

# **3000 Series Secure Gateway Router User Guide**

Manual Number 42-555048-00  
Revision C  
January 2001

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## Federal Communications Commission (FCC) Statement

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

## FCC Part 68 Compliance Statement

This equipment complies with the Part 68 of the FCC Rules. The label included on the bottom of the 3000 Series Secure Gateway Router contains, among other information, the FCC registration number and Ringer Equivalence Number (REN) for this equipment. If requested, provide this information to your telephone company.

This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have those devices ring when your number is called. In most, but not all areas, the sum of the RENs of all devices should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should call your local telephone company to determine the maximum REN for your calling area.

If the terminal equipment causes harm to the telephone network, the telephone company, may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operation, or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice so as to give you an opportunity to maintain uninterrupted service.

No repairs can be performed by the customer.

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## Canadian Standards Association (CSA) Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled: *Digital Apparatus*. CES-003 of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouiller: *Appareil numérique*, NMB-003 édictée par Industrie Canada.

## Industry Canada CS-03 Compliance Statement

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). 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. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative 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 electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas. **Caution:** Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

## European Union (EU) Mark of Conformity Statement

This product is in conformity with the protection requirements of EC Council Directives 73/23/EEC (Low Voltage Directive) and 89/336/EEC amended by 92/31/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. N<sup>x</sup> Networks cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-N<sup>x</sup> Networks option cards.

Properly shielded and grounded cables and connectors must be used in order to reduce the potential for causing interference to radio and TV communications and to other electrical or electronic equipment.

The following interface ports intended for direct or indirect connection to the public network(s) have been assessed and proven compliant with relevant harmonized Technical Basis for Regulation (TBR) standards:

<b>Port</b>	<b>Public Telecommunications Network(s)</b>
WAN:	The PSPDN compatible with X.25 (1984) at interfaces compatible with X.21 or X.21 bis (V.28 or V.35). Complies with TBR2 as specified in Commission Decision 97/545/EC.

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- E1: Private circuits at interfaces in the European Economic Area compatible with G.703 (120 ohms) at 2048 Kbps structured and unstructured.  
Complies with TBR 12/A1 as specified in Commission Decision 97/520/EC.  
Complies with TBR 13 as specified in Commission Decision 97/521/EC.
- ISDN S/T: ISDN basic rate access interfaces in the European Economic Area compatible with I.420.  
Complies with TBR 3/A1 as specified in Commission Decision 98/515/EC.

Hereby N<sup>x</sup> Networks, Inc. declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 99/5/EC.

A signed copy of the Declaration of Conformity is on file and available from N<sup>x</sup> Networks per directive 91/263/EEC.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A.

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# Safety Information

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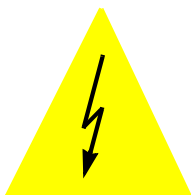
## Caution

For your personal safety, follow these guidelines before installing the 3000 Series router.

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- Use only indoors. The unit is not intended for any other use.
  - Disconnect power supply cord in case of emergency.
  - Plug the unit directly into a grounded outlet.
  - Disconnect power supply cord and all other attached cables prior to removing the top cover to install, remove, or reconfigure the customer accessible modules defined in this manual.
- 

## WARNING



Removal of the internal safety cover, identified by this warning label, will expose a hazardous voltage. Only trained, authorized personnel may access this area after removal of the power cord.

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- Be sure you have the required power for the unit. The unit requires 100-240 VAC, 50-60 Hz power.
  - For 110 Volt Operation: Use UL Listed/CSA labeled cord set consisting of a minimum 18 AWG, Type SVT or SJT three-conductor cord terminating in a molded connector body that has an IEC CEE-22 female configuration on one end and a molded-on parallel blade grounding type attachment plug rated 15A, 125V configuration (5-15P) at the other end.
  - For 230 Volt Operation ( North America ): Use a UL Listed/CSA labeled cord set consisting of a minimum 18 AWG, Type SVT or SJT

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three-conductor cord terminating in a molded connector body that has an IEC CEE-22 female configuration on one end and a molded-on tandem blade grounding type attachment plug rated 15A, 250V configuration (6-15P) at the other end.

- For 230 Volt Operation (other than North America ): Use a cord set marked HAR, consisting of a minimum H05VV-F cord that has a minimum 0.75 square millimeter diameter conductors provided with an IEC 320 receptacle and a male plug suitable for the country of installation.
- This unit contains a lithium battery.

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### **Caution**

Danger of explosion if battery  
is incorrectly replaced.

Replace only with the same or equivalent type  
recommended by the manufacturer. Dispose of used  
batteries according to the manufacturer's  
instructions.

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## German Safety Information

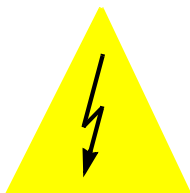
### **Vorsicht**

Beachten Sie im Interesse Ihrer eigenen Sicherheit unbedingt die nachstehenden Sicherheitshinweise, bevor Sie den Router der Serie 3000 installieren!

- Einheit nur in geschlossenen Räumen betreiben. Die Einheit ist nur für den vorgesehen Einsatzzweck zu verwenden.
- Bei Störfällen oder Fehlfunktionen Netzstecker ziehen.
- Netzstecker der Einheit direkt in eine geerdete Steckdose stecken.
- Vor dem Entfernen der oberen Abdeckung zwecks der Installation, Entnahme oder neuen Konfiguration der in diesem Handbuch beschriebenen, kundenzugänglichen Module den Netzstecker und alle anderen angeschlossenen Kabel ziehen.

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### **WARNUNG**



Beim Entfernen der durch dieses Warnschild gekennzeichneten inneren Sicherheitsabdeckung besteht Hochspannungsgefahr. Dieser Bereich darf nur bei unterbrochener Stromversorgung und ausschließlich von befugtem Fachpersonal betreten werden.

- 
- Achten Sie darauf, daß die Stromversorgung der Einheit den technischen Daten entspricht. Die Einheit wird mit 100-240 Volt Wechselstrom und 50-60 Hz betrieben.
    - Betrieb mit 110 Volt: Verwenden Sie eine UL-zugelassene Anschlußleitung mit CSA-Kennzeichnung, bestehend aus einer Dreileiterschur des Typs SVT oder SJT mit einem Drahtdurchmesser von mindestens 18 AWG und einem anvulkanisierten IEC CEE-22 Buchsenstecker auf der einen Seite und

- 
- einem anvulkanisierten Zwischenstecker mit Schutzkontakt für 15 A, 125 V Parallelschaltung auf der anderen Seite (5-15P).
- Betrieb mit 230 Volt (Nordamerika): Verwenden Sie eine UL-zugelassene Anschlußleitung mit CSA-Kennzeichnung, bestehend aus einer Dreileiterschnur des Typs SVT oder SJT mit einem Drahtdurchmesser von mindestens 18 AWG und einem anvulkanisierten IEC CEE-22 Buchsenstecker auf der einen Seite und einem anvulkanisierten Zwischenstecker mit Schutzkontakt für 15 A, 250 V Reihenschaltung auf der anderen Seite (6-15P).
  - Betrieb mit 230 Volt (außerhalb Nordamerikas): Verwenden Sie eine Leitungsschnur mit HAR-Kennzeichnung und dem Typenkurzzeichen HO5VV-F, die einen Nennquerschnitt von mindestens 0,75 mm<sup>2</sup> aufweist sowie mit einer IEC 320-Steckbuchse und einem im Vertriebsland passenden Stecker ausgestattet ist.
  - Diese Einheit enthält eine Lithiumbatterie.

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### **Vorsicht**

Bei falscher Anbringung der Batterie besteht Explosionsgefahr.

Es dürfen nur Batterien des von dem Hersteller empfohlenen oder äquivalenten Typs verwendet werden. Leere Batterien gemäß den Anweisungen des Herstellers entsorgen.

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# This Guide

... explains how to install the hardware and access the configuration and monitoring software on your 3000 Series Secure Gateway Router. It also provides information on monitoring the 3000 Series using its status lights, and it contains hardware specifications.

## Unpacking Your 3000 Series

You should find the following in your 3000 Series package:

- The 3000 Series Secure Gateway Router
- A rack mounting kit with two brackets and four screws
- *3000 Series User Guide* (this guide)
- A CD that contains the online documentation library
- Power cord (North America only)
- Console null modem cable with adapter

The CD (included with your 3000 Series) provides extensive information on how to configure and monitor your router using the command line interface.

The documentation is also available on the N<sup>x</sup> Networks Web site at [www.nxnetworks.com](http://www.nxnetworks.com).

To connect your router to the Internet or to any other wide area network (WAN), you need a WAN cable. This is a separately orderable item that you can purchase from N<sup>x</sup> Networks. For a list of available cables, see [Selecting a WAN Cable](#) on page 18.



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# Chapter 1

## Introducing the 3000 Series Secure Gateway Router

The 3000 Series Secure Gateway Router is a combined voice over packet gateway and network router in a single rack-mountable unit. It is a modular Voice over Internet Protocol (VoIP) unit that secures voice and data using firewalls, encryption, and authentication protocols.

The 3000 Series supports analog voice network connections. It also offers a variety of modules for wide area connectivity to the Internet or corporate networks. For local area connectivity the 3000 Series has a fixed 10BaseT Ethernet connection, and an optional 10BaseT Ethernet module.

The 3000 Series is available in two basic versions.

- **Data with Analog Voice** provides routing of your data along with up to four analog voice lines.
- **Data Only** provides routing of your data.

This chapter introduces you to your 3000 Series. It has the following sections.

**Modules** **2**

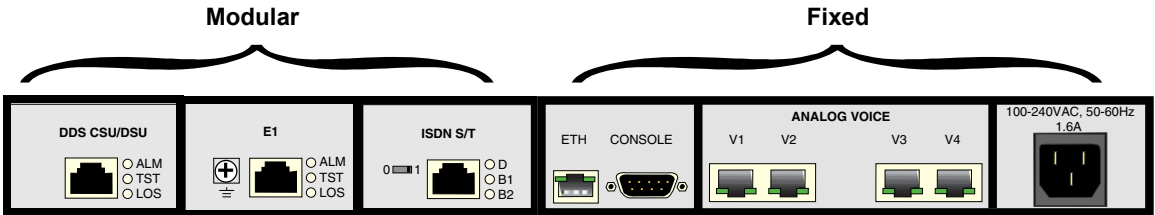
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**Data and Voice Features** **4**

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## Modules

The 3000 Series has fixed modules and connectors, as well as slots for three optional modules. Here is an example of the back panel of a 3000 Series.



### Fixed Modules

The 3000 Series has two fixed connectors:

- 10BaseT Ethernet—to connect to your LAN
- Console—to connect to a PC for configuring and monitoring the 3000 Series

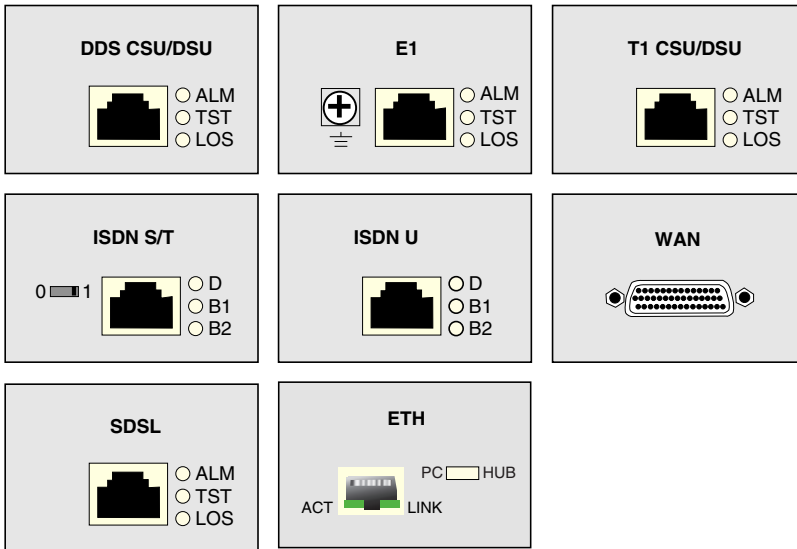
In addition, when you purchase your 3000 Series, you have the option of having an analog voice module installed. You cannot remove or replace the voice module.

### Optional Modules

The following illustration shows the optional modules you can install in your 3000 Series.

- You can install ISDN modules in slot D3.
- You can Ethernet modules in slots D1 and D2.
- You can install the WAN, DDS, E1, T1, or SDSL modules in any slot.





## Data and Voice Features

This section describes the data and voice networks that the 3000 Series supports.

### Data Capability

For routing data, the 3000 Series supports the following types of LANs and WANs.

#### LAN

The 3000 Series comes with a fixed Ethernet port that provides a 10BaseT Ethernet connection. It also offers an optional 10Base-T Ethernet module.

#### WAN

The 3000 Series supports the following types of WANs in its three modular slots.

- DDS CSU/DSU module for 56 Kbps/64 Kbps digital services.
- T1/Fractional T1 CSU/DSU module for 56 Kbps to 1.536 Mbps digital services.
- E1/Fractional E1 module for 64 Kbps to 2.048 Mbps digital services.
- ISDN U with two B and one D channels and with a built-in Network Termination (NT1) device.
- ISDN S/T module with two B and one D channels.
- SDSL module for serial communication up to 2.048 Mbps.
- A standard WAN module (RS-232/V.35/X.21) that lets you connect to a Frame Relay network or run the Point-to-Point Protocol (PPP) over either a leased or a dialup telephone line.

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## Voice Capability

You have the option of ordering a 3000 Series with two or four analog ports. The voice ports offer the following features.

- Voice support for FXO (foreign exchange office), FXS (foreign exchange service), or E&M (ear and mouth).
- H.323 voice encapsulation standard, including H.225.Ov2 and H.245v.4 standards.
- Switched Frame Transfer Mode (SFTM) technology, which lets you switch voice and data traffic over the same lines.

## Analog Voice

The analog voice module provides up to four ports that let you connect voice and fax telephone equipment or analog PBX equipment to your 3000 Series.



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## Chapter 2

# Connecting Your 3000 Series Secure Gateway Router

This chapter provides the steps for mounting your 3000 Series in a rack and setting up your hardware connections. It has the following sections.

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<b><a href="#">What's Next?</a></b>	<b>10</b>
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## Before You Begin

You can order your 3000 Series Secure Gateway Router either with the modules you want already installed, or you can order the modules separately and install them yourself. For instructions on installing the optional modules, see [Appendix B](#).

You have the option of mounting your 3000 Series in a rack. See [Mounting the 3000 Series in a Rack](#) on page 9.

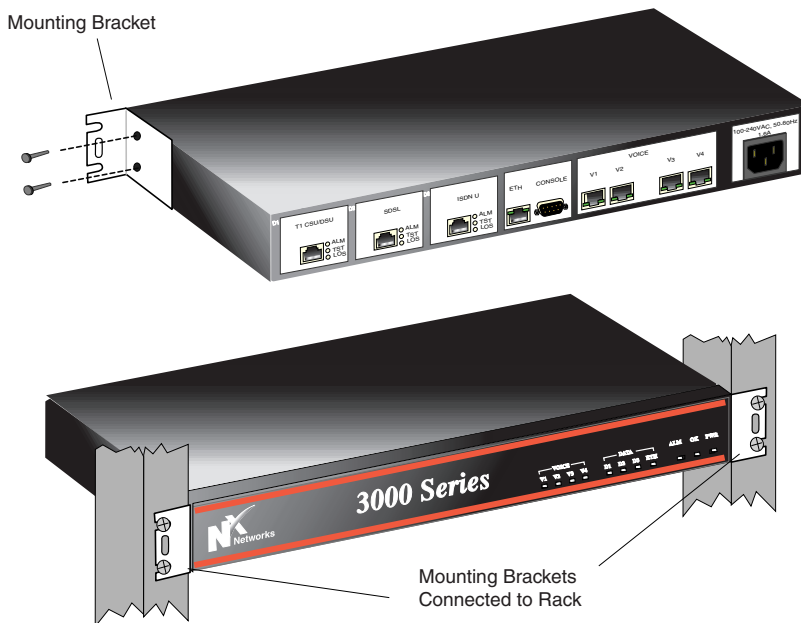
Depending on the modules installed in your particular 3000 Series, you need the following cables. With the exception of a console cable to connect a PC to your 3000 Series, these cables are not supplied.

To connect . . .	You need . . .
<a href="#">Analog Voice module</a>	The type of cable you use depends on the interface type that the equipment you connect to supports. Compliance with applicable regulations depends on the use of shielded cables.
<a href="#">DDS module</a>	RJ-48S, 8-conductor straight-through cable.
<a href="#">Ethernet</a>	<b>Ethernet 10BaseT (Unshielded Twisted Pair) straight-through cable.</b>
<a href="#">Fractional E1 module</a>	Cable with an RJ-48C connector (TIA 568B compatible).
<a href="#">Fractional T1 module</a>	Cable with an RJ-48C connector (TIA 568B compatible).
<a href="#">ISDN module</a>	RJ-45, 8-conductor straight-through cable. For ISDN S/T modules, you also need an external NT1 device and the appropriate cable to connect the NT1 to the ISDN wall jack. The cable for this connection depends on the NT1 device.
<a href="#">SDSL module</a>	Cable with an RJ-48C connector (TIA 568B compatible).

To connect . . .	You need . . .
<b>To a PC or terminal</b>	Console null-modem cable with adapter to connect a PC or terminal to your gateway router. (Supplied with your 3000 Series.)
<b>WAN module</b>	The appropriate serial WAN cable(s).  The 3000 Series supports only N <sup>x</sup> Networks WAN cables. See <b>Selecting a WAN Cable</b> on page 18 for a list of WAN cables.

## Mounting the 3000 Series in a Rack

You can mount the 3000 Series in a rack. The 3000 Series comes with two mounting brackets and four screws. You can attach the brackets to connect either the front of the unit or the back of the unit to the rack.



## What's Next?

The following sections show how to connect your gateway router to each type of network.

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<b>DDS network</b>	13
<b>E1 network</b>	13
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<b>WAN</b>	18
<b>PC (Console)</b>	22

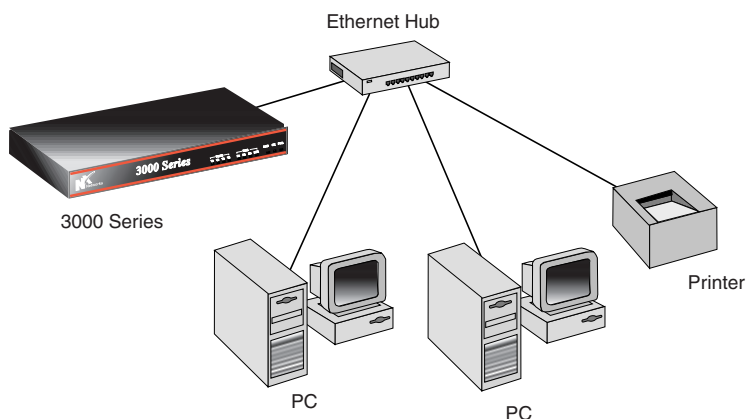


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## Connecting to an Ethernet

To connect your 3000 Series to an Ethernet network,

1. Connect one end of an Ethernet 10BaseT (UTP) straight-through cable to the ETH connector in the 3000 Series fixed slot.
2. Connect the other end of the cable to an Ethernet 10BaseT hub.



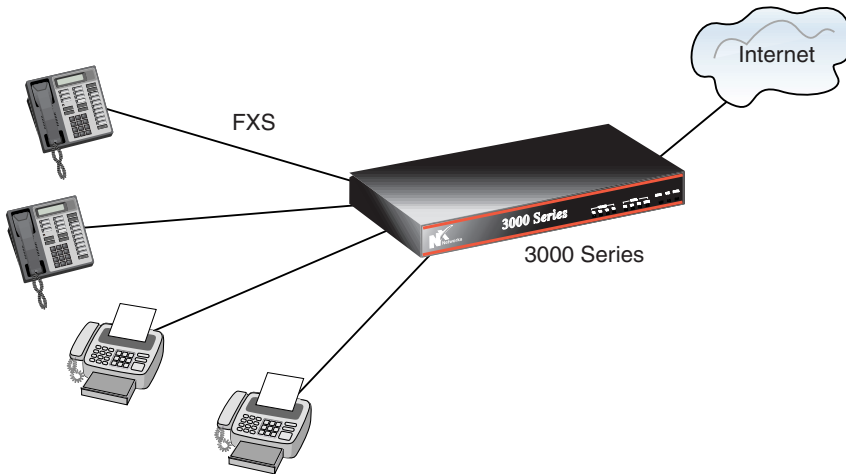
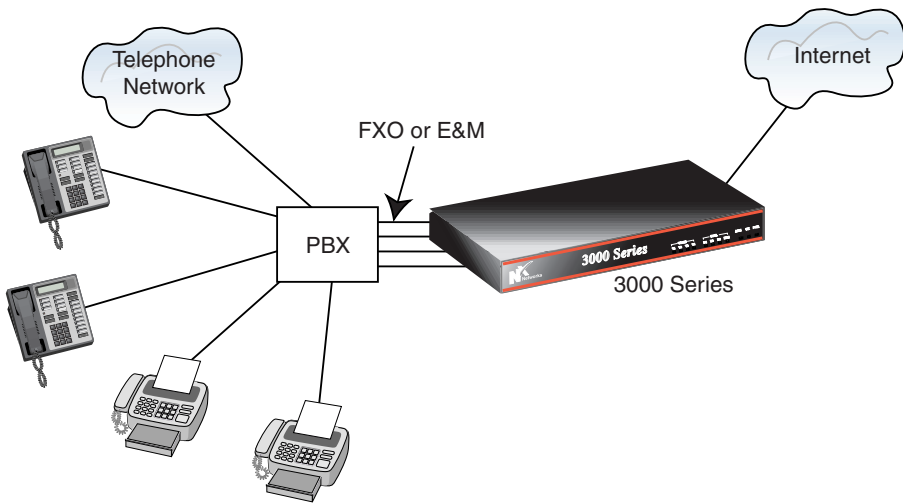
## Connecting to an Analog Voice Network

**Note:** You cannot connect the analog voice module directly to the external network.

The type of cable you use depends on the interface type that the equipment you connect to supports. For compliance with applicable regulations, you need to use shielded cables.

To connect your 3000 Series to your PBX or voice or fax telephone equipment,

1. Connect one end of the cable to the RJ-45 connector on the 3000 Series.
2. Connect the other end of the cable to the PBX, telephone, or fax device.



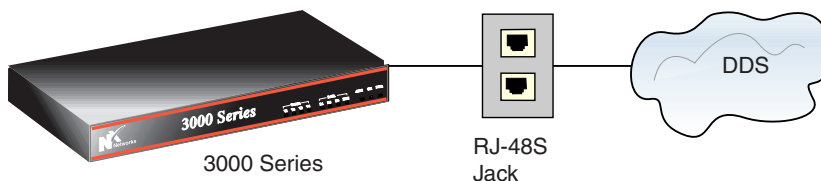
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## Connecting to a DDS Network

To connect to a leased-line DDS network,

1. Connect one end of the unshielded twisted pair (UTP) RJ-48S cable to the CSU/DSU connector on the DDS CSU/DSU module.
2. Connect the other end of the cable to an RJ-48S network interface jack provided by your service provider.

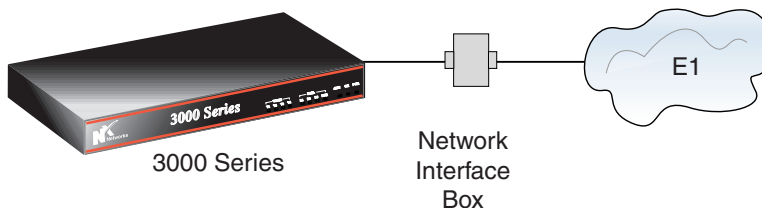
The following figure shows the connection between the DDS module and a DDS network.



## Connecting to an E1 Network

To connect to an E1 network,

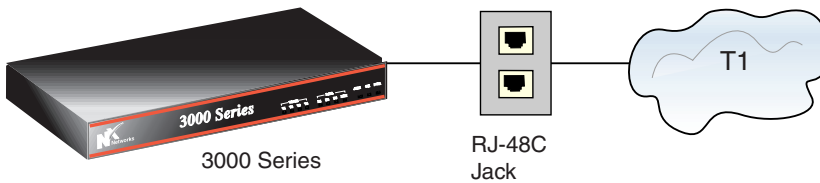
1. Attach one end of a grounding wire to the GND (ground) on the E1 module and then attach the other end to a system ground. (Optional)
2. Connect one end of the unshielded twisted pair (UTP) RJ-48C cable to the E1 connector on the E1 module.
3. Connect the other end of the cable to the service provider's network interface box.



## Connecting to a T1 Network

To connect to a T1 network,

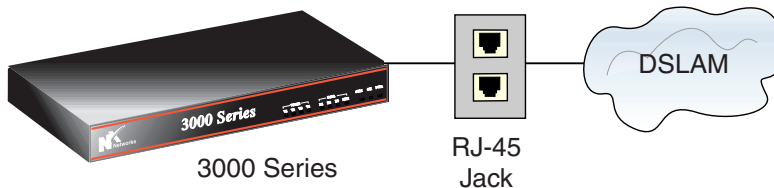
1. Connect one end of the unshielded twisted pair (UTP) RJ-48C cable to the T1 connector on the T1 DSU/CSU module.
2. Connect the other end of the cable to an RJ-48C network interface jack provided by your service provider.



## Connecting to an SDSL Network

To connect to a Digital Subscriber Loop Access Multiplexor (DSLAM),

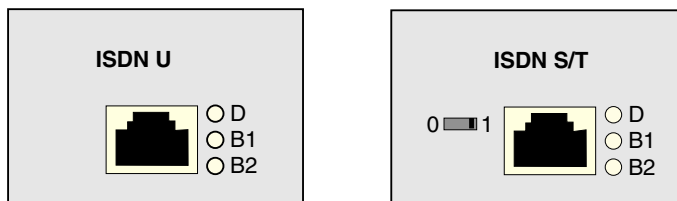
1. Connect one end of the unshielded twisted pair (UTP) RJ-48C cable to the connector on the SDSL module.
2. Connect the other end of the cable to an RJ-48C network interface jack provided by your service provider.



---

## Connecting to an ISDN Line

How you make the connection from your 3000 Series to an ISDN line depends on whether your ISDN module is an ISDN U or ISDN S/T module. Check the back panel of your gateway router to identify the ISDN module installed.



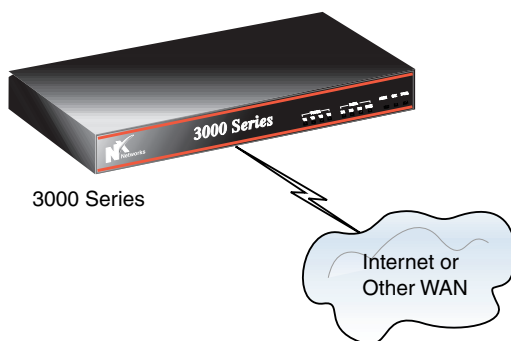
### ISDN U Module

**Note:** You can install this module only in slot 3 (D3).

The ISDN U module has a built-in Network Termination (NT1) device. The NT1 provides for a direct connection to the ISDN network. When you use the ISDN U module, you cannot use any other ISDN device on the ISDN line.

To connect your ISDN U module,

1. Connect one end of the RJ-45 ISDN cable (not supplied with your router) to the RJ-45 ISDN connector on your ISDN U module.
2. Connect the other end of the ISDN cable directly into an ISDN wall jack.



---

### Caution

You can also use an RJ-11 cable with a regular analog telephone to connect the 3000 Series to the ISDN wall jack.

N<sup>x</sup> Networks discourages using an RJ-11 cable for this purpose, however, because you may inadvertently plug the 3000 Series into a normal telephone jack rather than into an ISDN wall jack. This can damage the 3000 Series.

---

## ISDN S/T Module

### Notes:

- You can install this module only in slot 3 (D3).
- You must connect to the ISDN network via a line isolation unit (NT1 device).

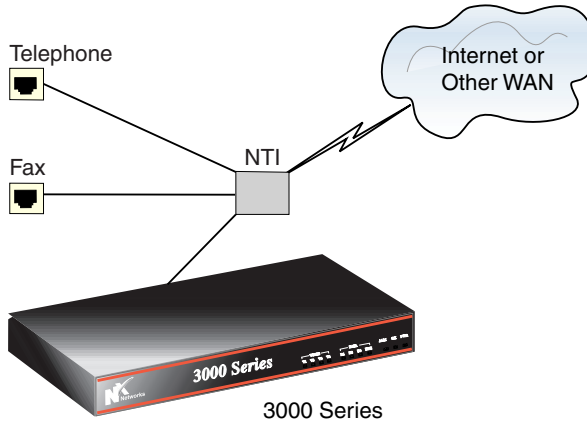
The S/T module does not have a built-in NT1 device. You must provide an external NT1 device. A typical NT1 device looks like a small modem and has S/T port(s) and a U interface on the back of it.

The ISDN S/T module can co-exist with other ISDN equipment using the same ISDN line.

To connect your ISDN S/T module,

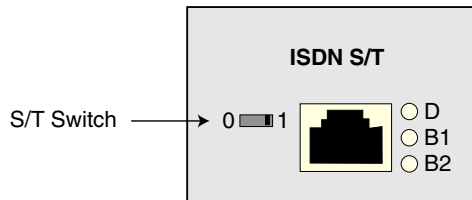
1. Connect one end of the RJ-45 ISDN cable (not supplied with your router) to the RJ-45 ISDN connector on the ISDN S/T module.
2. Connect the other end of the ISDN cable to the S/T port on the NT1 device.
3. Set the S/T terminator switch on the ISDN module to the appropriate position. See [Setting the S/T Switch](#) on page 17.

- 
4. Connect one end of an ISDN cable to the NT1 U interface port and the other end to the ISDN wall jack. The ISDN cable for this connection is dependent on your NT1 device.

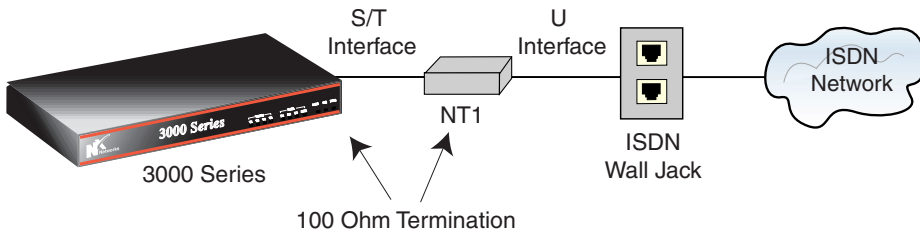


## Setting the S/T Switch

There is an S/T switch on the ISDN S/T module. You can slide the switch to 0 or 1. Setting the switch to 0 means that no terminating resistor is in use. Setting the switch to 1 means that the ISDN S/T module terminates the ISDN cable with a 100-ohm resistor.



For point-to-point connections (shown in the following figure), set the switch to 1. For all other configurations, consult your NT1 manual for the proper setting. In a point-to-point connection, there is one ISDN device on an ISDN line.



## Connecting to a WAN

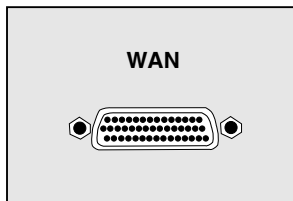
To connect your 3000 Series to the Internet or another WAN using the standard WAN module, use Point-to-Point Protocol (PPP) over either a dedicated (leased) or a dialup telephone line or use a Frame Relay network.

## Selecting a WAN Cable

You must purchase the appropriate cable from a N<sup>x</sup> Networks vendor. The type of WAN cable you use depends on the interface type that the equipment you connect to supports.

To connect to a device that has a

- Data Communications Equipment (DCE) connector, use a Data Terminal Equipment (DTE) cable.
- DTE connector, use a DCE cable.



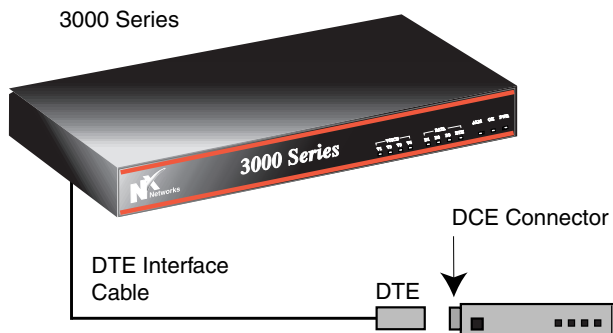


To be sure that you are using the proper cable to connect your WAN module, check the part number on the cable with the information in the following table.

To connect the standard WAN module to . . .	Use cable type . . .	Part Number
an external asynchronous modem.	RS-232 DTE	P4730-09
an external synchronous modem, a modem eliminator, or a CSU/DSU. (Whether you use RS-232, V.35, or X.21, depends on which type of communication the equipment you connect to supports.)	RS-232 DTE	P4730-09
	V.35 DTE	P4730-08
	X.21 DTE	P4730-10
another router that has a DTE connector. (In this case, you must set up the 3000 Series to provide clocking.) (Whether you use RS-232, V.35, or X.21, depends on which type of communication the equipment you connect to supports.)	RS-232 DCE	P4730-12
	V.35 DCE	P4730-11
	X.21 DCE	P4730-13

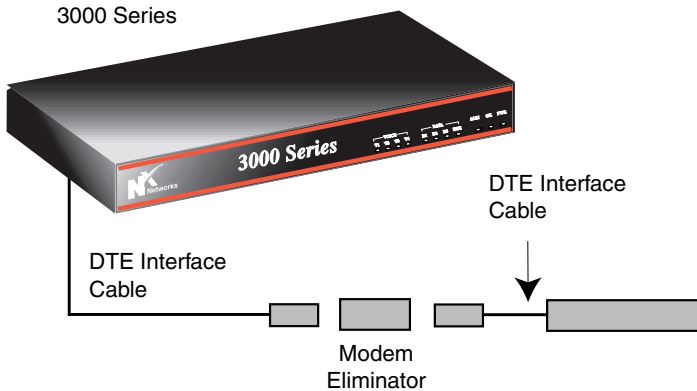
The following three figures show possible DTE/DCE connections.

This figure shows a DTE cable connection to a device with a DCE connector.



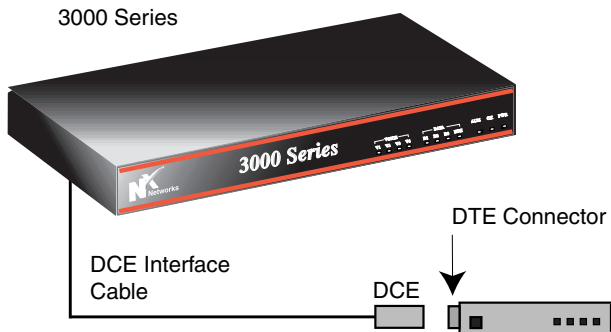
In this configuration, the CSU/DSU or modem provides clocking. You can use V.35, RS-232, or X.21 cabling.

This figure shows DTE cable connections to a device (modem eliminator) with a DCE connector.



In this configuration, the modem eliminator provides clocking. You can use V.35, RS-232, or X.21 cabling.

This figure shows a DCE cable connection to a device with a DTE connector.



In this configuration, the router provides clocking. You can use V.35, RS-232, or X.21 cabling.

---

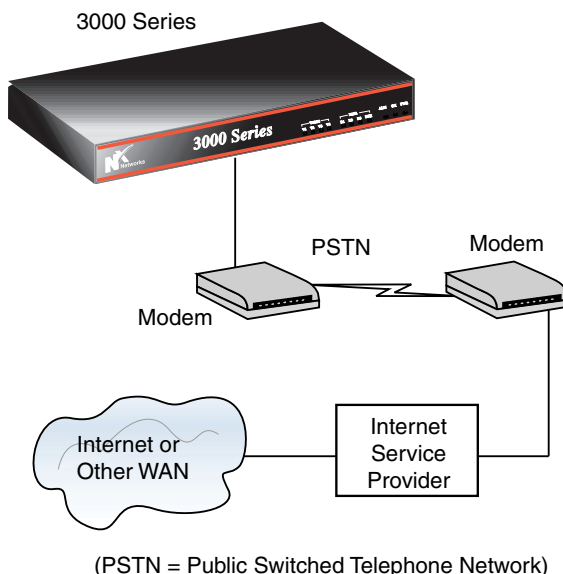
## Connecting to a PPP WAN

To connect the WAN module to a PPP WAN,

1. Connect the module to an external modem.

**Note:** The 3000 Series support both asynchronous and synchronous modems.

2. Connect the modem to the telephone line with an RJ-11 cable.



## Connecting to a Frame Relay WAN

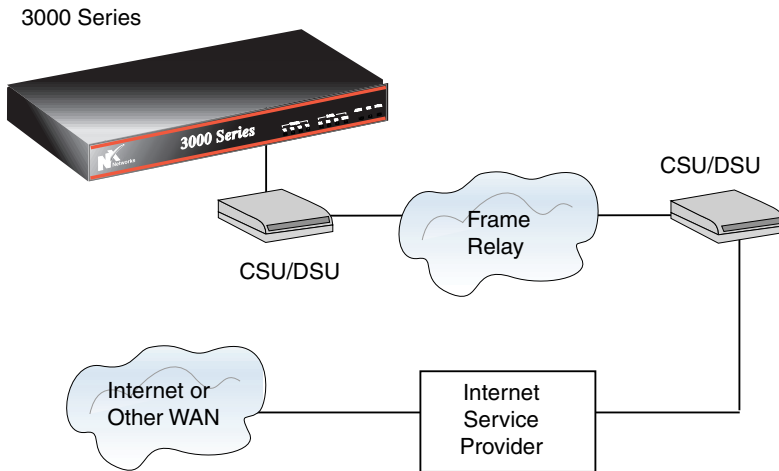
To connect the WAN module to a Frame Relay WAN,

1. Connect the module to an external Channel Service Unit/Digital Service Unit (CSU/DSU).

You can purchase the appropriate cable from N<sup>x</sup> Networks. See [Selecting a WAN Cable](#) on page 18.

**Note:** The 3000 Series works with any of the major CSU/DSU products on the market.

2. Connect the CSU/DSU to the Frame Relay switch.



## Connecting to a PC

To configure and monitor the 3000 Series through its console port, you can connect a PC or terminal to the console port. (You can also configure and monitor the router by connecting to its Ethernet port. See [Configuring Your 3000 Series Secure Gateway Router](#) on page 25.)

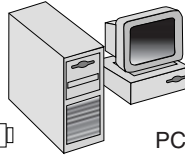
To connect a PC or terminal locally to the gateway router, use the 9-pin to 9-pin null modem cable that comes with the 3000 Series and, if needed, the 9-pin to 25-pin adapter. The following figure shows how to connect a PC or terminal directly to the 3000 Series.

1. Connect one end of the null-modem cable to the Console connector on the back panel of your gateway router.
2. Connect the other end of the cable to your PC.

3000 Series



9-pin to 9-pin Null  
Modem Cable



9-pin to 9-pin adapter  
(Use if you need to connect  
to a 25-pin connector on the PC.)





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## Chapter 3

# Configuring Your 3000 Series Secure Gateway Router

This chapter introduces the software tools available for configuring and monitoring your 3000 Series. It includes the following topics.

<b>Configuration Tools</b>	<b>26</b>
<b>Before Starting</b>	<b>27</b>
<b>Using QuickWeb</b>	<b>28</b>
<b>Using Quick Config and the Command Line Interface</b>	<b>29</b>

## Configuration Tools

You receive your 3000 Series with software already installed. The actual software installed depends on the software package that you purchased.

You can use one of the following tools to configure your gateway router:

- **QuickWeb**  
QuickWeb is a software tool that lets you configure your router using a Web browser. QuickWeb software resides on your router.
- **Quick Config**  
A question and answer script that lets you set basic configuration information. It is part of the Command Line Interface.
- **Command Line Interface (CLI)**  
Provides full configuration capabilities that let you further customize your router's configuration.

## Connecting to the 3000 Series

The 3000 Series comes with a preconfigured LAN IP address of 192.168.1.1 set to its fixed Ethernet port. If there is a Dynamic Host Configuration Protocol (DHCP) server on your network, your router receives its IP address dynamically from the server.

To configure your 3000 Series, you can

- Connect to the 3000 Series over your Ethernet network. You can then run Telnet to IP address 192.168.1.1, which is the preconfigured address of the fixed Ethernet port.
- Connect a PC to the 3000 Series console port. You can then connect to the 3000 Series using a terminal emulator. See [Connecting to a PC](#) on page 22.



---

## Before Starting

You also need certain information to configure your router. The following worksheets, found in [Appendix C](#) on page 59, help to identify the basic information you need for configuring your router.

<b>Worksheet</b>	<b>When needed?</b>
<a href="#">IP Addressing</a>	Always
<a href="#">Dialup PPP</a>	When using PPP over your WAN connection
<a href="#">Frame Relay</a>	When using Frame Relay over your WAN connection
<a href="#">ISDN</a>	When using ISDN

## Using QuickWeb

You can use QuickWeb, the configuration tool that comes as part of your router's software, to configure your router.

To run QuickWeb . . .

1. Launch your World Wide Web browser.

N<sup>x</sup> Networks recommends that you use Internet Explorer 4.0 or later. (If you are using Netscape Navigator, use version 4.0 or later.)

2. Enter the following in the Address (or Location) text box on your browser. QuickWeb is case sensitive.

**http://192.168.1.1/QuickWeb**

192.168.1.1 is the default IP address of the 3000 Series fixed Ethernet port. If you change the IP address of the Ethernet port, you will need to use that new address to run QuickWeb in the future.

3. Follow the onscreen instructions to begin using QuickWeb.

If you need any information on any of the router's parameters or options, check the Help available with QuickWeb.

4. When you finish configuring your router, restart the router for the configuration settings to take effect.

---

# Using Quick Config and the Command Line Interface

You can use a PC connected to the router's Console port to configure your router. The PC must be running a terminal emulation program.

## Using a Terminal Emulator

If you are running Windows 95 or 98 or Windows NT 4.0, you can use the HyperTerminal application.

To set up HyperTerminal . . .

1. Click the Start button and select **Programs, Accessories, and HyperTerminal**.
2. In the Connection description window, enter **gt** in the Name field and select any icon to represent your terminal emulation.
3. In the Connect to dialog screen, in the Connect using field, select the appropriate COM port to use.
4. In the COM1 Properties screen, select the following settings:
  - a. Bits per second: **9600**
  - b. Data bits: **8**
  - c. Parity: **None**
  - d. Stop bits: **1**
  - e. Flow control: **None**

## Using Quick Config

Quick Config presents a series of parameters for you to configure. You can enter your own responses or accept the default settings.

To run Quick Config, follow these steps.

1. At the \* prompt, enter **config** to display the `Config>` prompt.

```
* config
Config>
```

2. Enter **qconfig** at the `Config>` prompt to begin Quick Config.
3. Proceed through the Quick Config questions to set (or change) the parameters you need for your particular configuration.

To exit Quick Config, type **r** for restart at any prompt and follow the queries until you type **no** and then **q** for **quit**.

## Using the Command Line Interface

You can get extensive documentation on the Command Line Interface (CLI) software that runs on the 3000 Series. This documentation is available on the Online Library CD included in your 3000 Series package and also on the N<sup>x</sup> Networks Web site at [www.nxnetworks.com](http://www.nxnetworks.com).

## Accessing the 3000 Series Documentation Set

On the N<sup>x</sup> Networks Web site ([www.nxnetworks.com](http://www.nxnetworks.com)),

1. Click Support Services.
2. Click User Documentation.

You now have access to an online version of this manual and also to the complete set of software documentation.

---

## Chapter 4

# Monitoring Your 3000 Series Secure Gateway Router

You can monitor your 3000 Series by checking the status lights on the front panel of your gateway router and also on the connectors and modules on the back panel of your gateway router.

<b>Front Panel</b>	<b>32</b>
<b>Analog Voice Module</b>	<b>35</b>
<b>DDS CSU/DSU Module</b>	<b>36</b>
<b>E1 Module</b>	<b>37</b>
<b>Ethernet Fixed Connector</b>	<b>38</b>
<b>Ethernet Module</b>	<b>39</b>
<b>ISDN Modules</b>	<b>40</b>
<b>SDSL Module</b>	<b>41</b>
<b>T1 CSU/DSU Module</b>	<b>42</b>

## Front Panel

The status lights on the front of the 3000 Series indicate the current overall status of the gateway router, as well as the status of the data ports and the voice ports.



Light	State	Indicates . . .
<b>PWR (Power)</b>	On	Power supply is operating within its specifications.
	Blinking	Bad power supply.
	Off	Power is turned off, or power supply is bad.
<b>OK</b>	On	3000 Series is running its operational software.
	Blinking	3000 Series is running its diagnostic or startup (BOOT) software.
	Off	3000 Series is not running.

---

<b>Light</b>	<b>State</b>	<b>Indicates . . .</b>
<b>ALM</b>	On	The 3000 Series detected a noncatastrophic hardware failure during power up.
	Off	Power is turned off or unit powered up okay.

---

## Data Ports

There are four lights on the front panel that indicate the status of the data ports.

<b>Light</b>	<b>State</b>	<b>Indicates . . .</b>
<b>ETH (Ethernet)</b>	On	LAN connection to your local network is up.
	Blinking	3000 Series is sending and receiving user data on its LAN link.
	Off	Ethernet connection is not running.
<b>D1 D2 D3</b>	On	Status of optional modules installed in slots 1, 2, and 3. Connection is up, and the 3000 Series is sending maintenance data to the remote device on its link.
	Blinking	3000 Series is sending and receiving user data on its link.
	Off	Module installed in the particular slot is not running, or no module is installed.

---

## Voice Ports

There are four lights on the front panel that indicate the status of the voice ports. Analog voice modules can have either two or four ports. Lights V1 and V2 apply to the two-port model. Lights V1, V2, V3, V4 apply to the four-port model.

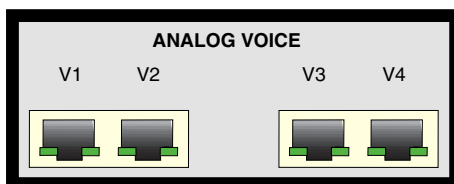
<b>Light</b>	<b>State</b>	<b>Indicates . . .</b>
<b>V1, V2,</b>	On	Call is active
<b>V3, or V4</b>	Off	Call is not active



---

## Analog Voice Module

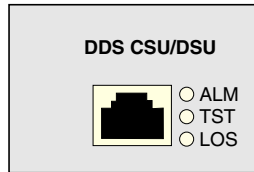
Each port of the fixed Analog Voice module has two status lights.



Light	State	Indicates . . .
<b>Off</b>		Channel is not configured
<b>Green</b>	On	Channel is idle
	Slow Blink	Call is active
	Fast Blink	Call is being set up (seizure inbound or outbound)
<b>Red</b>	On	Channel busied out (outbound seizure to block incoming calls)
	Blinking	No PBX response (no inbound response to outbound seizure)

## DDS CSU/DSU Module

This module has three amber status lights.

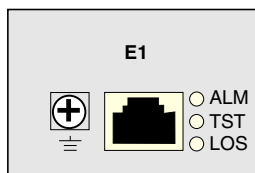


<b>Light</b>	<b>Indicates . . .</b>
<b>ALM</b>	Alarm condition indicating the loss of loop current, bipolar violations, loss of signal, out of service/out of sync, out of frame, and unmatched control code.
<b>TST</b>	Module is in loopback test mode.
<b>LOS</b>	Loss of signal indicating that the module is unable to sync to the incoming data stream.

---

## E1 Module

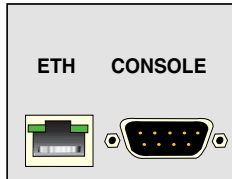
This module has three amber status lights.



Light	Indicates . . .
<b>ALM</b>	Alarm condition indicating the following: <ul style="list-style-type: none"><li>• Alarm Indicator Signal (AIS)</li><li>• Remote Alarm Indicator (RAI)</li><li>• Loss of Carrier, Loss of Signal</li></ul>
<b>TST</b>	Module is in loopback test mode.
<b>LOS</b>	Loss of sync indicating that the module is unable to sync to the incoming data stream.

## Ethernet Fixed Connector

The fixed Ethernet connector has two status lights. The left one is for link status, and the right one is for traffic activity status.

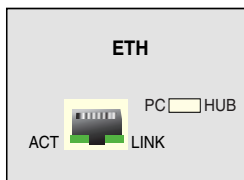


Light	State	Indicates . . .
<b>Left (Link Status)</b>	On	Ethernet connection is established.
	Blinking	N/A
	Off	No Ethernet connection established.
<b>Right (Activity Status)</b>	On	N/A
	Blinking	Traffic is being sent or received over the Ethernet connection.
	Off	N/A

---

## Ethernet Module

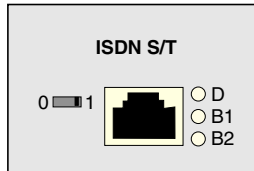
The Ethernet module has two status lights, one for link status and one for traffic activity status.



Light	State	Indicates . . .
<b>LNK (Link Status)</b>	On	Ethernet connection is established.
	Blinking	N/A
	Off	No Ethernet connection established.
<b>ACT (Activity Status)</b>	On	N/A
	Blinking	Traffic is being sent or received over the Ethernet connection.
	Off	N/A

## ISDN Modules

There are three green status lights on the ISDN U and S/T modules. These lights indicate the ISDN BRI status of the two B and one D channels. Both B and D channel lights go off when you restart the gateway router.

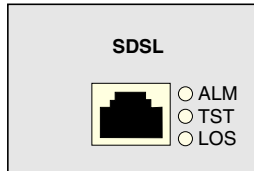


Light	State	Indicates . . .
<b>D</b>	On	ISDN S/T module is linked to the telephone company.
	Blinking	Traffic is on the D channel.
	Off	ISDN S/T module is not linked to the telephone company. This is an error in North America but okay in Europe.
<b>B1</b>	On	Call established on the B1 channel.
	Blinking	Traffic is on the B1 channel.
	Off	B1 channel is not in use or is idle.
<b>B2</b>	On	Call established on the B2 channel.
	Blinking	Traffic is on the B2 channel.
	Off	B2 channel is not in use or is idle.

---

## SDSL Module

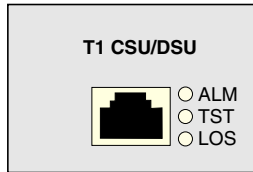
This module has three amber status lights.



Light	Indicates . . .
<b>ALM</b>	Alarm condition indicating a loss of communication between the SDSL module and the host processor.
<b>TST</b>	Module is in loopback test mode.
<b>LOS</b>	Loss of sync indicating that the module is not activated with the DSLAM (Digital Subscriber Loop Access Multiplexor).

## T1 CSU/DSU Module

This module has three amber status lights.



Light	Indicates . . .
<b>ALM</b>	Alarm condition indicating standard blue, yellow, or red alarm conditions.
<b>TST</b>	Module is in loopback test mode.
<b>LOS</b>	Loss of sync indicating that the module is unable to sync to the incoming data stream.



---

# Appendix A

## Specifications

This appendix provides the specifications for the 3000 Series Secure Gateway Router and each of its modules.

<b><a href="#">3000 Series Secure Gateway Router Specifications</a></b>	<b>44</b>
<b><a href="#">Analog Voice Module Specifications</a></b>	<b>45</b>
<b><a href="#">DDS CSU/DSU Module Specifications</a></b>	<b>46</b>
<b><a href="#">E1 Module Specifications</a></b>	<b>46</b>
<b><a href="#">Ethernet Module Specifications</a></b>	<b>47</b>
<b><a href="#">ISDN Module Specifications</a></b>	<b>47</b>
<b><a href="#">SDSL Module Specifications</a></b>	<b>48</b>
<b><a href="#">T1 CSU/DSU Module Specifications</a></b>	<b>49</b>
<b><a href="#">WAN Module Specifications</a></b>	<b>49</b>

## 3000 Series Secure Gateway Router Specifications

<b>Processor</b>	MC 68EN360, 33 MHz
<b>Memory</b> <b>DRAM</b> <b>Flash</b>	8 MB (expandable to 24, 40, or 72 MB) 8 MB
<b>VPN</b>	Optional hardware assist for data encryption, authentication, and compression
<b>Input/Output Interfaces</b>	Console, RS-232 async Ethernet 10BaseT 3 modular slots for data routing Optional voice interface with either 2- or 4-port analog
<b>Dimensions</b>	17.25 x 10 x 1.75 inches
<b>Weight</b>	10 lbs
<b>Power</b>	100-240 VAC 50-60 Hz 1.4A MAX
<b>Operating Temperature</b>	41-105 degrees F 5-41 degrees C
<b>Relative Humidity</b>	8-80%
<b>Heat Dissipation</b>	60 Watts, maximum 205 BTUs

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<b>Agency Approvals</b>	EMI—	FCC Part 15 Class A; CISPR 22 Class A; EN55022
	Telecom—	FCC Part 68, CS03, CTR2, I-CTR3, CTR 12/A1, CTR13
	Safety—	UL 1950, CSA 22.2, TS.001, AS/NZS3260, EN60950 CB scheme for all countries
	Immunity—	IEC 801-2, 801-3, 801-4

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## Analog Voice Module Specifications

The following table lists the specifications for the analog voice module.

<b>Interface Types</b>	<ul style="list-style-type: none"> <li>• Two-wire FXS loop/start</li> <li>• Two-wire FXO loop/ground start and two-wire FXS loop/start</li> <li>• Two-wire FXO loop/ground start</li> <li>• Two- or four-wire E &amp; M type I, II, and V</li> </ul>
<b>Dialing</b>	DTMF or pulse (10 or 20 pps)
<b>Co-processor</b>	MPC850, 50 MHz
<b>Signalling</b>	Wink start, delay dial, immediate start, hoot and holler, and phone
<b>Indicator</b>	One multicolored status LED

## DDS CSU/DSU Module Specifications

The following table lists the specifications for the DDS CSU/DSU module.

<b>Speed</b>	56 or 64 Kbps, primary channel
<b>Protocol</b>	Sync, full duplex
<b>Connector</b>	RJ-48S
<b>Indicators</b>	Alarm, Test Mode, Loss of Synchronization
<b>Diagnostics</b>	CSU loopback, DSU non-latching loopback (except 64 Kbps mode)
<b>Clocking</b>	Internal, Network
<b>Line Coding</b>	AMI, B8ZS
<b>FIC</b>	04DUS-56
<b>SOC</b>	6.0N

## E1 Module Specifications

The following table lists the specifications for the E1 module.

<b>Speed</b>	2.048 Mbps
<b>Data Rate</b>	N x 64 Kbps up to 2.048 Mbps
<b>Impedance</b>	120 ohm
<b>Connector</b>	RJ-48C
<b>Indicators</b>	Alarm, Test Mode, Loss of Synchronization
<b>Diagnostics</b>	Local, remote, and V.54 loopbacks
<b>Clocking</b>	Internal, Network
<b>Line Coding</b>	HBD3
<b>Line Framing</b>	G.704, Structured & Unstructured

---

## Ethernet Module Specifications

The following table lists the specifications for Ethernet module.

<b>Interface</b>	IEEE 802.3, 10BaseT With signal crossover switch
<b>Connector</b>	RJ-45
<b>Indicators</b>	Activity, Link status

## ISDN Module Specifications

### ISDN U

The following table lists the specifications for the ISDN U module.

<b>Standards</b>	ANSI T1.601
<b>Data Rate</b>	144 Kbps
<b>Data Structure</b>	2B + D
<b>Bit Rate</b>	160 Kbps
<b>Connector</b>	RJ-49C
<b>Indicators</b>	D Channel Status, (2) B Channel Status
<b>Line Coding</b>	2B1Q
<b>FIC</b>	02IS5
<b>SOC</b>	6.0N

## ISDN S/T

The following table lists the specifications for the ISDN S/T module.

<b>Standards</b>	CCITT I.430
<b>Data Rate</b>	144 Kbps
<b>Data Structure</b>	2B + D
<b>Bit Rate</b>	192 Kbps
<b>Connector</b>	RJ-61x, 2-pair conductor
<b>Indicators</b>	D Channel Status, (2) B Channel Status
<b>Line Coding</b>	Pseudo-tenary

## SDSL Module Specifications

The following table lists the specifications for the SDSL module.

<b>Line Speed</b>	144 Kbps to 2.320 Mbps
<b>Interface</b>	Single pair
<b>Connector</b>	RJ-48C
<b>Indicators</b>	Alarm, Test Mode, Loss of Synchronization
<b>Signalling</b>	2B1Q
<b>Impedance</b>	135 ohm
<b>Diagnostics</b>	Local and remote loopback

---

## T1 CSU/DSU Module Specifications

The following table lists the specifications for the T1 CSU/DSU module.

<b>Speed</b>	1.544 Mbps
<b>Data Rate</b>	N x 56 Kbps, N x 64 Kbps up to 1.536 Mbps
<b>Impedance</b>	100 ohm
<b>Connector</b>	RJ-48C
<b>Indicators</b>	Alarm, Test Mode, Loss of Sync
<b>Diagnostics</b>	Local, remote, and V.54 loopbacks
<b>Clocking</b>	Internal, Network
<b>Line Coding</b>	B8ZS
<b>Line Framing</b>	Extended Super Frame (ESP)
<b>Transmit LBO</b>	0 to -22dB
<b>FIC</b>	04DU9-BN, DN, 1KN, 1SN
<b>SOC</b>	6.0N

## WAN Module Specifications

The following table lists the specifications for the WAN module.

<b>WAN Speed</b>	4.8 Kbps to 2.048 Mbps
<b>Interfaces</b>	V.35, RS232/V.24, X.21 (DTE and DCE)
<b>Connector</b>	DB 44 Use the appropriate external WAN cable. See <a href="#">Selecting a WAN Cable</a> on page 18





---

# Appendix B

## Installing Modules and SIMMs

This appendix provides the procedures for installing optional modules in the 3000 Series Secure Gateway Router and for installing and removing a SIMM.

---

### Caution

Before following the procedures in this appendix, see the [Safety Information](#) on page v.

---

<a href="#">Installing a Module</a>	<a href="#">52</a>
<a href="#">Installing a SIMM</a>	<a href="#">56</a>
<a href="#">Removing a SIMM</a>	<a href="#">57</a>

## Installing a Module

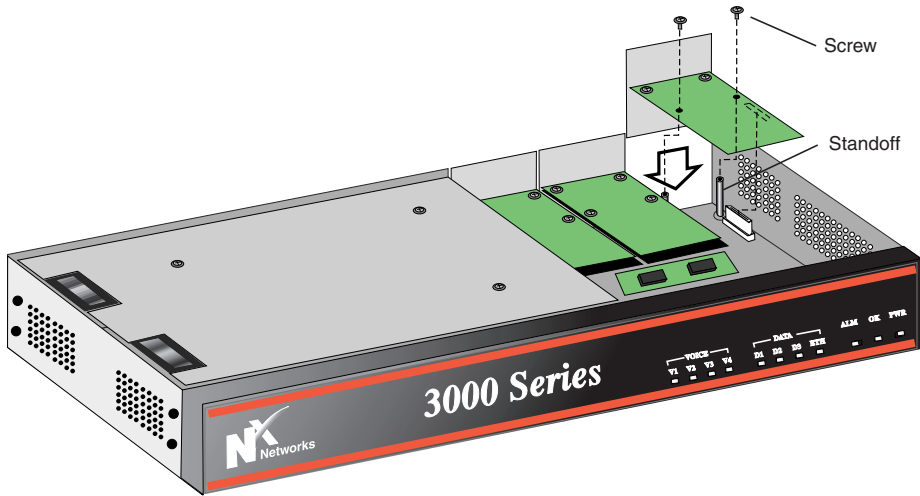
The procedure for installing a module in a 3000 Series is basically the same for all the modules.

### To install a module . . .

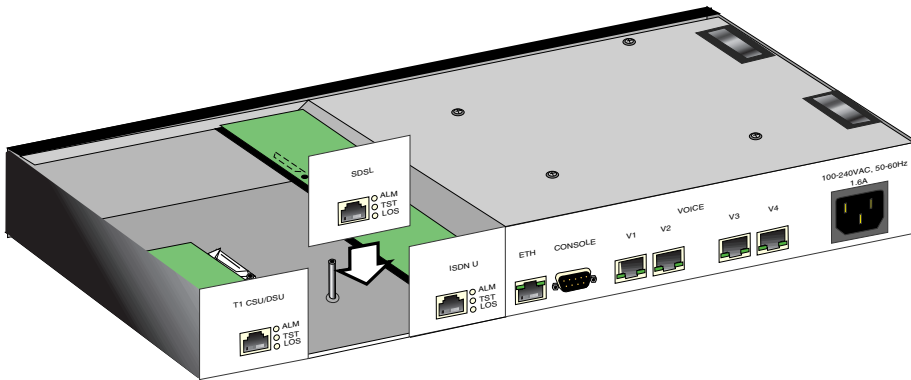
1. Turn off power to your 3000 Series.
2. Disconnect all network connections, including connections to the telephone system.
3. Remove the cover by unscrewing the two screws on each side of the unit and the three screws on the underside of the unit's chassis and lifting off the cover.
4. Remove the screws from the standoffs of the slot that you want to use.
5. Remove the module retaining bar by removing the three fastening screws.
6. Place the module in the slot that you want.

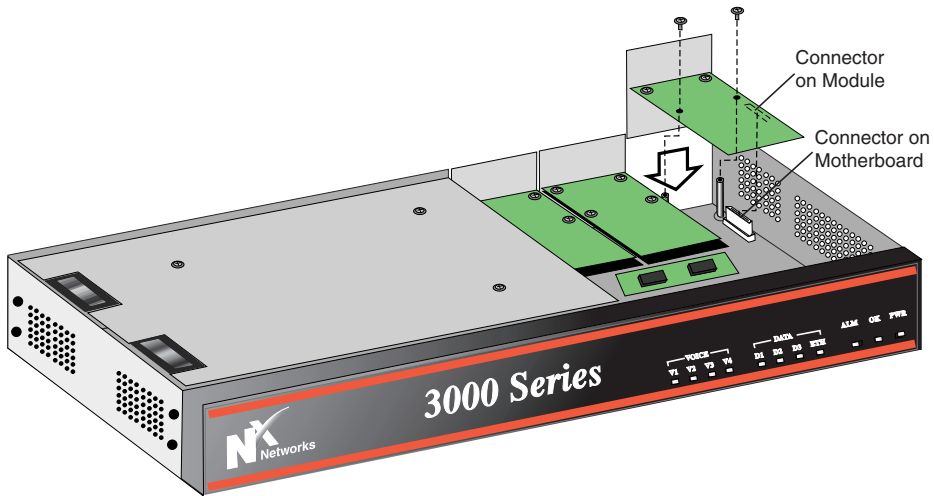
#### **Notes:**

- You can install the ISDN modules only in slot 3. You can install all other modules in any of the three configurable slots.
- When you install an ISDN, SDSL, DDS, T1, or E1 module, do not connect the telephone line until you have installed the module itself.
  - a. Line up the module with its two screw holes directly over the two standoffs.

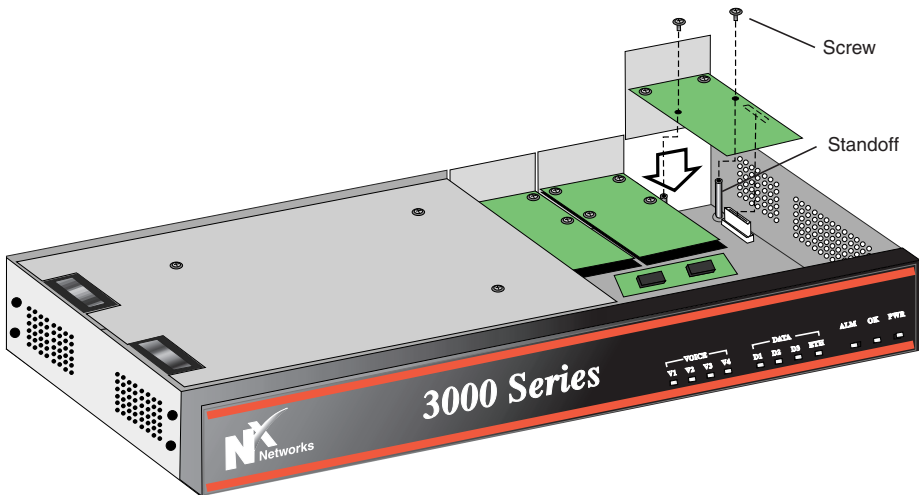


- b. Press the module into place so that the connector on its underside sits firmly in the connector on the motherboard. Be sure that you have made a firm connection.





- c. Screw the module to the two standoffs.



- d. Re-install the module retaining bar with its three retaining screws.

---

### **Caution**

If you have a slot in your 3000 Series that does not have a module installed in it, be sure to install a blank slot cover in each open slot to ensure proper airflow inside the chassis.

---

7. Replace the cover.

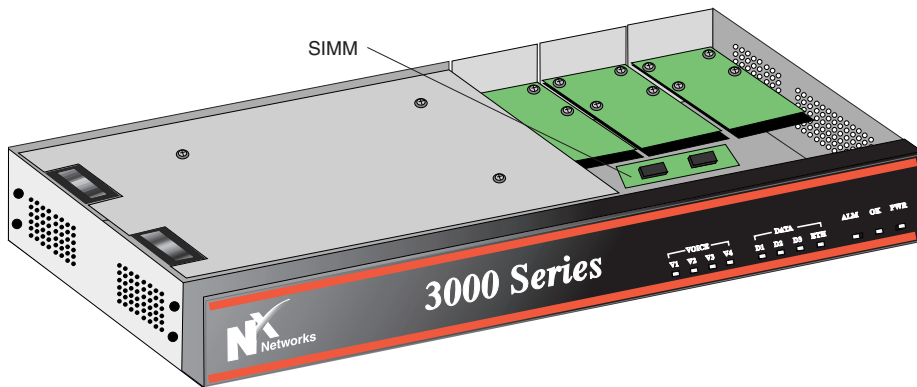
Be careful to line up the motherboard's screw holes with the chassis' screw holes.

## Installing a SIMM

You can upgrade your 3000 Series memory (DRAM) to 24, 40, or 72 MB by installing a single in-line memory module (SIMM).

**Note:** To be sure that you have the appropriate SIMM for upgrading your 3000 Series memory, contact N<sup>x</sup> Networks.

1. Turn off power to your 3000 Series.
2. Disconnect all network connections, including connections to the telephone system.
3. Remove the cover by unscrewing the two screws on each side of the unit and the three screws on the underside of the unit's chassis and lifting off the cover.
4. Seat the SIMM securely into place. Be careful to press the SIMM firmly into place.



5. Press the SIMM back (toward the center of the motherboard) so that it sits at an angle in its slot.
6. Replace the cover.

Be careful to line up the motherboard's screw holes with the chassis' screw holes.

---

## Removing a SIMM

To remove a single in-line memory module (SIMM) . . .

1. Turn off power to your 3000 Series.
2. Disconnect all network connections, including connections to the telephone system.
3. Remove the cover by unscrewing the two screws on each side of the unit and the three screws on the underside of the unit's chassis and lifting off the cover.
4. Press the detent tabs away from the center line and move the SIMM into an upright position.
5. Remove the SIMM from its slot.
6. Install the new SIMM. See [Installing a SIMM](#).
7. Replace the cover.

Be careful to line up the motherboard's screw holes with the chassis' screw holes.





---

# Appendix C

## Worksheets

This appendix contains the following worksheets to help you in your initial configuration of your 3000 Series Secure Gateway Router. Use the worksheet(s) appropriate for your gateway router's configuration.

<b>IP Addressing</b>	<b>60</b>
<b>Dialup PPP</b>	<b>62</b>
<b>Frame Relay</b>	<b>63</b>
<b>ISDN</b>	<b>65</b>

# IP Addressing

You need the following IP addressing information for all 3000 Series gateway routers.

---

What is the IP address for your 3000 Series Ethernet interface?

\_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_

This address must be unique on the Ethernet.

---

What is the IP subnet mask for your 3000 Series Ethernet interface?

\_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_.\_\_\_\_\_

---

What are the IP addresses and subnet masks of the WAN interfaces?

IP Address \_\_\_\_\_

Mask \_\_\_\_\_

In place of an assigned IP address, you can use unnumbered IP or dynamic IP addressing.

IP Address \_\_\_\_\_

Mask \_\_\_\_\_

In the command line interface, to set up

- unnumbered IP, set the IP address of the WAN to 0.0.0.*n*, where *n* is the number of the WAN interface, and set the subnet mask to 0.0.0.0.
- dynamic IP addressing, set the IP address of the WAN to 0.0.0.*n* where *n* is the number of the WAN interface, and set the subnet mask of the WAN to 255.255.255.0.

IP Address \_\_\_\_\_

Mask \_\_\_\_\_

IP Address \_\_\_\_\_

Mask \_\_\_\_\_

---

---

## IP Addressing, continued

---

I am using (choose at least one)

(a) \_\_\_\_\_ RIP

**Notes:**

- If you are using a default gateway that is connected to the 3000 Series over the WAN device, and you are using unnumbered IP, set the default gateway to 0.0.0.1.
- If you are using static routes, you need the destination network address, its subnet mask, the IP address of the next hop router, and the number of hops to that router (gateway).
- Not all versions of N<sup>x</sup> Networks software support OSPF.

(b) \_\_\_\_\_ Default gateway of  
\_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

(c) \_\_\_\_\_ Static route to  
\_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

Address mask

\_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

Via gateway

\_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

Number of hops to gateway

\_\_\_\_\_

(d) \_\_\_\_\_ OSPF

Area \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_ . \_\_\_\_\_

Authentication Type \_\_\_\_\_

(1 = a password; 0 = none)

Stub Area \_\_\_\_\_ Yes \_\_\_\_\_ No

---

## Dialup PPP

You need the following information to set up your 3000 Series for dialup PPP.

---

My modem is

(The manual for your modem specifies this. \_\_\_\_\_ Asynchronous  
Most popular retail modems are \_\_\_\_\_ Synchronous  
asynchronous.)

---

The name for my modem is

Assign a unique name to your modem. \_\_\_\_\_  
(You can use the manufacturer's name.)

---

The initialization string for my modem is

(Since there are many brands of modems, each with its own idiosyncrasies, you must configure each modem that you add. Your 3000 Series has default settings, which are adequate for most situations.) \_\_\_\_\_

---

Destination name is \_\_\_\_\_

The telephone number of the destination is \_\_\_\_\_

---

For authentication, I am using \_\_\_\_\_ PAP \_\_\_\_\_ CHAP  
\_\_\_\_\_ Login sequence

---

If using PAP, password is \_\_\_\_\_

---

If using CHAP, secret is \_\_\_\_\_

---

Allow incoming calls? \_\_\_\_\_ Yes \_\_\_\_\_ No

---

Dial-on-demand \_\_\_\_\_ Yes \_\_\_\_\_ No  
If yes, idle timeout: \_\_\_\_\_ seconds

---

---

## Frame Relay

Your Frame Relay service provider gives you the information you need to set up your 3000 Series for Frame Relay.

For configurations where you are running IPX or bridging over Frame Relay or using multiple Permanent Virtual Circuits (PVCs), N<sup>x</sup> Networks recommends that you read the Frame Relay documentation in the Online Library available on the N<sup>x</sup> Networks Web site at [www.nxnetworks.com](http://www.nxnetworks.com) or on the CD that comes with your 3000 Series.

---

What type of Local Management Interface (LMI) does your Frame Relay switch use? \_\_\_\_\_

The 3000 Series supports REV1, ANSI, and CCITT. The default is ANSI. Most providers use REV1 or ANSI.

---

Use Frame Relay LAN Emulation (FRLANE)? \_\_\_\_\_ Yes \_\_\_\_\_ No

N<sup>x</sup> Networks recommends that you answer No to this question and instead use Frame Relay Virtual Circuit (FRVC) unless you are using more than one PVC. If you use FRLANE, refer to the documentation mentioned above.

---

Circuit Name (1-23 characters) \_\_\_\_\_

---

---

## Frame Relay, continued

---

**Note:** The following information must match the configuration of the Frame Relay switch to which your 3000 Series is connected.

---

Circuit Number (16-1007) \_\_\_\_\_

---

Committed Information Rate (CIR) in bps  
(300 to 2048000). Default is 64000. \_\_\_\_\_ bps

---

Committed Burst Size (Bc) in bits (300 to  
2048000). Default is 64000. \_\_\_\_\_ bps

---

Excess Burst Size (Be) (0 to 2048000).  
Default is 0. \_\_\_\_\_ bps

---

Frame Relay access rate (internal clock  
speed) (4800 to 2048000). Default is 57600. \_\_\_\_\_ bps

---

---

# ISDN

You need the following information to set up your 3000 Series for ISDN. Your ISDN provider gives you this information (except for the destination telephone numbers).

---

Telephone number(s) of your 3000 Series ISDN interface. (A single interface can have multiple numbers.) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

Destination names and telephone numbers. (A destination interface can have multiple numbers.)

Name \_\_\_\_\_

Number \_\_\_\_\_

---

Name \_\_\_\_\_

Number \_\_\_\_\_

---

Name \_\_\_\_\_

Number \_\_\_\_\_

---

Name \_\_\_\_\_

Number \_\_\_\_\_

---

Type of ISDN switch variant \_\_\_\_\_

---

---

## ISDN, continued

---

Terminal Endpoint Identifier (TEI) assigned by your ISDN provider	B1 _____
<b>Note:</b> For some North American switches, the service provider may assign a TEI for each B channel.	B2 _____

---

Service Profile IDs (SPIDs)	B1 _____
<b>Note:</b> SPIDs are used only in North America. Some switches have one SPID; others have two. SPIDs are independent of the number of B channels used.	B2 _____

---

Configured for point-to-point or multipoint?	_____ PP
	_____ MP

---



---

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