NetVanta 950 IAD

(with Octal FXS/FXO, Octal Ethernet, and T1/V.35 Modules)

Quick Configuration Guide

61200788L1-42A

November 2004

Equipment Required

- A PC with a web browser and network connection and/or VT100 terminal software for connecting to the unit.
- DB-9 (male) to DB-9 (female) straight-through serial cable for configuring the unit.
- Appropriate cable(s) for connecting the system to the existing network



The configuration parameters used in the example outlined in this document are for instructional purposes only. Please replace all bold underlined entries (**example**) with your specific parameters to configure your application.

Network Diagram

NOTE



Connect to the NetVanta 950 IAD

You can access your NetVanta 950 IAD in two ways in order to configure it: (1) through the web-based GUI, or (2) through the ADTRAN Operating System Command Line Interface (AOS CLI). Refer to the *AOS CLI* on page 15.

Web-Based GUI

The web-based GUI is an online configuration tool that allows you to easily configure and view the main settings and the status of your system. However, use of the AOS CLI may be necessary for more advanced operations. Access the CLI via the **CONSOLE** port or a Telnet session. Refer to the *AOS CLI* on page 15.

1. Connect the PC with a web browser to the NetVanta 950 IAD **ETHERNET 0/1** port on the front panel of the controller module.



You may use a straight-through cable since the NetVanta 950 supports auto MDI-MDIX crossover.

- 2. Insert the connector of the provided power cord into the power interface on the side panel of the unit, and plug the cord into a standard electrical outlet.
- 3. Change the IP address of the PC to 10.10.10.2. The Netvanta 950 IAD default IP address is 10.10.10.1.



If you cannot change the PC's IP address, refer to **Configure the Ethernet Interface** on page 15 to change the IAD's IP address.

4. Enter the IP address in your Internet browser **Address** field. The default IP address is 10.10.10.1.



5. Once you are connected, you will be prompted to enter the username and password. The default settings are *admin* and *password*.



6. The initial GUI screen appears.



Configure the Ethernet Interface

- 1. Click on IP Interfaces on the left side of your screen.
- 2. Next, click on **Default** (located under **IP Interfaces**).



- 3. Change the default IP address and subnet mask.
- 4. Click on Apply to accept the new settings.

NOTE

You will lose your connection to the unit once you click **Apply**. The browser must be reopened using the new IP address to access the unit.

You must click **Save** to write the new settings into NVRAM (refer to **Save the Configuration** on page 19).



Connect to and Configure Interfaces

- 1. Click on **Physical Interfaces** on the left side of you screen.
- 2. Click on **t1 0/1** to select the T1 interface.



3. From this screen, you can use the **Configured DS0 Connections** box to create a connection from any DS0 on this T1 port to a virtual or physical interface.

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System Setup Physical Interfac	<u>ces</u> > T1 0/1		~
Getting Started			
Physical Interfaces Configurat	ion for T1 0/1		
Hostname / DNS Basic configu	ration for the T1 interface.		
Passwords		Operation (shell	
Networking Descrip	tion:	(optional)	
IP Services		Enable or disable this	
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Route Table System (lock Primary: t1 0/1	Click the link to adjust	
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Add a Conne	ection		
DS0 Ra	nge: 1 💌 to 12 💌	Set the range of DS0s to be mapped	
Connec	t To: t1 0/1	Select an interface type to map to the DS0s	
Sp	eed: 64kbps 💙		
Starting (DS0: 1 💌	Set the starting DS0 on the target T1 interface	
RBS Signa	ling:	Maintain robbed bit signalling on this T1 to T1 connection	
	Add		
Experts Choose ADTRAN			🔮 Internet

- 4. Select the range of DS0s and the destination interface from the pull-down menu.
- 5. *Optional*: Specifying the **Starting DS0** and **RBS Signaling** (RBS is optional and is used for robbed-bit signaling with voice applications).
- 6. Click on **Add** to create the connection.
- 7. Once the connection has been created, the Web GUI forwards you to the configuration page for the selected interface (refer to the configuration examples on pages 8 through 14).

The new connection should appear at the bottom of the **Configured DS0 Connections** box. If not, please refer to the error message and correct the settings.

Virtual Frame Relay Configuration

- 1. Use the screen below to edit the settings of your Frame Relay interface, add PVCs, and check the status of the interface.
- 2. Click on **Apply** to accept the current configuration changes.
- 3. Click on **Add** at the bottom of this screen to access the PVC's DLCI configuration.



- 4. Use this page to edit the settings of a DLCI on a PVC.
- 5. Click on **Apply** to accept the current configuration changes.

Click **Save** to write the new settings into NVRAM (refer to **Save the Configuration** on page 19).

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ADIRAN	NetVanta 950	Save Logout	
System Setup Getting Started	<u>Physical Interfaces</u> > t1 0/1 > fr 1 > DLCI Config		
System Physical Interfaces	Configuration		
Hostname / DNS	Racio configuration for the Permanent Virtual Circuit	(DI CI interface)	
Passwords	basic configuration for the Permanent Virtual Circuit	(DECI Interface).	
Networking	Description:	Description label	
IP Services		(optional)	
IP Interfaces	Fragment: 0	FRF.12 fragmentation	
QoS Maps Poute Table		un esnola.	
Routing	BC: 0	Committed Burst size (04294967294 in	
DHCP Server		bps)	
Switch		Excess Burst size	
Ports	BE: 0	(04294967294 in 🕜	
VLANs		bps)	
Firewall	DLCI Number:	DLCI is any number in the range 16-992	
Firewall Wizard		the range 10 bbc	
Security Zones	IP Settings		
Channel Bank	Address Type: None 💌		
Connections	Reset Apply		
Analog Ports			
Utilities			
Configuration			
Reboot Unit			
Telnet To Unit			
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FXS Interface Configuration

- 1. Use the screen below to edit the settings on an FXS interface.
- 2. Click on **Apply** to accept the current configuration changes.





FXO Interface Configuration

- 1. Use the screen below to edit the settings on an FXO interface.
- 2. Click on **Apply** to accept the current configuration changes.



You must click **Save** to write the new settings into NVRAM (refer to **Save the Configuration** on page 19).



Serial Interface Configuration

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- 1. Use the screen below to edit the settings on the Serial interface.
- 2. Click on **Apply** to accept the current configuration changes.

You still have to click **Save** to write the new settings into NVRAM (refer to **Save the Configuration** on page 19).



T1 Interface Configuration

- 1. Use the screen below to edit the settings on the T1 interface.
- 2. Click on **Apply** to accept the current configuration changes.

You must to click **Save** to write the new settings into NVRAM (refer to **Save the Configuration** on page 19).

3. *Optional*: For voice applications only, it may be necessary to preserve robbed-bit signaling (RBS) between the T1 ports. Be sure to click on **RBS Signaling** (refer to page 7) to preserve RBS on this connection.



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Save Configuration

Click **Save** to write the current configuration to NVRAM. Any changes made without saving will be lost after a power cycle or reboot.

Download Configuration

Click **Download** to get the currently saved configuration from the NetVanta.

Upload Configuration

Upload your own configuration file for the NetVanta here. This will overwrite the configuration currently saved to NVRAM. You will need to reboot the NetVanta for the changes to take effect.

IAD Managemen	t Interface - Microsoft Internet Explorer	
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		~
ADIRAN	NetVanta 950 Save Logout	
System Setup		
Getting Started	Save Config	
Physical Interfaces	Save comp	
Hostname / DNS	Click Save to write the current configuration to NVRAM. Any changes made without	
Passwords	saving will be lost after a power cycle of reboot.	
Networking	Save	
IP Services	Configuration Successfully Saved	
IP Interfaces	Davaland Canfia	
Route Table	bownoad comy	
Routing	Click Download to get the currently saved configuration from the NetVanta.	
DHCP Server	Download	
Switch		
Ports		
VLANs	Upload Config	
Firewall	Unload your own configuration file for the NetVanta here. This will overwrite the	
Firewall Wizard General Firewall	configuration currently saved to NVRAM. You will need to reboot the NetVanta for the	
Security Zones	changes to take effect.	
Channel Bank	Uploading will overwrite	
Connections	Upload Config: Browse your current settings	
Analog Ports		
Utilities	Cancel Upload	
Configuration		
Firmware Reboot Unit		
Telnet To Unit		
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AOS CLI

The AOS CLI allows users to access and control the system through a command driven **CONSOLE** connection. Users have more configuration control and advanced options available via this type of connection.

- Connect a VT100 terminal (or PC with VT100 emulation software) to the NetVanta CONSOLE port on the front panel of your Controller Module using a DB-9 (male) to DB-9 (female) straight-through serial cable.
- 2. Insert the connector of the provided power cord into the power interface on the side panel of the unit, and plug the cord into a standard electrical outlet.
- 3. Open a VT100 terminal session and configure the terminal's COM port with the following parameters:

Data Rate: 9600
Data Bits: 8
Parity Bits: None
Stop Bits: 1
Flow Control: None

- 4. Press the **<Enter>** key to activate the AOS CLI.
- 5. Enter **enable** at the **>** prompt.
- 6. Enter the password when prompted. The default password is **password**.

Configure the Ethernet Interface



If you cannot change the PC's IP address, change the unit's IP address to correspond to your network setup. Refer to the steps below for further instruction.

- 1. Enter **enable** to enter the Enable command security mode.
- 2. Enter **config terminal** to enter the Global Configuration mode.
- Enter enable password <u>password</u> to assign an Enable security mode password. This is necessary for Telnet configuration sessions (<u>password</u> is an example).
- 4. Enter **interface vlan 1** to access the VLAN (virtual LAN) interface.
- 5. Enter **ip address** <u>10.10.10.1</u> <u>255.255.255.0</u> to assign an IP address to the VLAN port using a 24-bit subnet mask. Contact your Network Administrator to obtain the IP address (and subnet mask) for your particular configuration.
- 6. Enter **no shutdown** to activate the interface to pass data.
- 7. Enter interface eth 0/1 to access the configuration parameters for the Ethernet port.
- 8. Enter **no shutdown** to activate the interface to pass data.
- 9. Enter **exit** to exit the interface commands and return to the Global Configuration mode.
- 10. Enter **ip route 0.0.0.0 0.0.0.0 <u>10.10.10.2</u>** to add a default route to the route table. Contact your Network Administrator to obtain the IP address of your default gateway.

Configure a Telnet Session

The following steps show how to access the Telnet configuration parameters and change the password. The default password for initializing a Telnet session is **password** (all lower case). For security purposes, change the password to something unique. For this example, replace the underlined <u>word</u> with a password of your choosing. The NetVanta supports five Telnet sessions (0 through 4).

- 1. Enter **line telnet 0** to activate the configuration parameters for the Telnet sessions at the **(config)#** prompt.
- 2. Enter login to prompt the user for a Telnet access password.
- 3. Enter **password** word to create a login password for the Telnet sessions.
- 4. Enter exit to return to the Global Configuration mode.

An Enable Security mode password must be defined before configured Telnet sessions are activated. Refer to **Enable Security Mode Password** for information on password configuration.

Enable Security Mode Password

- 1. Verify that the prompt of your unit displays (config)#.
- 2. Enter **enable password** word to set the Enable Security mode password.

or

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3. Enter enable password md5 word to encrypt the enable password using MD5 encryption.

NOTE The enable security mode passwords are case sensitive.

Configure the Frame Relay Virtual Interface

The following steps outline configuring a Frame Relay virtual interface (labeled 1) using a single DLCI back to the corporate router (defined as DLCI 16).



The following steps assume the Global Configuration mode is currently active. Verify the prompt of your unit displays (config)#.

Create the Interface and Define the Encapsulation

- 1. Enter interface fr 1 to create a Frame Relay virtual interface labeled 1.
- 2. Enter **frame-relay Imi-type** <u>ansi</u> to configure Frame Relay virtual interface 1 to use ANSI (Annex D) signaling. The default LMI type is Cisco.
- 3. Enter **no shutdown** to activate the interface to pass data.
- 4. Enter **exit** to return to the Global Configuration mode.

Create the PVC and Assign an IP Address

- Enter interface fr 1.1 to create the first PVC assigned to Frame Relay virtual interface 1. This activates the configuration parameters for the PVC. Your prompt should now display IAD (config-fr1.1)#.
- 2. Enter **frame-relay interface-dlci 16** to assign DLCI 16 to this PVC. (DLCIs should be supplied by your network provider.)
- 3. Enter **ip address** <u>192.22.72.1</u> <u>255.255.255.0</u> to assign an IP address of 192.22.72.1 for this PVC using a 24-bit subnet mask.
- 4. Enter **exit** to return to the Global Configuration mode.

Configure the PPP Virtual Interface

The following steps outline configuring a PPP Virtual interface (labeled 1) to the NetVanta 950 IAD.



The following steps assume the Global Configuration mode is currently active. Verify the prompt of the unit displays (config)#.

- 1. Enter the **interface ppp 1** to create a PPP virtual interface labeled 1.
- 2. Enter **ip address** <u>192.22.72.1</u> <u>255.255.255.0</u> to assign an IP address to the PPP endpoint using a 24-bit mask.
- 3. Enter **no shutdown** to activate the interface to pass data.
- 4. Enter exit to return to the Global Configuration mode.

Create a T1 to Virtual Interface Cross-Connect



For this example we will configure a T1 WAN interface with DS0s 1 through 10 for data. The following steps assume the Global Configuration mode is currently active. Verify that the prompt of your unit displays (config)#.

- 1. Enter interface t1 0/1 to activate the interface configuration mode for the T1 WAN interface.
- 2. Enter **tdm-group 1 timeslots 1-10** to create a TDM group for DS0s 1 through 10 (the data DS0s) on the T1 network connection (t1 0/1).
- 3. Enter exit to return to the Global Configuration mode.
- 4. Enter **cross-connect 1 t1 0/1 1 frame-relay 1** to connect DS0s 1 through 10 of the T1 network connection (t1 0/1) to the virtual Frame Relay interface fr 1.16.

Alternately,

5. Enter **cross-connect 1 t1 0/1 1 ppp 1** to connect DS0s 1 through 10 of the T1 network connection (t1 0/1) to the virtual PPP interface labeled 1.

Create a T1 to FXS Cross-Connect

NOTE

For this example we will map a single DS0 from a T1 WAN interface to an FXS port. The NetVanta 950 IAD Octal FXS access module (1200791L1) must be installed for this application to work. The following steps assume the Global Configuration mode is currently active. Verify that the prompt of your unit displays (config)#.

- 1. Enter interface t1 0/1 to access the configuration parameters for the WAN 0/1 interface.
- 2. Enter tdm-group 1 timeslots 1 to create a TDM group for DS0 1 on the T1 network t1 0/1.
- 3. Enter **exit** to return to Global Configuration mode.
- 4. Enter **cross-connect 1 t1 0/1 1.1 fxs 2/1** to connect DS0 1 of the T1 network to the FXS port (fxs 2/1).

Create a T1 to FXO Cross-Connect



For this example we will map a single DS0 from a T1 WAN interface to an FXO port. The NetVanta 950 IAD Octal FXO access module (1200792L1) must be installed for this application to work. The following steps assume the Global Configuration mode is currently active. Verify that the prompt of your unit displays (config)#.

- 1. Enter **interface t1 0/1** to access the configuration parameters for the WAN 0/1 interface.
- 2. Enter tdm-group 1 timeslots 2 to create a TDM group for DS0 2 on the T1 network t1 0/1.
- 3. Enter **exit** to return to Global Configuration mode.
- 4. Enter **cross-connect 2 t1 0/1 1.2 fxo 4/1** to connect DS0 2 of the T1 network to the FXO port (4/1).

Create a T1 to Serial Cross-Connect



For this example we will map DS0s from a T1 WAN interface to a serial port. The NetVanta 950 IAD T1/V.35 Expansion Module (1200798L1) must be installed for this application to work. The following steps assume the Global Configuration mode is currently active. Verify that the prompt of your unit displays (config)#.

- 1. Enter **interface serial 1/1** to access the configuration parameters for the serial interface.
- 2. Enter **config terminal** to enter the Global Configuration mode.
- 3. Enter **interface t1 0/1** to access the configuration parameters for the WAN 0/1 interface.
- 4. Enter **tdm-group 1 timeslots 1-12 speed 64** to create a TDM group for DS0 1 through 12 on the T1 network (t1 0/1) at the speed of 64 kbps for each DS0.
- 5. Enter **exit** to return to Global Configuration mode.
- 6. Enter **cross-connect 1 t1 0/1 1 ser 1/1** to connect DS0 1 through 12 of the T1 network to the serial 1/1 (V.35) interface.

Create a T1 to T1 Cross-Connect



For this example we will map DS0s from a T1 WAN interface to another T1 WAN interface. The NetVanta 950 IAD T1/V.35 Expansion Module (1200798L1) must be installed for this application to work.

- 1. Enter **interface t1 0/1** to access the configuration parameters for the WAN 0/1 interface.
- 2. Enter **tdm-group 1 timeslots 1-12 speed 64** to create a TDM group for DS0s 1 through 12 on the T1 network (t1 0/1) at the speed of 64 kbps for each DS0.
- 3. Enter **exit** to return to Global Configuration mode.
- 4. Enter interface t1 1/1 to access the configuration parameters for the T1 interface (t1 1/1).
- 5. Enter **tdm group 2 timeslots 1-12 speed 64** to create a TDM group for DS0s 1 through 12 on the Expansion Slot T1 interface at a speed of 64 kbps for each DS0.
- 6. Enter **cross-connect 1 t1 0/1 1 t1 1/1 2 rbs** to connect DS0s 1 through 12 of the T1 network to the Expansion Slot T1 interface (**rbs** is optional and is used when doing robbed-bit signaling with voice applications).

Save the Configuration

- 1. Verify that the prompt of your unit displays IAD#.
- 2. Enter **copy running-config startup-config** to save the current configuration to memory.
- 3. Enter **exit** to close the configuration session.