BigFix® Power Management

User’s Guide

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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 the Power Management tool within your environment, see the Power Management Setup Guide.

User Idle Time Tracking and PC Insomnia Prevention

BigFix Power Management provides the capability to track user idle time on client machines. This information can be used to determine if a computer is not entering Standby mode when it should (commonly called “PC Insomnia”) and to take actions to enforce system Standby.

Tracking User Idle Time

Operators using version 7.1 of the BES Console can track user idle time with the Enable User Idle Tracking Task in the Idle Tracking and Control section of the Power Tracking Information dashboard.

The Enable User Idle Tracking Task will launch an idle tracking utility in the user space of the locally logged-in user of Windows XP and Vista computers. The idle tracking utility only tracks the locally logged-in user, so the Task will not be relevant on computers that have multiple or remote users. Once enabled, the utility will track the amount of time since a user moved the mouse or entered a keystroke.

Note: In order to minimize impact on the system, the utility will not report idle times of fewer than five minutes.

Once Idle Tracking is enabled, the User Idle Tracking Analysis can be used to return idle time statistics, such as how long a user has been idle and the last time the machine went idle. This Analysis will also report which machines don't have idle tracking functioning because of multiple or remote users.

By default, the Enable User Idle Tracking Task will launch as a Policy Action because the idle tracking utility needs to be re-launched every time a user logs in. By launching as a Policy, the Action will automatically reapply whenever the idle tracking utility is disabled.

Note: If the Enable User Idle Tracking Action is set as a Policy Action, it will automatically re-apply even if tracking is disabled using the Stop User Idle Tracking Task. To prevent this, close any open Enable User Idle Tracking policy actions. The description of the Stop User Idle Tracking Task will provide a list of all open idle tracking policy actions.
Force Standby in PC Insomnia Conditions

It is possible for certain applications to “block” entrance into system standby even when the feature is enabled. If a machine experiencing this problem has Idle Time Tracking enabled, it will become relevant for the Force Standby in PC Insomnia Conditions - Windows XP/Vista Task to be enabled. Using this Task, machines that are idle for a time longer than its minimum standby interval will be forced to enter standby. This task can be set as a policy action to ensure that computers will always enter standby when specified in the Windows Power Profile.

On-Demand Wake-on-LAN

In version 7.1 of the BigFix Platform, Console Operators can instantly wake any Wake-on-LAN enabled computer in the deployment, regardless of subnet, without issuing a BigFix Action. Previous versions of the BigFix Platform required that either the targeted computer(s) be in the same subnet as the computer issuing the Wake-on-LAN packet or that routers allowed directed broadcasts.

Wake-from-Standby

The Wake-from-Standby feature is managed through the Wake-from-Standby Scheduling Wizard, which can be accessed through the dashboard or the Wizards menu. The Wizard will output BigFix content that will create a Windows scheduled task on targeted endpoints that is used to wake them from Standby using the scheduling and recurrence options specified.

Note: Wake-from-Standby will not wake a computer that is in Hibernate mode. To wake a hibernating system, use the Wake-on-LAN feature.
Mac Support

Power Management now supports the following features on Macintosh computers:

- Track powered-on time per day
- View power settings
- Change power settings via the Power Profile Wizard
- Enforce power policies
- Track power consumption and savings over time via the Power Trend Overview and Historical Power Savings web reports and the Power Tracking Information dashboard
- Turn off computers
- Restart computers
- Override power assumptions

Last Man Standing

In order to wake a computer, at least one computer must be active in the target computer's subnet. To increase the likelihood that at least one computer in each subnet will be available to serve as a wake-up point, BigFix provides Last Man Standing functionality.

Last Man Standing computers are configured to ensure that they remain active and available to power-on other computers. When a computer is designated to be a Last Man Standing computer, it will be:

- Excluded from BigFix Power Management actions that would turn the computer off
- Excluded from actions that may change the computer's sleep state, such as the Force Entry into Standby Task
- Excluded from Fixlets created by the Power Profile Wizard
- Configured to not enter system Standby, Hibernate, or hard-disk Power Management modes
- Configured to serve as a Wake-on-LAN packet forwarder

Selecting Last Man Standing Computers

Operators using version 7.1 of the BES Console can configure a computer to be a Last Man Standing using the Designate Last Man Standing Task, which can be accessed from a link in the On-Demand Wake-on-LAN section of the Power Tracking Information dashboard. When the BigFix Wake-on-LAN analysis is enabled, the Designate Last Man Standing Task will provide a table of Last Man Standing computers by subnet. This table is meant to help operators identify "orphaned" subnets that do not currently have a Last Man Standing computer.
Master Operators will also be presented with a link to download additional BES properties. These properties can be used to filter computers in the Take Action dialog, aiding in Last Man Standing selection.

We recommend that at least one computer in each subnet be designated as a Last Man Standing computer. However, since Last Man Standing computers have system Standby disabled and are excluded from most Power Management actions, only a few should be selected from each subnet.

Any computer running version 7.1 of the BES Client can become a Last Man Standing computer. However, the best practice is to select computers that tend to consistently remain active, such as servers or Relays.

**Managing Last Man Standing Computers**

While Last Man Standing computers are set to be excluded from Power Management actions that could hinder their ability to serve as wake-up points, custom actions taken outside of Power Management or outside of BigFix could change their configuration. If this occurs, the *Improperly Configured Last Man Standing* Fixlet will become relevant. Run this Fixlet to reconfigure broken Last Man Standing computers.
**Note:** Fixlets created with an outdated version of the Power Profile Wizard will not properly exclude Last Man Standing computers and may cause them to become improperly configured. The *Improperly Configured Last Man Standing* Fixlet will contain a list of all outdated Power Profile Fixlets. These Fixlets should be removed and recreated using the updated Power Profile Wizard.

The *Remove Last Man Standing* Task can be used to remove Last Man Standing exclusions from a computer. Once this Task is run, selected computers will be included in all Power Management actions. However, they will continue to function as Wake-on-LAN forwarders and their Standby Power Management settings will be left disabled until a new Power Profile is applied to them.

## Forced Standby or Hibernation

Forced Standby or Hibernation actions will force the target machines to go into the appropriate mode when they are run. Go to the Power Controls box in the dashboard and click on the appropriate setting.

Once the Fixlet window opens, click where indicated in the Actions box and set desired parameters in the Take Action dialog.
Open the Power Management tool by selecting *Power Tracking Information* from the Dashboards pull down menu at the top of the BigFix Console. Click where indicated to enable power monitoring, and enter your Private Key Password.

This action opens the primary Power Management control window.

From the Power Controls box in the primary window, you can view and set power settings, shutdown and restart computers, schedule wakeups, enable and disable On Demand Wake-on-LAN, work with Power Tracking configurations, and track and control idle times.
Setting Power Profiles

1. To set power profiles for your deployment, select the Set Power Settings link from the Power Tracking Information dashboard.

![Power Tracking Information](image)

BigFix Power Management also includes a Wizard that enables you to change power settings for Windows 2000, Windows XP, Windows 2003, Windows Vista, and Macintosh OS 10.4/10.5 computers. (Macs do not use the concept of a power profile name – they will show up as ‘custom’.)

2. To use the Wizard, select the Power Profile Wizard from the Wizards pull down menu at the top of the Console. When the Wizard opens, select a power profile to use and click Next.

![Power Profile Wizard](image)

3. When the Set Power Profile window opens, you can select when to turn off hard disks, monitors, and go into system standby. The Wizard also allows you to select how and when to hibernate your system.
4. When complete, click Finish to open a Fixlet Editing window. This will allow you to modify Fixlet parameters.

5. At the Fixlet window, you may edit or change the information listed in the Description box. When finished, click the OK button at the bottom of the window and wait a moment while these settings are processed. Then click in the Actions box to initiate deployment and enter your Private Key Password.

Alternatively, if you would like to create a one-time action, click the Create a one-time action box at the bottom of the Wizard (shown in step 3 above), which will open a Take Action dialog.
6. Select the computers to which to apply the action. Click the OK button at the bottom of the window and enter your Private Key Password. For more information about setting options using the tabs in the Take Action window, consult the BES Console Operators Guide.

Overriding Power Assumptions

The BigFix Power Management site includes a Wizard that enables you to override the power assumptions used in the dashboard. You can apply these overrides to individual computers or to groups of computers. If an override is not applied to a specific computer, Power Management uses the assumptions stored in the dashboard.

Accessing the Wizard

1. Click the Override Power Assumptions link in the Power Controls section of the dashboard.

2. In the Task window, click where indicated in the Actions box to open the Power Assumptions Override Wizard.
3. Select the override assumptions for your targeted computers, then click Finish. A Take Action window opens.
4. Select the computers to which to apply the override, and click OK. Enter your Private Key Password. For more information about setting options using the tabs in the Action window, consult the *BES Console Operators Guide*.

**Removing Power Assumption Overrides**

To remove power assumption overrides:

1. Click the *Tasks* tab.
2. Select *All Tasks*, then click *By Site* and select *BES Power Management*. Double-click the *Remove Override Power Assumptions* Task on the right.

This will open the Task window.
3. Click where indicated in the Actions box to remove any custom power calculations.

4. When the Take Action window opens, select computers upon which to remove the override, click OK, and enter your Private Key Password.

Saving Files

You can set BigFix Power Management to save and close files before shutting down or restarting computers in your network. Files can be saved and closed for the following applications:

- Microsoft Word
- Microsoft Excel
- Microsoft PowerPoint
- Microsoft Outlook
- WordPad
- Notepad

The Task saves documents to an operator-specified folder with the file name:

##BIGFIX-<application name><date><GUID>.

**Note:** The restart and shutdown actions will only run on computers that are not locked.

To run the Task, click the Save and Close Open Documents link in the Power Controls section of the Power Tracking Information dashboard.
1. At the Task window, click the appropriate link to save open documents, save open documents and restart the computer, or save open documents and shutdown the computer.

2. A Take Action window opens. Select computers to which to apply the Task, and click OK.

3. In the Action Parameter window, enter the directory path to which files will be saved. Click OK and enter your Private Key Password.

Working with Wake-on-LAN

The BigFix Power Management site includes the ability to remotely power-on a computer using Wake-on-LAN technology.

Since many companies have hundreds or thousands of subnets, network limitation is a severe restriction on the use of Wake-on-LAN. BigFix solves this problem by enabling BigFix Clients to wake other computers in the same subnet. As long as you have at least one BigFix Client powered-on in the subnet, you can wake your other computers.

Understanding the Wake-on-LAN Wizard

The first time you run the Wake-on-LAN Wizard, it will create a retrieved property called Wake-On Address. This property will link a computer's MAC address to its IP address, which will allow BigFix to know how to wake each computer.
Once the Wizard has created this property and clients have reported back, open the Wake-on-LAN Wizard again. You can now use BigFix Clients to wake up computers in selected subnets. The Wizard will list the available subnets with the number of computers in each subnet.

After selecting a subnet and clicking Next, you will be presented with deployment options:

- **Expiration Time** - Sets the length of time BigFix will attempt to wake computers. Expiring Wake-on-LAN actions helps optimize system performance.

- **Temporal Distribution** - Sets the span of time between Wake-on-LAN packets. Since Wake-on-LAN traffic is all on a local LAN, the network speeds tend to be very fast. Nevertheless, as a precaution against sending too much data in a short burst, set large time intervals. For example: If there were 200 computers on a subnet and you spread out the Wake-on-LAN packets over 10 minutes, the network traffic used for the Wake-on-LAN packets would be extremely low.

- **Wake-up Points** - Sets the time in which a client must have reported to be considered a Wake-up Point.

The Wizard creates a BigFix action that will download the BES Wake-on-LAN utility to your Wake-up Points. The Wake-up Points will then send special Wake-on-LAN packets to every computer that you select in the subnet. These packets are sent on port 10 using the behaviors you chose in the Wizard.

**Note:** A subnet must have at least one awake computer to awaken another computer within the subnet.

### Running the Wake-on-LAN Wizard

1. Go to the Wizards pull down menu and select the **Wake-on-LAN Scheduling Wizard**. The Wake-on-LAN Wizard opens.

2. Click the link to activate the **Wake-on-Address** property. The **Create Property** window opens. Assign a frequency for evaluation, and click **OK**.
3. After your computers report, open the Wizard again. The first page of the Wizard will ask you to select one or more subnets on which to apply Wake-on-LAN.

4. Select the subnet or subnets, and click Next. The Select Computers window opens.
5. Select the computers you want to turn on. The *Status Definition* section of this page determines what Power Management considers an “off” computer. This consideration is used to aid in individual computer selection. However, a wakeup action is sent to the selected computers whether or not they are awake or asleep when the action is sent. Click *Next*. The last window opens.

![Wake-on-LAN Scheduling Wizard](image)

6. In this window:
   a. Confirm your choice of subnet or subnets.
   b. Set an expiration time for the Action.
   c. Set an interval for distribution of wake-up packets.
   d. Select whether to use all computers as wake-up points, or specific computers based on reporting.
   e. Check the *Take Action* dialog box for advanced scheduling and deployment options.
   f. Click *Finish*.

If you did not check the “Open the Take Action box” at the bottom of the last screen, the Action will run. If you have checked the box, a *Take Action* window will open providing you with more options. Set the parameters in the Take Action box and click *OK*. Enter your Private Key Password. For more information about Action window options, consult the *BES Console Operator's Guide*.
BigFix Power Management stores data to make it visible in two reports through the Web Reports interface: *Historical Power State* and *Power Trend Overview*. You may also use the web reporting interface to view the *Daily Power Statistics by Computer* report, as well as to use the *Wake-on-Web* report.

To access Web Reports, use the Tools pull down menu and select *Launch Web Reports*. The applicable reports will be visible in the Content Reports section of the Reports page.

To store your data for reporting, click the *Store Historical Data* button on the dashboard. Additionally, check the Power Management *Setup Guide* for details on how to set up storing of historical data. For more information about Web Reports, consult the *BigFix Enterprise Suite Web Reports User’s Guide*.

### Power Trend Overview

The Power Trend Overview report displays Power Cost, CO₂ Emissions, and Power Consumption statistics on a per computer or aggregate deployment basis. The *Cumulative Savings Over Time* table displays cumulative power, cost, and CO₂ savings over the user-specified custom date range.

The Potential Power Usage section of the report can be used to model the impact of changes to power settings. Use the inputs to enter goals in either absolute or percentage terms and then click the *Show* button to display the potential savings. The potential power consumption statistics are computed with current dashboard and calculation override settings and will display in the graphs as dotted blue lines.
Power Trend Overview

Cumulative Savings Over Time

<table>
<thead>
<tr>
<th>Operator</th>
<th>Total Cumulative Savings Over Time</th>
<th>Cumulative Savings per Computer Over Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost ($)</td>
<td>Power (kWh)</td>
</tr>
<tr>
<td>bigfix</td>
<td>-95.67</td>
<td>-440.64</td>
</tr>
<tr>
<td>minor</td>
<td>+13.35</td>
<td>+186.23</td>
</tr>
<tr>
<td>.nn.nn.nn</td>
<td>+35.56</td>
<td>+470.70</td>
</tr>
</tbody>
</table>

Daily Power Cost

Type: Per Computer

Average Daily Power Cost per Computer

Daily CO2 Emissions

Type: Per Computer

Average Daily CO2 Emissions per Computer

Daily Power Consumption

Type: Per Computer

Average Daily Power Consumption per Computer

Potential Power Usage

This section allows you to select Power management goals and see the potential effects on your usage.

- Monitor Power Management
  - Current: 0 of 0 - 0.0 %
  - Goal: 0 of 0 - 0.0 %

- Standby Power Management
  - Current: 0 of 0 - 0.0 %
  - Goal: 0 of 0 - 0.0 %

- Daily On Time
  - Current: 00:00 - 0.0 %
  - Goal: 00:00 - 0.0 %

Calculate Potential Power Statistics: Show

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Historical Power State

The Historical Power State report displays information about your power usage, cost, and CO₂ emissions both per computer and per network total. If you view the graph per computer, you see the average power usage, cost, or CO₂ emissions. If you view the graph as totals, you see the minimum potential/maximum potential, and actual total daily power usage, cost, or CO₂ emissions.

The report also tracks the types of computers on which you manage power (laptop, workstation and/or server). Finally, the report includes a graph showing the percentage of total monitored computers with Power Management-enabled monitors, hard drives, Standby-enabled machines, and the average daily powered-on time.
Daily Power Statistics Report

The Daily Power Statistics Report generates “per computer” statistics from the Power Monitoring Analysis, which is generated by the Power Tracking Information dashboard. Navigate to this report by opening Web Reports from the Tools pull down menu. Then click the Reports link at the top of the page to see a listing of available Content and Public reports.

The report displays information two ways – by Computer Type and by Computer.

Note: Since this is a “per computer” report, we recommend using filters for large deployments when possible, though we have optimized it to load quickly even on our largest deployments.

Wake on Web Report

A commonly requested use case for the BigFix On-Demand Wake-on-LAN is to wake computers from a VPN to allow for remote login. Web-based access to On-Demand Wake-on-LAN allows end users to awaken computers without access to the BigFix console. The report also displays whether a machine is BigFix Wake-on-LAN capable.

The Wake on Web Report allows users to send a Wake-on-LAN request to one or more computers. Once you’ve logged into the Web Reports site, click the Reports link at the top of the page and locate the Wake on Web Report from the Content Reports list.
After selecting the Wake on Web Report from the list, you may need to activate the BES Component Versions Analysis in the BES Support site, and the BigFix Wake-on-LAN Analysis in the BES Power Management site before viewing the report.

To activate analyses, return to the Power Tracking Information dashboard and click the Analyses tab in the center of your screen. Locate the applicable analyses in the list, right-click to Activate, and enter your Private Key Password. Follow this procedure for all applicable analyses. Then return to the Web Reports site to view the report.
FAqs

How realistic are the power savings calculations? Are they estimates, or do the figures come from actual monitoring of devices?

Our calculations are based on actual usage as well as your organization’s maximum potential and minimum potential usage scenarios.

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. You can select either kilowatt hours or CO₂ savings.

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 CO₂ 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 endpoint 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.

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. Centralized reporting at larger scale is fully supported with multiple BigFix servers.

On what platforms can I use the BigFix Power Management solution to manage power settings?

Microsoft Windows 2000, XP, 2003 Server, Vista, as well as Macintosh.
Does BigFix Power Management support multi-site, cross-domain deployment?

The BigFix platform provides various features for multi-site, cross domain deployment, including active directory and other DNS capabilities, allowing for geographic as well as logical distribution.

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

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

Does BigFix Power Management include Wake-on-LAN capabilities?

Yes. BigFix Power Management includes the ability to power-on computers using Wake-on-LAN. In addition, it can also force standby, wake from standby, force hibernation, wake from hibernation, and save applications before suspending.

Does BigFix Power Management provide the ability to remotely restart and shut down a number of computers?

Yes. BigFix Power Management provides administrators with the ability to schedule remote restarts and shut downs for groups of computers with just a few clicks.

How can I change the information about the cost of power or the default workday?

Through the Power Tracking Information dashboard. After the information is changed, the power consumption statistics and cost figures will update immediately.

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