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1 What is Lights-Out?

Lights-Out is a management solution which helps you saving energy, managing your backups, your computers and your network.

For whom is Lights-Out conceived?

Lights-Out is intended for home users who run a server or a computer used as a server, as well as for small and medium-sized enterprises that run one or more servers and computers.

The focus is somewhat different, but the boundaries are fluid.

If you are a home user read what Lights-Out can do For Home Users.

If you work in a business, read what Lights-Out can do For Small Business Users.

The big picture

Lights-Out is based on several building blocks:

1. A service which is installed on the server or a desktop system used as server. This is the core component (the green Sample Server in the picture). The management console and the client software are connected to that service.
2. A management console which is installed on the server and optionally on any system used to manage Lights-Out.
3. A client software or agent installed on Microsoft Windows or Apple Macintosh computers (the blue devices in the picture). These devices may operate inside your network (LAN) or outside over the internet (WAN).
4. An optional mobile app for smart phones or tablets (the blue devices in the picture). These devices may operate inside your network (LAN) or outside over the internet (WAN).
Components 1. - 3. are part of the installer for the server. The mobile app is a separate component and is available for all major systems (Android, iOS, Windows 8-10, Windows Phone 8-10).

Licensing

You can evaluate Lights-Out for a period of 30 days. When the evaluation period has expired, Lights-Out will revert to a Community Edition mode. In this mode, Lights-Out is free for personal use only.

To use the full functionality after 30 days, a license is required. A license may be purchased at any time during or after the 30 days evaluation period. The purchase of a license entitles you to activate Lights-Out on the number of licensed servers.

The purchase of a license includes 1 year support and maintenance which will cover all updates to Lights-Out published during that period. Support and maintenance can be extended annually.

Contact and Support

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If you have a valid license with maintenance and support, you should open a support ticket.
1.1 For Home Users

At home, you typically control your computers and switch them off if not in use. The server however may run headless (without monitor and keyboard) or is located in a separate room.

It is tedious to switch the server on or off if not in use.

The focus for Lights-Out home users is therefore on the server.

Lights-Out guarantees that you run your server on demand to minimize energy consumption without losing comfort.

Lights-Out monitors a wide range of sources for activity to decide if the server is still required to run. If no source reports any activity, the server is switched off or put into standby to save energy.

As soon as you start one of your computers, Lights-Out starts the server automatically.

Backup

Serious users who run a regular backup are assisted by Lights-Out. Lights-Out can schedule backups and monitor backup software of different vendors. For a list of supported programs read the section Backup Provider.

Lights-Out supports backup on your server and on your client computers. Lights-Out can wake a server or client computer at a fixed schedule to run backups.
1.2 For Small Business Users

In a business environment, servers are typically operated 24/7 without interruption. Desktop computers however may be used by different employees and may still be running after the end of work.

It is tedious to switch all computers on in the morning and off after the end of work.

The focus for Lights-Out business users is therefore on the computers

Lights-Out guarantees that you run your computers on demand to minimize energy consumption without losing comfort.

Lights-Out can, for example, start your computers in the morning 15 minutes ahead of your working hours. This allows time to complete Windows Updates before your employees arrive at work.

Lights-Out can put the computer into standby to save energy and money if not used for a certain time.

A computer which shares a printer for several people can be controlled by Lights-Out to run during your working hours.

Computers in departments or locations with different operating times can be assigned to a group. Lights-Out can manage multiple (different) groups.

Backup

Serious users who run a regular backup are assisted by Lights-Out. Lights-Out can schedule backups and monitor backup software of different vendors. For a list of supported programs read the section Backup Provider.

Lights-Out supports backup on your server and on your client computers. Lights-Out can wake a server or client computer at a fixed schedule to run backups.
1.3 Licensing

You can evaluate Lights-Out for a period of 30 days. When the evaluation period has expired, Lights-Out will revert to a Community Edition mode. In this mode, Lights-Out is free for **personal use only**.

To use the full functionality after 30 days, a license is required. A **license** may be **purchased** at any time during or after the 30 days evaluation period. The **purchase** of a license entitles you to activate Lights-Out on the number of licensed servers.

The purchase of a license includes **1 year support and maintenance** which will cover all updates to Lights-Out published during that period. Support and maintenance can be **extended** annually.

### Feature Matrix

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use</strong></td>
<td>Private, personal use</td>
<td>Private or non commercial use</td>
<td>Private or non commercial use</td>
<td>Business use or commercial organization</td>
</tr>
<tr>
<td><strong>Support</strong></td>
<td>Forum</td>
<td>Forum (ticket system if under maintenance)</td>
<td>Forum (ticket system if under maintenance)</td>
<td>Forum (ticket system if under maintenance, priority tickets)</td>
</tr>
<tr>
<td><strong>Calendar</strong></td>
<td>Server only</td>
<td>Server and computers</td>
<td>Server, computers and 2 groups</td>
<td>Server, computers and unlimited groups</td>
</tr>
<tr>
<td><strong>Licensed servers</strong></td>
<td>none</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Windows computers</strong></td>
<td>5</td>
<td>Total of 15 devices</td>
<td>Total of 25 devices</td>
<td>Total of 100 devices</td>
</tr>
<tr>
<td><strong>Mac computers</strong></td>
<td></td>
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<tr>
<td><strong>Network devices</strong></td>
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<tr>
<td><strong>Mobile devices</strong></td>
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2 What's New In Version 2.0?

This is a brief list of the new features of version 2.0.

General
- Unified license, no longer bound to a specific platform
- Unified installer, one setup for all supported platforms

Supported platforms
- For a full list of supported systems please look at the requirements

Calendar
- Completely redesigned calendar module with support for complex recurring rules
- Supports client computer schedules
- Supports calendar groups applied to multiple computers

Dashboard and Console
- Fully integrated into Windows Server Essentials or Home Server Dashboard and remote web access
- A separate Management Console can be installed on any client computer to manage Lights-Out
- Management Console can manage multiple Lights-Out servers
- Management Console can manage Lights-Out servers over the Internet (remote)
- Lights-Out 2 can send a notification message to your computers

Client Computers
- Client computers can connect via Internet (remote)
- Client computers can be controlled by Lights-Out calendar

Backup
- Lights-Out 2 supports backup monitoring on client and server to give you a centralized view and management
- Lights-Out 2 can schedule backups for client and server
- Lights-Out 2 supports many backup providers out of the box

Monitoring
- New sources: power requests from other software, user activity on server etc.
- Backup on client computers and server

Network devices
• Automatic detection of all network devices in your LAN
2.1 Release Notes

Version 2.0.3 Build 3562 published May 22, 2017

2.1.1 Bug fix release

Fix #400421 Failed check for domain controller blocks users account detection
Fix #352695 After failed standby incomplete resume of monitoring and operation
Fix #464730 CPU load monitor not working if previously disabled
Fix action after backup missing if calendar end is exceeded
Fix Apple Mac computers missing after settings change
Fix state check of controlled services missing on service startup

#470330 Added support for Veeam Agent for Windows
Added verification for TLS 1.2 and a workaround if automatic fallback to TLS 1.1 is not working
Added name of monitored known task to runtime chart.
Improved handling of backup results in console/dashboard

2.1.2 Known issues

• If a client computer goes offline while a backup is in progress, the computer tab will show the last state until the client is online again
• The task panes in Lights-Out Management Console may each time have a different order of the commands

Version 2.0.2 Build 3535 published March 21, 2017

2.1.3 Bug fix release

Fix #227932 Wake domain is not saved on client side.
Fix #625005 Backup wake task is not working for setting "Always on during configured backup time".
Fix #997366 Disabled time span does not count down in console.
Fix #498650 Detection of server 2016 evaluation improved.
Fix #104472 Shutdown fails on WHS 2011 if forced.
Fix #415692 Deadlock in Dashboard.
Fix #746979 Console does not store individual mac addresses for each server in MRU list.
Fix #512539 Devices are not sorted by name in uptime chart.
Fix #512539 Calendar entry changes the end date if end is on next day.
Fixed disabling monitors (ShadowCopies, TaskScheduler).
Fixed shutdown blocker in Client Software if a backup is running.
Fixed detection of storage server and server 2012 with essentials role.
Fixed action after backup in calendar if not forced.
Fixed missing backup veto.

Added a status panel in console to allow sign off to connect to another server without leaving console.
Added support for TLS 1.1 and 1.2.
Added Windows Update monitoring (experimental).
Added sorting of next calendar events in status tab.
Added HD/SSD detection to installer. If a HD is detected, service start type is set to "automatic (delayed)".
Replaced wake tasks with waitable timer.
Improved backup history handling.
Improved time to wake server after client resume/reboot.

2.1.4 Known issues

- If a client computer goes offline while a backup is in progress, the computer tab will show the last state until the client is online again
- Cleaning old backup results only works if the client is online
- The task panes in Lights-Out Management Console may each time have a different order of the commands

Version 2.0.1 Build 3396 published December 21, 2016

2.1.5 Bug fix release

Fix #386490 Crash in Acronis detection
Fix #734008 Dashboard Crash on Essentials 2016
Fix #193857 Better handling of existing Macintosh Computers
Fix #452385 Double OK in properties dialog no longer required
Fix #854478 Japanese text does now fit on license page
Fix #971402 Improved support for Azure Cloudbackup
Fix #940804 Fixed Cloudberry localization issue and detection
Fix #840216 Recurring event not visible for New Zealand time zone
Fixed missing confirmation dialog in status - save energy
Fixed high CPU load in service created by calendar schedules
Fixed problem with user account detection if DC is not available at boot time
Fixed problem with server ID detection if DC is not available at boot time
Fixed detection of backup window change on Essentials
Fixed Dashboard crash in Essentials 2016
Fixed xcopy not working in batch files (backup scripts or user/system scripts)
Fixed Dashboard/Console reconnect failure

Added wake task for backup window on WHS/Essentials
Added support for additional mac addresses on client (for waking multiple computers)
Added a workaround if Essential 2012/2016 modules are not installed (missing) on 2012/2016 Essentials
Added wake-up via internet for console login window

2.1.6 Known issues

- If a client computer goes offline while a backup is in progress, the computer tab will show the last state until the client is online again
- Cleaning old backup results only works if the client is online
- The task panes in Lights-Out Management Console may each time have a different order of the commands
Version 2.0.0 Build 3344 published November 11, 2016

2.1.7 Known issues

- If a client computer goes offline while a backup is in progress, the computer tab will show the last state until the client is online again
- Cleaning old backup results only works if the client is online
- The task panes in Lights-Out Management Console may each time have a different order of the commands
3 Getting Started

If you are new to Lights-Out, we recommend to read our blog series "Lights-Out step by step" to get you going:

| Day 1: Server installation and migration |
| Day 2: SSL certificates, LAN/WAN access |
| Day 3: Client installation |
| Day 4: Managing Lights-Out |
| Day 5: Status tab, hidden feature Drag’n Drop |
| Day 6: Runtime chart |
| Day 7: Computers, network devices and mobile tab |
| Day 8: The new calendar user interface |
| Day 9: Using server schedules |
| Day 10: Using client computer schedules |
| Day 11: Using calendar groups |
| Day 12: Import calendar data from media center plug-ins |
| Day 13: Monitor power requests and user activity |
| Day 14: A first look at backup providers |
| Day 15: Using WHS/Essentials Client Backup |
| Day 16: Using Windows Server Backup |
| Day 17: Using Windows 7/10 Backup |
| Day 18: Using Microsoft Azure Backup with Lights-Out 2 |
| Day 19: Using Acronis True Image Home |
| Day 20: Using Duplicati |
| Day 21: Using Veeam Endpoint Backup Free |
| Day 22: Using Cloudberry Backup with Lights-Out 2 |
| Day 23: Using Lindenber Software Backup |
| Day 24: User defined backup scripts in Lights-Out 2 |
| Day 25: User and system scripts in Lights-Out 2 |
| Day 26: Mobile access with Lights-Out Mobile |
| Day 27: Putting it all together, Configuration samples for servers |
| Day 28: Configuration samples for client computers |
| Day 29: Licensing, Editions and Features |
| Day 30: Maintenance and Support |
4 console and dashboard

Lights-Out supports two user interfaces, the Dashboard and the Lights-Out Management Console. A Dashboard only exists on Windows Server Essentials and Windows Home Server, the Lights-Out Management Console is always available.

Both are functionally equivalent and you can use each to manage Lights-Out.

Differences between Dashboard and Management Console

Dashboard does not require an additional user login and always connects to the local server. The dashboard shows a detail pane in each of the device views.

The management console requires an additional user login, but can therefore also connect to different servers via the Internet. The device views do not show a detail pane.

Dashboard Integration

On a Windows Server Essentials or Windows Home Server, Lights-Out fully integrates into the Dashboard. There is no login necessary, because the Dashboard is running under administrative credentials and always connects to the local server.
Lights-Out Management Console

After installation on the server or a computer, you can find the management console on the desktop or in your start menu. The console can connect to different Lights-Out servers and requires a user login.

Using the user interface elements

The top level of Lights-Out shows 6 tabs, which can be changed by clicking.
Most tabs in Lights-Out show these user interface elements

(1) A device list or a calendar view
(2) A task pane to work with the selected element
(3) A general task pane
(4) An optional details view (only in Dashboard)

The different tabs

4.1 Status Tab

The status tab is displayed on the screen shots above and shows a couple of different summaries about Lights-Out on the server.
4.2 Calendar Tab

The calendar tab shows the calendar which is used to schedule certain actions for the server and the client computers.

4.3 Runtime Chart Tab

The runtime chart tab shows the runtime of each managed device in your network.

4.4 Computers Tab

The computers tab shows all connected client computers.
4.5 Network Devices Tab

The network devices tab shows all detected network devices in your local network.

4.6 Mobile Devices Tab

The mobile devices tab shows the connected mobile apps.
4.7 Console Login

Start Lights-Out Console and you see a login window.

The login window

On the very first start, the Lights-Out Server is already filled with the local machine name. You can override this name to connect to the desired server.

Enter your user name and a password or use the Windows session credentials to log in:
If you select Windows session credentials, the name and password fields are disabled:
You can also enter a different server name, if you access a remote server over the internet, use a FQDN and optionally append the port number. If you use the standard external Lights-Out port 7784, you can omit the port number:
4.8 Status

The status tab shows a couple of different summary panels about Lights-Out on the server.

For more information about each panel, open the help section about

- Status Panel
- Calendar Panel
- Recording Panel
- Monitoring Panel
- License Panel
- Savings Panel

Connection information

The upper right corner shows the connected server and the user role:

Connected to https://s2016/7783/administrator/Role=Administrator

If an existing connection gets disconnected, you see

Connection lost, trying to reconnect...

Rearranging the panels with drag’n drop

You can easily rearrange the panels with drag’n drop. Simply pick a panel on the blue header (1), drag it at
the desired position (2)

and drop it. The two panels will exchange their position:
RECORDING

16 Event(s) in the last 24 hours

STATUS

ON

Save energy
Your server version is up-to-date
Server version 2.0.0.3333
Console version 2.0.0.3333

DISABLE LIGHTS-OUT
Help on Lights-Out

LICENSE
4.2.1 Status Panel

The status panel shows the current server status and the configured operation mode.

**Status ON**

Lights-Out is on (1) and configured to save energy (2).

![Status Panel Image]

If you want to temporarily disable Lights-Out, click on the link (3) and enter the amount of time:

![Disable Lights-Out Dialogue Box Image]

Click OK to disable Lights-Out for 1 hour.
Status OFF

The status now shows off and the remaining 59 minutes (5).

You can immediately enable Lights-Out with the enable link (6).

Action scheduled

If an action is soon to be executed, a minute:second countdown is displayed:
Connection lost

If a connection gets lost, you see a ?? status. In this case please have a look at the connection status in the upper right corner.
STATUS

??

Do nothing
Your server version is up-to-date
Server version 2.0.0.3337
Console version 2.0.0.3337

Disable Lights-Out
Help on Lights-Out
4.2.2 Calendar Panel

The calendar panel shows the number and summary of the next scheduled runtimes for today, tomorrow and the day after tomorrow.

No schedules

If you do not use the calendar, the panel shows no schedules.
CALENDAR

NO Schedules

Today
Tomorrow
The day after tomorrow
4.2.3 Recording Panel

This panel shows the last power events of your server. You can see the source for wake-ups, executed tasks and power actions.

⚠️ Some machines do not show that level of details. This depends on the used drivers.

In Lights-Out console, you can click on the header RECORDING to directly open the runtime chart tab.
4.2.4 Monitoring Panel

The monitoring panel shows the number of monitored sources, the number of currently active sources, and a list of selected sources.

In our sample we have 9 selected sources, starting with Backup activity and ending with Server Network Load. The last three sources are currently active and are displayed with a bold blue font.

The upper footer link “Save energy” allows you to directly start saving energy, i.e. the server is immediately put into standby.

The lower footer link “Settings” opens the monitoring settings to select or deselect monitored sources.
4.2.5 Savings Panel

The saving panel shows you the amount of saved money and carbon dioxide (CO₂). The saving is calculated based on your power consumption and electricity plan.

The panel also shows an off/on ratio chart.

100% = always off, color goes green.
0% = always on, color goes red.
4.2.6 License Panel

The license panel shows you the currently assigned license or allows you to buy and load a license. The upper footer link "Load license" opens the load license dialog to load or remove a license. The lower footer link "Buy a license" or "Extend or upgrade license" opens the order page.

Evaluation

During the evaluation period of 30 days, the panel shows the remaining days.

After 30 days, the license changes to the free (limited) community edition.

Not licensed
Licensed

If you have a valid license, the panel shows the number of licensed devices, the license type and the licensee.

The lower footer link "Extend or upgrade license" opens the order page to extend then maintenance or upgrade the license.
LICENSE

25 Devices

Professional Edition
Licensed to Martin Rothschein

Load License
Extend or upgrade license
4.2.6.1 Upgrade A 1.x License

If you have an existing Lights-Out 1.x License and want to upgrade to a Lights-Out 2 License with a discount, load the old license.

A message box is displayed which tells you that this license is from a previous version:

![Message box](image)

Click OK, Lights-Out is now retrieving your personal license discount in the background.

As a result, the buy a license link changes:

![License dialog](image)

Click on the link to open the license dialog. You can see your personal discount at the bottom. This discount is automatically applied.
Proceed with buying a license.
4.2.6.2 Buy A License

⚠️ If you already have a Lights-Out 1.x license please read Upgrade A 1.x License first!

If you **do not yet have a license**, click on the lower footer link (Buy a license) to open the license dialog.

The license dialog opens:
Please read the description carefully and decide **which license is appropriate**.

Click on the button with the license you want to order. Your browser opens the order page, in our sample we selected the professional edition.

⚠️ If your browser on your server is locked down for security reasons, please repeat these steps on a computer with the **Lights-Out Management Console**.
If necessary change the language and the currency.

Enter your billing information and select a payment method.

⚠️ Please be careful with your email address: This address is used later on to activate your license. It is also used to resend a lost license, so do not use a temporary email address.

**The actual reseller is Share-It, a Digital River Company.** Share-It provides a printable invoice after check-out and calculates the applicable VAT.

You will receive a confirmation email shortly after your payment has been accepted by Share-It. Now your license file will be created and typically mailed within the next 15 minutes from Green-IT Software.

⚠️ Please check your spam folder! Some email providers (especially Google) move the license file into the spam folder.

Should you still have no license file after 2 days please contact orders@green-it-software.com with your order number.

For all other questions about your order, payment or invoice please visit Share-It Customer Care Center or the Digital River Shopper Support.
4.2.6.3 Load A License

Preparation

License files are sent via email. Save the attached license file first in your documents or download folder.

⚠ Please save a copy of the license file in a save place and/or archive the license email. You need the license file again if you reinstall or change the server!

Loading

Next click on the upper footer link "Load License" in the license panel.

The "load license" dialog opens.
Enter a valid email address (the same you used to purchase the license).

The "Load License" button is now enabled and opens a standard file dialog to select the license file.

Please be patient, loading the license file may take some time.

Once loaded, the license panel will show your license:
License

25 Devices

Professional Edition


Licensed to Martin Rothschink

Load License
Extend or upgrade license
4.2.6.4 Extend Or Upgrade A License

If you already have a license, click on the lower footer link "Extend or upgrade license" to open the license dialog.

You see the license dialog, (1) shows the order number of your current license:

Load License

Extend or upgrade license
Extending support and maintenance

An additional year of support and maintenance may be purchased at any time during the active year or within 1 year after support and maintenance have expired. The new year is always added to the end of the last maintenance and support period (4).

4.2.6.4.1 Example 1, You extend your maintenance 2 months before the end
Maintenance ends at November 11, 2017
You extend your maintenance on September 5, 2017 and get a new end of November 11, 2018.

4.2.6.4.2 Example 2, You extend your maintenance 3 months after the end
Maintenance ended at November 11, 2017.
You extend your maintenance on February 15, 2018 and get a new end of of November 11, 2018.
Click on the button (2) to extend support and maintenance for another year. Your browser opens the order page, please **verify that your existing order is present under additional ordering information**.

You receive a new license file, please **load the new license** to enable the new support and maintenance period.

**Upgrading your license**

If you want to move from a home edition to a professional edition, or from a professional to a business edition, click on the appropriate button (3). Your existing license is valued with a discount for the higher license.
4.2.6.5 Remove A License

If you want to remove a license from a server, because you want to transfer the license to another machine, click on the "Load license" footer link in the license panel.

The Load license dialog opens and shows the current license type.

Click on Remove License to remove the license from the server.
4.9 Calendar

The calendar tab shows the calendar which is used to schedule actions for the server and computers.

The calendar has been completely reworked in Lights-Out 2.

To learn more about the calendar, have a look at

- Calendar Groups
- Calendar Views
- Calendar Items
- Start Actions
- End Actions
- Recurring Schedules

⚠️ If your calendar looks disabled and grayed out, go to Monitoring Settings and enable the calendar.
4.3.1 Calendar Groups

The new calendar introduces a new concept called calendar groups.

A calendar group is used
- to group elements visually
- to use the same calendar entries for multiple computers (members of the same group)

Group properties

Lights-Out comes with two predefined groups, additional groups may be created depending on your license.

<table>
<thead>
<tr>
<th>Group name</th>
<th>Type</th>
<th>Member</th>
<th>Contains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>Predefined visual group</td>
<td>The server only</td>
<td>All schedules applied to the server</td>
</tr>
<tr>
<td>All Computers</td>
<td>Predefined visual group</td>
<td>Every computer or device</td>
<td>All schedules applied to individual computers</td>
</tr>
<tr>
<td>user defined</td>
<td>User defined group</td>
<td>Selected computers</td>
<td>All schedules applied to each member</td>
</tr>
</tbody>
</table>

The two predefined groups are primarily used to group the schedules visually in the calendar.

4.3.1.1 Ungrouped view

All calendar entries are displayed within the same calendar view:

![Ungrouped view](image)

4.3.1.2 Grouped view

Each group is displayed in a separate calendar view:

![Grouped view](image)
In grouped view, always two groups are visible, if you have more groups, use the horizontal slider to see the other groups.

Creating additional groups

In the calendar task pane click on Add/Edit calendar group. You see the two predefined groups.

Click on New to create a new group. Enter a group name and a short description:
You may modify the group color by clicking on the ... button.

Click OK to add the new group to the list.

Click OK to close the group list. Now scroll to the right to see the new (empty) group:
You can now create new entries or drag existing entries from the All Computers group.
4.3.2 Calendar Views

Calendar User Interface

The calendar user interface allows you to switch between different views and to navigate between dates:

1. Click on the different views to change between day, month, week or timeline view.
2. Navigate forth and back in a view
3. Jump to today

Month view

This is the default view and shows all schedules in the same size. Use this view for a quick overview.

Week view

Use this view to see all schedules of a week. Schedules have different sizes in relation to the time occupied.
Day view

Use this view to see all schedules of one day. Click on > Today to easily select today. Schedules have different sizes in relation to the time occupied.

Timeline view

Use this view to see a timeline of all schedules. Schedules have different sizes in relation to the time occupied.
4.3.3 Calendar Items

Date and time settings

A calendar entry must have either a start point in time or an end point in time or both.

A **point in time** consists of a date and a time.

<table>
<thead>
<tr>
<th>Start point in time</th>
<th>End point in time</th>
<th>What happens</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>Only executed at start point in time, machine is not automatically kept awake</td>
<td>Wake-up and run a backup. Backup will keep the machine awake.</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>Only executed at end point in time, machine is not automatically kept awake</td>
<td>Execute a reboot or a shut down if machine is already running.</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Machine is kept awake between start and end point in time</td>
<td>Wake-up, then stay awake, then go into standby</td>
</tr>
</tbody>
</table>

Creating new items

To create a new calendar item either

- double click in the free area of a calendar view. If you double click in a user calendar group, this group is then preselected
- or -
  - click on the calendar task "Add new item to calendar"

The Edit schedule dialog opens. There are 3 areas where you must enter data, the fourth is optional:
(1) The affected group or device

You have to select a group or a computer from the list.
(2) The start point in time and the start action(s)

If desired, enable the start date and enter date and time. This creates an item which will start at the specified time. Optionally select a start action.

(3) The end date/time and end actions(s)

If desired, enable the end date and enter date and time. This creates an item which will stop at the specified time. Optionally select an end action.

(4) An optional description

This is only a comment for you and not used by Lights-Out.

Click OK to save the new item. You may optionally turn the item into a series (a recurring event) by clicking on the button Recurrence.
Editing existing items

- Either double click the entry in calendar
  - or -

1. Select the entry with a single click
2. Click on the calendar task "Edit selected item"

If the selected item belongs to a series (a recurring event), you have to decide if you want to edit the single item or the series:
If you select this occurrence and make any changes, the occurrence is removed from the recurring series.

Deleting items

- Either open the item for editing (see above) and then click the button Delete
  - or -
  1. Select the entry with a single click
  2. Click on the calendar task "Delete selected item from calendar" or press the DEL key on the keyboard.

If the entry belongs to a series, this removes the whole series.
4.3.4 Start Actions

You can use the calendar start action to perform one or more actions at the start point in time.

Possible start actions for a server

<table>
<thead>
<tr>
<th>Action</th>
<th>What happens</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake-up</td>
<td>Creates a wake timer to wake the server</td>
<td>Only works if server is saving energy or is hibernated. Does not work if server is shut down.</td>
</tr>
<tr>
<td>Run a backup</td>
<td>Starts a backup with the selected backup provider</td>
<td></td>
</tr>
</tbody>
</table>

The server supports two start actions:

Possible start actions for a client computer

<table>
<thead>
<tr>
<th>Action</th>
<th>What happens</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake-up</td>
<td>Creates a wake timer to wake the machine</td>
<td>Only works if machine is in standby or hibernation. Does not work if machine is shut down.</td>
</tr>
<tr>
<td>Server sends a magic packet (Wake-On-Lan)</td>
<td>Only works if connected via LAN cable and server is awake.</td>
<td></td>
</tr>
</tbody>
</table>

A client supports 3 start actions (one on the server)
<table>
<thead>
<tr>
<th>Action</th>
<th>What happens</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>backup</td>
<td>provider</td>
<td></td>
</tr>
<tr>
<td>Wake server for execution</td>
<td>Wakes the server 3 minutes ahead of time to ensure the server can send a magic packet (Wake-On-Lan)</td>
<td></td>
</tr>
</tbody>
</table>
4.3.5 End Actions

You can use the calendar end action to perform one action at the end point in time.

Possible end actions for a server

The server support these end actions:

<table>
<thead>
<tr>
<th>Action</th>
<th>What happens</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do nothing</td>
<td>Nothing</td>
<td>Server is no longer controlled by Lights-Out and Windows power management may jump in</td>
</tr>
<tr>
<td>Save energy, Shut down, Reboot etc</td>
<td>The specified action</td>
<td>Action is only executed if no other activity is present. Otherwise use a <strong>Forced end action</strong>.</td>
</tr>
<tr>
<td>Standard action</td>
<td>The action configured as default (standard) action in settings</td>
<td>This is the same setting which is used for monitoring</td>
</tr>
</tbody>
</table>

**A forced end action may override any activity except backup!**

Possible end actions for a Windows computer
A client supports these end actions:

<table>
<thead>
<tr>
<th>Action</th>
<th>What happens</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do nothing</td>
<td>Nothing</td>
<td>Computer is no longer controlled by Lights-Out and Windows power management may jump in</td>
</tr>
<tr>
<td>Save energy, Shut down, Reboot etc</td>
<td>The specified action</td>
<td>Action is only executed if no other activity is present. Otherwise use a Forced end action.</td>
</tr>
<tr>
<td>Standard action</td>
<td>The action configured as default (standard) action in settings</td>
<td>This is the same setting which is used for monitoring</td>
</tr>
</tbody>
</table>

### 4.3.5.1 Options

<table>
<thead>
<tr>
<th>Option</th>
<th>What happens</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Force end action</td>
<td>Override another calendar entry</td>
<td>Required if you have an overlapping calendar entry and want to execute an end action.</td>
</tr>
<tr>
<td>Execute after backup</td>
<td>End action is executed prematurely after backup</td>
<td>Use this if backup duration is unknown and there is no need for the machine to run any longer. Can be combined with Force end action.</td>
</tr>
<tr>
<td>Execute end action if inactive for xx minutes</td>
<td>End action is executed prematurely if there is no user activity within the last xx minutes</td>
<td>Used for user sessions</td>
</tr>
</tbody>
</table>
4.3.6 Recurring Schedules

Lights-Out 2 allows to easily create recurring schedules. Open or create a calendar item and click on Recurrence.

Recurrence Dialog
Recurrence pattern

You typically work in the middle area with the recurrence pattern. First choose the recurrence time (hourly, daily, weekly, monthly, yearly) and then specify the recurrence itself.

4.3.6.1 Hourly recurrence

Select the hours:

4.3.6.2 Daily recurrence

Either select the number of days or choose every weekday:
4.3.6.3 Weekly recurrence
Select the number of weeks and the day in the week:

4.3.6.4 Monthly recurrence
Either select the day and the number of months or a special day in a month:

4.3.6.5 Yearly recurrence
Either select the month and day or a special day in a month:

Range of recurrence
You can define an end condition or let the recurrence run forever.
4.10 Runtime Chart

Recorded runtimes of your devices are visualized in the runtime chart. You can use the diagram to find out when a backup took place or which client computer was active and prevented the server from sleeping. The diagrams are created from left to right in the same order as the legend from top down. Sources, which are only displayed and not used for monitoring are displayed with a dashed style.

⚠️ Recording takes only place when your server is running. You do not see active clients while your server is in standby.

User Interface

- The current day is always placed on the right side (1).
- Use the slider (2) to change the days displayed between 2 and 14.
- Look at the legend (3) to identify devices by name or move the mouse over a color bar.

Using the chart

What’s the runtime chart good for? You can easily locate the source which keeps your server awake. You can verify computer runtimes and whether a backup took place at an expected point in time and much more.

Move the mouse over a bar and see more details:
Change the number of days to see details or get an overview.
4.11 Computers

This tab shows all your connected computers. Lights-Out 2 allows you to select which computers are managed by Lights-Out. If a computer is not managed, Lights-Out does not control it nor does it count to the number of managed and licensed devices.

The list shows, grouped by type:

- Windows Computers (1)
- Macintosh Computers (2)
- The Server (3)
- Not managed computers (4)

The task pane (5) contains commands for the selected computer, the general pane (6) contains commands for all computers.

Grouping in Dashboard

⚠️ If the Windows Server Essentials or Home Server Dashboard does not show computers or devices grouped by type, right click in the free, white area below the last computer. Select “Group by“ then "Device type".
List columns

The list displays most properties of a computer. You can sort the list by each column.

<table>
<thead>
<tr>
<th>Column</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Computer name as reported by client software</td>
</tr>
<tr>
<td>Status</td>
<td>Managed / Not managed</td>
</tr>
<tr>
<td>IP-Address</td>
<td>IP-Address(es) as reported by client software</td>
</tr>
<tr>
<td>Keep server active</td>
<td>User setting</td>
</tr>
<tr>
<td>Show in chart</td>
<td>User setting</td>
</tr>
<tr>
<td>Calendar group</td>
<td>Selected calendar group, user setting</td>
</tr>
<tr>
<td>Backup provider</td>
<td>Selected backup provider, user setting</td>
</tr>
<tr>
<td>Last backup</td>
<td>Date and time last backup started. Icon shows result of last backup.</td>
</tr>
<tr>
<td>Next backup</td>
<td>Date and time of next scheduled backup. A warning icon is displayed if last backup is more than 7 days ago, or if next backup has been missed.</td>
</tr>
<tr>
<td>Automatically wake server</td>
<td>User setting</td>
</tr>
<tr>
<td>Allow server actions</td>
<td>User setting</td>
</tr>
<tr>
<td>Server</td>
<td>Name of Essentials or Home Server to which the client computer is connected</td>
</tr>
</tbody>
</table>
Context menu

If you right click a computer, you see a context menu which contains the exact same commands as the task pane. Use what you prefer.

<table>
<thead>
<tr>
<th>Column</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client installed</td>
<td>Software version as reported by client software</td>
</tr>
</tbody>
</table>

Selected Computer Tasks

Most commands are self explanatory and do what they say. Some commands depend on the offline/online state of the computer.

<table>
<thead>
<tr>
<th>Command</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>View the device properties</td>
<td>Open properties dialog</td>
</tr>
<tr>
<td>Disable/Enable runtime monitoring</td>
<td>Enable or disable monitoring to keep the server active</td>
</tr>
<tr>
<td>Record runtime/Don’t</td>
<td>Add or remove the device from the runtime chart. This command is only available if monitoring is not enabled.</td>
</tr>
<tr>
<td>Command</td>
<td>Remark</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>record runtime</td>
<td></td>
</tr>
<tr>
<td>Remove device</td>
<td>Delete the computer from the list. On a Windows Essentials Server or Home Server you have to delete computers on the Devices or Computers and backup tab of Dashboard.</td>
</tr>
<tr>
<td>Wake up with Magic Packet</td>
<td>Wake an offline computer using Wake-On-Lan</td>
</tr>
<tr>
<td>Save energy</td>
<td></td>
</tr>
<tr>
<td>Hibernate</td>
<td>Perform the selected action. If a user is logged in, a confirmation dialog is displayed and can dismiss the action. Therefore this action may require 30 seconds and more to be executed. Please be patient.</td>
</tr>
<tr>
<td>Restart</td>
<td></td>
</tr>
<tr>
<td>Shut down</td>
<td></td>
</tr>
<tr>
<td>Start a backup</td>
<td>Start an interactive backup with the selected backup provider</td>
</tr>
<tr>
<td>Start a backup, then execute standard action</td>
<td>Start an interactive backup with the selected backup provider. Execute standard action after backup.</td>
</tr>
<tr>
<td>Send a message</td>
<td>Send a message to the selected computer. This can be used to announce a server reboot or other maintenance actions.</td>
</tr>
<tr>
<td>Manage / Do not manage computer</td>
<td>Change the management status of a computer</td>
</tr>
</tbody>
</table>

### (All) Computers Tasks

<table>
<thead>
<tr>
<th>Command</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake all computers</td>
<td>Wake all computers using Wake-On-Lan</td>
</tr>
<tr>
<td>Send a message to all</td>
<td>Send a message to all computers. This can be used to announce a server reboot or other maintenance actions.</td>
</tr>
<tr>
<td>Lights-Out settings</td>
<td>Open server settings</td>
</tr>
<tr>
<td>How do I add and configure network devices?</td>
<td>Open this help section</td>
</tr>
<tr>
<td>Support</td>
<td>Open forum link</td>
</tr>
<tr>
<td>About</td>
<td>Show about dialog with version information</td>
</tr>
</tbody>
</table>

### Adding a new computer

A computer is added by installing the client software or by reconnecting.
4.5.1 Send A Message

That's documented in our blog:

https://www.green-it-software.com/5610/day-7-computers-network-devices-mobile-equipment/
4.12 Network Devices

This tab shows all detected network devices. Lights-Out 2 allows you to select which devices are managed by Lights-Out. If a device is not managed, Lights-Out does not control it nor does it count to the number of managed and licensed devices.

The list shows, grouped by type

- Network devices (1)
- Not managed devices (2)

The task pane (3) contains commands for the selected device, the general pane (4) contains commands for all devices.

Grouping in Dashboard

💡 If the Windows Server Essentials or Home Server Dashboard does not show computers or devices grouped by type, right click in the free, white area below the last computer. Select "Group by" then "Device type".
List columns

The list displays most properties of a device. You can sort the list by each column.

<table>
<thead>
<tr>
<th>Column</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Device name as reported by DNS</td>
</tr>
<tr>
<td>Status</td>
<td>Managed / Not managed</td>
</tr>
<tr>
<td>IP-Address</td>
<td>IP-Address(es) as detected by Lights-Out</td>
</tr>
<tr>
<td>MAC-Address</td>
<td>Physical MAC-Address(es) as detected by Lights-Out</td>
</tr>
<tr>
<td>Keep server active</td>
<td>User setting</td>
</tr>
<tr>
<td>Show in chart</td>
<td>User setting</td>
</tr>
<tr>
<td>First detected</td>
<td>Date and time the device was first detected by Lights-Out.</td>
</tr>
<tr>
<td>Last seen</td>
<td>Date and time the device was last active.</td>
</tr>
</tbody>
</table>

Context menu

If you right click on a device, you see a context menu which contains the exact same commands as the task pane. Use what you prefer.

Selected Device Tasks

Most commands are self explanatory and do what they say. Some commands depend on the offline/online state of the device.
### Command Table

<table>
<thead>
<tr>
<th>Command</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>View the device properties</td>
<td>Open properties dialog</td>
</tr>
<tr>
<td>Disable/Enable runtime monitoring</td>
<td>Enable or disable monitoring to keep the server active</td>
</tr>
<tr>
<td>Record runtime/Don't record runtime</td>
<td>Add or remove the device from the runtime chart. This command is only available if monitoring is not enabled</td>
</tr>
<tr>
<td>Remove device</td>
<td>Delete the device from the list. It may return automatically after the next scan.</td>
</tr>
<tr>
<td>Wake up with Magic Packet</td>
<td>Wake an offline computer using Wake-On-Lan</td>
</tr>
<tr>
<td>Manage / Do not manage device</td>
<td>Change the management status of a device</td>
</tr>
</tbody>
</table>

### Network Devices Tasks

<table>
<thead>
<tr>
<th>Command</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake all computers</td>
<td>Wake all computers using Wake-On-Lan</td>
</tr>
<tr>
<td>Lights-Out settings</td>
<td>Open server settings</td>
</tr>
<tr>
<td>Scan network for new devices</td>
<td>Start a new scan immediately. Lights-Out scans the network every 30 minutes.</td>
</tr>
<tr>
<td>Add device with IP-Address</td>
<td>Add a new device with a fixed IP-Address.</td>
</tr>
<tr>
<td>How do I add and configure network devices?</td>
<td>Open this help section</td>
</tr>
<tr>
<td>Support</td>
<td>Open forum link</td>
</tr>
<tr>
<td>About</td>
<td>Show about dialog with version information</td>
</tr>
</tbody>
</table>

### Adding a new device

See above for command **Add device with IP-Address.**
4.13 Mobile Devices

This tab shows all connected mobile devices. Currently mobile devices implement version 1 of the protocol and do not (yet) use the managed/not managed setting.
4.14 Device Properties

Configures device properties for computers, network (IP based) and mobile devices. This dialog shows different tabs and panels, depending on the device type.

You can have multiple dialogs open at the same time.

Accessing device properties

To open the properties dialog either

- Double click the device in one of the list views (Computers, Network Devices or Mobile Devices).
- Right click the device and click on view the device properties in the context menu
- Select the device and click on view the device properties in the command pane on the right

Properties tab

<table>
<thead>
<tr>
<th>Connected Windows Computer</th>
<th>Connected Mac Computer</th>
<th>Network device</th>
<th>Mobile device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostname and IP-Address: Fixed for connected computers. You can change the name for IP based and mobile devices.</td>
<td>Shows monitoring options instead of server actions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable monitoring keeps your server running as long as this device is active.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>List device in mobile apps (Lights-Out Mobile) and on the remote web page of Windows Server Essentials/Home Server.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.14.1 Basic properties

1. Hostname and IP-Address: Fixed for connected computers. You can change the name for IP based and mobile devices.
2. Enable monitoring keeps your server running as long as this device is active.
3. List device in mobile apps (Lights-Out Mobile) and on the remote web page of Windows Server Essentials/Home Server.

4.14.2 Runtime chart

5. If device is selected for monitoring, this option is always selected. Otherwise you can decide to show the runtime of this device.
6. The color used for this device.

4.14.3 Server actions

Not available on network devices!
7. Device is allowed to control the server. You can enable this on a per device basis and disable this option for example on the kids PC.
8. You can enable automatic wake-up of the server as soon as the client resumes or boots up. When you disable this setting, you can still wake-up the server using the client context menu.

4.14.4 Member of calendar group
Only visible on Windows computers.

(9) Add the computer to calendar group. All schedules of the calendar group are now applied to this computer.

4.14.5 Monitoring

Only available on network devices!

(10) If this device is a router, gateway or a WLAN repeater, please check this option.

(11) Use Ping or ARP to detect device activity or let Lights-Out decide. Ping may be blocked by a firewall or may wake the device. ARP on the other hand is a low level request and may falsely detect inactive devices.
4.8.6 Adding A New Network Device

Lights-Out periodically scans the network for new devices and adds them to the list. If a device is located behind a router, a gateway or a WLAN repeater, Lights-Out may not see it and you have to add it manually.

⚠️ Adding a device manually requires that the device uses a fixed IP-Address and responds to ping requests!

Go to the network devices tab and click on Add device with IP-Address.

An empty device property dialog opens. Enter hostname (1) and IP-Address (2), then click OK. Verify that the new device is detected by Lights-Out.
Device Properties

Properties

Basic properties

Hostname

IP-Address (fixed):

Enable monitoring to keep server running
Show device on remote web access page and in mobile apps

Runtime chart

Show in chart
BlueViolet

Monitoring

Device is a router
Use Ping (ICMP)

OK Cancel Help
4.8.7 Backup Properties

Configures backup properties for computers. This dialog shows different panels, depending on the device type.

Backup tab

4.8.7.1 Last backups

This list shows the results and duration of the last 15 backups. You can right click to open a context menu to clean up entries.

<table>
<thead>
<tr>
<th>Connected Windows Computer</th>
<th>Server</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Last backups screen shot" /></td>
<td><img src="image2.jpg" alt="Backup provider screen shot" /></td>
</tr>
</tbody>
</table>

Does not have a standard action after backup

4.8.7.2 Backup Provider

(1) Select the backup provider which is used to run a scheduled backup via Lights-Out calendar or by the command pane.

4.8.7.3 Standard action after backup

(2) Select the standard action for a scheduled backup on a client computer.
4.15 Server Settings

Server settings are arranged in 5 sections:

- **Action settings**, configures the standard action
- **Monitoring settings**, configures the monitored sources
- **Backup settings**, shows the preselected backup provider
- **Options settings**, configures general server options
- **User settings**, configures user access rights

Accessing server settings

There are multiple entry points into server settings. You can click on the status savings panel link, you can click on the settings link in computer, network devices or mobile devices task panes.
4.9.1 Action Settings

Action settings are used to configure the standard action and standard delay.

If monitoring detects that no more sources are active, the delay time begins to run. If the delay time has elapsed, the standard action is executed.

For more details on monitoring see Monitoring Overview.

Standard action

Select the standard action (1) in the drop box and the delay time in minutes (2).

You can choose between these standard actions:
• Do nothing: disables monitoring. This setting should be used, if the server runtime is only controlled via
calendar.
• Save energy: puts your server into standby
• Hibernate: puts your server into hibernation.
• Shut down: shuts your server down and powers off.
• User action: runs a user defined batch file

4.9.1.1 User action

If you select User action, a new input field is visible to enter the user command file. The command or batch
file can execute several commands but must end with a standby or a shut down! You can use the internal
shutdown.exe command or you can use psshutdown from Sysinternals Suite.

There are two things to consider:

1. If you select psshutdown.exe the first parameter has to be /accepteula, otherwise the command file
blocks because there's no one who can click on the accept EULA dialog.
2. Always use a zero time span to run the command immediately!

A typical command file which ends with a standby looks like this:

Sample user batch file

```plaintext
rem other user commands
rem ...
psshutdown /accepteula /d /t 0
```

⚠️ Please bear in mind that the SYSTEM account is used to execute the command file. This may
create problems if you try to use environment variables which may have different values or are
simply not defined.

To troubleshoot user actions, please have a look at the SYSTEM-
LightsOut2.Server.Service.xxx.log found in C:\ProgramData\LightsOut2\log. The log marks the
batch file output with **.

On execution

4.9.1.2 Start/Stop services

When an action is executed, Lights-Out stops specific services first. This guarantees that critical services
are kept in a valid state or that blocking services do not interfere.

You can add additional services, like a mail server, separated with a comma. On resume, these services are
started again.

4.9.1.3 Run on resume

You can run a script, batch file or a program when the server resumes. This program runs in the context of
the local service account, so be careful.
4.9.2 Monitoring Settings

Monitoring settings are used to configure the monitored sources.

If monitoring detects that no more sources are active, the delay time begins to run. If the delay time has elapsed, the standard action is executed. For more details on monitoring see Monitoring Overview.

Monitored Sources

Select the monitored sources. As long as one source signals activity, the server is kept running.
<table>
<thead>
<tr>
<th>Source</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected Computers</td>
<td>Monitors activity on computers which have the client software installed. This setting requires that the computer is selected for monitoring on the <a href="#">computers tab</a>. The monitored computer should not be running all the time, otherwise use network load monitoring!</td>
</tr>
<tr>
<td>User activity</td>
<td>Monitors user activity (mouse, keyboard) of an interactive user session on the server. User activity has a fixed 10 minutes timeout.</td>
</tr>
<tr>
<td>Remote Desktop Session</td>
<td>Monitors a remote desktop (RDP) session regardless of user activity. A disconnected RDP session is considered as inactive.</td>
</tr>
<tr>
<td>Console Session</td>
<td>Monitors the physical server session using mouse/keyboard and monitor regardless of user activity. As long as the user is logged in, the session is considered as active.</td>
</tr>
<tr>
<td>Known Tasks of Task Scheduler</td>
<td>Monitors special tasks from Windows Task scheduler like Windows Update.</td>
</tr>
<tr>
<td>Shared Files and Folders</td>
<td>Monitors access to shared files or folders. This includes the own user session too!</td>
</tr>
<tr>
<td>Power requests from other software</td>
<td>Monitors a power requests from a driver or software. Power requests can be viewed with the command <code>powercfg -requests</code></td>
</tr>
<tr>
<td>Mobile devices</td>
<td>Monitors activity of mobile devices which run Lights-Out Mobile. This setting requires that the mobile device is selected for monitoring on the <a href="#">mobile devices tab</a>.</td>
</tr>
<tr>
<td>IP based client devices</td>
<td>Monitors activity of any IP based network device. Use this for computers without client software, like an internet radio or a streaming device. This setting requires that you select the device for monitoring on the <a href="#">network devices tab</a>. The monitored device should not be running all the time, otherwise use network load monitoring!</td>
</tr>
<tr>
<td>Calendar</td>
<td>Monitors calendar activity and enables calendar actions.</td>
</tr>
<tr>
<td>Processes</td>
<td>Monitors processes on your server. Specify the name of a process without extension, for example use the name notepad to monitor any notepad process. Monitoring only checks the existence of a process, not the activity. Multiple process names are separated with a comma.</td>
</tr>
<tr>
<td>Files</td>
<td>Monitors files on your server. Enter a path including drive letter, directory and file name. You can use this to keep the server running when a certain file exists. For example you can use a USB thumb drive to keep the server running or watch a file created by another application. Monitoring only checks the existence of a file, not the contents. If you use a directory instead of a file name, any file within that directory signals activity. Wildcards</td>
</tr>
</tbody>
</table>
### Source

<table>
<thead>
<tr>
<th>Source</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network load</td>
<td>Monitors network load. As long as the network load is above the specified value, the server is kept running. This is intended to watch streaming operations or devices running 24/7. The optimum setting needs some tinkering. For MP3 streaming, typical values are in the range of 5-10KB/s.</td>
</tr>
<tr>
<td>CPU load</td>
<td>Monitors CPU load. As long as the total CPU load is above the specified value, the server is kept active.</td>
</tr>
</tbody>
</table>
4.9.3 Backup Settings

Backup settings are used to see the detected and preconfigured backup providers and to configure additional settings.

Monitored Backup

4.9.3.1 Backup providers

Backup providers are detected automatically and cannot be changed.

4.9.3.2 User settings

You can enable monitoring of shadow copies. This also enables wake-up for shadow copies. Shadow copies themselves are typically finished within a few minutes.
On a Windows Server Essentials/Home Server 2011 you define a time span for client computer backups. You can wake-up your server and then keep the server active during this time span.
4.9.4 Options Settings

Options settings are used to configure additional server options.

Options
You can enable detailed logging for error diagnostics. Log files are saved in the hidden folder C:\ProgramData\LightsOut2\logs.

Wake-On-Wan
This domain name is used for wake-on-wan. If your router supports DynDNS, use a DynDNS domain because the server can not update your xxx.homeserver.com or xxx.remotewebaccess.com domain during standby and other devices may use a wrong IP-Address for server wake-up. This setting is used for mobile equipment outside of your network.
To wake the server, a magic packet is sent to the default port 7 of your router. You can change that port if required, previous versions of Lights-Out used port 9 but this is no longer working on a Fritz!Box router.

Uptime chart settings

You can select to display the client computer backup times on a Windows Server Essentials or Home Server. This is shown as outline in the backup column.

If your server is running 24/7 it is not shown in the runtime chart. Enable this setting to display the server anyway.

Energy

Enter the estimated (or measured) values for your server hardware and your electricity cost per kWh. Typical values for servers running on an Atom platform are 40-50W and 2W, Intel machines may use 50-300W and 5W.

Theme

Selects the UI theme for the Lights-Out Management Console.
4.9.5 User Settings

User settings are used to configure user access rights.

Users and Permissions

Use this list to configure additional access rights for server users.

Administrators always have all rights and you can not change the settings.

A power user has the right to use the Lights-Out Management console.

Web access is required on a Windows Server Essentials/Home Server to access Lights-Out in the remote web access page via browser.
5 Monitoring Overview

This chapter explains how to use monitoring in Lights-Out to control the server runtime in combination with calendar tasks.

Basic functionality without calendar tasks

This first section explains how monitoring, delay time and standard action are used to control the server runtime.

Lights-Out monitors each selected source and creates one total value (technically a disjunction). As long as this total value is present (in our example yellow), the server is running. If Lights-Out detects no more activity, a timer is started (green). If the delay time has elapsed, the standard action is executed and the server goes into standby (or shuts down).

Any new activity during the delay time will stop the timer. In our example client 1 (dark red) is up again and stops the timer (green). So be careful with the delay time value. If you set a very long time, your server may never go to sleep.

Using a calendar task without action

This next section explains how calendar tasks work together with monitoring. A calendar task with a runtime is handled in the same way as any other source, it signals activity. Use a task (here dark blue) to define periods where your server must be up and running.
Using a calendar task with an end action

A calendar task with an end action may override the standard action. The delay time applies in the same way as to any other activity.

5.1 Task ends during other activity

If the calendar task ends during another activity, the end action is simply ignored and discarded (first case, dark blue).

5.2 Task is the only activity

The second task is the only activity, so if that task ends, the task action is compared to the standard action. The action with higher priority is then executed. So a task action with higher priority may override the standard action. This can be used to schedule a nightly reboot.

Action priority

<table>
<thead>
<tr>
<th>Action</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do Nothing</td>
<td>lowest</td>
</tr>
<tr>
<td>Save energy</td>
<td>lower</td>
</tr>
<tr>
<td>Hibernate</td>
<td>normal</td>
</tr>
<tr>
<td>Shut down</td>
<td>higher</td>
</tr>
<tr>
<td>Reboot</td>
<td>highest</td>
</tr>
</tbody>
</table>
Using a calendar task with a forced end action

A forced end action will override all 3 settings, the delay time, the activity of most sources and the standard action. A forced action is **executed immediately**! A backup operation, a disk operation and remote access can not be interrupted by a forced end action. The Save Energy now command from the console or from the client context menu is executed as a forced action as well.

### Monitored source | Forced action possible?
--- | ---
Connected Computers | yes
Network devices, Mobile devices | yes
Backup or disk operation | no
Remote access | no
Files, shared folders, processes | yes
CPU or network load | yes
Console or RDP session | yes
Power requests | yes
5.3 Running A Server On Demand

Scenario
A server is used for file sharing, streaming and remote access.

Intention
Run the server automatically if needed, save energy the rest of the day.

Recommended Settings
- **Standard delay and action**: 5 minutes, save energy or hibernate.
- **Monitored sources**: All standard sources (connected computers, network devices, backup)
- Select all client computers and all IP clients for monitoring on computer and network tab (default).
- Enable “automatic wake-up” on all client computers (computers properties).
- Disable “server actions” on all client computers (computer properties).

Result
Server will wake-up when a client computer is started or resumed from standby. Server will stay awake as long as one or more clients are running or as long as audio or video streaming are active.

Additional options
Use network load or share monitoring for devices which are always active (for example Apple's iPad).
Configure Wake-On-Wan on your router to enable wake-up over internet.
Configure Lights-Out computer backup.
5.4 Running A Server On Fixed Times

Scenario
A server is used for file sharing, streaming and remote access.

Intention
Run a server with a fixed start and end time.

Recommended Settings
- Create a calendar uptime with a start and end action. Use save energy or hibernate as end action.
- To stop the server at the end time, use a forced end action. Otherwise enable monitoring and set-up a standard action.
- Enable “automatic wake-up” on all client computers (computers properties).
- Disable “server actions” on all client computers (computer properties).

Result
Server will wake-up at the configured start time and remain active until the end time. If your server wakes up outside the configured uptime you have to configured a standard action to disable the running server. This may be triggered by a scheduled backup, shadow copies or your network interface card (if pattern match is enabled).
5.5 Running A Server 24/7

Scenario
A server which is always on.

Intention
Use Lights-Out for backup control, remote wake-up and runtime monitoring of client computers.

Recommended Settings
*Standard delay and action*: 5 minutes, Do nothing.

Result
Lights-Out will not control your server. You can still use the backup features, Wake-On-Lan and the monitoring information of Lights-Out as well use the client management features.
5.6 Running An Energy Optimized Backup Server

Scenario

Windows Server Essentials or Windows Home Server is used as backup server in a small business environment.

Intention

Run server for client and server backup, save energy the rest of the day.

Recommended Settings

- **Standard delay and action**: 5 minutes, save energy or hibernate.
- **Monitored sources**: Only “Always on during configured backup time”
- Disable “automatically wake server...” on all clients (computers properties).

Result

Server will wake-up and stay online for client and server backup, then saving energy.

Additional options

Add client computers to uptime chart (but do not monitor).

Configure an action after backup for client computers which have trouble with saving energy.

Wake clients on demand with a magic packet (Wake-On-Lan) or a schedule.
5.7 Running Client Computers At Work

Scenario
You have fixed working hours, for example 8:00 AM to 5:00 PM.

Intention
You like to have the computer ready at start of work in the morning. You want the computer to shut down in the evening.

Extra bonus: If the employee does not come to work, the computer should enter standby.

Recommended Settings
Configure Windows Update active hours to 8:00 AM – 5 PM.

Create three calendar entries:

1. Entry: Start at 7:45 AM, end at 8:00 AM. Start action is wake-up, end action do nothing.
2. Entry: Start at 8:00 AM, end at 5:00 PM. No start action, end action is save energy executed after 15 minutes of inactivity.
3. Entry: Start at 5:00 PM, end at 5:15 PM, Start action is wake-up, end action is forced shutdown.

Result
Computer will wake-up at 7:45 AM outside of active hours and install/complete Windows Updates. If the employee arrives at 8:00 AM, the computer is ready for work. If the employee does not come to work, the second entry will start saving energy at 8:15 AM. The third entry ensures that the computer is shut down after work.
6 Backup Overview

A brand new feature in Lights-Out 2.0 is backup monitoring and controlling. While version 1.x was only able to handle Windows Essentials or Home Servers Computer Backup, the new version can now handle additional backup providers.

Backup

Serious users who run a regular backup are assisted by Lights-Out. Lights-Out can schedule backups and monitor backup software of different vendors. For a list of supported programs read the section Backup Provider.

Lights-Out supports backup on your server and on your client computers. Lights-Out can wake a server or client computer at a fixed schedule to run backups.

In times of ransomware and data encryption, a good backup is a must have!

The selected backup provider

Lights-Out 2.0 can monitor activity of multiple backup providers (even in parallel) but only one backup provider can be controlled by calendar schedules or a manual backup action. Therefore you have to select a backup provider for the server and the computers. If only one active backup provider is found, this provider is selected automatically. Otherwise select (1) the preferred backup provider or start a new detection with the refresh button (3).

This backup provider is now used to execute scheduled backups.
If your backup vendor or backup solution is not (yet) supported by Lights-Out please post your feedback on the forums.

Help, my provider list is empty?!

If you use one of the supported backup providers but Lights-Out does not detect any of it, this indicates a missing or wrong configuration. For example, most backup providers require that you define a backup job with backup source and target etc. If you have updated the settings in your backup software, simply click on the refresh button on the right side of the provider selection and let Lights-Out run a detection again. Note: Some backup providers need additional configuration for Lights-Out.

The action after backup

Lights-Out can automatically execute a power action after backup. Set the default action (2) which is executed if not overridden by a scheduled end action.

Backup results

Detailed backup results are collected and presented on the device properties dialog, see above. You can see the executed backup provider, the result and the start and end time of the backup.

Backup progress

Some backup providers deliver a detailed backup progress in percent. This progress is displayed on the computer tab. Others report only the state and result.

Last backup and Next backup columns

The two columns in the screen shot above are used for multiple information.

6.1 Last backup

Shows the date and time of the last backup together with an icon for the result.

6.2 Next backup

Date and time of the next scheduled backup. An icon shows if that time comes from the backup provider (a clock symbol) or if it's provided by the Lights-Out calendar (a calendar symbol).
A warning icon is displayed if the last backup was more than 7 days ago, or if the next backup time has been missed.
6.3 Backup Provider

This list documents the currently supported backup providers, their features and if an additional configuration is required for Lights-Out. Click on the configuration required link to learn more about these additional steps.

Recommended settings

To have full control in Lights-Out, do not use features of a backup provider like scheduling, power management or wake-up. Leave that up to Lights-Out.

In order for the provider to be detected by Lights-Out, it must be fully configured and ready for operation.

Supported backup providers

<table>
<thead>
<tr>
<th>Backup Provider</th>
<th>Reports result</th>
<th>Reports begin/end</th>
<th>Reports progress</th>
<th>Reports schedules</th>
<th>Additional Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentials or Home Server Computer backup</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Windows 7 Backup (available on Windows 7 and 10)</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Microsoft Azure Backup</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Acronis True Image Home (2012 and later)</td>
<td>yes (2014 and later)</td>
<td>yes (2014 and later)</td>
<td>no</td>
<td>no</td>
<td>required!</td>
</tr>
<tr>
<td>Veaam Endpoint Backup Free</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>Cloudberry Backup (WHS, Desktop and Server)</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>required!</td>
</tr>
<tr>
<td>Duplicati 1.x</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>required!</td>
</tr>
<tr>
<td>Lindenberg Backup</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
</tbody>
</table>

User defined backup scripts

|                       | possible | possible | possible | no | required! |

If you miss your personal favorite of a backup solution, please give feedback in the forums!

Planned but without any schedule or ETA:

- Macrium Reflect
- Duplicati 2.x
Help, my backup provider is not detected!

If you have a supported backup provider from the list above, but it is not selected under Settings -> Backup Provider, like for example Acronis True Image or Cloudberry Backup in this screen shot

![Backup Provider Settings](image)

then verify that

- the backup provider is configured and working outside of Lights-Out
- you have applied any additional configuration for your backup provider (see table above)

Next let Lights-Out detect your backup providers again. Open the property page of the affected computer and click on the refresh button (3):
6.4 Acronis True Image Home

You can create multiple backup jobs in TrueImage. As long as you only have one backup job, the name of the job doesn't matter.

If you create multiple jobs, exactly one job must have Lights-Out in his name! This is the job which is executed by Lights-Out (either from calendar or manually).

Restrictions in older versions

Lights-Out can start but not detect a backup running with TrueImage 2012 and 2013 and can't display the backup result. As a consequence, Lights-Out can't keep the server and client awake during a backup.

Full functionality is supported in TrueImage 2014 and later.

Sample from 2014

The selected backup job is named “Full backup (Lights-Out)”: 

![Sample from 2014](image)

Sample from 2016

The selected backup job is named “My Volumes (Lights-Out)”: 

![Sample from 2016](image)
6.5 Cloudberry Backup

Supported version of Cloudberry Backup include

- Cloudberry Backup for Windows Home Server 2011
- Cloudberry Backup for Windows Server 2012 Essentials
- Cloudberry Backup Windows Desktop
- Cloudberry Backup Windows Server

Required configuration

To use Cloudberry Backup with Lights-Out you have to make two modifications:

- Move your backup settings to the "All Users" profile to make it accessible for Lights-Out
- (Re)name your backup plan to contain "Lights-Out" in the name. This identifies the plan which is used by Lights-Out.

How to Switch to "All Users" Mode

This is documented in Cloudberry Backup Help. You have to open an administrative command prompt and then execute the command:

```
Switch to "All Users" mode

cbb.exe option -userMode common
```

Backup plans

You can create multiple backup plans in Cloudberry Backup. As long as you only have one backup plan, the name of the plan doesn't matter.

If you create multiple plans, exactly one plan must have Lights-Out in his name! This is the plan which is executed by Lights-Out (either from calendar or manually).

To rename an existing backup plan to use it with Lights-Out, click on Backup Plans, then expand the plan and click on "Edit Backup Plan". Click "Next" and change the plan name to include "Lights-Out", e.g. "My backup plan (Lights-Out)".
Save the plan.

Example 1, Cloudberry Backup Desktop

Example 2, Cloudberry Backup WHS
6.6 Duplicati 1.x

That's documented in our blog:

6.7 User Defined Backup Scripts

That’s documented in our blog:

https://www.green-it-software.com/6272/day-24-using-user-defined-backup-scripts/
7 Command Line Programs Overview

Lights-Out offers command line programs to help advanced users in special situations or to automate some tasks.

This section lists all available command line programs with their intended usage.

Command line client
Use the command line client for batch files to automate server wake-up, backups or client actions.

SSL Wizard
The SSL wizard offers some command line parameters, which are not available in the UI to renew or reset the certificates.

Server Cleanup
Use the server cleanup to remove all schedules, all recordings, all client computers etc.

Migration tool
Use the migration tool to import settings from Lights-Out 1.x
7.1 Command Line Client

Those who like to control the server via scripts or batch files can use the Lights-Out command line client. The command line also allows to use the "client action after backup" in batch files or backup/copy scripts.

Using the command line client

The command line client is installed together with the Windows client software and can be found in

```
"C:\Program Files\AxoNet Software GmbH\LightsOut2Client\LightsOut2.Client.Commandline.exe"
```

You have to add a parameter, to execute a command.

7.1.1 Parameters

Call LightsOut2.Client.Commandline.exe with one of these parameters:

<table>
<thead>
<tr>
<th>Short parameter</th>
<th>Long parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-w</td>
<td>--wake_server</td>
<td>Wake server using wake-on-lan</td>
</tr>
<tr>
<td>-s</td>
<td>--suspend_server</td>
<td>Suspend server now</td>
</tr>
<tr>
<td>-e</td>
<td>--enable_monitoring</td>
<td>Monitor this client for activity</td>
</tr>
<tr>
<td>-d</td>
<td>--disable_monitoring</td>
<td>Do not monitor this client for activity</td>
</tr>
<tr>
<td>-g</td>
<td>--get_status</td>
<td>Report state of server and return error level</td>
</tr>
<tr>
<td>-b</td>
<td>--backup_now</td>
<td>Wake server, then execute a backup</td>
</tr>
<tr>
<td>-a</td>
<td>--backup_standard_action</td>
<td>Wake server, execute a backup, then run standard action</td>
</tr>
<tr>
<td>-r</td>
<td>--report_backup_started</td>
<td>Report that a user defined backup has started</td>
</tr>
<tr>
<td>-p n</td>
<td>--report_backup_progress</td>
<td>Report backup progress in percent, range n = 0 - 100</td>
</tr>
<tr>
<td>-f r</td>
<td>--report_backup_finished</td>
<td>Report that a user defined backup has finished, Result r = 0 = success, 1 = failed, 2 = aborted, 3 = warnings, 4 = missed, 5 = wrong config, 255 = unknown</td>
</tr>
<tr>
<td>-c action</td>
<td>--count_down</td>
<td>Start count down and execute an end action: action = Suspend, Shutdown, Reboot</td>
</tr>
<tr>
<td>-h or -?</td>
<td>--help</td>
<td>Display short usage information</td>
</tr>
</tbody>
</table>
7.1.2 Exit Codes

0 = Command was successful or server is not active
1 = Server is active
2 = Error: Lights-Out client service is not running
3 = Parameter error
4 = Time out getting server status

7.1.3 Examples

Get server status

This command returns the server status as exit code. You have to use that in a script.

```
Get server status
"C:\Program Files\AxoNet Software GmbH\LightsOut2Client\LightsOut2.Client.Commandline.exe" -g
```

Wake Server

This command wakes the server via wake-on-lan.

```
Wake Server
"C:\Program Files\AxoNet Software GmbH\LightsOut2Client\LightsOut2.Client.Commandline.exe" -w
```

Start a count down

When a user is logged in, this command displays a 60 second countdown and then restarts the computer. If no user is logged in, then a 15 second countdown takes place.

```
Start a count down
"C:\Program Files\AxoNet Software GmbH\LightsOut2Client\LightsOut2.Client.Commandline.exe" -c Reboot
```
7.2 Server Cleanup

Server Cleanup is a command line tool to remove recordings, ip clients, scheduled tasks or calendar entries.

Using the cleanup tool

LightsOut2.Server.Cleanup.exe is a command line tool and is located on the server in

```
"C:\Program Files\AxoNet Software GmbH\LightsOut2\LightsOut2.Server.Cleanup.exe"
```

You have to add a parameter, to execute a command.

### 7.2.1 Parameters

Call LightsOut2.Server.Cleanup.exe with one of these parameters:

<table>
<thead>
<tr>
<th>Short parameter</th>
<th>Long parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-t</td>
<td>--TaskScheduler</td>
<td>Removes all scheduled tasks created by Lights-Out from Windows Task Scheduler</td>
</tr>
<tr>
<td>-r</td>
<td>--Runtime</td>
<td>Remove all runtime recordings and reset all counters</td>
</tr>
<tr>
<td>-i</td>
<td>--IpClients</td>
<td>Remove all IP based (network) clients</td>
</tr>
<tr>
<td>-c</td>
<td>--Calendar</td>
<td>Remove all Lights-Out calendar entries</td>
</tr>
<tr>
<td>-n</td>
<td>--NoRestart</td>
<td>Do not restart Lights-Out 2 service after cleanup</td>
</tr>
<tr>
<td>-h or -?</td>
<td>--help</td>
<td>Display short usage information</td>
</tr>
</tbody>
</table>

### 7.2.2 Exit Codes

0 = Command was successful or server is not active

1 = Server is active

2 = Parameter error

3 = Execution error

### 7.2.3 Examples

Removing all runtime recordings and ip based devices

```
Removing runtime recordings and ip based devices
```
C:\Program Files\AxoNet Software GmbH\LightsOut2>LightsOut2.Server.Cleanup.exe -r -i
Using WindowsPlatform on Sku=Wshs2011 Win7OrLater=True WHS/Essentials=False
Copyright (C) 2011 - 2016 AxoNet Software GmbH, Martin Rothschink
called with -r -i
Stopping LightsOut2Svc...
Stopped LightsOut2Svc
Removing all runtime recordings...
Removed all runtime recordings...
Removing all network devices...
DeviceInfoReader.ReadInternal 275610290005384 = SGPT12
DeviceInfoReader.ReadInternal 94AD19BDFDFF26CA5282E24208E5E4585D2582 = RM-892_eu_euro2_217
DeviceInfoReader.ReadInternal 9DDD3D02-07B3-475E-992A-C6163D0740A6 = iPad3
DeviceInfoReader.ReadInternal S-1-5-21-1867859661-3290493052-3077371074-1010 = D EVVAIL
DeviceInfoReader.ReadInternal S-1-5-21-1867859661-3290493052-3077371074-1048 = MyMacLion
DeviceInfoReader.ReadInternal S-1-5-21-1867859661-3290493052-3077371074-1052 = vw10pro
DeviceInfoReader.ReadInternal S-1-5-21-1867859661-3290493052-3077371074-1056 = V mVHP
DeviceInfoListReader.CleanupMacs: New mac 00-0C-29-1C-49-E0
DeviceInfoListReader.ReadAll returns 9 items
WriteAll: 275610290005384 SGPT12 was modified True
DeviceInfoWriter.WriteInternal 275610290005384 SGPT12
WriteAll: 7343F47E-52C3-B14F-0D10-42551037FD1D I7W10 was modified True
DeviceInfoWriter.WriteInternal 7343F47E-52C3-B14F-0D10-42551037FD1D I7W10
WriteAll: 94AD19BDFDFF26CA5282E24208E5E4585D2582 RM-892_eu_euro2_217 was modified True
DeviceInfoWriter.WriteInternal 94AD19BDFDFF26CA5282E24208E5E4585D2582 RM-892_eu_euro2_217
WriteAll: 9DDD3D02-07B3-475E-992A-C6163D0740A6 iPad3 was modified True
DeviceInfoWriter.WriteInternal 9DDD3D02-07B3-475E-992A-C6163D0740A6 iPad3
WriteAll: FCCF0060-2778-FAE5-56E6-954EAB0C1064 SURFACE was modified True
DeviceInfoWriter.WriteInternal FCCF0060-2778-FAE5-56E6-954EAB0C1064 SURFACE
WriteAll: S-1-5-21-1867859661-3290493052-3077371074-1010 DEVVAIL was modified True
DeviceInfoWriter.WriteInternal S-1-5-21-1867859661-3290493052-3077371074-1010 DEVVAIL
WriteAll: S-1-5-21-1867859661-3290493052-3077371074-1048 MyMacLion was modified True
DeviceInfoWriter.WriteInternal S-1-5-21-1867859661-3290493052-3077371074-1048 MyMacLion
WriteAll: S-1-5-21-1867859661-3290493052-3077371074-1052 vw10pro was modified True
DeviceInfoWriter.WriteInternal S-1-5-21-1867859661-3290493052-3077371074-1052 vw
10pro
WriteAll: S-1-5-21-1867859661-3290493052-3077371074-1056 VmVHP was modified True
DeviceInfoWriter.WriteInternal S-1-5-21-1867859661-3290493052-3077371074-1056 Vm
VHP
  Removed 0 network devices
Starting LightsOut2Svc...
  Started LightsOut2Svc
done (1)
7.3 Migration Tool

Migration tool is used to import settings from Lights-Out 1.x.

Using the migration tool

LightsOut2.Migration.exe is a command line tool and is located on the server in

```
"C:\Program Files\AxoNet Software GmbH\LightsOut2\LightsOut2.Migration.exe"
```

The migration tool is run automatically during installation. Migration is only done once. You can force the import of data using one of the parameters.

⚠️ Use with care! If you import settings again, your current configuration is overwritten!

7.3.1 Parameters

Call LightsOut2.Migration.exe with one of these parameters:

<table>
<thead>
<tr>
<th>Short parameter</th>
<th>Long parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-s</td>
<td>--settings</td>
<td>Apply server settings from Lights-Out 1.x</td>
</tr>
<tr>
<td>-d</td>
<td>--device_data</td>
<td>Import computer and network device data from Lights-Out 1.x</td>
</tr>
<tr>
<td>-c</td>
<td>--calendar</td>
<td>Import and convert calendar entries from Lights-Out 1.x</td>
</tr>
<tr>
<td>-h or -?</td>
<td>--help</td>
<td>Display short usage information</td>
</tr>
</tbody>
</table>

7.3.2 Exit Codes

0 = Command was successful

3 = Parameter Error
8 Installation

Lights-Out can be installed on any Microsoft Windows Desktop or Server Operating System. For a complete list of supported systems have a look at the requirements.

The big picture

Lights-Out is based on several building blocks:

1. A **service** which is installed on the **server** or a desktop system used as server. This is the **core component** (the green Sample Server in the picture). The management console and the client software are connected to that service.
2. A **management console** which is installed on the server and optionally on any system used to manage Lights-Out.
3. A **client software or agent** installed on Microsoft Windows or Apple Macintosh computers (the blue devices in the picture). These devices may operate inside your network (LAN) or outside over the internet (WAN).
4. An optional mobile app for smart phones or tablets (the blue devices in the picture). These devices may operate inside your network (LAN) or outside over the internet (WAN).

Components 1. - 3. are part of the **installer** for the server. The mobile app is a separate component and is available for all major systems (Android, iOS, Windows 8-10, Windows Phone 8-10).

What's next?

8.1 **Server installation**

If this is your **first installation** of Lights-Out, please read the chapter First Time Installation.

If you are **migrating** from Lights-Out version 1, please read Migrating From Version 1.

If you are **updating** an existing version 2 be sure to read Updating Existing Version 2.
8.2 Clientinstallation

Overview
Windows
Mac
8.3 First Time Installation

Please read this chapter if you perform a first time installation of Lights-Out 2 on a new system. Be sure to check the requirements before you start.

Unified installer

Lights-Out 2 uses the same, unified installer for all supported systems. The first part of the installation is identical on all systems.

Run the installer with a double click on the file LightsOut2.Installer.2.0.0.xxxx.exe. The installer is loading:

![InstallAware Wizard](image1)

Then the language selection dialog appears:

![Select Setup Language](image2)

Accept or change the language, then click OK.

If a prerequisite like .Net Framework 4.5 is missing, you see a notification and the missing piece is installed first. Otherwise the installer is ready to install Lights-Out 2:
Click Next and wait until the installer has finished the first part of the installation:

SSL Wizard

At the end of the server installation, the SSL wizard is started to configure the required SSL certificates:
The wizard detects that there is no existing configuration:

and offers two options: Use existing certificates or create new certificates:
Existing certificates are probably available if you

- install in a business environment
- if you run Windows Server 2012/2016 Essentials
- if you run Windows Home Server 2011 or Small Business Server 2011 Essentials

In that case please continue reading Using Existing Certificates.

If you install on any other system or on a desktop machine, please continue reading Creating New Certificates.

Next steps

After the installation has finished, Lights-Out offers to run the management console or dashboard:

It also shows a hint on how you can now connect your client computers to Lights-Out.
8.4 Migrating From Version 1

Please read this chapter if you migrate from a previous version 1.x of Lights-Out (and want to keep your existing settings).

And if I don’t want to use my old settings?

If you do not want to import your old settings during migration, please uninstall Lights-Out 1.x first. Then open explorer and navigate to c:\programdata. That folder may be hidden, so please change explorer options if necessary. Then rename the folder LightsOut to LightsOut.old. This prevents the import of your old settings.

What happens during migration?

A migration is done in two main steps:

- Removing Lights-Out 1.x
- Installing Lights-Out 2 which automatically runs the migration
  - Settings migration
  - Calendar migration
  - Device migration

Removing Lights-Out 1.x

This part depends on the platform you are using. Please have a look at Migrating From Essentials/WHS if you run any Essentials or Home Server. If you run a standard server or desktop system as server have a look at Migrating From Standard Server Or Desktop.

Settings

Lights-Out 2 reads your old settings and then applies these to the matching settings in version 2. Settings which do not exist in version 1 are left unchanged.

Calendar entries

Lights-Out 2 reads your old calendar entries and creates new entries for the server. The migrated entries have a note which tell you that they have been migrated from v1. You should inspect and modify the migrated entries because the new calendar has a lot more and different features.

Devices
Lights-Out 2 reads the old device list and creates new devices with matching settings. This step may create ghost devices or duplicates. Again inspect the new device list carefully and remove duplicates or outdated entries.
8.2.1 Migrating From Essentials/WHS

Please read the main section about migration first.

Uninstalling Lights-Out v1

Start all computers and wait until the Dashboard on your server shows all as online.

Remove Lights-Out 1.x from the Dashboard (change to Add-Ins or Applications). Select Lights-Out and then click on remove the add-in. This triggers the remove of Lights-Out on all clients.

⚠️ If a client is not online during this step, Lights-Out is not removed on the computer and may create problems later. In this case manually uninstall Lights-Out on the affected client computer using control panel -> programs and features!

Installation

Close Dashboard on the server and proceed with the installation.

At the end of the installation, select "use your existing SSL certificates"!

Please wait a short time now, Lights-Out 2 creates the user list after the first installation and that may take 30 seconds or more.

Post installation steps

Open Dashboard, go to Lights-Out, Tab Computers. Right click all your client computers and select "manage".

Finally install the new client software.
8.2.2 Migrating From Standard Server Or Desktop

Please read the main section about migration first.

Simply install Lights-Out 2 on your server or desktop used as server, Lights-Out 1.x is removed automatically.

Select "create new certificates" at the end of installation unless you already have a valid SSL certificate.

Please wait a short time, Lights-Out 2 creates the user list after the first installation which may take 30 seconds or more.

Post installation steps

Open Lights-Out Console, go to tab Computers. Right click all your client computers and select "manage".

Finally install the new client software.
8.5 Updating Existing Version 2

Please read this chapter, if you are updating within the same major version, e.g. from 2.0 to 2.1.

Updating the server

To update, run the installer LightsOut2.Installer.2.0.x.yyyy.exe. The installer is loading:

![Image of the installer loading]

Then the language selection dialog appears:

![Image of language selection dialog]

Accept or change the language, then click OK.

The Lights-Out installer detects a previous version and displays this start dialog:

![Image of system update dialog]

The previous version is uninstalled but all your settings are kept. After that process, the standard installation takes place:
At the end you see the standard finish dialog:

Updating the clients

8.5.1 Windows

Windows computers will automatically update within a few minutes. You see a yellow warning if the client runs an outdated version:
The client will automatically download the new package and install it. A few minutes later you see that the version is now up-to-date:

<table>
<thead>
<tr>
<th></th>
<th>Allow</th>
<th>Server</th>
<th>Client Installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

If a client does not update, reboot the client to trigger the update again.

8.5.2 Apple Mac

Download the Mac Agent in the same way as you did on the first installation. Run the package, it will automatically remove the old version and then install the update.
8.6 SSL Configuration

Lights-Out encrypts the communication between service and clients with https whenever possible. This requires that you assign existing certificates or create new certificates during the first time installation.

💡 If you run Lights-Out in a home environment on a standard server or desktop system, you typically do not have existing certificates and should create and assign new certificates. If you want to access Lights-Out from outside of your local network, you should set-up a dynamic DNS name first. There are many companies that offer these kinds of service, both free and paid, like NO-IP, Dyn etc.

If you run Lights-Out in a business environment or with Windows Server Essentials, you probably already have valid certificates. In that case, try to use these certificates. It is necessary that these existing certificates have been imported into the certificate store on the server machine.

Server Ports used

Lights-Out uses 3 ports for communication with different SSL bindings:

<table>
<thead>
<tr>
<th>Port</th>
<th>DNS Name</th>
<th>SSL Binding</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7782</td>
<td>Server netbios name, for example &quot;SERVER&quot;</td>
<td>no binding</td>
<td>used for internal access (LAN), insecure</td>
</tr>
<tr>
<td>7783</td>
<td>Server netbios name, for example &quot;SERVER&quot;</td>
<td>SERVER</td>
<td>used for internal access (LAN)</td>
</tr>
<tr>
<td>7784</td>
<td>External domain name or Dynamic DNS name, for example &quot;server.remotewebaccess.com&quot;, &quot;server.homeserver.com&quot; or &quot;server.ddns.org&quot;</td>
<td>server.ddns.org</td>
<td>used for external access (WAN)</td>
</tr>
</tbody>
</table>

If you want to access Lights-Out from outside of your network, you have to forward TCP-Port 7784 in your router and use a valid SSL binding.

Running the SSL Wizard

The wizard is automatically started at the end of the first time installation. If you later change your mind or like to make changes, you can always run the wizard from the installation folder.

Running SSL Wizard

Copyright © 2008-2017 AxoNet Software GmbH. All Rights Reserved.
The wizard will start and show the initial dialog:

![SSL Configuration Wizard](image)

Attention: If you change the SSL binding or if you create new certificates, you probably have to reconnect the client computers!

Removing all bindings and certificates

If you like to start over again and remove any binding and any self signed certificate created by the wizard, run the wizard with **option -reset**:

```
Remove SSL bindings and certificates
"C:\Program Files\AxoNet Software GmbH\LightsOut2\LightsOut2.Server.SSL.exe" -reset
```

This command does not show any user interface, so it’s recommended to open an administrative command prompt (cmd.exe) and run the command there.

Attention: If you remove the SSL bindings and delete the certificates, the clients can no longer connect to the server. You have to recreate the SSL bindings first and then reconnect the clients!

Updating certificates

If you use existing certificates and want to update to a newer certificate, run the wizard with **option -update**: 

```
```
Update SSL certificates

"C:\Program Files\AxoNet Software GmbH\LightsOut2\LightsOut2.Server.SSL.exe" -update

The wizard will inspect the currently assigned certificate and will then look in the certificate store for a similar certificate with the same subject and issuer name but a later expiration date.

This command does not show any user interface, so it's recommended to open an administrative command prompt (cmd.exe) and run the command there.
8.4.1 Creating New Certificates

Create new SSL certificates if you run Lights-Out in a home environment on a desktop machine or if you do not have existing certificates. This process creates a new certification authority (a root certificate) and a new server certificate. The server certificate may include your external domain name.

8.4.1.1 Where are these certificates stored?

Both certificates are stored in the certificate store for the local computer. The "Personal" folder holds the certificates with their private keys. If you need to use the certificates, export them from there.

The "Trusted Root Certification Authorities" folder contains the Root CA without private key.

Using the wizard to create new certificates

The wizard shows the initial state, you do not have any SSL bindings configured:

Click Next to create new certificates. Select option 2:
In the next dialog, enter your external domain name if you want to access Lights-Out from outside of your local network. In this example we use a dynamic address from NO-IP:

Click Next, the wizard will now create the certificate and show the selected results. You can now go back or accept the selection:
Click Next to see the selected changes:

Click Finish to save and assign the selected certificates:
New configuration has been saved!
8.4.2 Using Existing Certificates

If you operate a Windows Essentials Server or work in a business environment, you should use your already existing certificates.

⚠️ If you have not yet configured remote web access for your Essentials or Home Server, you’re missing the external GoDaddy certificate. In that case please complete the wizard, configure remote web access in the Dashboard and then rerun the SSL wizard.

8.4.2.1 Where are these existing certificates stored?

The existing certificates should be found in the certificate store. This is true for any certificate created by Windows Server Essentials or Home Server. If you have a certificate saved in a file, you should first import that certificate into the certificate store.

Using the wizard to use existing certificates

The wizard shows the initial state, you do not have any SSL bindings configured:

Click Next to use existing certificates. Select option 1:
In the next dialog, verify the preselected certificates and then click Next.

Click Next to see the selected changes:
Click Finish to save and assign the selected certificates:
8.4.3 Installing A SSL Certificate

That's documented in our blog:

https://www.green-it-software.com/6337/day-26-mobile-access-lights-out-mobile/
8.7 Requirements

Software

All installations require .Net Framework 4.5 or later. If you use an older system, make sure that it's fully patched.

Hardware

- Your server and client computers should support Wake-On-Lan (WOL). Most often a network card driver update is required to make that work reliably. Look at the manufacturer web site for the latest drivers. Also verify that your Bios supports WOL.
- Your server and client computers should support standby mode S3 (also called Save Energy). Most often this requires to install the correct graphics driver on server hardware.
- If S3 is not available or to support hybrid sleep, you should enable hibernation S4. Open an administrative command prompt and execute

```
powercfg -h on
```

- To allow timer based wake-up, verify that your Bios has "high precision event timer" (HPET) enabled.

Server

Lights-Out is installed on a Server Operating System or a Desktop System used as a server.

8.7.1 Standard Server

Microsoft Windows Server 2008, 2008 R2
Microsoft Windows Server 2012, 2012 R2
Microsoft Windows Server 2016

8.7.2 Essentials/Home Server

Microsoft Windows Home Server 2011
Microsoft Windows Small Business Server 2011 Essentials
Microsoft Windows Storage Server 2008 R2 Essentials
Microsoft Windows Server 2012 Essentials
Microsoft Windows Server 2012 R2 Essentials
Microsoft Windows Server 2016 Essentials

8.7.3 Desktop used as server

Microsoft Windows 7, 32 and 64 Bit, any edition
Microsoft Windows 8/8.1, 32 and 64 Bit, any edition
Microsoft Windows 10, 32 and 64 Bit, any edition

Computers
The client software is supported on these systems to connect to a Lights-Out server.

Microsoft Vista SP1, 32 and 64 Bit, any edition
Microsoft Windows 7, 32 and 64 Bit, any edition
Microsoft Windows 8/8.1, 32 and 64 Bit, any edition
Microsoft Windows 10, 32 and 64 Bit, any edition
Apple Mac OS X 10.6 Snow Leopard
Apple Mac OS X 10.7 Lion
Apple Mac OS X 10.8 Mountain Lion
Apple Mac OS X 10.9 Mavericks
Apple Mac OS X 10.10 Yosemite
Apple Mac OS X 10.11 El Capitan
Apple macOS 10.12 Sierra
8.8 Client Installation

Lights-Out requires a client software package to control and monitor client computers. This section explains how you download, install and configure the client software.

Download client software

On each client open your browser of choice and navigate to http://server:7782 or, if SSL is already working, to https://server:7783. Replace server with the real name of your server where you installed Lights-Out.

The browser will open the Lights-Out main page.

Click on "Download installers" to open the download page:
Download the required installer and continue reading on Lights-Out Client For Windows Computers or Lights-Out Agent For Apple Mac Computers.
8.6.1 Lights-Out Client For Windows Computers

Open the download page and click on the blue Windows button to download the Windows installer package.

Run the installer with a double click on the file LightsOut2.Installer.client.exe. The installer is loading:

Then the language selection dialog appears:

Accept or change the language, then click OK.

If a prerequisite like .Net Framework 4.5 is missing, you see a notification and the missing piece is installed first. Otherwise the installer is ready to install the Lights-Out 2 Client Software:
Click Next and wait until the files are installed.

At the end of the installation you have to connect the client computer with the server.
Typically, the first combo box contains your server(s). If your network does not support multicasts like some older powerlan equipment, select the second option and enter the name of your server.

If you plan to use the computer outside of your local network, also enter the external DNS name. In this sample we use the NO-IP name.

Then click Connect.

Enter administrator credentials for the server. This is not necessary if your computer is joined to an AD domain and you are logged in as domain admin.
If the connect is successful, the installation is finished.

You will now see the Lights-Out bulb icon in your tray:

Right click the bulb to open the context menu:
8.6.2 Reconnecting A Client Computer

If a server connection gets lost, or if you want to connect the client to a different server, open the About ... dialog.

Right click on the bulb and select About ...

In the About window click on the server name, here s2016:
The Server Discovery dialog opens and shows your current connection:

Reconnecting to the same server

If you simply want to renew the connection, click on Connect and enter administrator credentials for the server. This may be necessary if you have changed or updated your SSL certificates.
Detaching from server

If you want to remove the client from the server, click on Detach. A message box tells you that it may take up to 3 minutes for the client service to recognise the change.

Close the dialog and click on Cancel.

Connecting to a server

To connect to a server, open the Server Discovery as outlined above and select or enter a new server name.

Click on Connect and enter administrator credentials for the server.
Click OK to close the dialog. It may take up to 40 seconds for the service to apply the change.

**Windows Computer Icons**

Lights-Out on a Windows Computer shows different icons to visualize the state.

You may get extended information if you move the mouse over the icon to see the tooltip.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Server is not running." /></td>
<td>Server is not running.</td>
<td>Computer is not connected to his server. Server is either in standby or shut down or there is no connection to the server.</td>
</tr>
<tr>
<td><img src="image2" alt="Server is running." /></td>
<td>Server is running.</td>
<td>Computer is connected to his server.</td>
</tr>
<tr>
<td><img src="image3" alt="Computer is running a backup" /></td>
<td>Computer is running a backup</td>
<td>Computer is connected to his server and currently running a backup.</td>
</tr>
<tr>
<td><img src="image4" alt="Lights-Out computer service is not running" /></td>
<td>Lights-Out computer service is not running</td>
<td>This typically indicates a service start problem. Try to start the service manually (Control panel -&gt; administrative tasks -&gt; services). If this happens after each reboot, try to set the service start method to start (delayed). If the error persists, contact support.</td>
</tr>
<tr>
<td><img src="image5" alt="Computer is not connected to any server" /></td>
<td>Computer is not connected to any server</td>
<td>This icon is only shown if you detach the computer from the server. Please connect to a server again.</td>
</tr>
</tbody>
</table>
8.6.3 Lights-Out Agent For Apple Mac Computers

Open the download page and click on the blue Mac button to download the installer package.

Run the pkg file

Click Continue
Click Install

Finished. Now a new icon (the Lights-Out bulb) is visible on top.

Click on the bulb to open the menu:
8.6.4 Lights-Out Mobile

That's documented in our blog:

https://www.green-it-software.com/6337/day-26-mobile-access-lights-out-mobile/
8.9 Lights-Out Console

You can install and run the console on any computer to manage Lights-Out.

⚠️ If this computer is not connected to the Lights-Out Server, or if you want to manage another server, please install the server SSL certificate first.

Read more on SSL certificates in our Blog:
Basics https://www.green-it-software.com/5275/day-2-ssl-certificates-lanwan-access/
Certificate Installation https://www.green-it-software.com/6337/day-26-mobile-access-lights-out-mobile/
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