Lights-Out 3
Green-IT Management Solution

Lights-Out 3.5 - User Manual
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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.
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**Feature Matrix**

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<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>Backup support</strong></td>
<td>Partially, not configurable</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
</tr>
<tr>
<td><strong>Connected 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>Network devices</strong></td>
<td>-</td>
<td>-</td>
<td>Total of 25 devices</td>
<td>Total of 25 devices</td>
</tr>
<tr>
<td><strong>Mobile devices</strong></td>
<td>-</td>
<td>-</td>
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If you have a valid license with maintenance and support, you should open a support ticket.
2 What's New In Version 3.5

This is a brief list of the new features of version 3.5.

Server/NAS

- New: Wake secondary server or computer after the primary server resumes from standby/hibernation
- New: If a reboot is pending on a Windows Server, Lights-Out can execute a reboot instead standby/hibernation.
- New: Support for QNAP NAS devices
- New: Certificates do now comply with Apples requirements for macOS Catalina / iOS 13
- New: One click install for Synology NAS (remote proxy and certificates are now automatically created and configured)

Backup Provider

- New: Veeam Agent for Linux 3.0.2 and 4.0
- New: Support for Veeam Agent for Windows 4.0

Client Software

- New: Client software does now allow to disable Lights-Out on the server for 1, 2, 4, 8 or 16h.
- New: macOS Client software does now include Mono 6.8 and is notarized by Apple
- New: macOS Client does now handle .local domains itself
- New: Linux Client software does now run on Mono 5.x up to Mono 6.10.
2.1 What's New In Version 3

This is a brief list of the new features of version 3.0.

Server
- New: Support for Synology NAS devices
- New: support for QNAP NAS devices (Beta)
- New: Monitor web page access to detect device activity
- New: Resolve mac address to vendor

Backup Provider
- New: Acronis True Image 2019 (both Windows and macOS)
- New: Time Machine (macOS)
- New: Carbon Copy Cloner (macOS)
- New: UrBackup (all, Windows, macOS, Linux)
- New: Hyper Backup (Synology)
- New: Active Backup For Business (Synology for Windows)

Console/Dashboard
- New: Automatic server detection and certificate installation
- New: Column for mac vendor in network tab
- New: Support for client access via TeamViewer, Remote Desktop or Browser
- New: Download log files
- New: Disable client power management actions based on hardware or manually
- Improved: Double click on column border creates best fit

Client Software
- New: macOS Client software
- New: Linux Client software
- New: It’s now possible to change the active backup provider in the context menu
- New: You can now wake-up other client computers
- New: You can manage your server via Lights-Out Console, RDP, TeamViewer and Web browser
2.2 Release Notes

Version 3.5.0 Build 4630, published February 28, 2020

2.2.1 Changes

Official QNAP-Support
Official macOS Catalina support
Apple macOS client software does now include Mono 6.8 and is notarized by Apple
Apple macOS software does now handle .local domains
Support for new certificate requirements from Apple, as a result, Lights-Out enables TLS 1.2 on WHS/SBS Essentials 2011
Support for macOS dark theme
New Linux backup provider for "Veeam Agent for Linux 3.0.2 and 4.0"
Linux client software does now run with Mono 5.x up to Mono 6.10
Wake on resume entry for other server/nas in server action settings
Reboot option for pending reboot on Windows server in server action settings
Minor UI changes for High-DPI displays
One-click installation on Synology NAS
Added support for Synology Active Bactup for Business 2.1.0-0993
Added support for "Veeam Agent for Windows 4.0"
Added support for openSUSE Leap and Tumbleweed

2.2.2 Bugs fixed since Beta 3.0.2

Fix #874585: Backup is missing for group
Fix sorting of time columns in Dashboard
Fix immediate hibernation after resume on client

Version 3.0.2 Beta Build 4497, published August 5, 2019

2.2.3 Changes

QNAP-Support (Beta)
New backup provider for QNAP "Hybrid Backup Sync"
New wake on resume entry for other server/nas in server action settings

2.2.4 Bugs fixed

Fixed start directory for console
Improved backup provider handling on client side
Fixed server actions for community edition
Fix #275325 Improved detection of lan/wan connection in client service
Fix #344291 Display default sort column in backup list, improved cleanup of old backups
Fix #167004, Server.Ssl --update not working
Fix crash in DSM update check (Synology)

Version 3.0.1 Build 4433, published May 9, 2019

2.2.5 Bugs fixed

#780958 Renaming IP device does not work (Console/Dashboard)
#780958 Manually added device does not update first detected/last seen fields (Console/Dashboard)
#772784 High DPI scaling in Dashboard addin is broken (Dashboard)
#515468 Remote web gadget does not load (WHS, Essentials)
Fixed forum links in about dialogs (Console, Client software)
Fixed away mode detection for user action (Windows Server service)
Fixed outdated SSL certificates (Windows server service runs SSL Configuration --update every 24h)

Version 3.0 Build 4424, published May 3, 2019

2.2.6 Changes since RC

Fixed black hole (client window is black if Windows tablet mode is switched on/off)
Fixed Windows Server Backup on WHS/Essentials (no more multiple running backups)
Fixed high CPU load during scan of class B networks

Version 3.0 Release Candidate, Build 4401, published April 12, 2019

2.2.7 Changes since Beta 1

Download page reordered (management console moved up)
Warning for missing backups increased to 8 days
UrBackp backup provider improved
Synology Quick Connect detection added
Connection via browser to external server improved
Support for Mono 5.18 on DSM added
169.254.x.x networks are treated as disconnected
Fixed missing icons on download page
Fixed multiple ip addresses in connection via browser
Fixed unused LAN port on DiskStation with 2 or more LAN ports
Fixed service crash if old Lights-Out 1 license was loaded
Fixed missing entries in Settings->Action if Console is connected to remote server
Fixed Direct Deploy for Windows clients
Fixed wrong user activity in runtime diagram
Fixed timer based wake-up if server and client are installed on the same machine

2.2.8 Known issues

- On macOS Mojave, TimeMachine Backups have an unknown result due to security limitations
- On macOS, Acronis True Image does not return a backup result
- On Linux clients, standby blocking is not yet working

Version 3.0 Beta 1, Build 4364, published March 12, 2019

2.2.9 Known issues

- On macOS Mojave, TimeMachine Backups have an unknown result due to security limitations
- On macOS, Acronis True Image does not return a backup result
- On Linux clients, standby blocking is not yet working
3 Getting Started

If Lights-Out is new for you, we recommend to start reading our blog series "Lights-Out step by step" to get you going.

If you have already used Lights-Out 1.x, we recommend to have a look at migration and the blog series.
3.1 Blog Series Step-by-Step

If Lights-Out is uncharted territory, 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 Lindenberg 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 User Interface
4.1 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

4.1.1 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.

4.1.2 Calendar Tab

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

4.1.3 Runtime Chart Tab

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

The computers tab shows all connected client computers.

4.1.5 Network Devices Tab

The network devices tab shows all detected network devices in your local network.
4.1.6 Mobile Devices Tab

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

Start Lights-Out Console, 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:
Lights-Out 3.5 User Manual

Lights-Out 3
Green-IT Management Solution

Lights-Out Server

User name

Password

Save credentials
Use Windows session credentials
Automatically log in

Login  Cancel  Help
4.1.8 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://s20167783/ 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:
RECORDERING

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
4.1.2.1 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).

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

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
4.1.2.2 Calendar Panel

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

In Lights-Out console, you can click on the header CALENDAR to directly open the calendar tab.

No schedules

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

NO Schedules

- Today
- Tomorrow
- The day after tomorrow
4.1.2.3 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.
4.1.2.4 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.
4.1.2.5 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.
4.1.2.6 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 Rothschink

Load License
Extend or upgrade license
4.1.2.6.1 Upgrade a previous license

If you have an existing Lights-Out license and want to upgrade to a Lights-Out 3 License, you have two choices:
- Extend maintenance to cover the new version (prefered method). Do this before (!) you install the new version
- Buy a new license with a discount

To buy a new license, load the old license first.

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

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

As a result, the buy a license link changes:

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**.
4.1.2.6.2 Buy A License

⚠️ If you already have a previous Lights-Out license, please read Upgrade a previous 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.

<table>
<thead>
<tr>
<th>License Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home Edition</strong></td>
<td>This license permits the use of Lights-Out in a private, personal environment or any non profit organisation. Includes 15 devices, 1 server, 2 calendar groups and forum or email support.</td>
</tr>
<tr>
<td><strong>Professional Edition</strong></td>
<td>This license permits the use of Lights-Out in a private, personal environment or any non profit organisation. Includes 25 devices, 2 servers, 4 calendar groups and forum or email support.</td>
</tr>
<tr>
<td><strong>Business edition</strong></td>
<td>This license is required if you use Lights-Out in a business environment or a commercial organisation. Includes 100 devices, 3 servers, unlimited calendar groups and priority email support.</td>
</tr>
</tbody>
</table>

💡 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.
4.1.2.6.3 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).

Next enter the path to the license file (1) or click on (2) to open a file browser.

The "Load License" button is now enabled, click it to load the license file.
Please be patient, loading the license file may take some time.
Once loaded, the license panel will show your license:
25 Devices

Professional Edition


Licensed to Martin Rothschink

Load License
Extend or upgrade license
4.1.2.6.4 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:
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).

4.1.2.6.4.1 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.

4.1.2.6.4.2 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 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.
4.1.2.6.5 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.
4.1.9 Calendar

The calendar tab shows the calendar which is used to schedule actions for the server and computers. 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.
4.1.3.1 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.

4.1.3.1.1 Ungrouped view

All calendar entries are displayed within the same calendar view:

![Ungrouped view](image)

4.1.3.1.2 Grouped view

Each group is displayed in a separate calendar view:
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.
4.1.3.2 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, timeline and list 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.

**List view**

Use this view to display all schedules in a list.
4.1.3.3 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.
4.1.3.4 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

The server supports two start actions:

<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>

Possible start actions for a client computer

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>Wake-up</td>
<td>Creates a wake timer to wake the machine</td>
<td></td>
</tr>
<tr>
<td>Server sends a magic packet (Wake-On-Lan)</td>
<td></td>
<td>Only works if machine is in standby or hibernation. Does not work if machine is shut down.</td>
</tr>
<tr>
<td>Run a backup</td>
<td>Starts a backup with the selected backup 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>Only works if connected via LAN cable and server is awake.</td>
</tr>
</tbody>
</table>
4.1.3.5 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

<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

<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</td>
<td>The specified action</td>
<td>Action is only executed if no other activity is present.</td>
</tr>
</tbody>
</table>
### Action
- **down, Reboot etc**
- **Standard action**

### What happens
- The action configured as default (standard) action in settings

### Remark
- Otherwise use a **Forced end action**.
- This is the same setting which is used for monitoring

#### 4.1.3.5.1 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>

---

**Lights-Out 3.5 User Manual**

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4.1.3.6 Recurring Schedules

Lights-Out allows you 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.

4.1.3.6.1 Hourly recurrence

Select the hours:

4.1.3.6.2 Daily recurrence

Either select the number of days or choose every weekday:

4.1.3.6.3 Weekly recurrence

Select the number of weeks and the day in the week:

4.1.3.6.4 Monthly recurrence

Either select the day and the number of months or a special day in a month:
4.1.3.6.5 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.
4.1.10 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.

💡 The color of a device can be configured in the device properties.

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.
4.1.11 Computers

This tab shows all your connected computers. A computer is visible in this tab after installation of the client software.

You decide which computers are managed by Lights-Out (see computer tasks below). 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)
- Currently 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.
### Column | Remark
--- | ---
Name | Computer name as reported by client software
Status | Managed / Not managed
Last online | Time at which the computer was last online
IP-Address | IP-Address(es) as reported by client software
Keep server active | User setting
Show in chart | User setting
Calendar group | Selected calendar group, user setting
Backup provider | Selected backup provider, user setting
Last backup | Date and time last backup started. Icon shows result of last backup.
Next backup | 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.
Automatically wake server | User setting
Allow server actions | User setting
Server | Name of Essentials or Home Server to which the client computer is connected
Client installed | Software version as reported by client software

### 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.
## 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 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 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 device with Magic Packet</td>
<td>Wake an offline computer using Wake-On-Lan</td>
</tr>
<tr>
<td>Save energy</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>Hibernate</td>
<td></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.
4.1.5.1 Send A Message

That's documented in our blog:

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

This tab shows all detected network devices.

You decide, which devices are managed by Lights-Out (see device tasks below). 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.

### Column | Remark
---|---
Name | Device name as reported by DNS
Status | Managed / Not managed
Last online | Date and time the device was last active.
IP-Address | IP-Address(es) as detected by Lights-Out
MAC-Address | Physical MAC-Address(es) as detected by Lights-Out
Vendor | The manufacturer of the network card (information from MAC-Address)
Keep server active | User setting
Show in chart | User setting
First detected | Date and time the device was first detected by Lights-Out.

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

### Network devices tasks

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

### Adding a new device
See above for command Add device with IP-Address.
4.1.13 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.
4.1.14 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/macOS/Linux Computer</th>
<th>Network device</th>
<th>Mobile device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shows monitoring options instead of server actions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.14.1 Basic properties

(1) Hostname and (2) IP-Address: Fixed for connected computers. You can change the name for IP based and mobile devices.
(3) MAC Address and Vendor (5) if enabled in Server Settings
(5) Enable monitoring keeps your server running as long as this device is active.
(6) List device in mobile apps (Lights-Out Mobile) and on the remote web page of Windows Server Essentials/Home Server.

4.1.14.2 Runtime chart

(7) If device is selected for monitoring, this option is always selected. Otherwise you can decide to show the runtime of this device.
(8) The color used for this device.

4.1.14.3 Server actions

Not available on network devices!
(9) 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.
(10) 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.

4.1.14.4 Member of calendar group

Only visible on connected computers.
(11) Add the computer to a calendar group. All schedules of the calendar group are now applied to this computer.

4.1.14.5 Monitoring

Only available on network devices!

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

(13) 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.
4.1.8.6 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.

⚠ If you add a device manually, the device must use 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.
4.1.8.7 Backup Properties

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

Backup tab

4.1.8.7.1 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.

Connected Computer

Server

Does not have a standard action after backup

4.1.8.7.2 Backup Provider

(1) Select the backup provider which is used to run a scheduled backup via Lights-Out calendar or by the command pane. You can start the detection again and refresh the list with (2).

4.1.8.7.3 Standard action after backup

(3) Select the standard action for a scheduled backup on a connected computer. To execute the action only in your LAN if the server is online, enable option (4). This prevents this action for example in your holidays far away from home.
4.1.15 Settings

Settings are arranged in 7 sections:

- **Action settings**, configures the standard action
- **Monitoring settings**, configures the monitored sources
- **Backup settings**, shows the preselected backup provider
- **Server settings**, configures additional server options
- **Console settings**, configures console or dashboard options
- **User settings**, configures user access rights
- **Update settings**, configures automatic updates

**Accessing server settings**

There are multiple entry points into 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.
4.1.9.1 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 (see below)

On execution

4.1.9.1.1 Start/Stop services

When an action is executed, Lights-Out stops specific services first (3). 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.

4.1.9.1.2 Run program on resume

You can run a script, batch file or a program when the server resumes (4). This program runs in the context of the local service account, so be careful.

4.1.9.1.3 Wake computers on resume

Select one or more computers (5) which should start as soon as the server starts or resume from a standby or hibernation. You can select any managed computer or device.

4.1.9.1.4 Pending reboot

This settings (6) allows the server to detect a pending reboot after installing Windows updates and replace the next standard action with a reboot. This garanties, that the server reboots as soon as possible.

User action

If you select User action, a new input field (7) 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\LightsOut3\log. The log marks the batch file output with **.
4.1.9.2 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.

Note: Your server may have less available actions, depending on hard- and software!
<table>
<thead>
<tr>
<th><strong>Source</strong></th>
<th><strong>Remarks</strong></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>Download and install</td>
<td>This source is always enabled. To configure updates, go to <a href="#">Update Settings</a>.</td>
</tr>
<tr>
<td>Lights-Out updates</td>
<td></td>
</tr>
<tr>
<td>System Updates / Windows</td>
<td>Monitors system updates and keeps the server running while updates are installed.</td>
</tr>
<tr>
<td>Updates</td>
<td></td>
</tr>
<tr>
<td>Essentials Disk Storage I/O</td>
<td>Monitors Essentials or WHS disk storage I/O to keep the server running during backup clean-up.</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</td>
<td>Monitors special tasks from Windows Task scheduler like Windows Update.</td>
</tr>
<tr>
<td>Scheduler</td>
<td></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>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>Power requests from other</td>
<td>Monitors a power requests from a driver or software. Power requests can be viewed with the command <a href="#">powercfg -requests</a>.</td>
</tr>
<tr>
<td>software</td>
<td></td>
</tr>
<tr>
<td>Remote access</td>
<td>Monitors user access on Essentials or WHS remote web access.</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>Web access via http/https</td>
<td>Monitors selected web pages. This can be used to detect if a device with a built in web server responds to requests. You can specify multiple URLs separated with comma.</td>
</tr>
<tr>
<td>v1 Calendar import</td>
<td>Monitors file changes of calendar data created for Lights-Out v1 and imports the data into the calendar. You have to specify the target device for the import. This can be the server (in that case use the name server) or any other computer name.</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.</td>
</tr>
<tr>
<td>Source</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------</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 are not allowed. Multiple file names are separated with a comma.</td>
</tr>
<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>
4.1.9.3 Backup Settings

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

Monitored Backup

Note: Your server may have less available backup providers, depending on hard- and software!

4.1.9.3.1 Backup providers

Backup providers are detected automatically and can not be changed.

4.1.9.3.2 User settings

You can enable monitoring of shadow copies. This also enables wake-up for shadow copies. Shadow copies itself 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.

On a Synology NAS, this settings starts the NAS for configures tasks in Hyper Backup and Active Backup for Business.
4.1.9.4 Server Settings

Server settings are used to configure additional server options.

Information
Shows the server name, operating system and the hardware. Hardware is either a physical machine, a virtual machine or a container.

Options
You can enable detailed logging for error diagnostics. To download log files, click on the button. Some language dependent data, like monitoring options, is created on the server. If your server uses a different language, you can change the language for the Lights-Out service on the server. This does not affect any other programs on the server. A server restart may be necessary to make this work.

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.

**Energy**

You can globally enable or disable power management actions from client computers. This check box has three states:

- Checked: Power management actions are always enabled. You can still enable/disable per device in the Device Properties.
- Unchecked: Power management actions are always disabled.
- Undetermined: Power management actions are enabled for physical machines and disabled for virtual machines or containers.

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. A typical Synology NAS with 2 disks uses 15-20W and 0.5W.

**Privacy**

Lights-Out can resolve vendor names based on your device mac addresses. This transmits your mac addresses to an external web service. If you are concerned about sending mac addresses to an external service, do not enable this option.
4.1.9.5 Console Settings

Console settings are used to configure additional console or dashboard options.

- **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.

- **Theme**
  - Selects the UI theme for the Lights-Out Management Console. Not available in Dashboard.

- **Device access via browser**
Enables the use of secure (https) connections to selected devices. This requires that the device name matches the certificate used by the device. Default is off.
4.1.9.6 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.
4.1.9.7 Update Settings

Update settings are used to configure automatic updates.

**Update channel**
Here you select which software version you want to use. For most users the selection "**Stable** (production)" is the right one. These are officially released software versions.

Users, who participates in a beta test or run a beta version, should choose "**Beta**" as the update channel to get a newer test version.

Alpha versions should only be used on a test computer, as problems can be expected here.

**Update mode**
Here you determine how you want to handle software updates in the future.
4.1.9.7.1  (1) Install updates automatically

This setting (recommended) ensures that you are always up-to-date. New software versions are automatically installed if they are covered by your license or maintenance period. For this purpose, a calendar entry is automatically created, which checks by default every Friday at 6 pm for updates and installs them if necessary. This calendar entry can be changed according to your wishes. For more details have a look at automatic updates.

4.1.9.7.2  (2) Offer updates for installation

This setting sends notifications to all client computers and displays update information and a dialog in console or dashboard to execute the installation. For more details have a look at local or remote server update.

4.1.9.7.3  (3) Display only information, do not send notifications

This setting suppresses notification of client computers and displays new software versions only in the console or dashboard. A message dialog is not displayed. The installation can be initiated via the console link or manually.
4.2 Client Software
4.2.1 Using the client software

The Lights-Out client software lives in the notification (tray) area on your computer. The symbol is a light-bulb and is used to display basic state information.

4.2.1.1 Icons for normal operation

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="image" 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 network connection to the server.</td>
</tr>
<tr>
<td><img src="image" alt="Server is running" /></td>
<td>Server is running.</td>
<td>Computer is connected to his server. Server is up and running.</td>
</tr>
<tr>
<td><img src="image" alt="Backup is running" /></td>
<td>Backup is running.</td>
<td>Computer is connected to his server and currently running a backup.</td>
</tr>
</tbody>
</table>

4.2.1.2 Icons in case of error

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Service is not running" /></td>
<td>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="image" 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>

Using the context menu

Right click on the icon to open the context menu. This gives you quick access to actions and configurations.

(1) contains power management actions for the server and wake-up
for other client computers. "Save energy now" must be enabled in the device properties. The server admin can also disable this action globally!

(2) allows you to disable Lights-Out on the server for 1, 2, 4, 8 or 16h.

(3) is all about backup. You can see the selected backup provider. If there are multiple providers, you can select another one. You can start a backup, and optionally execute the standard action. The sub menu is used to run the backup application or manage a backup server. These items depend on the backup provider.

(4) is used to manage the server and the client settings. You can connect to your server via RDP, TeamViewer or web browser.

(5) opens help and about screen.

(6) is used to close the application.

Remarks

Wake-On-Wan requires additional configurations and may not work with your router!

1. Enable a DynDNS domain in your router because the server or NAs can't update your external domain while in standby.

2. Enter this domain in Settings->Server as wake domain.

3. Configure a port forwarding in your router. Forward external port 7 UDP (default, can be changed under Settings->Server) to your internal broadcast address. Unfortunately most SoHo routers do not support broadcast addresses. A forward to the server IP address doesn't work because the router drops the mac address after a few minutes.
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**

<table>
<thead>
<tr>
<th>Task</th>
<th>Forced action possible?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected Computers</td>
<td>yes</td>
</tr>
<tr>
<td>Network devices, Mobile devices</td>
<td>yes</td>
</tr>
<tr>
<td>Backup or disk operation</td>
<td>no</td>
</tr>
<tr>
<td>Remote access</td>
<td>no</td>
</tr>
<tr>
<td>Files, shared folders, processes</td>
<td>yes</td>
</tr>
<tr>
<td>CPU or network load</td>
<td>yes</td>
</tr>
<tr>
<td>Console or RDP session</td>
<td>yes</td>
</tr>
<tr>
<td>Power requests</td>
<td>yes</td>
</tr>
</tbody>
</table>
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 Apples 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 configure 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 since 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>Operating System</th>
<th>Reports result</th>
<th>Reports begin/end</th>
<th>Reports progress</th>
<th>Reports own schedules</th>
<th>Executable by Lights-Out</th>
<th>Additional Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentials or Home Server Computer backup</td>
<td>Windows</td>
<td>yes</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>Windows</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Microsoft Azure Backup</td>
<td>Windows</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Acronis True Image Home (2012 and later)</td>
<td>Windows, macOS</td>
<td>yes (2014 and later)</td>
<td>yes (2014 and later)</td>
<td>no</td>
<td>no</td>
<td>yes, 1 plan required!</td>
<td></td>
</tr>
<tr>
<td>Veeam Agent for Microsoft Windows FREE</td>
<td>Linux</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Cloudberry Backup (WHS, Desktop and Server)</td>
<td>Windows</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>yes, 1 plan required!</td>
<td></td>
</tr>
<tr>
<td>Duplicati 1.x</td>
<td>Windows</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>required!</td>
</tr>
<tr>
<td>Lindenberg Software Backup</td>
<td>Windows</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Carbon Copy Cloner</td>
<td>macOS</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Time Machine</td>
<td>macOS</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td></td>
</tr>
<tr>
<td>UrBackup</td>
<td>Windows, Linux, macOS</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes, incremental file</td>
<td></td>
</tr>
</tbody>
</table>
If you miss your personal favorite of a backup solution, please give feedback in the forums!

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 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):
null
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). If you do not name a job this way, Lights-Out uses the first job found.

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 2016

The selected backup job is named "My Volumes (Lights-Out)"
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
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/
6.8 Synology Active Backup For Business

Synology Active Backup for Business includes different backup modules:

- **PC and Physical Server**, creates an image based backup of pc and servers. Requires a backup agent installed on the pc/server. Can be used for a bare metall restore of the machine.
- **File Server**, creates a file based backup of SMB shares (not considered here).
- **Virtual Machine**, creates backups of virtual machines running on VMWare vSphere (not considered here).

**Backup of PC and Physical Server**

To control backups from Lights-Out (via calendar, task menu or client context menu) requires one additional configuration step.

Please open Active Backup for Business and select PC (or Physical Server). You see a list of connected devices.

Now switch to the "Task List". Change the task name to match the device, like in this screen shot:
Select a task, then click Edit:

The task editor open. Change the task name to match the device name:

Then click OK to save the changes. It may be necessary to open the dialog a second time and click OK to make it work.

Repeat this change for all devices.

6.8.1 Note
You can define additional tasks for your devices. However, only the task with a matching device name can be controlled by Lights-Out. To verify that the changes are working, use the Lights-Out Console to start a backup. If the backup starts, then the changes are working. Otherwise repeat the steps above.
6.9 Synology Hyper Backup

You can create multiple backup tasks in Hyper Backup. As long as you only have one backup task, the name of the task doesn't matter.

If you create multiple tasks, exactly one must have Lights-Out in its name! This is the task which is executed by Lights-Out (via calendar or task menu).

Open Hyper Backup, select the desired task and click Edit in the menu.

Under **Settings**, change the task name to include Lights-Out.
You can also back-up the Lights-Out configuration. Go to **Application** and select Lights-Out.
<table>
<thead>
<tr>
<th>Folders</th>
<th>Application</th>
<th>Settings</th>
<th>Schedule</th>
<th>Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shared folder</td>
<td>Disabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔️</td>
<td>Lights-Out 3.0 Beta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔️</td>
<td>OAuth Service</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2 applications selected; 0 applications unselected.
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

Running the command line client

"C:\Program Files\AxoNet Software GmbH\LightsOut3Client\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></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\LightsOut3Client\LightsOut2.Client.Commandline.exe" -g
```

Copyright (C) 2011 - 2016 AxoNet Software GmbH, Martin Rothschink

Get status of server ...

... Server is active

C:\Program Files\AxoNet Software GmbH\LightsOut2Client>

**Wake Server**

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

**Wake Server**

```
"C:\Program Files\AxoNet Software GmbH\LightsOut3Client\LightsOut2.Client.Commandline.exe" -w
```

Copyright (C) 2011 - 2016 AxoNet Software GmbH, Martin Rothschink

Wake server

C:\Program Files\AxoNet Software GmbH\LightsOut2Client>

**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\LightsOut3Client\LightsOut2.Client.Commandline.exe" -c Reboot
```

Copyright (C) 2011 - 2016 AxoNet Software GmbH, Martin Rothschink

Start count down and reboot

C:\Program Files\AxoNet Software GmbH\LightsOut2Client>
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

Running the cleanup tool

"C:\Program Files\AxoNet Software GmbH\LightsOut3\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 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\LightsOut3>LightsOut2.Server.Cleanup.exe -r -i
Using WindowsPlatform on Sku=Whs2011 Win7OrLater=True WHS/Essentials=False
LightsOut2.Server.Cleanup 2.0.0.3341
Copyright (C) 2011 - 2016 AxoNet Software GmbH, Martin Rothschild
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 7343F47E-52C3-B14F-0D10-42551037FD1D = I7W10
DeviceInfoReader.ReadInternal 94AD19BDFDBFF26CA5282E24208E5E4585D2582 = RM-892_eu_euro2_217
DeviceInfoReader.ReadInternal 9DDD3D02-07B3-475E-992A-C61630D740A6 = iPad3
DeviceInfoReader.ReadInternal FCCF0060-2778-FAE5-56E6-954EAB0C1064 = SURFACE
DeviceInfoReader.ReadInternal S-1-5-21-1867859661-3290493052-3077371074-1010 = DEVVAIL
DeviceInfoReader.ReadInternal S-1-5-21-1867859661-3290493052-3077371074-1048 = MyMacLion
DeviceInfoReader.ReadInternal S-1-5-21-1867859661-3290493052-3077371074-1052 = vwl0pro
DeviceInfoReader.ReadInternal S-1-5-21-1867859661-3290493052-3077371074-1056 = VmVHP
DeviceInfoListReader.CleanupMacs: New mac 00-OC-29-1C-49-E0
DeviceInfoListReader.CleanupMacs: New mac 00-0C-29-4F-8F-7F
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: 94AD19BDFFDFBFF26CA5282E24208E5E4585D2582 RM-892_eu_euro2_217 was modified True
DeviceInfoWriter.WriteInternal 94AD19BDFFDFBFF26CA5282E24208E5E4585D2582 RM-892_eu_euro2_217
WriteAll: 9DDD3D02-07B3-475E-992A-C61630D740A6 iPod3 was modified True
DeviceInfoWriter.WriteInternal 9DDD3D02-07B3-475E-992A-C61630D740A6 iPod3
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 vwl10pro was modified True
DeviceInfoWriter.WriteInternal S-1-5-21-1867859661-3290493052-3077371074-1052 vwl10pro
WriteAll: S-1-5-21-1867859661-3290493052-3077371074-1056 VmVHP was modified True
DeviceInfoWriter.WriteInternal S-1-5-21-1867859661-3290493052-3077371074-1056 VmVHP
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

Running the migration tool

"C:\Program Files\AxoNet Software GmbH\LightsOut3\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 itself is installed on a **NAS**, a **server** or a computer **used as server**.
This includes Synology and QNAP NAS, Microsoft Windows Server and Desktop systems.
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).

**Serverinstallation**

8.1  **Windows**

If this is your **first installation** of Lights-Out, please read the chapter **Server Preparation** and **Windows First Time Installation**.
If you are **migrating** from Lights-Out version 1, please read **Migrating From Version 1**.
If you are **updating** from an existing version 2 be sure to read **Software Updates**

**Windows SSL Certificates**

[SSL Configuration on Windows](#)
[Creating New Certificates](#)
Using Existing Certificates

8.2 Synology NAS

NAS Preparation
Synology NAS Installation

8.3 QNAP NAS

NAS Preparation
QNAP NAS Installation

Client Installation
Start here: Overview
Windows
macOS
Linux

8.4 Advanced Client Deployment on Windows

Creating a pre-configured installation package
Using Direct deploy in Active Directory
8.5 Requirements

**Microsoft Windows**

**Software**

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

**Hardware**

See [server preparation](#).

- 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.

**8.5.1 Standard Server**

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

**8.5.2 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

**8.5.3 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

**Client Computers**

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

**Apple macOS**

The client software is supported on these systems to connect to a Lights-Out server:
Apple Mac OS X 10.10 Yosemite
Apple Mac OS X 10.11 El Capitan
Apple macOS 10.12 Sierra
Apple macOS 10.13 High Sierra
Apple macOS 10.14 Mojave
Apple macOS 10.15 Catalina

**Synology**

**Software**
All installations require Mono 5.8 or later.

**Server**
All current NAS-Systems with Intel or Realtek Cpu are supported. Entry level systems (J-Series) with Marvell Armada Cpu are **not** recommended.
DSM must be on version 6 or later.
Wake-On-Lan must be enabled.

**QNAP**

**Software**
All installations require Mono 5.18 or later.

**Server**
All current NAS-Systems with Intel and ARM Cpu are supported.
QTS must be on version 4.3 or later.
Wake-On-Lan must be enabled

**Linux**

**Software**
All installations require Mono 5.16 or later. Please go to [https://www.mono-project.com/download/stable/#download-lin](https://www.mono-project.com/download/stable/#download-lin) and follow the instructions for your distribution.

**Server**
Lights-Out is not yet available for Linux Servers.

**Client Computer**
The client software is supported on these systems to connect to a Lights-Out server

**8.5.4 Debian based**
Debian 8 - 10
Ubuntu 16.04 - 18.04
Mint 19
Raspbian Stretch and Buster
Elementary OS 5
8.5.5  Red Hat based

RHEL 7-8
Fedora 27 - 31
CentOS 6 - 8

8.5.6  Arch based

Arch 2018.10 and later
Manjaro 18 and later

8.5.7  openSUSE

Leap 15.1
Tumbleweed
8.6 Server/NAS Preparation

For best results, you should observe some required system configurations.

**Windows Server or Desktop OS used as Server**

- Enable Wake-Up and HPET timer in Bios
- Install correct driver for display adapter
- Disable wake on pattern match on your network interface (Non Intel)
- Disable wake on pattern match on your network interface (Intel)
- Enable Hibernation
- Verify power plan settings (allow wake timers)

**Synology Requirements**

8.6.1 Hardware & Power Settings

Open **Main Menu → Control Panel** and then click on **Hardware & Power**. On the **General** tab, verify that "Wake-On-Lan (WOL)" is enabled:

![Control Panel](image)

8.6.2 HDD Hibernation

On the **HDD Hibernation** tab, verify that "Enable auto poweroff" is disabled because this is now controlled by Lights-Out:
QNAP Requirements

Open **Control Panel → Power** and verify that "Wake-On-Lan (WOL)" is enabled:
8.2.3 Enable Wake-Up and HPET timer in Bios

This step is required to properly configure wake-up sources.

Enter your system BIOS and disable wake-up for all devices except LAN. The name varies depending on your Bios.

Typical names are:
- Wake up on Lan
- Power on by PME
- Power on by PCI

Depending on your BIOS you may see screens like these two examples:

Next check, that the high-precision-timers (HPET) are enabled.
8.2.4 Install correct driver for display adapter

Follow these steps to verify the display adapter driver. This is necessary to enable standby (save energy) mode.

Open Control Panel->Device Manager and expand your display adapter. On a server you probably run the “Standard VGA driver”:

This driver does not support “suspended mode” for your system, only hibernation. Try to find a Windows driver matching your display adapter hardware. After installation of the correct driver you should verify that the display adapter does no longer use the standard VGA driver:
8.2.5 Disable wake on pattern match on your network interface (Non Intel)

Follow these steps to verify the correct network card settings. This is necessary to enable wake-up.
Open network adapters in device manager and select network interface properties of your adapter.

Note: These are the standard dialogs. Intel drivers use different dialogs. Please read Network interface settings (Intel).

Select the power management tab and tick all 3 check boxes as shown:

![Power Management Tab](image)

On the advanced tab, disable wake on pattern match, only enable wake on magic packet:
The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right.

Property: IPv4 Checksum Offload
Value: Disabled
Some adapters have additional settings to wake-up from shutdown, these should be enabled:
The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right.

- **Property:** Auto Disable Gigabit (PowerSaving)
  - **Value:** Enabled

- **Property:** Flow Control
- **Property:** Interrupt Moderation
- **Property:** IPv4 Checksum Offload
- **Property:** Jumbo Frame
- **Property:** Large Send Offload (IPv4)
- **Property:** Network Address
- **Property:** Priority & VLAN
- **Property:** Receive Buffers
- **Property:** Shutdown Power-On-Lan
- **Property:** Speed & Duplex
- **Property:** TCP Checksum Offload (IPv4)
- **Property:** Transmit Buffers
- **Property:** UDP Checksum Offload (IPv4)
8.2.6 Disable wake on pattern match on your network interface (Intel)

Follow these steps to verify the correct network card settings when Intel Proset drivers are installed. This is necessary to enable wake-up.

Open network adapters in device manager and select the network interface properties.

Note 1: These are the Intel dialogs. These dialogs may look different on newer drivers versions. For standard dialogs please read Network interface settings (Non Intel).

Open power management tab and verify that Wake on Directed packet is disabled (1):

Scroll down and verify that Wake on Link is disabled (2):
The options on this tab extend the capabilities of the standard Power Management options. Highlighting an option will display help information on that option. **Power Saver Options** determine when and how the adapter reduces power consumption. **Wake on LAN options** allow you to specify which events will wake the computer.

Unless Wake on LAN options are enabled, Intel® adapters...
8.2.7 Enable Hibernation

This step enables hibernation.

Open a command window (cmd.exe) with administrative rights and enable hibernation:

```
powercfg -h on
```
8.2.8 Verify power plan settings (allow wake timers)

This step is necessary to verify the correct power plan settings.
Open Control panel->Power Options.
Click on change plan settings:

Click on “Change advanced power settings”

Verify sleep settings and enable **wake timers** and **hybrid sleep** if available!

With hybrid standby and hibernation  
Without standby, only hibernation
8.7 Migrating From Version 2

Please read this section if you upgrade from an existing version 2.x.

**Server**

Simply install the new Lights-Out 3 package on your server. It takes care of all the necessary steps. Your existing settings will not be removed if you want to return to version 2.

**Windows Client Computer**

Lights-Out 3 Client Software updates automatically within 15 minutes. If that does not happen, restart the computer. Should it still fail to update, download and install the client software manually.

**macOS Client Computer**

Lights-Out 3 Client Software on macOS requires a manual update. Please follow the instructions here. The new macOS client software will automatically remove any version 1 or 2 of the old Lights-Out Agent. After installation, you should remove outdated Login items. Open System Preferences -> Users & Groups and then click on Login Items. Remove any outdated item.

**Linux Client Computer**

Lights-Out 3 Client Software for Linux is new in version 3. Please follow the instructions here.


8.8 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 3 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.

⚠️ If you do not want to migrate old settings, remove Lights-Out 1.x. Open explorer and change folder options to show hidden files and folders. Navigate to `C:\ProgramData` and rename the folder `LightsOut` to `LightsOut.old`.

Settings

Lights-Out 3 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 3 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 3 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.
8.4.1 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 3 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**.
8.4.2 Migrating From Standard Server Or Desktop

Please read the main section about migration first.
Simply install Lights-Out 3 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 3 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.
8.9 Server installation
8.5.1 Synology NAS Installation

Requirements and preparation

Lights-Out requires Mono 5.8 or later on your Synology NAS. Unfortunately, the Mono version from Synology itself is outdated (at the time of writing it’s 4.6).

Mono 5.x is offered from Syno Community at https://synocommunity.com/packages. To install Mono, please follow these steps (from https://synocommunity.com/).

8.5.1.1 Step 1

Log into your NAS as administrator and go to Main Menu → Package Center → Settings and set Trust Level to Synology Inc. and trusted publishers.

8.5.1.2 Step 2

In the Beta tab, enable beta packages if you want to get access to preview build. Otherwise leave it unchanged for stable versions.
8.5.1.3 Step 3

In the Package Sources tab, click Add, type SynoCommunity as Name and http://packages.synocommunity.com/ as Location and then press OK to add this package source.
Repeat this step and add *Green-IT-Software* as **Name** and  *https://nas.green-it-software.com/sspks* as **Location**. The settings should now look like this:
8.5.1.4  Step 4

Go back to the Package Center and navigate to the Community tab. Select the Mono 5.x package and install it.
Synology Requirements

8.5.1.5  Hardware & Power Settings

Open Main Menu → Control Panel and then click on Hardware & Power. On the General tab, verify that "Wake-On-Lan (WOL)" is enabled:
8.5.1.6 HDD Hibernation

On the **HDD Hibernation** tab, verify that "Enable auto poweroff" is disabled because this is now controlled by Lights-Out:
Installation of Lights-Out

Go back to the Package Center and navigate to the Community tab. Select the Lights-Out 3 package and install it.
During installation you will see the message "Installing...".
After installation, click on "Installed". You should see Lights-Out now listed under Installed.

Click on the Lights-Out panel (but not on the "Open" button) and verify that it's running,
Final Test

Click on the button "Open", a new website named http://nas:7782, should open. Replace "nas" with the name of your Synology NAS system, here e.g. ddsml:
Updates

When Lights-Out updates are published, the Package Center displays them. The update can then be installed with one click.
Next steps

To manage and configure Lights-Out, you should first install the Lights-Out Management Console on a Windows machine.

Then install the client software on all your computers.
8.5.2 Windows First Time Installation

Please read this chapter if you perform a first time installation of Lights-Out on a new server system. A server system can either be a Windows Server OS or a desktop machine used as server. Be sure to check the requirements and enable required settings before you start.

Unified installer

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

Run the installer with a double click on the file LightsOutInstaller.x.y.z.xxxx.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 Lights-Out:

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.

⚠️ Do not skip this step; otherwise Lights-Out will not work correctly!
Learn more about certificates in our blog https://www.green-it-software.com/5275/day-2-ssl-certificates-lanwan-access/

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. Read more on client installation.
8.5.3 QNAP NAS Installation

Requirements and preparation

Lights-Out requires Mono 5.18 or later on your QNAP NAS. Unfortunately, the Mono version from QNAP itself is outdated (at the time of writing it’s 5.11).

Up-to-date Mono versions are offered from QNAPClub.eu at https://qnapclub.eu/en/qpkg/193.

⚠ At the time of writing, Mono 5.20.1.19 is the latest version offered at QNAPClub.eu but can't be used because of a defect with private keys in certificates. Either downgrade to 5.18 (see below) or wait for a release 5.20.1.34 or 6.x.x.

Do not install the latest QMono from QNAPClub repository until this issue is resolved!

8.5.3.1 Step 1

Go to https://qnapclub.eu/en/qpkg/193 and click on old versions:

Expand version 5.18.0.240 (click on the hamburger menu on the right side).
Download the package required for your NAS. TS-NASX86_64 can be used for all Intel based systems, TS-X41 for 32 bit ARM systems and TS-X28A for 64 bit ARM systems. See here for a list of models
https://docs.google.com/spreadsheets/d/1tHotKM3QM56v5V6QjWzMDjWzZmlo-n90AgHc5tWy1AAUw/htmlview#gid=0

8.5.3.2 Step 2

Log into your NAS as administrator and open App Center. Click on (1) "Install Manually" to open the installation menu, then click on (2) Browse... to locate the downloaded mono package and finally click (3) to install.

Confirm that you want to install the package. Starting with QTS 4.4 you will see a "Digital signature warning". Again confirm and install.
8.5.3.3 Step 3

Go back to App Center and verify that Mono 5.18 is installed.

QNAP Requirements

Open Control Panel → Power and verify that "Wake-On-Lan (WOL)" is enabled:
Installation of Lights-Out

8.5.3.4 Step 1: Add repository

Log into your NAS as administrator and open App Center. Click on (1) to open the Settings. Verify that you allow installation of non-QNAP apps.
Starting with QTS 4.4 the General tab contains a different item. Be sure to allow installation of applications without a valid digital signature.
Click on **App-Repository** (1) and then click **Add** (2).

Enter *Green-IT-Software* as **Name** and *https://nas.green-it-software.com/qnap/repo-en.xml* as **URL** (3). Then click **Add** and **Close**.
8.5.3.5 Step 2: Installation

Now click on "Green-IT-Software" (1) on the left, select All Apps (2) and install Lights-Out (3).
Confirm the warning and agree to install Lights-Out. App Center is now downloading and installing Lights-Out.
8.5.3.6  **Step 3: Final Test**

Click Open and the Lights-Out Content page should appear. Now everything is working.
Updates

When Lights-Out updates are published, App Center displays them. The update can then be installed with one click.
**Next steps**

To manage and configure Lights-Out, you should first install the Lights-Out Management Console on a Windows machine.

Then install the client software on all your computers.
8.5.4 SSL Configuration on Windows

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; or &quot;SERVER.local&quot; on a Mac</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 start menu.

The wizard will start and show the initial dialog:
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 from the command line!

Remove SSL bindings and certificates

"C:\Program Files\AxoNet Software GmbH\LightsOut3\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 from the command line!

Update SSL certificates

"C:\Program Files\AxoNet Software GmbH\LightsOut3\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.
8.5.4.1 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.

8.5.4.1.1 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:
8.5.4.2 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**.

8.5.4.2.1 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:
8.10 Client Installation (Overview)

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

Lights-Out supports 3 different methods for client installation:

1. Downloading from internal website with manual installation (supported for all operating systems)
2. Creating a pre-configured installation package for user installation (Windows only)
3. Using Direct deploy in Active Directory (Windows only)

We will look at each option and explain the advantages/disadvantages of each.

**Downloading from internal website with manual installation (All OS)**

The user on a client computer must download the software from the internal web page and then interactively install the software. At the end of the installation, the client computer is connected to the server. This requires knowledge of server credentials.

**Lights-Out Client for Windows Computers**

**Lights-Out Client For Mac Computers**

**Lights-Out Client for Linux Computers**

**Creating a pre-configured installation package for user installation (Windows only)**

The administrator creates a pre-configured installation package on the server that remains valid for 7 days, during which time a client computer can connect to the server without further requests. This installation package can be installed and distributed interactively or via command line option / s (silent) without user interface. Server credentials are not required.

**Creating a pre-configured installation package**

**Using Direct deploy in Active Directory (Windows only)**

This method requires that client computers are connected to an Active Directory. This is true for example, for Windows Server Essentials, if the client computers are running a Professional Edition of Windows. Direct Deploy allows to install multiple client computers without further action on the client machine.

**Using Direct deploy in Active Directory**

### Comparison of the 3 methods

The following table compares the advantages and disadvantages of the 3 methods of client installation.

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Download</th>
<th>Pre-configured package</th>
<th>Direct Deploy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>none</td>
<td>Package must be created in advance</td>
<td>Client computers must be members of an Active Directory</td>
</tr>
<tr>
<td>Distribution</td>
<td>Via internal web server and download by user</td>
<td>Not specified, share, e-mail, USB stick or software distribution etc. are possible</td>
<td>Directly</td>
</tr>
<tr>
<td>Installation</td>
<td>Manually by server admin</td>
<td>Manually by end user</td>
<td>By server admin</td>
</tr>
<tr>
<td>User group</td>
<td>Server admin</td>
<td>Local PC user</td>
<td>Server admin</td>
</tr>
<tr>
<td>Automation</td>
<td>Not possible</td>
<td>Possible</td>
<td>Automatically</td>
</tr>
<tr>
<td>Silent installation</td>
<td>Not possible, server join requires manual input</td>
<td>Possible</td>
<td>Automatically</td>
</tr>
<tr>
<td>Uninstallation</td>
<td>Manually</td>
<td>Manually</td>
<td>Automatically</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td>Simple distribution</td>
<td>Easy local installation by end users</td>
<td>Direct distribution to many computers in one</td>
</tr>
<tr>
<td>Disadvantages</td>
<td>Server credentials are needed during installation, time consuming</td>
<td>Installation package must be created and distributed once and is then valid for 7 days</td>
<td>step Computers must be up and running</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Use case</td>
<td>Home users</td>
<td>Home and corporate users</td>
<td>Corporate users</td>
</tr>
</tbody>
</table>
8.6.1 Lights-Out Client for Windows Computers

On each client open your browser of choice and navigate to http://server:7782. 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. Then click on Windows to download the installer.

Run the installer with a double click on the file LightsOut3.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 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 Creating a pre-configured installation package

Lights-Out allows you to create a pre-configured installation package on the server that remains valid for 7 days, during which time a client computer can connect to the server without further requests. This installation package can be installed and distributed interactively or via command line option /s (silent) without user interface.

**Step 1 - Create an installation package**

As an administrator, open "Lights-Out 3 Create Client Package" on the server. This can be found in start menu -> Lights-Out 3 for Windows -> "Lights-Out 3 Create Client Package".

This command executes LightsOut3.Client.JoinServer on the server. If necessary, complete the external URL and port and then click on Export.
Select an output directory, ideally on an accessible share, and then click OK.
The installation package is now created and then saved in the selected location.

Step 2 - Distribute package

The created installation package can be distributed to the clients in the usual ways: by a share, by email, by USB stick or automatically via software distribution systems.

Step 3 - Run installation package in interactive mode

The client computer user can run the installation package directly. The installation package is not code signed because it was created directly on the server, the warning can be ignored.

⚠️ **Attention**: The server must be accessible during installation; otherwise automatic connection will fail!
The package displays the validity and the destination server.

Clicking on Install is then executing a standard, interactive client installation, but there is no "connection to the server" phase because this information is included in the package!

**Step 4 - Silent execution of the installation package (optional)**

If you use a software deployment system, you can run the package in silent mode. Again, the server must be accessible during installation; otherwise automatic connection will fail!

**Run the package with parameter /s**

```
"\path to installer\LightsOut2.Installer.ClientPackage.<servername>.exe" /s
```
8.6.3 Using Direct deploy in Active Directory

Direct Deploy allows you to install the client software across an entire Active Directory network.

Requirements

1. Client computers are connected to an Active Directory. This is true for example, for Windows Server Essentials, if the client computers are running a Professional Edition of Windows.

2. Windows Firewall must allow remote administration. This can be done via Group Policy
   - Default Domain Policy | Computer Configuration | Policies | Administrative Templates | Network | Network Connections | Windows Firewall | Domain Profile
   - Enable setting
     Windows Firewall: Allow inbound remote administration exception

3. Client computers must be up and running.

Using Direct Deploy

As a domain administrator, start Direct Deploy on the server start menu -> Lights-Out 3 for Windows -> "Lights-Out Client Direct Deploy".

Choose your language and then enter administrative credentials. If necessary, check the default values and add the url/port for external access.
Click Next, Direct Deploy is now scanning all online machines in your Active Directory. Depending on the number of computers, this process may take some time.
The detected computers are then listed with their installation status:

**Installed on:**

- Stor2016W.ess2016.internal
- Vvwin7en.ess2016.internal
- Vw10pro2016.ess2016.internal

**Not found on:**

- Stor2016W.ess2016.internal
- Vvwin7en.ess2016.internal
- Vw10pro2016.ess2016.internal

**Buttons:**

- Reinstall
- Uninstall
- Install
- Query
- Close
The example found 3 active computers without Lights-Out client software. Select the computers where you want to distribute the client software from the list (1) and then click Install (2).

In this example, the installation is done on vwin7en and vw10pro2016:

The installation is done one after the other and can therefore take some time.
At the end, a scan is performed again and the new state is displayed.

### Lights-Out 2 Client Direct Deploy

#### Updating network...

```
c:\progra~1\axonet~1\lights~1\install~1\lights~1.exe -> \vw\win7en.ess2016.internal\admin\LO2ClientDirectDeploy\c:\progra~1\axonet~1\lights~1\install~1\lights~1.exe
```

This might take a few minutes.
You may need to logon, or run this setup as, a domain administrator.

### Lights-Out 2 Client Direct Deploy

#### Installed on:

```
\vw\win7en.ess2016.internal (Version 2.5.0.3757)
```

#### Not found on:

```
\Stor2016W.ess2016.internal
\vw10pro2016.ess2016.internal
```

1. **Reinstall**
2. **Uninstall**
3. **Install**
Now the options on the left are also available. By selecting from the left list, the client software can be reinstalled (1) or removed (2). Remaining computers can be installed (3).

**Note 1:** Run the query again if the display does not meet your expectations.

**Note 2:** A software update via Direct Deploy is usually not necessary as it happens automatically.

You can repeat the above steps at any time to install additional machines.
8.6.4 Lights-Out Client For Mac Computers

Preparation
Verify, that name resolution for the server works. Open Terminal.app and enter

```bash
ping yourserver
```

Replace yourserver with the real name of your server or nas!

If that returns unknown host, then try again with .local

```bash
ping yourserver.local
```

If that also returns unknown host, then you have a network issue and Lights-Out will not work.

As a workaround you can add an entry to /etc/hosts. Enter

```bash
sudo nano /etc/hosts
```

Append your server IP-Address and real server name, the file should then look similar to this example:

```bash
##
# Host Database
#
# localhost is used to configure the loopback interface
# when the system is booting. Do not change this entry.
##
127.0.0.1     localhost
::1            localhost
192.168.178.2  yourserver
```

First time installation

On each client open Safari and navigate to http://yourserver:7782. Replace yourserver with the real name of your server where you installed Lights-Out.

If you can't open this web site, try with http://yourserver.local:7782 instead!

The browser will open the Lights-Out main page.

![Lights-Out Main Page](image)

Click on "Download installers" to open the download page. Then click on the blue Mac button to download the installer.
Run the downloaded pkg file and click Continue.

At the end of your installation, you have to connect the macOS client computer with your 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 external DNS name.

If you plan to use the computer outside of your local network, also enter the external DNS name. Then click Connect and enter administrator credentials for the server.
name of your server.

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

Click on the bulb to open the context menu.

Post installation

If you do not run macOS Mojave and later, you can skip this step.

Apple introduced enhanced security features in macOS Mojave and later. You have to add the Lights-Out client service to the list of apps, which are allowed to access the system to make Lights-Out work properly with TimeMachine and other backup applications.

Open System Preferences and click on "Security & Privacy": Under Privacy, unlock to make changes, then select "Full Disk Access" and click "+":
Navigate to Applications->Lights-Out-Client and select LightsOut.Client.Service.app:

Verify that LightsOut.Client.Service.app is now listed with full disk access:
8.6.5 Lights-Out Client for Linux Computers

**Download Lights-Out Client installation package**

On each client open your web browser and navigate to [http://server:7782](http://server:7782). 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. Then click on the correct Linux package for your distribution and download the installer.
Installation

Now continue with the instructions for your distribution:

Debian, Ubuntu, Mint, Raspian, MX Linux, Elementary
RHEL, Fedora, CentOS
openSUSE Leap or Tumbleweed Arch, Manjaro
8.6.5.1 Lights Out Client for Debian based distributions

Preparation 1, install Mono

Lights-Out requires the Mono runtime version 5.14 or later on Linux computers. Unfortunately almost all distribution repositories offer only the outdated version 4.x of Mono. To install version 5 you have to open your web browser and navigate to https://www.mono-project.com/download/stable/. Follow the instructions to add the correct package repository to your distribution.

On Debian 9, for example, the requires steps are:

```bash
sudo apt install apt-transport-https dirmngr
sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --recv-keys 3FA7E0328081BFF6A14DA29AA6A19B38D3D831EF
echo "deb https://download.mono-project.com/repo/debian stable-stretch main" | sudo tee /etc/apt/sources.list.d/mono-official-stable.list
sudo apt update
```

**Tip:** Open a terminal and enter `sudo -i` (or `su` in Debian) to run a login shell session. Then copy and paste the commands from the mono-project.com web site. After installing mono, press CTRL+D to end the session.

**Tip 2:** On Debian, sudo is typically missing, so enter su first, then paste the commands into Text Editor, remove all sudo commands (don’t forget the one before tee) and then paste all lines into the command line.

After adding the required repository, install the package `mono-complete`. This may take a while, so please be patient.

```bash
$ sudo apt install mono-complete
```

To verify the installation enter
You should see an output similar to this one (be sure to see version 5.x, not 4.6.2!)

$ mono --version

mrk@debian-9-6:~$ mono --version
Mono JIT compiler version 5.16.0.179 (tarball Thu Oct  4 10:24:32 UTC 2018)
Copyright (C) 2002-2014 Novell, Inc, Xamarin Inc and Contributors. www.mono-project.com
  TLS: __thread
  SIGSEGV: altstack
  Notifications: epoll
  Architecture: amd64
  Disabled: none
  Misc: softdebug
  Interpreter: yes
  LLVM: yes(3.6.0svn-mono-/
  GC: agen (concurrent by default)

mrk@debian-9-6:~$

Preparation 2, Gnome desktop requires KStatusNotifierItem extension

If you run with Gnome desktop, then install the Gnome extension KStatusNotifierItem. Otherwise, the Lights-Out icon is not visible!

If you run Ubuntu or any other desktop like KDE, skip this step.

Supported distributions

This installation package has been tested on:

Debian 8 - 9
Ubuntu 16.04 - 18.04
Mint 19
Raspian Stretch

Other debian based distributions may work also but have not been tested!

First time installation

Download the file lights-out-client.deb. Then open a terminal and enter

$ sudo apt install ./Downloads/lights-out-client.deb

Example session on Debian 9:

root@debian-9-6:/home/mrk# apt install ./Downloads/lights-out-client.deb
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'lights-out-client' instead of './Downloads/lights-out-client.deb'
The following additional packages will be installed:
  at libappindicator3-1 xprintidle
The following NEW packages will be installed:
  at libappindicator3-1 lights-out-client xprintidle
0 upgraded, 4 newly installed, 0 to remove and 0 not upgraded.
Need to get 7,106 B/107 kB of archives.
After this operation, 16.8 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 cdrom://[Debian GNU/Linux 9.6.0 _Stretch_ - Official amd64 DVD Binary-1
20181110-11:34] stretch/main amd64 at amd64 3.1.20-3 [47.5 kB]
Get:2 cdrom://[Debian GNU/Linux 9.6.0 _Stretch_ - Official amd64 DVD Binary-1
20181110-11:34] stretch/main amd64 libappindicator3-1 amd64 0.4.92-4 [52.6 kB]
Get:3 /home/mrk/Downloads/lights-out-client.deb lights-out-client all 3.0.0.4125 [3,416 kB]
Get:4 http://ftp-stud.hs-esslingen.de/debian stretch/main amd64 xprintidle amd64 0.2-10+b1 [7,106 B]
Fetched 7,106 B in 0s (122 kB/s)
Selecting previously unselected package at.
(Reading database ... 132534 files and directories currently installed.)
Preparing to unpack .../a/at/at_3.1.20-3_amd64.deb ...
Unpacking at (3.1.20-3) ...
Selecting previously unselected package libappindicator3-1:amd64.
Preparing to unpack .../libappindicator3-1_0.4.92-4_amd64.deb ...
Unpacking libappindicator3-1:amd64 (0.4.92-4) ...
Selecting previously unselected package xprintidle.
Preparing to unpack .../xprintidle_0.2-10+b1_amd64.deb ...
Unpacking xprintidle (0.2-10+b1) ...
Selecting previously unselected package lights-out-client.
Preparing to unpack .../lights-out-client.deb ...
Unpacking lights-out-client (3.0.0.4125) ...
Processing triggers for mime-support (3.60) ...
Processing triggers for desktop-file-utils (0.23-1) ...
Setting up xprintidle (0.2-10+b1) ...
Setting up at (3.1.20-3) ...
Processing triggers for libc-bin (2.24-11+deb9u3) ...
Processing triggers for systemd (232-25+deb9u6) ...
Processing triggers for man-db (2.7.6.1-2) ...
Processing triggers for gnome-menus (3.13.3-9) ...
Setting up libappindicator3-1:amd64 (0.4.92-4) ...
Setting up lights-out-client (3.0.0.4125) ...
Processing triggers for libc-bin (2.24-11+deb9u3) ...
root@debian-9-6:/home/mrk#

Required dependencies are automatically installed. Again, omit sudo on Debian and run su first.

**First time configuration**

To connect the client to your server, enter

$ sudo LightsOut.Client.JoinServer

Or open the start menu and locate the Lights-Out JoinServer software:

![Lights-Out JoinServer software]

The client connect software displays a single dialog and should detected the server(s) in your network (1) automatically. If automatic detection fails, you can try to enter the server name (2) manually. Optionally enter the external name of your server if you want to have access from outside (3), then click on **Connect** (4):
Enter your server credentials (!) and click **OK**:

You are now connected to your server, click **Cancel** to exit.
Finally start the client user interface. Again you can run the program from command line with

```
$ LightsOut.Client.UI
```

Or open the start menu and locate the Lights-Out Client UI software.

💡 The client user interface is automatically started after your next login.

Sample screen shots

8.6.5.1.1 Ubuntu

8.6.5.1.2 Mint
8.6.5.1.3  Raspberry Pi with Raspian Stretch
8.6.5.2 Lights Out Client for Fedora/CentOS based distributions

Preparation 1, install Mono

Lights-Out requires the Mono runtime version 5.14 or later on Linux computers. Unfortunately almost all distribution repositories offer the outdated version 4.x of mono. To install version 5, you have to open your web browser and navigate to https://www.mono-project.com/download/stable/. Follow the instructions to add the correct package repository to your distribution.

On CentOS 7, for example, the required steps are:

```
rpm --import https://keyserver.ubuntu.com/pks/lookup?op=get&search=0x3FA7E0328081BFF6A1D4DA29AA6A9BB38D3D831EF
su -c 'curl https://download.mono-project.com/repo/centos7-stable.repo | tee /etc/yum.repos.d/mono-centos7-stable.repo'
```

Tip: Open a terminal and enter sudo -i to run a login shell session. Then copy and paste the commands from the mono-project.com web site. After installing mono, press CTRL+D to end the session.

After adding the required repository, install the package mono-complete.

```
$ sudo yum install mono-complete
```

To verify the installation enter

```
$ mono --version
```

You should see an output similar to this one (be sure to see version 5.x, not 4.6.2!)

```
[mr@centos-75 ~]$ mono --version
Mono JIT compiler version 5.16.0.187 (tarball Mon Oct  8 08:52:21 UTC 2018)  
Copyright (C) 2002-2014 Novell, Inc, Xamarin Inc and Contributors. www.mono-project.com  
TLS:           __thread  
SIGSEGV:       altstack  
Notifications: epoll  
Architecture:  amd64  
Disabled:      none  
Misc:          softdebug  
Interpreter:   yes  
LLVM:          yes (3.6.0svn-mono-/)  
GC:            sgen (concurrent by default)
[mr@centos-75 ~]$  
```

Preparation 2, Gnome desktop requires KStatusNotifierItem extension

If you run with Gnome desktop, then install the Gnome extension KStatusNotifierItem. Otherwise, the Lights-Out icon is not visible!

If you run any other desktop like KDE, skip this step.

Supported distributions

This installation package has been tested on:

- CentOS 6 - 8
- Fedora 28 - 31

Other Fedora/CentOS based distributions may work but have not been tested!

First time installation

Download the file lights-out-client.rpm. Then open a terminal and enter

```
$ sudo yum install /Downloads/lights-out-client.rpm
```
Example session on CentOS 7:

```bash
[mrk@centos-75 ~]$ sudo yum install ./Downloads/lights-out-client.rpm
```

Loading plugins: fastestmirror, langpacks
Examining ./Downloads/lights-out-client.rpm: lights-out-client-3.0.0.4125-Alpha.noarch
Marking ./Downloads/lights-out-client.rpm to be installed
Resolving Dependencies
-- Running transaction check
--- Package lights-out-client.noarch 0:3.0.0.4125-Alpha will be installed
-- Processing Dependency: libappindicator-gtk3 for package: lights-out-client-3.0.0.4125-Alpha.noarch
Loading mirror speeds from cached hostfile
* base: ftp.rz.uni-frankfurt.de
* updates: centos.schlundtech.de
--- Running transaction check
--- Package libappindicator-gtk3.x86_64 0:12.10.0-13.el7 will be installed
--- Processing Dependency: libappindicator.so.7()(64bit) for package: libappindicator-gtk3-12.10.0-13.el7.x86_64
--- Processing Dependency: libdbusmenu-gtk3.so.4()(64bit) for package: libappindicator-gtk3-12.10.0-13.el7.x86_64
--- Processing Dependency: libdbusmenu-glib.so.4()(64bit) for package: libappindicator-gtk3-12.10.0-13.el7.x86_64
--- Running transaction check
--- Package libdbusmenu-16.04.0-4.e17 will be installed
--- Package libdbusmenu-gtk3-16.04.0-4.e17 will be installed
--- Package libindicator-gtk3-12.10.1-6.e17 will be installed
--- Finished Dependency Resolution

```

<table>
<thead>
<tr>
<th>Package</th>
<th>Arch</th>
<th>Version</th>
<th>Repository</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>lights-out-client noarch</td>
<td></td>
<td>3.0.0.4125-Alpha</td>
<td>/lights-out-client</td>
<td>15 M</td>
</tr>
<tr>
<td>for dependencies:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>libappindicator-gtk3 x86_64</td>
<td></td>
<td>12.10.0-13.el7</td>
<td>base</td>
<td>37 k</td>
</tr>
<tr>
<td>k</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>libdbusmenu x86_64</td>
<td></td>
<td>16.04.0-4.e17</td>
<td>base</td>
<td>132 k</td>
</tr>
<tr>
<td>k</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>libdbusmenu-gtk3 x86_64</td>
<td></td>
<td>16.04.0-4.e17</td>
<td>base</td>
<td>34 k</td>
</tr>
<tr>
<td>k</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>libindicator-gtk3 x86_64</td>
<td></td>
<td>12.10.1-6.e17</td>
<td>base</td>
<td>63 k</td>
</tr>
<tr>
<td>k</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Transaction Summary

Installing: 1 Package (+4 Dependent packages)
Total size: 15 M
Total download size: 266 k
Installed size: 16 M
Is this ok [y/d/N]: y

```

(1/4): libappindicator-gtk3-12.10.0-13.el7.x86_64.rpm  | 37 kB  00:00:00
(2/4): libdbusmenu-gtk3-16.04.0-4.e17.x86_64.rpm       | 34 kB  00:00:00
(3/4): libdbusmenu-16.04.0-4.e17.x86_64.rpm            | 132 kB 00:00:00
(4/4): libindicator-gtk3-12.10.1-6.e17.x86_64.rpm      | 63 kB  00:00:00

-- Total
626 kB/s | 266 kB  00:00:00
```

Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  - Installing: libdbusmenu-16.04.0-4.e17.x86_64
  1/5
  - Installing: libdbusmenu-gtk3-16.04.0-4.e17.x86_64
  2/5
  - Installing: libindicator-gtk3-12.10.1-6.e17.x86_64
  3/5
  - Installing: libappindicator-gtk3-12.10.0-13.el7.x86_64
  4/5
  - Installing: lights-out-client-3.0.0.4125-Alpha.noarch
  5/5
  - Verifying: lights-out-client-3.0.0.4125-Alpha.noarch
  1/5
  - Verifying: libdbusmenu-16.04.0-4.e17.x86_64
  2/5
  - Verifying: libdbusmenu-gtk3-16.04.0-4.e17.x86_64
  3/5
  - Verifying: libappindicator-gtk3-12.10.0-13.el7.x86_64
  4/5
  - Verifying: libindicator-gtk3-12.10.1-6.e17.x86_64
  5/5
Installed:
lights-out-client.noarch 0:3.0.0.4125-Alpha
Dependency Installed:
  libappindicator-gtk3.x86_64 0:12.10.0-13.el7
  libdbusmenu.x86_64 0:16.04.0-4.el7
  libdbusmenu-gtk3.x86_64 0:16.04.0-4.el7
  libindicator-gtk3.x86_64 0:12.10.1-6.el7

Complete!

[mrk@centos-75 ~]$ Required dependencies are automatically installed.

Post installation steps

Enable and start the daemons:

$ sudo systemctl enable lights-out-client.service atd.service
$ sudo systemctl start lights-out-client.service atd.service

First time configuration

To connect the client to your server, enter

$ sudo LightsOut.Client.JoinServer

Or open the start menu and locate the Lights-Out JoinServer software:

The client connect software displays a single dialog and should detected the server(s) in your network (1) automatically. If automatic detection fails, you can try to enter the server name (2) manually. Optionally enter the external name of your server if you want to have access from outside (3), then click on Connect (4):

Enter your server credentials (1) and click OK:
You are now connected to your server, click **Cancel** to exit.

**Notification icon (tray icon)**

Finally start the client user interface. Again you can run the program from command line with

```
$ LightsOut.Client.UI
```

Or open the start menu and locate the Lights-Out Client UI software.

⚠️ The client user interface is automatically started after your next login.
8.6.5.3 Lights Out Client for openSUSE distributions

Preparation 1, install Mono

Lights-Out requires the Mono runtime version 5.10 or later on Linux computers. At the time of writing, Leap 15.1 offers Mono 5.10 and Tumbleweed offer Mono 5.20. Both can be used with Lights-Out.

Install the package mono-complete.

```bash
mrk@leap-15-1:~> sudo zypper install mono-complete
```

To verify the installation enter

```bash
mrk@leap-15-1:~> mono --version
```

You should see an output similar to this one (be sure to see version 5.x)

```bash
mrk@leap-15-1:~>$ mono --version
Mono JIT compiler version 5.10.1.47 (tarball Fri May  3 22:01:33 UTC 2019)
Copyright (C) 2002-2014 Novell, Inc, Xamarin Inc and Contributors. www.mono-project.com
TLS:           __thread
SIGSEGV:       altstack
Notifications: epoll
Architecture:  amd64
Disabled:      none
Misc:          softdebug
Interpreter:   yes
LLVM:          yes(3.6.0svn-mono-/
GC:            sgen (concurrent by default)
```

Preparation 2, Gnome desktop requires KStatusNotifierItem extension

If you run with Gnome desktop, then install the Gnome extension KStatusNotifierItem. Otherwise, the Lights-Out icon is not visible!

If you run any other desktop like KDE, skip this step.

Supported distributions

This installation package has been tested on:

- **Leap 15.1**
- Tumbleweed

First time installation

Download the file `lights-out-client.suse.rpm`. Then open a terminal and enter

```bash
mrk@leap-15-1:~>sudo zypper --non-interactive --no-gpg-checks install ./Downloads/lights-out-client.suse.rpm
```

Example session on Leap 15.1:

```bash
mrk@leap-15-1:~> sudo zypper --non-interactive --no-gpg-checks install ./Downloads/lights-out-client.suse.rpm
[sudo] password for root:
Loading repository data... done.
Reading installed packages... done.
Resolving package dependencies... done.
The following NEW package is going to be installed:
lights-out-client
1 new package to install.
Overall download size: 3.2 MiB. Already cached: 0 B. After the operation, additional 13.1 MiB will be used.
```

Continue? [y/n/v/...? shows all options] (y): y

Retrieving package lights-out-client-3.5.0.4609-Beta.noarch

```
1/1), 3.2 MiB (13.1 MiB unpacked)
lights-out-client.suse.rpm:
Package is not signed!
lights-out-client-3.5.0.4609-Beta.noarch (Plain RPM files cache): Signature verification failed [6-File is unsigned]
Accepting package despite the error. (--no-gpg-checks)
```

Checking for file conflicts:
```
........................................................................................................[done]
```

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Installing: lights-out-client-3.5.0.4609-Beta.noarch
....................................................[done]

Required dependencies are automatically installed.

**Post installation steps**

Enable and start the daemons:

```bash
$ sudo systemctl enable lights-out-client.service atd.service
$ sudo systemctl start lights-out-client.service atd.service
```

**First time configuration**

To connect the client to your server, enter:

```bash
$ sudo LightsOut.Client.JoinServer
```

Or open the start menu and locate the Lights-Out JoinServer software:

The client connect software displays a single dialog and should detected the server(s) in your network (1) automatically. If automatic detection fails, you can try to enter the server name (2) manually. Optionally enter the external name of your server if you want to have access from outside (3), then click on **Connect** (4):
Enter your server credentials (!) and click **OK**:

You are now connected to your server, click **Cancel** to exit.

**Notification icon (tray icon)**

Finally start the client user interface. Again you can run the program from command line with

```
$ LightsOut.Client.UI
```

Or open the start menu and locate the Lights-Out Client UI software.
💡 The client user interface is automatically started after your next login.
8.6.5.4 Lights Out Client for Arch based distributions

Preparation, install Mono

Lights-Out requires the Mono runtime version 5.14 or later on Linux computers. Arch and Manjaro provide an actual mono package in the extra repository.

To install mono, either use the command line or one of the graphical packet managers like Pamac or Octopi.

On the command line enter

$ sudo pacman -S mono

If you prefer one of the UIs, search for mono, select and install it:

To verify the installation, open a terminal and enter

$ mono --version

You should see an output similar to this one (be sure to see version 5.x, not 4.6.2!)

$ mono --version
Mono JIT compiler version 5.16.0 (makepkg/6e48ad47b1 Mon Oct 15 22:56:48 CEST 2018)
Copyright (C) 2002-2014 Novell, Inc, Xamarin Inc and Contributors. www.mono-project.com
TLS:           __thread
SIGSEGV:       altstack
Notifications: epoll
Architecture:  amd64
Disabled:      none
Misc:          softdebug
Interpreter:   yes
LLVM:          supported, not enabled.
GC:            sgen (concurrent by default)
[mrk@manjaro-18-kde ~]$}

Supported distributions

This installation package has been tested on:
Arch 2018.10 and later
Manjaro 17 - 18

Other Arch based distributions may work but have not been tested!

First time installation

Download the file lights-out-client.pkg.tar.xz. Then open a terminal and enter

$ sudo pacman -U ./Downloads/lights-out-client.pkg.tar.xz

Example session on Manjaro 18:

[mrk@manjaro-18-kde ~]$: sudo pacman -U ./Downloads/lights-out-client.pkg.tar.xz
loading packages...
resolving dependencies...
looking for conflicting packages...
Packages (7) at-3.1.23-1 libappindicator-gtk3-12.10.0-12 libdbusmenu-glib-16.04.0-2
libdbusmenu-gtk3-16.04.0-2 libindicator-gtk3-12.10.1-7 xprintidle-0.2.2-1
lights-out-client-3.10.0-4125

Total Download Size:    0,19 MiB
Total Installed Size:  16,12 MiB
:: Proceed with installation? [Y/n] Y
:: Retrieving packages...
at-3.1.23-1-x86_64                      37,0 KiB   529K/s 00:00 [####################################]
100%
libdbusmenu-glib-16.04.0-2-x86_64       62,5 KiB   947K/s 00:00 [####################################]
100%
libdbusmenu-gtk3-16.04.0-2-x86_64       35,2 KiB   4,91M/s 00:00 [####################################]
100%
libindicator-gtk3-12.10.1-7-x86_64      26,9 KiB   8,76M/s 00:00 [####################################]
100%
libappindicator-gtk3-12.10.0-12-x...    29,0 KiB   7,07M/s 00:00 [####################################]
100%
xprintidle-0.2.2-1-x86_64                5,0 KiB    0,00B/s 00:00 [####################################]
100%
(7/7) checking keys in keyring             [####################################]
100%
(6/7) checking package integrity        [####################################]
100%
(6/7) loading package files         [####################################]
100%
(7/7) checking for file conflicts     [####################################]
100%
(7/7) checking available disk space   [####################################]
100%
:: Processing package changes...
(1/7) installing at                    [####################################]
100%
(2/7) installing libdbusmenu-glib     [####################################]
100%
(3/7) installing libdbusmenu-gtk3     [####################################]
100%
(4/7) installing libindicator-gtk3     [####################################]
100%
(5/7) installing libappindicator-gtk3   [####################################]
100%
(6/7) installing xprintidle           [####################################]
100%
(7/7) installing lights-out-client     [####################################]
100%
:: Running post-transaction hooks...
(1/3) Reloading system manager configuration...
(2/3) Arming ConditionNeedsUpdate...
(3/3) Updating the desktop file MIME type cache...

Required dependencies are automatically installed.

**Post installation steps**

Enable and start the daemons:

$ sudo systemctl enable lights-out-client.service atd.service

$ sudo systemctl start lights-out-client.service atd.service

**First time configuration**

To connect the client to your server, enter

$ sudo LightsOut.Client.JoinServer

Or open the start menu and locate the Lights-Out JoinServer software:
The client connect software displays a single dialog and should detected the server(s) in your network (1) automatically. If automatic detection fails, you can try to enter the server name (2) manually. Optionally enter the external name of your server if you want to have access from outside (3), then click on Connect (4):

Enter your server credentials (1) and click OK:
You are now connected to your server, click **Cancel** to exit.

Notification icon (tray icon)

Finally start the client user interface. Again you can run the program from command line with

$ LightsOut.Client.UI.sh

Or open the start menu and locate the Lights-Out Client UI software.

⚠️ Note: The client user interface is automatically started after your next login.
8.6.5.5 Installing Gnome Extension KStatusNotifierItem

Gnome developers decided to ban all notification icons from the desktop. This affects the Lights-Out Client icon. To get the icon back, install a Gnome Extension called KStatusNotifierItem/AppIndicator Support.

8.6.5.5.1 Step 1 - Open Software

Click on Add-ons:

8.6.5.5.2 Step 2 - Install add on

Locate the add-on KStatusNotifierItem and click on it. Or enter KStatusNotifierItem in the main search bar.
Click on install

After install, launch it and verify that it's enabled:
8.6.5.5.3 Step 3 - Logout and login

It may be necessary to logout now and then login again. You should now see the Lights-Out icon!
8.11 Lights-Out Console

You can install and run the console on any Windows computer to manage Lights-Out on any server in your network.

Open your browser of choice and navigate to http://server:7782. 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. Then click on Console, to download the console installer. Run the installer.

After installation, the console opens. Now proceed with the first login.
8.7.1 Lights-Out Console

You can install and run the console on any Windows computer to manage Lights-Out on any server in your network. Open your browser of choice and navigate to http://server:7782. 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. Then click on Console, to download the console installer. Run the installer.

After installation, the console opens. Now proceed with the first login.
8.12 Lights-Out Mobile

That's documented in our blog:

https://www.green-it-software.com/6337/day-26-mobile-access-lights-out-mobile/
8.8.1 Installing A SSL Certificate

That's documented in our blog:

https://www.green-it-software.com/6337/day-26-mobile-access-lights-out-mobile/
9 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>Backup support</strong></td>
<td>Partially, not configurable</td>
<td>Full</td>
<td>Full</td>
<td>Full</td>
</tr>
<tr>
<td><strong>Connected 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>Network devices</strong></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mobile devices</strong></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

END-USER LICENSE AGREEMENT FOR LIGHTS-OUT

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9.1 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.

---

**License**

![License Panel](image)

30 Day(s)

Lights-Out Business (Evaluation)

Load License
Buy a license

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

**Not licensed**
LICENS

5 Computers

Lights-Out Free Community Edition

NOT LICENSED, FOR PRIVATE USE ONLY!

Load License
Buy a license

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.
LICENCE

25 Devices

Professional Edition


Licensed to Martin Rothschild

Load License

Extend or upgrade license
9.2 Buy A License

⚠️ If you already have a previous Lights-Out license, please read Upgrade a previous 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.
9.3 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).

Next enter the path to the license file (1) or click on (2) to open a file browser.

The "Load License" button is now enabled, click it to load the license file.
Please be patient, loading the license file may take some time.
Once loaded, the license panel will show your license:
25 Devices

Professional Edition


Licensed to Martin Rothschink

Load License
Extend or upgrade license
9.4Extend 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:
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).

9.4.1 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.

9.4.2 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.
9.5 Upgrade a previous license

If you have an existing Lights-Out license and want to upgrade to a Lights-Out 3 License, you have two choices:
- Extend maintenance to cover the new version (preferred method). Do this before (!) you install the new version
- Buy a new license with a discount

To buy a new license, load the old license first.
A message box is displayed which tells you that this license is from a previous version:

Click OK, Lights-Out is now retrieving your personal license discount in the background.
As a result, the buy a license link changes:

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.
9.6 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.
10 Troubleshooting

Client can't connect to a server
If you try to join a client to a server, but the connection fails, check these items:

- Try to open http://yourservername:7782 in a browser on your client. If that fails:
  - Verify that your network on server and client is set to a private, company or domain network - not as public network!
  - On an Apple Mac try http://yourservername.local:7782
- Verify that you can ping the server by name
- Verify that you have created and assigned valid SSL certificates on the server.
- Verify that you use the server name and not the server IP-Address

Reconnecting a client
If a server connection gets lost, or if you want to connect the client to a different server you want to reconnect the client software.

More troubleshooting tips
Have a look at our FAQ section.
10.1 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 Detach and then on Connect and enter administrative 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.
11 Frequently Asked Questions

This section answers some frequently asked questions.

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<th>Topic</th>
<th>Description</th>
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</thead>
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<td>Installation</td>
<td>This section answers some frequently asked questions about installation and uninstallation.</td>
</tr>
<tr>
<td>Licensing</td>
<td>This section answers some frequently asked questions about licensing.</td>
</tr>
<tr>
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<td>WOL</td>
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<tr>
<td>Backup</td>
<td>This section answers some frequently asked questions about backup.</td>
</tr>
<tr>
<td>Support</td>
<td>This section answers some frequently asked questions about support.</td>
</tr>
</tbody>
</table>
11.1 Questions about installation

This section answers some frequently asked questions about installation and uninstallation.

**How do I install Lights-Out on my server?**

Start with the system preparation.

For installation see here: Windows, Synology, QNAP

**How do I update Lights-Out on my server?**

Please see here: Updating Lights-Out

**How do I remove Lights-Out from my server**

On Windows: Go to control panel and uninstall Lights-Out.

On Synology: Open Package Center and remove Lights-Out.

On QANP: Open App Center and remove Lights-Out.

**How do I install the client software?**

For Client Computers please see here: Client Installation (Overview)

For troubleshooting tips see here: Troubleshooting client installation
11.2 Questions about licensing

This section answers some frequently asked questions about licensing.

**License Email Missing After Purchase?**

A small fraction of our customers has not received the license email after a purchase because the license email has been classified as spam. Especially GMail is known to treat the license email as spam. Please use your Browser to open your GMail account!

As a first measure please check your spam folder! License processing is running automatically every 10 minutes, so you should receive the license within 10 minutes after a purchase. Should you still have problems, then please contact support and attach your purchase order number.

**Can't load and activate your license?**

1. You either used the wrong email address to load your license or you made a typo. Please verify and try again.
2. The license has been changed by your email client. This has been reported for Thunderbird. Either use another mail client or request the license as zipped archive (contact support and attach your purchase order number, see above).
3. The license does not match your installed version.

**License lost or missing**

It is recommended to store the license file in a save place. If you accidentally deleted the license file, please contact support and attach your purchase order number.
11.3 Questions about standby/hibernation

This section answers some frequently asked questions about standby and hibernation.

Why is suspend (save energy) missing on my system?

Most probably because your are running with a standard VGA graphics driver. Install the required graphics card driver to enable suspend.

Why is hibernation missing on my system?

You need to enable hibernation. See requirements for more details.

My server doesn't suspend/hibernate.

Have a look at eventlog, check for blocking services or drivers. Also verify that external drives (USB or eSATA) can be used with standby. Sometimes a driver update is required to make that work. When a manual initiated standby is working check the runtime diagram in Lights-Out. All sources which keep your server active are recorded there.

My server wakes up immediately after standby.

This is either a driver problem or a misconfigured network card. Update your drivers and verify your network card settings.

My server wakes up and I don't know why

Lights-Out supports a couple of system activities which may result in a server wake-up:

1. Backup
2. Windows Updates
3. Lights-Out Calendar
11.4 Questions about monitoring

This section answers some frequently asked questions about monitoring.

**I have a device which runs 24/7. Can I still use monitoring for the other computers and devices?**

Yes, enable monitoring for computer clients and IP based devices but exclude the 24/7 device on the computers page (right click on device, then remove the check on monitoring). This also applies to network devices running 24/7.

**My server doesn't suspend or hibernates since I enabled network load monitoring**

You have to increase the network load value in KB/s. An idle server is still sending data packets on the network. You may have to tweak your values, as they might be too low or too high. Look at the status page tab which displays all activity.
11.5 Questions about Calendar

This section answers some frequently asked questions about calendar.

**I don't want to use monitoring, only scheduled tasks. What settings should I use?**

Under Settings-> Standard Action select either "Standby" or "Hibernation". This ensures, that the server is suspended if a calendar end action is overridden by critical activity.

Create scheduled tasks with an end action.

**My server doesn't wake-up at scheduled times.**

The scheduled wake-up works only when the server is in standby (suspended or hibernated). It doesn't work when the server is shut down. Also verify that wake timers are enabled in power plan and Bios.

**My calendar is greyed out**

Enable calendar under Settings-> Monitoring.
11.6 Questions about Wake-On-Lan/Wan

This section answers some frequently asked questions about Wake-On-Lan or Wake-On-Wan.

**My server doesn't wake up when I turn on my XBox, Internet Radio or a streaming device**

These devices usually do not support sending a magic packet to wake up other machines. You can ask the manufacturer for an updated firmware, but usually you have to live with this limitation. Alternatively, you can try to enable "Wake-on-Pattern-Match" on your server NIC, but this usually has the disadvantage that your server will wake up all the time now.

**My server doesn't wake-up when Wake-On-Lan is used from a client machine**

Verify that your server hardware supports Wake-On-Lan. Verify your BIOS settings on your server. Install the latest network driver and verify your network card settings.

**My server doesn't wake-up when Wake-On-Wan (internet) is used**

Please read the remarks here.

**My client machine doesn't wake up when wake-on-lan from the context menu is used**

Verify your network card settings on the client computer. Use the same settings as recommended for the server. When you use a WLAN connection (wireless) you need drivers which support wireless Wake-On-Lan.
11.7 Questions about Backup

This section answers issues related to data backup.

**Why should I use the scheduled backup from Lights-Out?**

A Windows Home Server or Essentials Server has a well-functioning backup based on the default schedule you set. This requires that the computer either wakes up or is turned on at that time. You have little or no control over when the backup will take place on the default schedule. Sometimes you want to make a backup outside of the standard schedule. Or you have a machine with a long running backup that you do not want to back up during working hours. Or the automatic wake-up from standby does not work reliably. Lights-Out offers you the possibility to wake up your machine at a configurable time and then perform an automatic backup. For more information, see [Backup with Lights-Out](#).

The same applies to local backups or backups to a NAS. Lights-Out gives you more freedom to wake up and back up the client and server at the appropriate time.

**Why should I use the action after Lights-Out backup?**

A Windows Home Server or Essentials Server restores the previous state after a backup, i.e. if the computer was previously on standby, it will be put back on standby. However, if the machine was already active or was woken up via Wake-On-Lan, this mechanism does not work. There are also computers where it does not work reliably. Lights-Out offers a post-backup action for this, which is always executed and additionally supports shutdown.

**I use a backup software which is not supported by Lights-Out**

In this case, you should check whether your backup software can be controlled via the command line. If so, using a [user defined backup](#) could lead to the desired result.

Also ask in the [forum](#) if support for your software is planned or suggest support for a future version.
11.8 Questions about Support

This section answers some frequently asked questions about support.

I can't fix a problem with Lights-Out, where can I get support?

If you have active maintenance and support, then please open a ticket and attach your log files (see below).

If maintenance and support has expired or if you run a free community edition, then please post a question in the forums:
In German on Home Server Blog Forum - Lights-Out. To register please use this Registration-Link (German).
In English on Home Server Blog Forum, Lights-Out English Support. To register please use this Registration Link (English).

Does Lights-Out create log files?

Yes, Lights-Out creates log files. When you have a problem make sure that you have logging enabled under Settings->Server.

Preparing Server log files for support

Go to Settings->Server and download the log files as zipped folder.

Preparing Client Computer log files for support

11.8.1 Windows

Open Explorer and zip the whole folder "c:\programdata\LightsOut3Client\Logs" (via right click, send to compressed folder). If you do not see a folder c:\programdata, then open explorer options and enable "show hidden files and folders".

11.8.2 macOS

Open Finder, then click on menu "Go", select "Go to Folder...". Enter "/var/log". In the new windows right click on lights-out-client and select Compress "lights-out-client". A zipped archive is then created on your desktop.

11.8.3 Linux

Open a terminal and enter the commands below. This create a compress archive "lo-client.zip" on your desktop:

cd /var/log
zip ~/Desktop/lo-client.zip lights-out-client/*
12 Software Updates

Lights-Out supports different ways to update the software.

💡 We recommend to configure and use automatic updates on Windows machines.

Windows Server Update

- Automatic updates
- Local or remote server update
- Manual update

Syology NAS Update

Updates are performed in the Package Center.

QNAP NAS Update

Updates are performed in the App-Center.

Client Computer Update

Computers update automatically.
12.1 Automatic Updates

New software versions are automatically installed if they are covered by your license or maintenance period. **If enabled**, a calendar entry is automatically created, which checks by default every Friday at 6 pm for updates and installs them if necessary. This calendar entry can be changed according to your wishes. In the example, the installation time was set to 19 o'clock:

The recurrence pattern can also be customized.

⚠️ **Note:** The calendar entry can only be permanently deleted by changing the update mode, manual deletion automatically leads to a new entry with default values.

As an indicator of a successful update, the console or dashboard displays a brief note at the next logon:
Lights-Out has been successfully updated to version 2.5.0.3767.
Have a look at the blog to learn more about the new version.
12.2 Local or remote server update

If you have configured the setting "Offer updates for installation", a dialog box will be displayed to initiate the installation.

If the dashboard or console is running directly on the server, the update is downloaded and then executed interactively. On the other hand, if the console is running on the client, a remote update will take place. First the software is downloaded, then the installation is prepared and finally executed.
Lights-Out 3.5 User Manual

Remote server update

Update 2.5.0.3767 Alpha is available!

Your current license / maintenance entitles you to install this version.

This may take around 5-15 minutes, depending on download and server performance.

Download 100%

Installation 3%

Preparing installation

Start  Cancel

Remote server update

Update 2.5.0.3767 Alpha is available!

Your current license / maintenance entitles you to install this version.

This may take around 5-15 minutes, depending on download and server performance.

Download 100%

Installation 20%

Installation in progress...

Start  Cancel

Lights-Out 2

Lights-Out has been successfully updated to version 2.5.0.3767.
Have a look at the blog to learn more about the new version.

OK
Note: Dashboard does not support remote updates. When the dashboard is open on a client computer, the dashboard is actually running on the server and is displayed on the client computer via Remote Desktop. Because the server dashboard closes during the server update, it is not possible to remotely update from the dashboard. In this case, please log in directly to the server or use the Lights-Out console.
12.3 Manually Updating Existing Version

Please read this chapter, if you are updating within the same major version, e.g. from 3.0 to 3.1.

**Updating the server**

To update, run the installer LightsOut2.Installer.x.y.zzzz.exe. The installer is loading:

![InstallAware Wizard]

Then the language selection dialog appears:

![Select Setup Language]

Accept or change the language, then click OK.

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

![System Update]

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:

![Finish dialog](image)
12.4 Client Computer Updates

12.4.1 Client Computers (Windows, Linux and macOS)

Client computers will automatically update within a few minutes. You see a yellow warning if the client runs an outdated version:

<table>
<thead>
<tr>
<th>Auto</th>
<th>Allow</th>
<th>Server</th>
<th>Client Installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑</td>
<td></td>
<td></td>
<td>2.0.0.3331</td>
</tr>
<tr>
<td>☑</td>
<td></td>
<td></td>
<td>2.0.0.3331</td>
</tr>
</tbody>
</table>

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>Auto</th>
<th>Allow</th>
<th>Server</th>
<th>Client Installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑</td>
<td></td>
<td></td>
<td>2.0.0.3334</td>
</tr>
<tr>
<td>☑</td>
<td></td>
<td></td>
<td>2.0.0.3334</td>
</tr>
</tbody>
</table>

If a client does not update, wait at least 10 minutes, then reboot the client to trigger the update again.
12.5 Synology Update

Using a package source

If you configured the package source during installation, you get a notification about updated packages. Simply click on Update or Update All to install the latest version.

![Package Center](image)

Running a manual update

If you have not configured the package source, you have to download the latest spk file and do a manual update.
Browse to the downloaded spk file and load it. Then click **Next** to start the update.
Upload a package
Please select a file.

File: LightsOut-3.0.0.4122 Alpha.sp
12.6 QNAP Update

Using a package source

If you configured an app-repository during installation, you get a notification about updated packages. Simply click on Update or Update All to install the latest version.

Running a manual update

If you have not configured an app-repository, you have to download the latest qpkg file and do a manual update. Click on the (+) icon.
Browse to the downloaded qpkg file and load it. Then click **Install** to start the update.
Confirm that you want to install and confirm that the package is not signed:
Digital signature warning

This application does not have a valid digital signature to confirm its publisher or file integrity. Installing this application may impact NAS security. Are you sure you want to continue?

☑️ I understand the risks and want to install this application.

Install   Cancel
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