SmartNode 4950 Series
Multi-Port T1/E1/PRI VoIP
Enterprise Gateway Router

Quick Start Guide

WARNING

- **Do not open the device when the power cord is connected. For systems without a power switch and without an external power adapter, line voltages are present within the device when the power cord is connected.**

- **For devices with an external power adapter, the power adapter shall be a listed *Limited Power Source* The mains outlet that is utilized to power the device shall be within 10 feet (3 meters) of the device, shall be easily accessible, and protected by a circuit breaker in compliance with local regulatory requirements.**

- **For AC powered devices, ensure that the power cable used meets all applicable standards for the country in which it is to be installed.**

- **For AC powered devices which have 3 conductor power plugs (L1, L2 & GND or Hot, Neutral & Safety/Protective Ground), the wall outlet (or socket) must have an earth ground.**

- **For DC powered devices, ensure that the interconnecting cables are rated for proper voltage, current, anticipated temperature, flammability, and mechanical serviceability.**

- **WAN, LAN & PSTN ports (connections) may have hazardous voltages present regardless of whether the device is powered ON or OFF. PSTN relates to interfaces such as telephone lines, FXS, FXO, DSL, xDSL, T1, E1, ISDN, Voice, etc. These are known as "hazardous network voltages" and to avoid electric shock use caution when working near these ports. When disconnecting cables for these ports, detach the far end connection first.**

- **Do not work on the device or connect or disconnect cables during periods of lightning activity.**

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.

WARNING

This device contains no user serviceable parts. This device can only be repaired by qualified service personnel.

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CAUTION

Electrostatic Discharge (ESD) can damage equipment and impair electrical circuitry. It occurs when electronic printed circuit cards are improperly handled and can result in complete or intermittent failures. Do the following to prevent ESD:

- **Always follow ESD prevention procedures when removing and replacing cards.**

- **Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to safely channel unwanted ESD voltages to ground.**

- **To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.**

1.0 Power up the SmartNode

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

2. Insert the female end of the power cord into the internal power supply connector.

3. Verify that the AC power cord included with your router is compatible with local standards. If it is not, contact Patton to replace it with a compatible power cord.

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

5. Wait until the *Power* LED stops blinking and remains constantly lit. Now the SmartNode is ready to configure.

2.0 Connecting the SmartNode to your laptop PC

CAUTION

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.
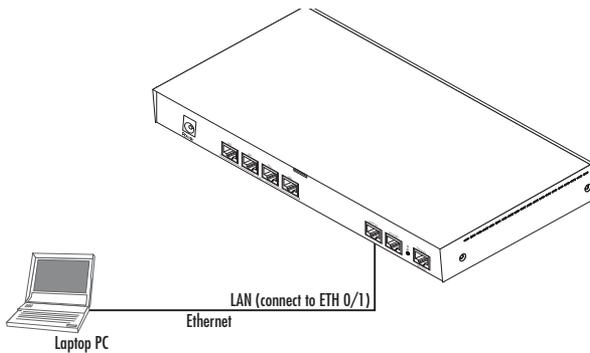
Figure 1. Connecting to the PC

1. Connect the PC's Ethernet port to *LAN (ETH 0/1)* port of the SmartNode 4950. The SmartNode 4950 Series is equipped with Auto-MDX Ethernet ports, so you can use straight-through or cross-over Ethernet cables for host or hub/switch connections. (See **figure 1**.)

2. The SmartNode comes with a built-in DHCP server to simplify configuration. Therefore, to automatically configure the PC for IP connectivity to the SmartNode, configure the laptop PC for DHCP. The SmartNode will provide the PC with an IP address. Note that only Full Duplex operation is supported. Use auto negotiation for best results.

3. Check the connection to the SmartNode by executing the *ping* command from the PC command window as follows:

```
ping 192.168.1.1
```

3.0 Configuring the desired IP address

3.1 Factory-default IP settings

The factory default configuration for the Ethernet interface IP addresses and netmasks are listed in **table 1**. Both Ethernet interfaces are activated upon power-up. LAN interface *ETH 0/1 (LAN)* provides a default DHCP server. The WAN interface uses DHCP client to get the IP address and netmask automatically from the service provider.

Table 1. Factory default IP address and network mask configuration

Item	IP Addresss	Network Mask
WAN interface Ethernet 0 (ETH 0/0)	DHCP	DHCP
LAN interface Ethernet 1 (ETH 0/1)	192.168.1.1	255.255.255.0
DHCP server address range (LAN)	192.168.1.10-192.168.1.99	255.255.255.0

If these addresses match with those of your network, go to section **4.0 "Connecting the SmartNode to the network"** on page 5. Otherwise, continue with the following sections to change the addresses and network masks.

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3.2 Login

1. To access the SmartNode, start the Telnet application on your PC. Type the default IP address into the address field: **192.168.1.1**. Accessing your SmartNode via a Telnet session displays the login screen. Type the factory default login: *administrator* and leave the password empty. Press the *Enter* key after the password prompt.

```
login:administrator
password:<Enter>
192.168.1.1>
```

2. After you log in, your SmartNode will be running in operator execution mode (indicated by > character in the command line prompt). To enter configuration mode, use the commands *enable* and *configure*.

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

3.3 Changing the WAN IP address

1. To modify IP configuration settings, you must enter *context IP* mode. Enter the following command:

```
192.168.1.1(cfg)#context ip router
192.168.1.1(ctx-ip)[router]#
```

2. Now you can set your IP address and network mask for the interface *ETH 0/0(WAN)*. In this example a network 172.16.1.0/24 is assumed. The IP address in example is set to *172.16.1.99*. (You should set it to the IP address that the network provider has given you.)

   Note The examples in this guide use a private IP network with the network address *172.16.1.0/24*.

```
192.168.1.1(ctx-ip)[router]#interface WAN
192.168.1.1(if-ip)[WAN]#ipaddress 172.16.1.99 255.255.255.0
2002-10-29T00:09:40 : LOGINFO    : Link down on interface WAN.
2002-10-29T00:09:40 : LOGINFO    : Link up on interface WAN.
172.16.1.99(if-ip)[WAN]#
```

3. Copy this modified configuration to your new start-up configuration. This will store your changes in non-volatile memory. On the next start-up the system will initialize itself using the modified configuration.

```
172.16.1.99 (if-ip)[WAN]#copy running-config startup-config
172.16.1.99 (if-ip)[WAN]#
```

The SmartNode can now be connected to your network.

4.0 Connecting the SmartNode to the network

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.

CAUTION

In general, the SmartNode will connect to the network via the *WAN (ETH 0/0)* port. This enables the SmartNode to offer routing services to the PC hosts on *LAN (ETH 0/1)* port. The SmartNode 4950 Series provides an auto-MDX feature for both Ethernet ports, so you can use a straight-through or cross-over cable to connect to a host or a switch (see **figure 2**).
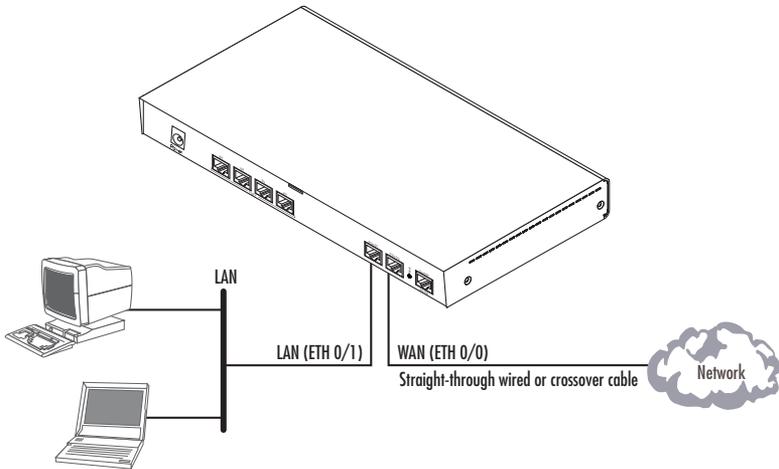

Figure 2. Connecting the SmartNode to the network

1. You can check the connection with the ping command from the SmartNode to another host on the local LAN.

```
172.16.1.99(if-ip)[WAN]#ping <IP Address of the host>
```

Note If the WAN address is **not** set to DHCP, to ping a device outside your local LAN you must first configure the default gateway. (For information on configuring the default gateway, refer to section "Set IP addresses" in Appendix C, "Command Summary" of the *SmartNode Series SmartWare Software Configuration Guide.*)

5.0 Loading the configuration (optional)

Patton provides a collection of configuration templates on the support page at **www.patton.com/smartnode** — one of which may be similar enough to your application that you can use it to speed up configuring the SmartNode. Simply download the configuration note that matches your application to your PC. Adapt the configuration as described in the configuration note to your network (remember to modify the IP address) and copy the modified configuration to a TFTP server. The SmartNode can now load its configuration from this server

Note If your application is unique and not covered by any of Patton's configuration templates, you can manually configure the SmartNode instead of loading a configuration file template. In that case, refer to the *SmartNode Series SmartWare Software Configuration Guide* for information on configuring the SmartNode device.

In this example we assume an TFTP server resides on the host with the IP address 172.16.1.11 and the configuration file named *SN.cfg* resides in the root directory of the TFTP server.

```
172.16.1.99(if-ip)[WAN]#copy tftp://172.16.1.11/SN.cfg startup-
    config
Download...100%
172.16.1.99(if-ip)[WAN]#
```

After you reboot the SmartNode the new startup configuration will become active.

> **IMPORTANT**
>
> When you issue the reload command, the SmartNode will ask if you want to copy the running configuration to the startup configuration. Since you just downloaded a configuration file to the startup configuration you must answer this question with ***NO***. Otherwise, the downloaded configuration will be overwritten and lost!

```
172.16.1.99(if-ip)[WAN]#reload
Running configuration has been changed.
Do you want to copy the 'running-config' to the 'startup-config'?
Press 'yes' to store, 'no' to drop changes : no
Press 'yes' to restart, 'no' to cancel : yes
The system is going down
```

6.0 Additional Information

For detailed information about configuring and operating guidance, set up procedures, and troubleshooting, refer to the *SN4950 User Manual* available online at **www.patton.com/manuals/SN4950.pdf** and the *SmartWare Software Configuration Guide* available online at **www.patton.com/smartnode**.

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:

- FCC Part 15, Class A

- EN55022, Class A

- EN55024

Safety Compliance:

- UL60950-1/CSA C22.2 No. 60950-1

- IEC/EN 60950-1

- AS/NZS 60950-1

PSTN Regulatory Compliance:

- FCC Part 68

- CS-03

- TBR 12 & 13 (E1)

- AS/ACIF S016

- AS/ACIF S038

- AS/ACIF S043 (G.SHDSL card)

- NZ ISDN Layer 3 Supplement

B.2 Radio and TV interference

The SmartNode router generates and uses radio frequency energy, and if not installed and used properly — that is, in strict accordance with the manufacturer's instructions — may cause interference to radio and television reception. The SmartNode router have been tested and found to comply with the limits for a Class A computing device in accordance with specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the SmartNode router does cause interference to radio or television reception, which can be determined by disconnecting the unit, the user is encouraged to try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

B.3 FCC Part 68 (ACTA) Statement

This equipment complies with Part 68 of FCC rules and the requirements adopted by ACTA. On the bottom side of this equipment is a label that contains — among other information — a product identifier in the format US: AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

The method used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact our company. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

B.4 Industry Canada Notice

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

This Declaration of Conformity means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations.

Repairs to some certified equipment should be made by an authorized maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the ground connections of the power utility, telephone lines and internal metallic water pipe system, are connected together. This protection may be particularly important in rural areas.

B.5 EC Declaration of Conformity

(See section **B.6 "EG-Konformitätserklärung"** for German version.)

Product Description: SmartNode 4950 Series

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.

C E   The safety advice in the documentation accompanying the products shall be obeyed.
The conformity to the above directive is indicated by the CE sign on the device.

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

B.6 EG-Konformitätserklärung

(see section **B.5 "EC Declaration of Conformity"** for English version)

Produktbezeichnung: SmartNode 4950 Baureihe

Die bezeichneten Produkte stimmen in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Richtlinie überein:

R&TTE 1999/5/EG

Richtlinie des europäischen Parlaments und des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Funkanlagen und Telekommunikations-Endeinrichtungen und die gegenseitige Anerkennung ihrer Konformität.

C E   Die Sicherheitshinweise in der mitgelieferten Produktdokumentation sind zu beachten.
Die Konformität mit der oben erwähnten Richtlinie wird durch das CE-Zeichen auf dem Gerät bestätigt.

Die unterzeichnete Konformitätserklärung kann heruntergeladen werden von: **www.patton.com/certifications/.**

Copyright statement

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Trademarks statement

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Warranty, Trademark, & Compliance Information

For warranty, trademark and compliance information, refer to the *SmartNode 4950 User Manual* located online at www.patton.com/manuals.

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