Getting Started with the 4800 Power Control Series

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Introduction

The MRV Communications Inc. 4800 Series family of products provides easy, practical, and secure solutions for power distribution, power management and load-measurement for remote internetworking equipment and branch AC circuits.

The **In-Reach 4800 Power Control Series** continues to support the elimination of unnecessary trips to remote locations by allowing remote control of the power on/off status for distant critical equipment, minimizing the impact of locked-up devices on mission-critical networks.

Safety and Compliance

Safety Precautions

This section contains important safety and regulatory information that should be reviewed before installing and using the 4800 Series. For input and output current ratings, see "Ratings" in Technical Specifications.

Only for installation and use in a Restricted Access Location in accordance with the following installation and use instructions.	*Seulement pour l'installation et l'utilisation dans une Zone Interdite conformément aux installations et l'utilisation des indications suivants.*	Nur zur Installation und Verwendung in einem Sicherheitsbereich gemäß den folgenden Installations- und Verwendungsanleitungen.
WARNING! High leakage current! Earth connection is essential before connecting supply!	*ATTENTION ! Haut fuite très possible ! Une connection de masse est essentielle avant de connecter l'alimentation !*	ACHTUNG! Hoher Verluststrom! Ein Erdungsanschluss ist vor dem Einschalten der Stromzufuhr erforderlich!
Always disconnect all power supply cords before opening to avoid electrical shock.	*Afin d'éviter tout choc électrique, assurez-vous de toujours débrancher les câbles d'alimentation électrique avant d'ouvrir.*	Ziehen Sie vor dem Öffnen immer die Netzkabel heraus, um die Gefahr eines elektrischen Schlags zu vermeiden.
Connect to VDC source that is electrically isolated from the AC source and reliably connected to earth.	*Brancher à une source de tension continue isolée de la source de tension alternative et mise à la terre adéquatement.*	Schließen Sie das Gerät an eine Gleichstromquelle an, die von der Wechselstromquelle galvanisch getrennt und sachgemäß geerdet ist.
Grounding wire should be bare copper and one size larger than the inlet cables.	*Le fil de mise à la terre doit être en cuivre nu et d'une taille supérieure aux câbles d'entrée.*	Verwenden Sie zur Erdung einen Kupferdraht, der um eine Stärke stärker ist als die Eingangskabel.
Remove fuses/open circuit breakers for terminal pairs prior to connecting inlets to power source.	*Retirer les fusibles et ouvrir les disjoncteurs pour connecter les paires de bornes avant de brancher les câbles d'entrée à la source d'alimentation.*	Entfernen Sie die Sicherungen/schalten Sie die Leistungsschalter für die Klemmenpaare aus, bevor Sie die Eingänge an die Stromquelle anschließen.
Inlet & outlet safety covers must be installed for safe operation.	*Pour une utilisation sécuritaire, les couvercles de sûreté des prises d'entrée et de sortie doivent être installés.*	Zum sicheren Betrieb müssen die Ein- und Ausgangsabdeckungen installiert sein.
The maximum amperage of a feed is marked on the unit. The total current of any combination of fuses cannot exceed that feed.	*L'intensité de courant maximum d'un nourrit est marqué sur l'unité. Le courant total de n'importe quelle combinaison de fusibles ne peut pas dépasser cela nourrit.*	Die maximale Stromstärke von einem Futter ist auf der Einheit markiert. Die gesamte Strömung von irgendeiner Kombination der Sicherungen kann jenes Futter nicht überschreiten.
The unit is not supplied with a disconnect device. One must be supplied upon installation.	*L'unité n'est pas fournie avec un débranche l'appareil. L'un doit être fourni sur l'installation.*	Die Einheit ist mit einem abschaltet Vorrichtung nicht versorgt. Ein muss auf Installation versorgt werden.
Both power sources must be disconnected before servicing.	*Les deux sources de pouvoir doivent être débranchées avant d'entretenir.*	Beide Stromquelle müssen vor Wartung abgeschaltet werden.
This unit is designed for installation in a restricted access location only, and should be installed where an untrained operator cannot gain access.	*Cette unité est conçue pour l'installation dans un emplacement d'accès limité, et devrait être seulement installé où un opérateur sans formation ne peut pas gagner l'accès.*	Diese Einheit ist für Installation in einem eingeschränkten Zugriffsort nur entworfen, und sollte installiert werden, wo ein ungeschulter Bediener Zugang nicht gewinnen kann.

Compliance

Units have been safety tested/certified to the following standards: USA and Canada to UL 60950:2003 and CAN/CSA 22.2 No. 60950-1-03, European Union to EN60950-1:2001.

USA Notification

Warning: Changes or modifications to these units not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment under FCC rules.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Notification

This Class A digital apparatus complies with all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigencies du Règlement sur le matériel brouilleur du Canada.

European Union Notification

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms:

- EN55022   Electromagnetic Interference

- EN55024   Electromagnetic Immunity

- EN60950   Product Safety

- EN61000-3 Harmonics and FlickerJapanese Notification

Japanese Notification

> 　この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準
> に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波
> 妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ず
> るよう要求されることがあります。

EXPORT NOTICE

MRV models contain 128-bit encryption software. Export of this product is restricted under U.S. law. Information is available from the U.S. Department of Commerce, Bureau of Export Administration at www.bxa.doc.gov.

Quick Start Guide

The following instructions will help you quickly install and configure your 4800 Series for use on your network. For detailed information on each step, go to the page number listed to the right.

For your network security, MRV Communications strongly recommends the changing of all predefined passwords for Network Access Device access prior to attachment to your network.

NOTE: When you are configuring the 4800 Series through the LX Series, you must first connect the 4800 Series to the LX-Series with a serial cable.

The following instructions will help you quickly install and configure your XLS for use in your data center equipment cabinet. For detailed information on each step, go to the page number listed to the right.

- Mounting (page 9)

- Connecting to the Power Source (page 9)

- Connecting Devices to the 4800 Series (page 9)

- Connect to the 4800 Series (page 10)

- Operations (page 10)

- Usernames and Passwords (page 11)

- Creating a User Account (page 21)

- Creating a Location Description (page 30)

Installation

Before installing your 4800 Series, refer to the following lists to ensure that you have all the items shipped with the unit as well as all other items required for proper installation.

Standard Accessories

- Mounting bracket hardware: two mounting brackets and four screws
- RJ45 to RJ45 crossover cable

- RJ45 to DB9F serial port adapter (for connection to standard DB9M DTE serial port)
- DB9F to DB25M modem cable

Additional Required Items

- Separate power input cord(s)
- Flathead and Phillip screwdrivers
- 10mm socket wrench or nut-drive
- Screws, washers and nuts to attach the 4800 to your rack

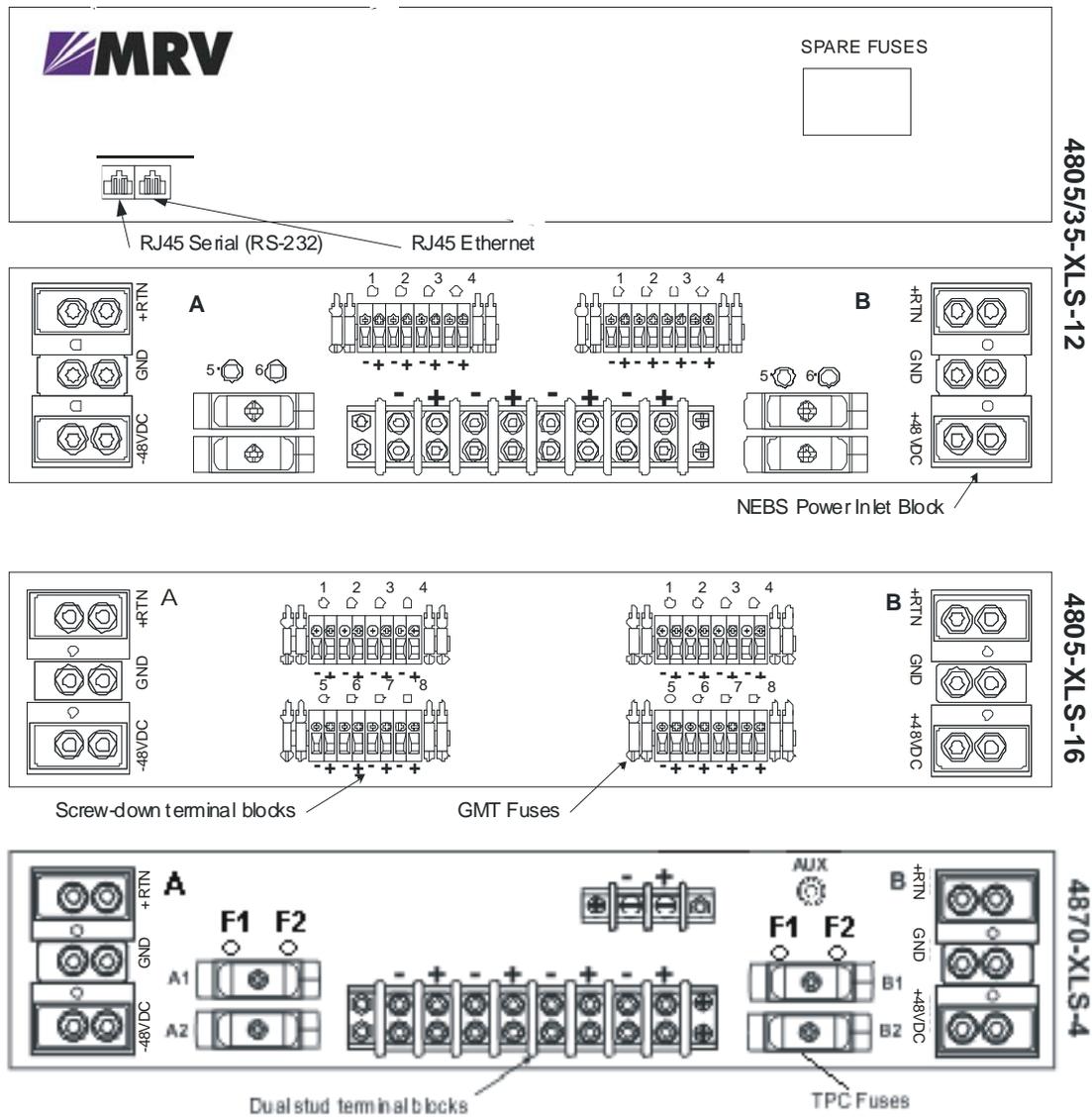| WARNING |
| --- |
| The auxiliary Port on the 4870-XLS-4 model is permanently charged. You can disable it by using the 5A auxiliary circuit breaker. |

Figure 1 - 4800 Series Views

Equipment Overview

A number is printed above each terminal pair. These numbers may be used in commands that require an outlet name. The power inlet connects to the electrical power source.

Mounting

1. Select the appropriate bracket mounting points for proper mounting depth within the rack.

2. Attach the brackets to these mounting points with two screws for each bracket.

3. Install the enclosure into your rack, using the slots in each bracket. The slots allow about ¼ inch of horizontal adaptability to align with the mounting holes of your rack.
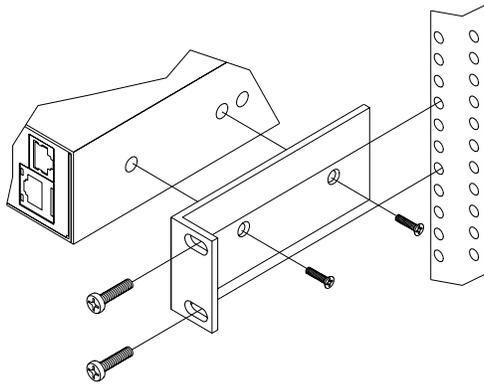
Figure 3 – Rack-Mounting the 4800 Series

Connecting to the Power Source

NOTE: Reverse polarity will damage the Remote Power Manager. Verify proper polarity before connecting to a power source.

1. Verify power source polarity and remove the fuses/open circuit breakers for all outlet terminal pairs.

2. Attach the appropriate input power cable(s) for your installation's operating voltage.

3. Attach the opposite end of the power cable(s) to the power source.

IMPORTANT

The 4800 contains the fuses needed to operate, but no spare fuses are included with the unit. You can store spare fuses in space provided on the rear of the unit. Refer to the "Fuse Values" section for further information on fuses.

Connecting Devices to the 4800 Series

1. Keep the device's on/off switch in the off position until after it is plugged into the outlet.

2. Connect devices to the XLS terminal pairs.

Always disconnect both power supply cords before opening to avoid electrical shock.
Afin d'éviter les chocs électriques, débranchez les cables électrique avant d'ouvrir.
Immer beiden Netzleitungen auskuppeln vor den Aufmachen um elektrischen Schlag zu vermeiden.

Connecting to the 4800 Series

The 4800 Series is equipped with a single RJ45 RS-232 serial port for attachment to a PC or networked terminal server using the supplied RJ45 to RJ45 crossover cable and RJ45 to DB9F serial port adapter as required. See the Technical Specifications for more information on the RS-232 serial port.

IMPORTANT

You may use the RJ45 to RJ45 crossover cable supplied with the unit. If you want to make your own crossover cable, refer to the Technical Specifications appendix at the rear of this manual for the required specifications.

Operations

IMPORTANT

The remaining pages in this manual up to Appendix A are relevant to you if you are configuring and managing the 4800 Series via the native CLI. However, if you are configuring and managing the 4800 Series via the LX-Series unit, refer to the *LX-Series Commands Reference Guide* for further information.

If your 4800 Series unit is to be managed via an LX-4000 Series unit, refer to the *LX Commands Reference Guide* for details on the appropriate commands. Refer to the Power Control chapter of the *LX-Series Configuration Guide* for Power Management commands when the 4800 Power Control series unit is connected to an LX unit.

Interfaces

Two management methods are available to control the 4800 Series products:

1. Telnet or SSH to the serial port connected to the 4800 and manage the product with a CLI session native to the device. Use this management method when the 4800 is connected to the In-Reach IR series of products.

   NOTE: Refer to *Getting Started with the 4800 Power Control Series* when the 4800 Power Control Series unit is connected to an IR-8000/9000 unit.

2. Manage the 4800 using the CLI commands found on the LX series products. Power commands on the LX are available to control the 4800 when the serial port connecting the 4800 is configured to 'Power Master'.

   NOTE: Refer to the Power Control chapter of the *LX-Series Configuration Guide* for Power Management commands when the 4800 Power Control series unit is connected to an LX unit.

The balance of this guide details how to configure and monitor the 4800 Series with Telnet/SSH or direct connectivity.

Outlet Naming and Grouping

For commands requiring an outlet name, you may specify it in one of two ways: a predefined absolute name or a descriptive name assigned by an administrator.

Absolute names are specified by a period (.) followed by a tower letter and outlet number.

Outlets may also be included in one or more named groups of outlets, enabling you to issue a command that affects all outlets in a named group.

Usernames and Passwords

The XLS has one predefined administrative user account (**username/password: admn/admn**) and supports a maximum of 128 defined user accounts

NOTE: For security, MRV Communications recommends changing the passwords for the predefined usernames. See "Changing a Password" for more information about changing passwords.

An additional 57 users may be added.

By default, only the Admn user can perform administrative operations such as adding/deleting usernames and command privileges, changing passwords, and displaying port and user information. The Admn user may also view the status of all 4800 Series ports, and control power to all ports.

The administrator may grant administrative privileges to another user with the Admnp command. This command may also be used to remove administrative privileges previously granted. This feature allows the 4800 Series to have more than one administrator-level user.

Additional usernames must contain from 1-16 characters; spaces are not allowed. A username is not case sensitive. Passwords may contain up to 16 characters, and are case sensitive. The administrator may change a password with the Set User Password command. See "Administration Commands" in this chapter for more information about commands that create and manage usernames.

NOTE: For security, when a password is typed, either blanks or asterisks appear on the screen instead of the typed password characters.

Logging In

Logging into the 4800 Series directly requires the use of a terminal or terminal emulation software. The terminal or emulation software must be configured to support ANSI or VT100, a supported data rate (300, 1200, 2400, 4800, 9600, 19200, or 38400 BPS)- 8 data bits-no parity-one stop bit and Device Ready output signal (DTR or DSR).

To log in directly to the 4800:

1. Press **Enter** twice. The following appears, where **x.x** is the firmware version:

    ```
    MRV Comm LX-Series LX-4800 Version x.x

    Username:
    ```

2. At the Username: prompt, enter a valid username and press **Enter**.

    If you do not enter a valid username within 60 seconds, the session ends with the message:

```
Your time is up. Try again later

Session ended.
```

3. At the Password: prompt, enter a valid password and press **Enter**.

    If you do not enter a valid password within 60 seconds, the session ends with the message:

    ```
    Your time is up. Try again later
    Session ended.
    ```

    If you enter an invalid password, the following message appears:

    ```
    Username/Password entered is NOT valid
    Username:
    ```

    You are given three attempts to enter a valid username and password combination. If all three fail, the session ends with the message:

    ```
    Username/Password entered is NOT valid
    Check your Username/Password and try again later
    Session ended.
    ```

When you enter a valid username and password, the 4800 command prompt (LX:) appears. If a location identifier was defined, it will be displayed before the LX: prompt.

Using the Command Line

You may enter commands in uppercase, lowercase or using a combination. You must enter all command characters correctly; there are no command abbreviations. The Admn user can issue any command. Other usernames may be granted access to some or all commands.

An administrator may lock one or more ports. When a port is locked, its on/off state cannot be changed (by general or added users) from the command line until the administrator unlocks the port

The command line supports two types of commands: operations and administration. In most cases, you must have administrative privileges to use the administration commands. The following tables list and briefly describe each command.

Operations Command Summary

Command	Description
On	Turns one or more outlets on
Off	Turns one or more outlets off
Reboot	Reboots one or more outlets
Status	Displays the on/off status of one or more outlets
Istat	Displays the status of the infeeds
Connect	Connects to a serial port
Envmon	Displays the status of the integrated Environmental Monitor
Login	Ends the current session and brings up the Username: prompt

Logout	Ends a session
Quit	Ends a session
List Outlets	Lists all accessible outlets for the current user
List Ports	Lists all accessible serial ports for the current user
List Group	Lists all assigned outlets for a group name
List Groups	Lists all accessible groups for the current user

Administrative Command Summary

Command	Description
Add Grouptouser	Grants a user access to one or more groups
Add Outlettogroup	Adds an outlet to a group name
Add Outlettouser	Grants a user access to one or all outlets
Add Porttouser	Grants a user access to one or all serial ports
Create Group	Adds a group name
Create User	Adds a user account
Delete Groupfromuser	Removes access to one or more groups for a user
Delete Outletfromgroup	Deletes an outlet from a group name
Delete Outletfromuser	Removes access to one or all outlets for a user
Delete Portfromuser	Removes access to one or all serial ports
List User	Displays all accessible outlets/groups/ports for a user
List Users	Displays privilege levels for all users
Remove Group	Deletes a group name
Remove User	Deletes a user account
Restart	Performs a warm boot
Set DNS	Sets the IP address of the Domain Name server
Set FTP Filename	Specifies the file to be uploaded via FTP
Set FTP Filepath	Specifies the filepath for the file to be uploaded
Set FTP Host	Sets the FTP Host IP address
Set FTP Password	Sets the password for the FTP Host
Set FTP Username	Sets the username for the FTP Host
Set Gateway	Sets the Gateway
Set Infeed Name	Specifies a descriptive field for the infeed
Set Ipaddress	Sets the IP address
Set Location	Specifies a descriptive field for the login banner
Set Outlet Name	Specifies a descriptive field for a device attached

	to an outlet
Set Outlet RebootDelay	Sets the reboot delay for all outlets
Set Outlet SeqInterval	Sets the sequencing interval for all outlets
Set Outlet Wakeup	Sets the wakeup state for an outlet
Set Subnet Mask	Sets the Subnet Mask
Set Telnet Port	Sets the Telnet server port number
Set Telnet	Enables or disables Telnet access
Set Tower Name	Specifies a descriptive field for the 4800
Set User Access	Sets the access level for a user
Set User Envmon	Grants or removes privileges to view input and environmental monitoring status
Set User Password	Changes the password for a user
Set Port Name	Specifies a descriptive field for a serial port
Set Port Dsrchk	Sets the DSR active signal checking for a serial port
Set Port Speed	Set the connection speed for all serial ports
Set Port Timeout	Sets the inactivity timer for Pass-Thru sessions
Show FTP	Displays FTP configuration information
Show Infeeds	Displays infeed configuration information
Show Network	Display network configuration information
Show Outlets	Displays configuration information for all outlets
Show Ports	Displays serial port configuration information
Show System	Displays system configuration information
Show Towers	Displays tower configuration information
Version	Displays the In-Reach firmware version

To display the names of commands that you may execute:

At the command prompt, press **Enter**. A list of valid commands for your username appears.

Operations Commands

Operations commands manage 4800 Series outlet states and provide information about the environment.

For most operations commands that affect port states, you may specify multiple port names on one command line, separated by a space or a comma, to a maximum of 50 characters.

NOTE: Users must be granted access to affect any change in port state.

Turning Outlets On

The On command turns on one or more outlets. When the command completes, a display indicates the number of outlets that were turned on and the number of outlets that are locked in their current state.

To turn an outlet on:

At the LX: prompt, type on and press **Enter**.

-or -

Type on, followed by a group name, and press **Enter**.

-or -

Type on all and press **Enter**.

Examples

The following command turns the second outlet on, using the outlet's absolute name:

```
LX: on .aa2<Enter>
```

The following command turns on all the outlets in the group named ops_srv:

```
LX: on ops_srv<Enter>
```

Turning Outlets Off

The Off command turns off one or more outlets. When the command completes, a display indicates the number of outlets that were turned off and the outlets that are locked in their current state.

To turn outlets off:

At the LX: prompt, type off, followed by one outlet, and press Enter.

-or -

Type off, followed by a group name, and press **Enter**.

-or -

Type off all and press **Enter.**

Examples

The following command turns off the outlet named FileServer_1:

```
LX: off Fileserver_1<Enter>
```

The following command turns off all outlets:

```
LX: off all<Enter>
```

Rebooting Outlets

The Reboot command reboots one or more outlets. This operation turns the outlet(s) off, delays for a period of time and then turns the outlet(s) on. The delay interval is 15 seconds by default, or the minimum-off time, whichever is greater.

When the command completes, a display indicates the number of outlets that were rebooted and the outlets that are locked in their current state.

If you plan to reboot a large number of outlets simultaneously by specifying all outlets or a group name that is assigned to many outlets, it may be beneficial to set staggered minimum-off time values among the outlets. This enables you to avoid an excessive in-rush of current and possible circuit overload.

To reboot one or more outlets:

At the LX: prompt, type reboot, followed by one outlet, and press **Enter**.

-or -

Type reboot, followed by a group name, and press **Enter**.

-or -

Type reboot all and press **Enter**.

Examples

The following command reboots the outlets in the group named ServerGroup_1:

```
LX: reboot ServerGroup_1<Enter>
```

The following command reboots all the outlets in the group named ops_srv:

```
LX: reboot ops_srv<Enter>
```

The following command reboots all outlets:

```
LX: reboot all<Enter>
```

Displaying Outlet Status

The Status command displays the on/off status of one or more outlets. For additional usernames, the command displays the status of only those outlets for which the username has power control access.

The display includes the outlet absolute and descriptive names, the Outlet State reported to the 4800 by the outlet and the current Control State being applied by the 4800. If you do not specify any parameter with this command, the status of all outlets is displayed.

NOTE: If the user has access to more than 16 total outlets, the Status command will display the first 16 outlets with a prompt to view the remaining outlets.

To display on/off status of one or more outlets:

At the LX: prompt, type status, followed by one outlet, and press **Enter**.

-or -

Type status, followed by a group name, and press **Enter**.

-or -

Type status all and press **Enter**.

-or -

Type status and press **Enter**.

Examples

The following command displays the on/off status of the outlet named FileServer_1:

```
LX: status FileServer_1<Enter>

   Outlet   Outlet                         Outlet   Outlet   Control
   ID       Name                           State    Load     State

   .AA3     FileServer_1                   On       0.5 Amps  On
```

The following command displays the on/off status of all accessible outlets:

```
LX: status<Enter>

   Outlet   Outlet                         Outlet  Outlet     Control
   ID       Name                           State   Load       State

   .AA1     DataServer_1                   On      5.0 Amps    On
   .AA2     WebServer_1                    On      2.5 Amps    On
   .AB1     FileServer_1                   On      9.5 Amps    On
   .AB2                                    On      0.0 Amps    On
```

The following command displays the on/off status for outlets in the group ServerGroup_1:

```
LX: status ServerGroup_1<Enter>

   Group: ServerGroup_1

      Outlet   Outlet                      Outlet   Outlet    Control
      ID       Name                        State    Load      State

      .AA1     DataServer_1                On       5.0 Amps   On
      .AA2     WebServer_1                 On       2.5 Amps   On
      .AB1     FileServer_1                On       9.5 Amps   On
```

Displaying Accessible Outlets

The List Outlets command displays accessible outlets for the current user. The display includes the absolute and descriptive name of all outlets assigned to the current user.

To display accessible outlets:

At the LX: prompt, type **list outlets** and press **Enter**.

Example

The following command displays all accessible outlets for the current user:

```
LX: list outlets<Enter>

   Outlet   Outlet
   ID       Name

   .AA1     DataServer_1
   .AA2     WebServer_1
```

Displaying Accessible Groups

The List Groups command displays accessible groups for the current user.

To display accessible groups:

At the LX: prompt, type **list groups** and press **Enter**.

Example

The follow command displays all accessible groups for the current user:

```
LX: list groups<Enter>

   Groups:

      ServerGroup_1
      RouterGroup_1
```

Displaying Outlets Assigned to a Group

The List Group command displays outlets assigned to the specified group name.

To display outlets assigned to a group:

At the `LX:` prompt, type **list group**, followed by the group name and press **Enter**.

Example

The follow command displays the outlets assigned to the group ServerGroup_1:

```
LX: list group ServerGroup_1<Enter>

   Group: ServerGroup_1

      Outlet    Outlet
      ID        Name

      .AA1      DataServer_1
      .AA2      WebServer_1
      .AB1      FileServer_1
```

Displaying Accessible Serial Ports

The List Ports command displays accessible serial ports for the current user.

To display accessible serial ports:

At the `LX:` prompt, type **list ports** and press **Enter**.

Example

The follow command displays all accessible serial ports for the current user:

```
LX: list ports<Enter>

   Port      Port
   ID        Name

   Console   Console
```

Displaying Infeed Status

The Istat or Iload command displays the status of one or more infeed.

This display includes the infeed absolute and descriptive names and the Input Status reported to the `In-Reach` by the infeed.

To display status of one or more infeeds:

Type **istat** and press **Enter**, or

Type **iload** and press **Enter**.

Examples

The following command displays the infeed status:

```
LX: istat

   Input    Input                       Input
   Feed ID  Feed Name                   Status

   .AA      HQ_1_Infeed_A               On
   .AB      HQ_1_Infeed_B               On
```

Connecting to a Serial Device

The Connect command allows Pass-Thru serial connection to devices attached to the standard serial port (Console) or a Pass-Thru port.

To connect to a serial device:

At the LX: prompt, type **connect**, followed by the serial port name and press **Enter**.

Examples

To disconnect from a serial device:

Type **!*break** and press **Enter**.

Displaying the Status of the Environmental Monitor

NOTE: This feature is not supported on the 4800 model.

The Envmon command displays the status of the integrated Environmental Monitor.

By default, only administrative user accounts are allowed access to the Envmon command. An administrator may use the Set User Envmon command to enable and disable access for other user accounts.

To display the status of the Environmental Monitor:

At the LX: prompt, type **envmon** and press **Enter**.

Example

The following command displays the status of the Environmental Monitor.

```
LX: envmon<Enter>

Environmental Monitor .A
   Name: Florida_HQ_1                   Status: Normal

   Temperature/Humidity Sensors

      ID    Name                        Temperature    Humidity
      .A1   N/A                         N/A            N/A
      .A2   N/A                         N/A            N/A
```

Starting a New Session

The Login command activates the Username: prompt. The current session ends, allowing a user to log in and start a new session under a different username.

To start a new session:

At the `LX:` prompt, type `login` and press **Enter**. The `Username:` prompt appears.

Ending a Session

The Quit command ends a session. You may also end the current session and immediately start a new one with the Login command. A session ends automatically when no activity is detected for five minutes, or upon loss of connection to the 4800 Series.

To end a session:

At the `LX:` prompt, type `quit` and press **Enter**.

Administration Commands

Administration commands include the Add, Del, List, and Set commands, plus the Admnp command. Some of these commands manage usernames and their privileges.

Administration commands may only be issued by a user with administrative privileges, such as the predefined Admn user or another user who has been granted administrative privileges with the Admnp command.

To display a list of available Add commands:

At the `LX:` prompt, type `add` and press **Enter**.

The following display appears:

```
ADD commands are:
OUTLETTOUSER   OUTLETTOGROUP   GROUPTOUSER   PORTTOUSER
```

To display a list of available Del commands:

At the `LX:` prompt, type `delete` and press **Enter**.

The following display appears:

```
DEL commands are:
OUTLETFROMUSER   OUTLETFROMGROUP   GROUPFROMUSER   PORTFROMUSER
```

To display a list of available List commands:

At the `LX:` prompt, type `list` and press **Enter**.

The following display appears:

```
LIST commands are:
USER USERS PORTS GROUP GROUPS OUTLETS
```

To display a list of available Set commands:

At the `LX:` prompt, type `set` and press **Enter**.

The following display appears:

```
SET commands are:
IPADDRESS SUBNET GATEWAY LOCATION TOWER INFEED OUTLET ENVMON PORT USER FTP
TELNET OEMINFO OPTION SCPAUTH
```

User Administration

Creating a User Account

The Create User command creates a user account with the specified username and password. See *Usernames and Passwords* in this chapter for more information.

To create a user account:

At the `LX:` prompt, type **create user**, optionally followed by a 1-16 character username (Spaces are not allowed, and usernames are not case sensitive). Press **Enter**.

At the `Password:` prompt, type a password of up to 16 alphanumeric and other typeable characters (ASCII 32 to 126 decimal). Passwords are case sensitive. Press **Enter**. To specify no password, press **Enter** at the prompt.

At the `Verify Password:` prompt, retype the password. Press **Enter**. To verify no password, press **Enter** at the prompt.

Example

The following command creates the user account JaneDoe:

```
LX: create user JaneDoe<Enter>
Password: <Enter>
Verify New Password: <Enter>
```

For security, password characters are not displayed.

Removing a User Account

The Remove User command removes a user account.

NOTE: You may remove the predefined user account Admn only if another user account has been granted administrative privileges using the Set User Admnpriv command.

To remove a user account:

At the `LX:` prompt, type **remove user**, optionally followed by a username. Press **Enter**.

Changing a Password

The Set User Password command changes a user's password.   For security, when you type a password, the characters are not displayed on the screen.

To change a password:

At the `LX:` prompt, type **set user password**, followed by a username and press **Enter**.

At the Password: prompt, type the new password and press **Enter**. Passwords may contain up to 16 characters, and spaces are not allowed. To specify no password, press **Enter** at the prompt.

At the Verify Password: prompt, retype the new password and press Enter. To verify no password, press **Enter** at the prompt.

Examples

The following command changes the password for the user JohnDoe:

```
LX: set user password johndoe<Enter>
   Password: <Enter>
   Verify Password: <Enter>
```

The following command blanks the password for the user JaneDoe:

```
LX: set user password<Enter>
   Username: janedoe<Enter>
   Password: <Enter>
   Verify Password: <Enter>
```

Setting User Access Level Privileges

The Set User Access command sets the access level privileges for a user.   The 4800 has four defined access privilege levels; Admin, User, OnOnly and ViewOnly. For more information on user access levels, see *Displaying the Access Privilege Levels.*

The administrator may also grant administrative privileges to other user accounts allowing the In-Reach to have more than one administrative-level user.

NOTE: You cannot remove administrative privileges from the Admn user unless another user has already been given administrative access level privileges created.

To set the access level privilege for a user:

At the LX: prompt, type **set user access**, followed by **admin** or **user,** optionally followed by a username and press **Enter**.

Examples

The following command sets the user access level for JohnDoe to Admin:

```
LX: set user access admn johndoe<Enter>
```

The following command sets the user access level for JaneDoe to User:

```
LX: set user access user janedoe<Enter>
```

Granting And Removing Input Load Viewing Privileges

The Set User Envmon command grants or removes input load viewing privileges to/from a general or view-only user.

To grant or remove input load viewing privileges for a user:

At the LX: prompt, type **set user envmon** followed by **on** or **off**, optionally followed by a username and press **Enter**.

Example

The following command grants input load privileges to the user JohnDoe:

```
LX: set user envmon on johndoe<Enter>
```

Displaying The Access Privilege Levels

The List Users command displays all defined users with their access privilege level.

To display user access privilege levels:

At the LX: prompt, type **list users** and press **Enter**.

Example

The following command displays all users with their access privilege level:

```
LX: list users<Enter>

   User                Privilege      Environmental
   Name                Level          Monitoring

   JOHNDOE             Admin          Allowed
   JANEDOE             User           Allowed
   JOSEYDOE            On-Only        Not Allowed
   JOEDOE              View-Only      Not Allowed
```

Adding Outlet Access To A User

The Add OutletToUser command grants a user access to one or all outlets. To grant access for more than one outlet, but not all outlets, you must use multiple Add OutletToUser commands.

To grant outlet access to a user:

At the LX: prompt, type **add outlettouser**, optionally followed by an outlet name and a username. Press **Enter**, or

Type **add outlettouser all**, followed by a username and press **Enter**.

Examples

The following commands grant the user JaneDoe access to outlets A1 and Webserver_1:

```
LX:add outlettouser .aa1 janedoe<Enter>
LX:add outlettouser WebServer_1 janedoe<Enter>
```

Deleting Outlet Access For A User

The Delete OutletFromUser command removes a user's access to one or all outlets. You cannot remove access to any outlet for an administrative level user.

To delete outlet access for a user:

At the LX: prompt, type **delete outletfromuser**, optionally followed by an outlet name and a username. Press **Enter**, or

Type **delete outletfromuser all**, followed by a username and press **Enter**.

Adding Group Access To A User

The Add GroupToUser command grants a user access to a group. To grant access for more than one group, you must use multiple Add GroupToUser commands.

To grant group access to a user:

At the `LX:` prompt, type **add grouptouser**, optionally followed by a group name and a username. Press **Enter**.

Examples

The following commands grants to user JaneDoe access to the groups ServerGroup_1 and ServerGroup_2:

```
LX:add GroupToUser ServerGroup_1 janedoe<Enter>
LX:add GroupToUser ServerGroup_2 janedoe<Enter>
```

Deleting Group Access For A User

The Delete GroupFromUser command removes a user's access to a group. You cannot remove access to any group for an administrative level user.

To delete group access for a user:

At the `LX:` prompt, type **delete GroupFromUser**, optionally followed by a group name and a username. Press **Enter**.

Adding Serial Port Access To A User

The Add PortToUser command grants a user access to a serial port.

To grant serial port access to a user:

At the `LX:` prompt, type **add porttouser**, optionally followed by a Port name and a username. Press **Enter**.

Deleting Serial Port Access For A User

The Delete PortFromUser command removes a user's access to a serial port. You cannot remove access to any serial port for an administrative level user.

To delete serial port access for a user:

At the `LX:` prompt, type **delete portfromuser**, optionally followed by a Port name and a username. Press **Enter**.

Displaying User Outlet, Group And Serial Port Access

The List User command displays all accessible outlets, groups and serial ports for a user.

To display user outlet, group and serial port access:

At the `LX:` prompt, type **list user**, optionally followed by a username. Press **Enter**.

Example

The following command displays information about the user JaneDoe:

```
LX: list user janedoe<Enter>
```

```
    Username: JANEDOE

      Outlet    Outlet
      ID        Name

      .AA1      DataServer_1
      .AA2      WebServer_1

      Groups:

         ServerGroup_1
         ServerGroup_2

   More (Y/es N/o): Y

      Ports:

         Port      Port
         ID        Name

         Console   Console
```

JaneDoe may access the following outlets, groups and serial ports: outlet A1 which has a descriptive name of DataServer_1, outlet B1 which has a descriptive name of WebServer_1, group ServerGroup_1 group ServerGroup_2.

Outlet Administration

Setting The Sequencing Interval

The Set Outlet SeqInterval commands sets the power on sequencing interval for all outlets.

To set the sequencing interval:

At the LX: prompt, type **set outlet seqinterval all**, followed by a value from 2 to 15 (in seconds) and press Enter.

Setting the Reboot Delay

The Set Outlet RebootDelay commands sets the reboot delay for all outlets.

To set the sequencing interval:

At the LX: prompt, type **set outlet rebootdelay all**, followed by a value from 5 to 60 (in seconds) and press Enter.

Creating A Descriptive Outlet Name

The Set Outlet Name command assigns a descriptive name to an outlet. You may use this name in commands that require an outlet name as an alternative to using the outlet's absolute name.

To create an outlet name:

At the LX: prompt, type **set outlet name**, followed by the absolute outlet name and a descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed). Outlet names are not case sensitive. Press **Enter**.

Example

The following command adds the descriptive name DataServer_1 to outlet .aa1:

```
LX: set outlet name .aa1 DataServer_1<Enter>
```

Setting The Outlet Wakeup State

The Set Outlet Wakeup command set the default wakeup state for that outlet. In the event of a system-wide power loss, this state will be applied to the outlet when power is restored.

The wakeup state may be set to On, Off or Last. Upon restoration of system power; If set to On, the 4800 will apply power to that outlet. If set to Off, the 4800 will not apply power to that outlet. If set to Last, the 4800 will apply the last known power state.

To set the wakeup state:

At the `LX:` prompt, type **set outlet wakeup**, followed by **on**, **off** or **last** and the outlet name. Press **Enter**.

Example

The following command sets the wakeup state for outlet .a1 to off:

```
LX: set outlet wakeup off .aa1<Enter>
```

Displaying Outlet Information

The Show Outlets command displays information about all outlets. This information includes:

- Sequencing and reboot timer values

- Descriptive outlet name, if applicable

- Outlet wakeup state setting

To display outlet information:

At the `LX:` prompt, type **show outlets** and press **Enter**.

Example

The following command displays all outlet information:

```
LX: show outlets<Enter>

   Outlet   Outlet              Wakeup
   ID       Name                State

   .AA1     DataServer_1        off
   .AA2     WebServer_1         on
   .AB1     FileServer_1        on
   .AB2                         on

   Outlet Options:

      Sequence Interval:   2 seconds
      Reboot Delay:       15 seconds
```

Group Administration

Creating A Group Name

The Create Group command creates a new group name.

To create a group name:

At the `LX:` prompt, type **create group**, optionally followed by a descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed. Group names are not case sensitive). Press **Enter**.

Example

The following command creates group name ServerGroup_1:

```
LX: create group ServerGroup_1<Enter>
```

Removing a Group Name

The Remove Group command removes a group name.

To remove a group name:

At the `LX:` prompt, type **remove group**, optionally followed by a username. Press **Enter**.

Example

The following command removes group name ServerGroup_1:

```
LX: remove group ServerGroup_1<Enter>
```

Adding An Outlet To A Group

The Add OutletToGroup command adds an outlet to a group. To add more than one outlet, but not all outlets, you must use multiple Add OutletToGroup commands.

To add an outlet to a group:

At the `LX:` prompt, type **add outlettogroup**, optionally followed by an outlet name and group name. Press **Enter**, or

Type **add OutletToGroup**, followed by **all** and the group name. Press **Enter**.

Examples

The following commands uses absolute outlet names to add outlets `.aa1` and `.aa2` to group name ServerGroup_1:

```
LX:add OutletToGroup .aa1 ServerGroup_1<Enter>
LX:add OutletToGroup .aa2 ServerGroup_1<Enter>
```

The following commands use the outlets' descriptive names to add outlets DataServer_1 and WebServer_1 to group name ServerGroup_1:

```
LX:add OutletToGroup DataServer_1 ServerGroup_1<Enter>
LX:add OutletToGroup WebServer_1 ServerGroup_1<Enter>
```

The following command add all outlets to group name ServerGroup_1:

```
LX: add OutletToGroup<Enter>
Outletname: all<Enter>

Groupname: ServerGroup_1<Enter>
```

Deleting An Outlet From A Group

The Delete OutletFromGroup command deletes an outlet from a group. To delete more than one outlet, but not all outlets, you must use multiple Delete OutletToGroup commands.

To delete an outlet from a group:

At the LX: prompt, type **delete outletfromgroup**, optionally followed by an outlet name and a group name. Press **Enter**, or

Type **delete outletfromgroup**, followed by **all** then the group name. Press **Enter**.

Environmental Monitor Administration

Creating A Descriptive Environmental Monitor Name

The Set Envmon Name command assigns a descriptive name to the integrated Environmental Monitor. This descriptive name is displayed when the Evnmon command is issued.

To create an Environmental Monitor name:

At the LX: prompt, type **set envmon name**, followed by the absolute Environmental Monitor name, then the descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal – spaces are not allowed). Press **Enter**.

Example

The following command adds the descriptive name Florida_HQ_1to the Environmental Monitor:

```
LX: set envmon name .a Florida_HQ_1<Enter>
```

Creating A Descriptive Temperature/Humidity Sensor Name

The Set Envmon THS Name command assigns a descriptive name to a temperature/humidity sensor. This descriptive name is displayed when the Evnmon command is issued.

To create an temperature/humidity sensor name:

At the LX: prompt, type **set envmon ths name**, followed by the absolute name of the temperature/humidity sensor, then the descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal – spaces are not allowed). Press **Enter**.

Example

The following command adds the descriptive name T/H2_Florida_HQ_1 to the second temperature/humidity sensor:

```
LX: set envmon ths name .a2 T/H2_Florida_HQ_1<Enter>
```

Serial Port Administration

Creating A Descriptive Serial Port Name

The Set Port Name command assigns a descriptive name to a serial port. You may use this name in commands that require a port name as an alternative to using the port's absolute name.

To create an port name:

At the LX: prompt, type **set port name**, followed by the absolute outlet name and a descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed). Port names are not case sensitive. Press **Enter**.

Example

The following command adds the descriptive name Rack1 to Console port:

```
LX: set port name console Rack1<Enter>
```

Setting The Serial Ports Data-Rate

The Set Port Speed command sets the default data-rate for the serial port. Valid data-rates are 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200.

To set the serial port data-rate:

At the LX: prompt, type **set port speed**, follow by the data-rate and press **Enter**.

Example

The following command sets the serial ports data-rate to 38400 BPS:

```
LX: set port speed 38400<Enter>
```

Enabling Or Disabling Active Signal Checking For Serial Connections

The Set Port Dsrchk command enables or disables active signal checking for serial connections to devices attached to any of the available serial ports.

To enable or disable active signal checking for serial connections:

At the LX: prompt, type **set port dsrchk**, followed by serial port name, **on** or **off,** and press **Enter**, or

Type **set port dsrchk all**, **on** or **off,** and press **Enter**.

Examples

The following command disables active signal checking for all serial ports:

```
LX: set port dsrchk all off<Enter>
```

Setting The Serial Port Timeout Value

The Set Port Timeout command is used to set the serial port inactivity timeout period. The timeout period defines the maximum period of inactivity before automatically closing the Pass-Thru session. The valid range for the period parameter is 0 to 5 (in minutes). The default period is 5.

NOTE: Setting the timeout to '0' disables the timer.

To set the serial port timeout value:

At the `LX:` prompt, type **set port timeout**, followed by a value from 0 to 5 (in minutes) and press **Enter.**

Displaying Serial Port Information

The Show Ports command displays information about all serial ports. This information includes:

- Serial port data rate

- Descriptive port name, if applicable

- DSR signal checking settings

To display serial port information:

At the `LX:` prompt, type **show ports** and press **Enter**.

Example

The following command displays all serial port information:

```
LX: show ports<Enter>

   Serial Port Configuration

     ALL Ports:

        Baud Rate: 38400        Connection Timeout: 5 minutes

     Console Port:

        DSR Check: ON          CLI: Enabled     SCP: Enabled

        Initializations: ON

           Init String 1:    AT
           Init String 2:    AT E0 Q1 S0=1 S2=64 S12=50 &C1 &D2
           Attention String: @@@
           Hang-Up String:   ATH
```

System Administration

Creating A Location Description

To create a location description:

At the `LX:` prompt, type **set location**, followed by a descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 32 to 126 decimal - spaces are allowed). Press **Enter**.

Omitting any characters after typing 'set location' deletes any previously specified text.

Examples

The following command specifies Florida HQ as the descriptive location for the login banner:

```
LX: set location Florida HQ<Enter>
```

The following command deletes any previously specified location description:

```
LX: set location<Enter>
```

Displaying System Configuration Information

The Show System command displays all system configuration information.

- Firmware version

- NIC module serial number and MAC address

- Hardware revision code and Flash size

- Uptime since last system restart

- System location description

To display system configuration information:

At the `LX:` prompt, type **show system** and press **Enter**.

Example

```
System Information

    F/W Version:    MRV LX-Series LX-4800 5.3b
    NIC S/N:        1600001
    MAC Address:    00-0a-9c-10-00-01
    H/W Rev Code:   0
    Flash Size:     2 MB
    Uptime:         0 days 6 hours 14 minutes 1 second

    Location:       Florida HQ
```

Creating A Descriptive Tower Name

The Set Tower Name command assigns a descriptive name to a tower.

To create a tower name:

At the `LX:` prompt, type **set tower name**, followed by the absolute tower name, then the descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed). Press **Enter**.

Example

The following command adds the descriptive name Florida_HQ_1 to tower .a:

```
LX: set tower name .a Florida_HQ_1<Enter>
```

Displaying Tower Information

The Show Towers command displays information about the 4800. This information includes the absolute and descriptive In-Reach names.

To display tower information:

At the `LX:` prompt, type **show towers** and press **Enter**.

Example

```
LX: show towers<Enter>

   Tower    Tower
   ID       Name

   .A       Florida_HQ_1
```

Creating A Descriptive Infeed Name

The Set Infeed Name command assigns a descriptive name to an infeed.

To create a infeed name:

At the `LX:` prompt, type **set infeed name**, followed by the absolute infeed name, then the descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed). Press **Enter**.

Example

The following command adds the descriptive name HQ_1_Infeed_A to the infeed on the 4800:

```
LX: set infeed name .aa HQ_1_Infeed_A<Enter>
```

Displaying Infeed Information

The Show Infeeds command displays information about all infeeds. This information includes the absolute and descriptive infeed names.

To display tower information:

At the `LX:` prompt, type **show infeeds** and press **Enter**.

Example

```
LX: show infeeds<Enter>

   Input     Input
   Feed ID   Feed Name

   .AA       HQ_1_Infeed_A
   .AB       HQ_1_Infeed_B
```

Displaying The In-Reach Firmware Version

The Version command displays the In-Reach firmware version.

To display the firmware version:

At the `LX:` prompt, type **version** and press **Enter**.

Performing a Warm Boot

The Restart command performs a warm boot of the 4800.

NOTE: System user/outlet/group/port configuration or outlet states are NOT changed or reset with this command.

To perform a warm boot:

At the `LX:` prompt, type **restart** and press **Enter**.

TCP/IP Administration

NOTE: A restart of the 4800 is required after setting or changing ANY TCP/IP configurations. See *Performing a Warm Boot* for more information.

Setting the IP Address

The Set Ipaddress command sets the TCP/IP address of the network interface controller.

To set the IP address:

At the `LX:` prompt, type **set ipaddress**, followed by the IP address and press **Enter**.

Example

The following command sets the IP address to 12.34.56.78:

```
LX: set ipaddress 12.34.56.78<Enter>
```

Setting the Subnet Mask

The Set Subnet command sets the subnet mask for the network the PT40 will be attached to.

To set the subnet mask:

At the `LX:` prompt, type **set subnet**, followed by the subnet mask and press **Enter**.

Example

The following command sets the subnet mask to 255.0.0.0

```
LX: set subnet 255.0.0.0<Enter>
```

Setting the Gateway

The Set Gateway command sets the IP address of the default gateway the 4800 uses to access external networks.

To set the gateway IP address:

At the `LX:` prompt, type **set gateway**, followed by the gateway IP address and press **Enter**.

Example

The following command set the gateway IP address to 12.34.56.1:

```
LX: set gateway 12.34.56.1<Enter>
```

Displaying Network Configuration Information

The Show Network command displays TCP/IP and Telnet configuration information.

- IP address, subnet mask, and gateway

- Enabled-disabled status and port numbers for Telnet support

- Network status

To display network configuration information:

At the `LX:` prompt, type **show network** and press **Enter**.

Example

The following command displays the network configuration information:

```
LX: show network<Enter>

  Network Configuration

    IP Address:     12.34.56.78
    Subnet Mask:    255.0.0.0
    Gateway:        12.34.56.1

    Telnet:         Enabled      Port:    23
  Network Status

    Link:           Up
    Speed:          100 Mbps
    Duplex:         Full
    Negotiation:    Auto
```

Telnet Administration

NOTE: A restart of the 4800 is required after setting or changing ANY Telnet/Web configurations. See *Performing a Warm Boot* for more information.

Enabling and Disabling Telnet Support

The Set Telnet command is used to enable or disable Telnet support.

To enable or disable Telnet support:

At the `LX:` prompt, type **set telnet**, followed by **enabled** or **disabled** and press **Enter**.

Changing the Telnet Port

With Telnet support enabled, the Telnet server watches and responds to requests on the default Telnet port number 23. This port number may be changed using the Set Telnet Port command.

To change the Telnet socket:

At the `LX:` prompt, type **set telnet port**, followed by the port number and press **Enter**.

Example

The following changes the Telnet port number to 7001:

```
LX: set telnet port 7001<Enter>
```

FTP Administration

You may upload new versions of firmware into the 4800 using File Transfer Protocol (FTP). This allows access to new firmware releases for firmware improvements and new features additions. The following commands are used to configure the 4800 for an FTP firmware upload. See Appendix B, Uploading Firmware for more information on initiating a FTP firmware upload.

Setting the FTP Host IP Address

The Set FTP Host command sets the FTP host IP address allowing for firmware file uploads.

To set the FTP Host IP address:

At the `LX:` prompt, type **set ftp host**, followed by the Host IP address and press **Enter**.

Example

The following command sets the FTP Host IP address to 12.34.56.99:

```
LX: set ftp host 12.34.56.99<Enter>
```

Setting the FTP Username

The FTP Username command sets the username as required by the FTP Host.

To set the FTP username:

At the `LX:` prompt, type **set ftp username**, followed by the FTP username and press **Enter**.

Example

The following command sets the FTP username to Guest:

```
LX: set ftp username guest<Enter>
```

Setting the FTP Password

The FTP Password command sets the password as required by the FTP Host.

To set the FTP password:

At the `LX:` prompt, type **set ftp password**, followed by the FTP password and press **Enter**.

Example

The following command sets the FTP password to OpenSesame:

```
LX: set ftp password OpenSesame<Enter>
```

Setting The Filename To Be Uploaded

The FTP Filename command sets the filename of the firmware file to be uploaded.

To set the FTP filename:

At the `LX:` prompt, type **set ftp filename**, followed by the firmware filename and press **Enter**.

Example

The following command sets the FTP filename to snb_s50a.bin:

```
LX: set ftp filename snb_s50a.bin<Enter>
```

Setting The Filepath For The File To Be Uploaded

The FTP Filepath command sets the filepath for the firmware file to be uploaded.

To set the FTP filepath:

At the `LX:` prompt, type **set ftp filepath**, followed by the filepath and press **Enter**.

Example

The following command sets the FTP filepath to ftp://Software:

```
LX: set ftp filepath ftp://Software<Enter>
```

Displaying FTP Configuration Information

The Show FTP command displays all FTP configuration information.

- FTP Host IP address

- FTP Host username and password

- Firmware filepath and filename

To display FTP configuration information:

At the `LX:` prompt, type **show ftp** and press **Enter**.

Example

The following command displays the FTP configuration information:

```
LX: show ftp<Enter>

   FTP Configuration

      Host IP Address: 12.34.56.99
      Username:        guest
      Password:        OpenSesame
      Directory:       ftp://Software
      Filename:        snb_s52a.bin
```

Some fields are display-only and cannot be changed. Other fields may be changed by toggling among preset values or by entering text. The following sections describe each field.

Location

The display-only Location field contains text that was specified with the Set Location command. The text in this field is also appended to a `Welcome to` banner that appears when a user successfully logs in.

Input Load

The display-only Input Load field indicates the current cumulative input load in amperes of all devices attached to the 4800 Series. You may also obtain this value from the command line with the Iload command, or by viewing the Input Current LED on the front of the 4800 Series.

Port Name

The editable Port Name field contains a descriptive name for the device connected to the port. Use this name in commands that require a port name, as an alternative to using the port 's absolute name. See "Outlet Naming and Grouping" for more information about outlet names.

To specify a port name:

Position the cursor in the relevant Port Name field.

Type e. If you are changing an existing name, press the **Backspace** key to erase characters. Type a 1-8 character name. Press **Enter** or **Tab**.

Module Status

The display-only Module Status field indicates the port 's current status.

Module Status Field Values

Display	Description	Control Status field
Normal	The port is working correctly.	'x'
No Rspns	The interface cannot communicate with the port.	'o'
OnS Fail	The port was instructed to be on, but it is off.	'o' in On field
Off Fail	The port was instructed to be off, but it is on.	'o' in Off field

Minimum-On Time

The editable Minimum-On Time field indicates the minimum amount of time that a port will stay on before it can be turned off by a command. The default value is Ø.

Minimum-Off Time

The editable Minimum-Off Time field indicates the minimum amount of time that a port will stay off before it can be turned on by a command. The default is Ø. During a reboot, the value in this field determines the time that a port remains in the off state during the reboot cycle, if it is longer than 15 seconds.

You may use this value to stagger the startup of ports when a command is issued to reboot multiple ports at the same time. For example, setting different minimum-off time values may be useful when you issue a Reboot All command or a Reboot command for a large group.

NOTE: The wake-up power sequencing feature applies only when the entire 4800 Series unit receives power, not when the power state is changed from the command line.

It may be important in your configuration to set the minimum-off time values differently to avoid a circuit overload caused by an excessive in-rush of current that may occur when too many devices power up simultaneously.

The following example shows one way to configure the minimum-off time values for the four ports:

```
Minimum-Off Time:    00:00:15   00:00:30   00:00:45   00:01:00
```

To change a port 's minimum-off time value:

Position the cursor in the port 's Minimum-Off Time field and press the **Spacebar** or the **Plus** (+) or **Minus** (-) key. Each press moves through preset values to a one hour maximum.

The preset values are: 15 seconds, 30 seconds, 45 seconds, 1 minute, 1 minute 15 seconds, 1 minute 30 seconds, 1 minute 45 seconds, 2 minutes, 3 minutes, 4 minutes, 5 minutes, 10 minutes, 15 minutes, 30 minutes and one hour.

Wake-up State

The editable Wake-up State field indicates the state that the port will go to, in sequence, when the 4800 Series is powered up, either during normal operation or when power is restored after an outage. The options are On and Off. The default is On. When power is first supplied to the 4800 Series, the ports are off. Shortly after the 4800 Series wakes up, the ports are sequenced on in two-second increments.

Only ports that are set with a wake-up state of Off will remain off.

To change a port 's wake-up state:

Position the cursor in the field and press the **Spacebar**, the **Plus** (+) key or the **Minus** (-) key. Each press toggles between On and Off .

Group

The editable Group field may contain a descriptive name. All ports with the same group name may be acted upon simultaneously with the On, Off and Reboot commands from the command line. Only command line actions that contain the group name parameter will cause all ports within the same group to power up, down or reboot as a group.

If you assign the same group name to a significant number of ports, consider staggering the minimum-off time values of the affected ports to help prevent an excessive in-rush load from occurring when a command is issued to reboot the group.

To specify a group name:

Position the cursor in the port's Group field.

Press **e**. If you are changing an existing name, press the **Backspace** key to erase characters. Type a 1-8 character name. Press **Enter** or **Tab**.

Access

The editable Access field allows the administrator to easily change port access for the usernames Admn, Gen1 and Gen2. Port access for additional usernames must be enabled with the Add Port command from the command line.

To change port access for the Admn, Gen1 or Gen2 usernames:

1. Position the cursor in the port 's Access field.

2. Use the **Spacebar**, the **Plus** (+) key or the **Minus** (-) key to switch among the preset options:
   All -grants port access to Admn, Gen1 and Gen2 (this is the default).
   Admn -grants port access to Admn.
   Gen1 -grants port access to Admn and Gen1.
   Gen2 -grants port access to Admn and Gen2.

Page

When you want to display, you may use this page name as a parameter in the Show command, or you may specify a page with its absolute name: .A for page 1, .B for page 2, .C for page 3, .D for page 4 etc.

To specify a page name:

1. Position the cursor in the Page field.

2. Press **e**. If you are changing an existing name, use the **Spacebar** to erase characters. Type a 1-8 character string. Press **Enter** or **Tab**.

Temperature

Environmental temperature monitoring is not currently available on the 4800 Series.

Ending a Session

If you made configuration changes during the session, they are automatically stored in non-volatile memory. After you end the session, wait for the following message before taking any action that will power down the LX:

```
Updating configuration memory ...
Update complete
Session ended
```

A session ends automatically after five minutes of inactivity.

To end a session:

From the LX: prompt, type quit and press **Enter**.

4800 LX Series Notes and Restrictions

Megavision Support

This release does not support SNMP for Megavision.

Setting the 4800 to Factory Defaults

When the 4800 is set to Factory defaults, the 4800 disables SCP. SCP must be re-enabled at the 4800's own CLI. Defaulting the 4800 resets parameters such as SCP Authentication, SCP username and password, Power CLI, the factory reset button setting, Power boot sequence, and outlet states.

Defaulting the LX Async Port

Defaulting only the LX async port removes the locally stored single point of control parameters (outlet names, outlet groups and the like). All outlet groups associated solely to that single LX port are removed. Outlets associated to the defaulted LX port are removed from other outlet groups that may span several other LX ports configured for power management.

Boot Sequencing

Boot Sequencing to utilize the per outlet boot timers requires the "power cli" be disabled. Additionally, the "wake-up state" for each outlet must be turned off.

Cluster Search and Explore

Cluster Search and Explore is not supported in this release.

Appendix A - Resetting to Factory Defaults

You may reset the non-volatile RAM that stores all configurable options. This clears all administrator-editable fields and resets all command line configurable options to their default values, including usernames and passwords.

You may reset the unit to factory defaults by issuing a command or by pressing the reset button. You must have administrator-level privileges to issue the command. Using the reset button may be necessary when a forgotten password prevents administrator login. Either method updates the current working configuration to the factory defaults.

To reset the unit to factory defaults from the command line:

At the LX: prompt, type set cnfg all factory and press **Enter**.

When the command completes successfully, the following message appears, where **n** is the total number of ports divided by 4:

    Config changed on n board(s), 0 ignore(s).

At the LX: prompt, type quit to write the configuration permanently.

To reset the 4800 Series to factory defaults using the reset button:

On the front of the 4800 Series, locate the recessed reset button directly beside the Serial Port. You will need a non-conductive, non-metallic tool that fits inside the recess.

Insert the tool in the recess, then depress and hold the reset button for at least ten seconds. If you press and hold the reset button for more than 15 seconds, the reset will abort.

Appendix B - Uploading Firmware

You may upload new versions of firmware using File Transfer Protocol (FTP). This allows access to new firmware releases for firmware improvements and new features additions.

NOTE: To begin an FTP upload session, you must first configure the FTP Host address, username/password, filename and filepath.

You may initiate an FTP upload session by issuing a command. You must have administrator-level privileges to initiate an upload.

To Initiate An FTP Upload Session From The Command Line

The Restart FTPLoad command initiates an upload of firmware. Upon issuing this command the unit will restart and upload the firmware file specified with the FTP Filename command from the previously configured FTP Host. See "FTP Administration" for more information.

To initiate an FTP firmware upload session:

At the `InReach`: prompt, type **restart ftpload** and press **Enter**.

Appendix C - Technical Specifications

Standard Models

Model	Voltage	Inlets	Outlets
4870-XLS-4	-48 VDC	2x 100A NEBS terminal blocks	4x 70A terminal pairs
4805-XLS-16	-48VDC	2x 100A NEBS terminal blocks	16x 10A terminal pairs
4805/35-XLS-12	-48 VDC	2x 100A NEBS terminal blocks	8x 10A terminal pairs, 4x 70A terminal pairs

Power Ratings

	Input Current Ratings [1] L'indice du courant d'entrée Eingangsstromstarke		Output Current Ratings L'indice du courant de sortie Ausgangsstromstarke			
Model *Modele* Modell	**Voltage** *Tension* Spannung	**Current** *Courrant* Strom	**Voltage** *Prise* Anscluss stelle		**Outlet** *Prise* Ansclussste lle	**Total** *Total* Insgesamt
4805-XLS-16	-48V DC	A: 100 B: 100	-48V DC	A1 – A8 B1 – B8	5 5	A: 100 B: 100
4805/35-XLS-12	-48V DC	A: 100 B: 100	-48V DC	A1 – A4 A5, A6 B1 – B4 B5, B6	5 70 5 70	A: 100 B: 100
4870-XLS-4	-48V DC	A: 100 B: 100	-48V DC	A1, A2 B1, B2	70 70	A: 100 B: 100

[1] All current ratings are in amperes.
  Tous les indices de courant sont en amperes.
 Alle Angaben der Stromstarke erfolgen in Ampere.

Physical Specifications

	Operating	**Storage**
Temperature	32° to 122° F (0° to 50° C)	-40° to 185° F (-40° to 85° C)
Elevation(above MSL)	0 to 10,000 ft (0 to 3000m)	0 to 50,000 ft (0 to 15000m)
Relative Humidity	10 to 90%, non-condensing	10 to 90%, non-condensing
	Dimensions (H x W x D)	**Weight**
48xx-XLS	3.5 x 17.0 x 17.0 in.(89 x 432 x 432 mm	22.8 lbs(10.4 kg)

Data Connection

RS-232 Serial Port

The 4800 Series is equipped standard with an RJ45 RS-232c serial port. This connector may be used for direct local access or from other serial devices such as an LX-4000 Series. An RJ45 crossover cable is provided for connection to an RJ45 DTE serial port.

87654321
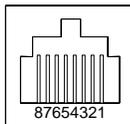
RS-232 Serial Port

Pin	DTE Signal Name		Input/Output
1	Request to Send	RTS	Output
2	Data Terminal Ready	DTR	Output
3	Transmit Data	TD	Output
4	Signal Ground		
5	Signal Ground		
6	Receive Data	RD	Input
7	Data Set Ready	DSR	Input
8	Clear to Send	CTS	Input

RJ45 to RJ45 Crossover Cable Specifications

The cable should be a 6-wire crossover cable terminated at both ends with 8 position, 8 contact RJ45 male connectors. Place the 6-wire cable only between positions 2 through 7 of each RJ45 connector, with positions 1 and 8 void of wire. The pinout follows:

Connector 1 Pin Position	Connector 2 Pin Position
1 = No Connect	8 = No Connect
2	7
3	6
4	5
5	4
6	3
7	2
8 = No Connect	1 = No Connect

LED Indicators

The 4800 Series is equipped with a status LED for each power receptacle. A lit/on LED indicates that power is being supplied at the port and a darkened/off LED indicates that there is no power at the port.

Inlet Connections

The 4800 is equipped with two input blocks, each containing three clearly labeled terminal positions. Connections are made using two-hole copper compression lugs for dual-stud blocks.

WARNING

Reverse polarity will damage the 4800 Remote Power Manager! Verify proper polarity before connecting to a power source!


Two-hole Copper Compression Lugs

Cable Size(AWG)	Stud Size	Color Code	Thomas&Betts Model	Grainger Stock
#6 str.	¼"	Blue	54205	3LL91
#4 str	¼"	Gray	54206	3LL92
#2 str	¼"	Brown	54207	3LL93
#1 str	¼"	Green	54208	3LL94

*Grainger catalog #390
(1999-2000)*
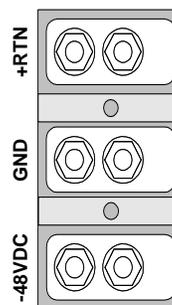
Outlet Connections

The 4800 is equipped with four to sixteen terminal outlet pairs each containing clearly labeled terminal positions. Connections are made using two-hole copper compression lugs for dual-stud blocks, and bare stripped wire for high-density screw-down blocks. For the dual stud lugs, please reference the table above.

Dual Stud Terminal   Screw -down Terminal
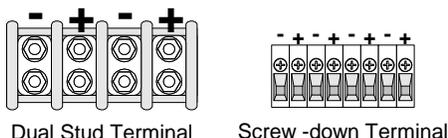
Fuse Values

The following table explains the maximum current and the allowable fuse values for each model.

Model	Max Current per Input Feed	Number of Input Feeds	Max Current per Outlet	Number of Outlets	Outlet Type	Max Allowable Fuse Value per Outlet*	Shipped Fuses**
4870-XLS-4	100A	2	70A	4	Fused	70A	TPC-50 (Qty 4)
4805-XLS-16	100A	2	10A	16	Screw Terminal	N/A	N/A
4805/35-XLS-12	100A	2	10A	8	Screw Terminal	N/A	N/A
			70A	4	Fused	70A	TPC-40 (Qty 4)

*   This value is per individual outlet. Fusing for each outlet shall not exceed the max current for that outlet. Combined fusing for all outlets on one Input Feed shall not exceed the max current for that feed.

** This is the value of the default fuses shipped with all new units. Information on ordering additional fuses or different fuse values is provided in the following sections; "TPC Fuse," and "Suggested Fuse Ordering Information."

TPC Fuse

DC 4800 Power Managers with high-power outlet terminal pairs are equipped with TPC fuses for circuit protection. You can use equivalent fuses from another vendor. Cooper-Bussmann TPC fuses offer the following features:

- Current-limiting
- 100,000A interrupt rating
- LED indicator for blown fuse
- Easily replaceable without special tools
- Containment of arcs, molten metals and gases during fuse opening
- Color-coded current ratings from 25A to 75A for use with a 4800 RPM.

Suggested Fuse Ordering Information

TPC Telpower Current Limiting Fuses

Amperes	Color Code	Bussman Part Number
25	Yellow	TPC-25
30	Red	TPC-30
40	Purple	TPC-40
50	White	TPC-50
60	Gray	TPC-60
75	Orange	TPC-75
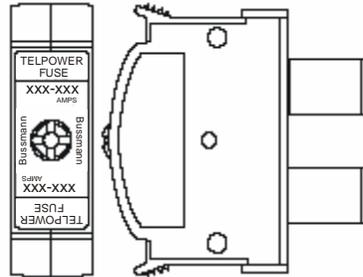
CooperBussman product data-sheet #5023

Push-Pull Circuit Breaker

DC 4800 Remote Power Managers with low-density outlet terminal pairs rated less than 35A are equipped with Push-Pull circuit breakers for circuit protection.

NOTE: MRV does NOT recommend using the breaker as a local ON/OFF switch.

Latching Circuit Breaker

DC 4800 Remote Power Managers with low-density outlet terminal pairs rated greater than 35A may be equipped with thermal circuit breakers for circuit protection.

NOTE: MRV does NOT recommend using the breaker as a local ON/OFF switch.

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