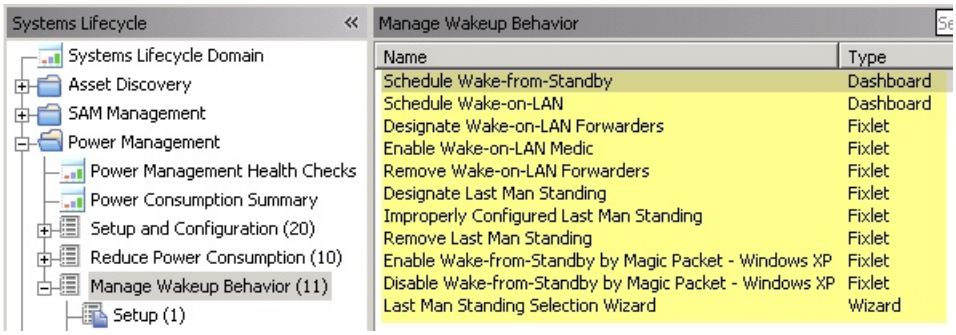
Only certain input devices are capable of waking a computer from standby by user interaction, and only if the correct Windows settings are enabled. This task finds all wake capable input devices and enables them to allow Wake-from-Standby.


Task: Enable All Input Devices to Allow Wake from Standby - Windows XP/Vista/7
Take Action
Edit
Copy
Export
Hide Locally
Hide Globally
Remove
Description
Details
Applicable Computers (0)
Action History (0)
Description
This Task will enable all input devices (Keyboard, Mouse, etc.) on the system to allow Wake-from-Standby.
These settings can be viewed under the "Power Management" tab of the devices properties description in device manager.
Note: If the computer does not have input devices that support Wake from Standby, the action will return "failed".
Note: This Task is not applicable on computers designated as Last Man Standing.
Actions
Click here to change input device settings.

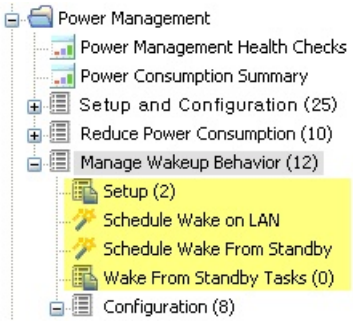
Chapter 3. Manage wakeup behavior

Power Management provides Fixlets and Wizards to bring a computer online and take actions and manage the computer at specific times.

You can control the wakeup settings of a computer in the *Manage Wakeup Behavior* node using dashboards, Fixlets, and wizards.



In the *Manage Wakeup Behavior* node, you see *Setup* and *Wake-from-Standby* tasks, along with wizards for scheduling Wake-on-LAN and Wake-from-Standby.



Setup

The Wake-on-LAN Medic utility is a process that runs on the BigFix server. This utility manages Wake-on-LAN scheduling and keeps Last Man Standing computers awake.

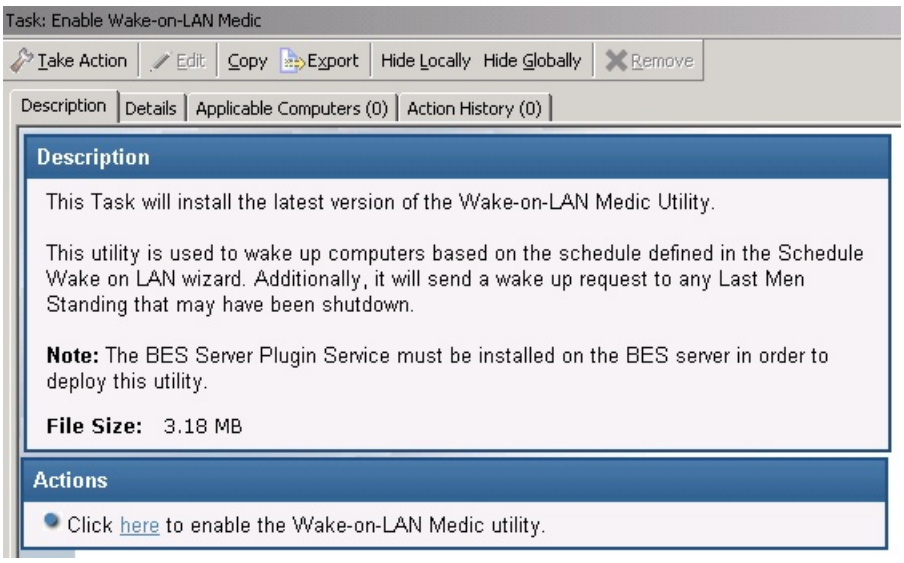
You must enable the Wake-on-LAN Medic so that Wake-on-LAN features work correctly.

Use the Setup task to install the latest version of the Wake-on-LAN Medic utility. Click this task from the navigation tree. When the Task window opens, review the description and click in the Actions box to initiate the utility.

Note: Ensure that RESTAPI is set up correctly to avoid errors and for the Wake-on-Lan Medic Utility to function properly.

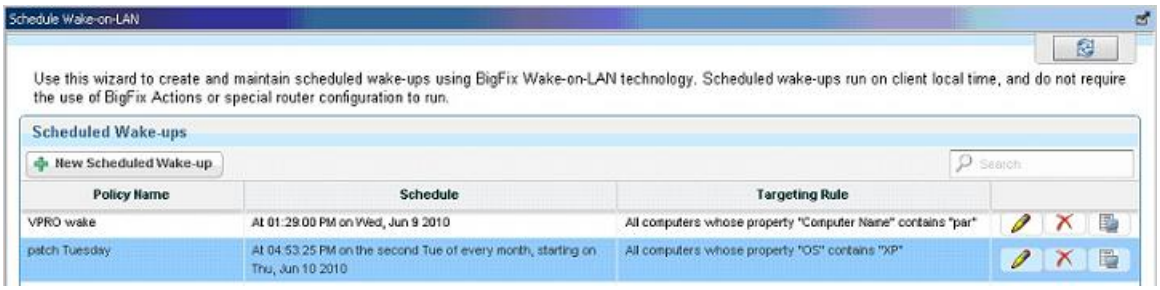
- If Wake-on-LAN Medic utility is not enabled, the Enable Wake-on-LAN task might not be relevant.
- If the Wake-on-LAN Medic utility is enabled, the scheduled Wake-on-LAN feature will not work.

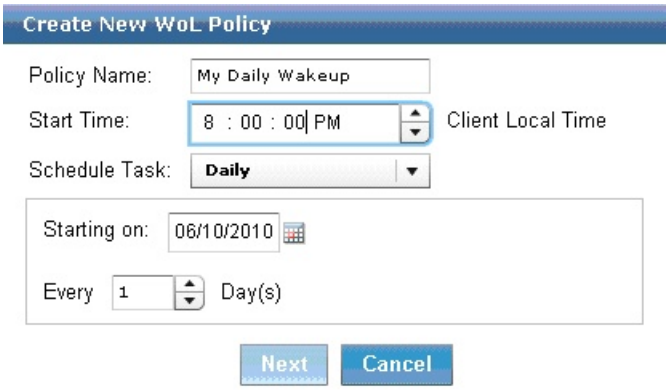
RESTAPI is supported by BigFix server version 9.0 and later.

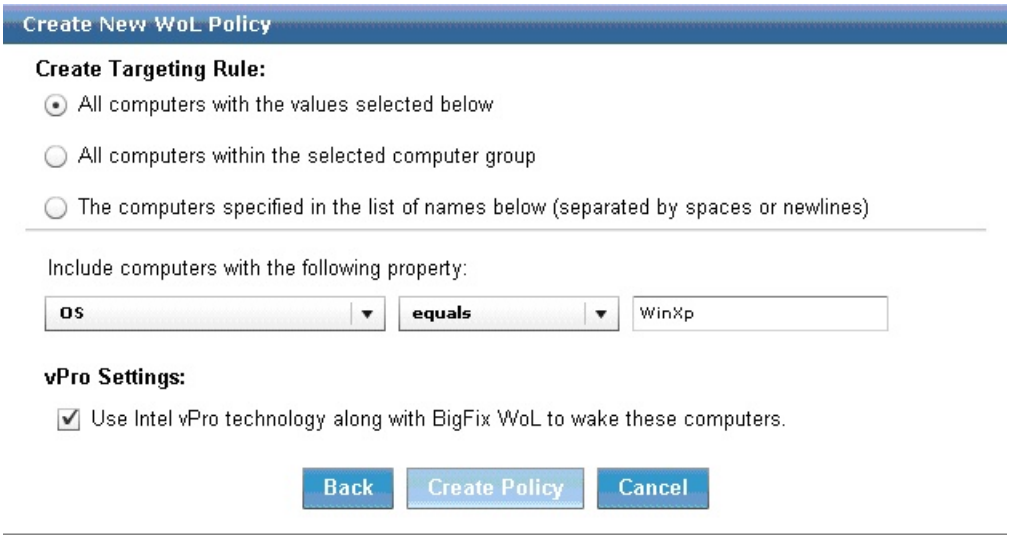


Schedule Wake-on-LAN

You can create and maintain scheduled wake-ups using the *Schedule Wake-on-LAN Wizard*. Scheduled wake-ups run on client local time and do not require the use of Actions or special router configurations to run.







Note: The vPro Settings option is only enabled if you are subscribed to the Client Manager for Intel vPro site.

After you schedule a WoL policy, the WoL Medic component is set to wake the systems. By default, the WoL Medic checks every five minutes to see if it is time to run scheduled WoL policies.

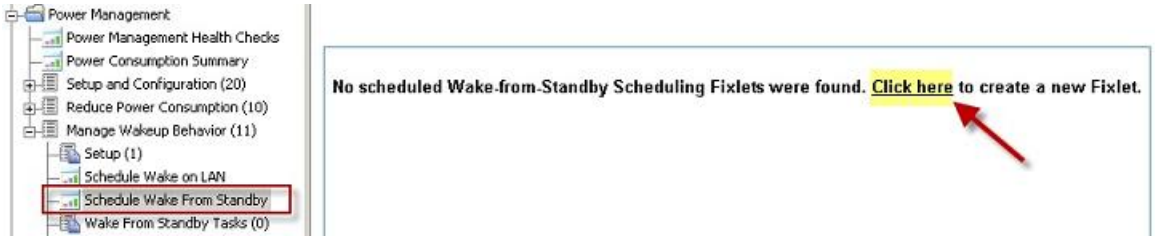
Note: Ensure that RESTAPI is set up correctly to avoid errors and for the Wake-on-Lan Medic Utility to function properly. RESTAPI is supported by BigFix server version 9.0 and later.

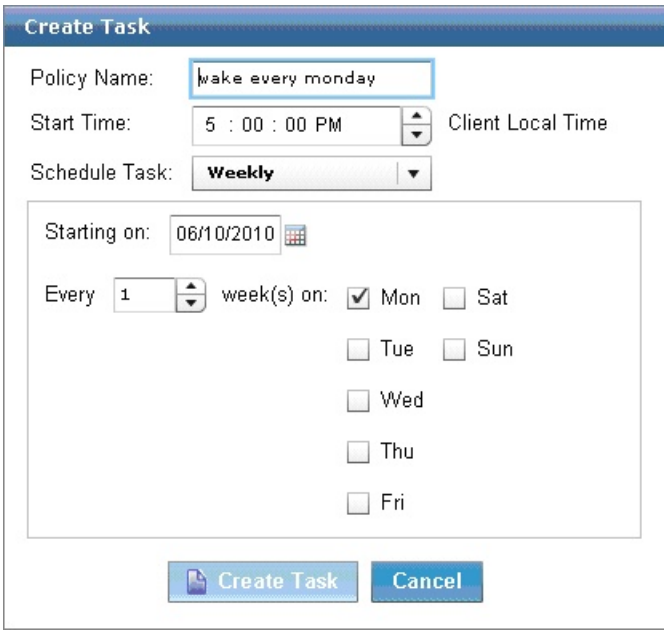
Schedule Wake-from-Standby

You can create and view Wake-from-Standby Scheduling Fixlets using the Schedule Wake-from-Standby Wizard. A computer scheduled to Wake-from-Standby awakens itself at the designated time. This does not require any hardware or network configuration, and is useful for computers that cannot be awakened using WoL.

Wake-from-Standby tasks

To schedule a Wake-from-Standby task, click the *Schedule Wake-from-Standby* wizard in the navigation tree. From here, you can create new Wake-from-Standby tasks that populate in the *Wake-from-Standby Tasks* part of the navigation tree.

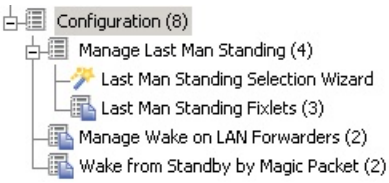




Note: You must run the action before the scheduled wakeup time. Scheduled wakeup actions require that Windows Task Scheduler Service is active.

Configuration

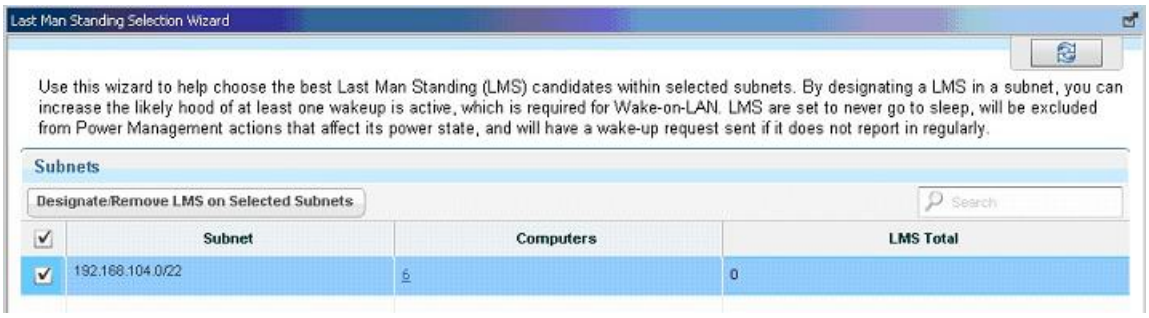
From the Configuration node of the Power Management navigation tree, you can manage Last Man Standing Fixlets, Wake on LAN Forwarders, and Wake from Standby by Magic Packet options. The sections below highlight these features.



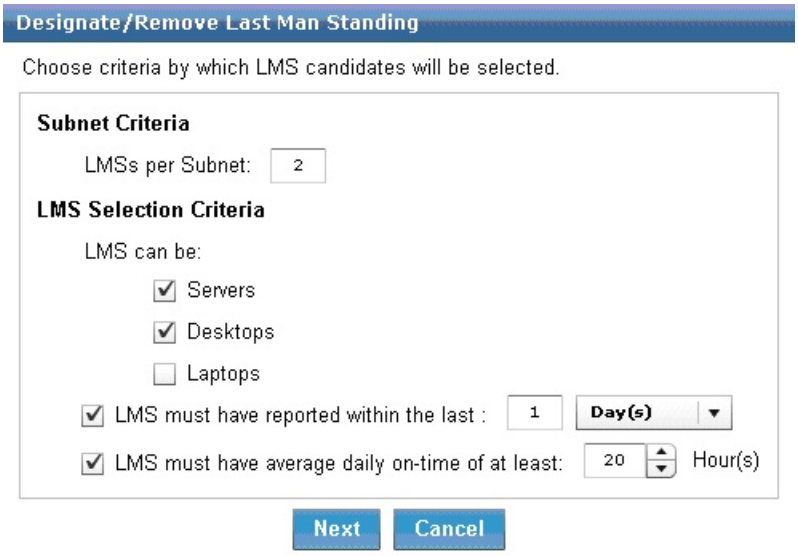
Manage Last Man Standing

Last Man Standing (LMS) ensures that computers in a subnet can be awakened using the Wake-on-LAN feature. However, LMS computers must be running all the time, so you must select only one or two computers in a subnet for this designation. When choosing which computers to designate as LMS, select a type of computer that is likely to be running all the time, such as servers.

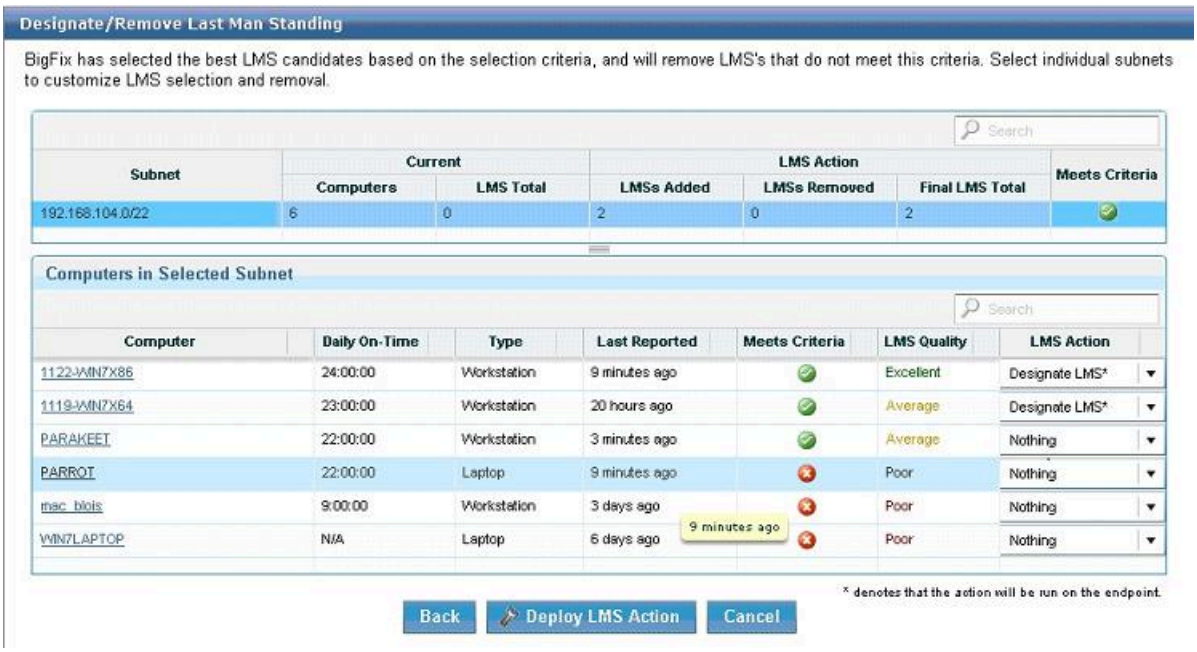
The LMS Selection Wizard automates the selection of LMS computers *per subnet*, where you can define your own custom set of LMS computers.



The LMS wizard finds computers that match the entered criteria and submits them as potential LMS candidates.



You can review all proposed LMS candidates and select from that list before issuing the action in this section.



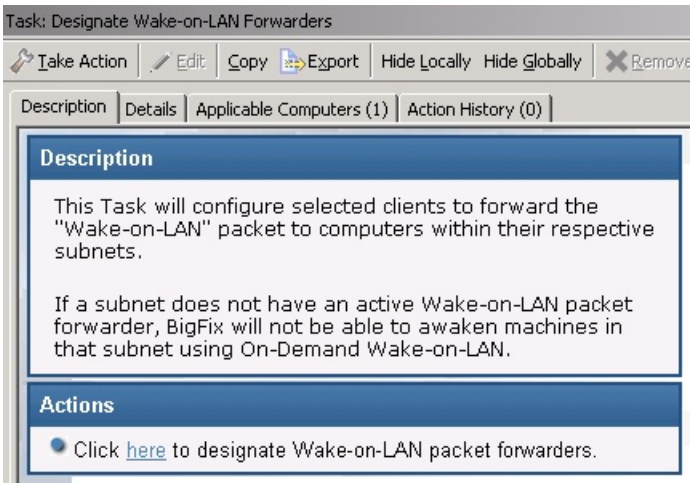
Manage Wake-on-LAN Forwarders

Wake-on-LAN Forwarders (WoLFs) are BigFix Agent computers that forward Wake-on-LAN packets to other computers in the same subnet. There must be at least one powered-on WoLF in a subnet to wake other computers in the subnet.

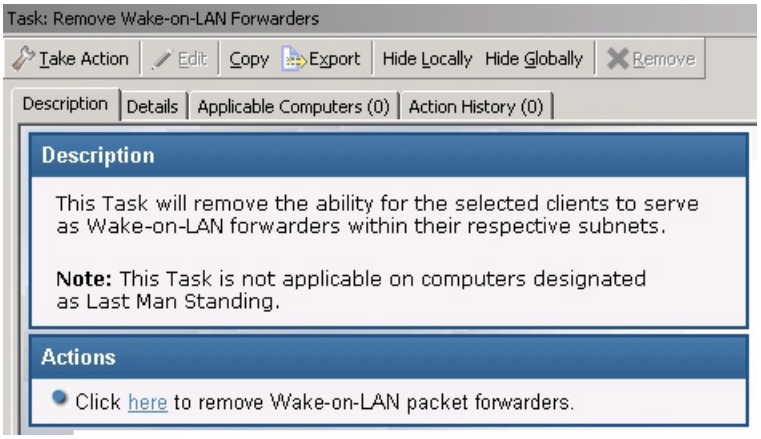
All BigFix agents are set as WoLFs when Power Tracking is enabled. BigFix includes heuristics to keep network traffic to a minimum, so all agents can be made Wake-on-LAN Forwarders. Designating all clients as WoLFs provides for wake redundancy by increasing the likelihood that at least one forwarder in each subnet is powered-on and can be used to wake targeted computers.

Power Management includes tasks for designating and removing WoL forwarders. Access these tasks by clicking on *Manage Wake-on-LAN Forwarders* in the navigation tree and selecting the appropriate task in the List Panel.

The *Designate Wake-on-LAN Forwarders* task configures selected clients to forward the Wake-on-LAN packet to computers in their respective subnets. To designate Wake-on-LAN forwarders, click in the Actions box.



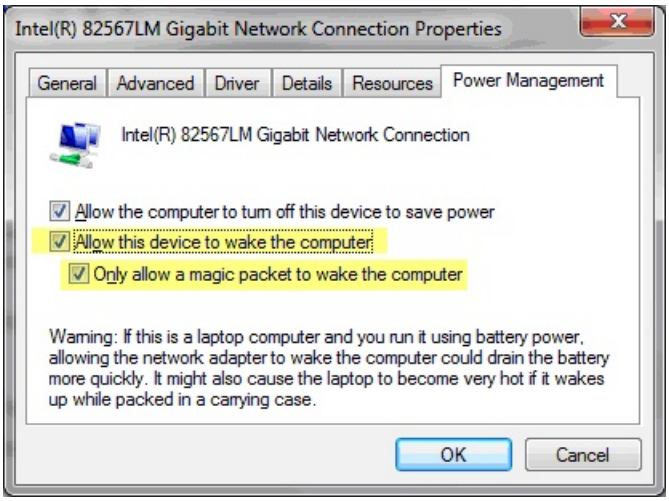
To remove Wake-on-LAN packet forwarders, click the *Remove Wake-on-LAN Forwarders* task in the List Panel, and click in the Actions box to initiate the action.



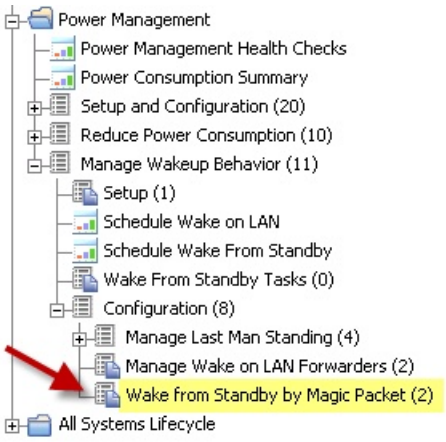
Wake-from-Standby by Magic Packet

Power Management includes two tasks for disabling and enabling *Wake-from-Standby by Magic Packet*. A *Magic Packet*, also known as the Wake-on-LAN packet, is a broadcast packet that wakes a computer.

These tasks change the Windows network adapter setting from “Allow this device to wake the computer? to “Only allow a magic packet to wake the computer?. These settings are available in the network adapter properties in Windows.



Access these tasks by clicking *Wake-from-Standby by Magic Packet* in the navigation tree and selecting the appropriate task in the List Panel.



To disable or enable *Wake-from-Standby by Magic Packet*, click the appropriate task and click in the Actions box of the task window to initiate the action.

Using Intel vPro with Wake-on-LAN Medic to wake up endpoints

Follow these steps to setup and schedule endpoints to wake up using the BigFix Wake-on-LAN Medic utility with Intel vPro.

Ensure that you have the following requirements to use vPro with the BigFix Wake-on-LAN (WoL) Medic utility.

- Subscribe to the latest versions of one of the following sites:
  - BES Support site
  - Power Management site
- BigFix server requires .NET Framework 2.0
- Enable the Wake-on-LAN Medic utility. For more information, see Enable Wakeup.
- Target computers require Intel AMT 3.0 and later versions
- If Intel Setup and Configuration Servers (SCS) will be used (optional), use SCS Server version 7.0 or later
- **Note:** Ensure that RESTAPI is set up correctly to avoid errors and for the Wake-on-Lan Medic Utility to function properly. RESTAPI is supported by BigFix server version 9.0 and later.

You can use Intel vPro with the BigFix WoL Medic utility to wake up endpoints. BigFix Power Management uses policies to perform wake-on-LAN. The policies can be set to wake specific endpoints at specific times and to use vPro.

When the policy is executed, the BESWolMedic.exe utility is invoked to query the applicable endpoints and to send WOL packets.

When the vPro option is enabled, a utility called amtpowercmd.exe uses vPro after successful authentication to send the WoL signal over HTTP to wake up the applicable endpoints.

Note: The BESWolMedic.exe and amtpowercmd.exe are invoked on the BES server.

These steps apply to infrastructures with or without Intel SCS. It is assumed that the vPro infrastructure is set up.

1. Set up the registry values.
   - With SCS

     For x64

- "HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432\BigFix\ EnterpriseServer \MFSConfig\PowerWoLSCSServer"

  Note: This value is either the host name or the IP address of the server.
- "HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432\BigFix\ EnterpriseServer \MFSConfig\PowerWoLSCSUsername"
- "HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432\BigFix\ EnterpriseServer \MFSConfig\PowerWoLSCSPassword"

For x86

- "HKEY_LOCAL_MACHINE\SOFTWARE\BigFix\Enterprise Server\MFSConfig \PowerWoLSCSServer"

  Note: This value is either the host name or the IP address of the server.
- "HKEY_LOCAL_MACHINE\SOFTWARE\BigFix\Enterprise Server\MFSConfig \PowerWoLSCSUsername"
- "HKEY_LOCAL_MACHINE\SOFTWARE\BigFix\Enterprise Server\MFSConfig \PowerWoLSCSPassword"

• Without SCS

For x64

- "HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432\ BigFix\EnterpriseServer \MFSConfig\PowerWoLvProUsername"
- "HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432\ BigFix\EnterpriseServer \MFSConfig\PowerWoLvProPassword"

For x86

- "HKEY_LOCAL_MACHINE\SOFTWARE\BigFix\Enterprise Server\MFSConfig \PowerWoLvProUsername"
- "HKEY_LOCAL_MACHINE\SOFTWARE\BigFix\Enterprise Server\MFSConfig \PowerWoLvProPassword"

Note: If you do not use SCS, ensure that the credentials are the same on each endpoint to avoid wake up failure.

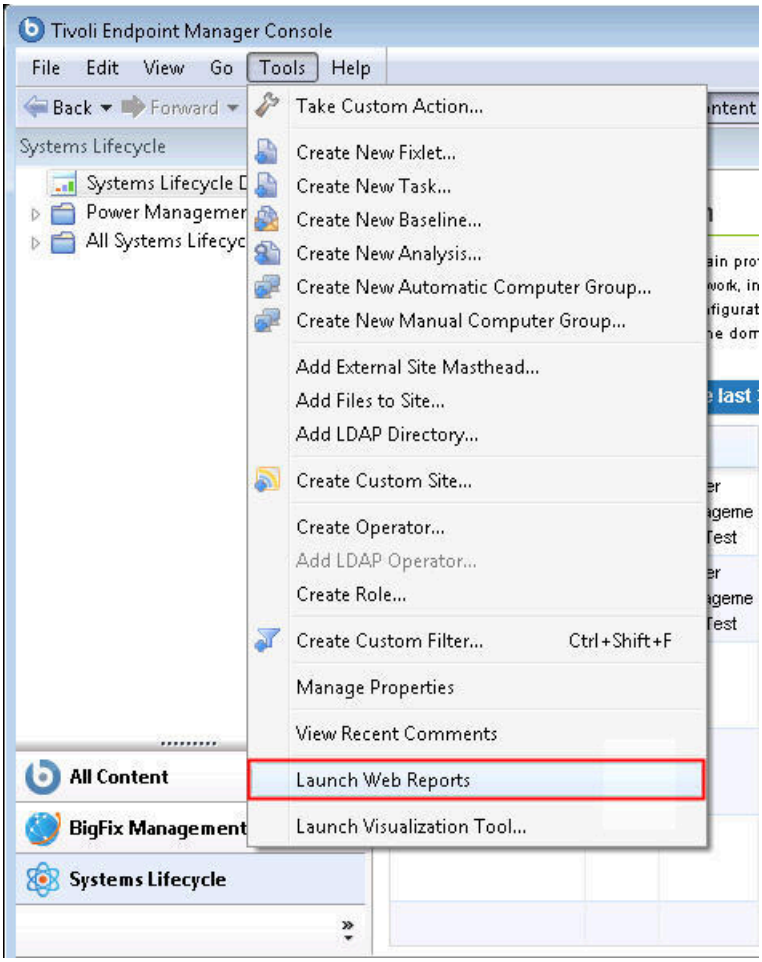
2. From the BigFix console, select the vPro option in the wake-on-LAN policy.
   a. Go to the **BES Support > Wizards > Schedule Wake-on-LAN wizard**.
   b. Create a new policy or select an existing policy.
   c. Select **Use Intel vPro technology along with BigFix WoL to wake these computers**.
   d. Click **Create Policy** for new policies or save the change, for existing policies.

For more information about using the Schedule Wake-on-LAN wizard to create and maintain scheduled wake-ups, see Schedule Wake-on-LAN *(on page 18)*.

Chapter 4. Web Reports

Power Management Web Reports provides high-level summary data for management and decision makers to view and assess power usage in a deployment.

To access Web Reports, click **Tools > Launch Web Reports**.



Enter your Web Reports username and password. Click Login.

The main Web Reports page opens in a new browser. To see a list of Power Management reports, select **Systems Lifecycle**.

You see a list of Power Management reports displayed under the **Report List** menu:

Model Power Savings

This report calculates how much power you can lose or save if you apply different power profiles across your deployment based on your current usage patterns. You can use this report to formulate what-if scenarios for potential savings by implementing various power policies. By default, the results in this report are based on the actual power state history for each agent for the last two weeks. These results are expected to be an accurate projection of power savings.

This report shows estimated Yearly power consumption savings of your deployment if every endpoint had the following power profile values set:

Estimated savings for Yearly

Export To PDF

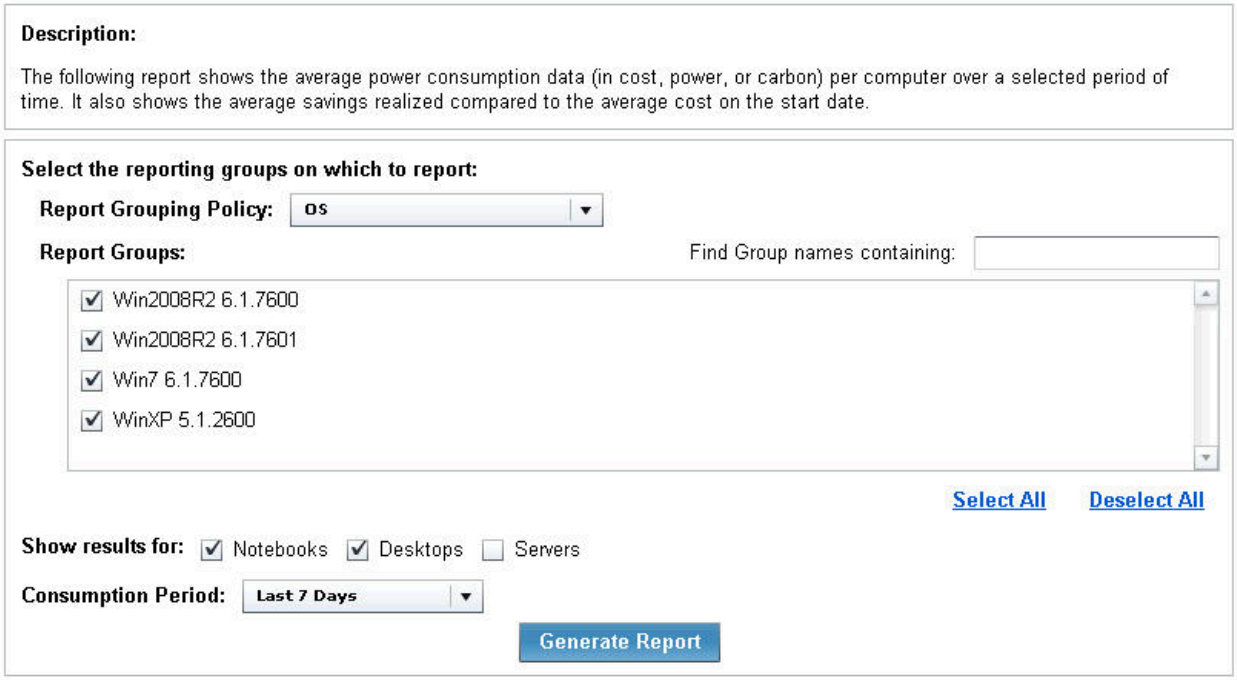
	Potential Standby Settings		Potential Total Savings			Potential Average Savings Per Computer		
Power Profile	System	Monitor	Power	Cost	Carbon	Power	Cost	Carbon
Minimal	Never	60 Min	-787 kWh	$-63	-1,101 lb	-112 kWh	$-9	-157 lb
Moderate	60 Min	30 Min	+1,420 kWh	+$114	+1,988 lb	+203 kWh	+$16	+284 lb
Aggressive	30 Min	10 Min	+1,507 kWh	+$121	+2,110 lb	+215 kWh	+$17	+301 lb

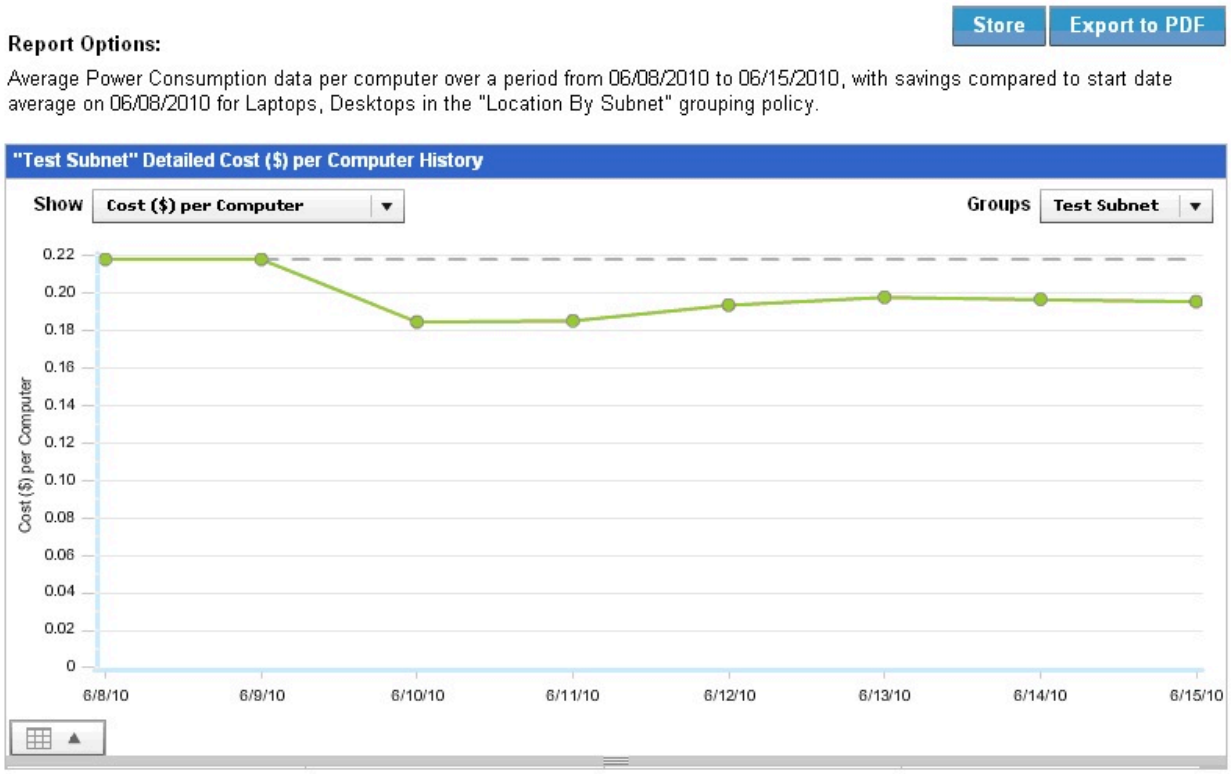
Power consumption over time

The *Power consumption over time* report charts the average computer power consumption over a specified time period, and displays cost or savings compared to a baseline cost based on the start date.

Use this report to review historical savings and progress of power management policies. You must have *Historical Power Tracking* enabled to use this report.

Note: If you select the current date as the End Date, the report might take significantly longer to generate as previous dates are pre-calculated.





Average per Computer Consumption Over Period by Group

Groups	Total Consumption over Period			Savings Compared to Start Date		
	Cost	Power	Carbon	Cost	Power	Carbon
Test Subnet	$1.59	19.9 kWh	28 kg	$0.15	1.9 kWh	3 kg

Weekly Power Consumption Over Time

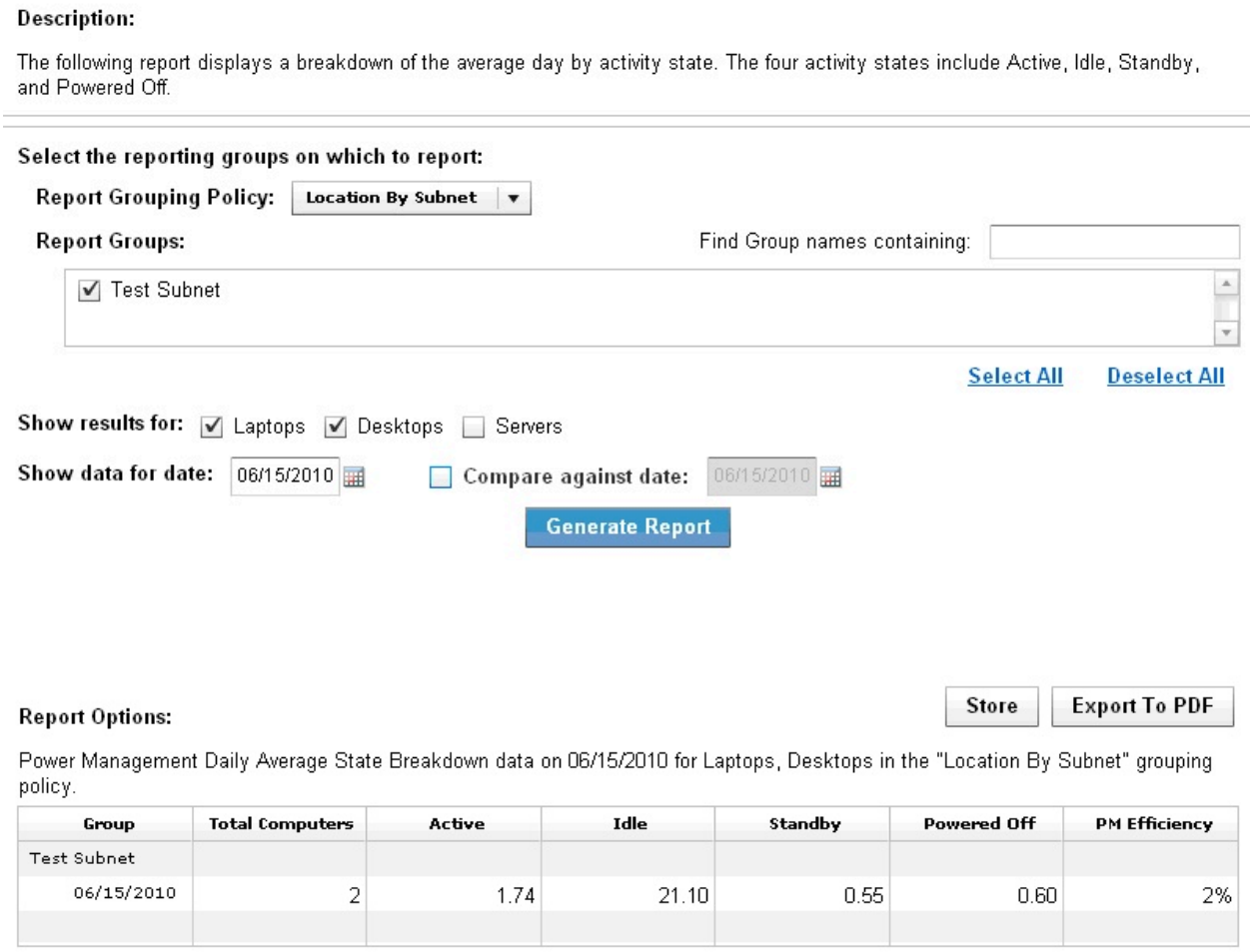
The *Weekly Power Consumption Over Time* report charts the average weekly power consumption data (in cost, power, or carbon) per computer over a weekly period. It also shows the average savings realized compared to the average cost on the start week. Each data point in the chart found in the *Detailed Cost ($) per Computer History* section of the report shows a breakdown of the power usage for a particular week in terms of cost, power, and carbon.

The Average per Computer Consumption Over Period by Group table shows a breakdown of the chart. The table shows the total consumption over the period and the savings compared to the start week.

Note: You must have Historical Power Tracking enabled to use this report.

Power Management Daily Activity State breakdown

The *Power Management Daily Activity State breakdown* report displays a breakdown of the average day by activity state. The activity states are Active, Idle, Standby, and Powered off. You can use this report to evaluate changes you make to your power policies. For example, if many computers have high idle times, you set a Standby power policy to save significant power. It can also be set to compare improvements between two different days. The comparison function requires that historical power tracking is enabled.



Note: If you select the current date as the compare against date, the report might take significantly longer to generate, as previous dates are pre-calculated.

Weekly Idle Time Breakdown Over Time

The Weekly Idle Time Breakdown Over Time report shows the weekly idle time breakdown per computer over a selected time period. It also shows the reduction of idle time (in hours) realized compared to the start week.

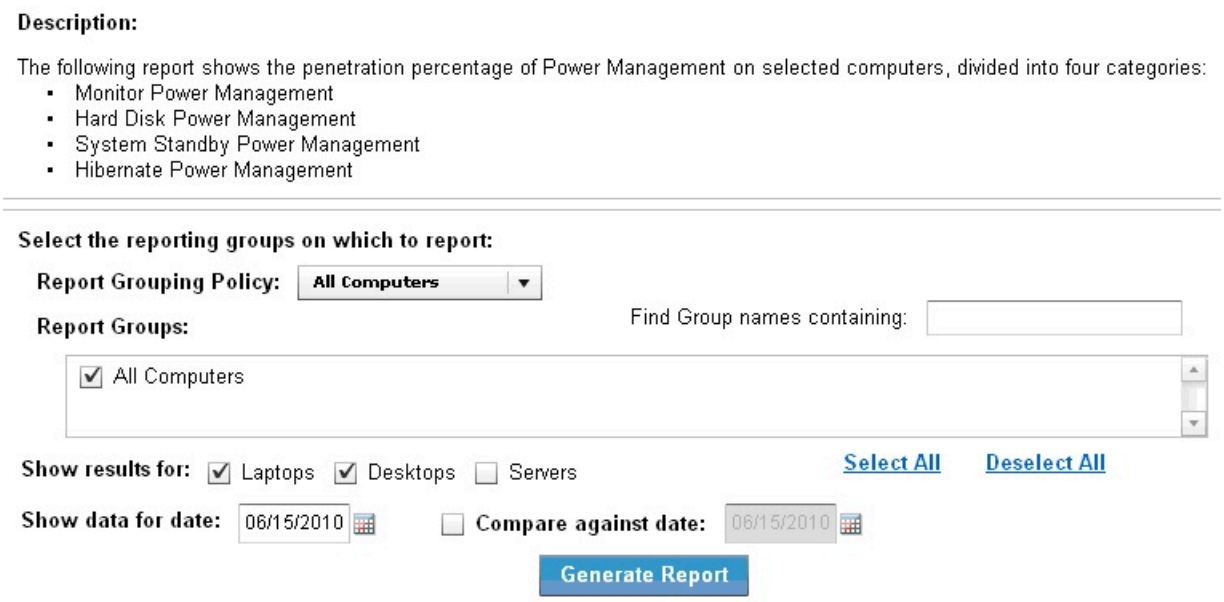
The report shows the data of all weeks between the two selected weeks. The comparison function requires that historical power tracking is enabled. You are prompted to select a new week when there is no historical data stored in the selected report group.

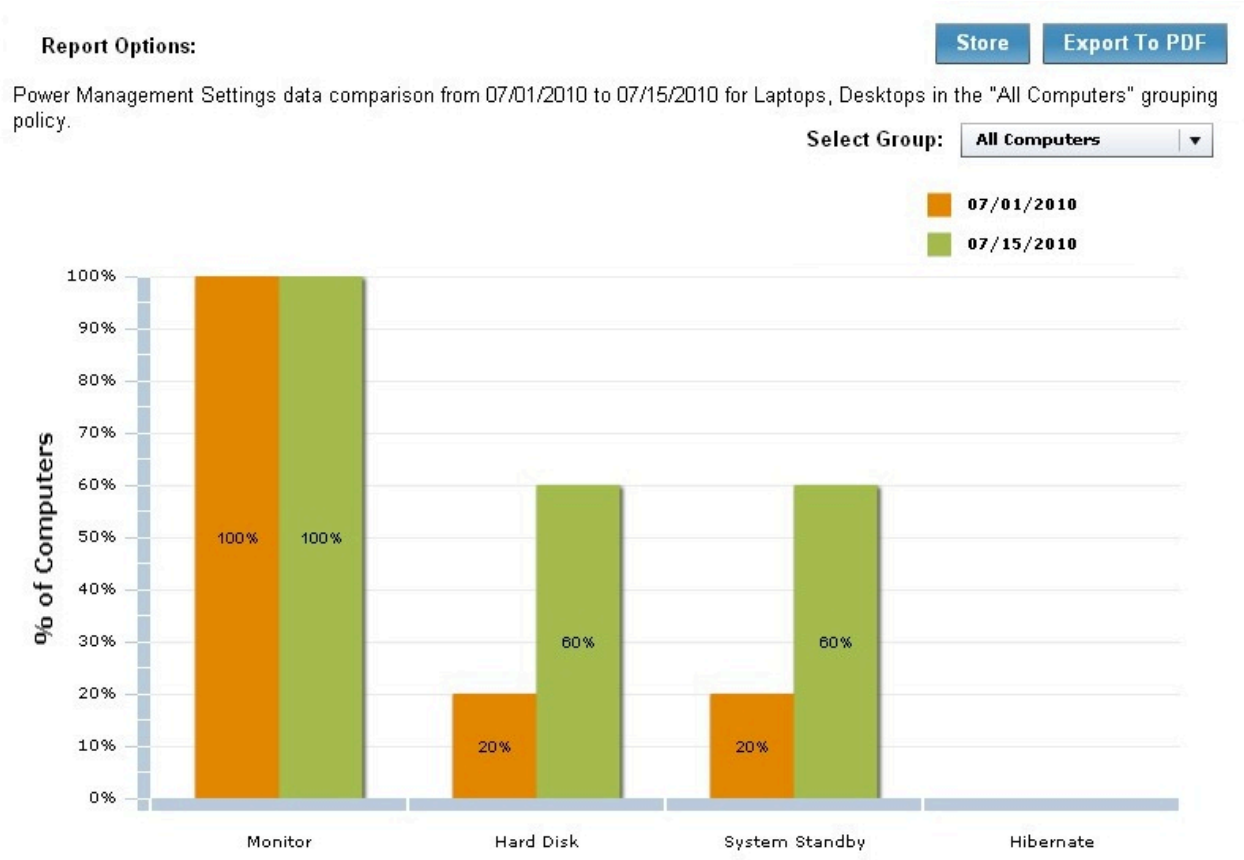
Notes:

- When selecting the weeks for the report to cover, the dates that are in gray mean that there is no data.
- You might notice some cases where there is a slight difference in the actual data and the value in the dashboard. This difference in values happens because the calculation uses real data while the dashboard uses rounded off values.

Power Management settings

The *Power Management settings* report shows the percentage of computers that have power management settings enabled on a specific day. It can also be set to compare the improvements between two different days. The comparison function requires that historical power tracking is enabled.





Note: If you select the current date as the compare against date, the report might take significantly longer to generate because previous dates are pre-calculated.

Wake on Web

This report issues a Wake-on-LAN request to a specified list of computers, and displays warnings if the WoL infrastructure is not configured correctly to issue a wakeup.

Enter Computer Names

Enter a list of computer names, separated by spaces, of computers you wish to wake up.

ninjabird

Send Wake up

Select Computers to Wake Up

1 computer was found.

Computer	Subnet	Status
NINJABIRD	192.168.104.0/22	Can receive wake up requests

Wake request successfully sent!

Appendix A. Support

For more information about this product, see the following resources:

- Knowledge Center
- BigFix Support Center
- BigFix Support Portal
- BigFix Developer
- BigFix Wiki
- HCL BigFix Forum

Appendix B. Frequently asked questions

How are power savings calculated?

Power savings are determined by the amount of time your computer is on but not in use. For example, Idle mode is considered wasteful because the computer is using power without being actively used.

Your power savings is equal to *Current Consumption minus Minimum Power Consumption*. Minimum Power Consumption is the amount of time in active state per day times the *Active Power Usage* of the computer, for example, 70 kWh. Current Consumption is the amount of time in active and idle modes (Active Power Usage) plus Standby Power Usage, for example, 3 kWh.

These basic formulas will vary for each individual deployment. For specific parameters for setting and understanding power calculation formulas, contact your Sales Engineer or technical support. See the Power Management Calculations Documentation for detailed explanations of the calculations used in some key features of Power Management.

How realistic are the power savings calculations?

BigFix power savings calculations are based on tracking different aspects of the computer including: the time spent in each power state, the computer type (server, desktop, laptop), monitor count, and more. The results are used in combination with the electricity costs and power draw values to calculate the amount of power the computer is using.

To ensure the calculations are as accurate as possible, review the Manage Assumptions values and verify that the data, such as the cost you pay for electricity, is appropriate for your organization.

Can I see how my power management efforts are affecting my CO2 emissions?

Yes. The BigFix Power Management visual power spectrum provides data on the projected CO2 savings from your power management efforts.

What is the methodology used in calculating carbon savings?

BigFix carbon estimates are based on the results of research studies that determine the average carbon emissions needed to generate a kilowatt-hour of power. For more information, see the DOE Energy Information Administration website.

Are carbon savings findings robust enough to be used for external trading and regulatory reporting uses?

BigFix Power Management uses carbon estimates from the US Department of Energy for the average amount of CO_2 released per kilowatt-hour. Carbon emissions per kilowatt-hour will vary per region and per power source. For more information about power compliance and rules, contact your regulatory agency.

What if power settings are accidentally set on my servers and it causes a problem?

Typically, power settings are set on desktop and laptop computers rather than servers. If power settings are set on a server, the administrator has the ability to correct the issue within a matter of minutes. There are Fixlets that alert you if Standby policies are enabled on your servers.

Can I get a centralized view and control of my power management efforts?

Yes. You can centrally manage up to 250,000 endpoints with a single BigFix server. You can also view your deployment through the Web Reports feature.

Can I set different power schemes for different groups of computers?

Yes. You can apply different power schemes to a wide variety of groups of computers, including ad hoc schemes, to target specific settings for specific groups such as help desk workstations vs. mobile laptops.

How can I change the default values of cost, power draw, and CO_2?

You can create and manage different cost and power assumptions for each endpoint with the Manage Custom Assumptions wizard.

Is there be a difference between the new and previous power calculations?

The new version of BigFix Power Management is considered to be more accurate than previous versions. The new version improvements include: specifically tracking standby time, more granular calculations on a per-agent level, rather than averaging certain values deployment wide, and a better algorithm for calculating power used based on recent activities.

What is the resource impact of power tracking on my computer?

The calculations and tracking for BigFix Power Management are relatively simple and low-cost for the agent. Enabling power management is not expected to impact the computers of users in any noticeable way.

What is the Client Logging Service used for?

BigFix agents version 8.0 and later have a native ability to track standby and idle times. If you do not yet have the BigFix version 8.0 agent installed, you can use the Client Logging service to track these values on the computers with the older agents.

What happens if the RESTAPI is not correctly set up?

Users might encounter errors and get inaccurate data if the RESTAPI is not correctly set up.

- Results in the Power Consumption Summary dashboard might not be accurate. The dashboard uses the Power Consumption Summary analysis.
- The Wake-on-LAN Medic utility might be affected. If the WoL Medic is not enabled yet, the Enable Wake-on-LAN will not be relevant. If it is enabled, the scheduled Wake-on-LAN might not function correctly.

Note: BigFix server version 9.0 and later supports RESTAPI.

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