

User's Guide

TLNETCARD

Revision A

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Documentation Notice: This User's Guide is a supplement to the printed manual that came with your TLNETCARD or network-enabled Tripp Lite device. Refer to the printed manual for instructions on hardware installation and basic configuration, including IP address assignment. If you have misplaced your printed manual, refer to the downloadable electronic version by going to www.tripplite.com/support and entering **TLNETCARD** in the search window.



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1. Introduction

TLNETCARD is an optional network card you can install in the accessory slot of a compatible UPS system. TLNETCARD connects your Tripp Lite device to your Ethernet network for remote monitoring, control and condition reporting. You can manage the device from an SNMP Network Management Station, a Web browser or telnet. The TLNETCARD can also send SNMP traps or email messages to the addresses you specify, alerting you automatically to events such as power failures.

1.1 System Requirements

- Tripp Lite UPS system with compatible accessory slot.
- Ethernet network that supports the TCP/IP protocol. Firewall ports 3664 and 3665 may need to be opened.
- One of the following options for remote monitoring and control:
 - SNMP-based Network Management Station (such as HP® OpenView®)
 - Web browser
 - VT-100 Telnet and/or SSH Client
- For “Terminal Mode” configuration only:
 - Terminal emulation software program (such as TeraTerm Pro by Ayera Technologies)
 - Computer with available DB9 serial port

Warning: Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.

2. Installation and Configuration

For instructions on hardware installation, refer to the printed manual that came with your TLNETCARD.

2.1 SNMP Configuration

There are multiple ways to configure the TLNETCARD:

- **TLNET Configurator:** Use the downloadable program TLNET Configurator to quickly set up one or more TLNETCARDS over the network. Refer to **Section 2.1.1** for more information.
- **Web-based Interface:** Individual TLNETCARDS can be configured over the network through their TLNET Supervisor interfaces. Refer to **Section 2.1.2** for more information.
- **Telnet Mode:** Configure the TLNETCARD over the network in text mode. Refer to **Section 2.1.4** for more information.
- **COM Port:** If a network connection is not available, the TLNETCARD can be configured through its COM port. Please refer to **Section 2.1.5** for more information.

Notes:

- When initially connected to the network, the TLNETCARD will attempt to obtain an IP address via DHCP. If DHCP is disabled on the network, the TLNETCARD can be accessed using its default IP address: **192.168.1.100**.
- To ensure system security, it is highly recommended that the account and password be changed after the first login.
- If multiple TLNETCARDS are installed on the network, it is advisable to change the TLNETCARD's default Host Name to avoid conflicts. Likewise, it is recommended to disable BOOTP/DHCP and manually assign a valid static IP address to the TLNETCARD.

2.1.1 Configuring with TLNET Configurator

The following instructions refer to the TLNETCARD Configurator utility software. The TLNETCARD Configurator can be downloaded at tripplite.com/support and typing TLNETCARD in the search field.

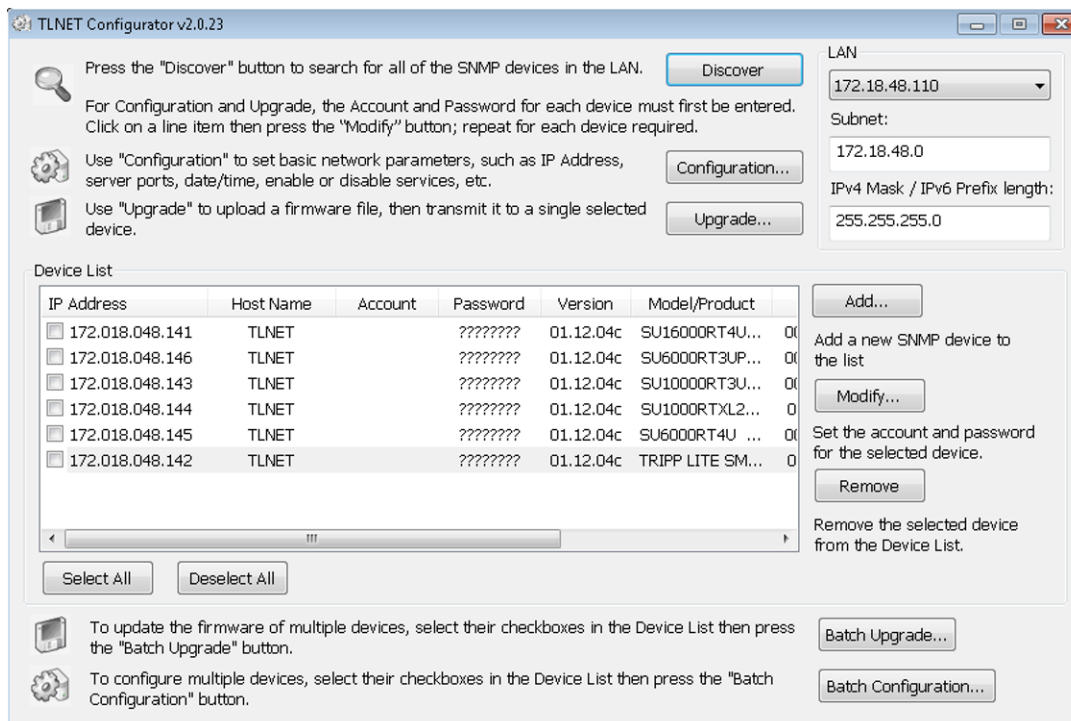
The TLNET Configurator utility (compatible with Windows 2000/2003/2008/XP/Vista/7) enables easy configuration and firmware upgrade of one or more TLNETCARDS. Follow the instructions below:

Step 1: Use a Cat5 cable to connect the TLNETCARD's Network port to the network.

Step 2: Ensure the two DIP switches of the TLNETCARD are set to the **OFF** position (Normal Mode) to enable network communication and that the workstation and the TLNETCARD are on the same LAN

Step 3: Once downloaded, launch TLNET Configurator.

Step 4: Click **Discover** to search all available SNMP devices on the LAN. A list of devices will be shown.

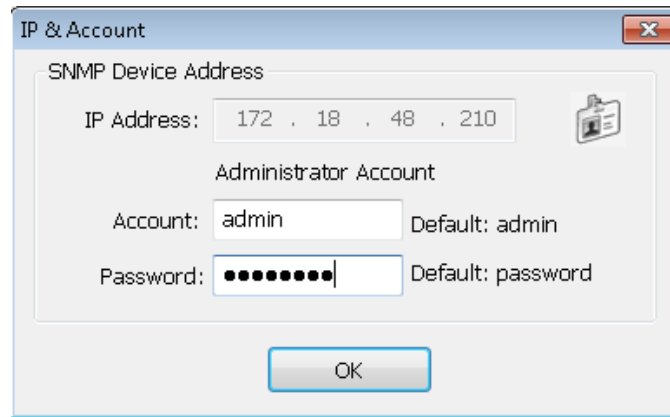


Notes:

- To search for SNMP devices in a different domain, change the Subnet and IPv4 IPv6 Prefix Length and click Discover.
- If the TLNETCARD cannot be found, verify that UDP port 3456 on the workstation is open.

2. Installation and Configuration

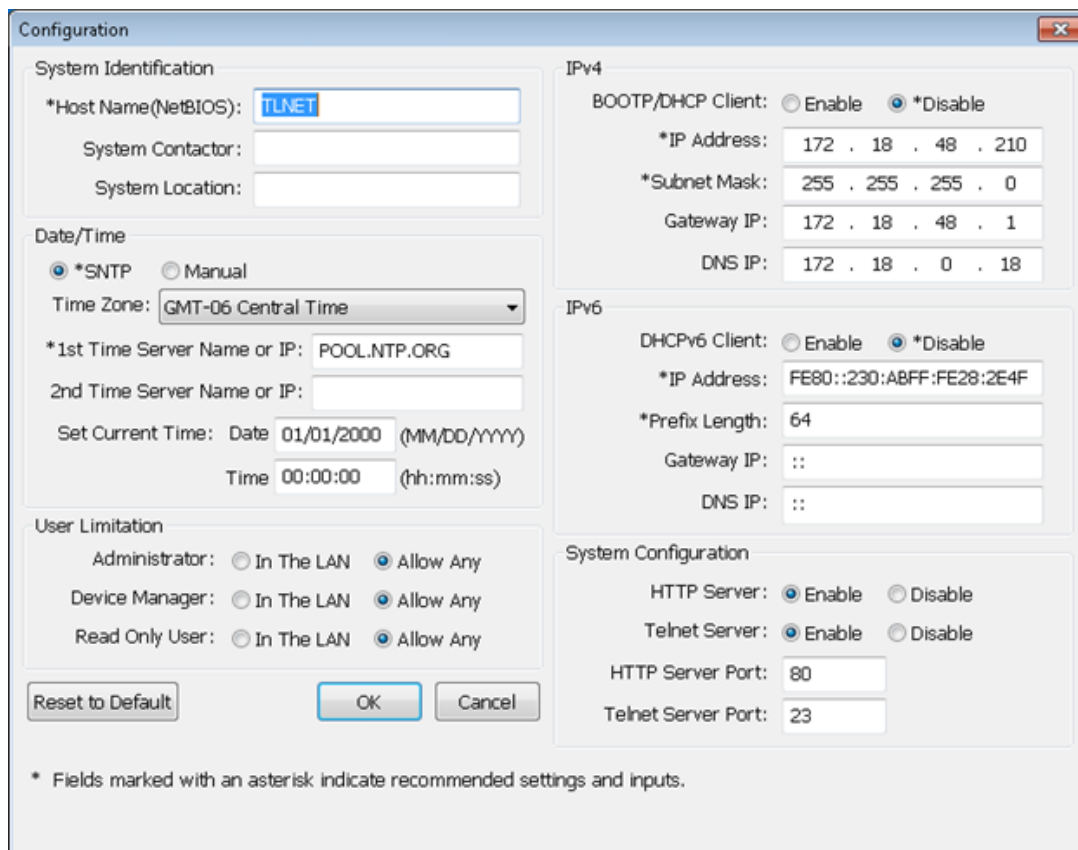
Step 5: Select the TLNETCARD to be modified from the Device List. Click **Modify** and enter the Administrator's account and password (default: **admin/password**, case sensitive).



The 'IP & Account' window is a dialog box with a title bar containing a close button. It contains the following fields and controls:

- SNMP Device Address:**
 - IP Address:** A text field containing '172 . 18 . 48 . 210'.
- Administrator Account:**
 - Account:** A text field containing 'admin'. To its right is the text 'Default: admin'.
 - Password:** A text field with masked characters (dots). To its right is the text 'Default: password'.
- OK:** A button at the bottom center.

Step 6: Click **Configuration** to modify network settings.



The 'Configuration' window is a complex dialog box with multiple sections and tabs. It contains the following sections and controls:

- System Identification:**
 - *Host Name (NetBIOS):** A text field containing 'TLNET'.
 - System Contactor:** An empty text field.
 - System Location:** An empty text field.
- Date/Time:**
 - *SNTP** (selected) or **Manual** radio buttons.
 - Time Zone:** A dropdown menu showing 'GMT-06 Central Time'.
 - *1st Time Server Name or IP:** A text field containing 'POOL.NTP.ORG'.
 - 2nd Time Server Name or IP:** An empty text field.
 - Set Current Time:** Includes 'Date' (01/01/2000) and 'Time' (00:00:00) fields with format hints.
- User Limitation:**
 - Administrator:** ☐ In The LAN, ☒ Allow Any
 - Device Manager:** ☐ In The LAN, ☒ Allow Any
 - Read Only User:** ☐ In The LAN, ☒ Allow Any
- IPV4:**
 - BOOTP/DHCP Client:** ☐ Enable, ☒ *Disable
 - *IP Address:** 172 . 18 . 48 . 210
 - *Subnet Mask:** 255 . 255 . 255 . 0
 - Gateway IP:** 172 . 18 . 48 . 1
 - DNS IP:** 172 . 18 . 0 . 18
- IPV6:**
 - DHCPv6 Client:** ☐ Enable, ☒ *Disable
 - *IP Address:** FE80::230:A8FF:FE28:2E4F
 - *Prefix Length:** 64
 - Gateway IP:** ::
 - DNS IP:** ::
- System Configuration:**
 - HTTP Server:** ☒ Enable, ☐ Disable
 - Telnet Server:** ☒ Enable, ☐ Disable
 - HTTP Server Port:** 80
 - Telnet Server Port:** 23
- Buttons:** 'Reset to Default', 'OK', and 'Cancel' at the bottom.
- Footnote:** '* Fields marked with an asterisk indicate recommended settings and inputs.'

Note: To complete set-up of the TLNETCARD, refer to **Section 3 TLNET Supervisor**.

2.1.2 Configuring via TLNET Supervisor

To configure an individual TLNETCARD via web browser, follow the instructions below:

Step 1: Use a Cat5 network cable to connect the TLNETCARD's Network port to the network. Launch a web browser and enter the TLNETCARD's IP address – whether assigned by DHCP/network administrator or the default (**192.168.1.100**) – in the address bar.

Step 2: Log in as Administrator (default account/password: **admin/password**, case sensitive).

2. Installation and Configuration

Step 3: Click **System** → **Administration** → **User Manager** to set up accounts and passwords under the “Local Authentication” section. The access permissions for the account types are as follows:

- 1) **Administrator:** Allowed to modify all settings.
- 2) **Device Manager:** Allowed to modify device-related settings.
- 3) **Read Only User:** Allowed to view settings only.

Manually specify whether users are allowed to log in from other LANs. If login attempts from external connections are to be blocked, select **Only in This LAN**. Otherwise, select **Allow Any**.

The screenshot shows the TLNET Supervisor web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs. The 'System' tab is active, and the 'Administration' sub-tab is selected. The left sidebar lists various configuration options: User Manager, TCP/IP, Web, Console, FTP, Time Server, Syslog, Batch Configuration, and Upgrade. The main content area is titled 'System » Administration » User Manager'. It features a 'User Manager' section with a 'Use RADIUS' checkbox and a table for RADIUS server configuration. Below this is an 'RFC2865 Service Type' section with three columns: Administrator, Device Manager, and Read Only User. Each column has a list of checkboxes for various services. At the bottom is a 'Local Authentication' section with a table for user accounts (Administrator, Device Manager, Read Only User) and their login limitations (Only in This LAN or Allow Any). A 'Submit' button is at the bottom right.

Step 4: Click **System** → **Administration** → **TCP/IP** to set Host Name, IP address, Subnet Mask and Gateway IP for the TLNETCARD.

Step 5: Click **Time Server** to manually set time and date for the system, or enable automatic time synchronization between the TLNETCARD and the time servers.

Note: To complete set-up of the TLNETCARD, refer to **Section 3 TLNET Supervisor**.

2.1.3 Configuring via Telnet

Step 1: Use a Cat5 network cable to connect the TLNETCARD's network port to the network.

Step 2: Connect the workstation (Windows or Linux) to the LAN that the TLNETCARD is connected to.

Step 3: For Windows, launch DOS prompt mode (**Start** → **Run** → key in **cmd** and press **Enter**). For Linux, launch Shell.

Step 4: Enter telnet <<IP Address>> to initiate telnet connection with the TLNETCARD.

Step 5: When connection is established, enter an Administrator's account and password (default: **admin/password**, case sensitive). The Main Menu will appear on the screen. Refer to **2.1.5 Configuring via Text Mode** for more information.

Notes:

- The TLNETCARD does not support more than one concurrent terminal session.
- The TLNETCARD terminates idle connections after 120 seconds.
- For complete configuration, refer to **Section 3 TLNET Supervisor**.

2. Installation and Configuration

2.1.4 Configuring via Text Mode

This section contains descriptions and default settings for configuring a TLNETCARD using a Telnet/SSH client such as HyperTerminal or PuTTY.

Main Menu

```
+=====+
|   Web Card Main Menu   |
+=====+
Web Card Version 01.12.04c
MAC Address 00-30-ab-27-63-5b
[1].User Manager
[2].TCP/IP Setting
[3].Network Parameter
[4].Time Server
[5].Soft Restart
[6].Reset System To Default
[7].Reset All To Default
[2].Exit Without Save
[0].Save And Exit

Please Enter Your Choice =>
```

User Manager

```
+=====+
|   User Manager   |
+=====+
RADIUS
[1].RADIUS Auth:Disable
[2].Server:
[3].Secret:
[4].Port:      1812
-----
Local Auth
  Administrator
[5].Account:    admin
[6].Password:   *****
[7].Limitation: Allow Any
  Device Manager
[8].Account:    device
[9].Password:   *****
[a].Limitation: Allow Any
  Read Only User
[b].Account:    user
[c].Password:   *****
[d].Limitation: Allow Any
[0].Back To Previous Menu

Please Enter Your Choice =>
```

| No. | Item | Description | Default |
|-----|---------------------------|---|------------------|
| [1] | RADIUS Auth | Specifies whether RADIUS is allowed. | Disable |
| [2] | Server | The RADIUS server's name. | |
| [3] | Secret | The RADIUS secret. | |
| [4] | Port | The RADIUS port number. | 1812 |
| [5] | Administrator Account | The Administrator's default account/ password (case sensitive). | admin |
| [6] | Administrator Password | | password |
| [7] | Administrator Limitation | Restricts Administrator login area. | Only in This LAN |
| [8] | Device Manager Account | The Device Manager's default account/password (case sensitive). This account is only permitted to change device-related settings. | device |
| [9] | Device Manager Password | | password |
| [a] | Device Manager Limitation | Restricts Device Manager login area. | Only in This LAN |
| [b] | Read Only User Account | The Read-Only User's default account/ password (case sensitive). This account is only allowed to view settings. | user |
| [c] | Read Only User Password | | password |
| [d] | Read Only User Limitation | Restricts Read-Only User login area. | Allow Any |

2. Installation and Configuration

TCP/IP Setting

```

+=====+
|   TCP/IP Setting   |
+=====+
[1].IPv4 Address:      172.18.48.146
[2].IPv4 Subnet Mask:  255.255.255.0
[3].IPv4 Gateway IP:   172.18.48.1
[4].IPv4 DNS or WINS IP:172.18.0.18
[5].DHCPv4 Client:     Disable
[6].IPv6 Address:      fe80::230:abff:fe27:635b
[7].IPv6 Prefix Length: 64
[8].IPv6 Gateway IP:   ::
[9].IPv6 DNS IP:       ::
[a].DHCPv6:            Enable
[b].Host Name (NetBIOS): TLNET
[c].System Contact:
[d].System Location:
[e].Auto-Negotiation:  Enable
[f].Speed:             100M
[g].Duplex:             Full
[h].Status Stable:     1
[i].Telnet Idle Time:  120 Seconds
[0].Back To Previous Menu

Please Enter Your Choice => █

```

| No. | Item | Description | Default |
|-----|---------------------|---|-----------------|
| [1] | IPv4 Address | The IPv4 address. | 192.168.001.100 |
| [2] | IPv4 Subnet Mask | The IPv4 subnet mask setting. | 255.255.255.000 |
| [3] | IPv4 Gateway IP | The IPv4 gateway's IP address. | 192.168.001.254 |
| [4] | IPv4 DNS or WINS IP | IPv4 Domain Name Server or WINS IP. | 192.168.001.001 |
| [5] | DHCPv4 Client | Enable/Disable DHCPv4 protocol. | Enable |
| [6] | IPv6 Address | The IPv6 address. | |
| [7] | IPv6 Prefix Length | The IPv6 prefix length. | |
| [8] | IPv6 Gateway IP | The IPv6 gateway's IP address. | |
| [9] | IPv6 DNS IP | IPv6 Domain Name Server's IP address. | |
| [a] | DHCPv6 | Enable/ Disable DHCPv6 protocol. | Enable |
| [b] | Host Name (NetBIOS) | The Host Name for the TLNETCARD. | TLNET |
| [c] | System Contact | The System Contact information. | |
| [d] | System Location | The System Location information. | |
| [e] | Auto-Negotiation | Enable/disable automatic transfer rate (10/100Mbps) negotiation. | Enable |
| [f] | Speed | If the Auto-Negotiation is disabled, you can specify the transfer rate. | 100M |
| [g] | Duplex | If the Auto-Negotiation is disabled, you can specify the duplex mode. | Full |
| [h] | Status Stable | Status change confirmation check time. | 3 |
| [i] | Telnet Idle Time | Telnet connection time-out setting. | 60 Seconds |

Network Parameter

```

+=====+
|   Network Parameter   |
+=====+
[1].HTTP Server:      Enable
[2].HTTPS Server:     Enable
[3].Telnet Server:    Enable
[4].SSH/SFTP Server:  Enable
[5].FTP Server:       Disable
[6].Syslog:           Disable
[7].HTTP Server Port:  80
[8].HTTPS Server Port: 443
[9].Telnet Server Port: 23
[a].SSH Server Port:   22
[b].FTP Server Port:   21
[c].Syslog Server1:
[d].Syslog Server2:
[e].Syslog Server3:
[f].Syslog Server4:
[g].SNMP Get,Set Port: 161
[0].Back To Previous Menu

Please Enter Your Choice => █

```

| No. | Item | Description | Default |
|-----|--------------------|--|---------|
| [1] | HTTP Server | Enable/disable HTTP protocol. | Enable |
| [2] | HTTPS Server | Enable/disable HTTPS protocol. | Enable |
| [3] | Telnet Server | Enable/disable Telnet protocol. | Enable |
| [4] | SSH/SFTP Server | Enable/disable SSH/ SFTP protocol. | Enable |
| [5] | FTP Server | Enable/disable FTP protocol. | Disable |
| [6] | Syslog | Enable/disable remote Syslog. | Disable |
| [7] | HTTP Server Port | HTTP port. | 80 |
| [8] | HTTPS Server Port | HTTPS port. | 443 |
| [9] | Telnet Server Port | Telnet port. | 23 |
| [a] | SSH Server Port | SSH port. | 22 |
| [b] | FTP Server Port | FTP port. | 21 |
| [c] | Syslog Server 1 | The Host Name of remote Syslog Server 1. | |
| [d] | Syslog Server 2 | The Host Name of remote Syslog Server 2. | |
| [e] | Syslog Server 3 | The Host Name of remote Syslog Server 3. | |
| [f] | Syslog Server 4 | The Host Name of remote Syslog Server 4. | |
| [g] | SNMP Get, Set Port | The SNMP port. | 161 |

2. Installation and Configuration

Time Server

You can manually adjust time and date for the TLNETCARD or set up automatic time server synchronization. The TLNETCARD, Windows XP and later versions support SNTP (Simple Network Time Protocol).

```
+=====+
|      Time Server      |
+=====+
[1].Time Selection:      SNTP
[2].Time Zone:           -6 hr
[3].1st Time Server:     POOL.NTP.ORG
[4].2nd Time Server:
[5].Manual Date:         01/01/2000 (MM/DD/YYYY)
[6].Manual Time:         00:00:00 (hh:mm:ss)
[0].Back To Previous Menu

Please Enter Your Choice => █
```

| No. | Item | Description | Default |
|-----|-----------------|----------------------------------|--------------|
| [1] | Time Selection | SNTP or manual. | SNTP |
| [2] | Time Zone | Adjust your time zone. | +0 hr |
| [3] | 1st Time Server | The first time server for SNTP. | POOL.NTP.ORG |
| [4] | 2nd Time Server | The second time server for SNTP. | |
| [5] | Manual Date | Set the date manually. | 01/01/2000 |
| [6] | Manual Time | Set the time manually. | 00:00:00 |

Soft Restart

Reset the TLNETCARD. This will not affect the operation of the UPS.

Default Reset

Reset to factory defaults.

Exit Without Saving

Exit and ignore changes.

Save and Exit

Preserve your changes and exit.

2. Installation and Configuration

2.1.5 Configuring through COM Port

If a network connection is not available, the TLNETCARD can be configured via COM port connection. Follow the instructions below:

Note: If running a non-Windows system, refer to your system's user manual for Telnet clients.

Step 1: Use the provided RJ45 to DB9 cable to connect the TLNETCARD's COM port to the workstations' COM port.

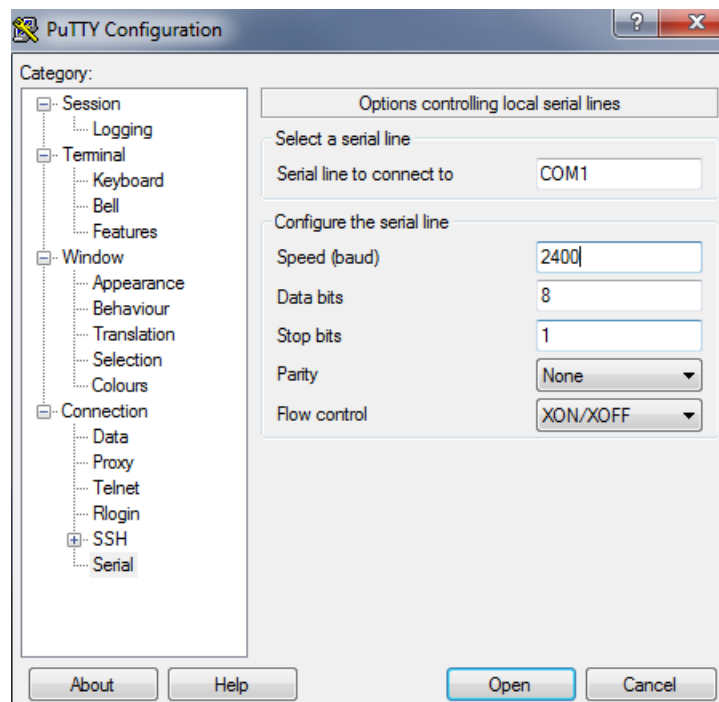
Step 2: Ensure the TLNETCARD's two DIP switches are set to the **OFF** position (Normal Mode).

Step 3: For Windows 2000, 2003, 2008 and XP, go to **Start → Programs → Accessories → Communications** and select **HyperTerminal**.

Note: Microsoft has removed HyperTerminal from Windows Vista and later versions. If the OS does not include the program, a free alternative Telnet/SSH client PuTTY can be downloaded from <http://www.putty.org>.

Step 4: Enter a name, choose an icon for the connection and click **OK**. From the **Connect** drop-down menu, select the COM port that is connected to the TLNETCARD.

Step 5: Click **Configure** and set up COM port parameters as follows:



Step 6: Click **OK** to continue. Set the two DIP switches of the TLNETCARD to the ON position (Configuration Mode). HyperTerminal will automatically connect to the TLNETCARD; if it doesn't, click the telephone icon in the tool bar. When connection is established, log in with an Administrator's account/password (default: **admin/password**, case sensitive). Once logged in, the Main Menu appears on the screen. Refer to the next section for more information.



3. TLNET Supervisor

To configure the TLNETCARD via the TLNET Supervisor, follow the steps below:

Step 1: Ensure the TLNETCARD is connected to the LAN.

Step 2: The login page will appear when a connection is established. Enter the account and password (default: **admin/ password**).

TLNET Supervisor Login

TRIPP-LITE
POWER PROTECTION

User Name : admin

Password :

OK

Site IPv4: 172.18.48.143
Site IPv6: fe80::230:abff:fe28:2e67

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Notes:

- If unable to log in with the correct account and password, additional network configuration may be needed. The IP subnet of the computer may be different from the TLNETCARD's.
- The TLNETCARD will automatically log off if the connection is idle for 30 minutes.

The TLNET Supervisor contains three main sections: **Monitor**, **Device** and **System**. Refer to **Sections 3.1 - 3.3** for more information.

3.1 Monitor

3.1.1 Information

Note: Because the information provided by a UPS differs by model, the web page will display different information accordingly.

UPS Properties

Go to **Monitor** → **Information** → **UPS Properties** for a status overview of the UPS system's primary parameters. The values will update automatically.

TLNET Supervisor

Home Logout

System Time : Wed 12/16/2015 PM 11:06:12

Monitor Device System

Information History About

UPS Properties

Battery Parameters

In/Out Parameters

Identification

Status Indication

Shutdown Agent

Monitor » Information » UPS Properties

Input
VOLT: 123.0 V
Freq: 59.6 Hz
Detail...

UPS Status
Model: TRIPP LITE SMART1000RM2U
Type: Line interactive
Rating: 1kVA
Comm.: OK
Source: Normal
Detail...

Output
VOLT: 123.0 V
Load: 0 %
Freq: 59.6 Hz
Detail...

Schedule
Next Power Off Time: None
Next Power On Time: None
Next Test Time: None
Weekly...
Specific...

Battery
Status: Normal
Capacity: 100 %
Detail...

Countdown
Time To Power Off: --:--
Estimated OS Delay: --:--

Event Log...

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3. TLNET Supervisor

Battery Parameters

Go to **Monitor** → **Information** → **Battery Parameters** to view Battery Status, Battery Measurement and Battery Replacement Date.

The screenshot shows the TLNET Supervisor web interface. The left sidebar contains a menu with 'In/Out Parameters' selected. The main content area is titled 'Monitor » Information » In/Out Parameters' and displays three measurement panels: Input Measurement, Output Measurement, and Bypass Measurement. Each panel shows data for P-1, P-2, and P-12 points.

| Measurement | Point | Frequency (Hz) | Voltage (V) | Current (A) | Power (Watt) | Loading (%) |
|--------------------|-------|----------------|-------------|-------------|--------------|-------------|
| Input Measurement | P-1 | 60.0 | 125.6 | | | |
| | P-2 | 60.0 | 125.0 | | | |
| | P-12 | | 218.0 | | | |
| Output Measurement | P-1 | 60.0 | 119.9 | 0.0 | 0 | 0 |
| | P-2 | | 119.9 | 0.0 | 0 | 0 |
| | P-12 | | 208.0 | | | |
| Bypass Measurement | P-1 | 60.0 | 125.5 | 0.0 | 0 | |
| | P-2 | | 124.8 | 0.0 | 0 | |
| | P-12 | | 217.7 | | | |

In/Out Parameters

Go to **Monitor** → **Information** → **In/Out Parameters** to view Input Measurement, Bypass Measurement, Output Measurement and Outlet Bank.

The screenshot shows the TLNET Supervisor web interface with 'Battery Parameters' selected in the sidebar. The main content area is titled 'Monitor » Information » Battery Parameters' and displays two panels: Battery Parameters and Replacement Date.

| Parameter | Value | Unit |
|------------------|--------|---------|
| Battery Status | Normal | |
| On Battery Time | 0 | Seconds |
| Battery Capacity | 100 | % |
| Voltage | 217.6 | V |
| Temperature | 22 | °C |
| Remaining Time | 11:26 | hh:mm |

Replacement Date:
Last Battery Replacement Date: 06/01/2007 (MM/DD/YYYY)
Next Battery Replacement Date: 06/01/2010 (MM/DD/YYYY)

Identification

Go to **Monitor** → **Information** → **Identification** to view the system Identification and UPS Rating.

The screenshot shows the TLNET Supervisor web interface with 'Identification' selected in the sidebar. The main content area is titled 'Monitor » Information » Identification' and displays two panels: Identification and UPS Rating.

| Parameter | Value |
|--------------------|--------------------|
| Model | SU16000RT4UPM |
| Type | Split phase |
| UPS Firmware | 01 |
| Interface Firmware | 01.12.04c |
| Serial Number | 9725ALCPS626000007 |
| MAC Address | 00-30-ab-28-3b-b0 |

| Parameter | Value |
|-----------------------|---------|
| VA | 16 kVA |
| Power | 11.2 kW |
| Input Voltage | 120 V |
| Output Voltage | 120 V |
| Frequency | 60.0 Hz |
| Battery Voltage | 192 V |
| High Transfer Voltage | 140 V |
| Low Transfer Voltage | 65 V |

3. TLNET Supervisor

Status Indication

Go to **Monitor** → **Information** → **Status Indication** to view the status of various UPS parameters. When an event occurs, its corresponding icon changes color.

The screenshot shows the TLNET Supervisor web interface. The top navigation bar includes 'Monitor', 'Device', and 'System'. The left sidebar lists various monitoring options, with 'Status Indication' selected. The main content area displays a 'Status Indication' box with a list of 24 parameters, each with a green circle icon indicating a normal status. The parameters are: Buzzer Enabled, UPS Disconnect, Buzzer Alarm, Input Out Of Range, Battery Low, Battery Depleted, Battery Needs Replacement, Battery Ground Fault, Test In Progress, Test Failure, Output Off, On Bypass, UPS System Off, UPS Shutdown, Output Breaker, Output Over Voltage, Output Under Voltage, Overload, Temperature Out Of Range, Other Warning, Fan Abnormal, Fuse Abnormal, Inverter Abnormal, Charger Abnormal, Bypass Out Of Range, Emergency Power Off, Phase Asynchronous, and Rectifier Abnormal. The footer shows the copyright notice: Copyright © 2015 Tripp Lite, Inc. All Rights Reserved.

ShutdownAgent

Go to **Monitor** → **Information** → **Shutdown Agent** to view the designated PCs' shutdown information, including IP Address, Operating System, Countdown, Reason and Last Touch.

This page will only appear if:

- The PCs are connected to the UPS using this TLNETCARD.
- The PCs have TLNET Shutdown Agent installed on them.
- In **System** → **Administration** → **SNMP Trap**, the PCs' IP Addresses have been entered in the Target IP field and TLNET Shutdown Agent has been selected from the Trap Category's pull-down menu.

The screenshot shows the TLNET Supervisor web interface with the 'Shutdown Agent' page selected. The main content area displays a 'Shutdown Agent' box with a table of shutdown information. The table has five columns: IP Address, OS, Countdown (sec), Reason, and Last Touch (sec). There is one entry with a green circle icon, indicating a successful shutdown. The entry details are: IP Address: 172.18.48.97, OS: Microsoft Windows 7 Enterprise Edition Service Pack 1 (build 7601), 64-bit, Countdown (sec): None, Reason: None, and Last Touch (sec): 3. The footer shows the copyright notice: Copyright © 2015 Tripp Lite, Inc. All Rights Reserved.

3. TLNET Supervisor

3.1.2 History

Event Log

Go to **Monitor** → **History** → **Event Log** → **selected pages** to view events that have occurred. The log overwrites entries when the maximum (1,000) is reached. The event archive can be downloaded (event_log.xls) by pressing the **Download All** button.

TRIPP-LITE POWER PROTECTION

TLNET Supervisor

System Time : Fri 01/08/2016 PM 01:34:38

Monitor Device System

Information History About

Event Log

Data Log

Configure

Monitor » History » Event Log » Page1

Event Log

Page: 1 2 3 4 5 Download All

From: 01/05/2016 (MM/DD/YYYY) to 01/05/2016 (MM/DD/YYYY) Apply

| Date | Time | Level | Event Log |
|------------|----------|-------------|---|
| 01/06/2016 | 14:02:38 | Information | Shutdown Agent(IP=172.18.48.97, host=R2-R2101L-1) communication established |
| 01/06/2016 | 12:01:20 | Warning | Shutdown Agent(IP=172.18.48.97, host=R2-R2101L-1) communication lost |
| 01/05/2016 | 16:38:29 | Warning | Shutdown Agent(IP=172.18.48.97, host=) communication lost |
| 01/05/2016 | 16:00:09 | System | admin login to the WEB from 172.18.48.110 |
| 01/05/2016 | 14:41:53 | System | admin login to the WEB from 172.18.48.110 |
| 01/05/2016 | 13:39:24 | System | admin login to the WEB from 172.18.21.241 |
| 01/05/2016 | 11:44:38 | System | admin login to the TELNET from 172.18.48.110 |
| 01/05/2016 | 11:37:09 | Warning | Shutdown Agent(IP=172.18.48.97, host=) communication lost |
| 01/05/2016 | 11:35:59 | System | The time has been synchronized through SNTP. |
| 01/05/2016 | 17:32:48 | System | admin login to the WEB from 172.18.48.110 |
| 01/05/2016 | 16:46:33 | System | admin login to the WEB from 172.18.48.110 |
| 01/05/2016 | 16:45:40 | System | admin login to the WEB from 172.18.48.110 |
| 01/05/2016 | 16:42:19 | System | System startup |
| 01/05/2016 | 16:42:19 | System | The time has been synchronized through SNTP. |
| 01/05/2016 | 10:41:21 | System | Soft reboot |

• Download Event Log from UPS

The TLNETCARD sends a request to the UPS, collects the event logs saved there, then replies to the user through the network. This option only appears when the UPS supports this function; the event logs saved in the UPS may be different from the event logs saved in the TLNETCARD.

Data Log

Go to **Monitor** → **History** → **Data Log** to view saved device data. The data archive can be downloaded (data_log.xls) by pressing the **Download** button.

TRIPP-LITE POWER PROTECTION

TLNET Supervisor

System Time : Fri 01/08/2016 PM 01:56:20

Monitor Device System

Information History Environment About

Event Log

Data Log

Configure

Monitor » History » Data Log » 01/05/2016 ~ 01/05/2016

Data Log

From: 01/05/2016 (MM/DD/YYYY) to 01/05/2016 (MM/DD/YYYY) Apply Download

| Date | Time | In Freq | In Volt | | In Amp | In Pwr | Out Freq | Out Volt | Out Amp | Out Pwr | Out Load | By Freq | By Volt |
|------------|----------|---------|---------|--------|--------|--------|----------|----------|---------|---------|----------|---------|---------|
| | | | Lo | Hi | | | | | | | | | |
| 01/05/2016 | 23:57:09 | 59.9Hz | 121.0V | 122.2V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 23:47:09 | 59.9Hz | 120.6V | 121.4V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 23:37:09 | 59.9Hz | 121.0V | 121.8V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 23:27:09 | 59.9Hz | 121.0V | 121.8V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 23:17:08 | 59.9Hz | 120.6V | 121.4V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 23:07:08 | 59.9Hz | 119.1V | 121.4V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 22:57:09 | 59.9Hz | 120.6V | 121.8V | | | 60.0Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 22:47:09 | 59.9Hz | 120.6V | 121.4V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 22:37:09 | 59.9Hz | 121.0V | 121.8V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 22:27:08 | 59.9Hz | 120.6V | 121.8V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 22:17:08 | 59.9Hz | 121.0V | 121.8V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 22:07:09 | 59.9Hz | 121.0V | 121.8V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 21:57:08 | 59.9Hz | 120.6V | 121.4V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 21:47:08 | 59.9Hz | 120.6V | 121.8V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 21:37:09 | 59.9Hz | 121.0V | 122.2V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 21:27:08 | 59.9Hz | 121.4V | 122.5V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |
| 01/05/2016 | 21:17:08 | 59.9Hz | 121.0V | 122.2V | | | 59.9Hz | 119.8V | 0.0A | 0W | 0% | | |

3. TLNET Supervisor

Configure

Go to **Monitor** → **History** → **Configure** to clear the data and event logs and also to assign the Save Data Interval.

- **Clear Data Log:** Empties the data log only.
- **Clear Event Log:** Empties the event log only.
- **Save Data Interval:** The time interval at which data is recorded.

3.1.3 Environment

The Environment page is displayed only when a TLNETEM is used. TLNETCARD's DIP switch 1 should be set to the ON position and DIP switch 2 should be set to the OFF position when using a TLNETEM. For more information about the TLNETEM, refer to its Owner's Manual

Information

Go to **Monitor** → **Environment** → **Information** to view the TLNET's readings and settings.

Configuration

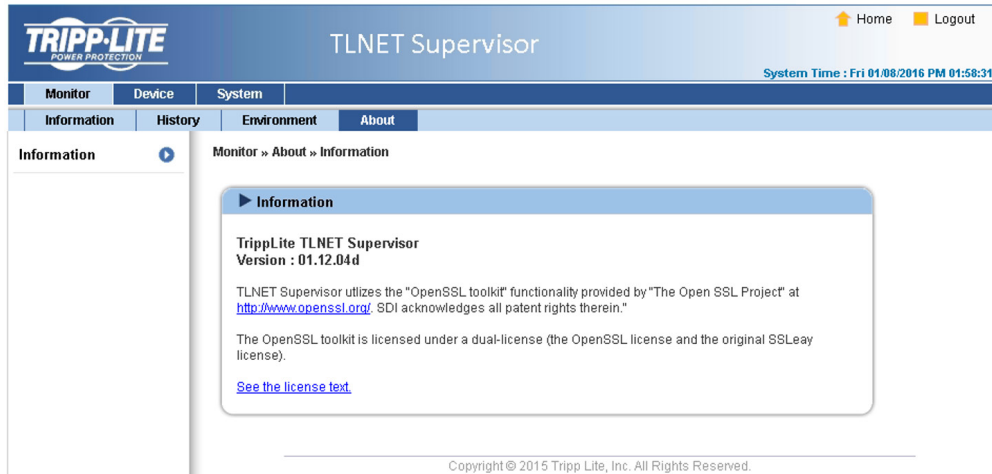
Go to **Monitor** → **Environment** → **Configuration** to configure the TLNETEM's thresholds and other settings.

3. TLNET Supervisor

3.1.4 About

Information

Go to **Monitor** → **About** → **Information** to view the TLNET Supervisor version and information about the OpenSSL toolkit and licenses.



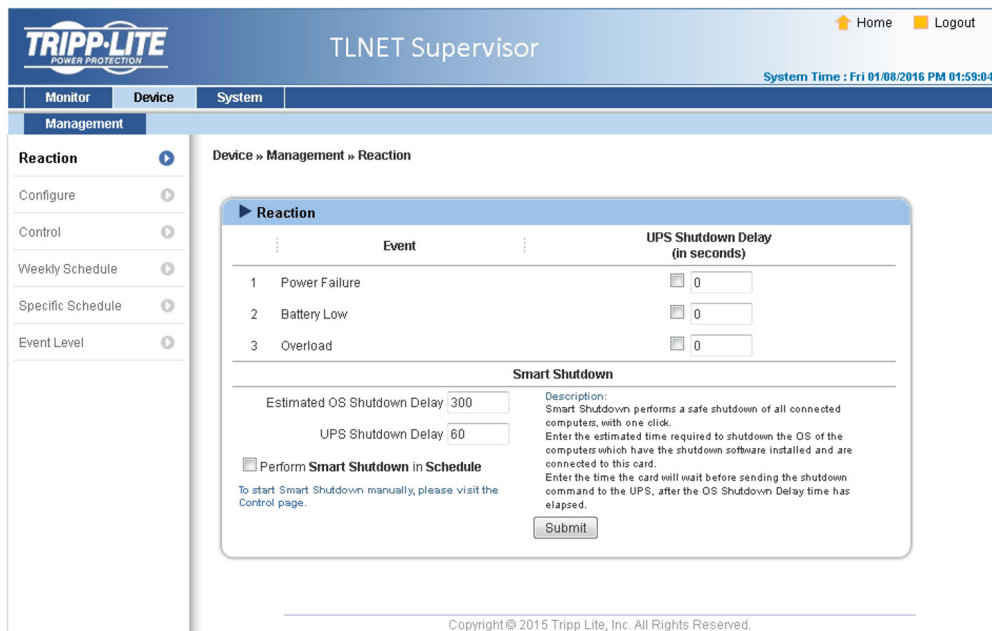
3.2 Devices

3.2.1 Management

Because functions will vary by model, all UPS systems will not necessarily support all of the configurations or control items stated below.

Reaction

Go to **Device** → **Management** → **Reaction** to enable and adjust the parameters under which UPS Shutdown and Smart Shutdown are executed.



- **UPS Shutdown Delay**

Select the checkbox for each event that is to be a trigger for UPS Shutdown. Enter the time period the system will wait after the trigger event occurs before shutting down the UPS.

- **Smart Shutdown**

Smart Shutdown performs a safe shutdown of all connected computers and then the UPS, with one click. Enter the estimated time required to shutdown the OS of the computers which have the shutdown software installed and are connected to the TLNETCARD.

Enter the time period the TLNETCARD will wait before sending the shutdown command to the UPS, after the OS Shutdown Delay time has elapsed.

Select the Perform Smart Shutdown in Schedule checkbox in order to execute a Smart Shutdown when "Shutdown" is selected as the action in either of the Schedules.

3. TLNET Supervisor

Configure

Go to **Device** → **Management** → **Configure** to configure the UPS. The configuration values are saved in the UPS or in the TLNETCARD.

Note: For each of the following items, the Submit button must be pressed for the modified settings to take effect.

The screenshot shows the TLNET Supervisor web interface. At the top, there's a header with the Tripp-Lite logo, the title 'TLNET Supervisor', and links for 'Home' and 'Logout'. Below the header is a navigation bar with tabs for 'Monitor', 'Device', and 'System'. The 'Device' tab is active, and within it, the 'Management' sub-tab is selected. On the left side, there's a sidebar menu with options: 'Reaction', 'Configure' (highlighted with a blue circle), 'Control', 'Weekly Schedule', 'Specific Schedule', and 'Event Level'. The main content area is titled 'Device » Management » Configure'. It features a 'Configure' dialog box with a list of configuration items: 'Auto-Restart' (selected), 'UPS Buzzer', 'Voltage Sensitivity', 'Transfer Voltage', 'Low Battery Alarm', 'Battery Replacement Date', 'Economy Mode', 'Output Voltage Selection', and 'Output Frequency Selection'. To the right of this list, the 'Auto Restart' section is expanded, showing 'Reboot After Power Restore' with a checked checkbox and the label 'Enable', and 'Boot Delay After Power Restore' set to '0 Sec'. A 'Submit' button is located below these settings. A 'Refresh' button is at the bottom of the configuration list.

- **Auto Restart**

Enables or disables auto restart after power has been restored.

- **UPS Buzzer**

Enables or disables the UPS buzzer.

- **Voltage Sensitivity**

This feature is not yet supported.

- **Transfer Voltage**

Sets the desired levels for Low and High Transfer voltage.

- **Low Battery Alarm**

When selected, this option will trigger a low battery alarm if the reported battery level falls below the one assigned in the provided text field.

- **Battery Replacement Date**

Dates can be entered as a record for battery maintenance purposes. Selecting the checkbox will enable pop-up notifications to appear at a frequency set in the text box.

- **Bypass Transfer Frequency**

After you set a tolerance of bypass transfer frequency and confirm your setup, the TLNETCARD will send the command to the UPS. If the UPS transfers to bypass mode and the bypass frequency is out of the tolerance, output will be turned off and critical loads will be protected.

- **Periodic Auto Test**

Enables the UPS to automatically perform a battery test at a period determined by the pulldown menu selection.

- **Economy Mode**

Enables greater electrical efficiency by suspending double conversion when the power quality is determined to be satisfactory.

- **Outlet Shed / Ramp**

Ramp allows controllable loads to be turned on in a prescribed order when a specified trigger event takes place. For instance, when the UPS returns from an on battery event (i.e. trigger = no longer on battery).

Shed allows controllable loads to be turned off in a prescribed order when a specified trigger event takes place. For instance, when the UPS goes to battery (i.e. trigger = on battery).

3. TLNET Supervisor

Control

Go to **Device** → **Management** → **Control** to configure relevant control commands.

Note: For each of the following items, the **Submit** button must be pressed for the specified control to be executed.

TRIPP-LITE POWER PROTECTION

TLNET Supervisor

Home Logout

System Time : Tue 12/22/2015 AM 11:06:48

Monitor Device System

Management

Reaction

Configure

Control

Weekly Schedule

Specific Schedule

Event Level

Device » Management » Control

Control

Select UPS Control:

- Battery Test
- Shutdown & Restart UPS Only
- Smart Shutdown
- Outlet Control
- Power Failure/Restore Simulation

Battery Test

Battery Test Type: 10-Second Test

Submit

- **Battery Test**

This control executes a 10-second battery test.

- **Shutdown & Restart UPS Only**

Upon pressing **Submit**, the UPS will shut down and/or restart per the parameters specified in this section.

- **Outlet Control**

Press the **Execute** button to control the corresponding outlet bank (on or off).

- **Power Failure/Restore Simulation**

Click the **Power Failure Test** or **Power Restore Test** button to simulate a power failure or power restore event. This function verifies functionality of the connected software. The simulation will not influence UPS operations; the UPS remains in its existing UPS mode and will not transfer to battery.

Weekly Schedule

Go to **Device** → **Management** → **Weekly Schedule** to arrange a weekly schedule for the UPS. Select the day(s) and time for a specified action (No Action, Shutdown, Restart, 10-Second Test) to take place.

TRIPP-LITE POWER PROTECTION

TLNET Supervisor

Home Logout

System Time : Tue 12/22/2015 AM 11:29:37

Monitor Device System

Management

Reaction

Configure

Control

Weekly Schedule

Specific Schedule

Event Level

Device » Management » Weekly Schedule

Weekly Schedule

| | Action | SUN | MON | TUE | WED | THR | FRI | SAT | Time(hh:mm) 24-hr |
|---|----------------|-----|-----|-----|-----|-----|-------------------------------------|-----|-------------------|
| 1 | 10-Second Test | | | | | | <input checked="" type="checkbox"/> | | 13:11 |
| 2 | No Action | | | | | | | | 00:00 |
| 3 | No Action | | | | | | | | 00:00 |
| 4 | No Action | | | | | | | | 00:00 |
| 5 | No Action | | | | | | | | 00:00 |
| 6 | No Action | | | | | | | | 00:00 |

Submit

3. TLNET Supervisor

Specific Schedule

Go to **Device** → **Management** → **Specific Schedule** to arrange a specific schedule for the UPS. Select the calendar day(s) and time for a specified action (No Action, Shutdown, Restart, 10-Second Test) to take place.

The screenshot shows the 'Specific Schedule' configuration page in the TLNET Supervisor interface. The page has a sidebar with navigation options: Reaction, Configure, Control, Weekly Schedule, **Specific Schedule** (selected), and Event Level. The main content area is titled 'Device » Management » Specific Schedule'. It contains a table with 10 rows for scheduling events. Each row has columns for 'Date(MM/DD/YYYY)', 'Time(hh:mm) 24-hr', and 'Action'. All dates are set to '01/01/2000' and all times are set to '00:00'. The 'Action' column has a dropdown menu with 'Stop Action' selected. A 'Submit' button is at the bottom right of the table.

| | Date(MM/DD/YYYY) | Time(hh:mm) 24-hr | Action |
|----|------------------|-------------------|-------------|
| 1 | 01/01/2000 | 00:00 | Stop Action |
| 2 | 01/01/2000 | 00:00 | Stop Action |
| 3 | 01/01/2000 | 00:00 | Stop Action |
| 4 | 01/01/2000 | 00:00 | Stop Action |
| 5 | 01/01/2000 | 00:00 | Stop Action |
| 6 | 01/01/2000 | 00:00 | Stop Action |
| 7 | 01/01/2000 | 00:00 | Stop Action |
| 8 | 01/01/2000 | 00:00 | Stop Action |
| 9 | 01/01/2000 | 00:00 | Stop Action |
| 10 | 01/01/2000 | 00:00 | Stop Action |

Event Level

Go to **Device** → **Management** → **Event Level** to assign severity levels for each event.

The screenshot shows the 'Event Level' configuration page in the TLNET Supervisor interface. The page has a sidebar with navigation options: Reaction, Configure, Control, Weekly Schedule, Specific Schedule, and **Event Level** (selected). The main content area is titled 'Device » Management » Event Level'. It contains a section for 'Event Level' with a dropdown menu set to 'Alarm' and an 'Update' button. Below this is a table with 15 rows for event descriptions and their assigned levels. The levels are color-coded: red for 'Alarm' and yellow for 'Warning'.

| | Event Description | Level |
|----|--------------------------------|---------|
| 1 | UPS temperature out of range | Alarm |
| 2 | UPS temperature back to normal | Alarm |
| 3 | Power failure | Warning |
| 4 | Power restored | Warning |
| 5 | Output abnormal | Alarm |
| 6 | Recover from output abnormal | Alarm |
| 7 | Overload | Alarm |
| 8 | Recover from overload | Alarm |
| 9 | Bypass abnormal | Alarm |
| 10 | Recover from bypass abnormal | Alarm |
| 11 | Turn UPS output off | Alarm |
| 12 | Turn UPS output on | Alarm |
| 13 | UPS shutdown | Warning |
| 14 | Recover from UPS shutdown | Warning |
| 15 | Charger abnormal | Alarm |

3. TLNET Supervisor

3.3 System

The System pages are accessible only to users with Administrator privileges.

3.3.1 Administration

User Manager

The TLNETCARD supports RADIUS. Check the **Use RADIUS** box, enter the required Server, Secret and Port (default: 1812) information, then click **Submit**. The three user levels can be defined. If RADIUS is disabled, the Account Name, Password and Login Limitation can be managed via Local Authentication.

The screenshot shows the 'User Manager' configuration page in the TLNET Supervisor interface. The page is divided into two main sections: 'RADIUS' and 'Local Authentication'. The 'RADIUS' section is currently active, showing fields for 'Server (51 chars max.)', 'Secret (32 chars max.)', and 'Port' (set to 1812). Below these are three columns of checkboxes for 'Administrator', 'Device Manager', and 'Read Only User' roles, each with options for 'Login User', 'Framed User', 'Callback Login', 'Callback Framed', 'Outbound', 'Administrative', 'NAS Prompt', 'Authenticate Only', 'Callback NAS Prompt', 'Call Check', and 'Callback Administrative'. The 'Local Authentication' section is also visible, showing fields for 'Privilege', 'Account Name (16 chars max.)', 'Password (16 chars max.)', and 'Login Limitation' (radio buttons for 'Only in This LAN' and 'Allow Any'). A 'Submit' button is at the bottom right.

TCP/IP

The screenshot shows the 'TCP/IP' configuration page in the TLNET Supervisor interface. The page is divided into two main sections: 'TCP/IP Settings for IPv4' and 'TCP/IP Settings for IPv6'. The 'IPv4' section is currently active, showing fields for 'DHCP Client' (radio buttons for 'Enable' and 'Disable'), 'IP Address' (172.18.48.144), 'Subnet Mask' (255.255.255.0), 'Gateway IP' (172.18.48.1), 'DNS IP' (172.18.0.18), and 'Search Domain' (triplite.com). The 'IPv6' section is also visible, showing fields for 'DHCP Client' (radio buttons for 'Enable' and 'Disable'), 'IP Address' (fe80::230:abff:fe20::), 'Prefix Length' (64), 'Gateway V6IP' (::), and 'DNS V6IP' (::). A 'Submit' button is at the bottom right.

• TCP/ IP Settings for IPv4

- 1) **DHCP Client:** Enable/Disable DHCP. If enabled, the DHCP server automatically assigns an IP address to the TLNETCARD.
- 2) **IP Address:** The IP address in dotted format.
- 3) **Subnet Mask:** The Subnet Mask for the network.
- 4) **Gateway IP:** The IP address for the network gateway in dotted format.
- 5) **DNS IP:** The IP address Domain Name Server in dotted format.
- 6) **Search Domain:** If the domain entered cannot be found, the system defaults to the Host Name.

3. TLNET Supervisor

- **TCP/ IP Settings for IPv6**

- 1) **DHCP Client:** Enable/Disable DHCP. If enabled, the DHCP server automatically assigns an IP address to the TLNETCARD.
- 2) **IP Address:** The IPv6 address.
- 3) **Prefix Length:** The prefix length for the IPv6 address.
- 4) **Gateway V6IP:** The IP address for the IPv6 network gateway.
- 5) **DNS V6IP:** The IP address for the IPv6 domain name server.

- **System**

- 1) **Host Name:** The SNMP IPv6 Host Name on the network.
- 2) **System Contact:** System contact information.
- 3) **System Location:** System location information.

- **Link**

- 1) **Auto-Negotiation:** Enable/Disable automatic transfer rate (10/100Mbps) negotiation.
- 2) **Speed:** If the Auto-Negotiation is disabled, the transfer rate can be specified.
- 3) **Duplex:** If the Auto-Negotiation is disabled, the duplex mode can be specified.

Web

The screenshot displays the TLNET Supervisor web interface. The top header includes the Tripp-Lite logo, the title 'TLNET Supervisor', and links for 'Home' and 'Logout'. A system time indicator shows 'Tue 12/22/2015 AM 11:20:41'. The main navigation menu on the left lists various system functions: Monitor, Device, System, Administration, and Notification. The 'System' menu is expanded, showing 'Web' and 'SSL Certificate' options. The 'Web' configuration panel is active, showing settings for HTTP and HTTPS connections, their respective ports (80 and 443), and a web refresh period of 10 seconds. The 'SSL Certificate' panel is also visible, showing a 'Certificate File (PEM format)' field with a 'Browse...' button and a 'Submit' button. The footer indicates 'Copyright © 2015 Tripp Lite, Inc. All Rights Reserved.'

- **Web**

- 1) **HTTP:** Enable/ disable HTTP connection.
- 2) **HTTPS:** Enable/ disable HTTPS connection.
- 3) **HTTP Port:** Assign an HTTP port number (default: 80).
- 4) **HTTPS Port:** Assign an HTTPS port number (default: 443).
- 5) **Web Refresh Period:** Enter a time period (in seconds).

- **SSL Certificate**

- 1) To ensure connection security between the TLNETCARD and the connecting workstation, an SSL certificate can be used to encrypt and secure the integrity of transmitted data.
- 2) Certificate File: The TLNETCARD supports PEM format which is generated by OpenSSL. Click **Choose File** to upload a certificate file.

Note: For more information about generating a private SSL certificate file, visit <http://www.openssl.org/>.

3. TLNET Supervisor

Console

The screenshot shows the TLNET Supervisor web interface. The top header includes the Tripp-Lite logo, the title "TLNET Supervisor", and links for "Home" and "Logout". The system time is displayed as "Tue 12/22/2015 AM 11:21:47". The navigation menu on the left includes "Monitor", "Device", and "System". Under "System", there are sub-menus for "Administration" and "Notification". The "Administration" sub-menu is expanded, showing options like "User Manager", "TCP/IP", "Web", "Console", "FTP", "Time Server", "Syslog", "Batch Configuration", and "Upgrade". The "Console" option is selected, and the main content area displays the "System » Administration » Console" configuration page. This page has three sections: "Console", "Host Key", and "Authentication Public Key". The "Console" section has radio buttons for "Telnet" (selected) and "Disable", and "SSH/SFTP" (selected) and "Disable". It also has input fields for "Telnet Port" (23) and "SSH Port" (22). The "Host Key" section has "DSA Key" and "RSA Key" fields, each with a "Browse..." button and the text "No file selected.". The "Authentication Public Key" section has a "Public Key" field with a "Browse..." button and the text "No file selected.". A "Submit" button is at the bottom right.

- **Telnet:** Enable/ disable Telnet connection.
- **SSH/ SFTP:** Enable/ disable SSH/ SFTP connection.
- **Telnet Port:** Assign a Telnet port number (default: 23).
- **SSH Port:** Assign an SSH protocol port number (default: 22).
- **Host Key/ Authentication Public Key:** The TLNETCARD supports files generated by OpenSSH, including DSA, RSA, and Authentication Public Keys.

FTP

The screenshot shows the TLNET Supervisor web interface. The top header includes the Tripp-Lite logo, the title "TLNET Supervisor", and links for "Home" and "Logout". The system time is displayed as "Tue 12/22/2015 AM 11:24:05". The navigation menu on the left includes "Monitor", "Device", and "System". Under "System", there are sub-menus for "Administration" and "Notification". The "Administration" sub-menu is expanded, showing options like "User Manager", "TCP/IP", "Web", "Console", "FTP", "Time Server", "Syslog", "Batch Configuration", and "Upgrade". The "FTP" option is selected, and the main content area displays the "System » Administration » FTP" configuration page. This page has a section for "FTP" with radio buttons for "Enable" and "Disable" (selected). It also has an input field for "FTP Port" (21) and a "Submit" button. At the bottom of the page, there is a copyright notice: "Copyright © 2015 Tripp Lite, Inc. All Rights Reserved."

- **FTP:** Enable/ disable FTP connection.
- **FTP Port:** Assign an FTP port number (default: 21).

3. TLNET Supervisor

Time Server

The time and date can be automatically synchronized with SNTP servers or manually entered; select the desired option. If the SNTP server is not responsive, the event and data log will not register even when SNTP is enabled.

The screenshot shows the TLNET Supervisor web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs. The 'System' tab is active, and the 'Administration' sub-tab is selected. The left sidebar lists various configuration options: User Manager, TCP/IP, Web, Console, FTP, Time Server (highlighted), Syslog, Batch Configuration, and Upgrade. The main content area is titled 'System » Administration » Time Server'. It features two radio buttons for 'System Time': 'SNTP' (selected) and 'Manual'. Below the 'SNTP' option is a 'Simple Network Time Server' section with fields for 'Time Zone' (a dropdown menu), 'Primary Time Server' (text input), 'Secondary Time Server' (text input), and a checkbox for 'Enable Daylight Saving (MM/DD)' with a date range. Below the 'Manual' option is a 'Manual' section with a 'Set Current Time' checkbox, a 'Refer to Local PC Time' checkbox, and fields for 'Date' (MM/DD/YYYY) and 'Time' (hh:mm:ss). A 'Submit' button is located at the bottom right of the configuration area. The footer displays 'Copyright © 2015 Tripp Lite, Inc. All Rights Reserved.'

• Simple Network Time Server

- 1) **Time Zone:** From the dropdown menu, select the time zone for the location where the TLNETCARD is located.
- 2) **Primary/ Secondary Time Server:** Two time servers can be added. Every 60 minutes, the TLNETCARD synchronizes with the first responding server.
- 3) **Enable Daylight Saving:** Check to enable daylight saving time.

• Manual

If a time server is not accessible, the time and date can be linked to the local PC or set manually. Note that in the event of a power loss, the time and date may need to be re-entered once power is restored.

Syslog

Syslog is used to store the event log on remote Syslog servers. This will not affect the local event log. Upon selecting the Enable option, enter the IP Addresses of up to four (max) Syslog servers.

The screenshot shows the TLNET Supervisor web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs. The 'System' tab is active, and the 'Administration' sub-tab is selected. The left sidebar lists various configuration options: User Manager, TCP/IP, Web, Console, FTP, Time Server, Syslog (highlighted), Batch Configuration, and Upgrade. The main content area is titled 'System » Administration » Syslog'. It features a 'Syslog' section with a radio button for 'Syslog': 'Enable' and 'Disable' (selected). Below this are four text input fields for 'Syslog Server 1', 'Syslog Server 2', 'Syslog Server 3', and 'Syslog Server 4'. A 'Submit' button is located at the bottom right of the configuration area. The footer displays 'Copyright © 2015 Tripp Lite, Inc. All Rights Reserved.'

3. TLNET Supervisor

Batch Configuration

The TLNETCARD supports batch configuration for quick and effortless setup of multiple SNMP devices. Configuration information uploaded from a source device can be downloaded onto individual target devices using the TLNET Supervisor, or onto multiple target devices using the TLNET Configurator (see **Section 4.1**).

The screenshot shows the TLNET Supervisor web interface. The top header includes the Tripp-Lite logo, the title "TLNET Supervisor", and links for "Home" and "Logout". A system time display shows "Tue 12/22/2015 PM 01:19:19". The main navigation bar has tabs for "Monitor", "Device", and "System". Under the "System" tab, there are sub-tabs for "Administration" and "Notification". The left sidebar lists various configuration options: "User Manager", "TCP/IP", "Web", "Console", "FTP", "Time Server", "Syslog", "Batch Configuration" (highlighted), and "Upgrade". The main content area is titled "System » Administration » Batch Configuration". It contains two panels: "System Configuration" and "SNMP Configuration". Each panel has a "Download" button, a "Browse..." button, and an "Upload" button. Below these buttons, a description states: "This function configures all of the system parameters at one time. Follow these steps to complete the process:". The steps are: Step 1: Press Download to view the configure.ini file which includes all of the system parameters. Copy the contents to a new file opened in text editor software. Step 2: Edit the line items, as required. Save the file after all changes have been made.

Upgrade

The Upgrade page shows the TLNETCARD's current firmware version. Instructions for performing a firmware update are provided on-screen. The upgrade process, including a card reboot, should take about one minute.

The screenshot shows the TLNET Supervisor web interface. The top header includes the Tripp-Lite logo, the title "TLNET Supervisor", and links for "Home" and "Logout". A system time display shows "Fri 01/08/2016 PM 02:02:37". The main navigation bar has tabs for "Monitor", "Device", and "System". Under the "System" tab, there are sub-tabs for "Administration" and "Notification". The left sidebar lists various configuration options: "User Manager", "TCP/IP", "Web", "Console", "FTP", "Time Server", "Syslog", "Batch Configuration", and "Upgrade" (highlighted). The main content area is titled "System » Administration » Upgrade". It contains a panel titled "SNMP Device Firmware". The panel shows the "Current Ver.: 01.12.04d" and a "Firmware File:" field with a "Browse..." button and an "Upload" button. Below these, a description states: "This feature updates the SNMP device firmware. Follow these steps to complete the process:". The steps are: Step 1: Using Browse, select the source firmware file then press Upload to initiate the process. Step 2: Wait about 1 minute for the process to complete and for the SNMP device to reboot. At the bottom of the page, there is a copyright notice: "Copyright © 2015 Tripp Lite, Inc. All Rights Reserved."

3. TLNET Supervisor

3.3.2 Notification

SNMP Access

The screenshot shows the TLNET Supervisor web interface. The top navigation bar includes 'Monitor', 'Device', and 'System' tabs. The 'System' tab is active, and the 'Notification' sub-tab is selected. The left sidebar lists 'SNMP Access' as the current page, with other options like 'SNMPv3 USM', 'SNMP Trap', 'Mail Server', and 'Wake On LAN'. The main content area is titled 'System » Notification » SNMP Access'. It contains a 'SNMP Access' configuration box with sections for 'Port Configuration' (SNMP Server Port: 161), 'MIB' (Download MIB: TrippLite MIB, RFC1628), and 'NMS List'. The 'NMS List' section has input fields for 'Allowed NMS IP' (0.0.0.0), 'Community String' (public), and 'Access Level' (Read Only). Below these is a table with two entries: Entry 1 with NMS IP 0.0.0.0, Community public, and Access Level Read Only; Entry 2 with NMS IP 0.0.0.0, Community tripplite, and Access Level Read/Write. The footer shows 'Copyright © 2015 Tripp Lite, Inc. All Rights Reserved.'

The TLNETCARD supports SNMP protocol and SNMP NMS (Network Management System), which are commonly used to monitor network devices. To prevent unauthorized access, the NMS IP addresses community strings and access levels for authorized users can be specified. The maximum number of IP entries is 256.

Note: If IP address **0.0.0.0** is entered, the NMS IP access restriction is ignored. The TLNETCARD checks the community string to identify the configured access level and permission.

SNMPv3 USM

SNMPv3 offers features such as packet encryption and authentication to improve security. The SNMPv3 USM (User Session Management) allows assignment of eight User Names whose access is granted via SNMPv3 protocol. Their respective Security Levels, Auth Passwords, Priv Passwords and Access Levels can also be defined.

The screenshot shows the TLNET Supervisor web interface for the 'SNMPv3 USM' configuration page. The top navigation bar and left sidebar are consistent with the previous screenshot. The main content area is titled 'System » Notification » SNMPv3 USM'. It contains a 'SNMPv3 USM' configuration box with 'Auth Protocol: MD5' and 'Priv Protocol: CBC-DES'. The 'Context Name' is set to 'cn1027'. Below this is a table with 8 rows for user configuration. Each row has columns for 'User Name (16 bytes max.)', 'Security Level' (all set to 'noAuth, noPriv'), 'Auth Password (>= 8 bytes)', 'Priv Password (>= 8 bytes)', and 'Access Level' (all set to 'Read Only'). A 'Submit' button is at the bottom of the table. The footer shows 'Copyright © 2015 Tripp Lite, Inc. All Rights Reserved.'

3. TLNET Supervisor

SNMP Trap

SNMP Traps alert users to specific events that occur in the monitored environment. SNMP Trap recipients must be added to the Target IP list by entering in their IP Addresses and related parameters, then clicking **Add**. Click the **Update** button to modify entries in the list. Items can be removed by clicking the **Delete** button.

TRIPP-LITE POWER PROTECTION

TLNET Supervisor

System Time : Fri 01/08/2016 PM 02:04:29

Home Logout

Monitor Device System

Administration Notification

SNMP Access

SNMPv3 USM

SNMP Trap

Mail Server

Wake On LAN

System » Notification » SNMP Trap

SNMP Trap Target List

Target IP: 172.18.48.97 Community String: public

Trap Type: SNMPv1 MIB: TrippLite

SNMPv3 User Name: Trap Port: 2162

The SNMPv3 User Name must be the same as the User Name in the SNMPv3 USM table.

Trap Category: TLNET Shutdown Agent

SNMP Port for Shutdown Agent: 2161

Add Update Delete

| | Target IP | Community | Port | MIB | Type | Trap Category | SNMPv3 User |
|---|---------------|------------|------|-----------|------|----------------------|-------------|
| 1 | 172.18.48.97 | public | 2162 | TrippLite | v1 | TLNET Shutdown Agent | |
| 2 | 172.18.20.242 | tripp-lite | 162 | RFC1628 | v1 | Standard | |

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Notes:

The TLNETCARD supports SNMPv1, SNMPv2c and SNMPv3 traps. For SNMPv3 traps, specify an SNMPv3 USM User Name. Use Trap Category to determine which event notifications are to be sent to the Target IP Address. The three categories are:

- **None:** No event notifications are sent to the target address.
- **Standard:** standard event notifications are sent to the target address
- **Shutdown Agent:** Shutdown Agent event notifications are sent to the target address. Go to **Monitor** → **Information** → **Shutdown Agent** to view the shutdown information of the designated PC.

Mail Server

TRIPP-LITE POWER PROTECTION

TLNET Supervisor

System Time : Fri 01/08/2016 PM 02:05:29

Home Logout

Monitor Device System

Administration Notification

SNMP Access

SNMPv3 USM

SNMP Trap

Mail Server

Wake On LAN

System » Notification » Mail Server

Mail Server Configuration

SMTP Server Name or IP: (51 bytes max.)

SMTP Server Port: 25

Account: admin (64 bytes max.)

Account Format: user_name@mail_server_domain (e.g., john@company.com)

Password: (32 bytes max.)

Submit

The Account and Password are not required to send emails.

Mail List

Receiver: name@company.com

Event Level: None

Add Test e-mail

| | Receiver | Event Level |
|---|------------------|-------------|
| 1 | name@company.com | None |

Set up an SMTP Server and specify a list of E-mail recipients who will receive notifications when events occur. The maximum number of recipients is 256.

Note: If a DNS server is not available in the network, manually assign an SMTP server address to enable the E-mail notification system.

• SMTP Server Name or IP

If a Host Name is entered, a DNS IP should be added in TCP/IP. See section 3.3.1 for more information.

3. TLNET Supervisor

- **Account**

The mail server login account.

- **Password**

The mail server login password.

- **Receiver**

The recipients' E-mail addresses.

- **Event Level**

Select the Event Level that when triggered, an E-mail notification is sent to the corresponding recipient.

- 1) **Information:** All event notifications are sent to the target address.
- 2) **Warning:** Warning and Alarm event notifications are sent to the target address.
- 3) **Alarm:** Only Alarm event notifications are sent to the target address.

Wake on LAN

The Wake On LAN function enables a networked PC to be started up after power is restored and/or the TLNETCARD starts up. This feature supports a maximum of 256 PCs.

The screenshot shows the TLNET Supervisor web interface. The top header includes the Tripp-Lite logo, the title 'TLNET Supervisor', and links for 'Home' and 'Logout'. The system time is displayed as 'Fri 01/08/2016 PM 02:06:16'. The main navigation bar has tabs for 'Monitor', 'Device', and 'System'. Under the 'System' tab, there are sub-tabs for 'Administration' and 'Notification'. The 'Notification' sub-tab is active, showing the 'System » Notification » Wake On LAN' page. On the left sidebar, under 'Administration', the 'Wake On LAN' option is selected. The main content area displays the 'WOL Host List' configuration. It includes input fields for 'Title' (set to 'None'), 'MAC' (set to '00-00-00-00-00-00'), and 'Delay' (set to '0' minutes). There are checkboxes for 'Wake Up Condition' with options 'Power Restore' and 'System Startup'. An 'Add' button is present. Below the form is a table with the following data:

| | Title | MAC | Delay | Restore | Startup |
|---|-------|-------------------|-------|---------|---------|
| 1 | None | 00-00-00-00-00-00 | 0 | No | No |

At the bottom of the page, the copyright notice 'Copyright © 2015 Tripp Lite, Inc. All Rights Reserved.' is visible.

4. TLNET Configurator

The TLNET Configurator utility simplifies configuration and firmware update of multiple TLNETCARDS as described in the following sections. Configuration of individual TLNETCARDS using the TLNET Configurator is covered in **Section 2.1.1**.

4.1 Batch Configuration

This function of the utility allows the configuration of one (source) TLNETCARD to be copied to one or more (target) TLNETCARDS.

Step 1: Within the TLNET Supervisor of the source TLNETCARD, go to **System → Administration → Batch Configuration** and select the **Download** button in either the System Configuration or the SNMP Configuration window. The contents of the configuration file will appear in a web page.

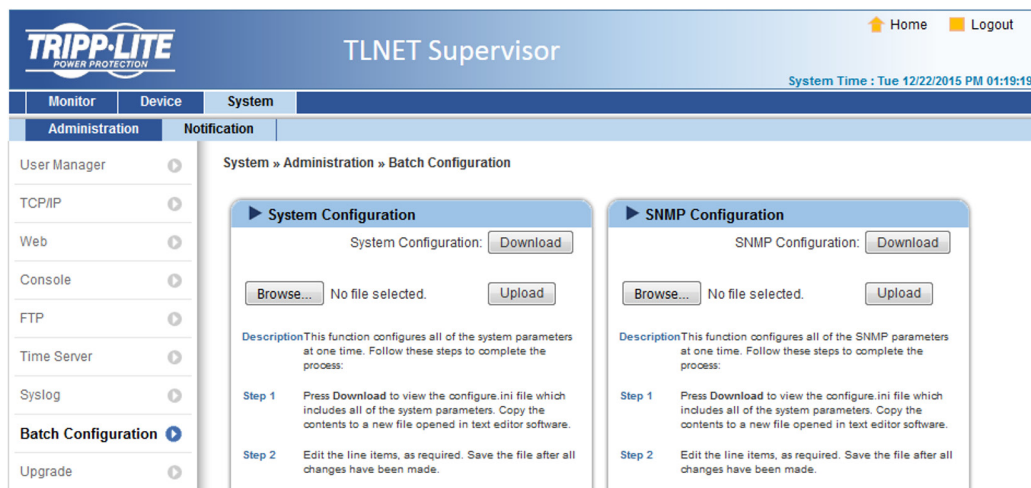
Step 2: Select and copy the entire contents of the configuration file.

Step 3: Open a text editor application such as Notepad and paste the contents. Save the file to a location where it can be accessed by the TLNET Supervisor or Configurator (e.g. on the computer's desktop).

Step 4: If required, make edits to the configuration file, then save it with a .ini extension (e.g. *snmp.ini*).

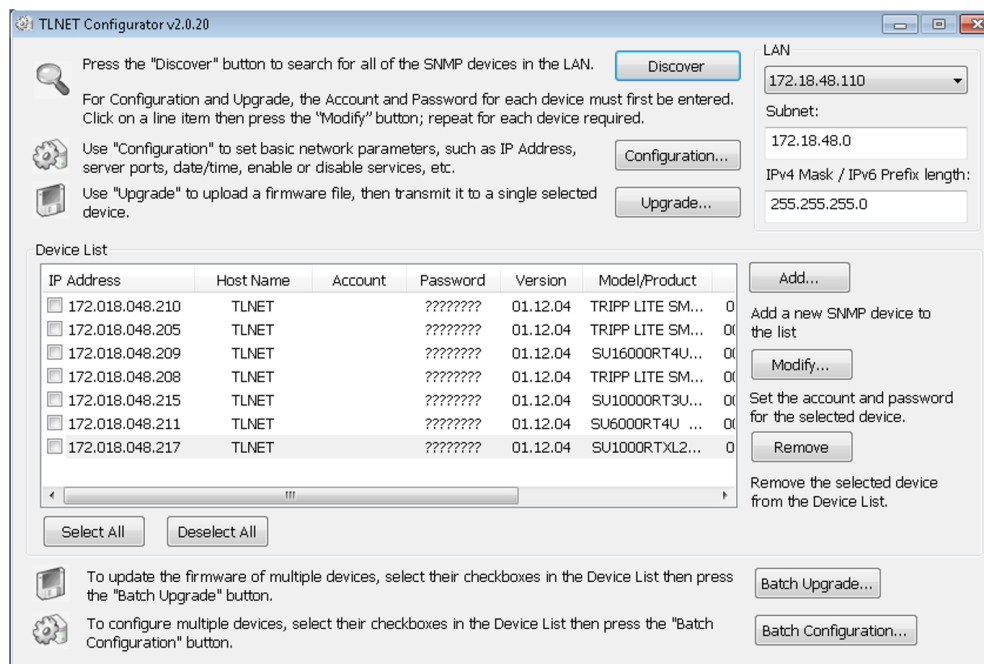
Note: The configuration file name cannot contain spaces, hyphens or special characters.

Caution: The Network settings, including IP Address, Mask and Gateway of the source TLNETCARD will be transferred to the target TLNETCARDS. To prevent a setting from being transferred to other devices, simply "comment out" its line item by placing a semicolon (;) at the beginning of the line item. In the example below, the IP Address will NOT be transferred but the remaining items will.



```
IdentName=
AttachDevice=
; IP=172.18.48.144
Mask=255.255.255.0
Gateway=172.18.48.1
DNS IP=172.18.0.18
Domain=tripplite.com
Bootp=Disable
```

Launch the TLNET Configurator and set the required network parameters (LAN, Subnet), then click **Discover**.



4. TLNET Configurator

Step 5: The *Account* and *Password* fields for all target TLNETCARDS will need to be entered. If the cards all share the same account user name and password, skip to the next step. Otherwise, select each target TLNETCARD's line item (not its checkbox) and click **Modify** to enter the credentials. Once completed, the line item in the Device List will show values in the *Account* and *Password* fields.

The screenshot shows the 'IP & Account' dialog box on the left and the 'Device List' table on the right.

IP & Account Dialog:

- SNMP Device Address: IP Address: 172 . 18 . 48 . 211
- Administrator Account: Account: admin, Default: admin
- Password: Password: [masked], Default: password
- OK button

Device List Table:

| IP Address | Host Name | Account | Password | Version | Model/Product | |
|---|-----------|---------|----------|----------|------------------|---|
| <input type="checkbox"/> 172.018.048.210 | TLNET | admin | ***** | 01.12.04 | TRIPP LITE SM... | 0 |
| <input type="checkbox"/> 172.018.048.205 | TLNET | admin | ***** | 01.12.04 | TRIPP LITE SM... | 0 |
| <input type="checkbox"/> 172.018.048.209 | TLNET | admin | ***** | 01.12.04 | SU16000RT4U... | 0 |
| <input type="checkbox"/> 172.018.048.208 | TLNET | admin | ***** | 01.12.04 | TRIPP LITE SM... | 0 |
| <input type="checkbox"/> 172.018.048.215 | TLNET | admin | ***** | 01.12.04 | SU10000RT3U... | 0 |
| <input type="checkbox"/> 172.018.048.211 | TLNET | admin | ***** | 01.12.04 | SU6000RT4U ... | 0 |
| <input checked="" type="checkbox"/> 172.018.048.217 | TLNET | ***** | ***** | 01.12.04 | SU1000RTXL2... | 0 |

Step 6: Select the checkboxes of all the target TLNETCARDS, then click on **Batch Configuration**. Click the **Browse** button in the pop up window, then navigate to and select the configuration file saved in Step 3. If the cards all share the same account username and password information, enter those credentials in the space provided. Even if the default values will be used, they need to be re-entered into fields.

The screenshot shows the 'Batch Configuration' dialog box.

Batch Configuration Dialog:

- Select a configuration file for the SNMP device
- Configuration File Name: C:\Users\USER\Desktop\configure.ini
- Buttons: Browse..., Edit...
- Please note that, there are 2 configuration files for the device:
 - configure.ini: To configure the system parameters
 - snmp.ini: To setup the snmp permissions and trap target(s)
- Buttons: Upload Now, Exit
- Enter the default Account and Password if they have not been specified for the selected devices:
 - Account: [field], Default: admin
 - Password: [field], Default: password

Step 7: Click on the **Upload Now** button. A notification appears when the process is complete.

The screenshot shows the 'Information' dialog box.

Information Dialog:

- Icon: Information (i)
- Text: Upload process completed.
- Button: OK

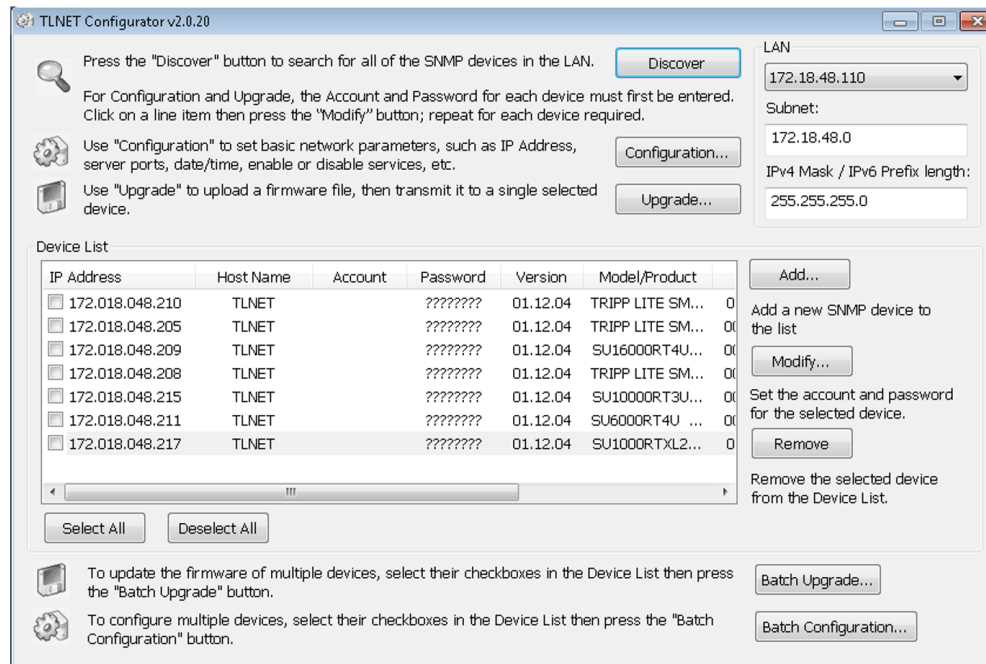
4. TLNET Configurator

4.2 Batch Upgrade

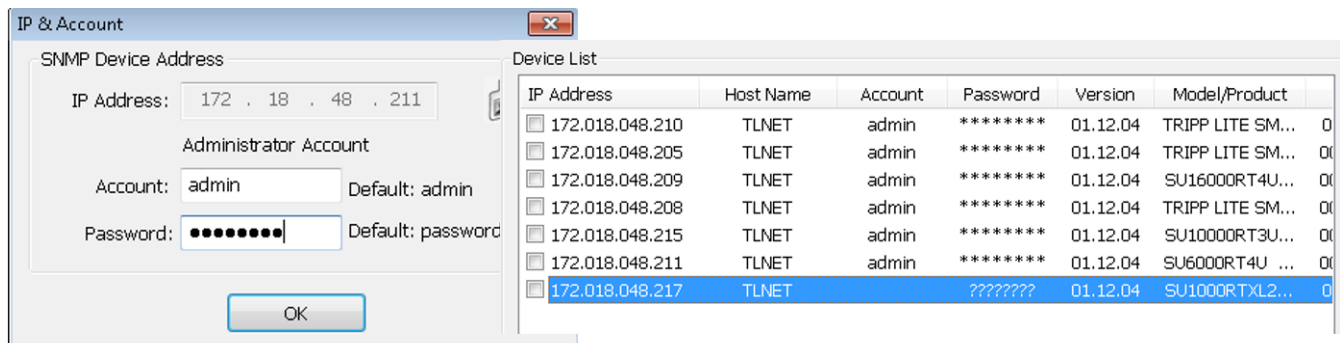
This function of the Batch Upgrade utility allows a firmware file to be loaded onto one or more TLNETCARDS. Firmware files will typically be downloaded from Tripp Lite's website.

Step 1: Place the (downloaded) firmware file in a location where it can be accessed by the TLNET Configurator (e.g. on the computer's desktop).

Step 2: Launch the TLNET Configurator, set the required network parameters (LAN, Subnet), then click **Discover**.

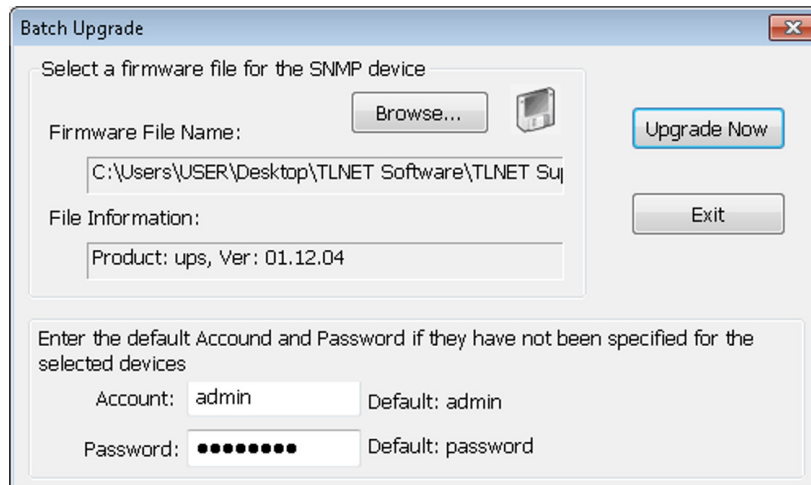


Step 3: The *Account* and *Password* fields for all target TLNETCARDS will need to be entered. If the cards all share the same account username and password, skip to the next step. Otherwise, select each target TLNETCARD's line item (not its checkbox) and click **Modify** to enter the credentials. Once completed, the line item in the Device List will show values in the *Account* and *Password* fields.

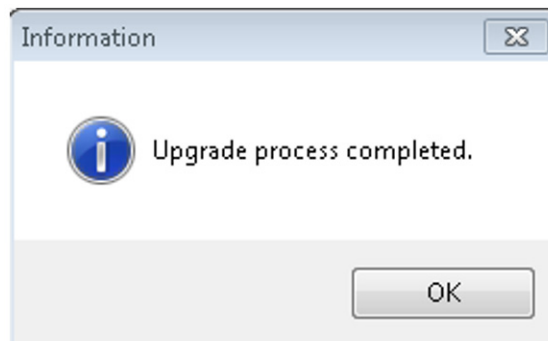
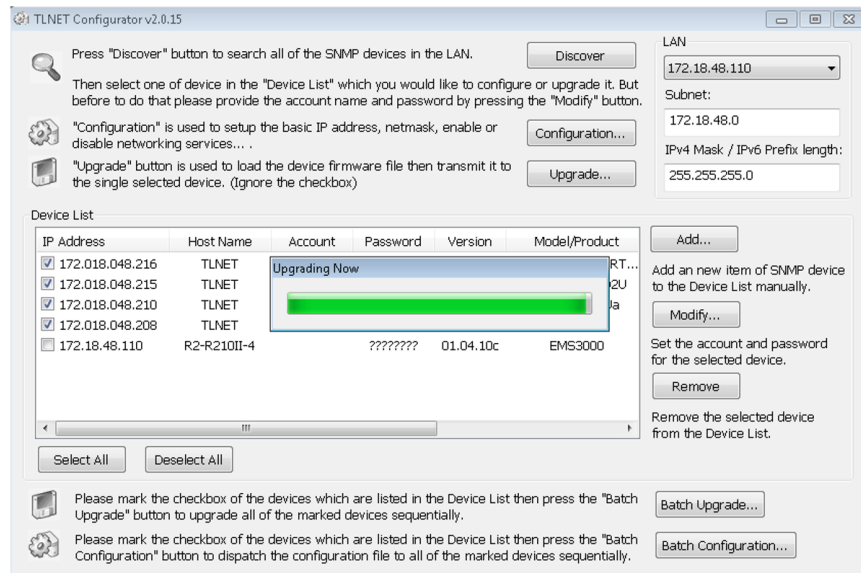


4. TLNET Configurator

Step 4: Select the checkboxes of all TLNETCARDS to be upgraded, then click on **Batch Upgrade**. Click the **Browse** button in the pop up window, then navigate to and select the firmware file saved in Step 1. If the cards all share the same account username and password information, enter those credentials in the space provided. Even if the default values will be used, they need to be re-entered into fields.



Step 5: Click the **Upgrade Now** button. A progress bar will indicate the upgrade status for each TLNETCARD sequentially. An information window will denote when the upgrade has been completed. Click **OK**.



4. TLNET Configurator

Note: The TLNET Configurator will not automatically show the updated firmware version in the Device List. Exit, then re-launch the TLNET Configurator to confirm the selected devices successfully uploaded the new firmware. The update can also be confirmed in the TLNET Supervisor interface of each device in the **Monitor >> About** tab.

The screenshot displays the TLNET Supervisor web interface. At the top, there is a header bar with the Tripp-Lite logo on the left, the title "TLNET Supervisor" in the center, and a "Home" button with a house icon on the right. Below the header is a navigation menu with tabs for "Monitor", "Device", "System", "Information", "History", and "About". The "About" tab is currently selected. On the left side of the main content area, there is a sidebar with a button labeled "Information" and a right-pointing arrow. The main content area shows a breadcrumb trail "Monitor » About » Information". Below this, there is a section titled "Information" with a right-pointing arrow. The content of this section includes the text "TrippLite TLNET Supervisor" and "Version : 01.12.04". It also contains a paragraph stating that the TLNET Supervisor utilizes the "OpenSSL toolkit" functionality provided by "The Open SSL Project" at <http://www.openssl.org/>, and that SDI acknowledges all patent rights therein. A second paragraph states that the OpenSSL toolkit is licensed under a dual-license (the OpenSSL license and the original SSLeay license). At the bottom of the section, there is a link labeled "See the license text."

5. Troubleshooting

1. How do I confirm the link between the TLNETCARD and the UPS is established?

If the link between the TLNETCARD and the UPS is correctly established, the yellow LED on the TLNETCARD Network port should flash rapidly.

2. I can access the TLNET Supervisor, but I cannot login.

Check the IP addresses of the TLNETCARD and the workstation on which you are trying to log in. By default, they must be within the same LAN. To enable external connections, launch the TLNET Configurator and for that device's configuration, change User Limitation to *Allow Any*, as shown below.

The screenshot shows the 'Configuration' window of the TLNET Configurator. It is divided into several sections: 'System Identification', 'Date/Time', 'User Limitation', 'IPv4', 'IPv6', and 'System Configuration'. In the 'User Limitation' section, three radio button options are shown for 'Administrator', 'Device Manager', and 'Read Only User'. Each has three choices: 'In The LAN', 'Allow Any', and 'Allow Any'. The 'Allow Any' option is selected for all three, and this entire section is circled in red. Other settings include IP addresses, subnet masks, gateways, and time zones. At the bottom, there are 'Reset to Default', 'OK', and 'Cancel' buttons, and a note that fields marked with an asterisk indicate recommended settings.

3. I am unable to connect to the TLNETCARD via its Host Name

If you just assigned a new static IP address to the TLNETCARD, you may need to refresh the NetBIOS table so that it corresponds with the new setting. Although Windows updates its NetBIOS table periodically, you can manually force it to refresh by entering **nbtstat -R** in DOS prompt mode. After that, you should be able to connect to the TLNETCARD its Host Name. Ensure that the Host Name assigned to the TLNETCARD does not exceed 16 bytes.

4. I am unable to ping the TLNETCARD from my workstation

If the SNMP IPv6 is non-responsive, check the following:

- If the green LED on the TLNETCARD's Network port is off, check that the network cable is correctly connected from the TLNETCARD to the network equipment.
- If the green LED is on, the current IP address may be unreachable. Manually assign a valid IP address to the TLNETCARD.
- If the green LED flashes and your network configuration includes a DHCP server, verify that the DHCP service is working properly. Otherwise, verify that the IP address is not already assigned to another device on the network. Note that if the current configuration is not useable, the TLNETCARD will reset to default IP settings (IPv4 address: 192.168.1.100/ net mask: 255.255.255.0/ gateway: 192.168.1.254).
- If the problem persists, use a network cable to cross link the TLNETCARD and the workstation. Ping the TLNETCARD's default or assigned static IP address. If the ping is successful, indicating that the TLNETCARD is working properly, check your network equipment. If not, contact your local dealer or service personnel for assistance.

5. I am unable to perform an SNMP Get or Set command

Refer to **3.3.2 Notification** to check SNMP settings. Verify that the workstation's IP address is added to the NMS IP list with Read or Read/Write (for Set) access. The community string on the workstation and the SNMP IPv6 must match.

6. I am unable to receive an SNMP trap

Refer to **3.3.2 Notification** to check SNMP Trap settings. Verify that the workstation's IP address is added to the Target IP list.

5. Troubleshooting

7. I forgot the Administrator's account and password

The Administrator's account and password can be reset via text mode. Refer to **2.1.5 Configuring through COM Port** to establish a COM port connection with the TLNETCARD. When the login information is prompted, key in **rstadmin**—for both login and password—within 30 seconds, then press enter. The Administrator account and password are now reset to the default (admin/password).

8. How do I generate a private SSL certificate file (in PEM format) for HTTPs connection?

To ensure a secure connection between the TLNETCARD and your workstation, you can create your own SSL certificate file. Download and install the OpenSSL Toolkit from <http://www.openssl.org>. Launch Shell or DOS prompt mode and enter the following command to create your own certificate file:

```
openssl req -x509 -nodes -days 3650 -newkey  
rsa:1024 -keyout cert.pem -out cert.pem
```

- Answer the prompted questions. Proceed with the given directions. Once completed, a file named cert.pem is created in the current working directory.
- Upload cert.pem to the TLNET Supervisor. Please refer to **3.3.1 Administration, Web**.

9. How do I generate DSA, RSA and Public keys for SSH?

For Linux:

- Download and install OpenSSH from <http://www.openssh.org>.
- Launch Shell and enter the following commands to create your own keys (ignore the prompt to provide a passphrase):
DSA Key:ssh-keygen -t dsa
RSA Key:ssh-keygen -t rsa
- Upload DSA and RSA keys to the InsightPower SNMP IPv6 for UPS Web. Please refer to 5-3-1 Administration – Console for more information.

For Windows:

- Download and install PuTTY from <http://www.putty.org>.
- Run puttygen.exe from the installed directory.
- Select SSH-2 RSA from the Parameters area and click Key → Generate key pair to generate a RSA key.
- Click Conversions → Export OpenSSH Key and assign a filename to the RSA key. Ignore the prompt to provide key passphrase.
- Select SSH-2 DSA from the Parameters, click Key → Generate key pair to generate a DSA key.
- Click Conversions → Export OpenSSH Key and assign a filename to the DSA key. Ignore the prompt to provide key passphrase.
- Copy the generated key from the text box, paste in a text editor and save as a text file.
- Upload the DSA/ RSA/ Public keys files to the TLNET Supervisor. Refer to **3.3.1 Administration, Console** for more information.

10. How do I upload a configuration / firmware / key files via SSH/ SFTP?

For quick configuration of the TLNETCARD, the files can be uploaded via SSH/ SFTP. The TLNETCARD automatically imports your settings after the files are uploaded to the designated directories. Refer to the following table:

| Directory | Files |
|------------------|---|
| \config_snmp | snmp.ini |
| \config_system | configure.ini |
| \ssh_dsa | DSA key |
| \ssh_rsa | RSA key |
| \ssh_pubkey | Public key |
| \upgrade_snmp | SNMP IPv6's firmware upgrade package (binary) |
| \upgrade_device* | Device's firmware upgrade package (binary) |

*Appears on specific devices only.

Upload files to their respective directories. Make sure the filenames do not contain non-English characters to avoid read error. Overwrite existing files if prompted by your SFTP client.

APPENDIX A – Default System Settings

After performing a “Reset System To Defaults” in text mode. The System Configuration file will contain the following (default) contents:

```
[Format]
SNMP device
Version=20
Restart=No
[System]
Name=TLNET
Contact=
Location=
IdentName=
AttachDevice=
IP=192.168.1.100
Mask=255.255.255.0
Gateway=192.168.1.254
DNS IP=
Domain=
Bootp=Enable
HTTP=Enable
HTTPS=Enable
Telnet=Enable
SSH=Enable
FTP=Disable
HTTP Port=80
HTTPS Port=443
Telnet Port=23
SSH Port=22
FTP Port=21
SNMP Port=161
Trap Port=162
Status Stable=1
Hist Data Interval=600
SysLog=Disable
SysLog Server=
SysLog Server2=
SysLog Server3=
SysLog Server4=
Web Refresh=10
Telnet Idle=120
Auto Negotiation=Enable
Speed=100
Duplex=Full
V6 DHCP=Enable
V6 IP=::/0
V6 Gateway=::
V6 DNS=::
Language=0
[User]
Enable RADIUS=No
Enable Local=Yes
RADIUS Server=
RADIUS Secret=
RADIUS Port=1812
Admin Account=admin
Admin Password=password

Admin Limit=0
Device Account=device
Device Password=password
Device Limit=0
User Account=user
User Password=password
User Limit=1
RADIUS Admin User Type=32
RADIUS Device User Type=2
RADIUS User User Type=1
Password Encrypt=No
[Time]
SNTP=Yes
Zone=+0
Server1=POOL.NTP.ORG
Server2=
Manual Date=01/01/2000
Manual Time=00:00:00
Use PC Time=No
Daylight Saving=No
Start Date=04/01
End Date=11/01
[Mail]
Server=
SMTP Port=25
Sender=
Password=
Receive Num=0
[UPS Configure]
Power Fail Shutdown=No
Power Fail Shutdown Delay=0
Batt Low Shutdown=No
Batt Low Shutdown Delay=0
Overload Shutdown=No
Overload Shutdown Delay=0
Smart Shutdown Estimated OS
Delay=300
Smart Shutdown UPS Delay=60
Smart Shutdown Apply to
Schedule=No
Enable Load Warning=No
Load Warning=90
Enable Load Severity=No
Load Severity=100
Batt Low Warning=No
Batt Low Level=30
Enable Batt Notification=No
Batt Notification Day=0
[Wake On LAN]
WOL Num=0
[Weekly Schedule]
Number=6
Weekday1=0000000
Time1=00:00
Action1=0
Weekday2=0000000
Time2=00:00
Action2=0
Weekday3=0000000
Time3=00:00
Action3=0
Weekday4=0000000
Time4=00:00

Action4=0
Weekday5=0000000
Time5=00:00
Action5=0
Weekday6=0000000
Time6=00:00
Action6=0
[Specific Schedule]
Number=10
Date1=01/01/2000
Time1=00:00
Action1=0
Date2=01/01/2000
Time2=00:00
Action2=0
Date3=01/01/2000
Time3=00:00
Action3=0
Date4=01/01/2000
Time4=00:00
Action4=0
Date5=01/01/2000
Time5=00:00
Action5=0
Date6=01/01/2000
Time6=00:00
Action6=0
Date7=01/01/2000
Time7=00:00
Action7=0
Date8=01/01/2000
Time8=00:00
Action8=0
Date9=01/01/2000
Time9=00:00
Action9=0
Date10=01/01/2000
Time10=00:00
Action10=0
[Environment]
Title Input1=Smoke
Title Input2=Fire
Title Input3=Leak
Title Input4=Door
Temperature Low Limit=60
Temperature High Limit=105
Humidity Low Limit=20
Humidity High Limit=80
Normal Open Input1=Yes
Normal Open Input2=Yes
Normal Open Input3=Yes
Normal Open Input4=Yes
Smart Shutdown Temperature=No
Smart Shutdown Humidity=No
Smart Shutdown Input1=No
Smart Shutdown Input2=No
Smart Shutdown Input3=No
Smart Shutdown Input4=No
[End]
```

APPENDIX B – Default SNMP Settings

After performing a “Reset All To Defaults” in text mode, the SNMP Configuration file will contain the following (default) contents:

```
Version=4
[SNMP Trap]
Number=0
[SNMP Access]
Port=161
Number=1
IP1=0.0.0.0/32
Community1=public
Permission1=1
[SNMP USM]
Context Name=cn1027
User1=
Security1=0
Auth1=
Priv1=
Permission1=1
User2=
Security2=0
Auth2=
Priv2=
Permission2=1
User3=
Security3=0
Auth3=
Priv3=
Permission3=1
User4=
Security4=0
Auth4=
Priv4=
Permission4=1
User5=
Security5=0
Auth5=
Priv5=
Permission5=1
User6=
Security6=0
Auth6=
Priv6=
Permission6=1
User7=
Security7=0
Auth7=
Priv7=
Permission7=1
User8=
Security8=0
Auth8=
Priv8=
Permission8=1
[End]
```



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