

Installing and Configuring the NetVanta 950 IAD

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

Quick Start Guide

64200788L1-13B

ADTRAN

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Tools Required

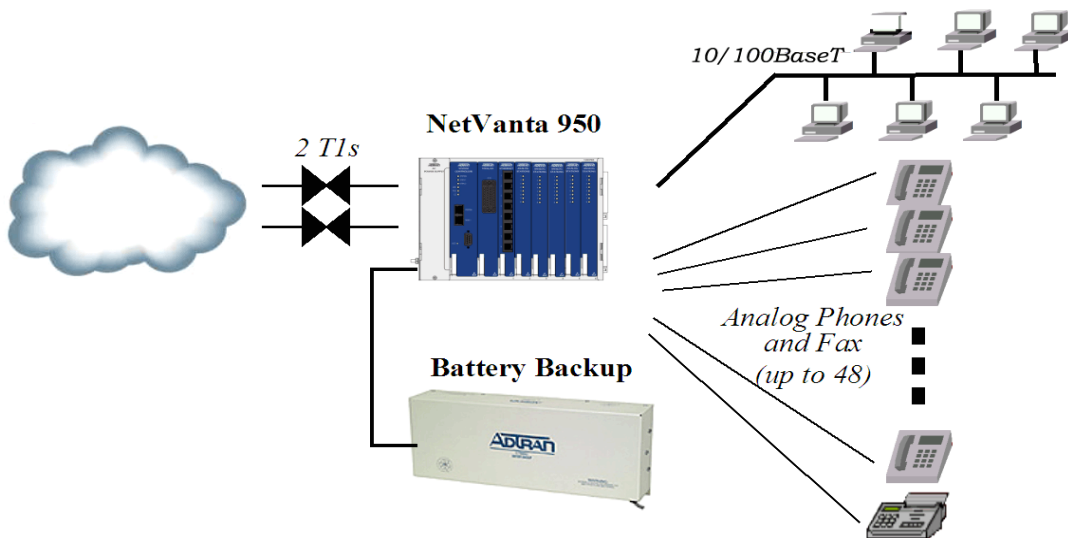
- A VT100 terminal or a PC with VT100 emulator software for connecting to the unit
- DB-9 (male) to DB-9 (female) straight-through serial cable for configuring the unit
- Appropriate cable(s) for connecting the system to the existing network



The configuration sections of this quick start guide are formatted to provide both step-by-step text descriptions and screen shots containing a text script. The configuration scripts are available on the ADTRAN OS Documentation CD.

*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



Connect to the NetVanta 950 IAD

You can access your NetVanta 950 IAD in two ways in order to configure it: (1) through the ADTRAN Operating System Command Line Interface (AOS CLI), or (2) through the web-based GUI. The steps below explain how to access your unit using these methods.

AOS CLI

The AOS CLI allows the user 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.

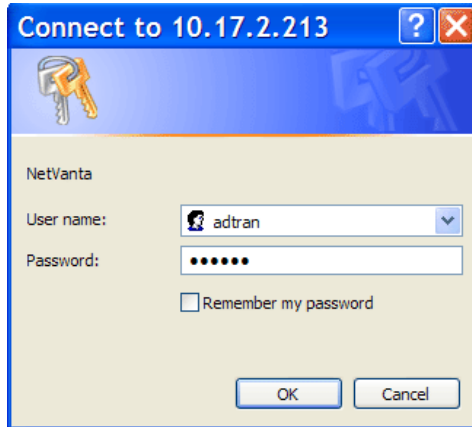
1. Connect a VT100 terminal (or PC with VT100 emulation software) to the NetVanta **CONSOLE** port on the front panel of your Controller Module using a DB-9 (male) to DB-9 (female) straight-through serial cable.
2. Connect the other end of the serial cable to the terminal or PDC.
3. Insert the connector of the provided power cord into the power interface on the rear panel of the unit, and plug the cord into a standard electrical outlet.
4. 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
5. Press the **<Enter>** key activate the ADTRAN operating system command line interface (AOS CLI).
6. Enter **enable** at the **>** prompt.
7. Enter the password when prompted. The default password is **password**.

Web-Based GUI

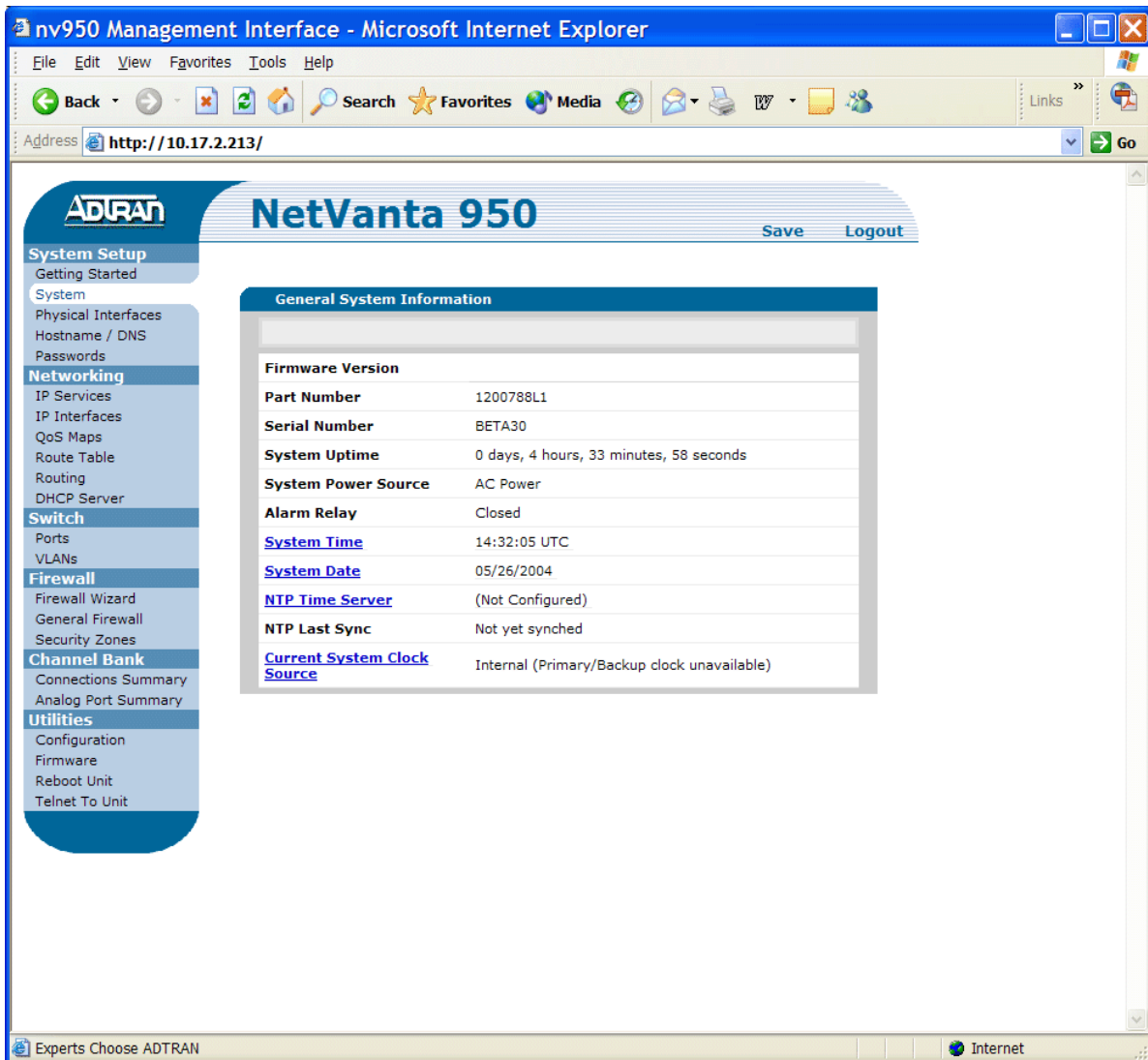
The web-based GUI is an online configuration tool that allows you to easily configure and view the main setting and status of your system. However, use of the AOS CLI may be necessary for more advanced configurations. Access the CLI via the **CONSOLE** port or a Telnet session. See the **AOS CLI** section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

1. Connect the unit to your network using one of the Ethernet ports on the faceplate of the Controller module.
2. Enter the IP address in your Internet browser *Address* field.

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



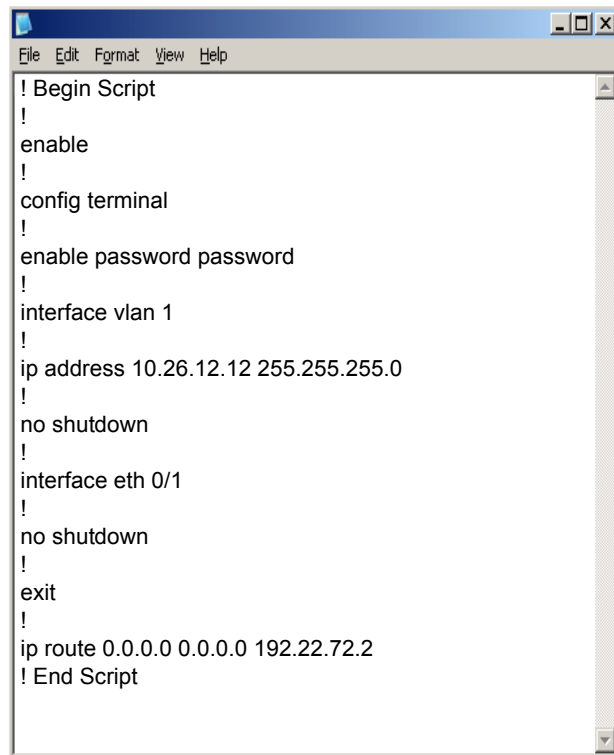
- The initial GUI screen appears.



Once you gain access to your unit via one of the methods described on pages 2 and 3, you can configure it using the following guidelines.

Configure the Ethernet Interface

1. Enter **enable** to enter the Enable command security mode.
2. Enter **config terminal** to enter the Global configuration mode.
3. Enter **enable password password** to assign an Enable security mode password. This is necessary for Telnet configuration sessions (**password** is an example).
4. Enter **interface vlan 1** to access the VLAN (virtual LAN) interface.
5. Enter **ip address 10.26.12.12 255.255.255.0** to assign an IP address to the Ethernet 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 0.0.0.0 192.22.72.2** to add a default route to the route table. Contact you Network Administrator to obtain the IP address of your default gateway.



```
! Begin Script
!
enable
!
config terminal
!
enable password password
!
interface vlan 1
!
ip address 10.26.12.12 255.255.255.0
!
no shutdown
!
interface eth 0/1
!
no shutdown
!
exit
!
ip route 0.0.0.0 0.0.0.0 192.22.72.2
! End Script
```

Configure a Telnet Session

1. Verify that the prompt of your unit displays **IAD (config) #**.
2. Enter **line telnet 0** to activate the configuration parameters for the Telnet sessions.
3. Enter **password password** to create a login password for the Telnet sessions.
4. Enter **exit** to return to the Global configuration mode.

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)#**.*

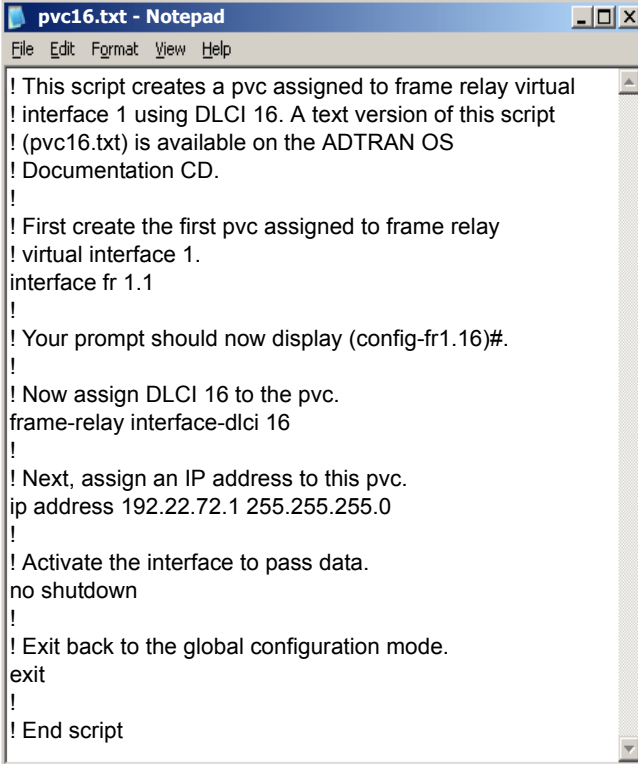
Create the Interface and Define the Encapsulation

1. Enter **interface fr 1** to create a frame relay virtual interface labeled 1.
2. Enter **frame-relay lmi-type ansi** 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.

```
fr1.txt - Notepad
File Edit Format View Help
! This script creates a virtual frame relay interface labeled 1
! and defines ANSI (Annex D) as the signaling method. A
! text version of this script (fr1.txt) is available on the
! ADTRAN OS Documentation CD.
!
! First create the virtual frame relay interface and enter the
! configuration mode for the interface.
interface fr 1
!
! The prompt should now display (config-f1)#.
!
! Next assign the lmi type for the interface.
frame-relay lmi-type ansi
!
! Activate the interface to pass data.
no shutdown
!
! Exit back to the global configuration mode.
exit
!
! End script
```

Create the PVC and Assign an IP Address

1. 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 192.22.72.1 255.255.255.0** 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.



```
pvc16.txt - Notepad
File Edit Format View Help
! This script creates a pvc assigned to frame relay virtual
! interface 1 using DLCI 16. A text version of this script
! (pvc16.txt) is available on the ADTRAN OS
! Documentation CD.
!
! First create the first pvc assigned to frame relay
! virtual interface 1.
interface fr 1.1
!
! Your prompt should now display (config-fr1.16)#.
!
! Now assign DLCI 16 to the pvc.
frame-relay interface-dlci 16
!
! Next, assign an IP address to this pvc.
ip address 192.22.72.1 255.255.255.0
!
! Activate the interface to pass data.
no shutdown
!
! Exit back to the global configuration mode.
exit
!
! End script
```

Configure the Virtual PPP Interface

The following steps outline configuring a PPP Global configuration 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 192.22.72.1 255.255.255.0** 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.

```
ppp1-IP.txt - Notepad
File Edit Format View Help
This script configures the virtual PPP endpoint labeled 1
! with an IP address. A text version of this script
! (ppp1-IP.txt) is available on the ADTRAN OS
! Documentation CD.
!
! First activate the PPP interface configuration mode.
interface ppp 1
!
! This activates the configuration parameters for this
! interface. Your prompt should now display
! (config-ppp1)#.
!
! Next, assign an IP address using a 24 bit mask.
ip address 192.22.72.1 255.255.255.0
!
! Activate the interface to pass data.
no shutdown
!
!Exit back to the global configuration mode
exit
!
!End script
```

Create a T1 to Virtual Interface Cross-Connect

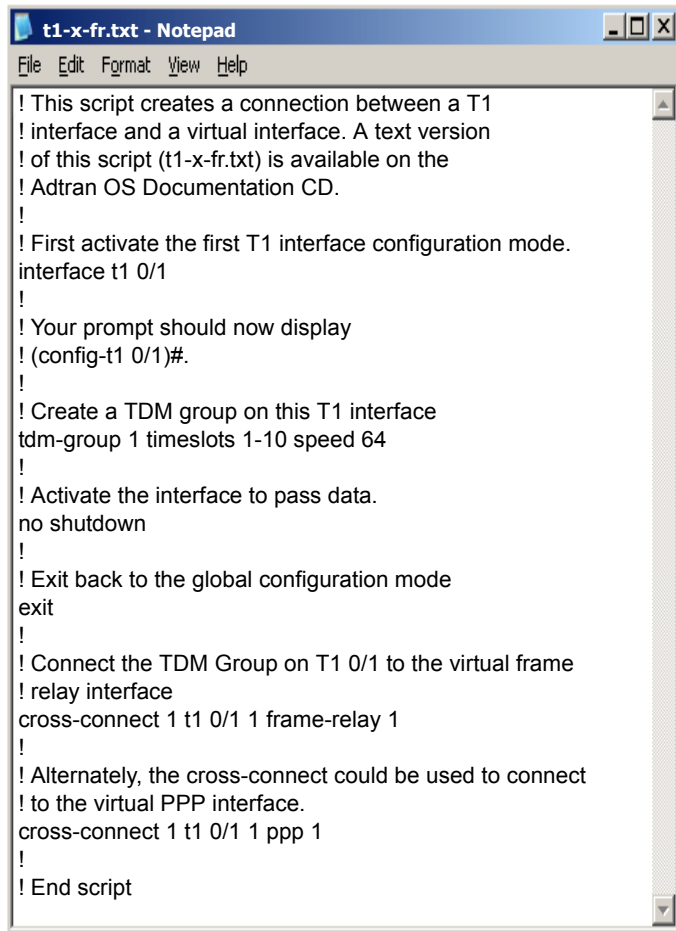
NOTE

For this example we will configure a T1 WAN interface with DS0s 1-10 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 1-10 (the data DS0s) on the T1 network connection (t1 0/1).
3. Enter **no shutdown** to activate the interface to pass data.
4. Enter **exit** to return to the Global configuration mode.
5. Enter **cross-connect 1 t1 0/1 1 frame-relay 1** to connect DS0s 1-10 of the T1 network connection (t1 0/1) to the virtual frame-relay interface fr 1.16.

Alternately,

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



```
t1-x-fr.txt - Notepad
File Edit Format View Help
! This script creates a connection between a T1
! interface and a virtual interface. A text version
! of this script (t1-x-fr.txt) is available on the
! Adtran OS Documentation CD.
!
! First activate the first T1 interface configuration mode.
interface t1 0/1
!
! Your prompt should now display
! (config-t1 0/1)#.
!
! Create a TDM group on this T1 interface
tdm-group 1 timeslots 1-10 speed 64
!
! Activate the interface to pass data.
no shutdown
!
! Exit back to the global configuration mode
exit
!
! Connect the TDM Group on T1 0/1 to the virtual frame
! relay interface
cross-connect 1 t1 0/1 1 frame-relay 1
!
! Alternately, the cross-connect could be used to connect
! to the virtual PPP interface.
cross-connect 1 t1 0/1 1 ppp 1
!
! End script
```


Create a T1 to FXS Cross-Connect



For this example we will map DS0 1 from T1 WAN 0/1 to FXS 2/1. 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 fxs 2/1** to access the configuration parameters for the FXO interface.
2. Enter **no shutdown** to activate the voice interface.
3. Enter **interface t1 0/1** to access the configuration parameters for the WAN 0/1 interface.
4. Enter **tdm-group 1 timeslots 1** to create a TDM group for DS0 1 on the T1 network **t1 0/1** at.
5. Enter **exit** to return to Global configuration mode.
6. Enter **cross-connect 1 t1 0/1 1.1 fxs 2/1** to connect DS0 2 of the T1 network to the FXS port (fxs 2/1).

```
t1-x-fxs.txt - Notepad
File Edit Format View Help
!This script configures the cross-connect T1 WAN
! connection (t1 0/1) to the FXS interface. A text version of
! this script (t1-x-fxs.txt) is available on the ADTRAN OS
! Documentation CD.
! Mapping DS0 1 from T1 0/1 to FXS 2/1
interface fxs 2/1
!
no shutdown
!
interface t1 0/1
!
tdm-group 1 timeslots 1
!
exit
!
cross-connect 1 t1 0/1 1.1 fxs 2/1
!
!End script
```

Create a T1 to FXO Cross-Connect



*For this example we will map DS0 2 from T1 WAN 0/1 to FXO 4/1. 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 fxo 4/1** to access the configuration parameters for the FXO interface.
2. Enter **no shutdown** to activate the voice interface.
3. Enter **interface t1 0/1** to access the configuration parameters for the WAN 0/1 interface.
4. Enter **tdm-group 1 timeslots 2 speed 64** to create a TDM group for DS0 2 on the T1 network **t1 0/1** at 64 kbps.
5. Enter **exit** to return to Global configuration mode.
6. Enter **cross-connect 1 t1 0/1 1.2 fxo 4/1** to connect DS0 2 of the T1 network to the FXO port (4/1).

A screenshot of a Notepad window titled "t1-x-fxs.txt - Notepad". The window contains a configuration script for a cross-connect. The script starts with a multi-line comment explaining its purpose: mapping DS0 2 from T1 0/1 to FXS 4/1. The script then lists the configuration commands: "interface fxs 4/1", "no shutdown", "interface t1 0/1", "tdm-group 1 timeslots 2", "exit", and "cross-connect 1 t1 0/1 1.2 fxs 4/1". The script ends with "End script".

```
t1-x-fxs.txt - Notepad
File Edit Format View Help

!This script configures the cross-connect T1 WAN
! connection (t1 0/1) to the FXS interface. A text version of
! this script (t1-x-fxs.txt) is available on the ADTRAN OS
! Documentation CD.
! Mapping DS0 2 from T1 0/1 to FXS 4/1
interface fxs 4/1
!
no shutdown
!
interface t1 0/1
!
tdm-group 1 timeslots 2
!
exit
!
cross-connect 1 t1 0/1 1.2 fxs 4/1
!
!End script
```

Create a T1 to Serial Cross-Connect



For this example we will map DS0s 1-12 from T1 WAN 0/1 to Serial 1/1. 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 **no shutdown** to activate the serial interface.
3. Enter **config terminal** to enter the Global configuration mode.
4. Enter **interface t1 0/1** to access the configuration parameters for the WAN 0/1 interface.
5. Enter **tdm-group 1 timeslots 1-12 speed 64** to create a TDM group for DS0 1-12 on the T1 network (t1 0/1) at the speed of 64 kbps for each DS0.
6. Enter **exit** to return to Global configuration mode.
7. Enter **cross-connect 1 t1 0/1 1 ser 1/1** to connect DS0 1-12 of the T1 network to the serial 1/1 (V.35) interface.

```
t1-x-ser.txt - Notepad
File Edit Format View Help
! This script configures the cross-connect for the T1 WAN
! connection (t1 0/1) to the Serial Interface (1/1). A text
! version of this script (t1-x-ser.txt) is available on the
! ADTRAN OS Documentation CD.
! Mapping 12 channels from WAN 0/1 to Serial 1/1

interface serial 1/1
!
no shutdown
!
interface t1 0/1
!
tdm-group 1 timeslots 1-12 speed 64
!
exit
!
cross-connect 1 t1 0/1 1 ser 1/1
!
! End Script
```

Create a T1 to T1 Cross-Connect



For this example we will map DS0s 1-12 from T1 WAN 0/1 to T1 1/1. 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 1-12 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 1-12 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 1-12 of the T1 network to the Expansion Slot T1 interface (**rbs** is optional and is used when doing robbed-bit-signaling with voice applications).

```
t1-x-t1.txt - Notepad
File Edit Format View Help
This script creates a TDM connection between two T1
! interfaces for digital voice. A text version of this
! script (t1-x-t1.txt) is available on the Adtran OS
! Documentation CD.
! First activate the first T1 interface configuration mode.
interface t1 0/1
!
! This activates the configuration parameters for this
! interface. Your prompt should now display
! IAD(config-t1 0/1)#.
!
! Create a TDM group on this T1 interface
tdm-group 1 timeslots 1-12
!
! Activate the interface to pass data.
no shutdown
!
! Activate the second T1 interface configuration mode.
interface t1 1/1
!
! Create a TDM group on this T1 interface
tdm-group 2 timeslots 1-12
!
! Activate the interface to pass data.
no shutdown
!
! Exit back to the global configuration mode
exit
! Connect TDM Group on T1 0/1 to TDM Group on T1 1/1
```

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.