

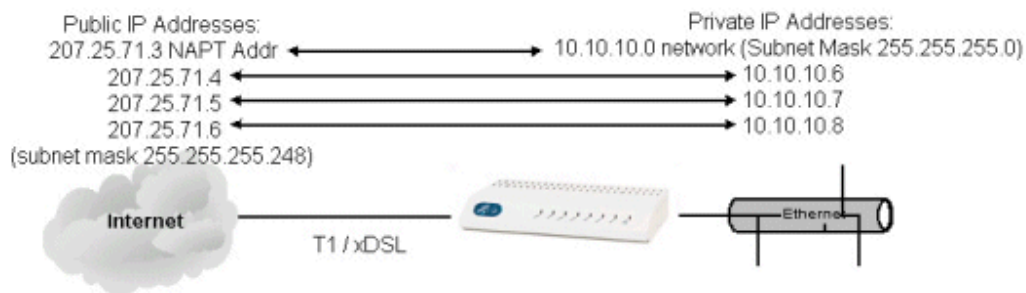


## TECHNICAL SUPPORT NOTE

### Configuring the Total Access 600 Series IAD with multiple public IP address to the Internet (NAPT and 1:1 NAT)

#### Introduction

This Technical Support Note describes how to configure the ADTRAN TA 600 series IAD with multiple public IP addresses to the Internet (see Figure 1). Only one of the public IP addresses will be used by private IP addresses to access the Internet. The other public IP addresses will be directly mapped to a private IP address for specific applications. This technical support note will only address the Layer 3 (IP) settings.



#### Terminology

**Basic Network Address Translation or 1:1 NAT** - One private IP address is translated to one public IP address and vice-versa. For packets outbound from the private network, the source IP address and related fields such as IP, TCP, UDP and ICMP header checksums are translated. For inbound packets, the destination IP address and the checksums as listed above are translated.

**Network Address Port Translation (NAPT)** - NAPT allows a set of hosts on a private network to share a single public IP address. By extending the notion of translation one step further to the transport identifier (e.g., TCP and UDP port numbers, ICMP query identifiers), several private hosts can be multiplexed onto a single public IP address. For packets outbound from the private network, NAPT would translate the source IP address, source transport identifier and related fields such as IP, TCP, UDP and ICMP header checksums. For inbound packets, the destination IP address, destination transport identifier and the IP and transport header checksums are translated.

#### Establishing a Console Session

To configure the TA 600 series IAD, it is necessary to establish a console session to it using a VT-100 terminal. Terminal parameters are as follows:

**Baud:** 9600  
**Data Bits:** 8  
**Parity:** None  
**Stop Bit:** 1  
**Flow Control:** None

After a connection is established, you will see a LOGIN prompt. There is no password or login set by default, so you can get to the main menu by simply pressing ENTER. CTRL-R will refresh the display.

## **Layer One Interfaces and Layer 2 Protocols on a TA 600 Series IAD**

- The Layer 1 interface in a TA 600 series IAD is set based on the network interface module installed (T1, SDSL, SHDSL, or ADSL).
- The Layer 2 protocol used to connect to the ISP may be PPP, Frame Relay or ATM.

## **Configure the TA 600 Series IAD**

1. Configure the WAN interface for Network Address Port Translation.

Depending on your Layer 1 and Layer 2 interfaces, go into one of the following menu structures:

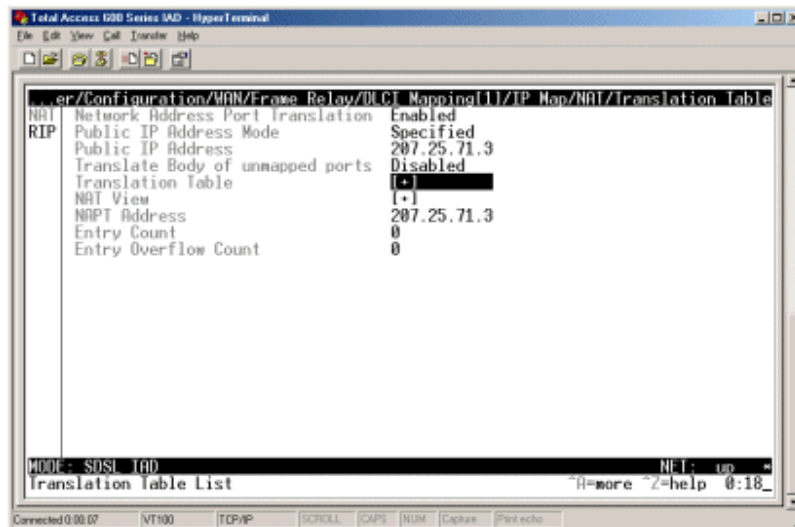
*TDM Menus with PPP and a T1 network interface*  
Router/Config/WAN/PPP Profile/IP/NAT

*TDM Menus with Frame Relay and a T1 network interface*  
Router/Config/WAN/Frame Relay/DLCI Mapping[1]/IP Map/NAT

*ATM Menus with T1, SDSL, ADSL or SHDSL network interface*  
Router/Configuration/WAN/ATM[1]/RFC1483 IP/NAT

*FR Menus with T1 or SDSL network interface (only with Copper Mtn. DSLAMs)*  
Router/Configuration/WAN/Frame Relay/DLCI Mapping[1]/IP Map/NAT

Enable Network Address Port Translation. You should see a menu similar to the following picture:



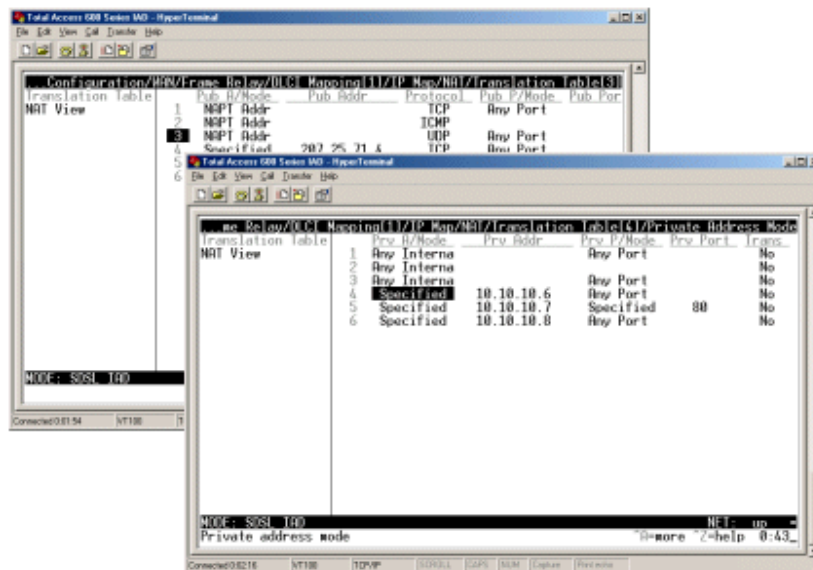
**Note:**The Total Access 600 series IAD can do NAT to take one public IP address and share it among many private IP addresses for Internet Access. If a customer needs multiple public IP addresses for web servers, ftp servers, etc, then the TA 600 series IAD can perform a 1: 1 NAT to map a public IP address to a private IP address.

2. Configure the Translation Table to do 1:1 NAT to map public IP addresses to private IP addresses.
  - a. Enter into the translation table.
  - b. Under Pub A/Mode select 'Specified'
  - c. Under Pub Addr enter in a public IP address
  - d. Leave the Protocol at TCP (if you want UDP traffic, you'll need to add another line in the translation table)
  - e. Leave Pub P/Mode at 'Any' unless you need to restrict the traffic to a TCP port number. For example, you could only allow http traffic through the translation table by specifying port 80.
  - f. Scroll to the right, then under Prv A/Mode select "Specified".
  - g. Under Prv Addr enter in the private IP address you want to map to that public IP address. Remember the private IP address must fall in the network subnet assigned to the Ethernet port of the TA 600 series IAD.
  - h. Leave Prv P/Mode at "Any" unless you need to direct the IP traffic to a specific port number on that private IP address.
  - i. Leave Trans Body of unmapped ports as disabled if you will be running any encrypted protocols through this IP address. On the other hand, protocols such as FTP or ICQ will require this feature to be enabled.

- j. If additional public IP addresses are needed, select the line number and press the "I" key to insert another entry. Then, follow the steps again starting with step b.

The example screen shots below show the following:

- o The IAD is configured for NAT to pass TCP, UDP and ICMP traffic.
- o On line 4, the public IP address 207.25.71.4 is mapped directly to the private IP address 10.10.10.6. All port numbers for TCP are passed.
- o On line 5, the public IP address 207.25.71.5 is mapped directly to the private IP address 10.10.10.7. Only Http traffic (TCP port 80) is passed through the translation.
- o On line 6, the public IP address 207.25.71.6 is mapped directly to the private IP address 10.10.10.8. All port numbers for TCP are passed.



### 3. Reset the router

**Note:** It is very important to reset the router. The new settings will not take effect unless it is reset.

To reset the router, go into to /System Utility/ Terminal Mode and press ENTER. This will give you a prompt at the top of the screen where you will need to type "r" for reset. Then, press ENTER. Finish by confirming the reset with a Y.

Your ADTRAN TA 600 series IAD is now configured with multiple public IP addresses mapped 1:1 to private IP addresses. In addition, you have one public IP address that is used by many private IP addresses to access the Internet.

If you experience any problems using your ADTRAN product, please contact [ADTRAN Technical Support](#).

#### DISCLAIMER

ADTRAN provides the foregoing application description solely for the reader's consideration and study, and without any representation or suggestion that the foregoing application is or may be free from claims of third parties for infringement of intellectual property rights, including but not limited to, direct and contributory infringement as well as for active inducement to infringe. In addition, the reader's attention is drawn to the following disclaimer with regard to the reader's use of the foregoing material in products and/or systems. That is:

ADTRAN SPECIFICALLY DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL ADTRAN BE LIABLE FOR ANY LOSS OR DAMAGE, AND FOR PERSONAL INJURY, INCLUDING BUT NOT LIMITED TO, COMPENSATORY, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES.