SmartNode 2290 Series
Leased-Line Extenders over IP

Quick Start Guide

CE **Important** — This is a Class A device and is intended for use in a light industrial environment. It is not intended nor approved for use in an industrial or residential environment.

WARNING

- This device contains no user serviceable parts. The equipment shall be returned to Patton Electronics for repairs, or repaired by qualified service personnel.
- Mains Voltage: Do not open the case when the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected.
- The external power adapter shall be a listed Limited Power Source. Ensure that the power cable used meets all applicable standards for the country in which it is to be installed, and that it is connected to a wall outlet which has earth ground. The mains outlet that is utilized to power the devise shall be within 10 feet (3 meters) of the device, shall be easily accessible, and protected by a circuit breaker.
- Hazardous network voltages are present in WAN ports regardless of whether power to the SmartNode is ON or OFF. To avoid electric shock, use caution when near WAN ports. When detaching cables, detach the end away from the SmartNode first.
- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- Before opening the chassis, disconnect the telephone network cables to avoid contact with telephone line voltages.

1.0 Installing the SmartNode extender

1.1 Mounting the SmartNode extender

Place the extender on a desktop or similar sturdy, flat surface that offers easy access to the cables. The extender should be installed in a dry environment with sufficient space to allow air circulation for cooling.

For proper ventilation, leave at least 2 inches (5 cm) to the left, right, front, and rear of the SmartNode extender.
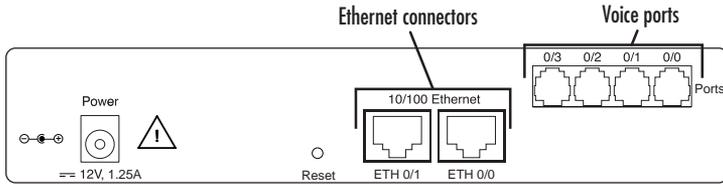
1.2 Connecting cables

WARNING

- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- The Interconnecting cables shall be acceptable for external use and shall be rated for the proper application with respect to voltage, current, anticipated temperature, flammability, and mechanical serviceability.

Install the cables in the following order:

1. Installing the RJ-11 voice port cable or cables
    (see **1.3 "Installing an interface cable on the extender's voice ports"** on page 3)

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2. Installing the 10/100 Ethernet port cable or cables
   (see **1.4 "Installing the Ethernet cable"** on page 5)

3. Installing the power input
   (see **1.5 "Connecting to external power source"** on page 6)

1.3 Installing an interface cable on the extender's voice ports

The SmartNode extender comes with at least two voice ports (see **figure 1**) located on the back of the extender. The voice ports are connected to analog devices via cables (see **figure 2** and **figure 3**) terminated with RJ-11 connectors (see **figure 4** and Table 1 on page 4 for pin-out information).

Figure 1. Rear view showing location of Ethernet connectors and voice ports (SmartNode 2294 shown)
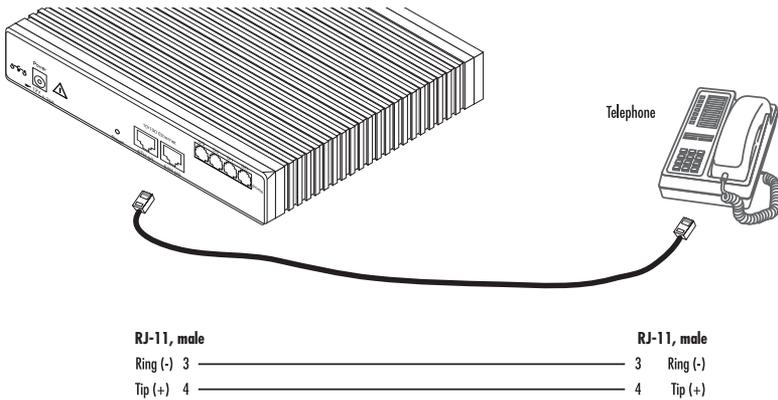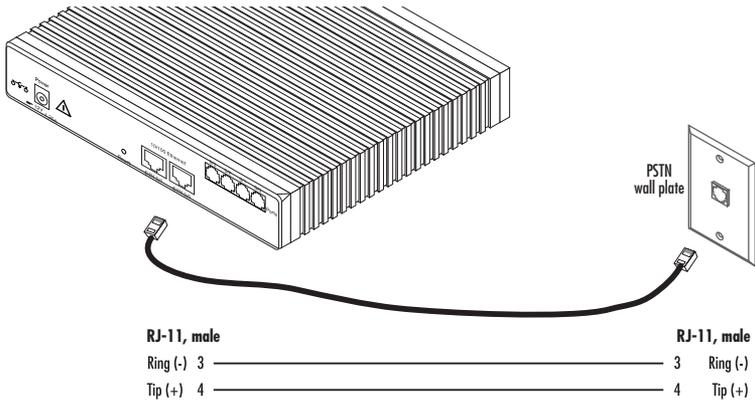

RJ-11, male			RJ-11, male
Ring (-) 3			3 Ring (-)
Tip (+) 4			4 Tip (+)

Figure 2. FXS connection

RJ-11, male   **RJ-11, male**

Ring (-)   3 ——————————————————————————————— 3   Ring (-)

Tip (+)   4 ——————————————————————————————— 4   Tip (+)

Figure 3. FXO connection

1 2 3 4 5 6   6 5 4 3 2 1

Socket   **Plug**
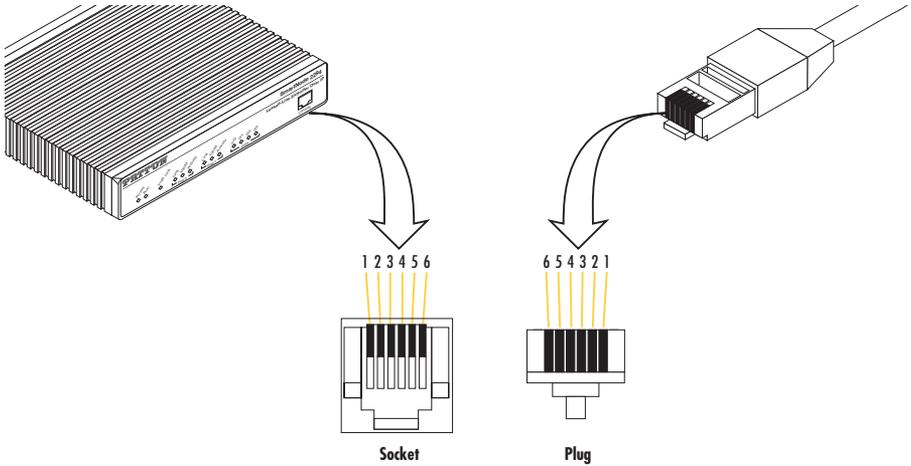
Figure 4. RJ-11 pinout diagram

Table 1. RJ-11 socket

Pin	Signal
3	Ring (-)
4	Tip (+)

Note Unit must not connect directly to telecom network voltage (TNV).

1.4 Installing the Ethernet cable

The SmartNode 2292 Series has automatic MDX (auto-cross-over) detection and configuration on the Ethernet ports. Any of the two ports can be connected to a host or hub/switch with a straight-through wired cable (see figure 5). Ethernet devices (10Base-T or 100Base-T) are connected to the SmartNode's Ethernet ports (see table 2 for port pin-out listing) via a cable terminated with RJ-45 plugs. Because the SmartNode 2294 Series does not have the MDX feature, a cross-over cable is required when connecting SmartNode 2294 Series devices to a host (see figure 6).

Table 2. Ethernet 10/100Base-T (RJ-45) port pin-outs (SmartNode 2294 Series)

Pin	Signal
1	TX+
2	TX-
3	RX+
6	RX-

Note Pins not listed are not used.
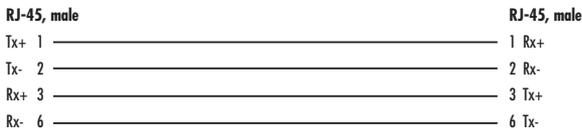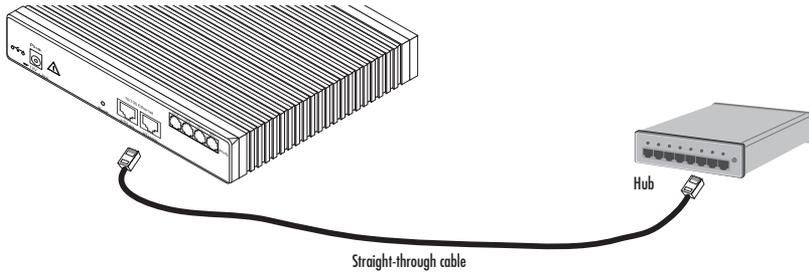
Figure 5. Connecting a SmartNode 2294 Series device to a hub

| RJ-45, male | | | | RJ-45, male |
| | | | | |

Twisted pair 1 { Tx+ 1 ——————————— 1 TX+
                 Tx- 2 ——————————— 2 TX-
Twisted pair 2 { Rx+ 3 ——————————— 3 RX+
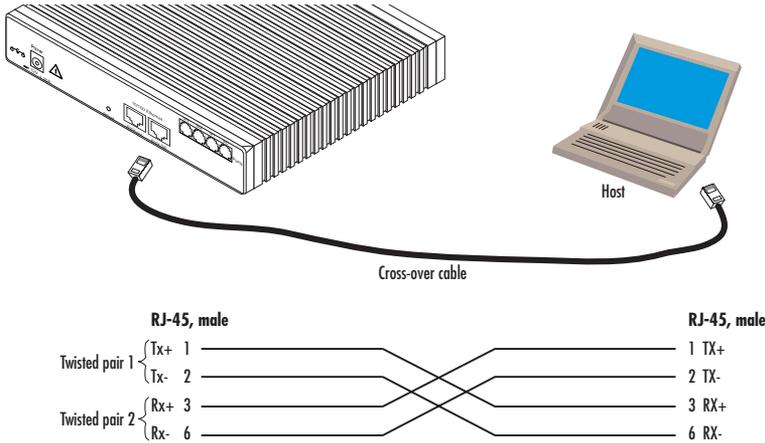   Rx- 6 ——————————— 6 RX-

Figure 6. Connecting to a host

1.5 Connecting to external power source

The extender comes with an external power supply. This section describes installing the power cord into the extender. Do the following:

> **Note** Do not connect the power cord to the power outlet at this time.

1. Insert the barrel type connector end of the AC power cord into the external power supply connector.

> ⚠ **CAUTION**
>
> The extender power supply automatically adjusts to accept an input voltage from 100 to 240 VAC (50/60 Hz).
>
> Verify that the proper voltage is present before plugging the power cord into the receptacle. Failure to do so could result in equipment damage.
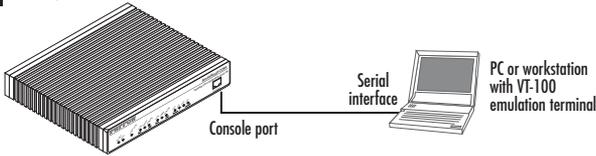
2. Verify that the AC power cord included with your extender is compatible with local standards. If it is not, contact Patton to find out how to replace it with a compatible power cord.

3. Connect the male end of the power cord to an appropriate power outlet.

4. Verify that the green *Power* LED is lit.
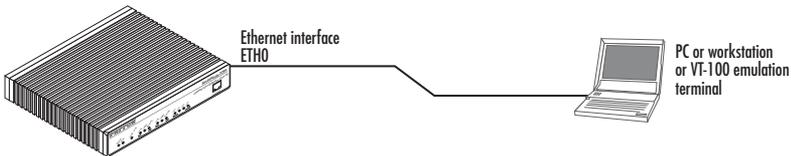
2.0 Configuring the SmartNode extender

Patton SmartNodes can be used for a wide variety of IP-based network applications. To support and ease the configuration of the SmartNodes configuration, templates for the most important applications are available on the Patton server at www.patton.com/voip.

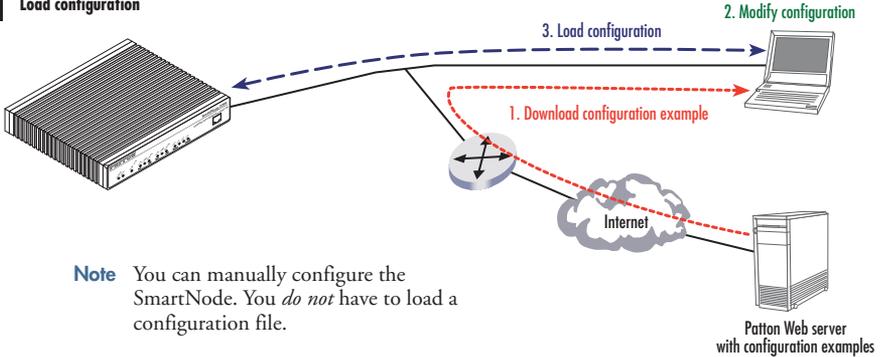The main steps for setting up a new SmartNode are shown in **figure 7**.

1 Configure IP address

Serial interface

PC or workstation with VT-100 emulation terminal

Console port

2 Connect the SmartNode to the network

Ethernet interface ETH0

PC or workstation or VT-100 emulation terminal

3 Load configuration

2. Modify configuration

3. Load configuration

1. Download configuration example

Internet

Patton Web server with configuration examples

Note You can manually configure the SmartNode. You *do not* have to load a configuration file.

Figure 7. Steps for setting up a new SmartNode

2.1 Configure the IP address

Power connection and default configuration

First the SmartNode must be connected to the mains power supply with the power cable. Wait until the 'Run' LED stops blinking and lights constantly. Now the SmartNode is ready.

The factory default configuration for the Ethernet interface IP addresses and network masks are listed in **table 3**.

Table 3. Factory default IP address and network mask configuration

	IP Address	**Network Mask**
Interface Ethernet 0 (ETH0)	DHCP	DHCP
Interface Ethernet 1 (ETH1)	192.168.1.1	255.255.255.0

Both Ethernet interfaces are activated upon power-up.

Connect with the serial interface

The *Console* port is wired as an EIA-561, RS-232 port. Use the included Model 16F-561 adapter and cable (see **figure 8**) between the SmartNode's *Console* port and a PC or workstation's RS-232 serial interface. Activate the terminal emulation program on the PC or workstation that supports the serial interface (e.g. HyperTerm).
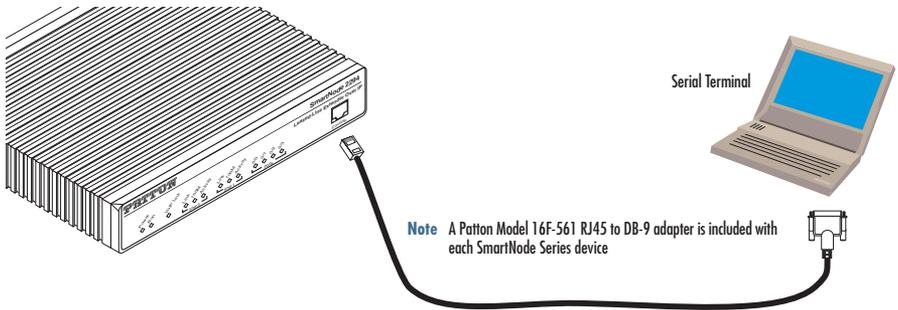

Serial Terminal

Note A Patton Model 16F-561 RJ45 to DB-9 adapter is included with each SmartNode Series device

Figure 8. Connecting to the terminal

Terminal emulation program settings:

- 9600 baud

- no parity

- 8 bit

- 1 stop bit

- 1 start bit

- No flow control

2.2 Login

1. Accessing your SmartNode via the local console port (or via a Telnet session) causes the login screen to display. Type the factory default login: *administrator* and leave the password empty. Press the *Enter* key after the password prompt.

   ```
   login:administrator
   password: <Enter>
   172.16.40.1>
   ```

2. After you have successfully logged in you are in the operator execution mode, indicated by > as command line prompt. With the commands *enable* and *configure* you enter the configuration mode.

   ```
   172.16.40.1>enable
   172.16.40.1#configure
   172.16.40.1(cfg)#
   ```

3. Enter the following commands for the first SmartNode 229x device in the pair:

   ```
   Copy nvram:a-side-config startup-config
   Copy running-config startup-config
   ```

4. Follow the same procedure for the other SmartNode 229x device in the pair:

   ```
   Copy nvram:b-side-config startup-config
   Copy running-config startup-config
   ```

   Note The configuration above is only a sample configuration that you may use as an example. You should specify your own parameters such as your IP address and other related information as required. For detailed information on all configuration parameters, refer to the *SmartWare Software Configuration* Guide available online at **www.patton.com/smartnode**.

5. Reboot both units and connect them back-to-back through their Ethernet 0/1 ports. Voice connections will automatically be set up between the units.

The steps above will configure the IP addresses as well as the required configurations for voice connections.

3.0 Additional Information

For detailed information about configuring and operating guidance, set up procedures, and troubleshooting, refer to the *SmartNode 2290 Series User Manual* available online at **www.patton.com/manuals/ SN2290.pdf** and the *SmartWare Software Configuration Guide* available online at **www.patton.com/ smartnod**e.

A.0 Customer and Technical Support

Toll-Free VoIP support: call **sip:support@patton.com** with a VoIP SIP client

Online support: www.**patton.com**

E-mail support: **support@patton.com**—answered within 1 business day

Telephone support:

- Standard: +1 (301) 975-1007 (USA), Monday—Friday: 8:00 am to 5:00 pm EST (1300 to 2200 UTC/GMT)

- Alternate: +41 (0)31 985 25 55 (Switzerland), Monday—Friday: 8:00 am to 5:00 pm CET (0900 to 1800 UTC/GMT)

Fax: **+1 (253) 663-5693** (USA) **or +41 (0)31 985 25 26** (Switzerland)

B.0 Compliance Information

B.1 Compliance

EMC Compliance:

- EN55022, Class A

- EN55024

Safety Compliance:

- EN60950

B.2 CE Declaration of Conformity

This equipment conforms to the requirements of Council Directive 1999/5/EC on the approximation of the laws of the member states relating to Radio and Telecommunication Terminal Equipment and the mutual recognition of their conformity.

The safety advice in the documentation accompanying this product shall be obeyed. The conformity to the above directive is indicated by **CE** sign on the device.

The signed Declaration of Conformity can be downloaded at www.patton.com/certifications.

Copyright statement

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Warranty

For warranty, trademark and compliance information, refer to the *SmartNode 2290 Series User Manual* located online at www.patton.com/manuals.

In accordance with the requirements of council directive 2002/96/EC on Waste of Electrical and Electronic Equipment (WEEE), ensure that at end-of-life you separate this product from other waste and scrap and deliver to the WEEE collection system in your country for recycling.