BigFix® Power Management

User's Guide

July, 2010

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Part One

Introduction

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

This *User's Guide* will describe some of the primary features of Power Management and how to optimize its benefits within your deployment. For questions about installing and activating Power Management components within 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 including measuring power usage, potential power savings, and more
- Tracking of computer states (idle, active, standby, powered-off), 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 / prevention
- A Client-side dashboard that enables end users to view their power usage

System Requirements

General Hardware and Software Requirements

- Windows XP, Windows Vista, Windows 2003, Windows 7
- Mac OS 10.4 and 10.5

Definitions

This section briefly defines some common terms used when discussing power management:

- **Power States** – System Power States define the overall power consumption of a system. BigFix Power Management tracks 4 main power states – Active, Idle, Standby / Hibernation, and Power Off. To read more detailed information on power states, see the related Knowledge Base Article from the BigFix support website.

  Note: On Mac systems, power state tracking is limited to Active and Power Off.

- **Wake-on-LAN** – Wake-on-LAN (or "WoL") is a standard mechanism for waking up computers by sending them a specific network packet (often 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 OSes) will allow applications to wake a computer from standby at pre-defined times. When using Wake-from-Standby, a computer wakes itself up without the need for Wake-on-LAN.

- **Price per kWh** - This is the amount you pay for electricity (kWh = 1,000 watts used for 1 hour). As a reference point, a standard desktop and monitor will run for approximately 6 hours on 1 kWh of electricity, and a typical cost for a kWh is $0.10 in many regions of North America. However, electricity costs will vary significantly depending on region and power provider, and different computer models will vary power usage significantly).

- **CO2 Emissions** - CO_2 is one of the primary greenhouse gases and power generation is one of the largest sources of CO_2 emissions. The amount of CO_2 emitted per kWh generated varies significantly based on how the electricity is generated. For example, hydroelectric and nuclear power plants do not emit CO_2, but coal-fired power plants emit significant CO_2.

Key Features

This section briefly defines the purpose and functionality of key features of BigFix 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 where the BigFix Agent will monitor user idle time and force the computer to sleep at the appropriate times.

- **Wake-on-LAN Forwarder** (or 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, in order to serve as Wake-on-LAN Forwarder for other machines. A LMS-designated machine 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 on when in active use and powered off all other times.

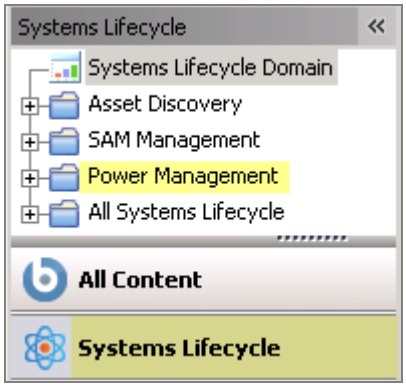
- **Full Power Consumption** - The amount of power used if a computer was powered on all day without any power management settings enabled.

Using the New BigFix Console

BigFix Power Management encompasses a host of new and upgraded features that provide enhanced visibility into the power settings in your deployment.

In addition, the BigFix Console changed after version 7.2, which resulted in several new navigation updates for accessing your data. This section will address how to get around in the new Console.

The navigation tree in the BigFix Console, which is available for all BigFix products, will serve as your central command for all Power Management functionality. The navigation tree gives you easy access to all reports, wizards, Fixlet messages, analyses and tasks related to managing the power settings in your network.



Components

The BigFix Console organizes content into four parts:

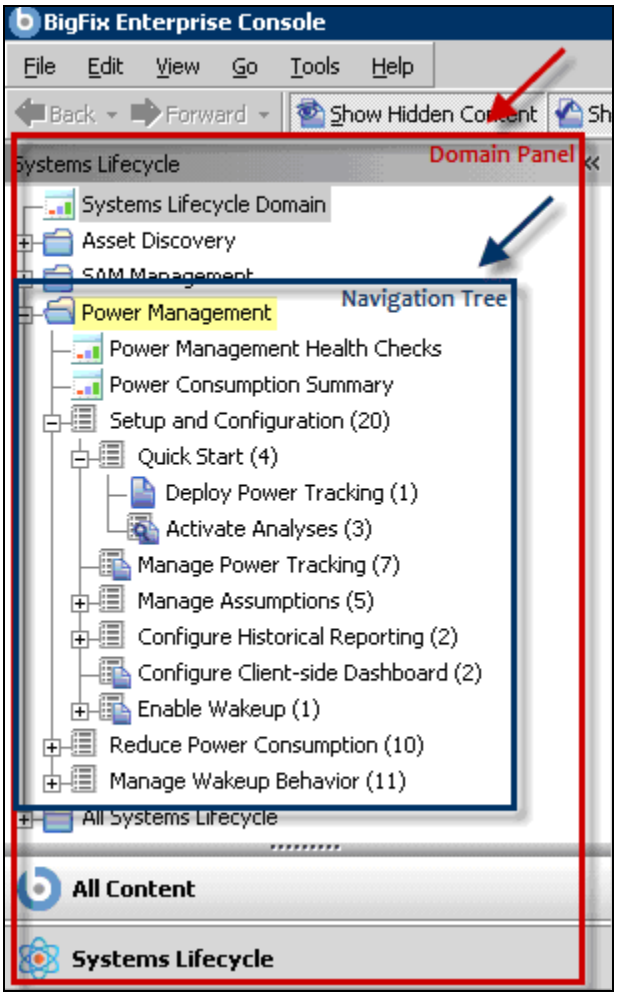
- *Domain Panel – Includes navigation tree and list of all domains*
- *Navigation Tree – Includes list of nodes and sub-nodes containing site content*
- *List Panel – Contains listing of tasks and Fixlets*
- *Work Area – Work window where Fixlet and dialogs display*

In the context of the BigFix Console, products or *sites* are grouped by categories or *domains*. For example, Power Management is one of the sites contained within the *Systems Lifecycle* domain, along with SAM Management and Asset Discovery.

The Domain Panel is the area on the left side of the Console that includes a navigation tree and a list of all domains. The Navigation Tree includes a list of nodes and sub-nodes containing site content.

In the image below, you will see a navigation “tree” at the top with expandable and collapsible nodes, and a list of domains at the bottom. By clicking the *Systems Lifecycle* domain at the

bottom of the domain panel, a list of sites associated with that particular domain will display in the navigation tree at the top.

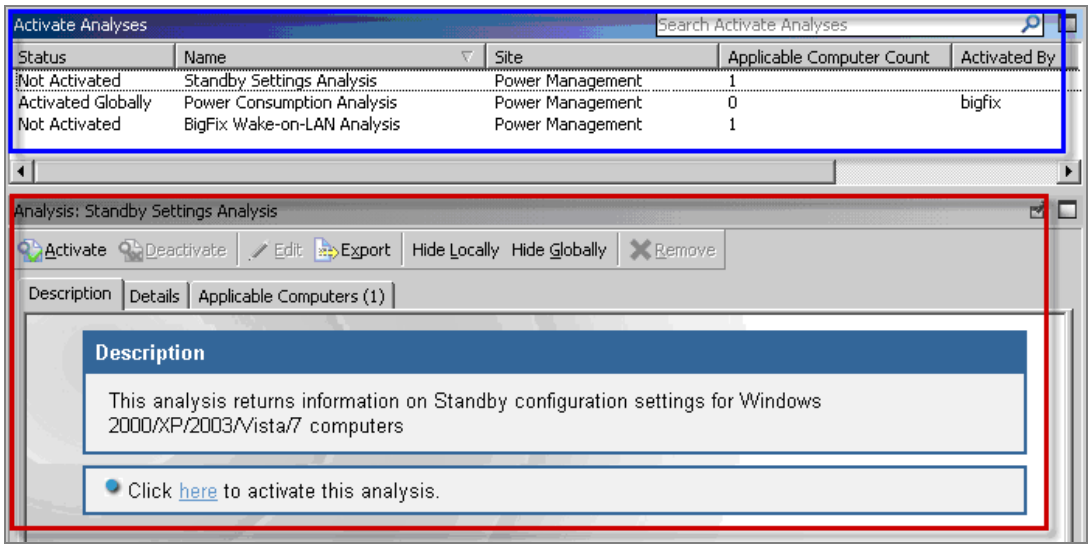


The red-outlined area represents the entire Domain Panel (including the navigation tree and list of domains), and the blue box contains just the Navigation Tree for the *Systems Lifecycle* domain.

Power Management tasks are sorted through upper and lower task windows, which are located on the right side of the Console.

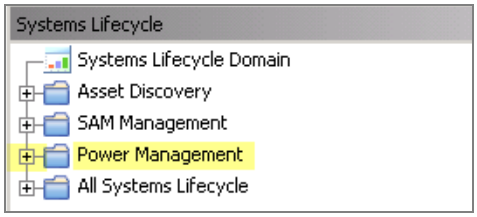
The upper panel, called the *List Panel* (blue), contains columns that sort data according to type, such as Status, Name, Site, Applicable Computer Count, etc.

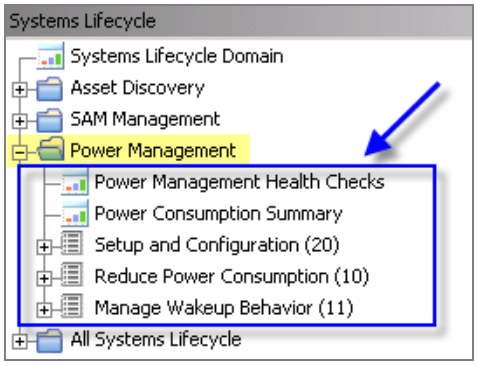
The lower panel or *Work Area* (red) presents the Fixlet, task screen or Wizard from which you will be directed to take specific actions to customize the content in your deployment.

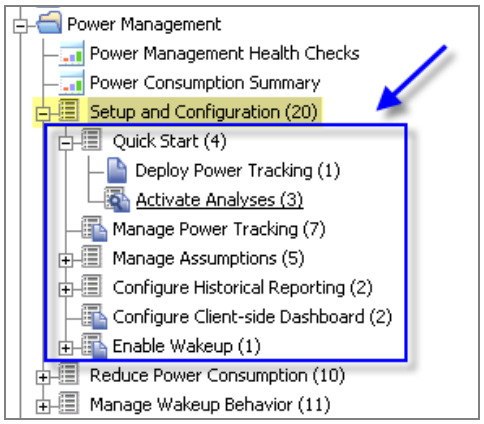


Working with Content

The “nodes” in the Power Management navigation tree expand and collapse to enable you to easily navigate and manage relevant components in your deployment.

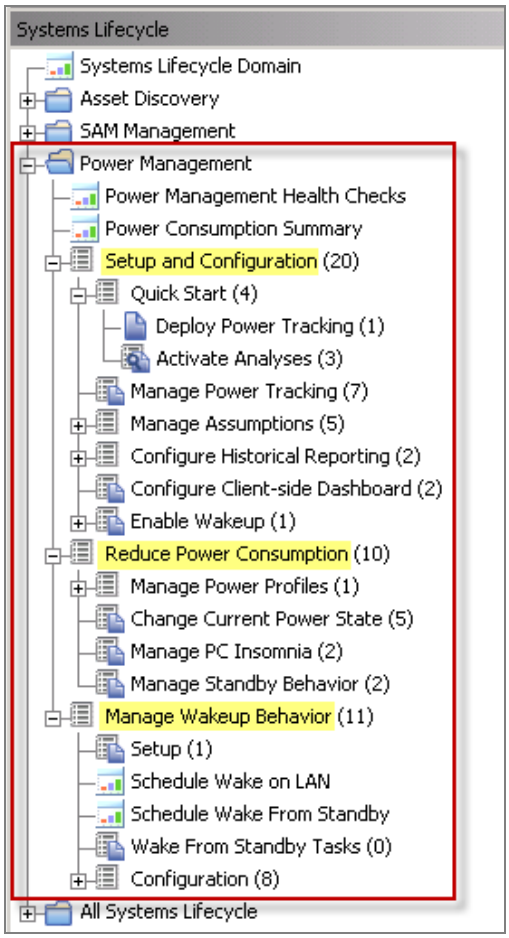




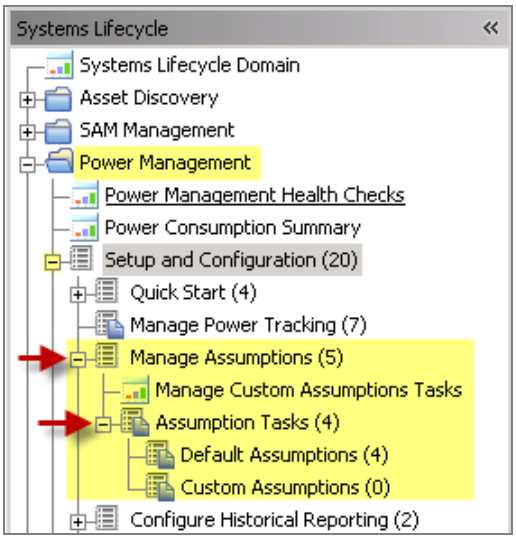


Note: Depending on your operating system, your system may display the "+" and "-" icons in the navigation tree as triangles. Specifically, the "+" and "-" icons will display on Windows XP/2003/2008/2008R2 machines, and triangles will display on Windows Vista/7. This feature was designed so that the Console matches the standards and conventions of your specific operating system. Regardless of the particular icon, the functionality of these buttons works the same way to either expand or collapse content.

You will use this same expand/collapse method to move through the entire navigation tree. Click each "+" to display each piece of related Power Management content.



You can see from the image above that BigFix Power Management content is organized into 3 primary nodes - *Setup and Configuration, Reduce Power Consumption,* and *Manage Wakeup Behavior.* Each node expands into sub-nodes that contain additional content. In the image below, you can see how the Manage Assumptions sub-node expands to display additional tasks and content:

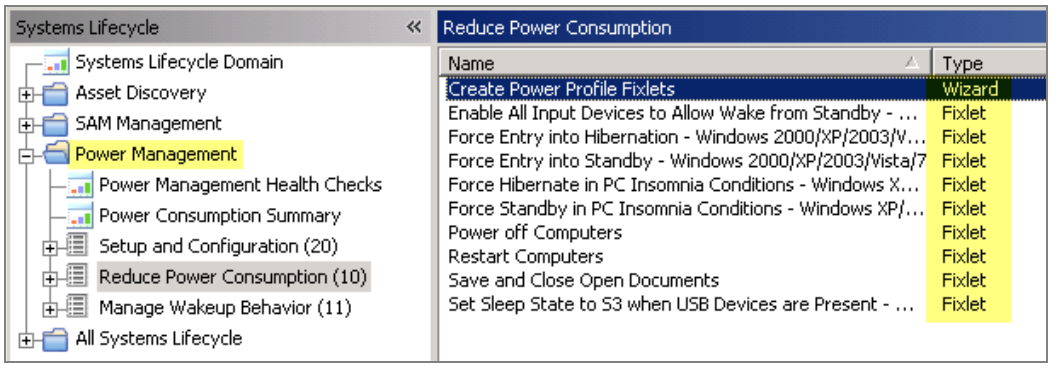


Use the same approach of clicking the "+" and "-" to open and close each node and sub-node.

Composite View

For an overall view of the "type" of Power Management content, click on each node and review the List Panel on the right. This will display content according to type:

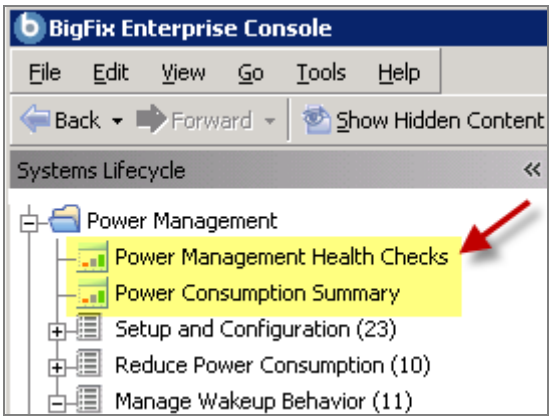
- Analyses
- Dashboards
- Fixlets
- Wizards



This content represents actions that need to be addressed to successfully reduce power consumption in your deployment.

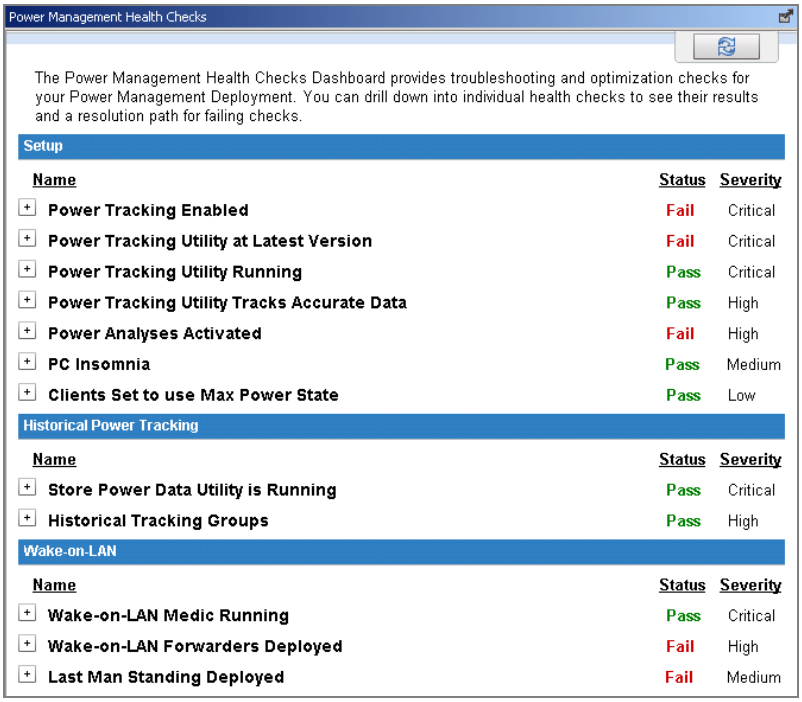
Dashboards Overview

BigFix Power Management offers two convenient dashboards for viewing power settings summaries in your deployment. You can find them at the very top of the navigation tree as shown below:

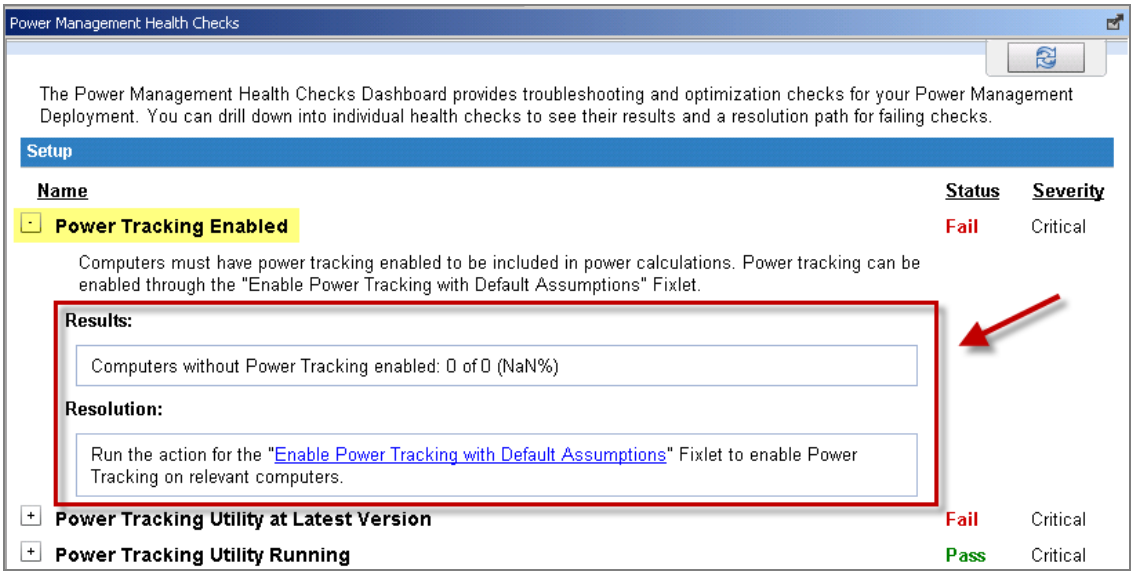


Power Management Health Checks

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.



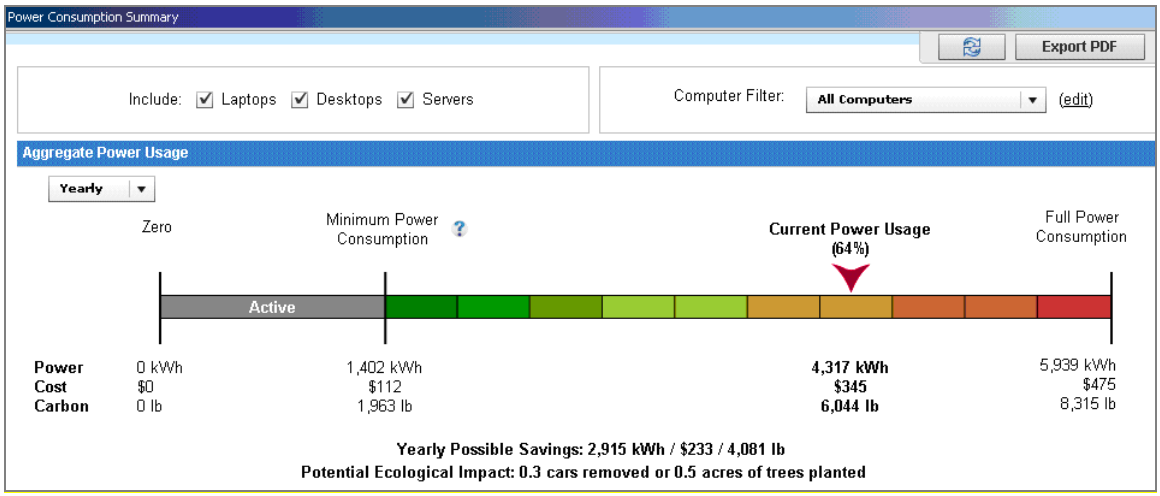
You can drill down into individual health checks to see their results and a resolution path for failing checks. Click the “+” sign beside each item listed to see the detailed results and resolution.



Power Consumption Summary

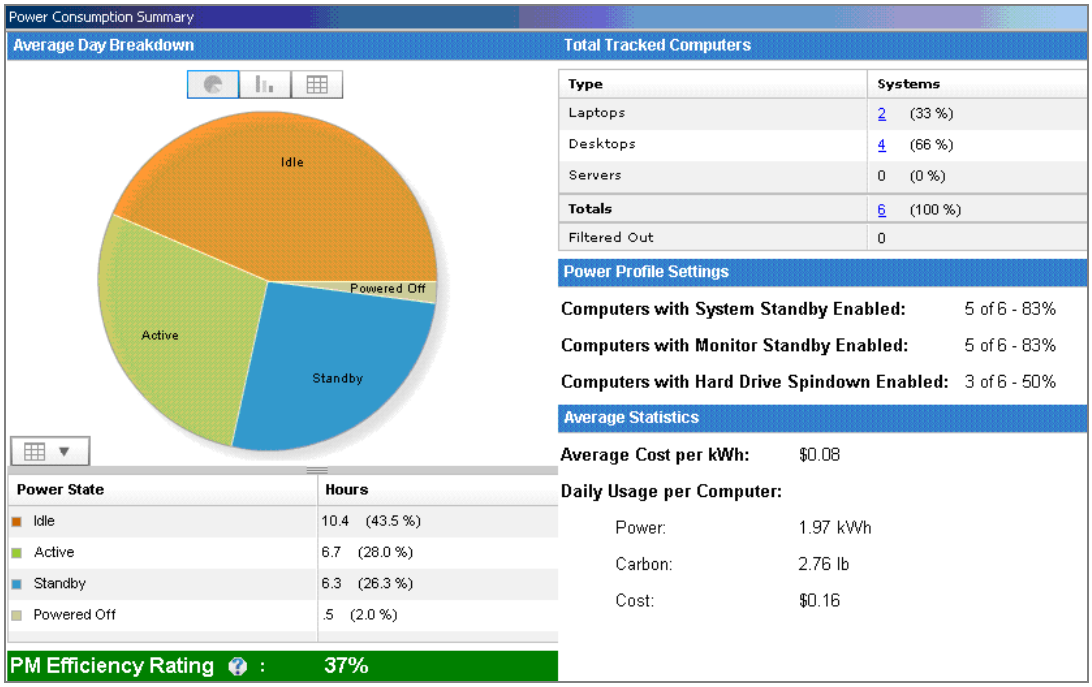
The *Power Consumption Summary* dashboard is a composite report that includes a number of separate sections highlighting different aspects of your power usage. Each section is highlighted below:

The Aggregate Power Usage section below displays the overall power used by your deployment and compares it with your estimated Minimum Power Consumption. *Minimum Power Consumption* is the amount of power used if your machines were only turned on when actively in use (as opposed to idle, standby or hibernate modes), and turned off all other times.



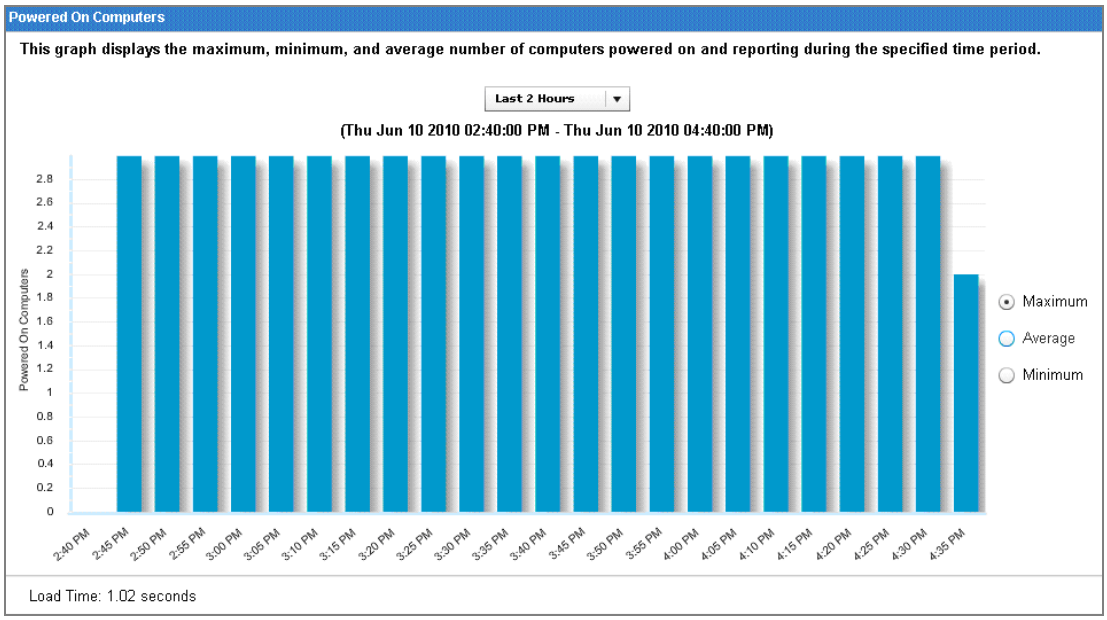
The next part of this dashboard includes sections for Average Day Breakdown, Total Tracked Computers, Power Profile Settings, and Average Statistics.

- *Average Day Breakdown* - Shows the amount of time the average computer spends in various power states in an average day.
- *Total Tracked Computers* - Shows the distribution of computer types in the deployment, as well as computers excluded from power calculations due to errors.
- *Power Profile Settings* - Shows the distribution of power management settings in your deployment.
- *Average Statistics* - Shows the daily power consumption of an average computer in your deployment.



The *Powered on Computers* sections display the number of computers that were powered on during various periods. The “Minimum” setting shows computers that were on continuously through the whole interval. The “Maximum” setting shows computers that reported on at least once during the interval. The “Average” setting shows computers that were on more often than off during the interval.

The *Powered on Computers* graph is designed to show you trends of when users turn off their computers throughout different intervals (by hour, day, week, or month).



Note: Unlike the rest of the *Power Consumption Summary*, the *Powered On Computers* graph cannot be filtered because it is built using pre-aggregated data.

Part Two

Using 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.

The *Reduce Power Consumption* node in the navigation tree contains Fixlets and Wizards that enable you to manage sleep, hibernation, and standby states on your running computers.

Power Savings Strategies

BigFix Power Management offers a number of strategies for saving power. The following list includes some common power saving strategies, though it is not meant to be comprehensive.

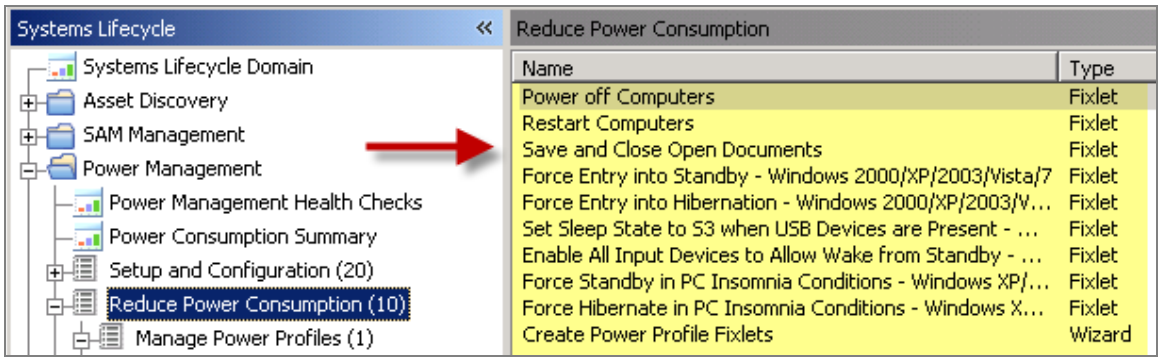
- **Enable Monitor Standby** – Monitors represent a significant portion of power usage for desktops and laptops. Enabling Monitor Standby has minimal end-user impact because most monitors recover quickly from low power mode. Monitor Standby can also be easily combined with the Power-off or System Standby strategies below. Use the Power Profile Wizard to change monitor standby policies.

- **Enable System Standby** – As most modern computers use very low power in standby mode, System Standby is considered the best approach to power management. Users will need to wake their computers before they can use them (via mouse click or keyboard strike); however, most computers wake from standby very rapidly (within 10 seconds).

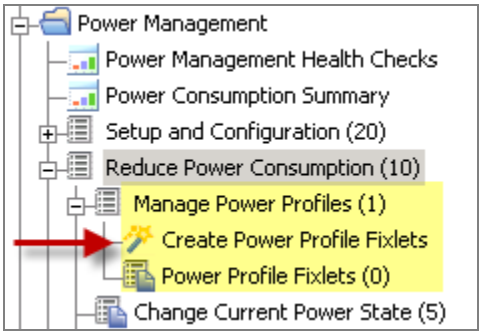
- **Power-off Computers** – This feature allows you to power-off computers at pre-defined times, which saves the maximum amount of electricity. Note that powering off computers has the most end user impact, as this method can potentially cause work to be lost.

Reduce Power Consumption

The “Reduce Power Consumption” section of BigFix Power Management gives you the tools you need to implement the power savings strategies described above.



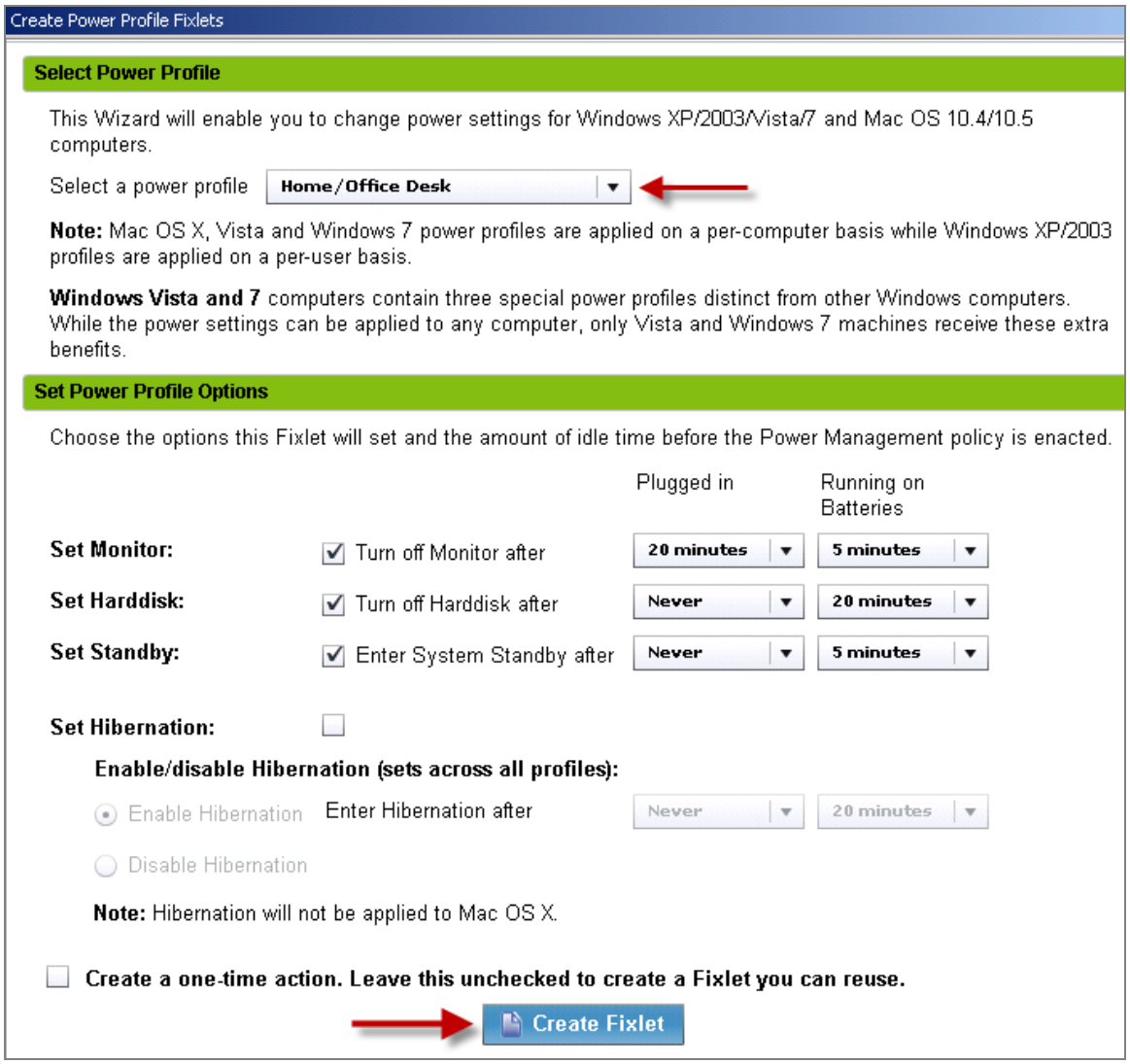
Under the *Reduce Power Consumption* node, you will find a *Manage Power Profiles* sub-node that includes a Wizard for creating power profile Fixlets and a listing of the Fixlets already created.



Manage Power Profiles

Power Profiles allow computers to go into a low power state when the user is idle for a pre-determined amount of time. You can manage the power profiles for your deployment by using the *Create Power Profile Fixlets* Wizard. Click on the wizard from the *Manage Power Profiles* node in the navigation tree, as shown above.

The Wizard for creating Power Profile Fixlets is organized into two parts: selecting a power profile, and then setting power profile options.



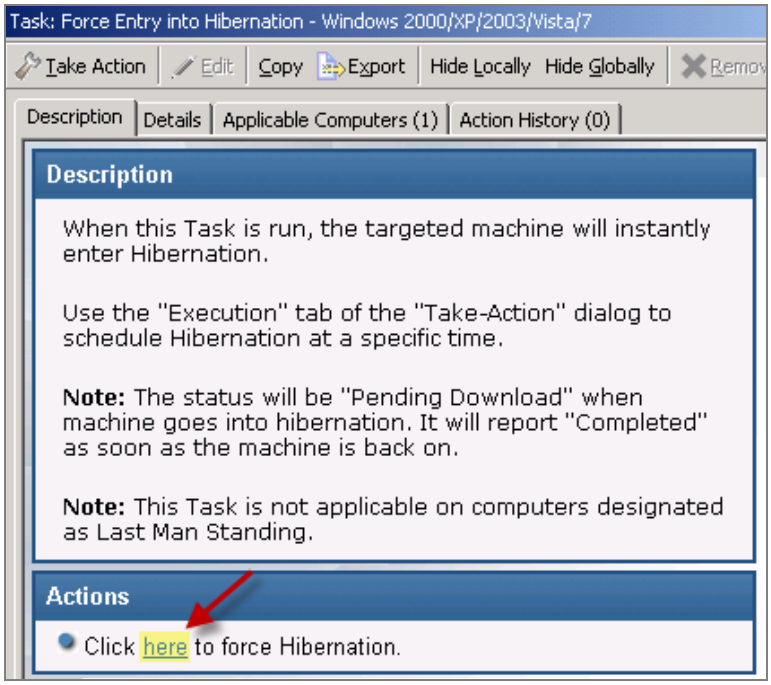
You can also choose to create a one-time action or create a Fixlet that can be re-used in the future. Begin by selecting a power profile from the pull-down list.

Then set power profile options. Click *Create Fixlet* when you have set all available parameters. In the Fixlet window, click in the Actions box to initiate deployment, and click *OK* when complete.

Change Current Power State

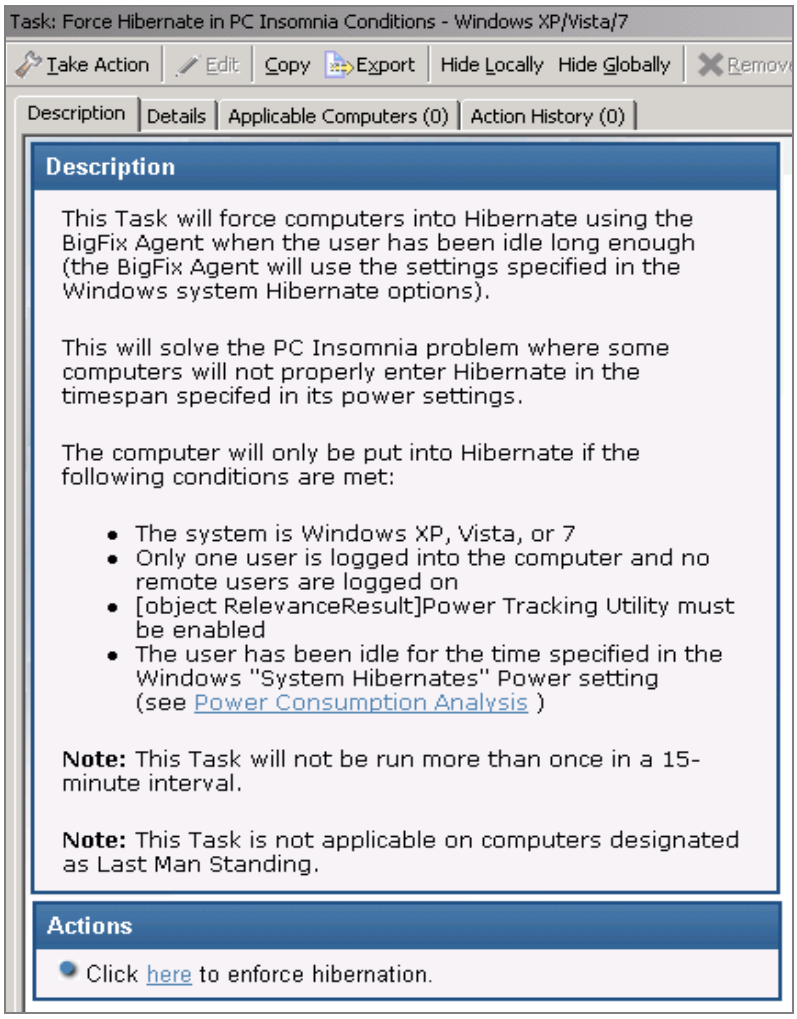
There are tasks available for you to force your computer into a low power mode (standby or hibernation). These tasks can be used to immediately force systems into low power mode or schedule low power modes regardless of the power profile or user activity on that particular machine.

Note: There is also a “force entry into standby” version of this task.



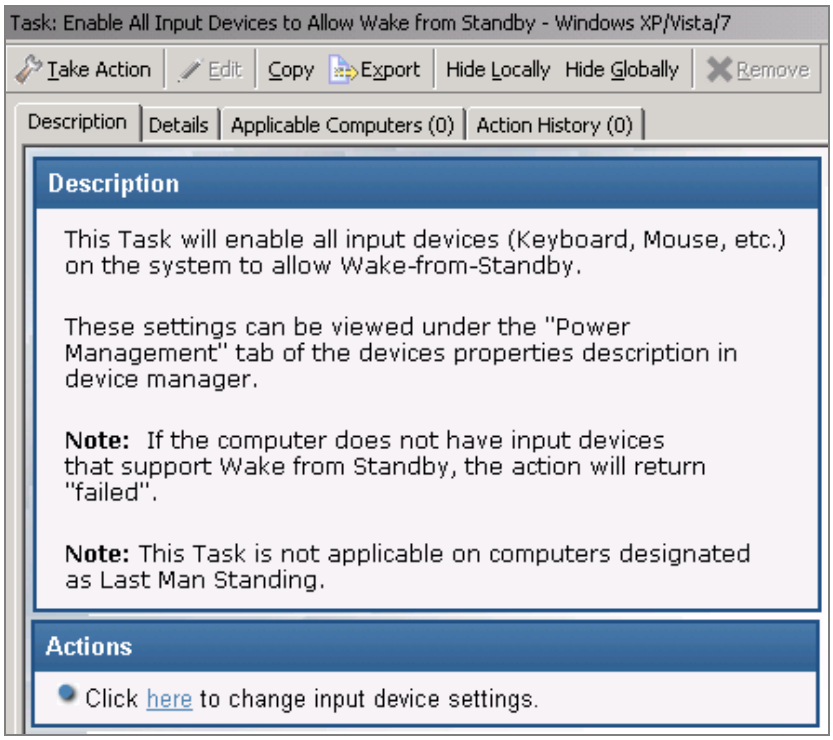
Manage PC Insomnia

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 machine 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-up times. Forcing a computer into Hibernation will take longer to wake-up but will allow for slightly greater power savings.



Manage Standby Behavior

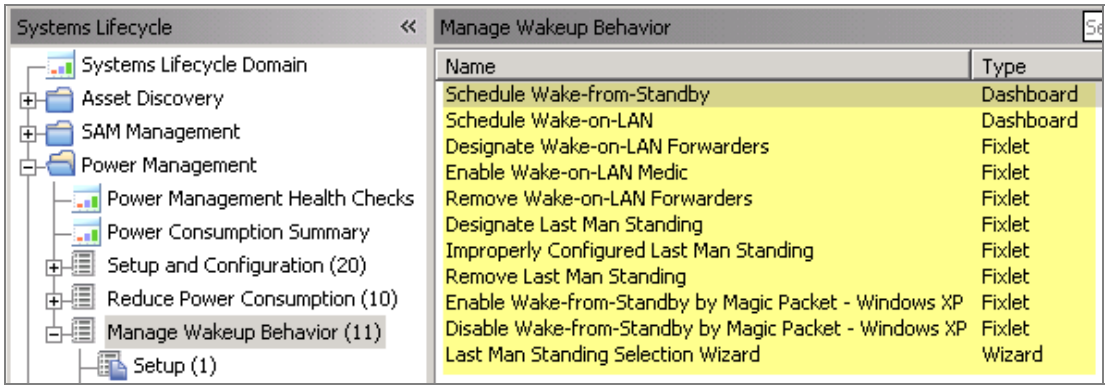
Only certain input devices are capable of waking a machine from standby (by user interaction), and only if the right Windows settings are enabled. This task will find all wake-up capable input devices and enable them to allow Wake-from-Standby.



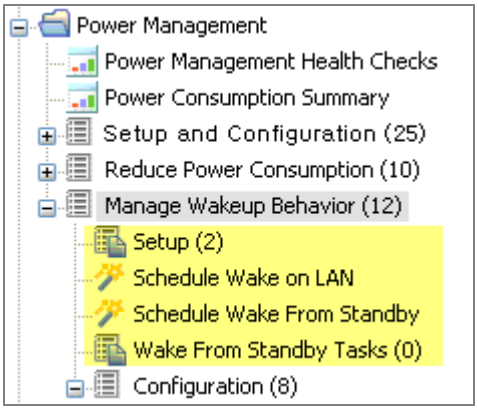
Manage Wakeup Behavior

Power Management provides a suite of Fixlets and Wizards that allow you to bring a computer online in order to take actions and manage the machine at specific times.

The *Manage Wakeup Behavior* node in the navigation tree contains dashboards, Fixlets, and wizards that allow you to control a computer's wakeup settings.



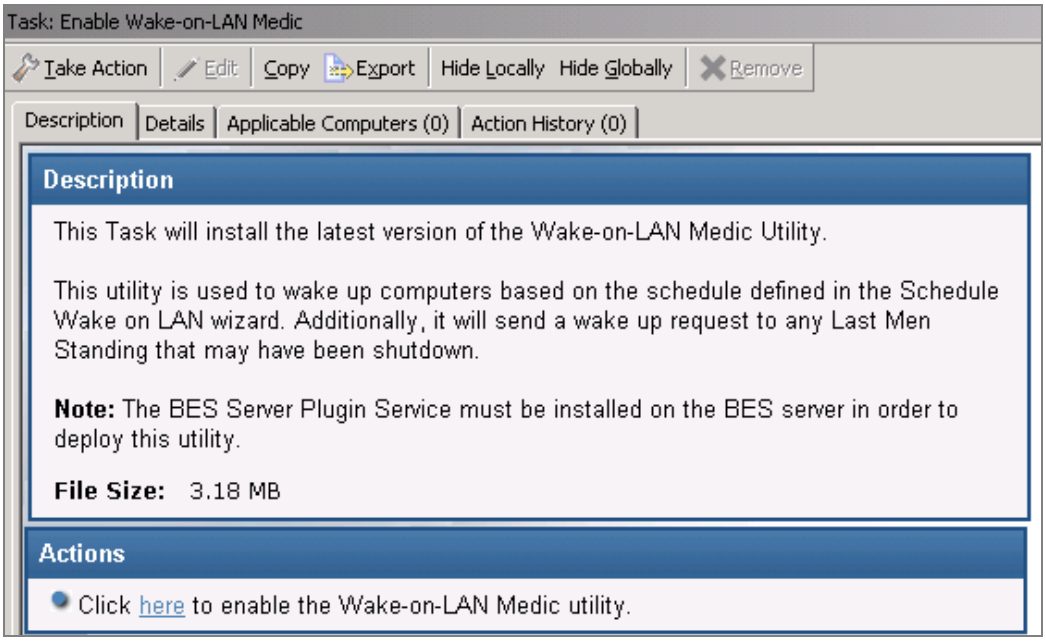
Under the *Manage Wakeup Behavior* node, you will see *Setup* and *Wake-from-Standby* tasks, along with wizards for scheduling Wake-on-LAN and Wake-from-Standby, as shown below.



Setup

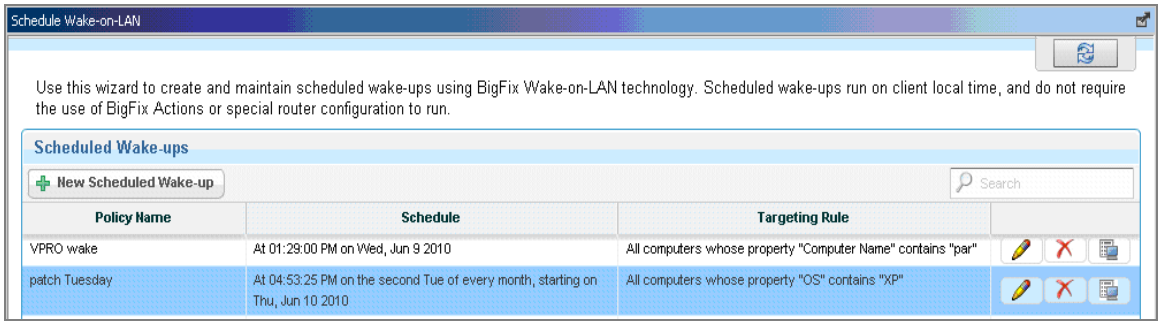
The Wake-on-LAN Medic utility is a process that runs on the BigFix Server. This utility manages Wake-on-LAN scheduling and keeps Last Man Standing computers awake. If you do not enable the Wake-on-LAN Medic, Wake-on-LAN features will not work properly.

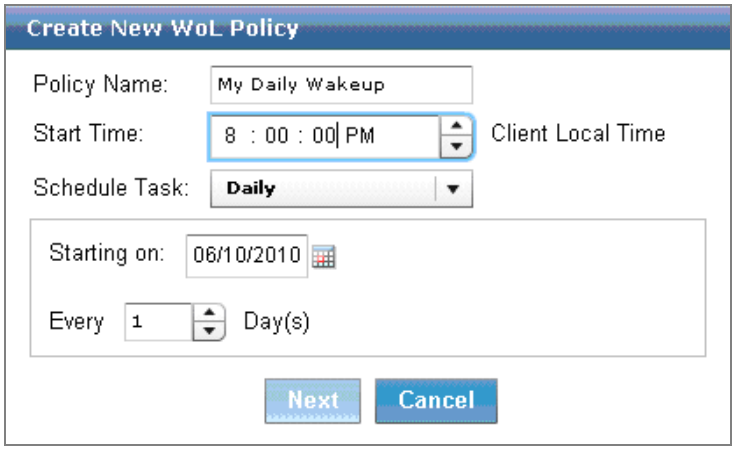
The Setup task enables you to install the latest version of the Wake-on-LAN Medic utility. Click on this task from the navigation tree. When the Task window opens, review the description and click in the Actions box to initiate the utility.

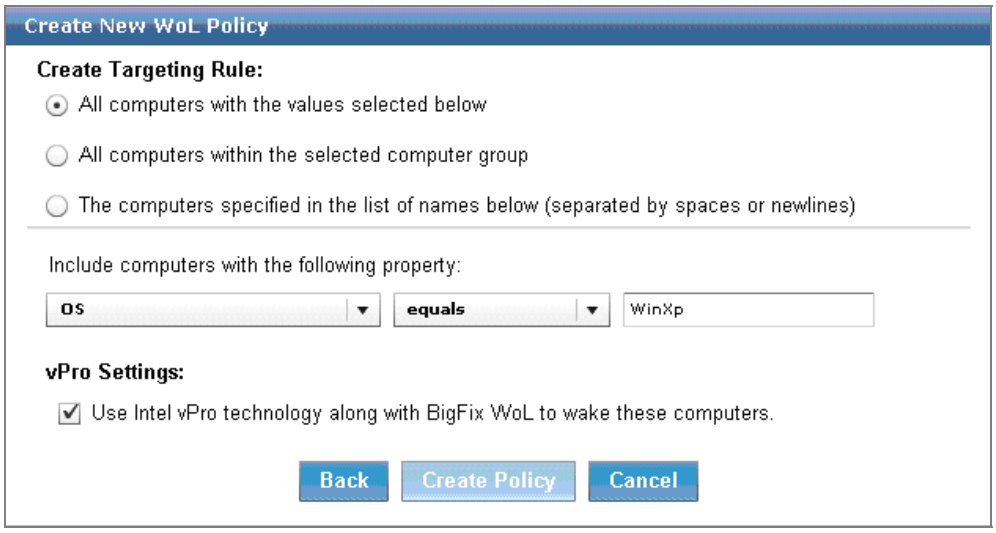


Schedule Wake-on-LAN

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





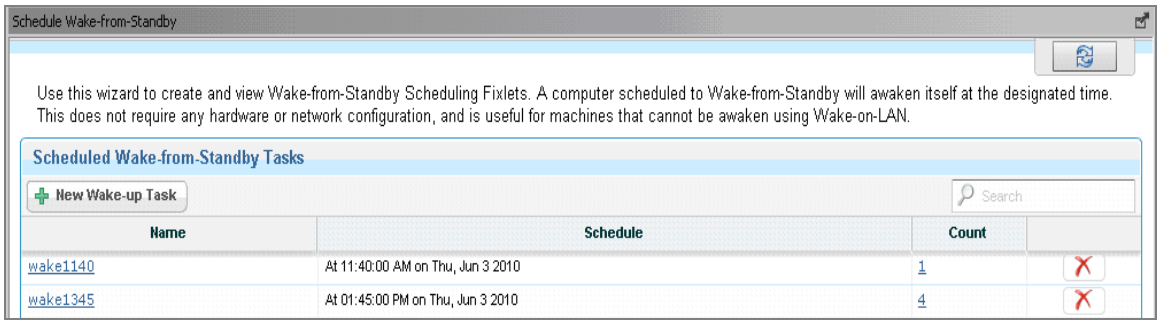


Note: The “vPro Settings” option will only be enabled if you are subscribed to the “Client Manager for Intel vPro” site.

After you schedule a WoL policy, the WoL Medic component will be in charge of waking the systems. By default, the WoL Medic checks every 5 minutes to see if it is time to run scheduled WoL policies.

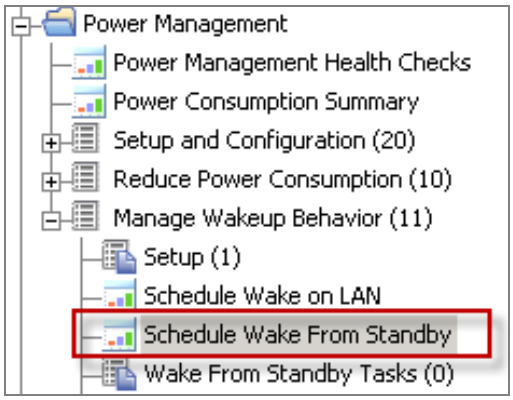
Schedule Wake-from-Standby

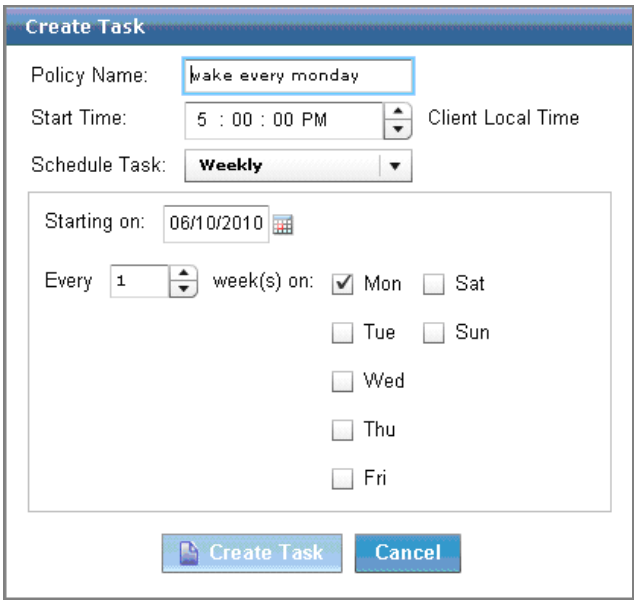
The Schedule Wake-from-Standby Wizard enables you to create and view Wake-from-Standby Scheduling Fixlets. A computer scheduled to Wake-from-Standby will awaken itself at the designated time. This does not require any hardware or network configuration, and is useful for machines that cannot be awakened 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, when complete, will populate in the *Wake-from-Standby Tasks* part of the navigation tree.

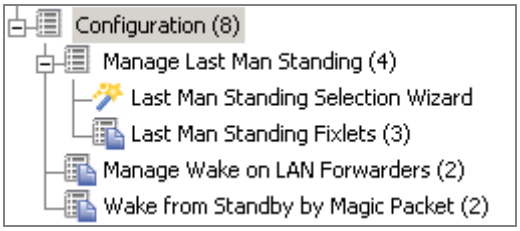




Note: The action must be run ***before*** the scheduled wakeup time.

Note: The scheduled wakeup actions require that Windows Task Scheduler Service is active.

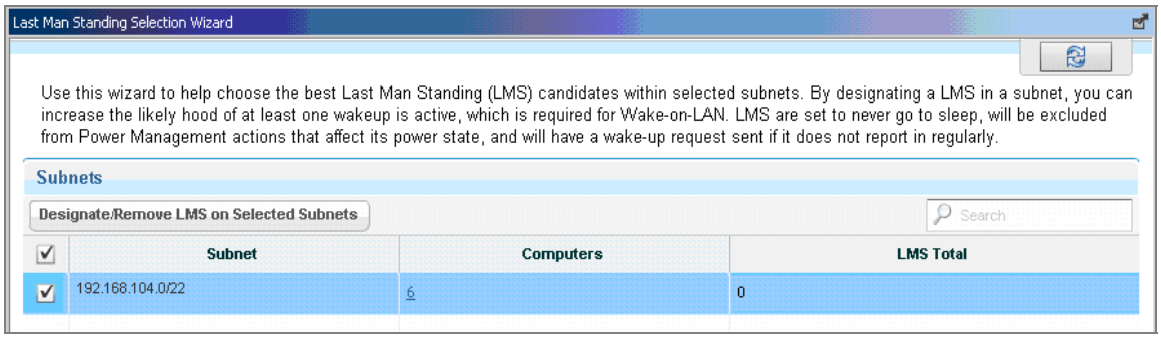
Configuration



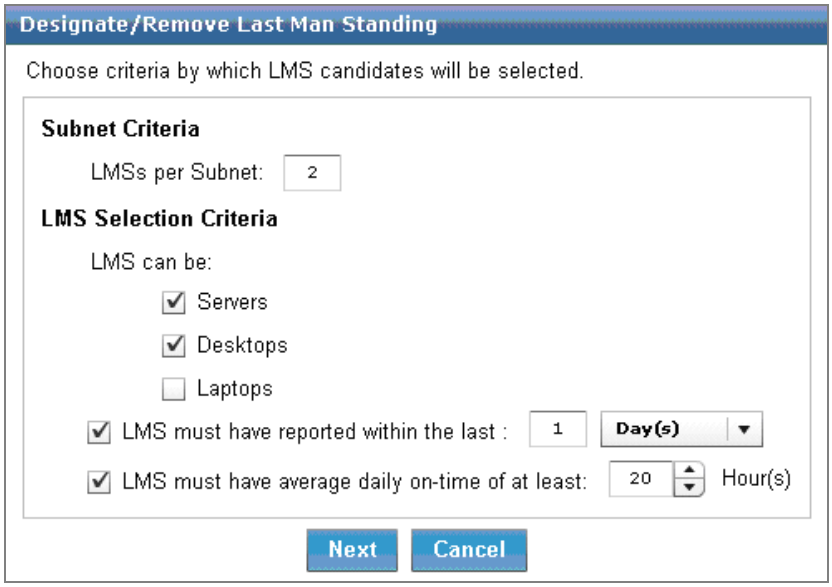
Manage Last Man Standing

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

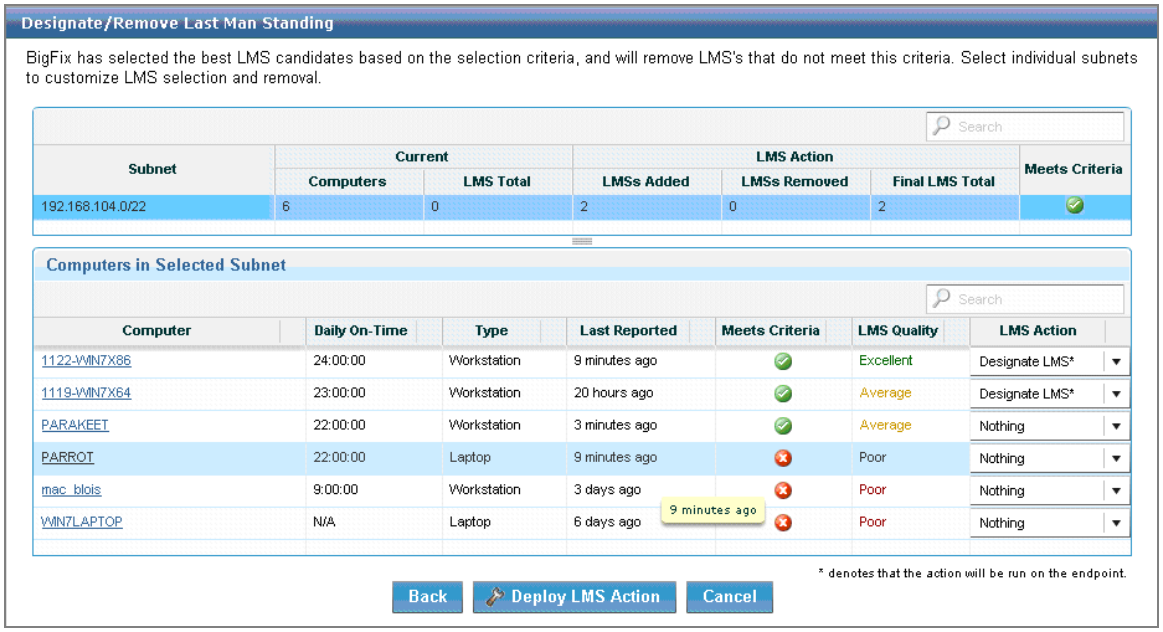
The LMS Selection Wizard automates the selection of LMS computers *per subnet*, while still allowing you to define your own custom set of LMS machines.



This feature is designed to find potential LMS computers in each selected subnet. The Wizard will find computers that match the entered criteria and propose them as potential LMS candidates.



This section allows you to review all proposed LMS candidates and select from that list before issuing the action.



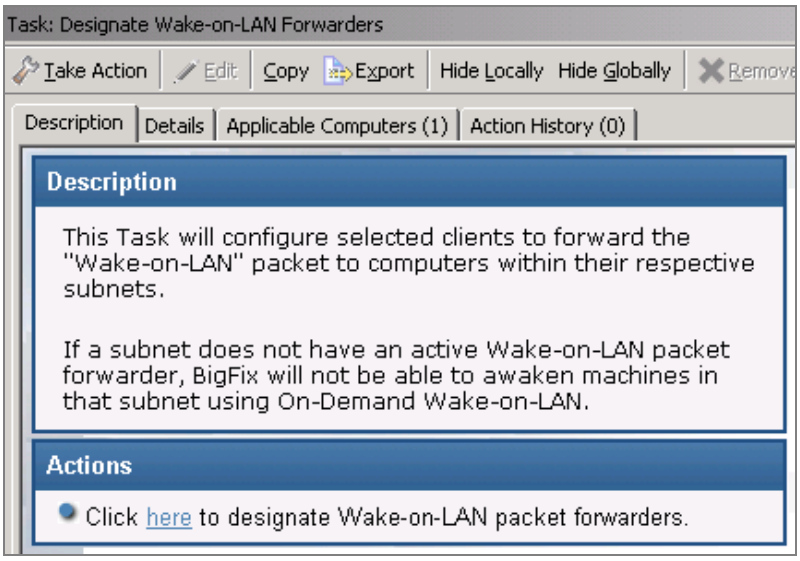
Manage Wake-on-LAN Forwarders

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

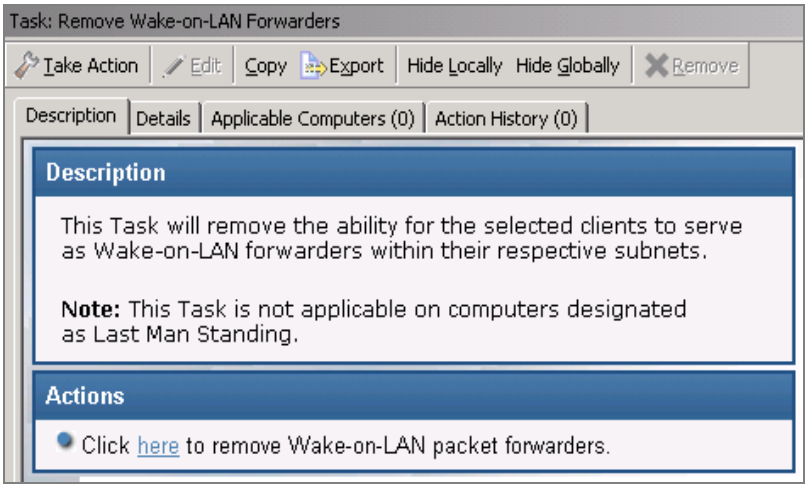
All BigFix Agents will be set as WoLFs when Power Tracking is enabled. BigFix includes heuristics to keep network traffic to a minimum, so all agents can be made Wake-on-LAN forwarders. Designating all clients as WoLFs provides for wake-up redundancy by increasing the likelihood that at least one forwarder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

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

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



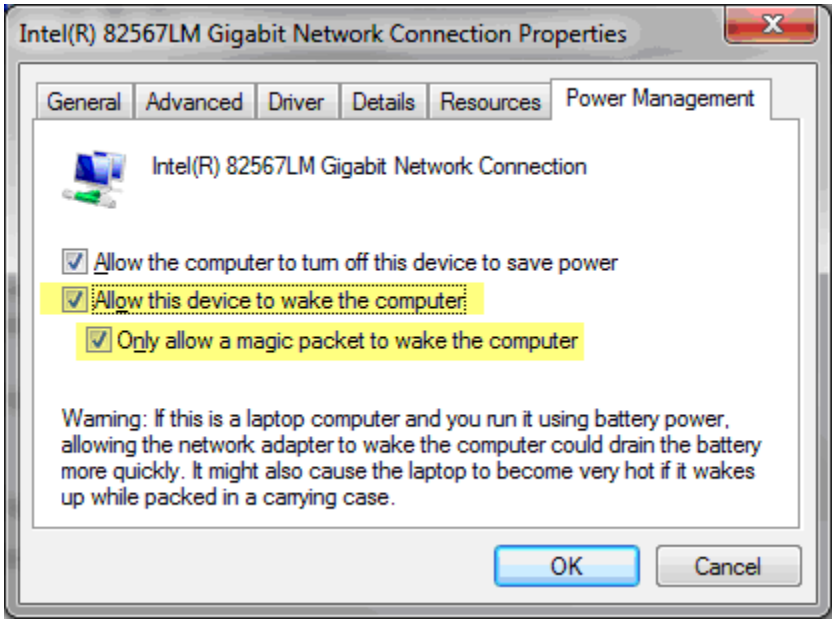
To remove Wake-on-LAN packet forwarders, click on the *Remove Wake-on-LAN Forwarders* task in the List Panel, and then click as indicated in the Actions box to initiate the action.



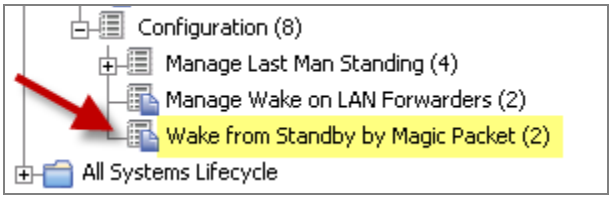
Wake-from-Standby by Magic Packet

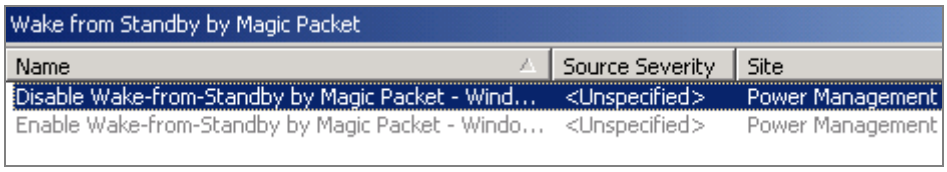
Power Management offers two tasks for disabling and enabling *Wake-from-Standby by Magic Packet*. A *Magic Packet*, also known as the Wake-on-LAN packet, is a broadcast packet that wakes up a computer.

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 when looking at the network adapter properties in Windows.



Access these by clicking on *Wake-from-Standby by Magic Packet* in the navigation tree and selecting the appropriate task in the List Panel, as shown below.



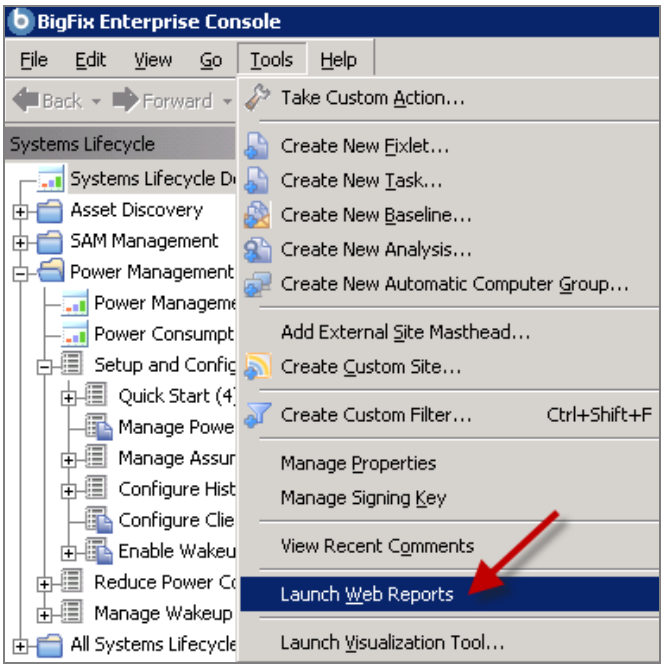


To disable or enable *Wake-from-Standby by Magic Packet*, click on the appropriate task and click in the Actions box of the task window to initiate the action.

Web Reports

BigFix Power Management offers a suite of reports available in the Web Reports component of the application. Web Reports was formulated to provide high level summary data to allow management and decision makers to view and assess power usage in a given deployment.

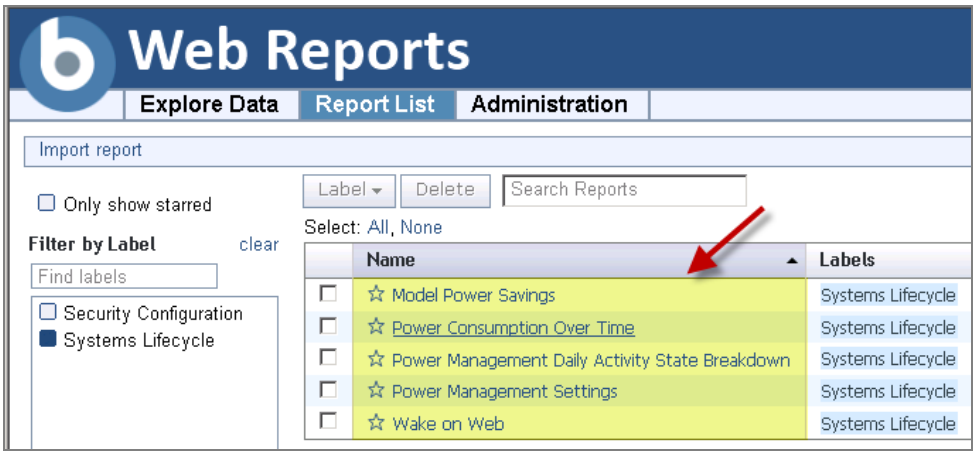
To access this feature, click the *Tools* pull-down menu at the top of the BigFix Console and select *Launch Web Reports.*



Enter your Web Reports username and password. If you do not know your username or password, check with your Administrator.

After login, you will see the main Web Reports page open in a new browser. Select *Systems Lifecycle* to see a list of Power Management reports.

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



- Model Power Savings

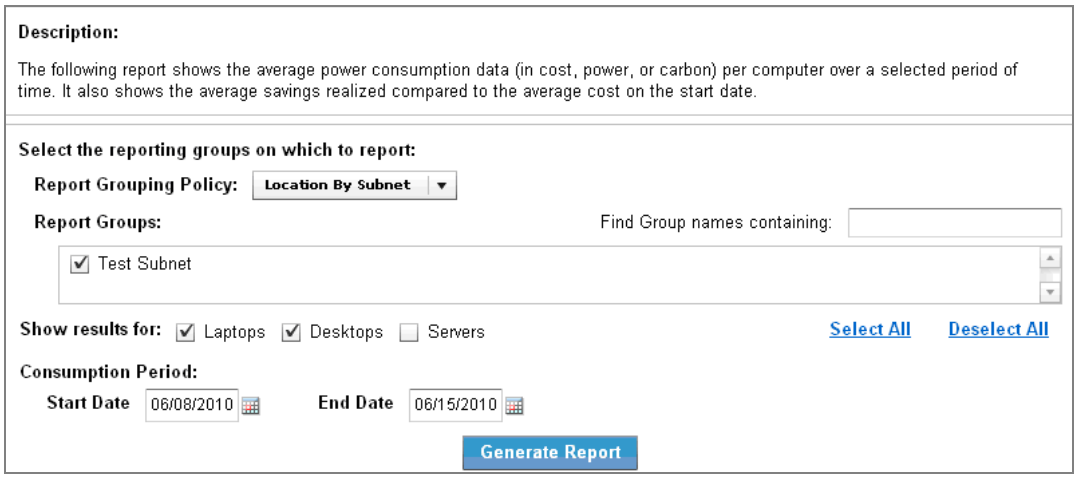
This report calculates how much power you can lose or save if you apply different power profiles across your deployment based on your current usage patterns. This report is useful in formulating "what-if" scenarios for potential savings by implementing various power policies. The results in this report are based on the actual power state history for each agent for the last two weeks (by default). As such, these results are expected to be a highly accurate projection of power savings.

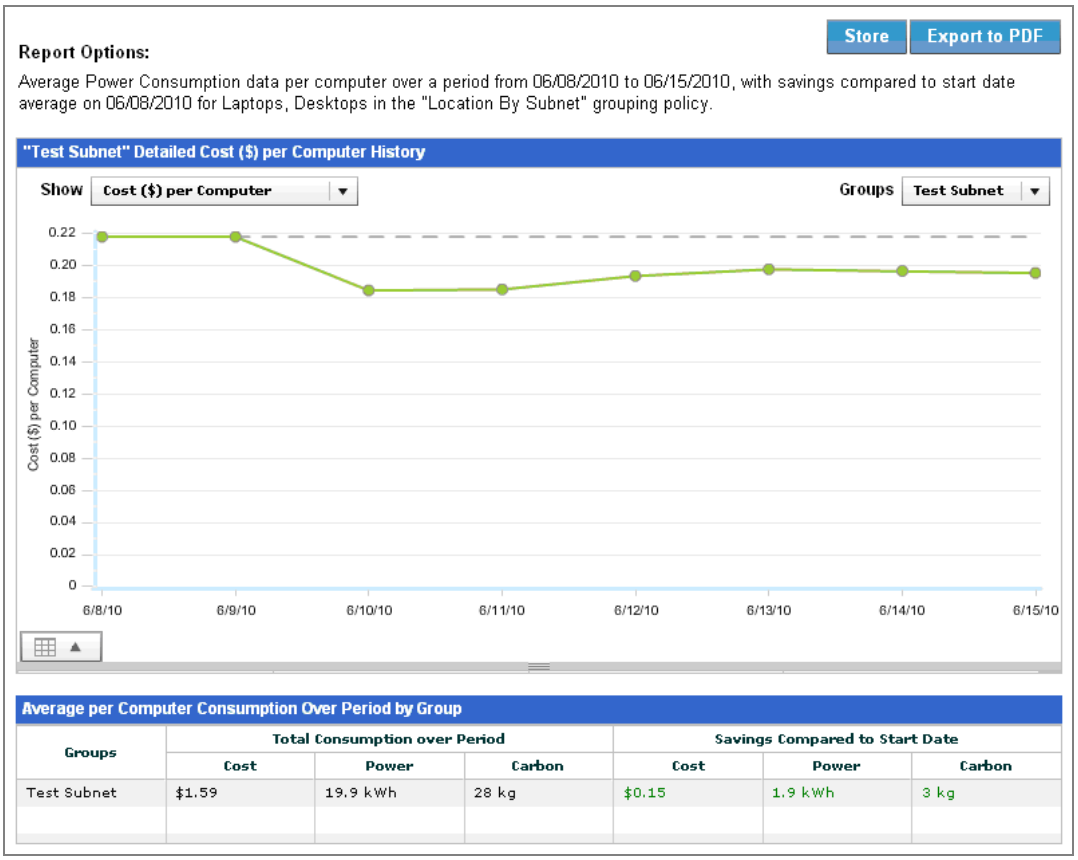
	Potential Standby Settings		Potential Total Savings			Potential Average Savings Per Computer		
Power Profile	System	Monitor	Power	Cost	Carbon	Power	Cost	Carbon
Minimal	Never	60 Min	-787 kWh	$-63	-1,101 lb	-112 kWh	$-9	-157 lb
Moderate	60 Min	30 Min	+1,420 kWh	+$114	+1,988 lb	+203 kWh	+$16	+284 lb
Aggressive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

- Power Consumption Over Time

This 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. This report is useful when looking at the historical savings and progress of power management policies. You must have *Historical Power Tracking* enabled to use this report.

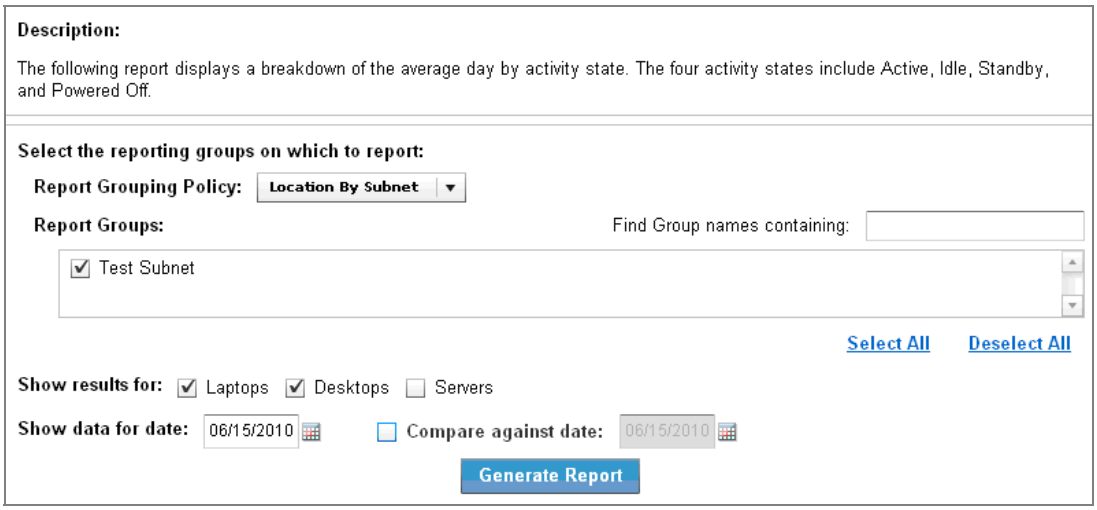
> Note: If you select the current date as the "End Date", the report might take significantly longer to generate, as previous dates are pre-calculated.

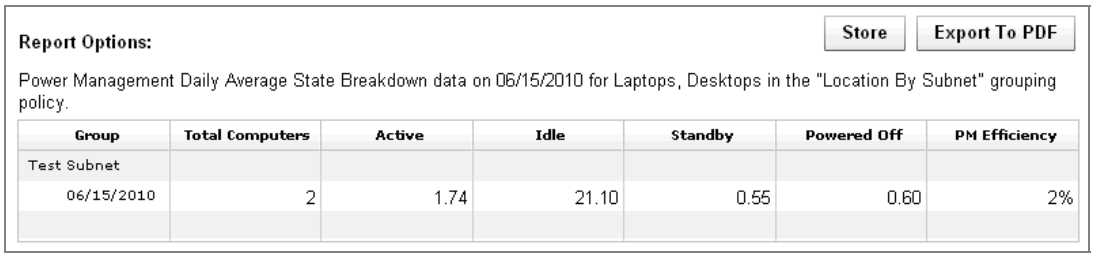




- Power Management Daily Activity State Breakdown

This report displays a breakdown of the average day by activity state. The four activity states include Active, Idle, Standby, and Powered off. This report is useful for evaluating changes you might make to your power policies. For example, if many computers have high “idle” times, you would set a Standby power policy to save significant power. It can also be set to compare improvements between two different days. The comparison functionality requires that historical power tracking is enabled.

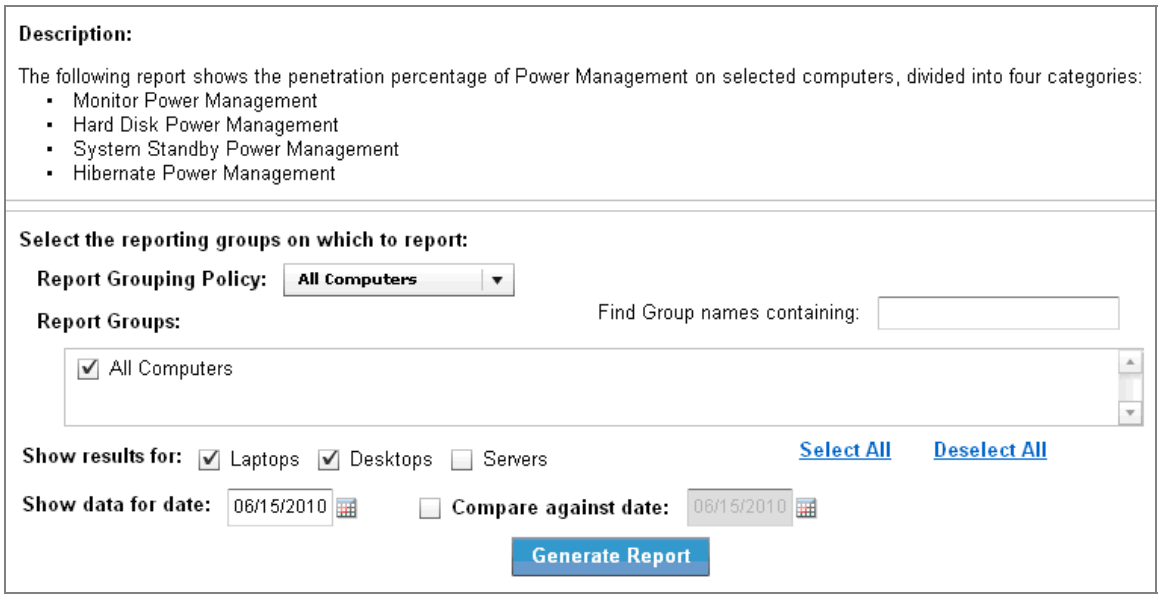


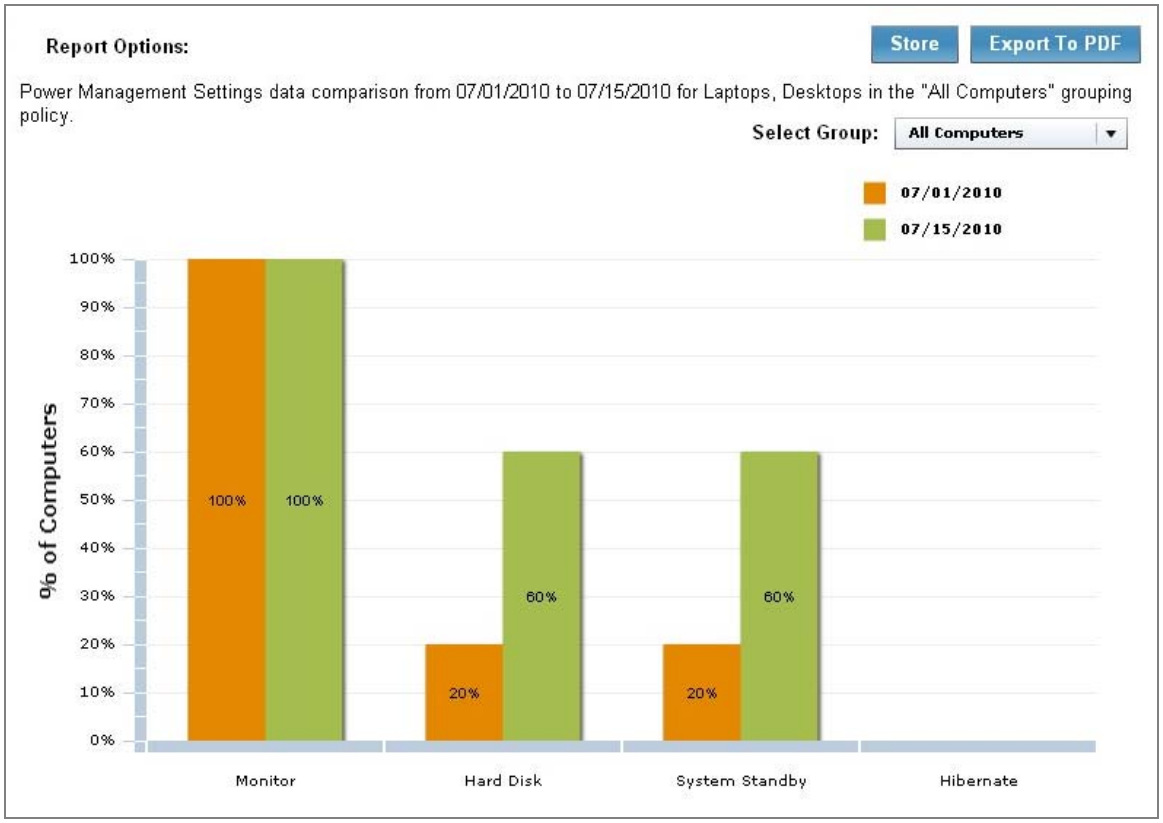


Note: If you select the current date as the “Compare against date”, the report might take significantly longer to generate, as previous dates are pre-calculated.

- Power Management Settings

This 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 functionality requires that historical power tracking is enabled.

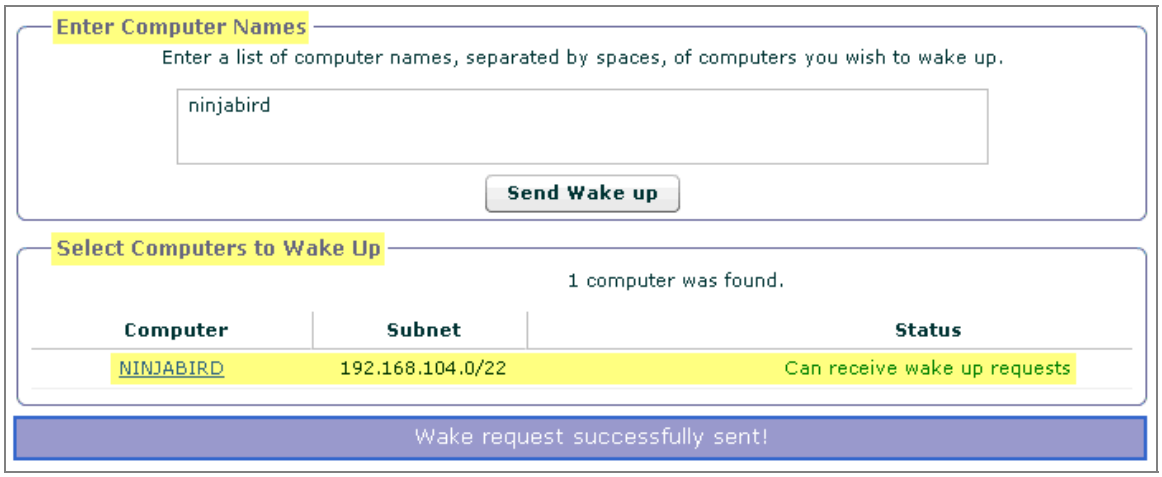




Note: If you select the current date as the “Compare against date”, the report might take significantly longer to generate, as previous dates are pre-calculated.

- 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 appropriately to issue a wakeup.



Part Three

Support

FAQs

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 (e.g. 70 watts). Current Consumption is the amount of time in "active" and "idle" modes (Active Power Usage) plus Standby Power Usage (e.g. 3 watts).

These are basic formulas that will vary for each individual deployment. For more specific parameters for setting and understanding power calculation formulas, contact your Sales Engineer or technical support.

How realistic are the power savings calculations?

BigFix's power savings calculations are based on tracking many different aspects of the computer including: the time spent in each power state (active, idle, sleep, off), 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, you should 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 CO_2 emissions?

Yes. The BigFix Power Management visual power spectrum provides data on the projected CO_2 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 have determined the average carbon emissions needed to generate a kilowatt-hour of power. More information can be found on 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. Check with your regulatory agency for more information about power compliance rules.

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 will 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 (control and report) 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 easily apply different power schemes to a wide variety of groups of computers (including ad hoc schemes), enabling you to target specific settings for specific groups (help desk workstations vs. mobile laptops).

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

The “Manage Custom Assumptions” wizard allows you to create and manage different cost and power assumptions for each endpoint.

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

The newer 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 machine?

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 end-users’ computers in any noticeable way.

What is the Client Logging Service used for?

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

Technical Support

BigFix offers a suite of support options to help optimize your user-experience and success with this product. Here's how it works:

- First, check the BigFix website Documentation page:
- Next, search the BigFix Knowledge Base for applicable articles on your topic:
- Then check the User Forum for discussion threads and community-based support:

If you still can't find the answer you need, contact BigFix's support team for technical assistance:

- Phone/US: 866 752-6208 (United States)
- Phone/International: 661 367-2202 (International)
- Email: enterprisesupport@bigfix.com

