Webmin User Manual

You must enter a username and password to login to the server on 192.168.11.10

Username

Password

☐ Remember me

Reset  Sign In

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# Table of Contents

1 – About This Document .................................................................................................................................................. 4
   1.1 – Key Terms ................................................................................................................................................................. 4
   1.2 – Related Fifth Light Documentation ........................................................................................................................... 4

2 – Webmin System Overview .............................................................................................................................................. 5
   2.1 – Standalone and Centralized Systems ............................................................................................................................ 5
      2.1.1 – Standalone Systems ............................................................................................................................................... 5
      2.1.2 – Centralized Systems ............................................................................................................................................. 5

3 – Using Webmin ................................................................................................................................................................. 6
   3.1 – The Webmin Interface ................................................................................................................................................... 6
   3.2 – Logging in to Webmin ................................................................................................................................................... 6
   3.3 – Setting up Local Controllers ......................................................................................................................................... 7
      3.3.1 – Installing and Initializing the Replication Manager ............................................................................................... 7
      3.3.2 – Adding Local Controllers .................................................................................................................................. 8
      3.3.3 – Viewing the Added Local Controllers .................................................................................................................. 9
      3.3.4 – Configuring CrossPanel Communication .......................................................................................................... 9
      3.3.5 – Adding a Local Controller to the Replication Manager ....................................................................................... 10
      3.3.6 – Removing a Local Controller from the Replication Manager .................................................................................. 11
      3.3.7 – Updating the Zone Controller ............................................................................................................................ 11
   3.4 – Backing up and Restoring the Database ..................................................................................................................... 11
      3.4.1 – Backing up the Database ....................................................................................................................................... 11
      3.4.2 – Restoring a Central Manager Database ............................................................................................................... 12
      3.4.3 – Restoring a Standalone Server Database .............................................................................................................. 12
   3.5 – System Maintenance Tasks .......................................................................................................................................... 14
      3.5.1 – Setting the Database Time Zone ........................................................................................................................... 14
      3.5.2 – Setting the System Date and Time ..................................................................................................................... 14
      3.5.3 – Configuring an External Time Server ................................................................................................................ 14
      3.5.4 – Changing an IP Address ....................................................................................................................................... 15
      3.5.5 – Changing the IP Address on a Standalone System .............................................................................................. 15
      3.5.6 – Setting up Remote Access (Hamachi) ................................................................................................................... 17
      3.5.7 – Using the Initial Configuration Feature ............................................................................................................... 17

4 – LMS Virtual Servers ......................................................................................................................................................... 18
   4.1 – Setting Up a Virtual Server .......................................................................................................................................... 18

5 – Troubleshooting ............................................................................................................................................................... 20
   5.1 – Generating a Troubleshooting Report .......................................................................................................................... 20
      5.1.1 – Reporting Before and After Deployment ............................................................................................................ 20
      5.1.2 – Upper Tier Troubleshooting .................................................................................................................................. 20
      5.1.3 – LMS Validation Script (LMS Checks) ................................................................................................................... 20
      5.1.4 – Retrieve Unit History .............................................................................................................................................. 20
      5.1.5 – BACNet Scan ............................................................................................................................................................. 20
      5.1.6 – Boot Test .................................................................................................................................................................. 20
      5.1.7 – Low Level Bus Scan ............................................................................................................................................... 20
      5.1.8 – Hardware Count Report ........................................................................................................................................... 21
      5.1.9 – Generate Bus Table ............................................................................................................................................... 21
   5.2 – Common Problems ....................................................................................................................................................... 21
   5.3 – Identifying Sub-Optimal Motion Sensor Behavior ......................................................................................................... 21
   5.4 – Retrieving Zone Controller Log Files ............................................................................................................................ 22
   5.5 – Wiping the Replication Manager Configuration ....................................................................................................... 22
1 – About This Document

5.6 – Using Ping to Test a Network Connection.............................................................................23
5.7 – Obsolete Procedures..................................................................................................................24
1 – About This Document

This document describes how to use the Fifth Light Webmin application for low-level configuration of the Fifth Light Local Controller and Central Manager operating systems and applications.

The material in this document assumes you are familiar with the Fifth Light Lighting Management Software as described in the LMS User Manual and the Fifth Light Planning and Installation Guide.

1.1 – Key Terms

The terms listed below are used in this document.

**Lighting Control System (LCS)** – A computer-based control system installed in a building to control and monitor the lighting equipment. An LCS consists of hardware and software.

**Master Control Application (MCA)** – A Fifth Light software application that allows users to configure and manage the system via a Web-based user interface.

**Digital Addressable Lighting Interface (DALI)** – An International Electrotechnical Commission (IEC) standard for network-based systems that control lighting in building automation. A DALI system can include control gear, control devices and bus power supplies from any manufacturer that supports DALI.

**DALI Bus** – A cable over which DALI communication can connect up to 63 DALI devices – such as dimmable ballasts, sensors and keypads – to the LCS.

**Local Controller** – A computer that hosts the Zone Controller application and typically resides in an electrical room of a building.

**Zone Controller Application** – A Fifth Light software application that issues lighting commands according to the system configuration and information received from DALI Bus devices such as motion sensors, daylight sensors and wall stations.

**DALI Bus Chassis (DBC)** – A hardware interface for up to 8 DALI buses. Each Local Controller can support up to 4 USB-connected DBCs.

**Lighting Control Panel (LCP)** – An enclosure that houses the Local Controller, DBCs and any supporting hardware.

**Replication Manager** – An application used in a centrally-managed system to synchronize the database across multiple Local Controllers.

1.2 – Related Fifth Light Documentation

<table>
<thead>
<tr>
<th>Document</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fifth Light Planning and Installation Guide</td>
<td>This guide covers the planning, design, set up and configuration of a Fifth Light System.</td>
</tr>
<tr>
<td>Fifth Light Lighting Management Software User Manual</td>
<td>This manual covers the use of the Fifth Light Lighting Management Software to manage the lighting system.</td>
</tr>
<tr>
<td>Fifth Light Virtual Central Manager Technical Data</td>
<td>This document describes the Fifth Light Virtual Central Manager on a virtual environment powered by VMWare® software.</td>
</tr>
</tbody>
</table>
2 – Webmin System Overview

Webmin is a graphical user interface that eliminates the need to perform configuration tasks with a Linux command line interface. Some of the key tasks you can perform with Webmin include the following:

- System maintenance tasks, such as changing the time and retrieving log files
- Backing up and restoring the system configuration databases
- Centralizing multiple Local Controller computers into a single Central Manager database

2.1 – Standalone and Centralized Systems

There are two ways a Fifth Light system can be set up, standalone and centralized.

2.1.1 – Standalone Systems

In a standalone system, there is one MCA (Master Control Application) on each Local Controller. To change how the lighting is controlled in a particular part of a building, you must know which Local Controller is responsible for that area and change the configuration on that MCA.

2.1.2 – Centralized Systems

The Local Controllers in a centralized system do not have an MCA but still control the lighting. The lighting configuration for the entire system is created on the Central Manager MCA, and then that data is replicated on the Local Controllers.

Advantages of a Centralized System

- Convenience of a single location for configuration management
- Reliability of a decentralized system – the Central Manager can be shut down or rebooted without affecting the Local Controllers

Integration Services in a Centralized System

The Central Manager MCA provides all integration services to other protocols, such as BACNet, MechoNet and Web services.
3 – Using Webmin

3.1 – The Webmin Interface

The layout of the Webmin interface is shown below. The main menu (on the left) is used to search and navigate the tasks Webmin can perform. The specific settings, commands and data for each task appear on the right.

3.2 – Logging in to Webmin

You can log in to Webmin using the IP (Internet Protocol) address.

About IP Addresses and Port Numbers

The "dotted-decimal" form of an IP address consists of four sets of numbers, separate by periods.

**Example**

192.168.0.1

Different applications can connect to the same IP address using port numbers, which are appended to the end and separated by a colon.

**Example**

192.168.0.1:8080

Procedure

Follow the steps below to log in to Webmin using the IP address of the Local Controller or Central Manager.

**NOTE**

You will need a username and password from an Eaton specialist for this procedure.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Browse to https://&lt;ipaddress&gt;:10000, where &lt;ipaddress&gt; is the IP address of the target Local Controller or Central Manager.</td>
</tr>
</tbody>
</table>

**RESULT**

**WARNING**

The lighting system may only be accessed by authorized personnel. Please contact your system administrator for information.
3 – Using Webmin

### 3.3 – Setting up Local Controllers

The following procedures describe how to configure a Central Manager and multiple Local Controllers as a centralized system.

**IMPORTANT**

If your system software is older than LMS 4.11.5, contact Eaton technical support at controltechsupport@eaton.com prior to centralizing.

#### 3.3.1 – Installing and Initializing the Replication Manager

Before you can add the first Local Controller to a system, the Replication Manager must be installed on the Central Manager and initialized. This process is only required once per site. If this has already been done, skip to “Adding Local Controllers” on page 8.

**Confirming Database Access**

The Central Manager IP address must have permission to access its own database as well as those on every Local Controller. Because that IP address may have been changed to work with the local site network, you must confirm this access.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click <strong>Servers</strong> in the Main menu, then click <strong>PostgreSQL Database Server</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Click <strong>Allowed Hosts</strong>.</td>
</tr>
</tbody>
</table>
| 3    | Is the Central Manager IP address listed?  
  - If yes, stop here.  
  - If no, go to Step 4. |
| 4    | Click **Create a new allowed host**. |
| 5    | Click **Single host**, and then enter the IP address of the Central Manager. |
| 6    | Click **Plaintext password**, and leave all of the other settings at their default values. |

---

**NOTE**

To log out, click the ![Log Out Button](image.png) button below the Main menu.
## 3 – Using Webmin

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Click <strong>Create</strong>.</td>
</tr>
</tbody>
</table>
| 8    | Click **Lighting Management System**, and then click **Replication Manager**. Do you see any IP addresses listed under **Remove LCP from Replication**?  
  - If yes, stop here.  
  - If no, go to Step 9. |
| 9    | Click **Install Replication Manager**, and then wait for the script to complete. |
| 10   | Click **Initialize Master Database**, and then wait for the script to complete. |

### 3.3.2 – Adding Local Controllers

Local controllers must be added to Webmin, either manually or automatically, before you can add them to the Replication Manager.

**IMPORTANT**

When you are adding a Local Controller to an existing centralized system, it must have the same system software version as the Central Manager. If not, the Local Controller must be upgraded to that version for replication to work.

**About Network Configuration**

The automatic method of adding controllers may not work depending on the specific network configuration, while the manual method will work on any functioning network.

**Adding Automatically**

Follow the steps below to add Local Controllers automatically.

1. **Click Webmin** in the Main menu, then click **Webmin Servers Index**, and then locate the **Scan for servers** button.

   **RESULT**

   ![Scan for servers](image)

2. Enter the first three sets of the IP address range to scan, followed by a 0 for the Webmin server.

3. **Click Scan for servers**.

   **EXAMPLE**

   ![Find Servers](image)

   **NOTE**

   If you do not see as many Local Controllers as expected, click **Return to servers**, and then click **Scan for servers** again. It may take up to three scans to locate all of them.

### Adding Manually

Follow the steps below to add Local Controllers manually.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Click Light Management System</strong> in the Main menu, and then click <strong>Replication Manager</strong>.</td>
</tr>
<tr>
<td>2</td>
<td><strong>Click Edit LCP IPs Manually</strong> in the pane on the right, and then enter the IP address of each Local Controller (one per line) in the <strong>Editing file</strong> area.</td>
</tr>
</tbody>
</table>
3.3.3 – Viewing the Added Local Controllers

Follow the steps below on the Central Manager to view the Local Controllers that have been added to a system.

Step | Action
--- | ---
1 | Click **Lighting Management System** in the Main menu, and then click **Replication Manager**.
2 | Click **View LCP Information** to display all known IP addresses.
3 | Click **View Online/Offline Status**. Does the **Online LCP** list show all the expected IP addresses?
   - If yes, stop here.
   - If no, go to Step 4.
4 | See "Using Ping to Test a Network Connection" on page 23 for details on testing an IP address connection using Webmin. If the ping test fails, contact the facility IT team responsible for the network.

3.3.4 – Configuring Cross-Panel Communication

When a sensor or keypad on one Local Controller controls the lights on another Local Controller, this is known as cross-panel communication.

In the diagram above, in order for Local Controller 1 to send a command over the network to Local Controller 2, the applicable port (9003) must be open in the Local Controller 2 firewall.

**IMPORTANT**

When installing a new system, identify all cases of cross-panel communication and open port 9003 on the receiving Local Controllers. When you are replacing a Local Controller, check whether it was receiving cross-panel communication. If so, ensure that port 9003 is open in the firewall of the new panel.

**Procedure**

Follow the steps below to configure the receiving Local Controller so it will accept cross-panel communication.

Step | Action
--- | ---
1 | Log in to Webmin on the Local Controller that will receive the cross-panel communication. Click **Networking** in the Main menu, and then click **Linux Firewall**.
2 | Locate the **Incoming packets (INPUT)** region.
3 | Scroll to the bottom of the actions listed in the **Incoming Packets (INPUT)** region.
3 – Using Webmin

4. Click Add Rule.

5. Locate the Action to take setting, and then click Accept as the action.

6. Locate the Network Protocol setting, then select Equals as the comparison method, and then select TCP as the protocol.

7. Locate the Destination TCP or UDP port setting, then select Equals as the comparison method, and then enter 9003 in the Port(s) field.

8. Locate the Connection states setting, then select Equals as the comparison method, and then click New connection.

9. Click Create, and then confirm that the resulting rule matches the example below. If not, click the rule description to edit it, and review Steps 2 through 8 to correct the configuration.

10. Click \( \rightarrow \) to the right of the Reject: Always rule until it appears just below the new Accept: TCP rule, otherwise it will override it.

3.3.5 – Adding a Local Controller to the Replication Manager

A Local Controller can be added to replication if it has been added to Webmin and the Replication Manager has been installed and initialized.

1. Click Lighting Management System in the Main menu, and then click Replication Manager. Locate the Add New LCP to Replication region.

   NOTE
   In the next step, leave the Update Zone Controller selection at No. If you have specific instructions to perform that update, see “Updating the Zone Controller” on page 11.

2. To add a Local Controller, select one or more non-replicated Local Controllers listed on the left, and then click \( \rightarrow \) to move them to the replication list on the right.

3. Click Add New LCP to Replication.
3.3.6 – Removing a Local Controller from the Replication Manager

Follow the steps below to remove a Local Controller from replication.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click <strong>Lighting Management System</strong> in the Main menu, then click <strong>Replication Manager</strong>, and then locate the <strong>Remove LCP from Replication</strong> region.</td>
</tr>
<tr>
<td>2</td>
<td>Select one or more Local Controllers in the replication list on the left, and then click → to move them to the non-replicated list on the right.</td>
</tr>
<tr>
<td>3</td>
<td>Click <strong>Remove LCP from Replication</strong>.</td>
</tr>
</tbody>
</table>

3.3.7 – Updating the Zone Controller

The Zone Controller may need to be updated to take advantage of new features or resolve an issue. Updates are normally applied to the entire system, not to individual panels.

**Procedure**

Follow the steps below to update the Zone Controller.

**NOTE**

One or more Local Controllers must be added during this procedure for it to complete successfully.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click <strong>Lighting Management System</strong> in the Main menu, then click <strong>Replication Manager</strong>, and then locate the <strong>Add New LCP to Replication</strong> region.</td>
</tr>
</tbody>
</table>

3.4 – Backing up and Restoring the Database

This section describes the procedures for backing up and restoring a Central Manager or Local Controller database.

3.4.1 – Backing up the Database

A backup may be taken when a technician has made changes on site, or if the facility owner requires assistance from Eaton that involves the database.

**Procedure**

Follow the steps below to back up the database on a Central Manager or Local Controller.
3 – Using Webmin

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click <strong>Servers</strong> in the Main menu, and then click <strong>PostgreSQL Database Server</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Click <strong>ft_v4</strong>, and then click <strong>Backup</strong>.</td>
</tr>
</tbody>
</table>

**RESULT**

<table>
<thead>
<tr>
<th>Backup destination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>backup/Eaton_Jan12_4.12.4.b</strong></td>
</tr>
</tbody>
</table>

**NOTE**
The location should be under the `/backup` directory. The file name should include the site name, date and software version, and it should end with a " .backup" extension.

**EXAMPLE**

`/backup/Eaton_Jan12_4.12.4.backup`

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Click <strong>()`</strong> to select a location in the <strong>Backup file path</strong>.</td>
</tr>
<tr>
<td>3</td>
<td>Copy the full backup path to the clipboard for later use.</td>
</tr>
<tr>
<td>4</td>
<td>Select <strong>Custom Archive</strong> as the <strong>Backup file format</strong>, and then click <strong>Backup Now</strong>.</td>
</tr>
<tr>
<td>5</td>
<td>Click <strong>File System</strong> in the Main menu and then click <strong>Upload and Download</strong>.</td>
</tr>
<tr>
<td>6</td>
<td>Click the <strong>Download from Server</strong> tab, then paste the backup file path from the clipboard into the <strong>File to download</strong> field.</td>
</tr>
<tr>
<td>7</td>
<td>Click the <strong>Download</strong> button.</td>
</tr>
</tbody>
</table>

### 3.4.2 – Restoring a Central Manager Database

Follow the steps below to restore a Central Manager database.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click <strong>Lighting Management System</strong>, then click <strong>Replication Manager</strong>, and then locate the <strong>Update DB</strong> field.</td>
</tr>
</tbody>
</table>

**EXAMPLE**

<table>
<thead>
<tr>
<th>Update DB</th>
</tr>
</thead>
<tbody>
<tr>
<td>update_cenralized DB</td>
</tr>
<tr>
<td>10.130.66.247</td>
</tr>
<tr>
<td>10.130.66.249</td>
</tr>
<tr>
<td>10.130.66.248</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Select all IP addresses listed on the left beside <strong>Clustered LCP</strong>, and then click <strong>to</strong> to move them to the list on the right.</td>
</tr>
<tr>
<td>3</td>
<td>Click the first <strong>()`</strong> beside <strong>Backup File</strong>, and then select the database file you want to upload.</td>
</tr>
<tr>
<td>4</td>
<td>Click <strong>Update DB</strong>.</td>
</tr>
<tr>
<td>5</td>
<td>Is the database you uploaded from an earlier software version?</td>
</tr>
<tr>
<td></td>
<td>• If <strong>yes</strong>, go to step 6.</td>
</tr>
<tr>
<td></td>
<td>• If <strong>no</strong>, stop here.</td>
</tr>
<tr>
<td>6</td>
<td>Click <strong>Lighting Management</strong>, then click <strong>Tools</strong>, and then click <strong>Upgrade Obsolete Database</strong>.</td>
</tr>
<tr>
<td>7</td>
<td>You will need to repeat the Bucardo configuration after upgrading an Obsolete Database.</td>
</tr>
<tr>
<td>8</td>
<td>Click <strong>Lighting Management</strong>, then click <strong>Tools</strong>, and then click <strong>Sync Database</strong>.</td>
</tr>
</tbody>
</table>

**RESULT**
The text output generated by the sync operation should display “PASS” beside all LCP IP addresses.

### 3.4.3 – Restoring a Standalone Server Database

**NOTE**
This procedure only applies to a Local Controller in a standalone system. Local Controllers in a centralized system are automatically updated from the Central Manager.
Follow the steps below to restore a database to a standalone server.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click <strong>Others</strong> in the Main menu, then click <strong>Upload and Download</strong> and then click the <strong>Upload to server</strong> tab.</td>
</tr>
<tr>
<td>2</td>
<td>Click beside <strong>Files to upload</strong>, and then select the database you want to restore.</td>
</tr>
<tr>
<td>3</td>
<td>Click ☰ to select <strong>/backup</strong> as the <strong>File directory to upload to</strong>.</td>
</tr>
<tr>
<td>4</td>
<td>Click ☰ to select <strong>postgres</strong> in the <strong>Owned by user</strong> field.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Upload and Download" /></td>
</tr>
<tr>
<td>5</td>
<td>Click <strong>Upload</strong>.</td>
</tr>
<tr>
<td>6</td>
<td>To stop all applications that are currently using the database, click <strong>Lighting Management System</strong> in the Main menu, then click <strong>Jboss</strong>, and then click <strong>Jboss stop</strong>.</td>
</tr>
<tr>
<td>7</td>
<td>Click <strong>Lighting Management System</strong>, then click <strong>Zone Controller</strong>, and then click <strong>Zone Controller Stop</strong>.</td>
</tr>
<tr>
<td>8</td>
<td>Click <strong>Servers</strong>, then click <strong>PostgreSQL Database Server</strong>, then right-click the <strong>fit_v4</strong> database, and then click <strong>Drop Selected Databases</strong> to remove it from the list.</td>
</tr>
<tr>
<td>9</td>
<td>Click <strong>Create a new database</strong>, enter <strong>fit_v4</strong> as the <strong>Database name</strong>, and then select <strong>Ins</strong> as the <strong>Owned by user</strong>. Leave the other settings at their default values.</td>
</tr>
<tr>
<td>10</td>
<td>Click <strong>Create</strong>.</td>
</tr>
<tr>
<td>11</td>
<td>Click the new <strong>fit_v4</strong> database, and on the next screen, click <strong>Restore</strong>.</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="New database options" /></td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong></td>
</tr>
<tr>
<td></td>
<td>If you see a warning that active connections exist, you will have to stop and start PostgreSQL to fully release all processes. To do that, click <strong>Servers</strong>, then click <strong>PostgreSQL Database Server</strong>, then click <strong>Stop PostgreSQL Server</strong>, and then click <strong>Start PostgreSQL Server</strong>.</td>
</tr>
<tr>
<td>12</td>
<td>Click ☰ to select the path to the file uploaded in Step 5, and then click <strong>Restore</strong>.</td>
</tr>
<tr>
<td>13</td>
<td>Click <strong>Lighting Management System</strong> in the Main menu. Click <strong>Jboss</strong>, and then click <strong>Jboss start</strong>.</td>
</tr>
<tr>
<td>14</td>
<td>Click <strong>Lighting Management System</strong>, then click <strong>Zone Controller</strong>. Select the LCP IP addresses in <strong>Start Zone Controller Service</strong> region, click ➔ to move them to the list on the right, and then click <strong>Zone Controller Start</strong>.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong></td>
</tr>
<tr>
<td></td>
<td>Check the Zone Controller Status after 5 minutes to confirm that the process was successful.</td>
</tr>
</tbody>
</table>
3 – Using Webmin

3.5 – System Maintenance Tasks
This section contains procedures for various tasks that may be needed to maintain the system.

3.5.1 – Setting the Database Time Zone
Follow the applicable procedure below to set the database time zone on a Central Server or a Local Controller.

Central Server Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click Lighting Management System in the Main menu, then click Tools, and then locate the Setup TimeZone region.</td>
</tr>
<tr>
<td>2</td>
<td>Select a time zone in the Select TimeZone list.</td>
</tr>
<tr>
<td>3</td>
<td>Select all of the LCP IP Address entries, and then click ➔ to move them to the list on the right.</td>
</tr>
</tbody>
</table>

**EXAMPLE**

4 Click Setup TimeZone.

**NOTE**
This step does not need to be repeated on the Local Controllers.

Local Controller Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click Hardware, then click System Time, and then click the Change timezone tab.</td>
</tr>
<tr>
<td>2</td>
<td>Select the time zone you want in the Change timezone to list, and then click Save.</td>
</tr>
</tbody>
</table>

3.5.2 – Setting the System Date and Time

**IMPORTANT**
An external time server is recommended to keep your system in sync (see “Configuring an External Time Server” on page 14). Unless it is synchronized with an external source, the time on any computer will drift over longer periods, which can cause issues with a time-sensitive application like an LCS.

Local Controller Time Synchronization
The Local Controllers in a centralized system will automatically sync to the new time reported by the Central Manager. This can take up to an hour, particularly for a large change, because the time server makes adjustments gradually. If you require the change to happen quickly, reboot the Local Controllers and they will sync fully.

**Procedure**
Follow the steps below to set the system date and time.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click Hardware in the Main menu, then click System Time, and then click the Set time tab.</td>
</tr>
<tr>
<td>2</td>
<td>Select the current date and time under System Time, and then click Apply.</td>
</tr>
<tr>
<td>3</td>
<td>Click Set hardware time according to system time.</td>
</tr>
</tbody>
</table>

3.5.3 – Configuring an External Time Server
The Central Manager is shipped with the following CentOS external time servers configured:

- 0.centos.pool.ntp.org
- 1.centos.pool.ntp.org
- 2.centos.pool.ntp.org
- 3.centos.pool.ntp.org

If the Central Manager does not have access to the Internet, or if port 123 is blocked, either reconfigure the network to be allow access to the CentOS time servers or provide a time server of your own.

**Procedure**
Follow the steps below to configure an external time server.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click Hardware in the Main menu, then click System Time, and then click the Time server sync tab.</td>
</tr>
<tr>
<td>2</td>
<td>Enter a single hostname or IP address in the Timeserver hostnames or addresses.</td>
</tr>
<tr>
<td>3</td>
<td>Select the Set hardware time to checkbox, then click No for Synchronize when Webmin starts, and then click No for Synchronize on schedule.</td>
</tr>
</tbody>
</table>
3.5.4 – Changing an IP Address

Local Controllers use static IP addresses so they can continue to communicate with IP peripherals attached to their local switch (such as a BK9050) if a Dynamic Host Control Protocol (DHCP) server becomes unavailable.

Local Controllers are shipped with a default IP address. These IP addresses typically need to be changed when adding a lighting control network to a building management network.

Changing an IP Addresses on Centralized System

Follow the steps below to change the IP address of any Local Controller or the Central Server on a centralized system.

Step | Action
--- | ---
1 | On the Central Server/Database Server, click Lighting Management, and then click Tools.
2 | Locate the Change IP(s) region.
3 | Select one or more current IP addresses you want to change in the list on the left, and then click \(\Rightarrow\) to move them to the list on the right.
4 | Enter one or more new IP addresses in the New IP(s) field, in the order they will replace the current IP addresses. Press Enter between each IP address you type.

5 | Click Change IP(s).

3.5.5 – Changing the IP Address on a Standalone System

Follow the steps below to change the IP address of a Local Controller.

Step | Action
--- | ---
1 | Click Networking in the Main menu, then click Network Configuration, and then click the Network Interfaces button.
2 | Click eth0.
3 | Enter the desired value in the IPv4 address field, then click the Automatic for Broadcast, and then click Save.
### 3 – Using Webmin

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 4    | Do you need to change the network gateway address?  
  - If yes, go to Step 5.  
  - If no, click **Apply Configuration**. |
| 5    | Click **Networking** in the Main menu, then click **Network Configuration**, and then click the **Routing and Gateways** button. |

#### EXAMPLE

![Routing configuration activated at boot time](image)

**NOTE**  
In the next step, the gateway address is typically the first three sets of numbers of the computer’s IP address, followed by a 1.

| 6    | Enter the desired address in the **Gateway** field, and then click **Save**. |
| 7    | When you return to the Network Configuration page, click **Apply Configuration**.  
  **NOTE**  
  You will now need to use the new IP address to access this server. |
3.5.6 – Setting up Remote Access (Hamachi)

The section describes how to enable remote access for troubleshooting.

About Hamachi

Hamachi enables remote site troubleshooting and makes our experienced technicians readily available for troubleshooting. Hamachi provides a direct connection with no need for your IT department to start a TeamViewer session, making it faster and more versatile.

Using Hamachi will require your IT department to unblock the following ports:

- TCP 12975, 32976
- UDP 17771

This is the recommended approach whenever possible, as it increases service quality, reduces service time, and reduces service costs.

There is more detailed information available from Hamachi at the following location:


**NOTE**

If the required firewall changes are not possible, site-specific VPN configurations, such as Cisco AnyConnect, can be used to enable direct connection remote troubleshooting.

Procedure

Follow the steps below to enable Hamachi remote access.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click <strong>Lighting Management System</strong> in the Main menu, and then click <strong>Tools</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Click the <strong>Install Hamachi</strong> button, and confirm the message that the server was successfully attached to the Hamachi network.</td>
</tr>
</tbody>
</table>

3.5.7 – Using the Initial Configuration Feature

The Initial Configuration feature can be used when setting up a Central Server for the first time or when changing to a dual-server system.

**NOTE**

In the next step, the default email is the head of Fifth Light IT. This should be used unless specified otherwise.
4 – LMS Virtual Servers

**NOTE**
You will need the following information to use this feature with Webmin or a Console window: IP address; Gateway address; Netmask value; and Hostname.

**Initial Configuration with Webmin**
Follow the steps below to use the Initial Configuration feature.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click <strong>Lighting Management System</strong> in the Main menu, and then click <strong>Tools</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Locate the <strong>Initial Configuration</strong> region.</td>
</tr>
</tbody>
</table>
| 3 | Enter the IP, Gateway, Netmask, and Hostname values.  
   **NOTE**  
   Hostname cannot be set to “localhost”. |
| 4 | Click **Initial Configuration**. Wait for 2 minutes, and then login to the new IP address. |

**Initial Configuration with a Console Window**
Follow the steps below to use the Initial Configuration feature with a Console window.

**NOTES**
- The automated initial configuration is only available in Version 4.14.1 and later. you can access it through the upgrade script menu if required on an older server.  
- In a dualserver setup, the application server must be configured first.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1 | Open a Console window by either  
   - Right-clicking a VM server, and then selecting **Console**, or  
   - Connecting to the physical server over Ethernet cable, and using “ssh root@192.168.11.10” command  
   **NOTE**  
   To connect over Ethernet, you must assign your computer a static IP address of 192.168.11.n first. |
| 2 | Login as root. |
| 3 | Type “cd /extras/CM/”, and then press Enter. |

4 – LMS Virtual Servers

Virtual machine are emulated computer environments that run on a software like VMWare. LMS supports both virtual servers and standard physical servers. Once set up, a virtual server behaves the same as a standard server for the purposes of this document.

A standard virtual Central Manager configuration has the Database Server and Application Server on the same Virtual Machine (VM) image. A Dual Central Manager configuration has the Database and Application Servers on separate VMs. Dual Central Manager configurations are intended for very large sites.

Refer to the *Fifth Light Virtual Central Manager Technical Data* document to decide which configuration appropriate.

4.1 – Setting Up a Virtual Server

Follow the steps below to set up a virtual server.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Start the VMWare client, and then connect to the virtual server.</td>
</tr>
</tbody>
</table>
2. Select **Deploy OVF Template** on the **File** menu.

3. Browse to the USB Drive, then click the appropriate **.ova** file, and then click **Next**.

4. Enter a name your VM, for example, “CM4.14.1-DB”. It is a good idea to include text that indicates the VM function, for example “-DB”, “-App”, or “-Standard”.

5. Click **Next**, and then click **Thin Provision** for internal testing systems or **Thick Provision Lazy Zeroed** for a client site.
5 – Troubleshooting

This section contains procedures and information to help resolve LMS issues that may arise.

5.1 – Generating a Troubleshooting Report

Reports reducing repeat visits and late fixes by catching the most common issues. They take only a few minutes and a press of a button to generate.

5.1.1 – Reporting Before and After Deployment

The appropriate reports to file depend on whether a system has been deployed.

Pre-deployment

File the following reports:

- Boot Test
- LMS Validation
- Script (database only option)

Post-deployment

File the following reports:

- LMS Validation Script (full)
- BACNet Scan (BMSPro sites only)
- Detailed Unit History (check for sensors False On / False Off)
- Full site logs for 30 days

5.1.2 – Upper Tier Troubleshooting

Upper tier troubleshooting will not be available without the proper reports. Use the MCA Monitoring Module to retrieve a “View Details” report on problem units (see Fifth Light LMS User Manual for details).

5.1.3 – LMS Validation Script (LMS Checks)

The LMS Validation Script is a comprehensive suite of tests and checks to ensure common system issues are identified. You can specify if you only want to validate the database (use if configuring the system off-site) or if you want to do a full system scan.

5.1.4 – Retrieve Unit History

You can retrieve detailed unit history that goes back several months, or even years, depending on size of the site and Central Server disk space.

The default unit history options will be adequate to attach to a site report.

Tier-2 technicians can use this report to identify suboptimal sensor behavior prior to site closeout (turning on in the middle of the night, turning off in occupied rooms during the day). The Only show workpoints option can be helpful to clarify this.

5.1.5 – BACNet Scan

The BACNet Scan report can be used on BMSPro sites to pull live BACNet data. The Central Server or at least one WAC must reside on the same subnet as the BMSPro device for this report to work. Sites should clean BACNet errors before closeout, and a technician should observe at least one light level change in the report.

5.1.6 – Boot Test

The Boot Test confirms that the Zone Controller boots with the current database. The author of the site database should test that the Zone Controller boots up at the end of each day. The 1 floor at a time option should be enabled for final reports – it takes much longer but is more definitive.

5.1.7 – Low Level Bus Scan

A Low Level Bus Scan will do the following:

- Stop the Zone Controller
- Perform a low level scan of devices on the bus
- Compare the devices found to those in the database
- Start the Zone Controller

The scan flags missing and extras units. Tier 1 technicians should investigate any missing and extra units, run the report again if applicable, and then download a copy for Tier 2 for analysis.
5.1.8 – Hardware Count Report

The Hardware Count Report determines the number of hardware devices per bus. This report is useful to assess the total hardware needed and to confirm recommended per-bus hardware limits.

5.1.9 – Generate Bus Table

The Generate Bus Table report helps with troubleshooting by creating a reference table of busses, IPs, DMMS, and floors.

5.2 – Common Problems

This topic lists some common symptoms, identifies causes and suggests possible solutions.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Causes</th>
</tr>
</thead>
</table>
| Changes are not synced to Local Controllers | • In the Replication Manager, under View LCP Information, check that the Local Controller IP address appears under SSH Trusted IP and Clustered IP. If not, uninstall and reinstall this Local Controller.  
• Check that the new IP has access to PostgreSQL as described in “Installing and Initializing the Replication Manager” on page 7.  
• In the Replication Manager, click View Replication Status. If you see “No syncs have been created”, the replication was not configured correctly.  
See “Wiping the Replication Manager Configuration” on page 22 for instructions on clearing the existing configuration so you can set it up again from a known state. |
| Cannot control lights but Zone Controller is running | • The Local Controller has the wrong IP address. The Local Controller knows what floor it is on by matching its IP address to the IP address programmed in the system for a given floor.  
• The USB mapping for the DMM is |

5.3 – Identifying Sub-Optimal Motion Sensor Behavior

It is possible to have misplaced sensors in a large building. This topic offers some ways to catch this type of problem before a complaint is made.

The two main sub-optimal motion sensor behaviors are as follows:

**False On**

Lights turn on when not desired, often for exactly the minimum duration or in the middle of the night.

The most common cause is that the motion sensor is too close to an air vent. Review the product specification for minimum distances.

The optimal placement will adhere to this distance and be offset to the left or right of the air vent (i.e., the sensor is not directly in line with the air vent.)

**False Off**

Lights turn off when not desired and often the lights turn back on within a minute – this is typically because a user is waving their arms to turn the sensor back on.

The most common cause is improper sensor selection (e.g., a high-traffic wide-range sensor located in a cubicle environment where people stand often still), or there is insufficient sensor coverage.

The solutions include increasing timeouts, increasing occupancy group size so that more sensors are attached to the group, and adding more sensors or replacing improper sensors.

For quick diagnosis, download a Unit History Report from the Webmin Tools menu. If you have workpoints set up to occupancy groups in a 1:1 arrangement, the Only show workpoints option may provide clarity.
5 – Troubleshooting

For False On issues:
- Look for workpoints/units turning on between 1:00 AM and 5:00 AM.
- Particularly note units that stay on for the minimum duration.
- Some sites have security patrols or late-night cleaning services, so use your discretion when analyzing results:
  - Does it appear as if someone is methodically walking the building, or is it a random isolated area going off?
  - Is a large section of the building turning on simultaneously? This may indicate the HVAC is turning on and disrupting the sensors.

For False Off issues:
- Look for workpoints/units that are turning off and then on again within a minute. This is highly unlikely unless someone is “waving” the sensor back on.

When you have completed your analysis, note any problem units and submit your report.

5.4 – Retrieving Zone Controller Log Files

Centralized Systems
Follow these steps to retrieve Zone Controller log files from a Central Server.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Login to Webmin on the IP address of the Central Server. Click <strong>Lighting Management System</strong> in the Main menu, and then click <strong>Tools</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Locate the Download Logs region. From the LCP list on the left, select the LCPs for which you want logs, then click ➔ to move them to the right.</td>
</tr>
<tr>
<td>3</td>
<td>Set the <strong>Days Back</strong> value to provide the amount of report data you want, and then click Download Logs.</td>
</tr>
</tbody>
</table>

**NOTE**
It can take 5-10 minutes to retrieve the data.

Standalone Systems
Follow these steps to retrieve Zone Controller log files from a Local Controller.

EXAMPLE

2 Optionally, enter a new value for the Archive name.

3 Click Others in the Main menu, then click Upload and Download, and then click Download from Server.

4 Click to select the log file, which will be found at:
   /backup/<archivename>.<date>.tgz.

5 Click Download.

5.5 – Wiping the Replication Manager Configuration

Follow the steps below on the Central Manager to completely erase the Replication Manager configuration when you need to start over from a known state.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Login to Webmin on the IP address of the Central Manager. Click <strong>Lighting Management System</strong> in the Main menu, and then click <strong>Replication Manager</strong>.</td>
</tr>
</tbody>
</table>
### 5 – Troubleshooting

#### 5.6 – Using Ping to Test a Network Connection

Follow the steps below to test a network connection using the ping protocol.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Login to Webmin on the IP address of the Central Manager. Click <strong>Networking</strong> in the Main menu, and then click <strong>Network Utilities</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Click <strong>Ping</strong>.</td>
</tr>
</tbody>
</table>

**RESULT**

**EXAMPLE**

Editing File `/root/servers.list`

Delete all text below the CSIPA declaration, as highlighted in the example. If the Central Manager IP address is being changed, delete all of the lines.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Delete all text below the CSIPA declaration, as highlighted in the example. If the Central Manager IP address is being changed, delete all of the lines.</td>
</tr>
<tr>
<td>9</td>
<td>Click <strong>Save</strong>.</td>
</tr>
</tbody>
</table>
5 – Troubleshooting

3. Enter the IP address of the Local Controller in the Hostname field, and then click **Ping it**.

   **EXAMPLE**

   ```
ping -c 5 192.168.8.64
PING 192.168.8.64 (192.168.8.64) 56(84) bytes of data.
64 bytes from 192.168.8.64: icmp_seq=1 ttl=64 time=0.714 ms
64 bytes from 192.168.8.64: icmp_seq=2 ttl=64 time=0.393 ms
64 bytes from 192.168.8.64: icmp_seq=3 ttl=64 time=0.623 ms
64 bytes from 192.168.8.64: icmp_seq=4 ttl=64 time=0.602 ms
64 bytes from 192.168.8.64: icmp_seq=5 ttl=64 time=0.806 ms
--- 192.168.8.64 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4003ms
rtt min/avg/max/mdev = 0.486/0.714/0.806/0.074 ms
```  

4. If you see a result similar to the one above, the connection attempt was successful. Otherwise, there is a problem with your network connection to that IP address.

### 5.7 – Obsolete Procedures

Obsolete procedures that can result in unexpected system behavior are listed in the table below, along with the new procedures that should be used instead.

<table>
<thead>
<tr>
<th>Obsolete Procedure</th>
<th>New Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restarting the ZC with the Linux Terminal</td>
<td>Use Webmin LMS Controller Service or the MCA to restart.</td>
</tr>
<tr>
<td><strong>IMPORTANT</strong></td>
<td><strong>Restarting through the terminal will not sync configuration changes.</strong></td>
</tr>
<tr>
<td>If you must restart through terminal, run</td>
<td><strong>Webmin tool – Fast Rename Units</strong></td>
</tr>
<tr>
<td><code>/root/syncSlaves first.</code></td>
<td></td>
</tr>
<tr>
<td><code>setup_central.sh</code></td>
<td><strong>Webmin tool – Initial Configuration</strong></td>
</tr>
<tr>
<td>Unit renaming scripts</td>
<td><strong>Webmin tool – Fast Rename Units</strong></td>
</tr>
<tr>
<td>Manually uploading DXF/SVG</td>
<td><strong>Webmin tool – Upload/Download DXF/SVF</strong></td>
</tr>
<tr>
<td>Retrieving logs with the Linux terminal</td>
<td><strong>Webmin tool – Download Logs (Centralized system)</strong></td>
</tr>
<tr>
<td>Changing IP manually</td>
<td><strong>Webmin tool – Change IP (Centralized system)</strong></td>
</tr>
<tr>
<td>Changing the time zone one WAC at a time</td>
<td><strong>Webmin tool – Setup Time Zone (Centralized system)</strong></td>
</tr>
</tbody>
</table>