Power is knowledge.™

# MSM Enterprise
# Multi-Site Manager Installation Manual

LifeSafety Power®

MSM ENTERPRISE™

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P03-065 Rev A08

# LSP Cybersecurity Guidelines

Protect data by implementing best practices

- Create custom password / User ID on setup
- Configure for secure web-based mgmt
- Use TLS (”https”) whenever possible
- Set SSL option to high whenever possible
- Use SNMP v3 with secured credentials
- Use IPV6 whenever possible

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# Section 1 – Introduction

LifeSafety Power's MSM Enterprise is a Windows PC based software package which allows central management of 500 or more* LifeSafety Power network managed power systems. The Multi Site Manager (MSM) server allows the user to connect any network connected LSP device within a local network or via the internet from anywhere in the world. The included web browser interface allows access to the MSM from any location using the local network or through the internet using any web browser on a PC, Mac, tablet, smartphone, or other device.

### Netlink Batch Upgrade Capability

With release of MSM Enterprise V4.37 (March 2019), all Netlink or NPR devices connected to the MSM Enterprise can now be monitored for status and firmware revision on a single screen. Batch firmware updates simplify the process of keeping NetLink devices updated to the latest feature set and cybersecurity standards (NL4 firmware needs to be V8.08 or higher). Advanced analytics features of MSM Enterprise include a critical events list, formatted dashboard display of historical data, statistical data, and advanced charting and reporting features.

## 1.1 Minimum System Requirements*

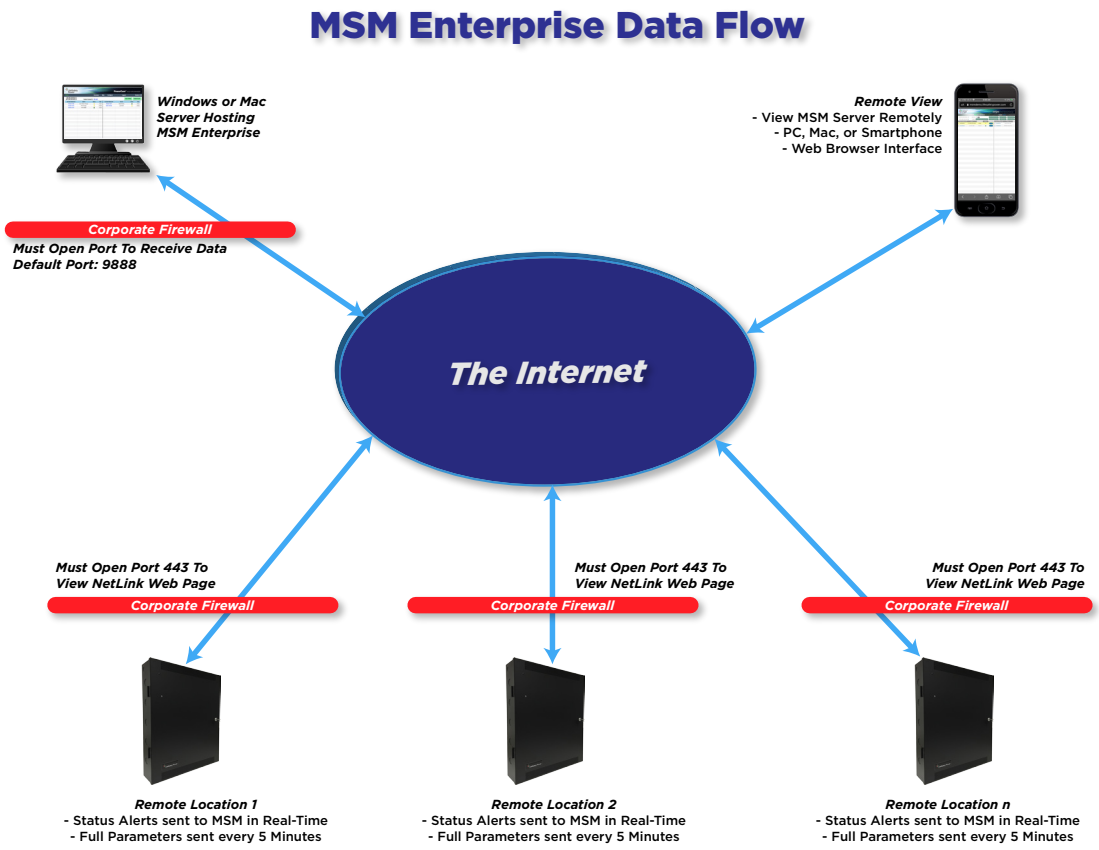
**System Requirements:**

Operating System: Windows 7, Windows 10, Windows Server 2008, Windows Server 2012, Windows Server 2016, or Windows Server 2022

Processor: Intel Core i5 (minimum) - Intel Core i7 preferred

Memory: 8GB RAM (minimum)

* Note - MSM Enterprise will connect to a theoretically unlimited number of networked LSP systems, however, as the number of systems increases, the speed of MSM Enterprise reduces. The speed decrease is dependent on the speed of the server on which MSM Enterprise is installed. LifeSafety Power has tested MSM Enterprise with more than 500 connected systems with acceptable results.



# Section 2 – Installing the MSM Enterprise Server Application

The MSM Enterprise Server application must be installed on a Windows-based system with the minimum specifications shown in section 1.1 of this guide. Before installing the software, any previous versions MUST be uninstalled. In addition to the MSM Enterprise Server software, the installation package will also install MySQL and IIS on the machine if not already installed.

***NOTE: It is strongly recommended to disable all antivirus software before installation.***

## 2.1 Install the MSM Enterprise Server Software

Please follow the steps below closely to properly install the MSM Enterprise server software.

1. Ensure any previous version of MSM Enterprise Server is uninstalled completely from the PC.
2. Copy the MSM Server installation files to the hard drive of the PC.
3. Open "MSMServerSetup.exe" and click "Yes" or "Run" if the warning regarding "unknown publisher" appears (Figure 1).

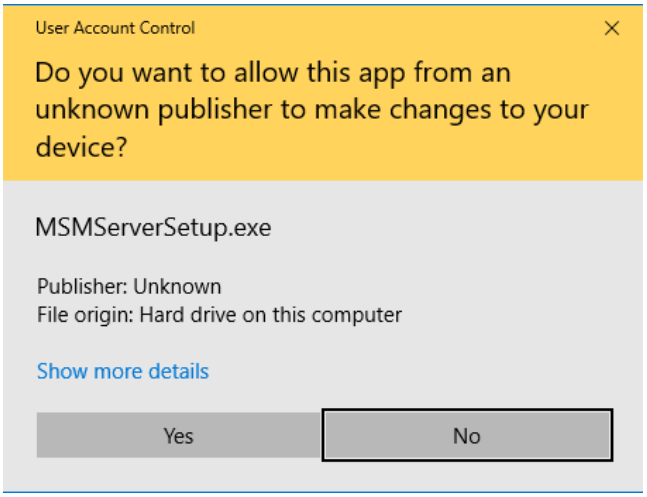



Figure 1

4. If the .NET Framework 4.0 and 4.5 are not both installed, the .NET Framework 4 installation window will appear. Check the "I have read and accept the license terms" box and click "Install". Click "Finish" when the .NET Framework 4.0 installation is complete. (Figure 2) If asked, choose "Restart later".

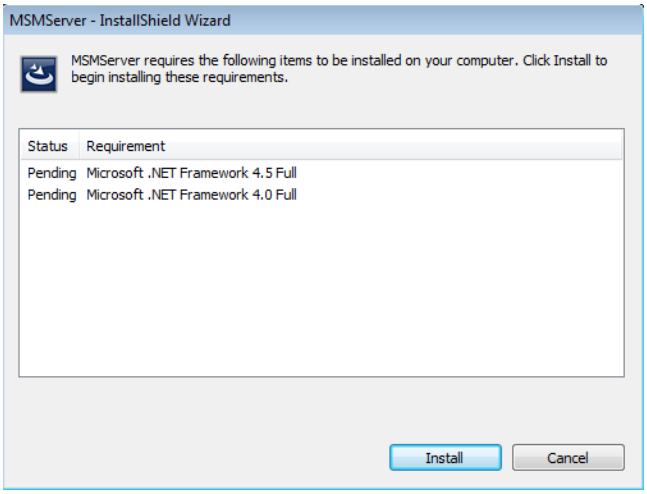



Figure 2

# Section 2 – Installing MSM Enterprise Server (continued)

5. The MSM Enterprise Server installation window will appear (Figure 3). Click "Next".

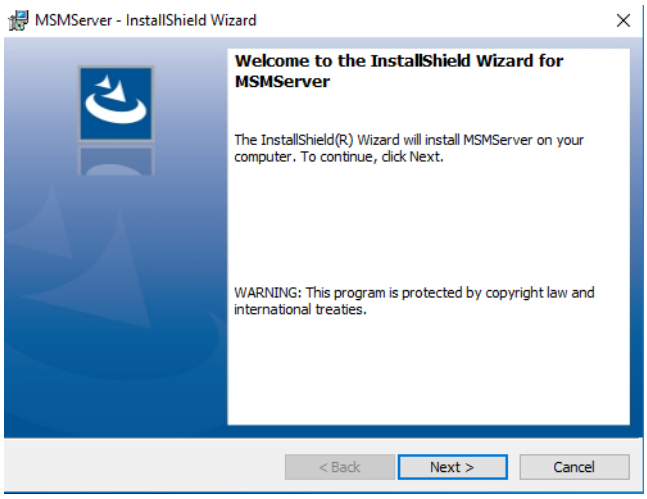



Figure 3

6. Read the license agreement, select "I accept the terms in the license agreement", and click "Next".

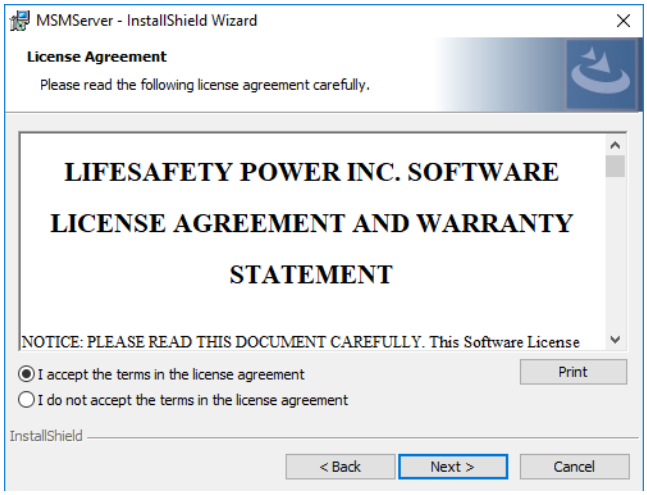



Figure 4

# Section 2 – Installing MSM Enterprise Server (continued)

7. On the "Ready to Install" window, click "Install". (Figure 5)

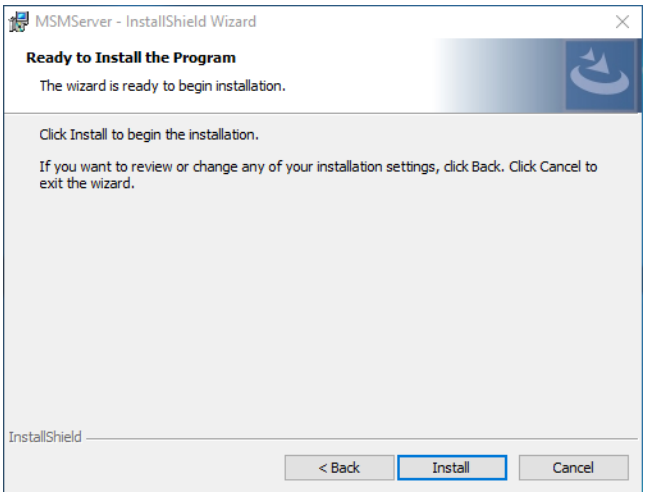



Figure 5

8. The installation wizard will begin the installation. (Figure 6)

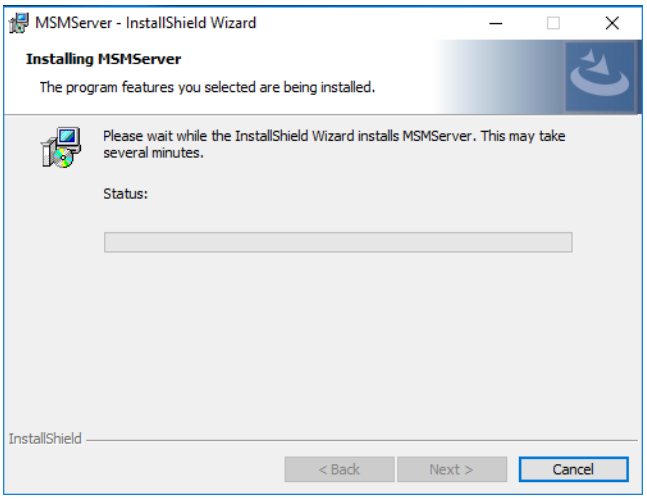



Figure 6

# Section 2 – Installing MSM Enterprise Server (continued)

9. When the installation completes, click "Finish" (Figure 7).

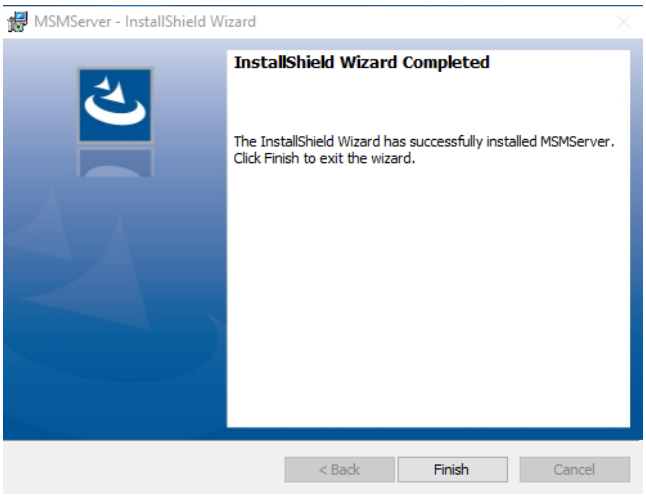



Figure 7

10. Click "OK". (Figure 8)

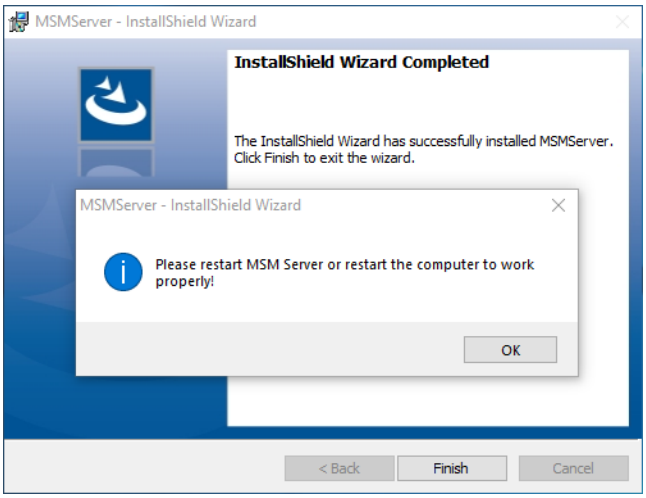



Figure 8

# Section 2 – Installing MSM Enterprise Server (continued)

11. Windows will begin configuring MSM Server. If the LSP Certificate cannot be found, the installation will ask to install it. Click Yes if this window appears (Figures 9a and 9b)

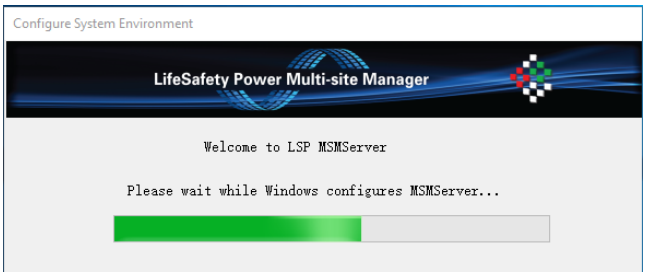



Figure 9a

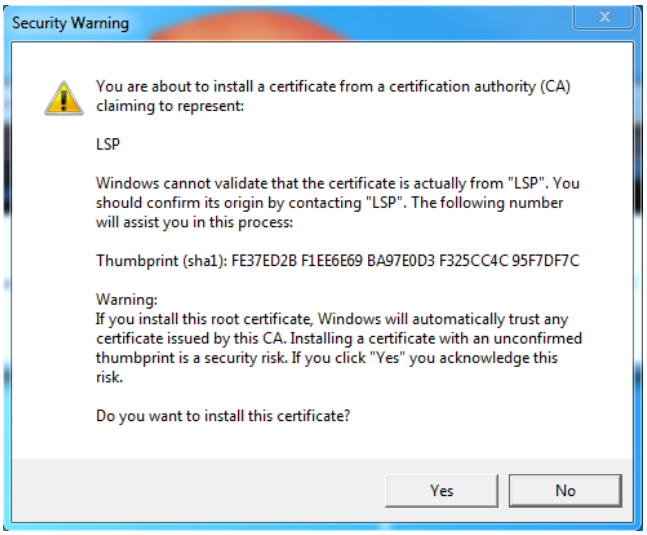



Figure 9b

12. If MySQL 8.0 is not already installed, the MySQL installation window will appear. (Figure 10) See Appendix A of this manual for MySQL installation & configuration information.

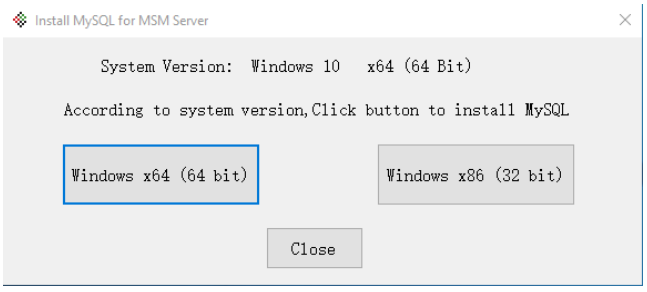



Figure 10

# Section 2 – Installing MSM Enterprise Server (continued)

13. If IIS is not already installed, the IIS Installation window will appear. (Figure 11) See Appendix C of this manual for IIS installation details.

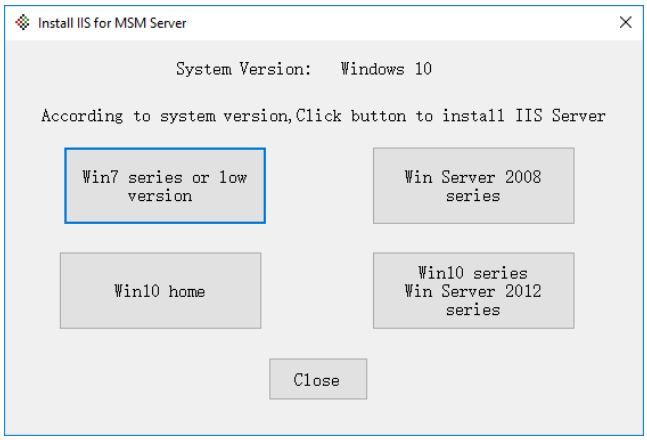



Figure 11

14. Open MSMServer.exe if it does not open automatically. Proceed to section 2.2 to configure MSM Enterprise.

# Section 2 – Installing MSM Enterprise Server (continued)

## 2.2 Testing the MSM Enterprise Server Software Connection

Please follow the steps below closely to verify the MSM Enterprise server software installation and configure the software.

1. Open MSM Enterprise Server. On the "Home" tab, ensure the IP Address is selected for the PC running MSM Enterprise. Ensure the port is set for 9888. Click the start button. (Figure 12)

   ***NOTE: Ensure any firewall is configured to allow a TCP connection to Port 9888.***

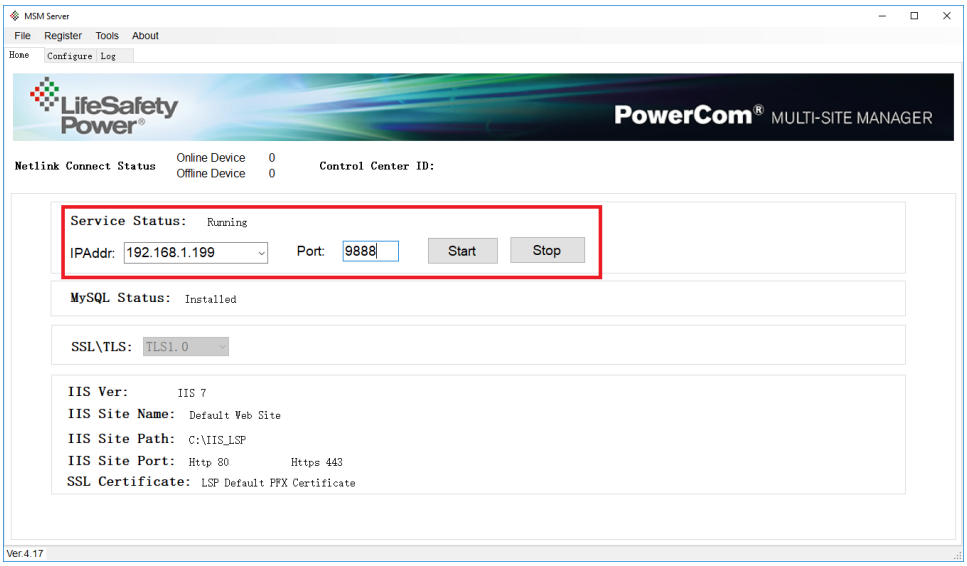



Figure 12

2. Verify the connection and that IIS is installed correctly by opening a web browser and browsing to the IP address entered in Step 1. Since MSM Enterprise uses a self-signed certificate, the browser may give a warning that the connection is not private. Ignore the warning and proceed to the address. (Figures 13a and 13b)

# Section 2 – Installing MSM Enterprise Server (continued)

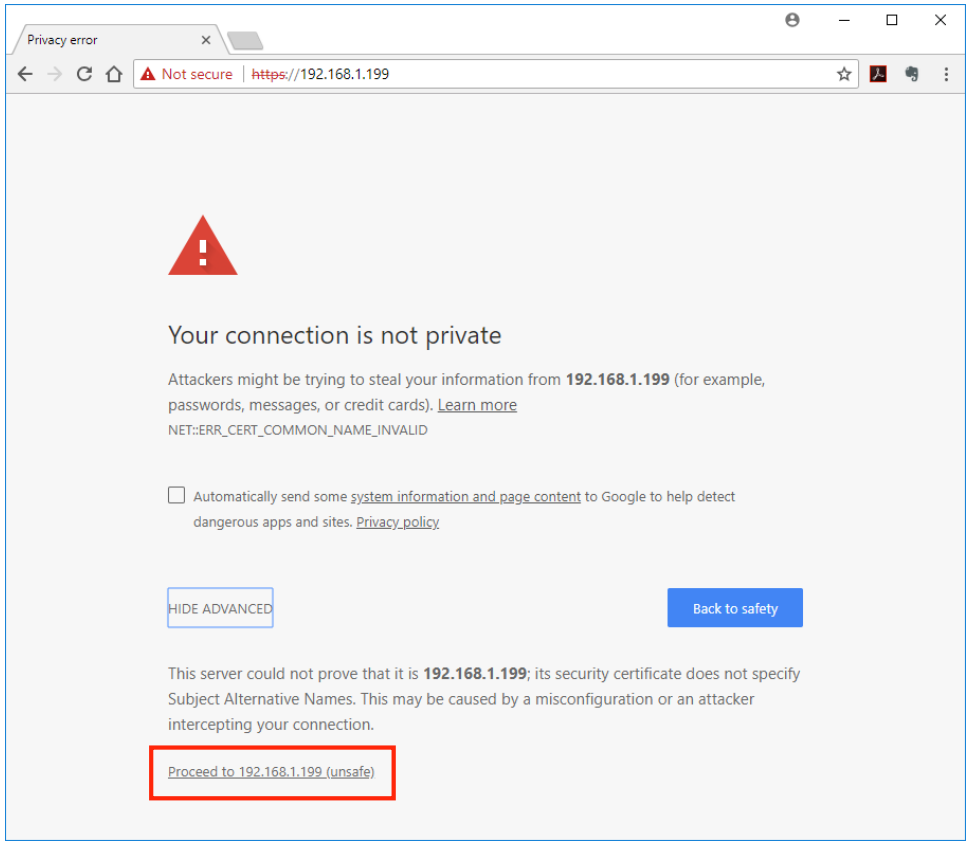



Figure 13a

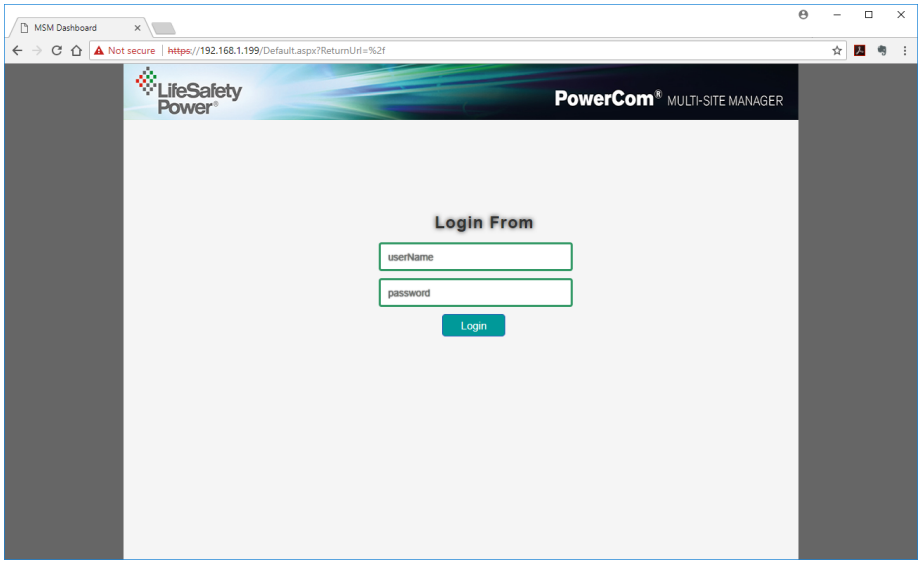



Figure 13b

# Section 2 – Installing MSM Enterprise Server (continued)

## 2.3 Configuring the IIS settings in MSM Enterprise

Follow the steps below to configure the IIS settings in MSM Enterprise.

1. Go to Tools > Web IIS Configure. (Figure 14) If the IIS installation failed during the installation of MSM Enterprise, select "Install IIS Server" then click "Next Step" to restart the installation. See Appendix C.

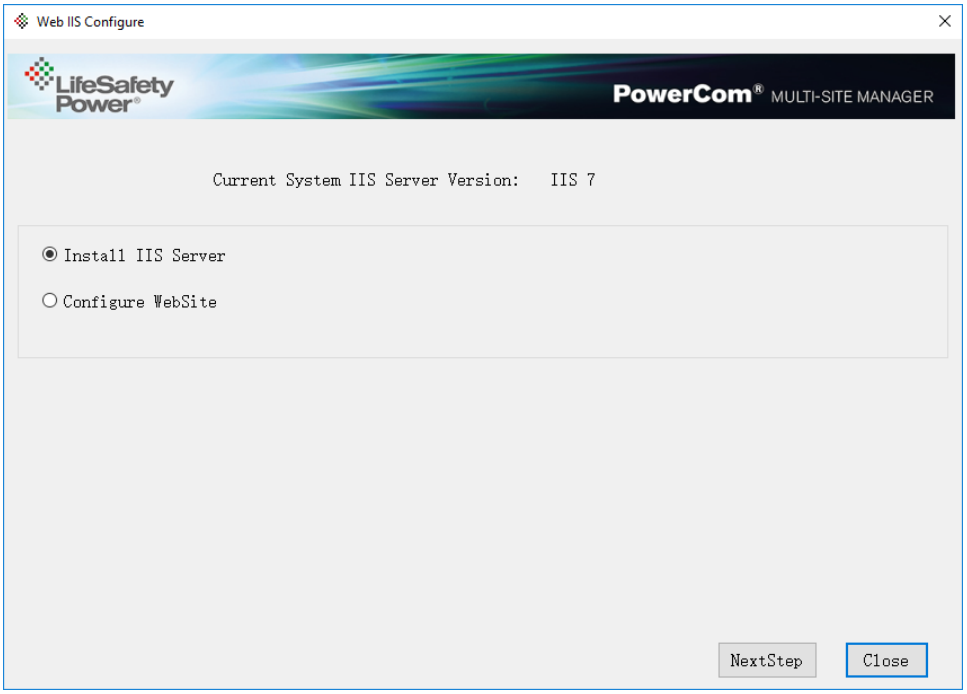



Figure 14

# Section 2 – Installing MSM Enterprise Server (continued)

2. Select "Configure Website" and click "Next Step" to open the IIS Configuration window. (Figure 15)

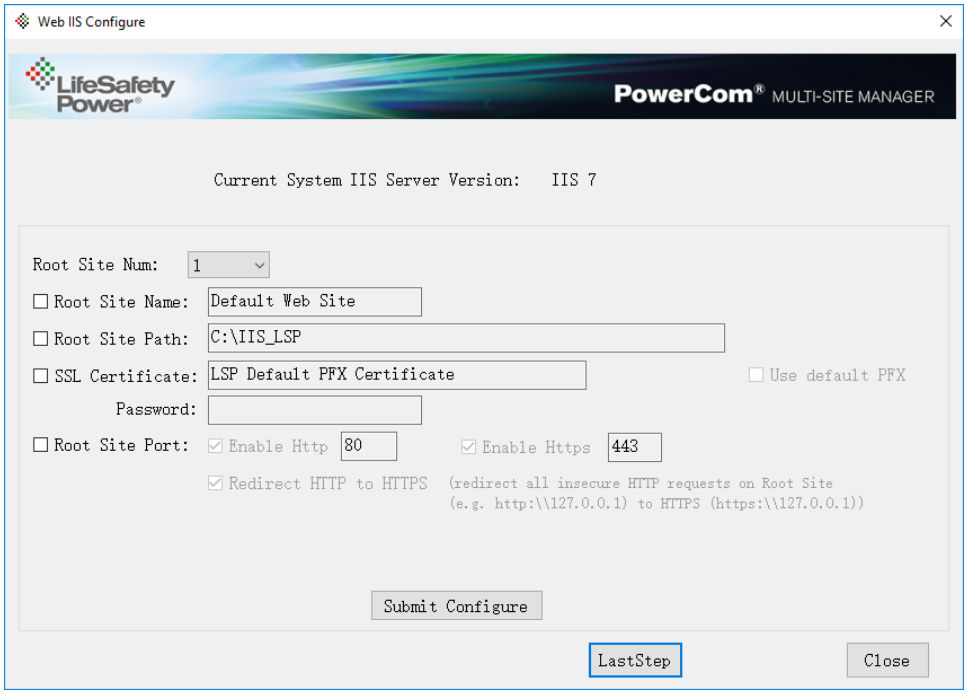



Figure 15

3. The following items can be configured in the IIS Configuration window:

- Root Site Num - If there is more than one IIS website present, select the IIS website for MSM Enterprise here.
- Root Site Name - The name of the selected IIS website as it appears in IIS. The MSM Enterprise website can be renamed in IIS here.
- Root Site Path - This is the path where the MSM Enterprise website pages are stored. By default, these are stored in the C:\IIS_LSP folder. If this path is modified, the website pages will be installed into the new folder.
- SSL Certificate - The SSL certificate used can be changed here. SSL Certificates must be type PFX. Enter the password for the certificate in the "Password" field before submitting.
- Root Site Port - These are the port numbers used for HTTP and HTTPS access to the webpage. HTTP or HTTPS access may also be enabled or disabled, and HTTP access can be set to redirect to HTTPS. Ensure the port(s) used are open on any firewalls.

After configuring the above, click "Submit Configure", then click "Close" to complete the configuration.

# Section 2 – Installing MSM Enterprise Server (continued)

## 2.4 Configuring the MySQL Password in MSM Enterprise

The default password MSM Enterprise uses for MySQL is "12345". If a different password was entered when installing MySQL, use the following steps to change the password for MSM Enterprise.

1. Go to Tools > MySQL Configure. (Figure 16)

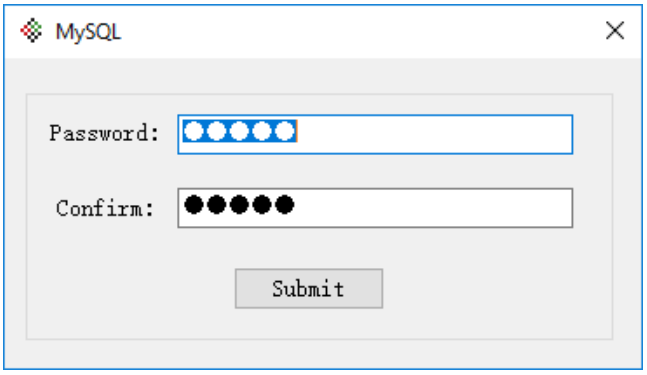



Figure 16

2. Enter the new password in both the "Password" and "Confirm" fields. Click Submit to change the password. The "MySQL connection success!" window should appear (Figure 17). If not, verify the password.

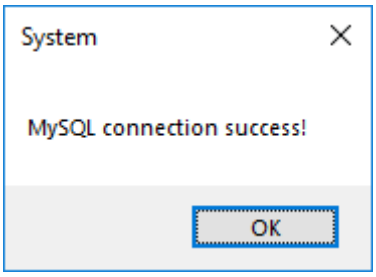



Figure 17

# Section 2 – Installing MSM Enterprise Server (continued)

## 2.5 Verifying the MSM Service Status

To verify the the MSM service is installed properly, use the following steps.

1. Go to Tools > MSMService Configure to open the MSM Service Configure window. (Figure 18)

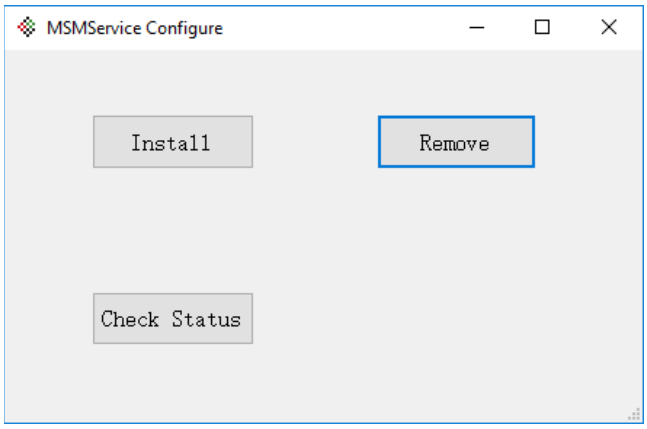



Figure 18

2. Click the "Check Status" button to verify. If the service is installed correctly, the status will show as either "Running" or "Stopped" depending on if the service was started from the MSM Server home page (Figure 19). If the "Check Status" cannot find the MSMService, click the "Install" button.

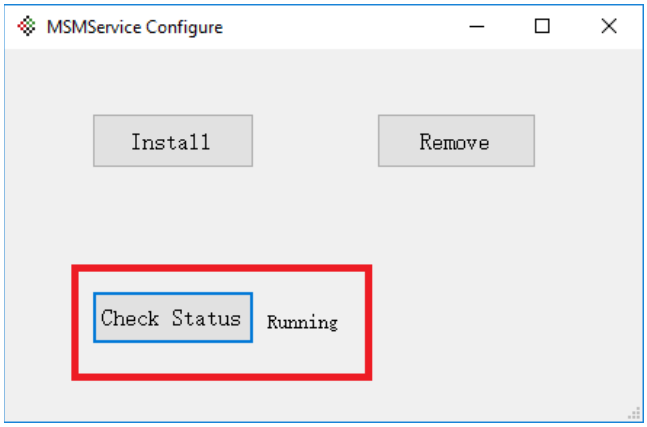



Figure 19

# Section 2 – Installing MSM Enterprise Server (continued)

## 2.6 Registering the MSM Enterprise Server Software

The free download of MSM Enterprise allows for up to 4 systems to be monitored. If additional systems are required, licenses may be purchased and added to MSM Server. When the license information is obtained, use the following steps.

1. Open MSM Server, if not already opened, and click "Register" in the top menu bar to show the licensing window. (Figure 20).

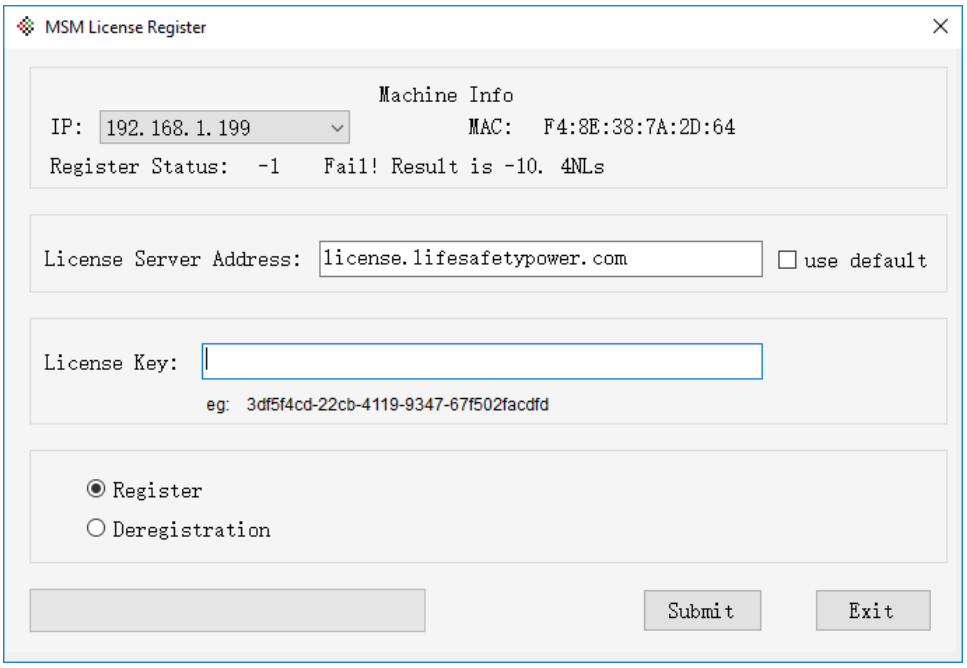



Figure 20

2. Enter the purchased license key number in the "License Key" field. Ensure the license server address is "license.lifesafetypower.com" and that "Register" is selected. Click the "Submit" button to register. (Figure 21)

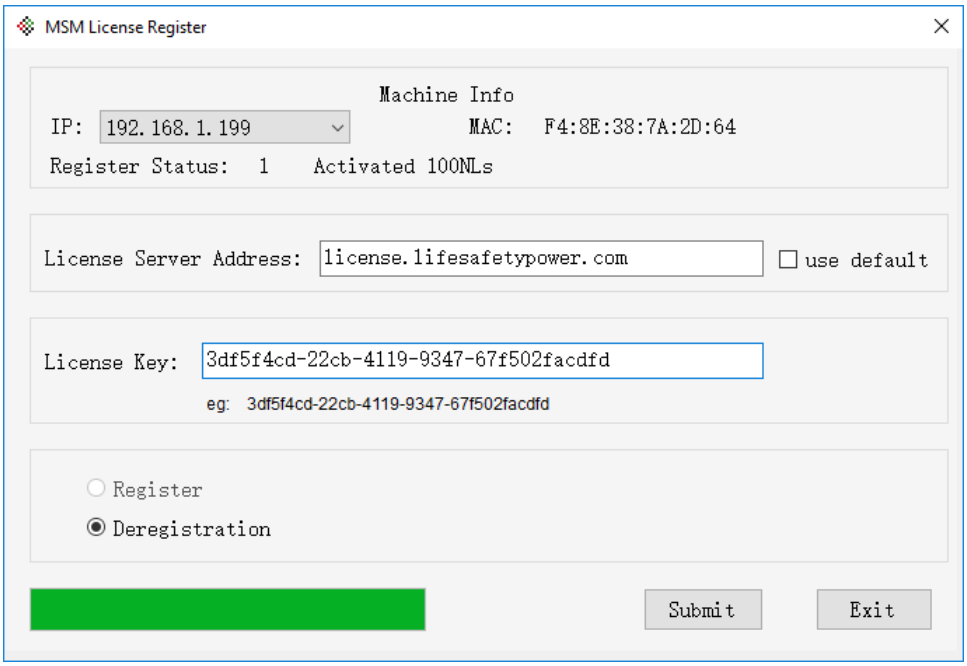



Figure 21

## 2.7 Allowing Access to the MSM Enterprise Website From Outside the Local Network

In order to access the MSM Enterprise website from outside the local network, a TCP port forward needs to be setup to the IP address of the computer where the MSM Server application is installed. It is recommended to use port 443 and HTTPS access to the MSM, however port 80 and HTTP may be used if desired. Ensure any firewall has port 443 or 80 open, as necessary. Consult with your IT department for more information on setting up a port forward.

## 2.8 Using Certificate Verification between MSM Enterprise and NetLink

To enable Certificate Verication, click Certificate Configure in the Tools menu of MSM Server. Check Enable Certificate Verification With NetLink, upload the certificate, and configure as necessary. Note that each NetLink must also be fonfigured to use the certificate. See Section 3.5.

Figure 21.5

# Section 3 – Using MSM Enterprise

After MSM Enterprise Server is installed, the final configuration can be performed and systems may be added.

## 3.1 The MSM Server Configure Page

The configure page of the MSM Server contains five main sections for configuration (Figure 22). Note that these settings are also available from the MSM Enterprise webpage interface. See Section 3.9

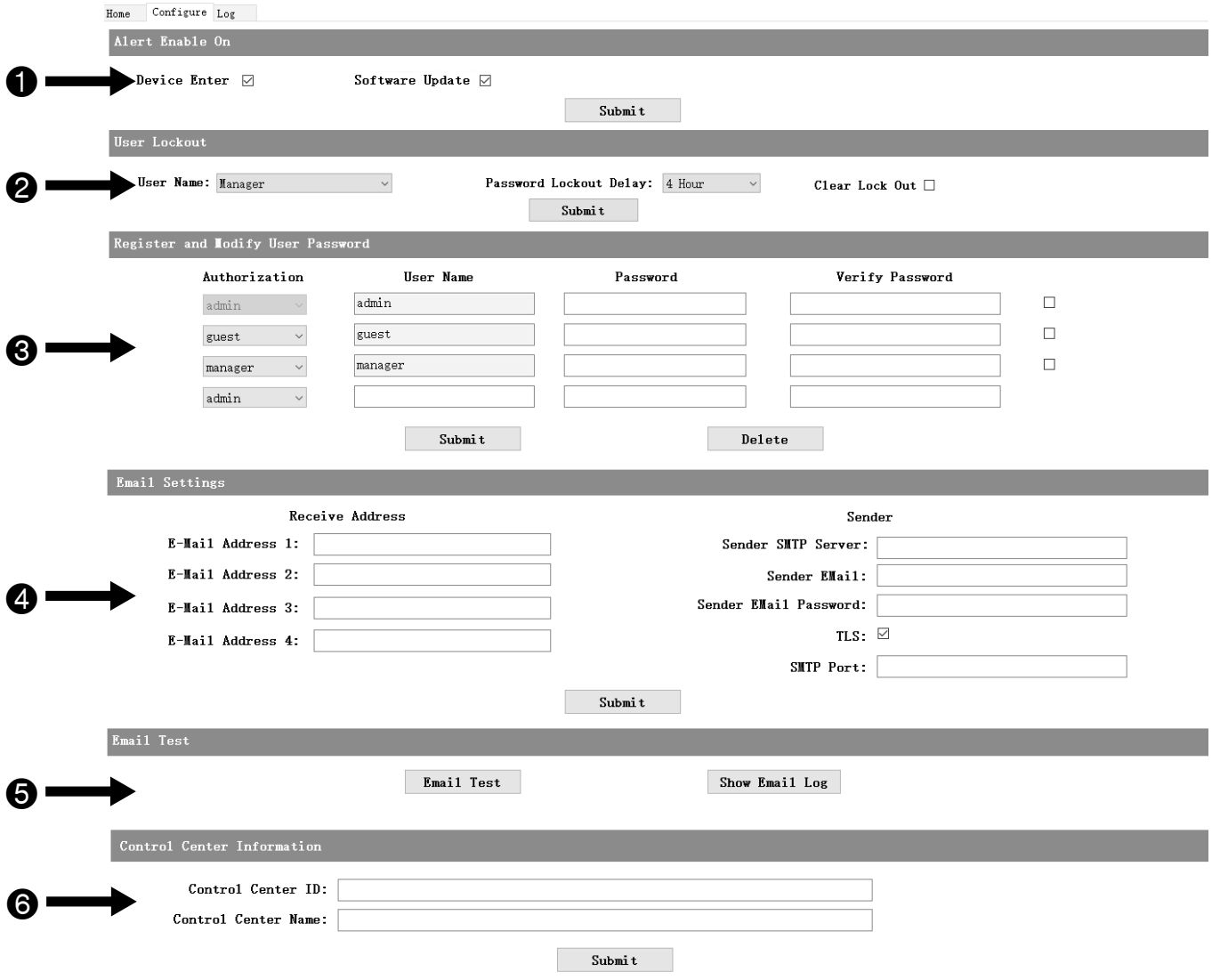



Figure 22

# Section 3 – Using MSM Enterprise (continued)

### ❶ *Alert Enable On*

This section contains checkboxes for selection:

- Device Enter - When checked, MSM Enterprise will send an email alert when a device connects to MSM Enterprise.
- Software Update - When checked, MSM Enterprise will notify the user when firmware upgrades are available for download from the cloud (NL4 requires firmware v. 8.08 or higher) or when a new version of MSM Enterprise is available.

Click "Submit" after any changes.

### ❷ *User Lockout*

Password Lockout Delay - This section allows an administrator to set the lockout time for incorrect password entry by user. The user is locked out for the specified time after entering the incorrect password 3 consecutive times. The "Clear Lockout" checkbox allows administrator level users to reset a current lockout. Click "Submit" after making changes.

### ❸ *Register and Modify User Password*

This section allows the user to add or modify user accounts for logging into the website. By default, there is one administrator account. Additional users may be added with one of three access levels:

- ***admin*** - allows full access to all MSM Enterprise features and settings.
- ***manager*** - allows full access with the exception of the Configure page.
- ***guest*** - allows full access with the exception of the configure page and batch NetLink firmware updates.

Click "Submit" after any changes.

Note - When accessing a NetLink board from MSM Enterprise's home page, the access level granted to the NetLink will be the same as the MSM access level. i.e. When logged into MSM Enterprise as a Guest, only Guest-level access will be granted to the NetLink.

### ❹ *Email Settings*

These settings allow MSM Enterprise to send email alerts. This section contains the following fields:

- Receive Address - These are the email addresses to receive the email alerts. Up to four email addresses may be entered.
- Sender SMTP Server - This is the SMTP server to be used to send email alerts.
- Sender EMail - This is the email address to be used to send email alerts.
- Sender Email Password - This is the password for the email account for sending alerts.
- TLS - Select TLS if your SMTP server requires it.
- SMTP Port - This is the port required by the SMTP server for sending emails.

Contact your email administrator for more information on these settings. Click "Submit" after any changes.

### ❺ *Email Test*

Clicking the "Email Test" button will test the connection to the SMTP server. "Show Email Log" will show detailed results of the email test.

### ❻ *Control Center Information*

These fields are used to identify the location of the MSM Server and appear on the MSM Enterprise webpage. There are two fields:

- Control Center ID
- Control Center Name

These fields can be set to any value helpful to identify the MSM Server installation.

# Section 3 – Using MSM Enterprise (continued)

## 3.2 Accessing the MSM Enterprise Website from Within the Local Network

Once the MSM Server is installed and configured properly, the MSM Enterprise website can be accessed. To access the website, open a web browser on a computer connected to the local network and enter the IP address of the MSM Server (shown on the home page of the MSM Server application). The login screen should appear (Figure 23).

The default login information is:

- User Name: admin
- Password: admin

Note that if other user accounts have been previously created, these accounts may be used to access the website.

Note - Since MSM Enterprise uses a self-signed certificate, the browser may give a warning that the connection is not private. Ignore the warning and proceed to the address.

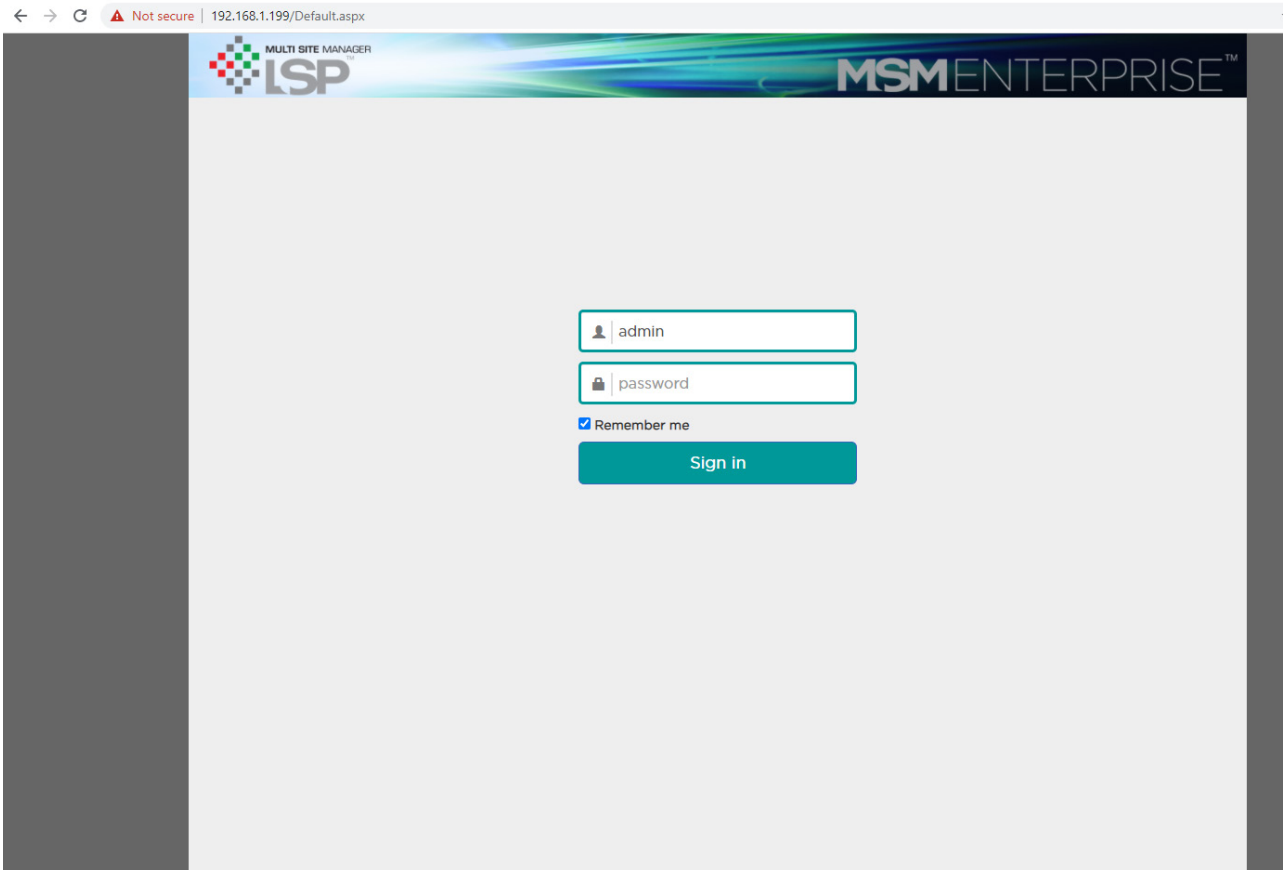



Figure 23

## 3.3 Accessing the MSM Enterprise Website from Outside the Local Network

If accessing the website from outside of the local network, use the outside address for the modem at the MSM Server location, with the port number. Be sure to include "https://" before the IP address if using HTTPS.

For example: https://72.54.12.15:443

Log into the MSM Webpage as described in Section 3.2.

Note - The local network where the MSM Server application is installed must be configured with a port forward to allow access. See Section 2.7 for more information.

# Section 3 – Using MSM Enterprise (continued)

## 3.4 The MSM Home Page

After logging into the website, the Home page of the MSM Server will appear. (Figure 24)

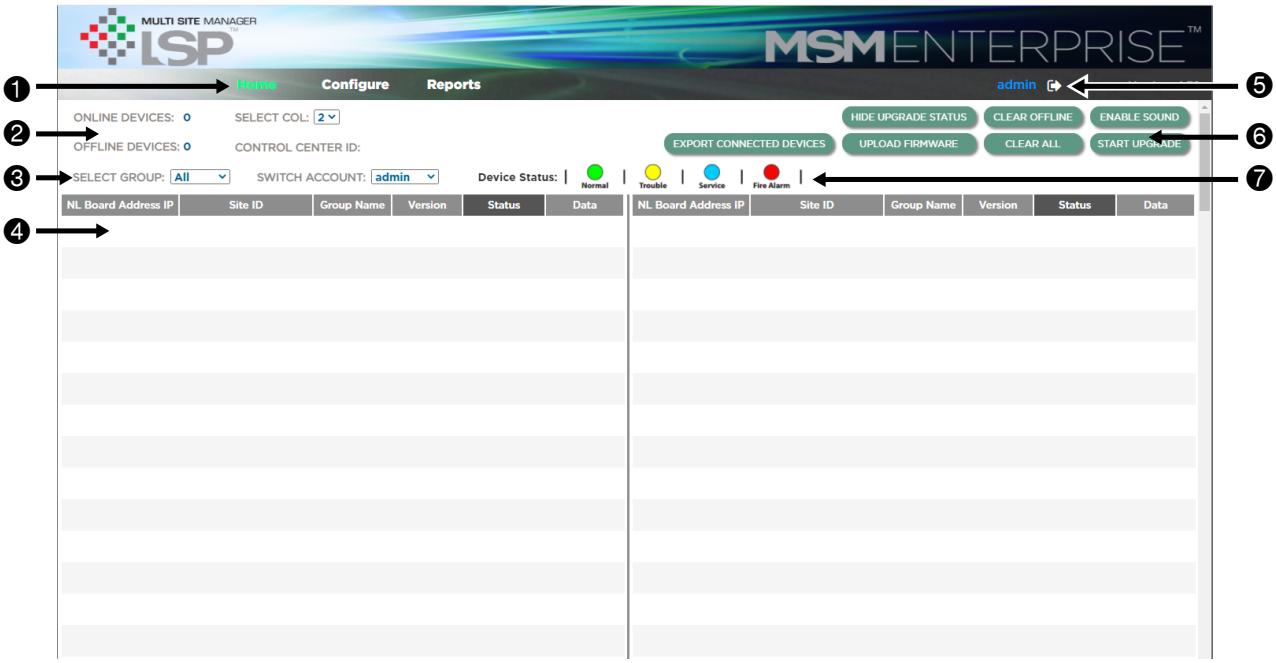



Figure 24

### ❶ *Top Menu Bar*

The top menu bar contains the following items:

- Home - Brings the user back to the MSM home screen from anywhere within the web interface
- Configure - This selection brings the user to the configure page for MSM Enterprise. See Section 3.9
- Reports - This selection brings the user to the reporting page of MSM Enterprise. See Section 3.10

### ❷ *Online/Offline Devices, Control Center ID & Column Display*

Displays the number of devices currently connected to the MSM Server and devices which were once connected but are now offline. Control Center ID is the ID given in the Configure page (Section 3.9). The column dropdown selector allows the user to select a one, two, or three column display to best fit the monitor size and screen resolution being used.

### ❸ *Multi-Client View Selection*

If the Multi-Client features are configured, the Select Group and Switch Account selections allow the user to select the client view. See Section 4 for more information on configuring and using the Multi-Client features.

### ❹ *Connected Devices Table*

Any NetLink devices connected to MSM Enterprise will appear in this table. See Section 3.5.

### ❺ *User Logout Button*

Clicking the arrow to the right of the user name will log the current user out of MSM Enterprise

### ❻ *Firmware Upgrade, Clear Offline, Enable Sound Buttons*

These buttons perform the following functions:

- Export Connected Devices - Exports the IP address, Ports, MAC, Frimware Revision, and Site ID of one or more connected systems to an Excel file
- Hide Upgrade Status - When a firmware update is started, this button hides the upgrade status for each NetLink device.
- Upload Firmware - Used to manually upload firmware to MSM Enterprise to be used for the batch update.
- Clear Offline - Clears the selected offline devices from the Connected Devices table.
- Select All - Selects all devices in the Connected Devices table.
- Enable/Disable Sound - This button toggles the alert sound for MSM Enterprise.
- Start Upgrade - This button starts the batch firmware upgrade for the selected NetLink devices.

### ❼ *Device Status Key*

This static image provides a key to the status dots in the connected devices table. See Section 3.6.

## 3.5 Adding NetLink Devices to MSM Enterprise

NetLink devices must be pointed to the MSM Server in order to appear in the Connected Devices table. To do this, log into the NetLink device to be connected and go to the MSM Settings section on the Configure Page. The following items are available in this section:

- Mercury Tunnel Port - This field specifies the port Mercury port being used for OneDrop to allow the NetLink to share a port with a Mercury LP Controller. If not using OneDrop, this field can be ignored. See the OneDrop manual for more information.
- Enable Tunnel - This checkbox must be checked if using OneDrop. See the OneDrop manual for more information.
- IP Address - Enter the IP address of the MSM Server
- Source Port Number - Enter the port number used for MSM Server (default is 9888).
- Connected Status - This field shows the current connection status of the NetLink device to the MSM Server. This status may takle several minutes to update after clicking the Submit button.
- Group Name - This field applies the netlink device to a Group when using the multi-client features of MSM Enterprise. See Section 4 for more information.
- Enable Certificate - Check this box when using Certificate Verification between NetLink and MSM Enterprise. See Section 2.8.
- Submit - Click this button to apply the MSM Settings.
- Show MSM Log - Click this button to show the log of activity between the NetLink and MSM Enterprise
- Default Certificate - Sets the default certificate when using Certificate Verification. See Section 2.8.

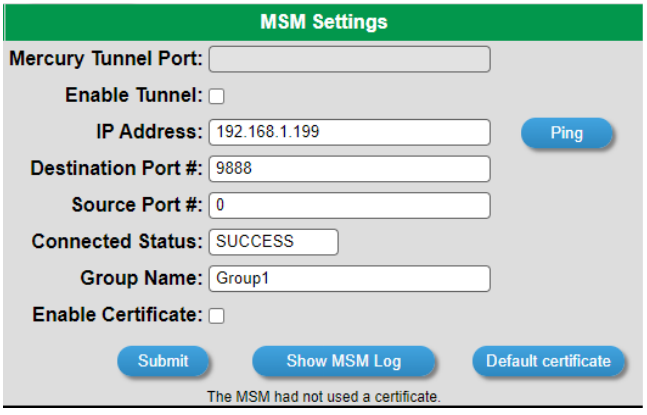



Figure 25

# Section 3 – Using MSM Enterprise (continued)

After entering the MSM Settings information, click Submit. After a few minutes, the NetLink device will appear in the Connected Devices table (Figure 26). Repeat for all devices to be connected to the MSM Server.

***Note: MSM Enterprise will only report the data selected in the Reporting page of the NetLink device. It is recommended to select all checkboxes on this page. See the NetLink manual for more information.***

## 3.6 Connected Devices

Connected NetLink devices display the following information (Figure 26).

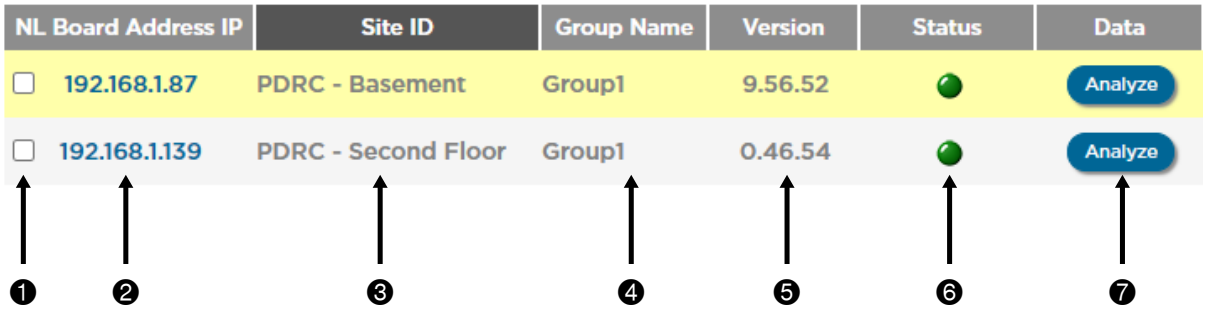



Figure 26

### ❶ *Select Device Checkbox*

This checkbox selects devices in the Connected Devices table to have another action performed such as bulk firmware update or clearing offline devices.

### ❷ *Device IP Address*

The IP address of the connected device as set in the Configure page of the NetLink device. Clicking this IP address brings you directly to the connected device's interface. Click the "NL Board Address IP" heading to sort devices in the Connected Devices table by IP address.

### ❸ *Device Site ID*

The Site ID of the connected device as set in the Configure page of the NetLink device. Click the "Site ID" heading to sort devices by Site ID.

### ❹ *Group Name*

The Group Name of the connected device as set in the MSM Settings section of the Configure page of the NetLink device. The Group Name is used when the Multi-Client features of MSM Enterprise are being used. Click the "Group Name" heading to sort devices by Group Name. See Section 4 for more information.

### ❺ *Device Firmware Version*

The currently installed firmware revision of the connected device. If the "Software Version" checkbox is enabled on the Configure page, this field will also show an icon when a new firmware revision is available on the cloud server as follows:

Blue Circle with "I" - indicates a new firmware revision is available. Click the icon and follow the instructions to download the new version to MSM Enterprise.

Green Cloud - indicates that the new firmware revision has been downloaded to MSM Enterprise and is able to be installed on the device. Check the device(s) to be updated and click the "Start Upgrade" button at the top. See Section 3.4 for more information.

### ❻ *Device Status Indicator*

This column shows the current status of the NetLink device using colored dots as follows:

- Green - The system is in a normal state.
- Yellow - The system is in fault. This fault could be a System Fault or AC Fault.
- Red - The system currently has an active Fire Alarm Interface (FAI) input.
- Blue - Service is required.
- Gray - This device was once connected to the MSM Server, but is currently offline.

The background for any device not in normal condition will also flash in the appropriate color. If sound is enabled, the alert sound will also play. Click the status dot to acknowledge the status change and silence the alert sound.

Click the "Status" heading to sort by device status. This is helpful to bring systems that are not in normal condition to the top of the Connected Devices table.

### ❼ *Analyze Button*

This button brings the user to the summary/data analytics section of MSM Enterprise for NetLink devices. NPR models will not display this button.

## 3.7 The Analyze (Summary) Section

Clicking the Analyze button (#7 in Figure 26) next to one of the devices in the Connected Devices table opens the advanced analytics pages of MSM Enterprise (Figure 28).

### ❶ *Top Menu*

When in the Analyze section, the Summary top menu item will be highlighted.

### ❷ *Analysis Tabs*

The Analyze section consists of four tabs:

- Critical Events - This tab shows any events captured by the NetLink outside of normal conditions (Section 3.7.1)
- Snapshot - This tab shows a formatted dashboard display of historical data (Section 3.7.2)
- Statistics - This tab shows statistical information about the system (Section 3.7.3)
- Analysis - This tab allows the user to create graphs and reports of the collected data (Section 3.7.4)

# Section 3 – Using MSM Enterprise (continued)

### 3.7.1 Critical Events

The Critical Events tab provides a list of events outside of normal conditions (Figure 28). The date range viewed may be selected and the events are time and date stamped.

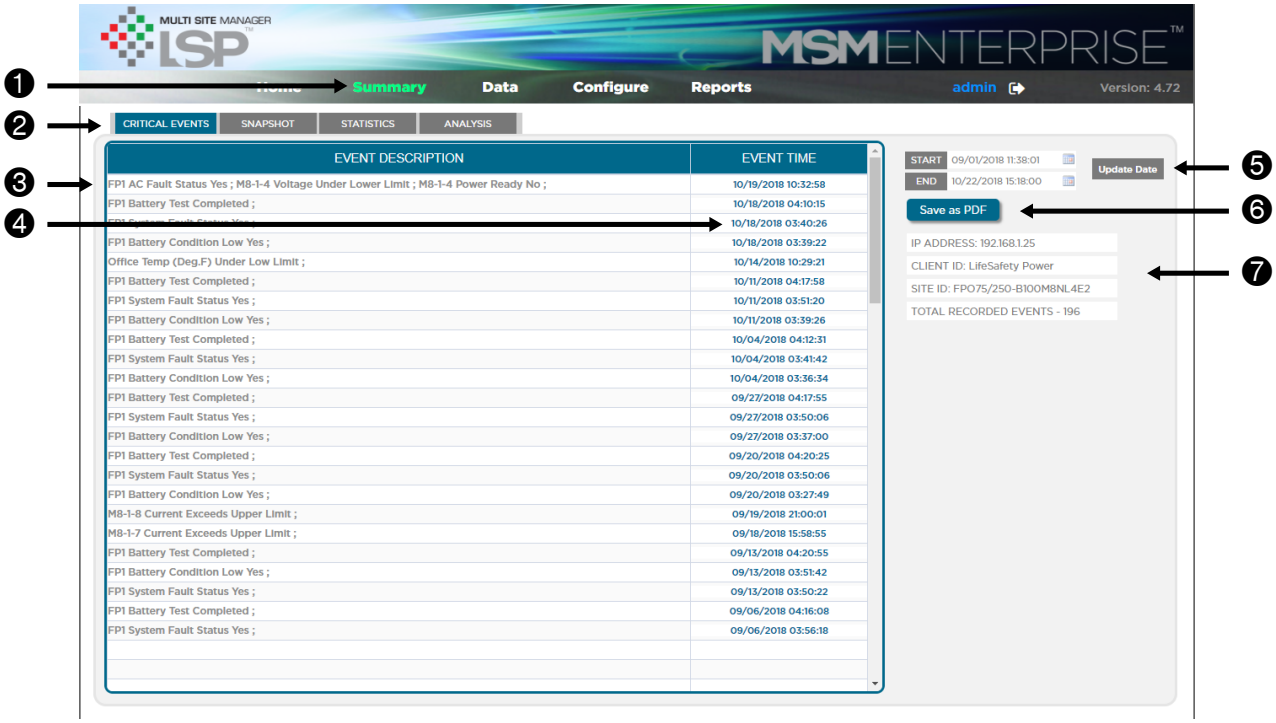



Figure 28

### ❸ *Critical Events*

Events that have occurred during the selected time & date range.

### ❹ *Time and Date Stamp*

The time and date of the recorded events. The time and date for each event can be clicked to bring the user to that point in time on the Snapshot page (Section 3.7.2)

### ❺ *Time and Date Range Selection*

The time and date range of the displayed events may be set here. This is useful to exclude older events from the list that have already been resolved. The date and time may be manually typed in in the format of MM/DD/YYYY HH:MM:SS or the calendar icon in each field may be clicked and the dates and times selected from the calendar display.

***Note: The chosen dates and times must be within the range of events recorded by the device.***

### ❻ *Save as PDF*

This button saves the Critical Events list as a report to a PDF file.

### ❼ *Device Information*

Information related to the connected device, such as IP address, the Client ID and Site ID of the device, and the total number of events that the device has recorded.

### 3.7.2 Snapshot Dashboard Display

The Snapshot tab provides a dashboard display of historical data collected by the NetLink device (Figure 29). The user may scroll through available data to view changes in parameters and how the parameters interplay over time.

***Note: The data presented in the Snapshot Dashboard display is historical data and is not live. To view live data, go directly to the NetLink device from the Home page (Sections 3.4 and 3.6).***

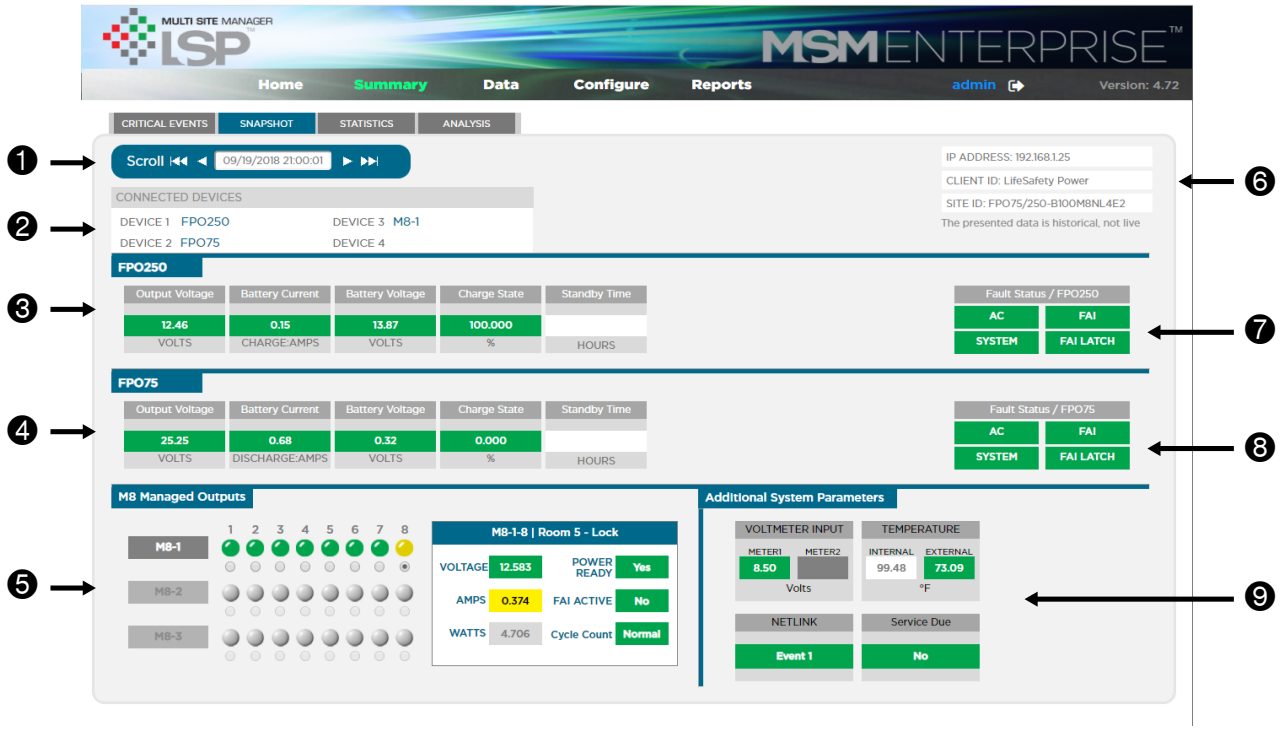



Figure 29

### ❶ *Time and Date Selection*

The time and date to be viewed is selected here. If the Snapshot page was entered by clicking a Time/Date stamp from the Critical Events list (Section 3.7.1), the timestamp clicked will show here.

### ❷ *Connected Devices*

The connected devices detected by the NetLink will appear here. These devices will vary depending on the system configuration. If one or more device connectors on the NetLink are not used, the device will appear blank.

### ❸ *FP1 Parameters*

The measured parameters for power supply FP1 are displayed here, if present. The parameters shown will vary based on available data. See the NetLink manual for more information on these parameters.

### ❹ *FP2 Parameters*

The measured parameters for power supply FP2, if present, are displayed here. The parameters shown will vary based on available data. See the NetLink manual for more information on these parameters.

# Section 3 – Using MSM Enterprise (continued)

### ❺ *M8 Parameters*

The measured parameters for any connected M8 boards are displayed here. Unused M8 boards are grayed out in the display.

- The LED display indicates the status of each output. Green indicates normal, while yellow indicates a fault condition. See the M8 manual for more information on M8 faults.
- To the right of the LED display are detailed parameters for an individual output. Select the output to be viewed by selecting the radio button under the desired output's LED display. See the M8 manual for details on these parameters.

### ❻ *Device Information*

Information related to the connected NetLink device, such as IP address, and the Client ID and Site ID of the device.

### ❼ *FP1 Status*

The fault and FAI status of the FP1 power supply, if present. Normal conditions are displayed as green. Active faults are shown as yellow and active fire alarms are shown as red.

### ❽ *FP2 Status*

The fault and FAI status of the FP2 power supply, if present. Normal conditions are displayed as green. Active faults are shown as yellow and active fire alarms are shown as red.

### ❾ *Additional NetLink Parameters*

These parameters include the Voltmeter (ADC) input, the Event input, the internal and external temperature (if available), and the Service Due reminder. See the NetLink manual for more information on these parameters.

# Section 3 – Using MSM Enterprise (continued)

### 3.7.3 Statistics

The Statistics tab provides statistical data on the parameters collected by the NetLink device (Figures 30 and 31). Note that the statistics are calculated based only on the range of events selected in the Time and Date Range selection, not necessarily the full range of data.

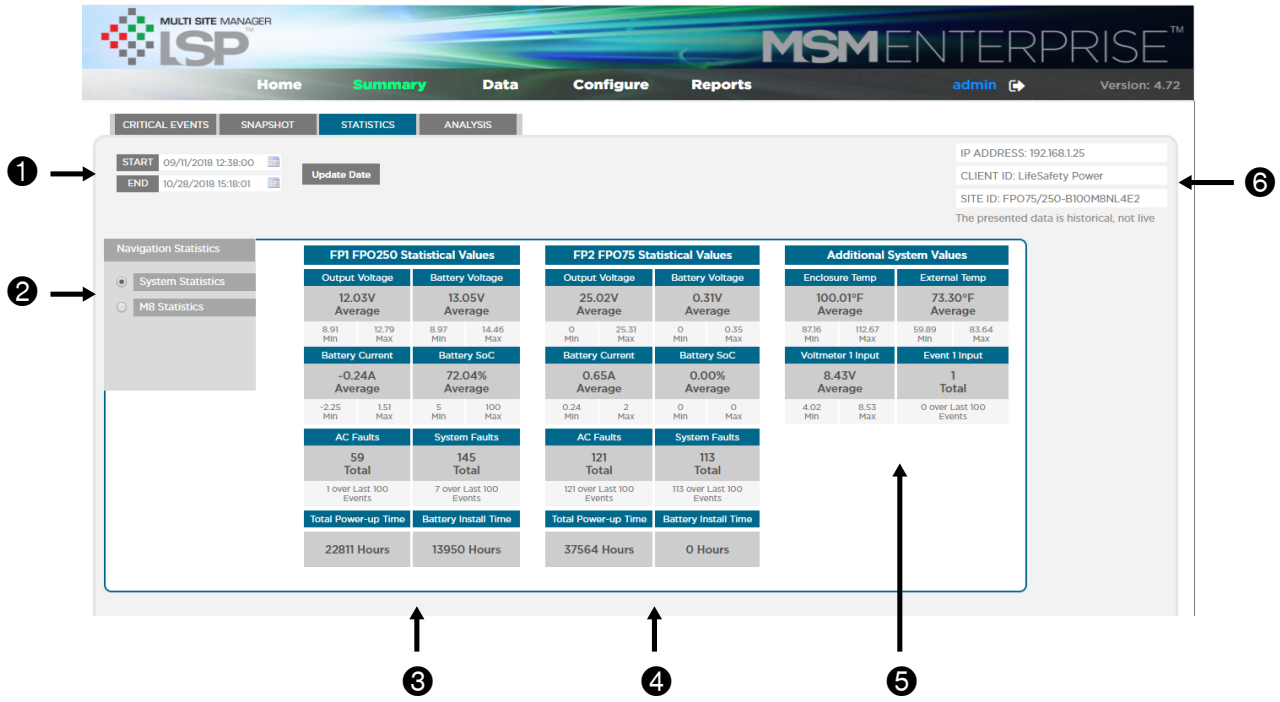



Figure 30

### ❶ *Time and Date Range Selection - System Statistics*

The time and date range of the data used to calculate the statistics may be set here. This is useful to view trends during different time periods. The date and time may be manually typed in in the format of MM/DD/YYYY HH:MM:SS or the calendar icon in each field may be clicked and the dates and times selected from the calendar display.

***Note: The chosen dates and times must be within the range of events recorded by the device.***

### ❷ *Statistics Navigation Selection - System Statistics*

These radio buttons select which set of values to view:

- System Statistics - This selection will show statistical data for the power supplies, as well as additional NetLink-specific parameters (Figure 30).
- M8 Statistics - This selection will show statistical data for any connected M8 devices (Figure 31). If M8 device data is not available, this selection will be grayed out.

### ❸ *FP1 Power Supply Statistics - System Statistics*

These statistics are for the FP1 power supply. For each parameter a minimum, maximum, and average value is provided. See the NetLink and power supply manual for more information on these parameters.

# Section 3 – Using MSM Enterprise (continued)

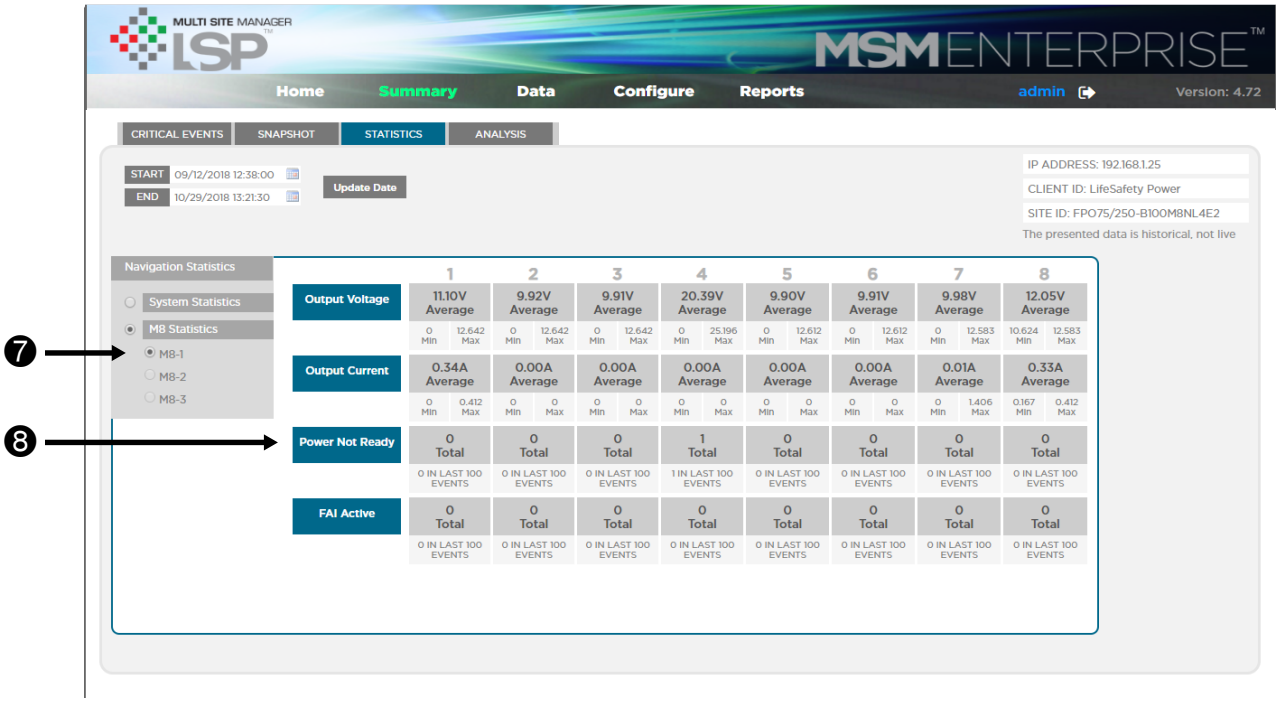



Figure 31

### ❹ *FP2 Power Supply Statistics - System Statistics*

These statistics are for the FP2 power supply. For each parameter a minimum, maximum, and average value is provided. See the NetLink and power supply manual for more information on these parameters.

### ❺ *Additional System Value Statistics - System Statistics*

These statistics are for additional parameters captured by the NetLink device and include internal and external temperature, Voltmeter (ADC) input, and Event Input. Each parameter includes a minimum, maximum, and average value (Event statistics only include the total count of events during the selected time period).

### ❻ *Device Information - System Statistics*

Information related to the connected NetLink device, such as IP address, and the Client ID and Site ID of the device.

### ❼ *M8 Board Selection - M8 Statistics*

These radio buttons select which M8 board statistics to display. If the M8 board data is not available, the radio button for that board will be grayed out.

### ❽ *M8 Board Statistics - M8 Statistics*

These statistics are for the selected M8 board. Each row is a parameter and each column is a specific output on the selected M8 board. For voltage and current, a minimum, maximum, and average value is provided. For Power Not Ready and FAI Active, only a total count is provided. See the NetLink and M8 manuals for more information on these parameters.

### 3.7.4 Analysis

The Analysis tab allows the user to graph parameters and create a PDF report of multiple graphs (Figure 32). For more powerful charting capabilities, see Section 3.8.

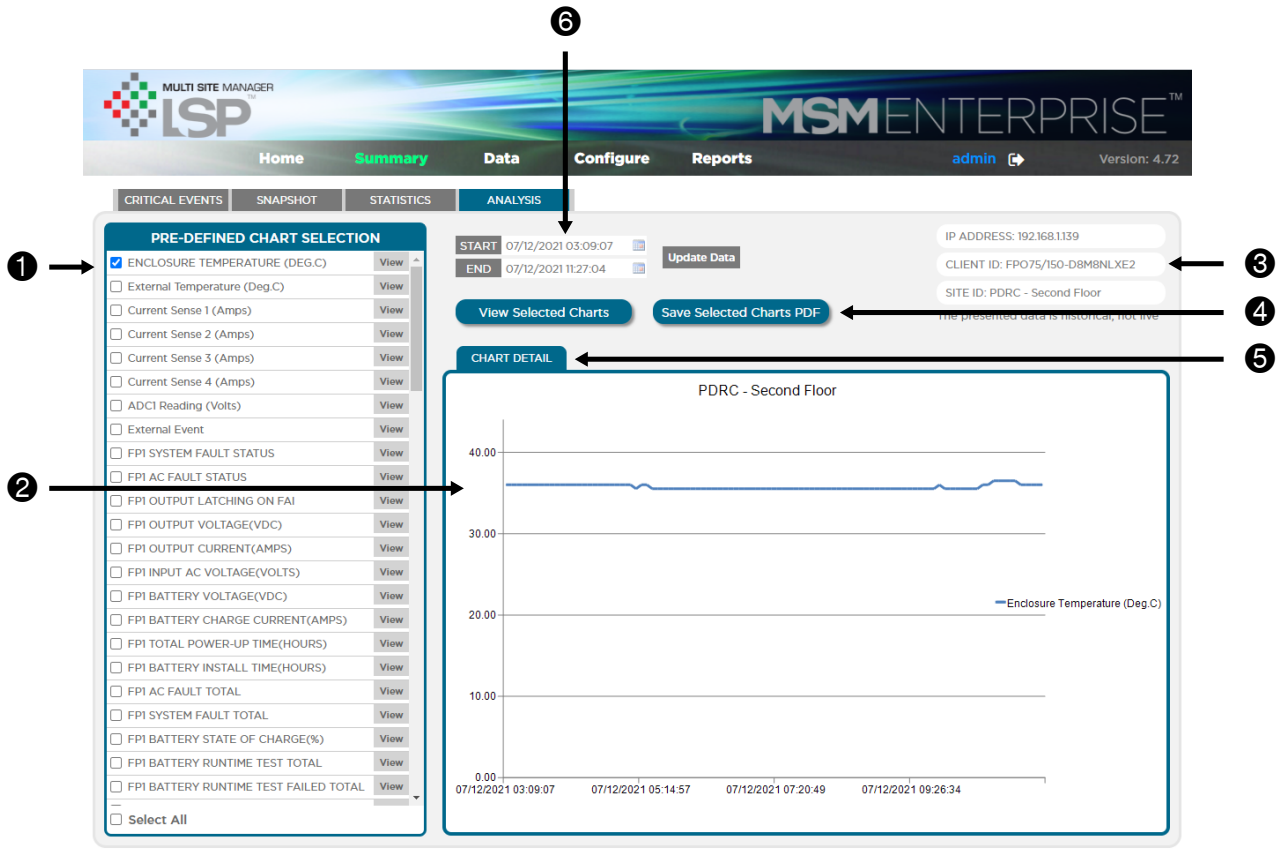



Figure 32

### ❶ *Chart Selection List*

This box provides a list of pre-defined charts which can be easily viewed. By clicking the View button next to a parameter, the chart is shown to the right (See #2). The check box to the left of each parameter allows multiple parameters to be selected for creating overlaying graphs or to create PDF reports (See #4).

### ❷ *Chart Viewing Area*

The selected chart appears in this area, with time and date on the x-axis and the charted data on the y-axis.

### ❸ *Device Information*

Information related to the connected NetLink device, such as IP address, and the Client ID and Site ID of the device.

### ❹ *View Charts and Save PDF Buttons*

If one or more parameters is checked in the Chart Selection List (See #1), these buttons determine how the charts are created.

- Save Selected Charts PDF will create a PDF report containing all of the selected charts
- View Selected Charts will graph the charts in the Chart Viewing Area. If multiple parameters are selected, a key listing the parameters will appear to the right of the chart.

# Section 3 – Using MSM Enterprise (continued)

### ❺ *Chart Detail Button*

This button opens the chart to a larger view, where the data can be viewed in more detail. The data can be zommed-in, and values at individual datapoints can be viewed

### ❻ *Time and Date Range Selection*

The time and date range of the data used for the charts may be set here. This is useful to exclude older data and see more data in a specific time period. The date and time may be manually typed in in the format of MM/DD/YYYY HH:MM:SS or the calendar icon in each field may be clicked and the dates and times selected from the calendar display.

***Note: The chosen dates and times must be within the range of events recorded by the device.***

# Section 3 – Using MSM Enterprise (continued)

## 3.8 The Data Section

From the Summary top menu item, clicking on the Data menu item will bring up the raw data view, where the actual values captured by the NetLink can be viewed and more extensive charting can be done.

### 3.8.1 Raw Data View

The raw data view displays all data parameters and values captured by the NetLink device in a table format (Figure 33).

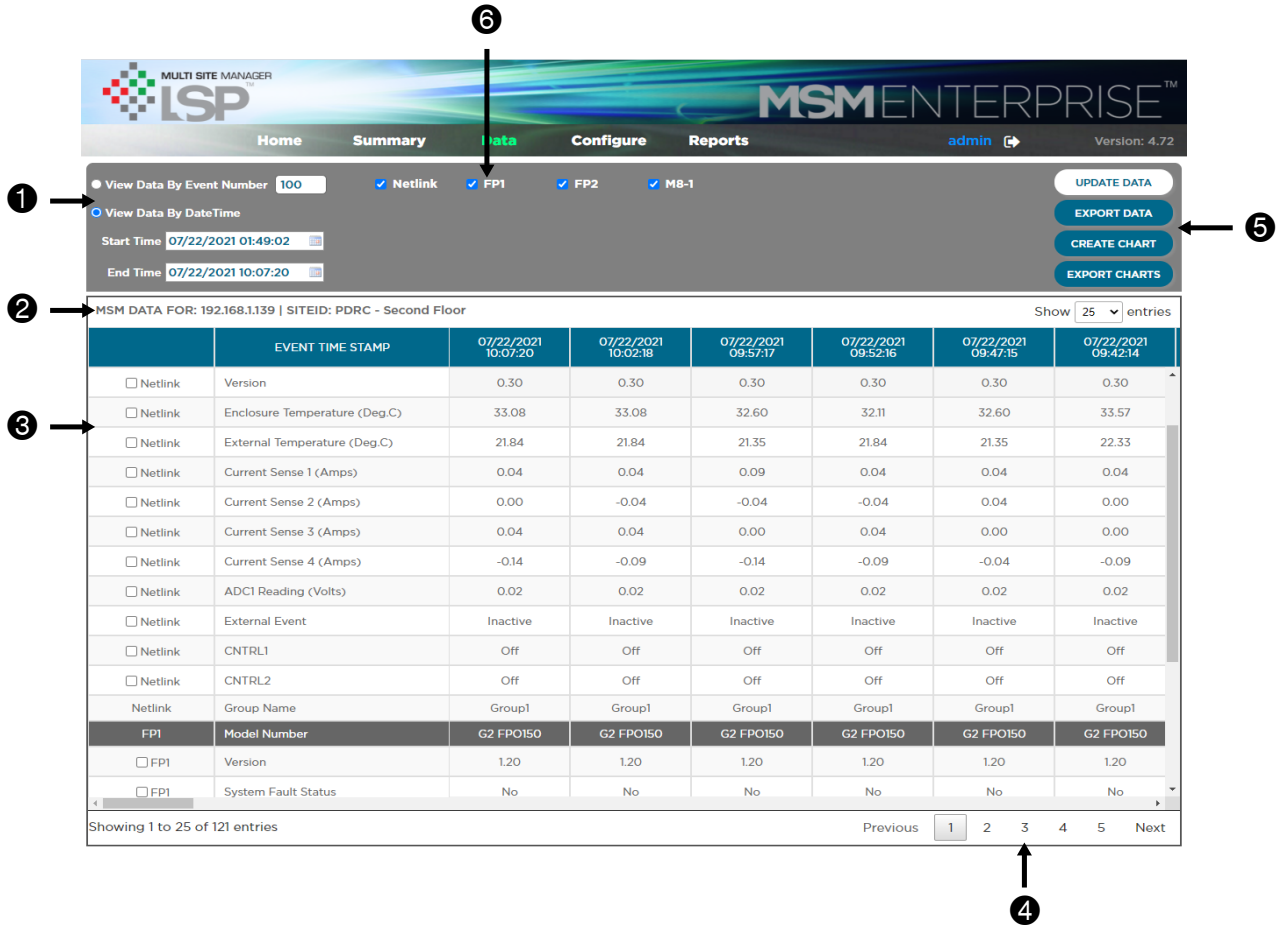



Figure 33

### ❶ *Data Range Selection*

The data range viewed can be selected in one of two methods, selectable by radio button:

- View Data By Event Number - This allows you to select a certain quantity of the most recent datapoints. For example, if you enter 100 into the field, the 100 most recent datapoints will be displayed for all parameters.
- View Data By Date & Time - This selection allows you select the start and end date and time for the data range to be viewed. The date and time may be manually typed in with the format of MM/DD/YYYY HH:MM:SS or the calendar icon in each field may be clicked and the dates and times selected from the calendar display. ***Note: The chosen dates and times must be within the range of events recorded by the device.***

# Section 3 – Using MSM Enterprise (continued)

### ❷ *System Information*

This field contains information on the system being viewed, including the IP address and Site ID.

### ❸ *Data Table*

The data captured by the NetLink device is displayed here. Only the data range selected will be displayed (See #1 above). The data may be broken into multiple pages (See #4 below). To the left of each parameter, a checkbox is available. Multiple parameters may be selected to be added to a chart (See #5 below). The horizontal scroll bar at the bottom of the window scrolls through the different timestamped datapoints, if available.

### ❹ *Data Navigation*

These buttons allow the user to navigate through the pages of data being displayed. The page nimber may be clicked on directly or the Previous and Next buttons navigate one page up or down respectively.

### ❺ *Data and Chart Buttons*

These buttons provide control over the displayed data and chart creation:

- Update Data - This button will poll the connected NetLink device for the latest data available.
- Export Data - This button will export the data for the NetLink device from the MSM in an Excel file format.
- Create Chart - This button allows the creation of a chart with one or more parameters. To create the chart, select the checkbox to the left of the parameters you want to graph (See #3 above), then click "Create Chart".
- Export Charts - This button creates a PDF report of the critical parameters for the FP1 and FP2 power supplies.

### ❻ *Module Selection*

These checkboxes allow the user to select which modules connected to the NetLink device are included in the displayed data. These selections will vary depending on the system configuration. After making changes, click the Update Data button (See #5 above) to update the displayed data range and to pull the latest data from the NetLink device.

# Section 3 – Using MSM Enterprise (continued)

## 3.9 The Web Interface Configure Page

The Configure Page from the web interface largely duplicates the Configure Page in the MSM Server application (Section 3.1) with some additional programmable items (Figure 34). Note that the Submit button must be clicked to apply changes.

Figure 34

# Section 3 – Using MSM Enterprise (continued)

### ❶ *Alert Enable On*

This section contains two checkboxes for selection:

- Device Enter - When checked, MSM Enterprise will send an email alert when a device connects to MSM Enterprise.
- Software Update - When checked, MSM Enterprise will send an email alert when a new version of MSM Enterprise is available.

### ❷ *General Settings*

This section contains one field:

- Password Lockout Delay - This field selects the lockout time if an incorrect password is entered three times.

### ❸ *Register and Modify User Password*

This section allows the user to create or modify user accounts for logging into the website. By default, there is one administrator account. Additional users may be added with one of three access levels:

- ***admin*** - allows full access to all MSM Enterprise features and settings.
- ***manager*** - allows full access with the exception of the Configure page.
- ***guest*** - allows full access with the exception of the configure page and batch NetLink firmware updates.

Note - When accessing a NetLink board from MSM Enterprise's home page, the access level granted to the NetLink will be the same as the MSM access level. i.e. When logged into MSM Enterprise as a Guest, only Guest-level access will be granted to the NetLink.

### ❹ *Email Settings*

These settings allow MSM Enterprise to send email alerts. This section contains the following fields:

- Receive Address - These are the email addresses to receive the email alerts. Up to four email addresses may be entered.
- Sender SMTP Server - This is the SMTP server to be used to send email alerts.
- Sender EMail - This is the email address to be used to send email alerts.
- Sender Email Password - This is the password for the email account for sending alerts.
- TLS - Select TLS if your SMTP server requires it.
- SMTP Port - This is the port required by the SMTP server for sending emails.

### ❺ *Email Test*

Clicking the "Email Test" button will test the connection to the SMTP server. "Show Email Log" will show detailed results of the email test.

### ❻ *Control Center Information*

These fields are used to identify the location of the MSM Server and appear on the MSM Enterprise webpage. There are two fields:

- Control Center ID
- Control Center Name

These fields can be set to any value helpful to identify the site where MSM Server is installed or monitoring.

### ❼ *Audio Settings*

In this section, the user can import additional audio files for the alert sound and select which audio file to use. The audio file must be in MP3 format. The Delete Selected Audio button will remove the selected audio file.

### ❽ *User Login Record*

This button toggles whether or not the list of user logins is displayed.

## 3.10 The Reports Page

The Reports page provides a whole-system overview of events and power status. To access the Reports page, click the Reports item in the top menu from anywhere within MSM Enterprise (Figure 35).

Figure 35

### ❶ *Report Selection Tabs*

These tabs select between two report sections:

- Events Report - Displays report information related to events within all connected modules. See Section 3.10.1
- Power Report - Displays power related report information. See Section 3.10.2

### ❷ *Report Data Section*

This area displays the selected report data.

### ❸ *Data Range Selection*

The data range viewed can be selected in one of two methods, selectable by radio button:

- View Data By Event Number - This allows you to select a certain quantity of the most recent datapoints. For example, if you enter 100 into the field, the 100 most recent datapoints will be used for the report data.
- View Data By Date & Time - This selection allows you select the start and end date and time for the data range to be viewed. The date and time may be manually typed in with the format of MM/DD/YYYY HH:MM:SS or the calendar icon in each field may be clicked and the dates and times selected from the calendar display. ***Note: The chosen dates and times must be within the range of events recorded by the device.***

# Section 3 – Using MSM Enterprise (continued)

### 3.10.1 The Events Report Tab

The Events report provides an overview of any active events for any system connected to MSM Enterprise (Figure 36).

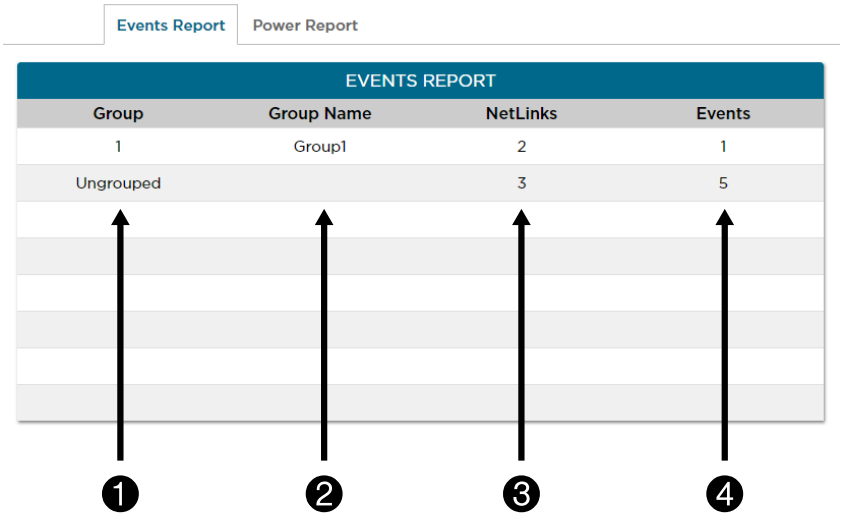



Figure 36

***NOTE: Clicking any of the lines in the Report Data section will show more detailed data on the selected group (Figure 37).***

**❶ *Group Number Column***

MSM Installations using Groups for multi-client applications will show various group numbers. Any systems not part of a group or MSM Enterprise installations not using the multi-client features will show these systems as "Ungrouped". (Figure 36)

**❷ *Group Name Column***

The name of the group as configured in the multi-client settings. Ungrouped systems will have no Group Name. (Figure 36)

**❸ *NetLinks Column***

The NetLinks column displays how many NetLink devices are part of the group. Typically there is one NetLink module per system enclosure. (Figure 36)

**❹ *Events Column***

The Events column displays how many active events are present for each group. (Figure 36)

**❺ *Back Button***

This button brings the user back to the main Events Report page. (Figure 37)

**❻ *NetLink Column***

The NetLink number - this number is assigned by MSM Enterprise. (Figure 37)

**❼ *IP Address Column***

The IP address of the NetLink. (Figure 37)

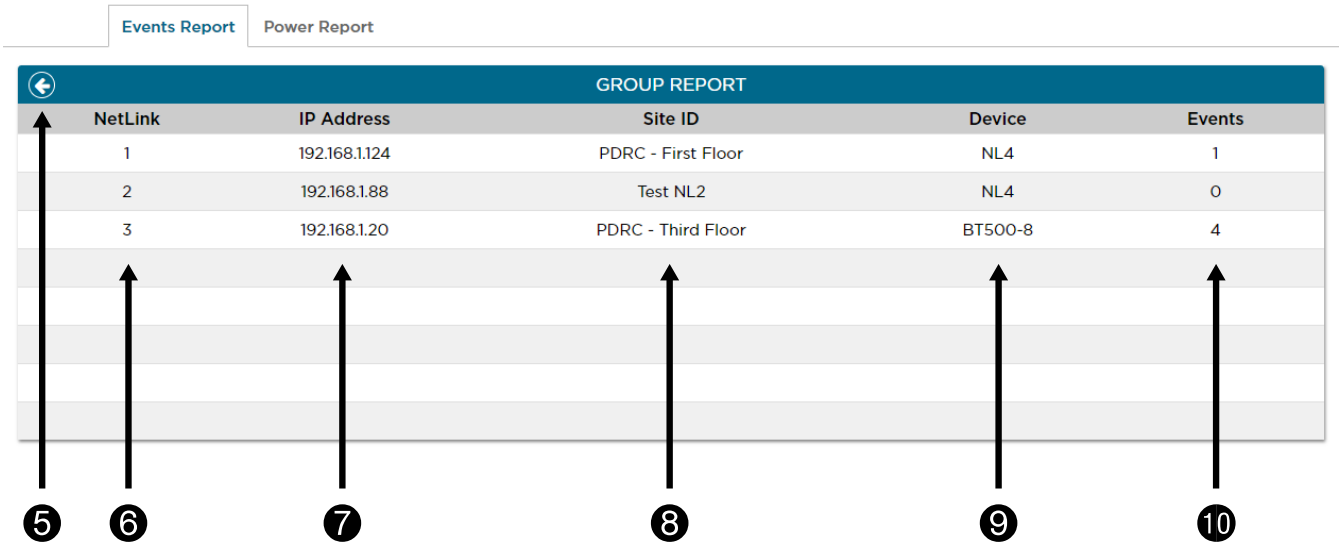



Figure 37

### ❽ *Site ID Column*

The Site ID of the NetLink. (Figure 37)

### ❾ *Device Column*

The device type of the NetLink. Note that device types other than NetLink modules may be shown here. (Figure 37)

### ❿ *Events Column*

This column displays the number of active events for the specific device. (Figure 37)

***NOTE: Clicking any of the lines in the Event details section will bring the user to the Critical Events List (Section 3.7.1).***

# Section 3 – Using MSM Enterprise (continued)

### 3.10.2 The Power Report Tab

Similar to the Event report tab, the Power report tab gives an overview of the power related data of the connected devices.

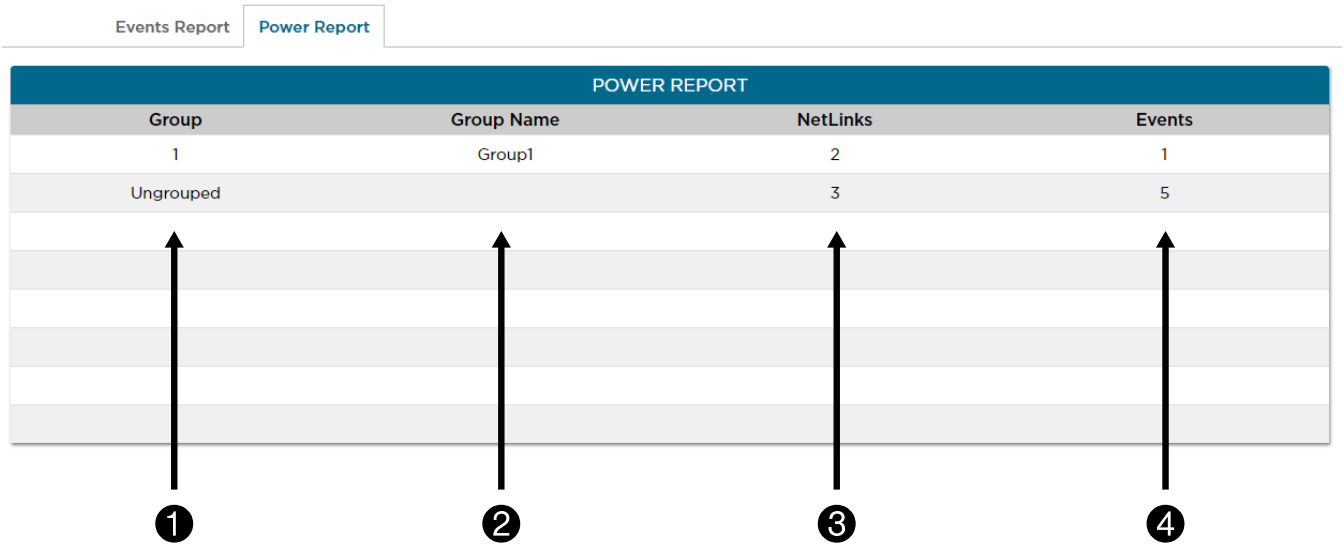



Figure 38

***NOTE: Clicking any of the lines in the Report Data section will show more detailed data on the selected group (Figure 39).***

❶ ***Group Number Column***

MSM Installations using Groups for multi-client applications will show various group numbers. Any systems not part of a group or MSM Enterprise installations not using the multi-client features will show these systems as "Ungrouped". (Figure 38)

❷ ***Group Name Column***

The name of the group as configured in the multi-client settings. Ungrouped systems will have no Group Name. (Figure 38)

❸ ***NetLinks Column***

The NetLinks column displays how many NetLink devices are part of the group. Typically there is one NetLink module per system enclosure. (Figure 38)

❹ ***Events Column***

The Events column displays how many active events are present for each group. (Figure 38)

❺ ***Back Button***

This button brings the user back to the main Power Report page. (Figure 39)

❻ ***NetLink Column***

The NetLink number - this number is assigned by MSM Enterprise. (Figure 39)

❼ ***IP Address Column***

The IP address of the NetLink. (Figure 39)

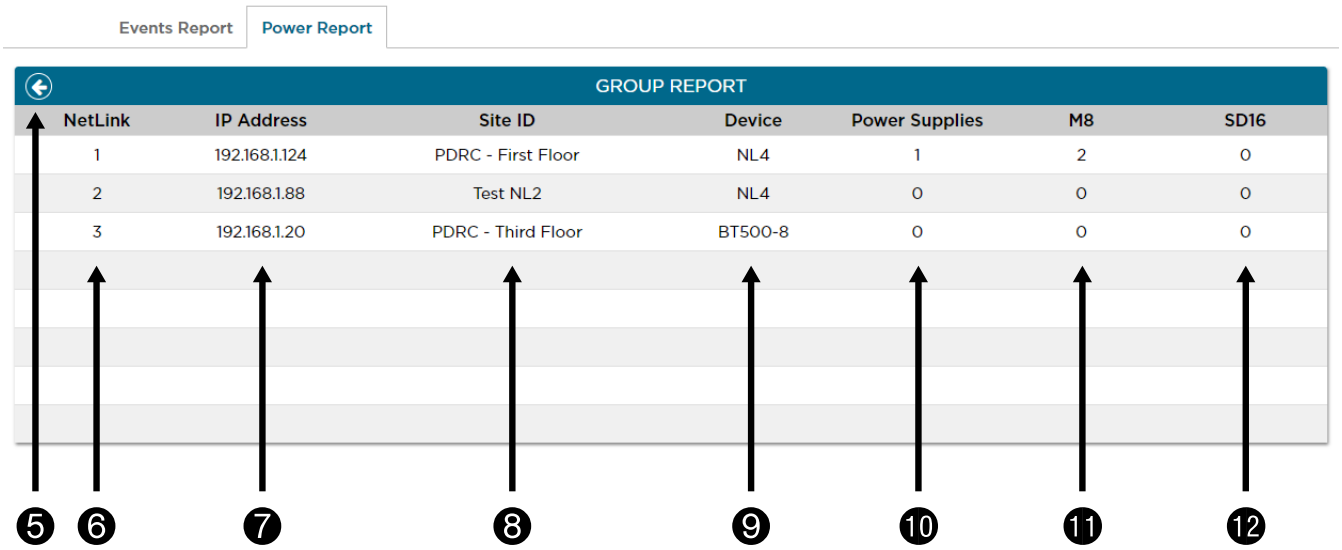



Figure 39

### ❽ *Site ID Column*

The Site ID of the NetLink. (Figure 39)

### ❾ *Device Column*

The device type of the NetLink. Note that device types other than NetLink modules may be shown here. (Figure 39)

### ❿ *Power Supply Column*

This column displays the number of power supply boards being monitored by this specific device. (Figure 39)

### ⓫ *M8 Column*

This column displays the number of M8 boards being monitored by this specific device. (Figure 39)

### ⓬ *SD16 Column*

This column is for future use. (Figure 39)

***NOTE: Clicking any of the lines in the Power Group Report section will bring the user to Power Details for the device. (Figure 40)***

# Section 3 – Using MSM Enterprise (continued)

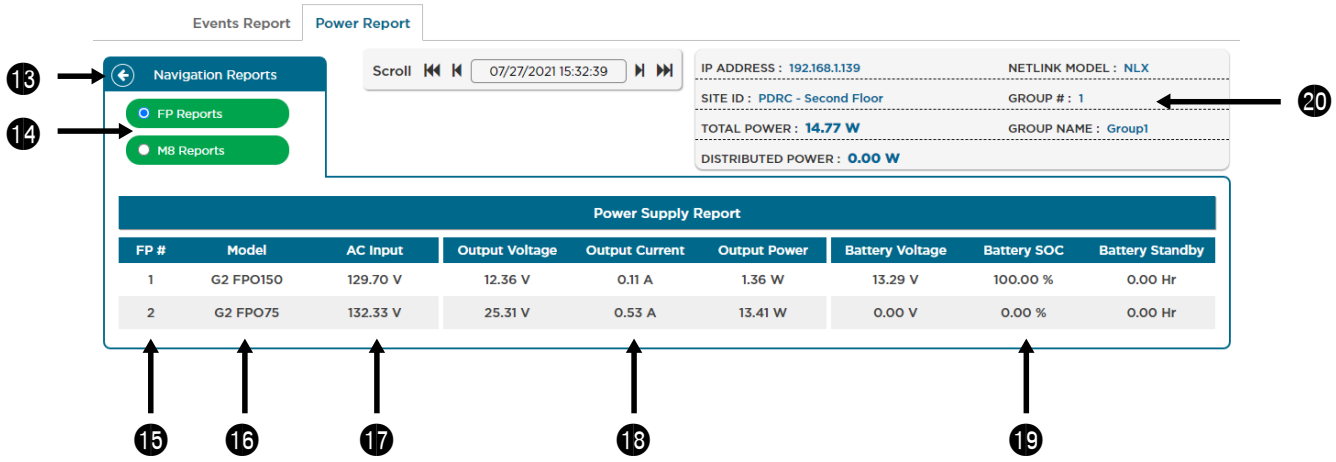



Figure 40

### 13 *Back Button*

This button brings the user back to the main Power Group Report page in Figure 39. (Figure 40)

### 14 *Data Selection Buttons*

These buttons select between power supply and M8 data display. (Figure 40)

### 15 *FP# Column (FP Reports)*

The power supply number - this number is assigned by the NetLink device. (Figure 40)

### 16 *Model Column (FP Reports)*

The model number as reported by the power supply. (Figure 40)

### 17 *AC Input Voltage (FP Reports)*

The measured AC input voltage value from the power supply. (Figure 40)

### 18 *Main Output Values (FP Reports)*

The measured output voltage and output current as well as the calculated power output from the power supply. (Figure 40)

### 19 *Battery Values (FP Reports)*

The measured battery voltage, state of charge, and standby time. (Figure 40)

### 20 *NetLink Overview Data*

Data on the Netlink device being viewed as well as total and distributed power measured for all power supplies and M8 modules on the NetLink device. (Figure 40).

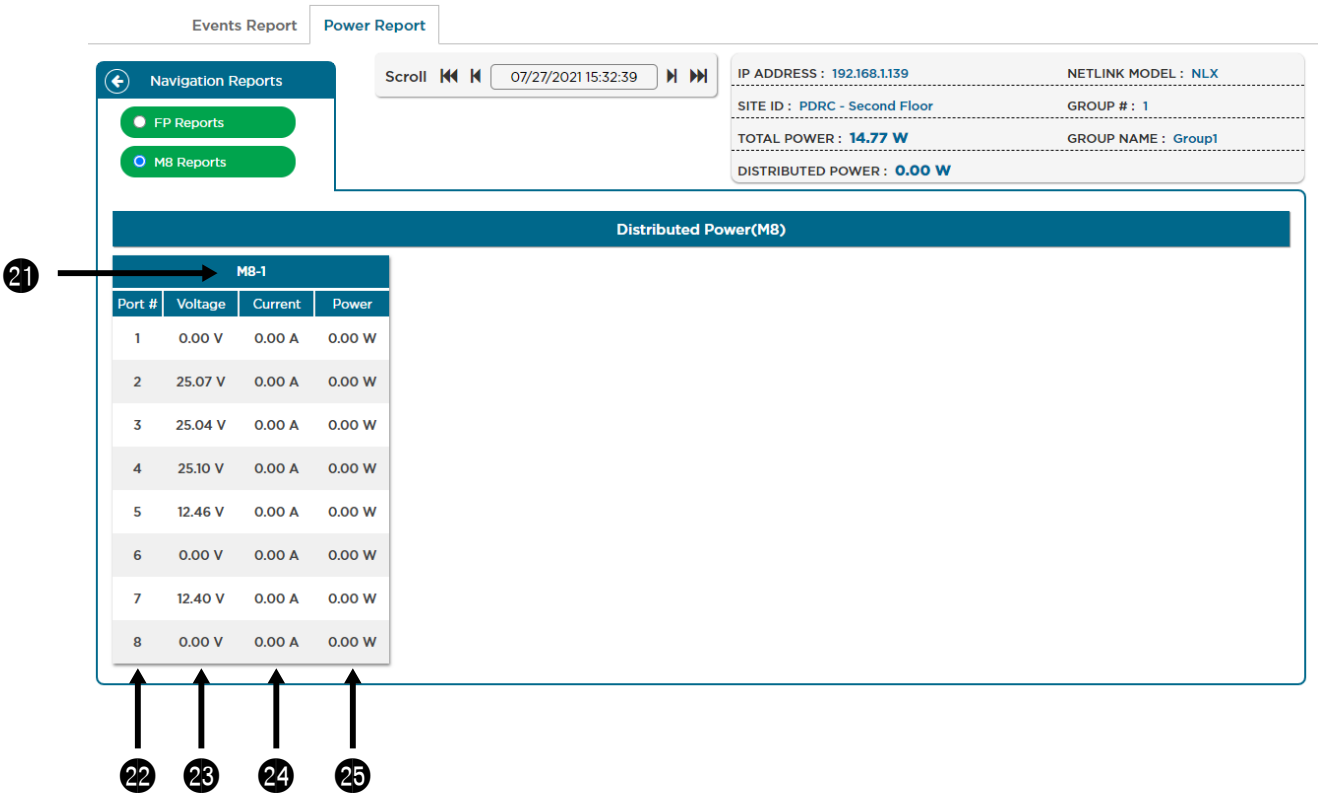



Figure 41

### 21 *M8 Device Number (M8 Reports)*

The device number of the M8 as assigned by the NetLink device. (Figure 41)

### 22 *M8 Output Port Number (M8 Reports)*

The output number of the M8 board. Each M8 has eight outputs. (Figure 41)

### 23 *M8 Output Voltage (M8 Reports)*

The measured output voltage for each port on the M8. (Figure 41)

### 24 *M8 Output Current (M8 Reports)*

The measured output current for each port on the M8. (Figure 41)

### 25 *M8 Output Power (M8 Reports)*

The calculated output power for each port on the M8. (Figure 41)

# Section 3 – Using MSM Enterprise (continued)

# Section 4 – Multi-Client Setup & Usage

Beginning with version 4.72, MSM Enterprise has introduced Multi-Client features. Multi-Client features provide tools for monitoring multiple clients in one MSM installation or to break a single client installation into multiple locations or other groups as desired by the user. Users can be allowed to view one or more groups as needed.

Example 1 - An Integrator monitoring multiple end users

In this secnario, an integrator is monitoring multiple end users with a single MSM Enterprise installation. The integrator has full access to all systems for all end users. Each end user can also have their own login to view only their systems. Each of the integrator's technicians can be given permissions to only certain end users with overlap as required.

Example 2 - A large multi-campus university

In this scenario, a large multi-campus university can monitor all camupses through a single MSM Enterprise installation. The Security Director for the university has access to all systems in all campuses. Each campus director has access to only the systems in their campus. Regional directors may be given access to one or more campuses under their supervision.

## 4.1 Assigning Group Names

The key to efficient multi-client functionality is planning and configuring group names for all connected NetLink devices. The entire scenario should be analyzed to determine the best breakdown of groups for all systems. In Example 1 above, each end user should have a unique group name. Larger end users could have two or more group names to separate locations. For example a multi-branch bank could have a unique group name for each branch or all branches could fall under a single group name. In Example 2 above, each campus would get a unique group name with further breakdown within the campus if required.

Group names can be up to eight characters long and are programmed from within the NetLink device Configure page in the MSM Settings section (Figure 42).

# Section 4 – Multi-Client Setup & Usage (Continued)

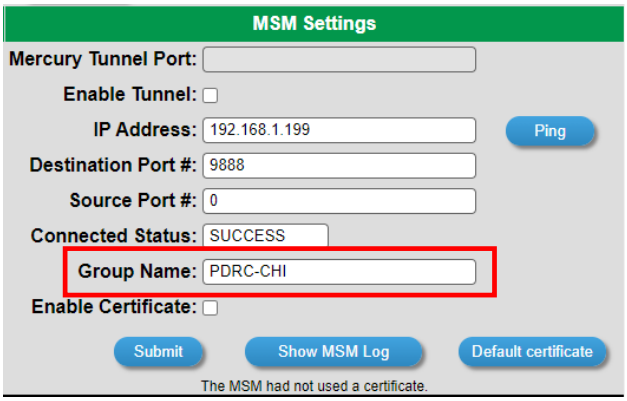



Figure 42

## 4.2 Setting Up Users

Each person needing access to MSM Enterprise needs a user configured in MSM Enterprise with their appropriate permission level. Section 3.1 of this manual details how to set up users from within the MSM Server application. Users may also be configured by an Admin-level user from within the MSM web interface.

***Note: The permission level granted within MSM Enterprise applies to the NetLink modules the user has permission to access. For example, Guest level MSM usres only have Guest level access to any NetLinks they access from MSM.***

## 4.3 Multi-Client Configuration

The Multi-Client Configuration page is reached from the MSM Server application (not the web interface) through the tools menu (Figure 43).

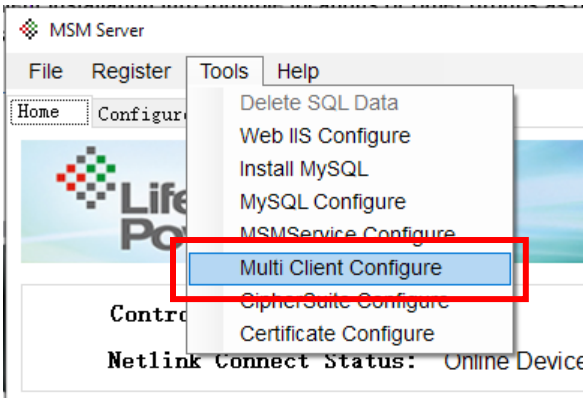



Figure 43

# Section 4 – Multi-Client Setup & Usage (Continued)

The Multi-Client Configuration page is made up of three major sections as shown in Figure 44.

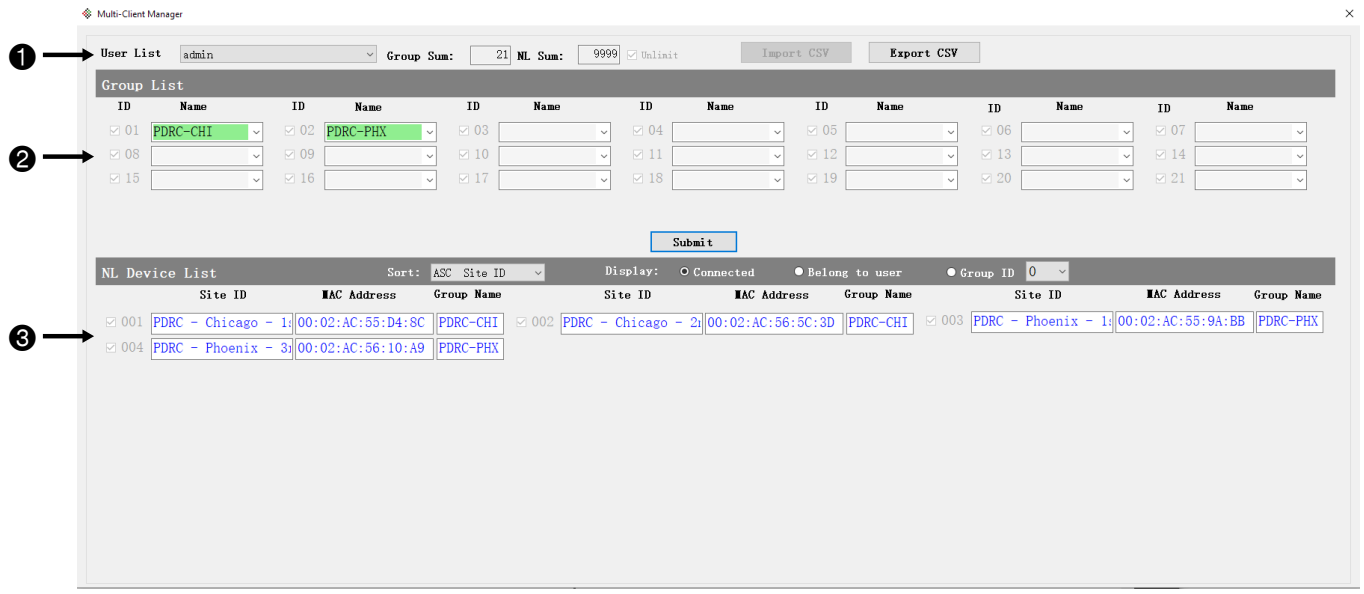



Figure 44

### ❶ *User Selection*

Allows selection of the user to be configured for multi-client settings. See Section 4.3.1

### ❷ *Group List*

Shows the available groups to be configured to the selected user. See Section 4.3.2

### ❸ *Device List*

This list shows the available systems to be configured to the user. See Section 4.3.3

# Section 4 – Multi-Client Setup & Usage (Continued)

### 4.3.1 User Selection

To begin multi-client configuration, a user must be selected from the User List drop-down menu. All users configured within MSM Enterprise will show on this list. In this example, the PDRC-Chicago user is being configured.

Figure 45

❶ ***User List Dropdown***

Selects the user to configure for multi-client settings. See Section 4.3.1

❷ ***User Summary***

Provides a summary of the number of Groups and NetLink devices assigned to the selected user.

❸ ***Import/Export Buttons***

Allows importing or exporting of the multi-client settings to or from a CSV file.

### 4.3.2 Group List

Once a user is selected, the groups to be applied to the user can be selected by clicking the checkbox next to the Group name. In this example, the PDRC-CHI group is being applied to the PDRC Chicago User. This will allow only the systems in the PDRC Chicago group to appear for the PDRC Chicago user.

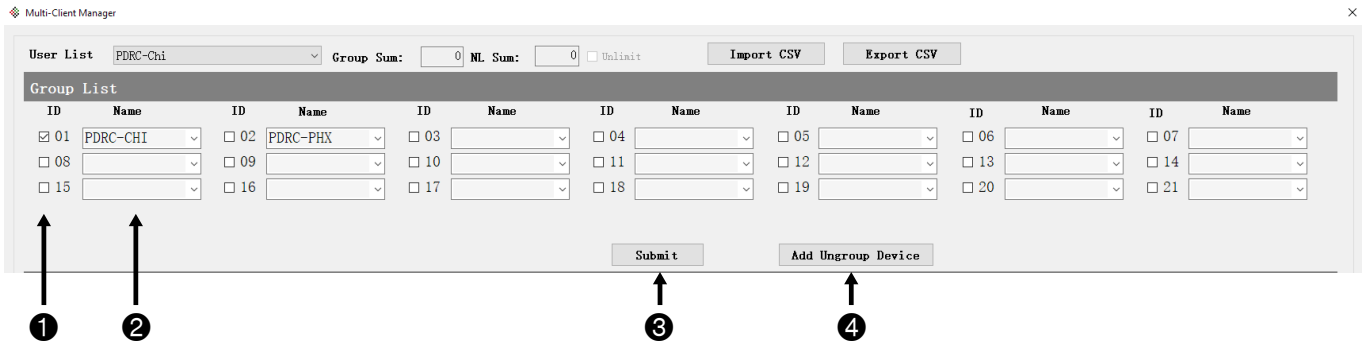



Figure 46

❶ ***Group Selection Checkbox***

Selects the Group(s) to apply to the selected user. One or more groups may be selected for each user. The Submit button (#3) must be clicked after making the selection for the changes to take effect.

❷ ***Group Name***

The name of all available groups.

### ❸ *Submit Button*

This button must be clicked after selecting the groups for the changes to be applied.

### ❹ *Add Ungrouped Devices Button*

This button will add any ungrouped devices to the user.

#### 4.3.3 Device List

After groups are applied to a user, the NL Device List section provides information on the individual systems applied to that user.

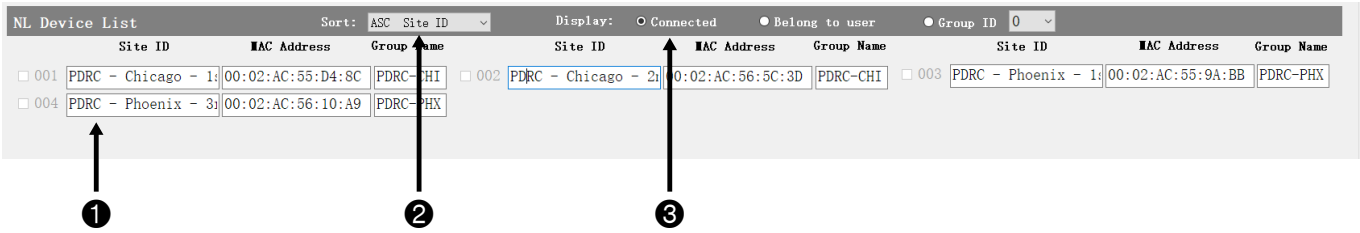



Figure 47

### ❶ *System Information*

Provides the Site ID, MAC Address, and Group Name for the systems. Any systems applied to the selected user will have a check in the checkbox.

### ❷ *System Sorting*

This dropdown selects how the systems are sorted in the list. Systems can be sorted by Site ID or Group Name in ascending or descending order.

### ❸ *System Display*

These radio buttons select which systems are shown.

- Connected - Shows all connected systems. The check boxes show which systems are applied to the user.
- Belongs to User - Shows only the systems applied to the selected user.
- Group ID - Allows selection of a specific group by the Group ID number dropdown.

#### 4.3.4 Configuring Other Users

Repeat sections 4.3.1 through 4.3.3 for each user. In the examples shown, the PDRC-Phoenix user would be configured to see the PDRC-PHX group, and the PDRC-National user would be configured to see both PDRC PHX and PDRC-CHI. Note that the admin user is hard-coded to always show all systems in all groups.

# Section 4 – Multi-Client Setup & Usage (Continued)

## 4.4 Using the Multi-Client Features

Once the multi-client configuration is complete (Section 4.3), the multi-client features may be used within the web interface (Figure 48).

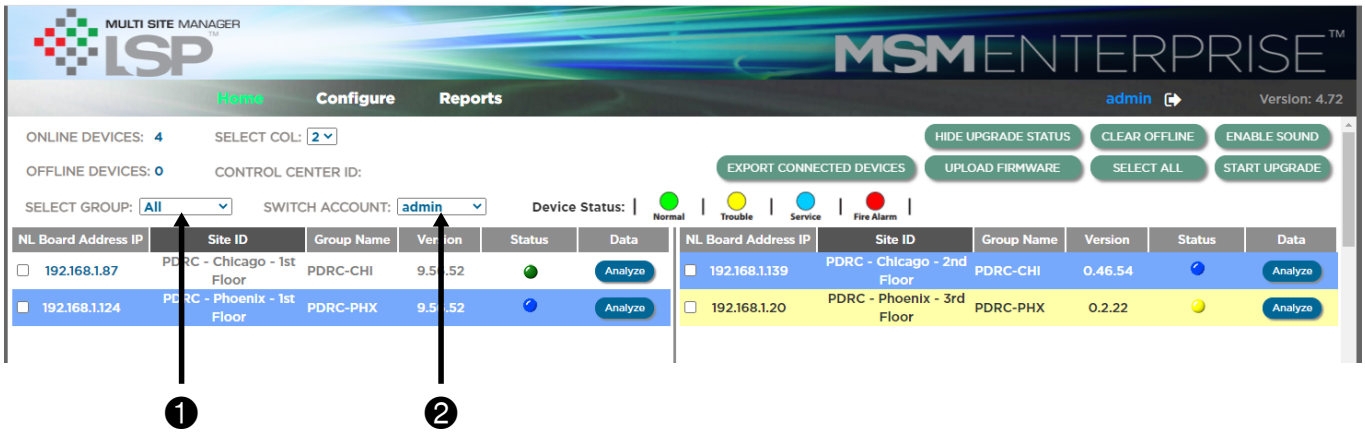



Figure 48

### ❶ *Select Group Field*

This field is available to all users and allows the user to filter the display by any groups the user has access to view. If the user only has access to one group this field will only have the one group shown.

### ❷ *Switch Account (Admin Only)*

This dropdown is only available to Admin-level users and allows the admin to view the MSM display as a particular user would see. Non-admin users will not see this drop-down selection on their display.

# Section 4 – Multi-Client Setup & Usage (Continued)

### 4.4.1 Example Scenarios

The following two scenarios show real-world usage of the multi-client features of MSM Enterprise. These scenarios show how the permission levels and groups work to both restrict access and filter to specific locations. Note that installations with many installed systems also benefit from the ability to filter based on group in order to view the available data in smaller "bites".

***Scenario 1***

The National Security Director for the fictional corporation PDRC has logged into their MSM Enterprise web interface. The Director has access within MSM to both facilities - Chicago and Phoenix. Upon logging in, the Director will see all systems from both facilities (Figure 49). Note that since the Director is not an Admin within MSM Enterprise, the Switch Account dropdown is not visible.

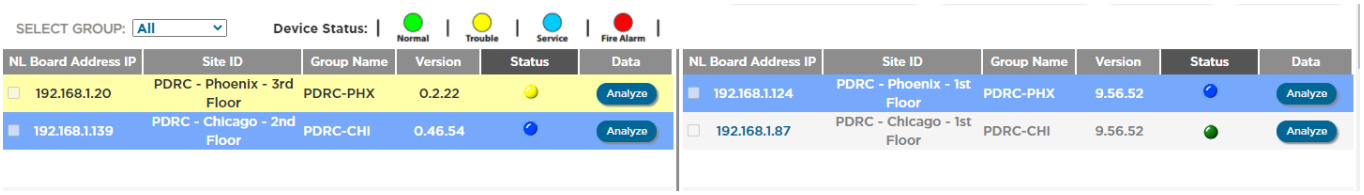



Figure 49

By clicking the Select Group dropdown, the Director can now select which location to view (Figure 50).

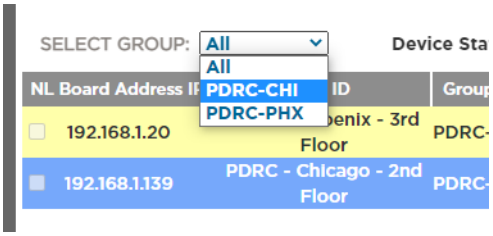



Figure 50

The director selects PDRC-CHI and the display switched to show only the Chicago area systems (Figure 51).

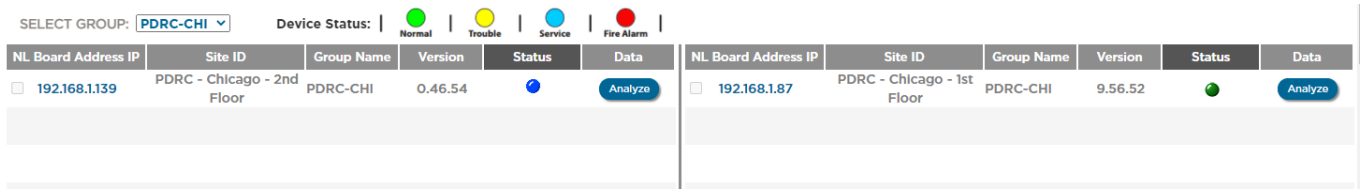



Figure 51

# Section 4 – Multi-Client Setup & Usage (Continued)

***Scenario 2***

The Security Manager at the Phoenix location of PDRC logs into the MSM Enterprise web interface. Since he only has access to the Phoenix location group, only the Phoenix area systems are visible (Figure 52).

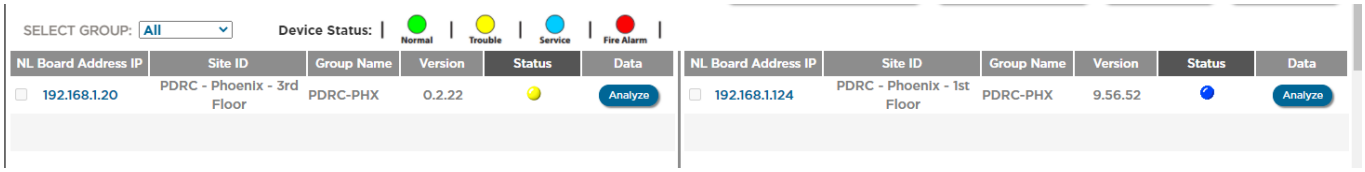



Figure 52

If the Phoenix Manager clicks the Select Group dropdown, the only options available are All or PDRC-Phx (Figure 53).

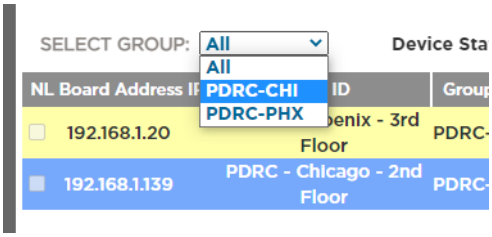



Figure 53

# Appendix A – MySQL Installation & Configuration

If MySQL is not already installed, the MSM Enterprise installation will display the MySQL Setup Wizard. This section details the steps to install and configure MySQL properly for MSM Enterprise.

## A.1 Installing MySQL

Please follow the steps below closely to properly install MySQL.

1. If MySQL is being installed as part of the installation for MSM Enterprise, when prompted to install MySQL, select the 32 or 64 bit version as appropriate for the PC receiving the MSM Server installation. (Figure A1-1)

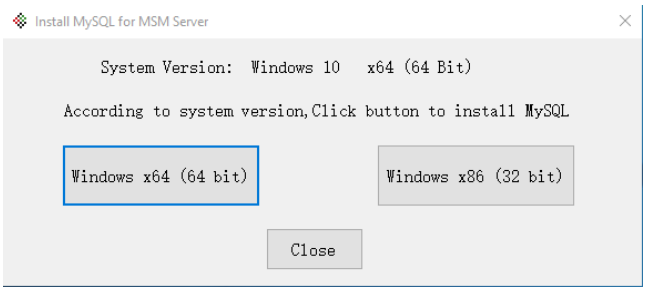



Figure A1-1

If updating the MySQL installation from MSM Enterprise, select SQL Configure from the Tools menu. (Figure A1-2) Click the Install MySQL radio button, then Submit.

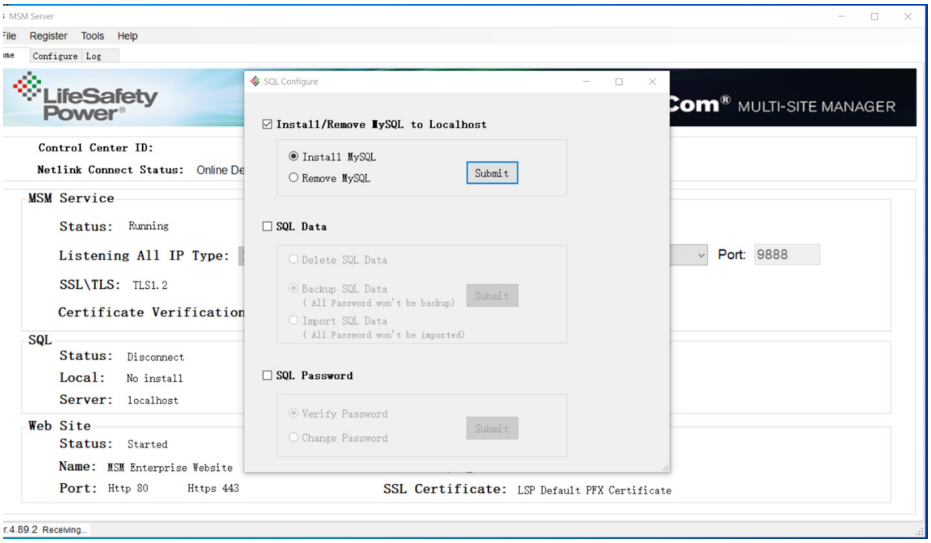



Figure A1-2

# Appendix A – MySQL Installation & Configuration (continued)

2. When the "When the MySQL Installer" appears, click "Add" if the installed version is lower than 8.0. (Figure A2)

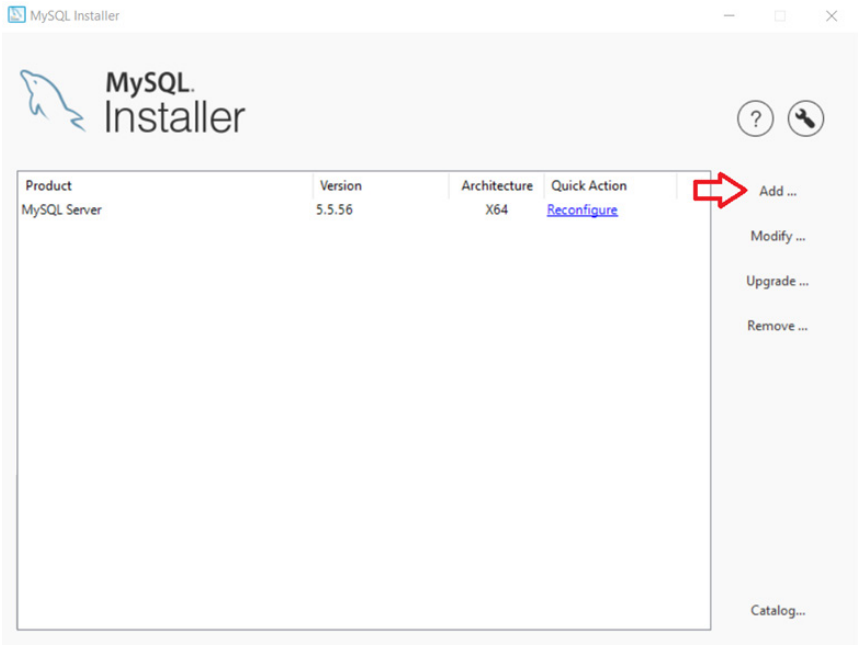



Figure A2

3. Select MySQL Servers > MySQL Server > MySQL Server 8.xxxxx (the installer will show the latest version being installed), and click on the green right-facing arrow to add it to the "Products to be Installed" window. (Figure A3)

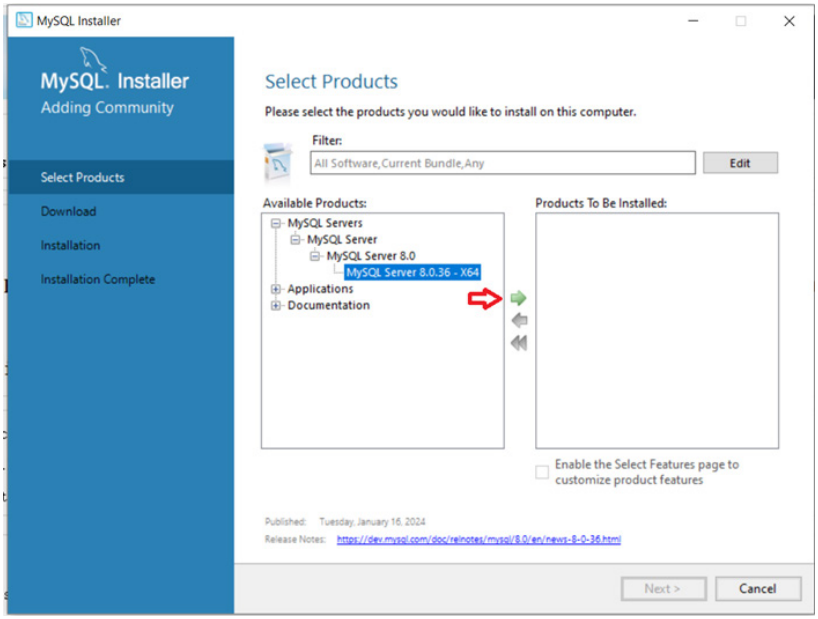



Figure A3

# Appendix A – MySQL Installation & Configuration (continued)

4. Once added, click "Next". (Figure A4)

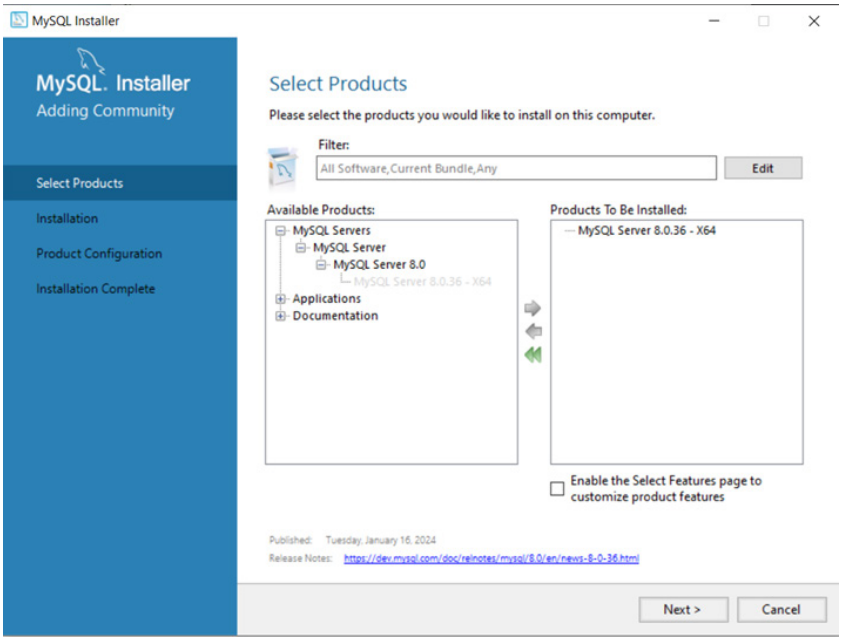



Figure A4

5. On the Installation screen, click "Execute". (Figure A5)

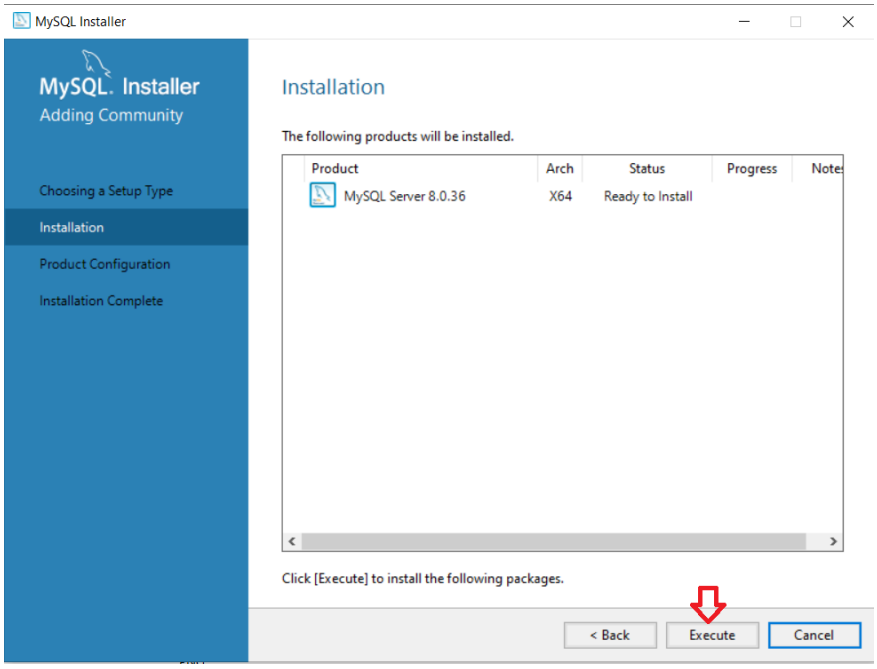



Figure A5

# Appendix A – MySQL Installation & Configuration (continued)

6. After the installation completes, click "Next" on the Product Configuration screen. (Figure A6)

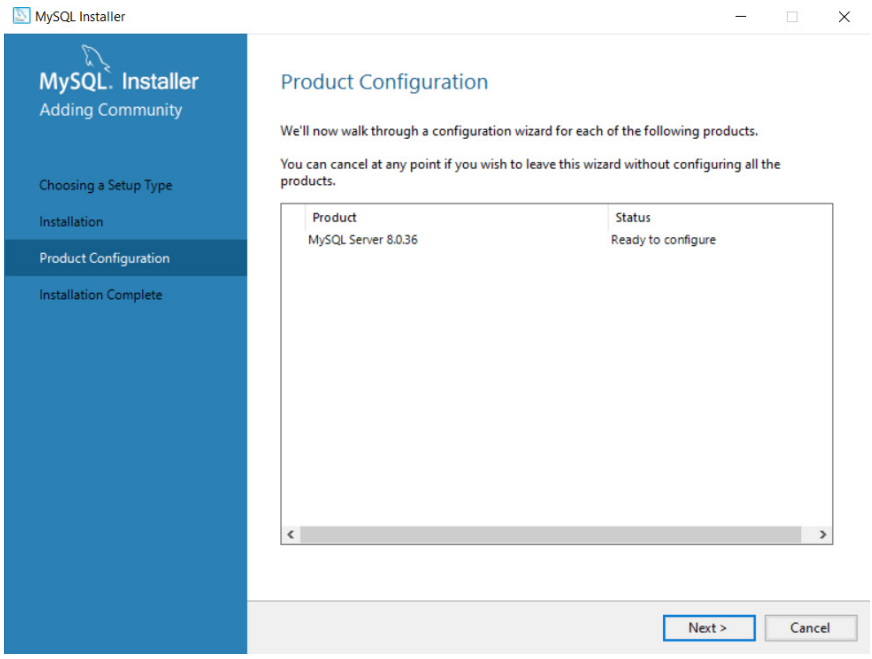



Figure A6

7. On the "Type and Networking" screen, ensure TCP/IP and "Open Windows Firewall ports for network access" are selected and that the port is set to 3306. Click "Next". (Figure A7)

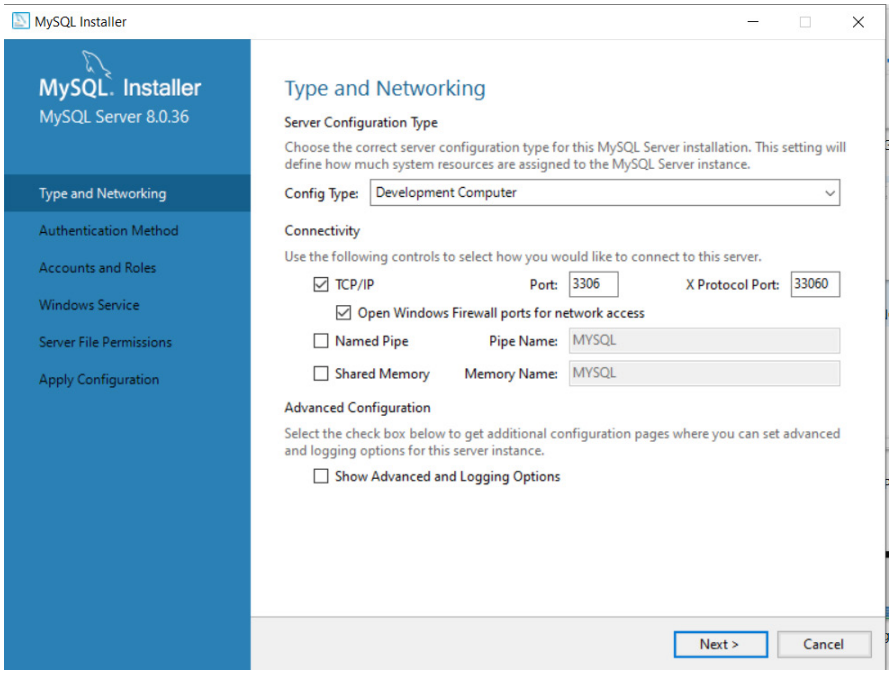



Figure A7

# Appendix A – MySQL Installation & Configuration (continued)

8. On the "Authentication Method" screen, select "Use Legacy Authentication Method" and click "Next". (Figure A8)

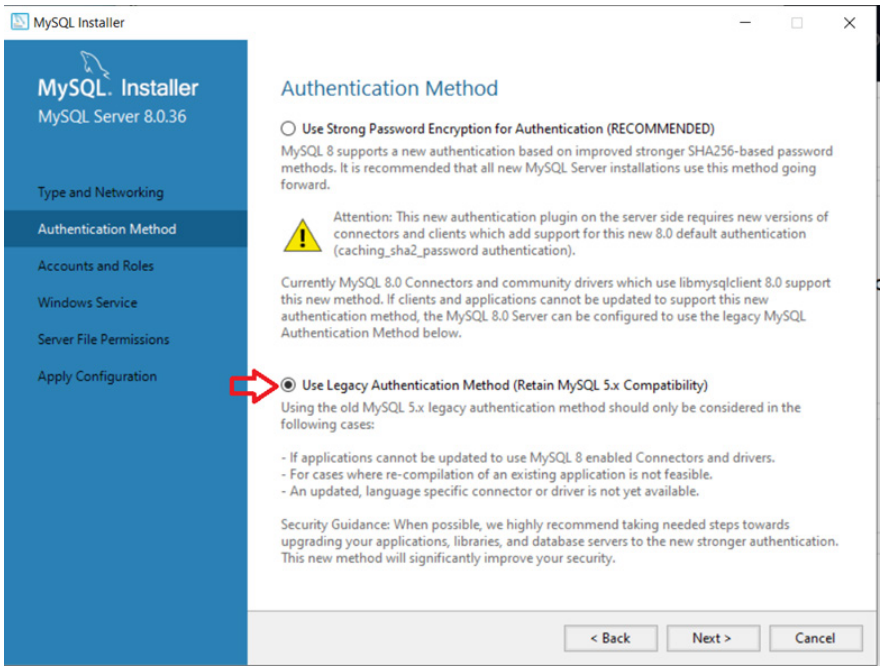



Figure A8

9. On the "Accounts and Roles" screen, enter an SQL password. Note that this password is separate from the MSM login page credentials. Click "Next". (Figure A9)

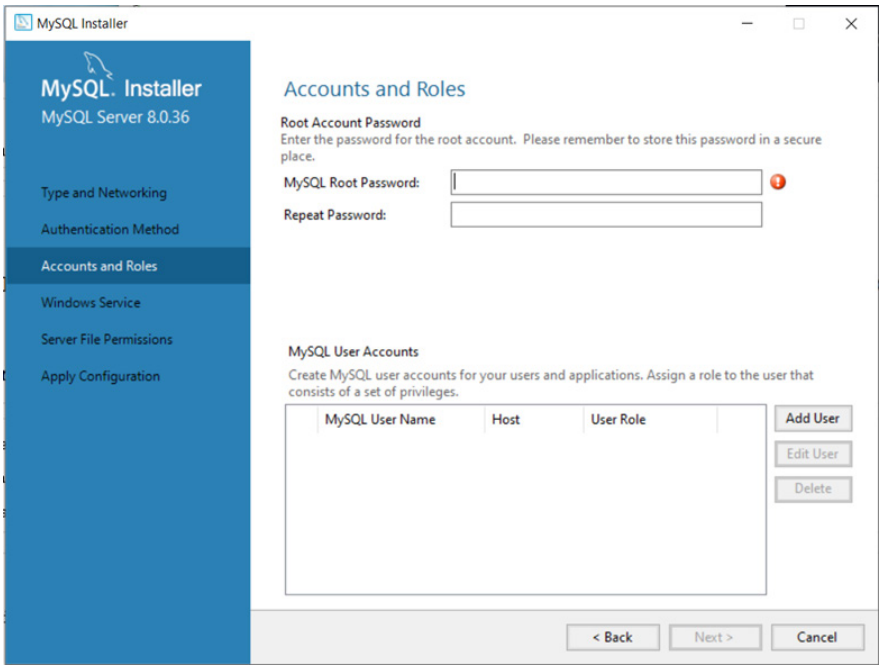



Figure A9

# Appendix A – MySQL Installation & Configuration (continued)

10. On the "Apply Configuration" screen, click "Execute". (Figure A10) After the MySQL installation has completed, exit the SQL Installer.

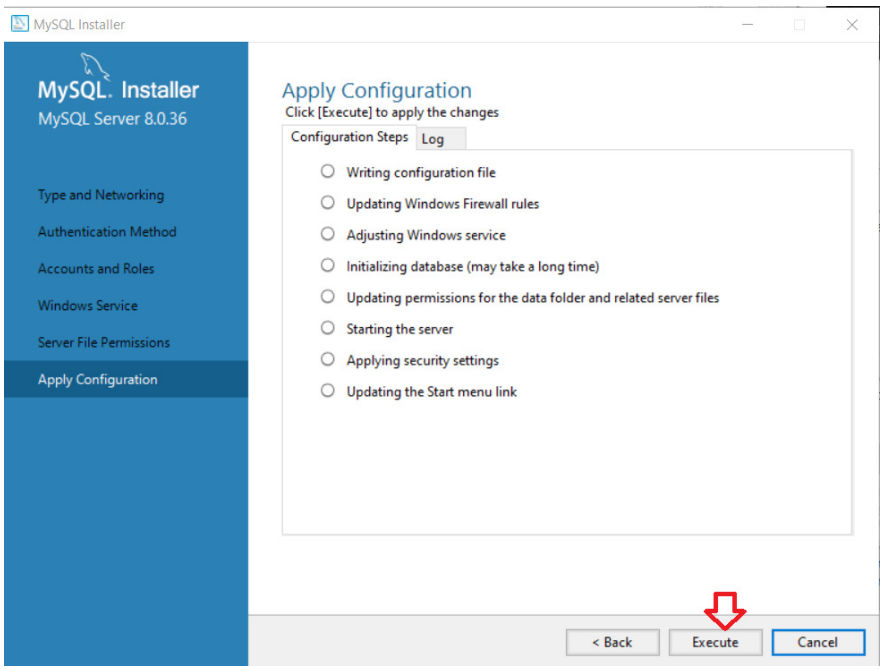



Figure A10

11. Go to "Web IIS Configure" in the tools menu of the MSM Server. Select "Configure Website" and click "Next". (Figure A11)

Figure A11

# Appendix A – MySQL Installation & Configuration (continued)

12. If a new SSL certificate will not be installed, check "Use Default PFX Certificate". Ensure Redirect HTTP to HTTPS is selected and click "Submit Configure". (Figure A12) Click "Close"

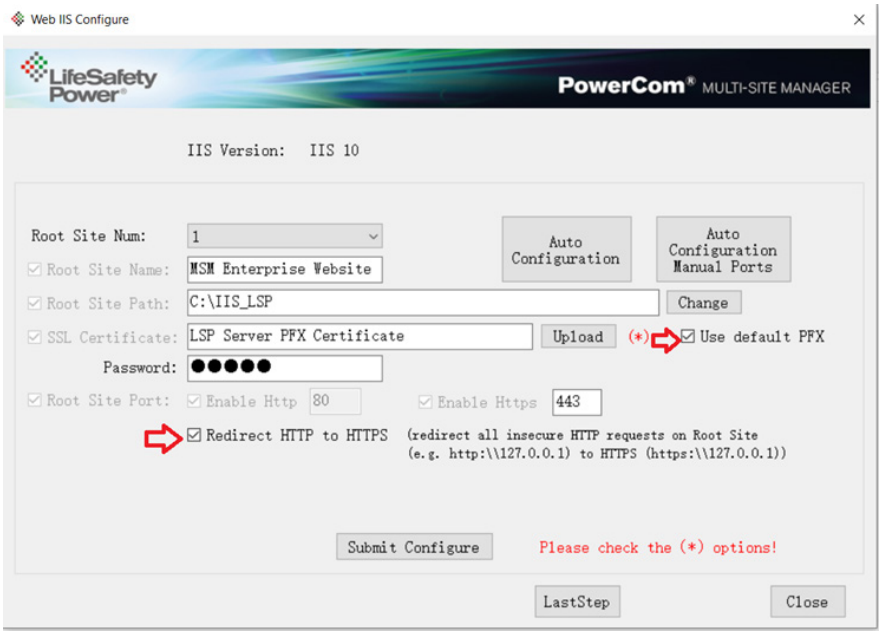



Figure A12

# Appendix B – Uninstalling MySQL

## B.1 Uninstalling MySQL for MSM Enterprise

If the MySQL installation fails, the MySQL installaion must be comletely removed, including deleting hidden folders, before reinstalling. Follow these steps closely to perform a full uninstallation.

1. Open the control panel (Figure B1).

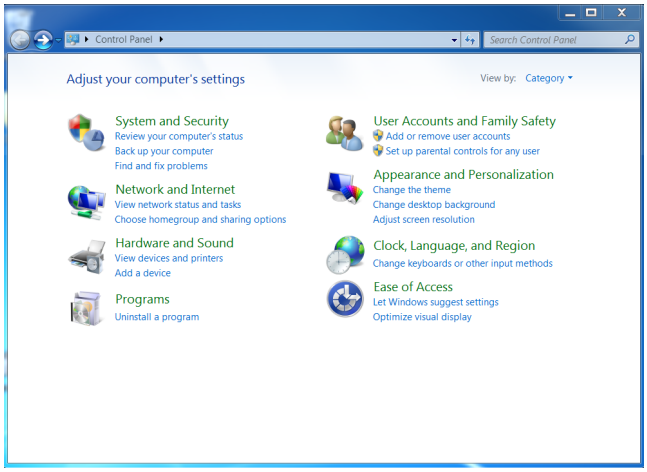



Figure B1

2. Click Programs (Figure B2).

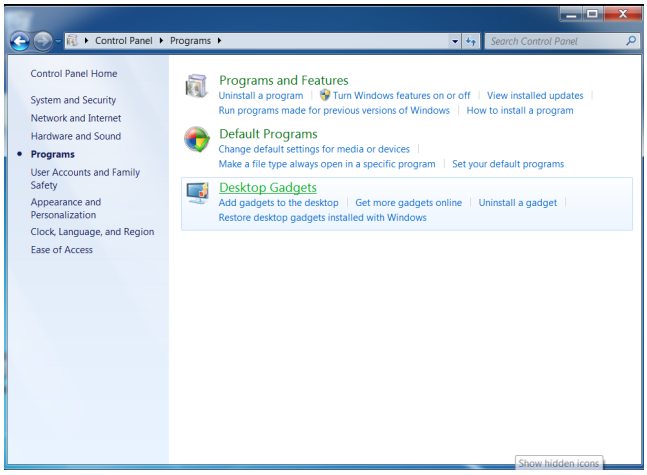



Figure B2

3. Select Programs and Features (Figure B3).

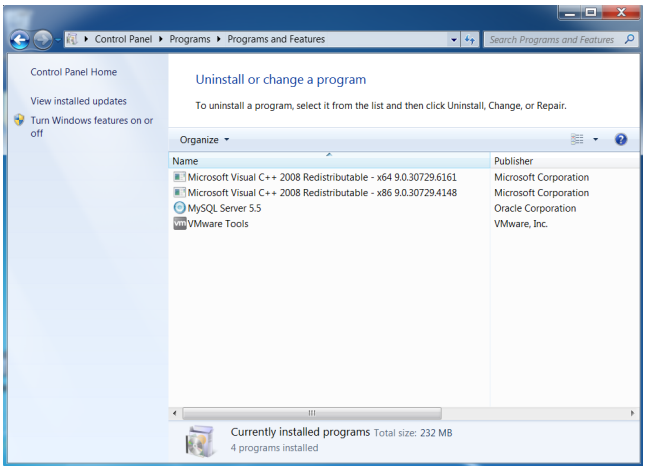



Figure B3

4. Select "MySQL Server xxx" and click Uninstall. Click OK. (Figure B4)

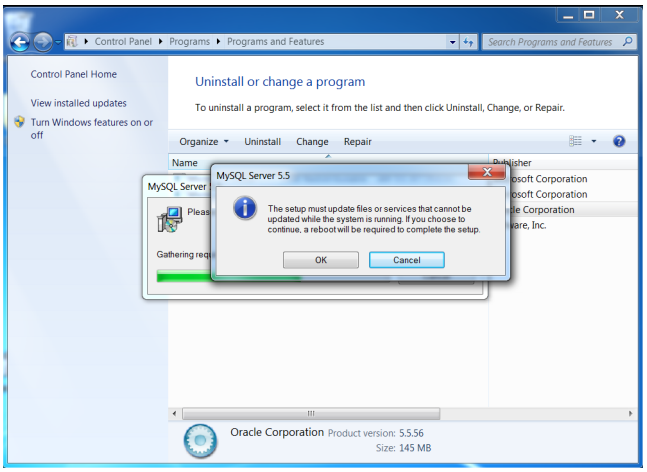



Figure B4

5. When the uninstall finishes, locate and delete the MySQL folder. The default path for the MySQL folder is "c:\Program Files\". (Figure B5)

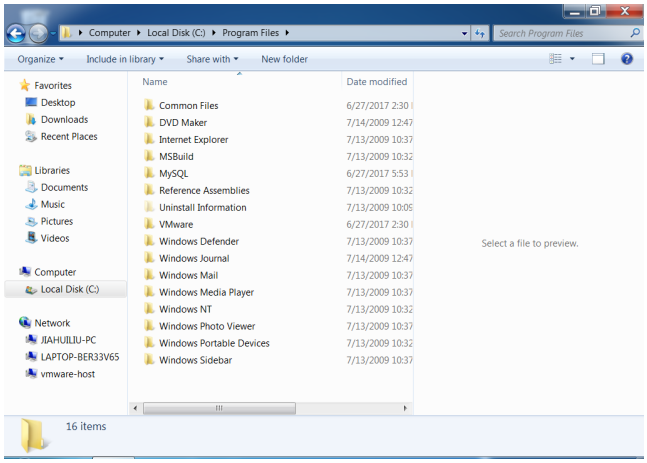



Figure B5

6. Change the Windows settings so that hidden folders can be viewed. Open the "c:\ProgramData" folder and delete the MySQL folder. (Figure B6)

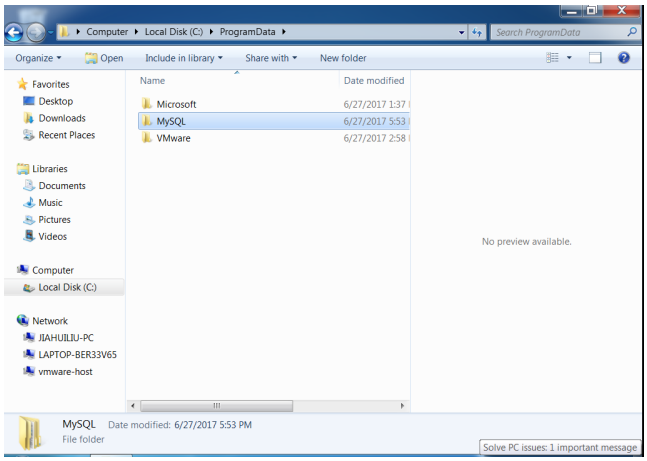



Figure B6

7. The uninstallation is complete. Return to Section 2 to complete the installation of MSM Enterprise.

# Appendix C – Installing IIS for MSM Enterprise

If IIS is not already installed, the MSM Enterprise installation will display the IIS installation window. This section details the steps to install IIS for MSM Enterprise.

## C.1 Installing IIS

Please follow the steps below closely to properly install IIS.

1. When prompted to install IIS, select the proper button for the version of Windows being used. (Figure C1)

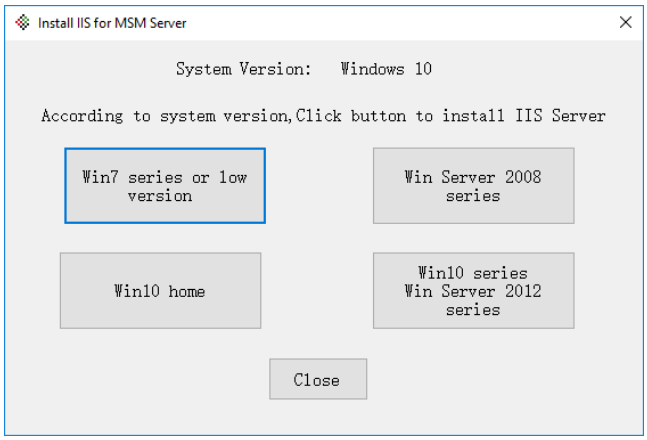



Figure C1

2. When IIS is done installing, note the numeric code given. If the code is "0" the installation was successful. Press any key to continue. (Figures C2a and C2b)

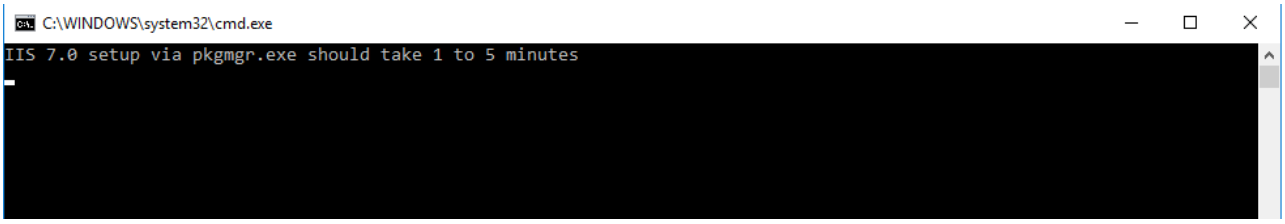



Figure C2a

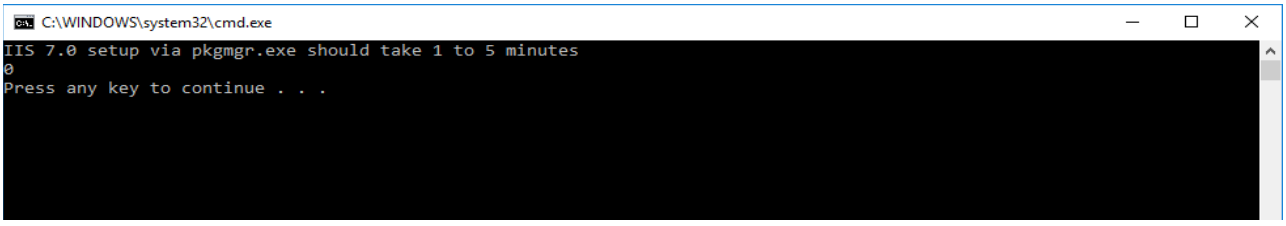



Figure C2b

# Appendix C – Installing IIS for MSM Enterprise (continued)

3. If the IIS installation failed, close any antivirus software and select "Tools > WebIIS Configure" within MSM Enterprise when opened for the first time, then select "Install". (Figure C3)

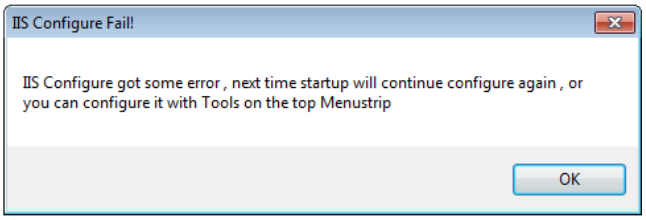



Figure C3

4. After the IIS installation is successful, restart the system to enable IIS then return to Section 2.

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