



Q&A

How do I configure an Atlas 550/800 Plus/810 Plus for frame relay to the internal router?

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A:

Introduction

Frame relay is a packet-switched service that allows efficient transfer of bursty traffic in a wide area network (WAN) environment. It offers lower-cost data transfer, when compared to typical point-to-point applications, by using virtual connections within the frame relay network and by combining those connections into a single physical connection at each location. Frame relay providers use a frame relay switch to route the data on each virtual circuit to the appropriate destination. This technical support note will discuss the configurations necessary to enable frame relay on an ATLAS 550/800^{PLUS}/810^{PLUS} using the internal router.

Before you begin

Before configuring the ATLAS 550/800^{PLUS}/810^{PLUS}, the following information must be obtained from the frame relay service provider:

1. Frame relay signaling method (Annex D, Annex A, or LMI)
2. Data Link Connection Identifiers (DLCI) for each site

You must also have an ATLAS 800^{PLUS}/810^{PLUS} with active frame relay software. The ATLAS 550 comes with the frame relay software already active.

If you have multiple physical connections to the frame relay provider, please review the [HDLC considerations](#) to ensure you have enough HDLC resources for your application.

Frame Relay Example Network

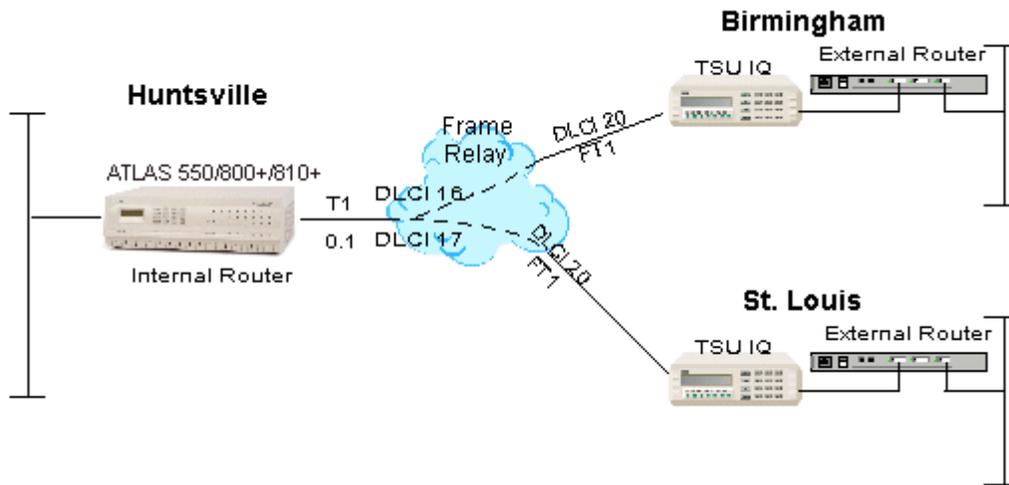


Figure 1

Configuring Timing

Under the **System Config** menu, **Primary Timing Source** must be changed so that the ATLAS is taking timing from the frame relay network. In the example network of Figure 1, timing will be taken from the frame relay network on Slot: 0 Port: 1 which is one of the built in T1/PRI ports. This configuration is shown in Figure 2 below.

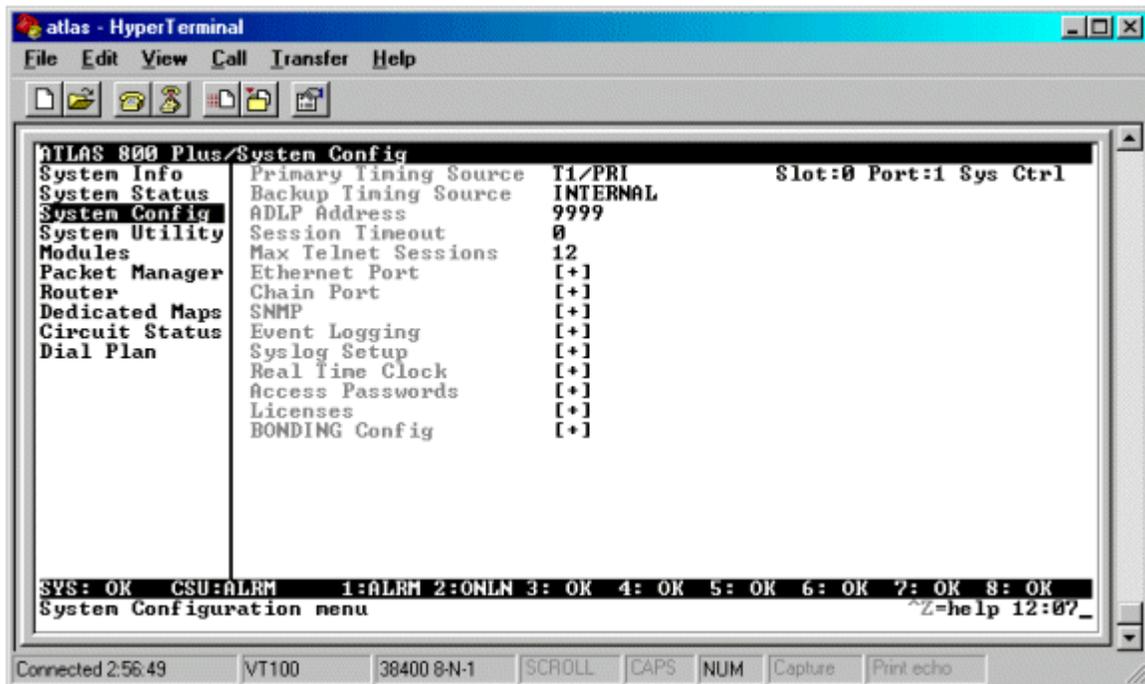


Figure 2

Configuring Packet Endpoints

A **Packet Endpoint** is a virtual port within the ATLAS into which a specified physical port (a T1 or a Nx56/64) terminates its data for further routing for the system. Each physical port doing frame relay must have a **Packet Endpoint**.

1. Under **Packet Manager**, **Packet Endpoints**, and **Config**, create an endpoint for each physical port. For this application there will only be one endpoint for the T1 interface. The internal router does not require an endpoint. Choose **Frame Relay** as the **Protocol** for the endpoint as shown in Figure 3. All endpoints will use RFC 1490 frame relay encapsulation.

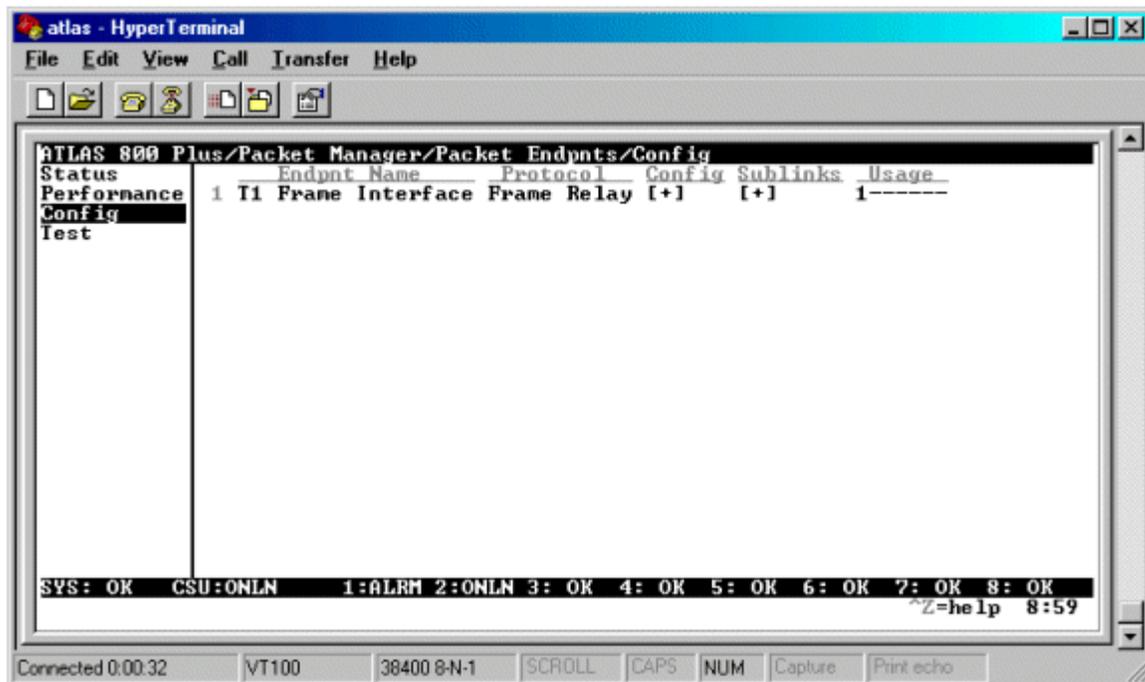


Figure 3

2. Configure the T1 frame relay endpoint by pressing **ENTER** on **Config** for that endpoint. Select **User** for the **Signaling Role** of this endpoint. Select the appropriate **Signaling Type**, either **Annex D** or **LMI**, to match what the frame relay Provider is using on their frame relay switch. In this example, the frame relay switch is using **Annex D** signaling as shown in Figure 4. If the signaling type is not known, it may be set to **Auto**.

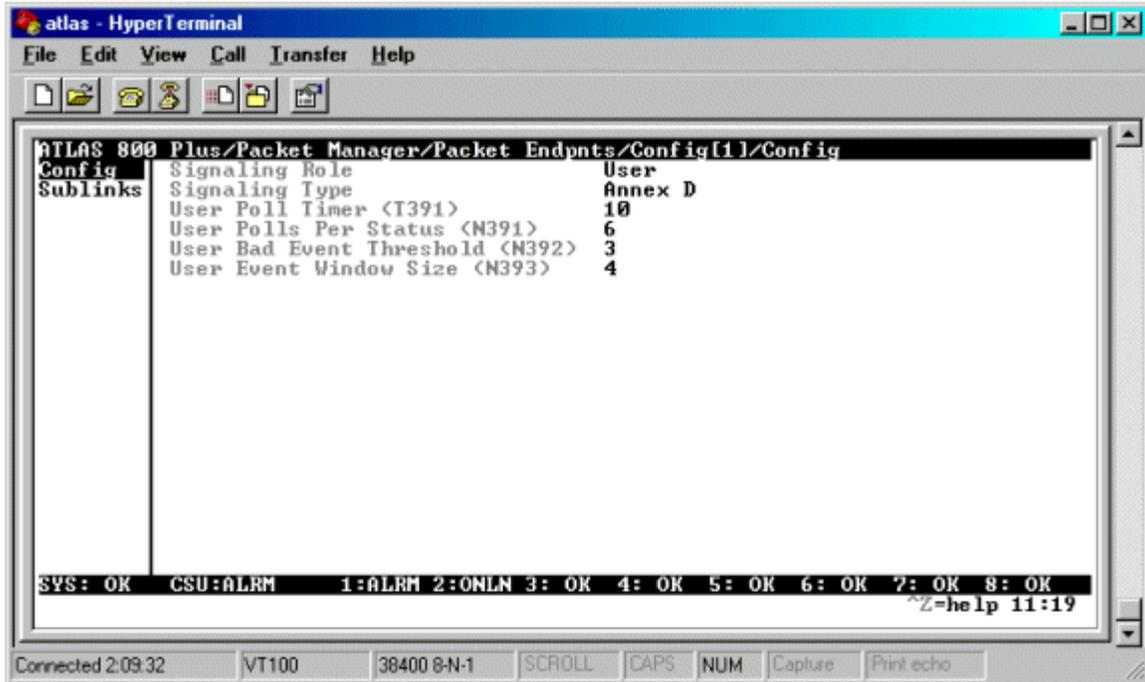


Figure 4

3. Configure the Permanent Virtual Circuits (PVCs) under **Sublinks** for the endpoint by pressing **ENTER** on the **Sublinks** option for that endpoint. Name the PVC and enter the locally significant DLCI for each as shown in Figure 5. In this example, the PVCs are named for the remote site location that the PVC is mapped to on the far end of the frame relay network. Press **ENTER** on the **Config** option of this **Sublinks** menu. By default, the **Primary | Backup Selection** should be **Primary**.

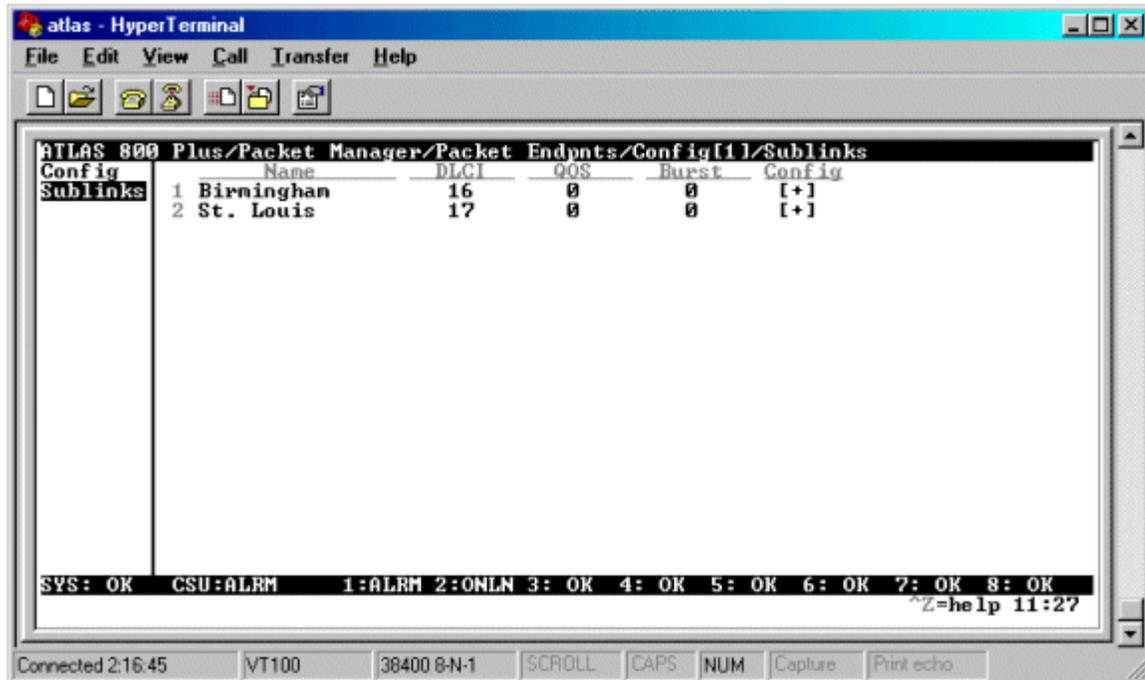


Figure 5

After the **Packet Endpoint** has been configured, the next step is to link the endpoint to the internal router. This is done in the **Packet Connects** menu.

Configuring Packet Connects

In this example, we are using the internal router that is built into the ATLAS. This will require a packet connect from the T1 endpoint, *Birmingham* sublink, to the internal router. We will also need a packet connect from the T1 endpoint, *St. Louis* sublink, to the internal router, as shown in Figure 6. The **Protocol** option should be set to **IP**.

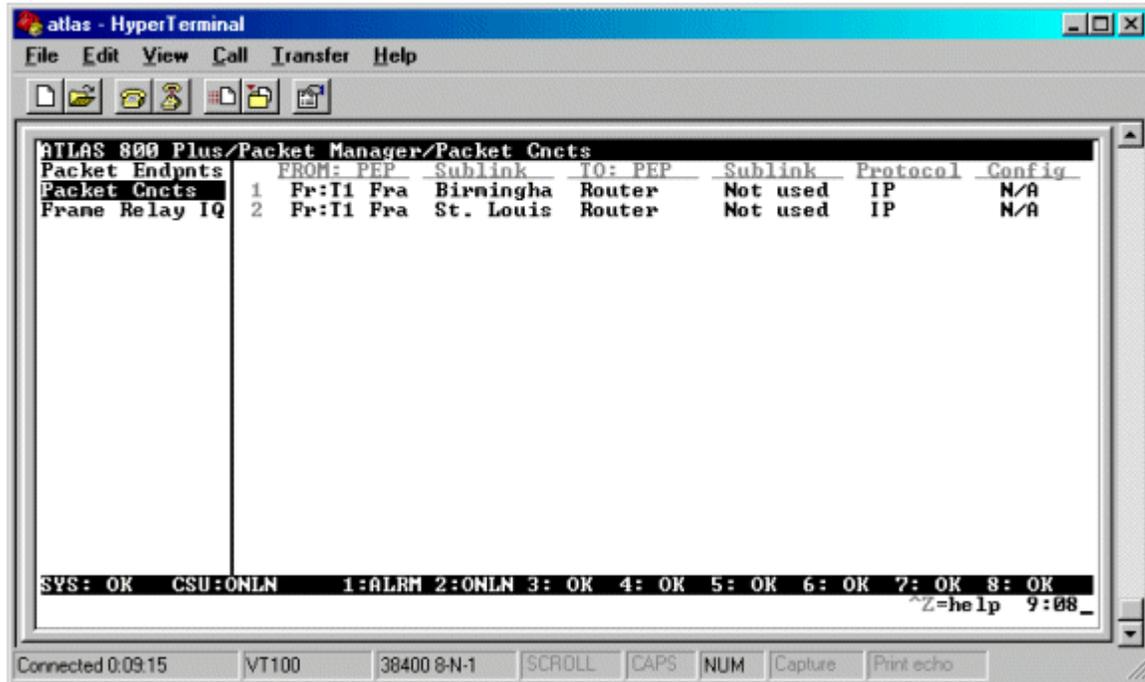


Figure 6

The next step is to map the virtual connections to an actual physical port on the ATLAS. This is done in the **Dedicated Maps** menu.

Configuring Dedicated Maps

Under **Dedicated Maps**, press **ENTER** on **Create/Edit Maps**, then **Connects**. For the **FROM Slot** and **Port** fields, select the physical slot and port to which the frame relay T1 line will be connected. For the **TO Slot/S** field, select **PktEndpt**. For the **Port/PEP** field, select the primary frame relay endpoint. Press **ENTER** on the **From Config** field and designate the number of channels to be used on the T1. In the example, 24 channels are being used. Figure 7 shows how the **Connects** menu looks as configured for the example in Figure 1, which uses the internal router.

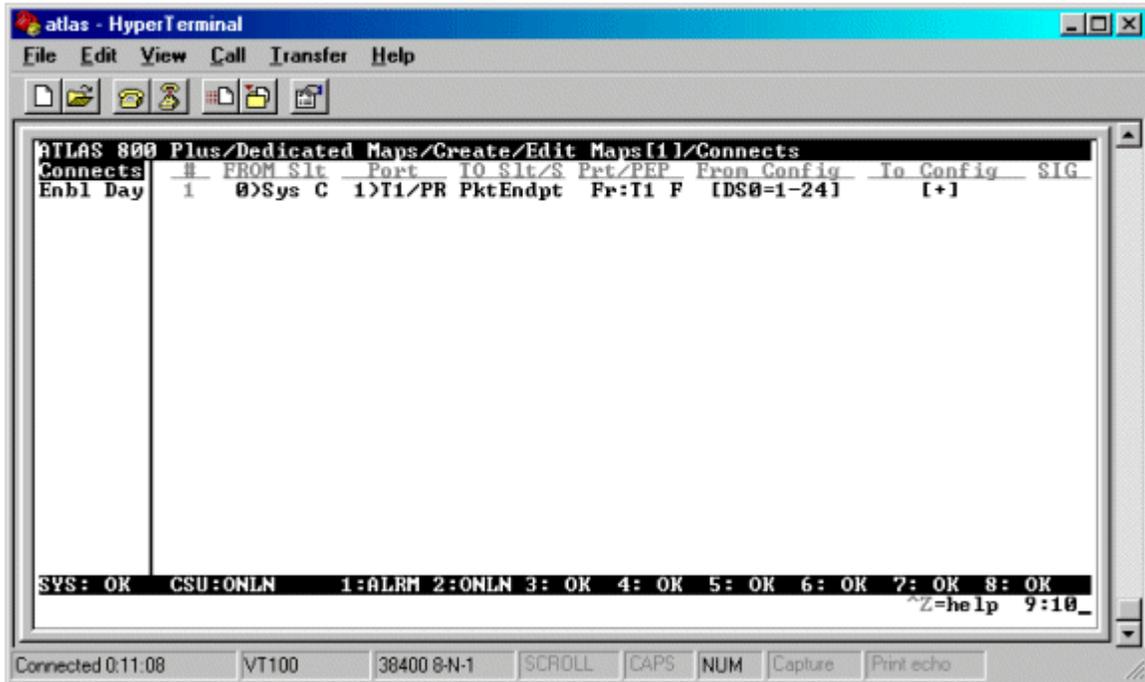


Figure 7

Completing the Application

The frame relay configuration for the example in Figure 1 is now complete. To make sure that your frame relay is active, go to **Packet Manager/Packet Endpts/Status** and make sure that **SigState** says **Active**. Figure 8 shows the active status.

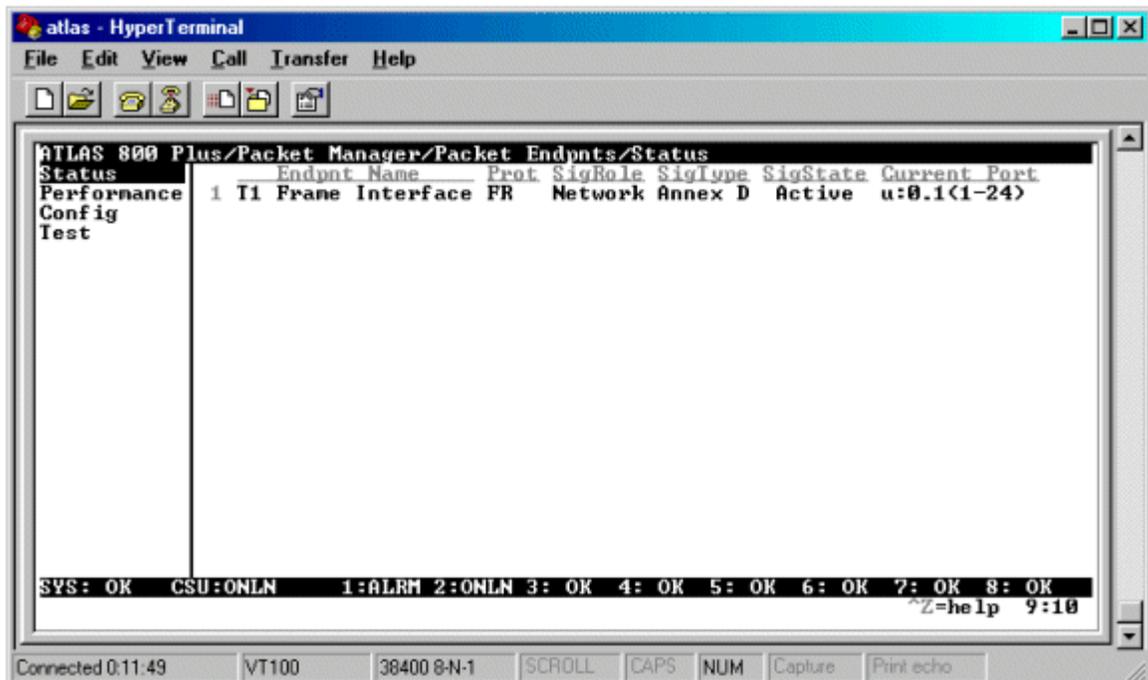


Figure 8

To make sure that the individual sublinks are up, go to **Packet Manager/Packet Endpts/Performance/Sublink Stats**. Each sublink will be listed and the **Stat** should be *Up*. Figure 9 shows two active sublinks.

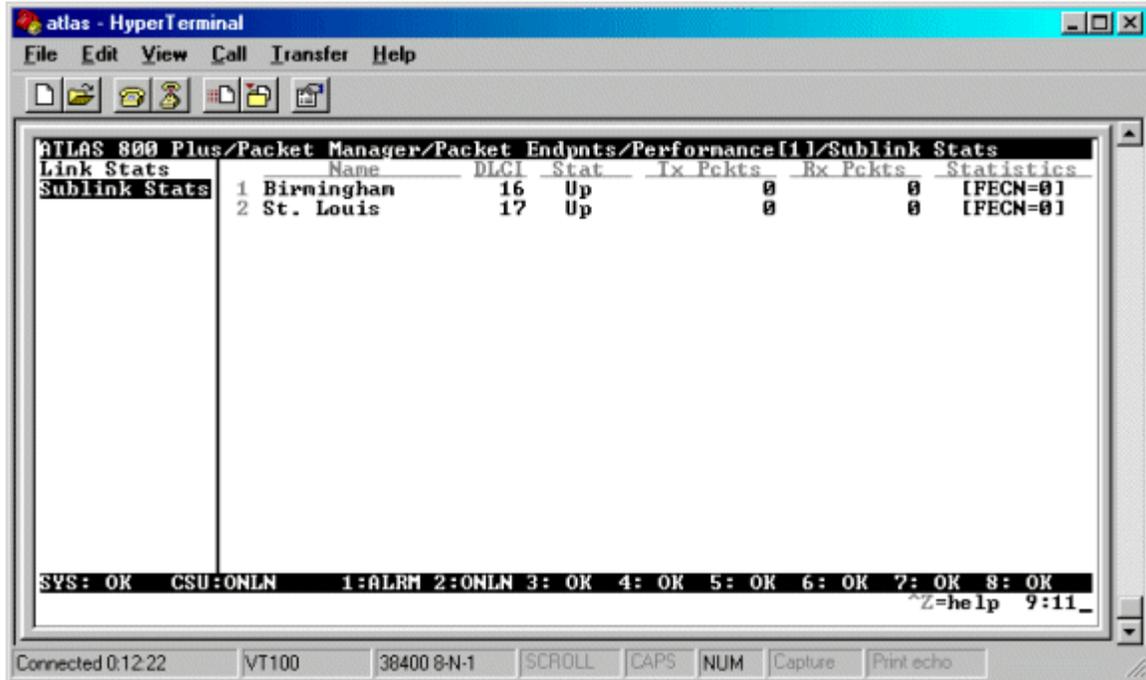


Figure 9

To view configuration examples for other various applications, such as Frame Relay using an external router, Voice over Frame Relay, Private Frame Relay Networks, or IP Routing with Dial Backup, please see the [Frame Relay manual](#), Chapter 6.

Possible Problems and Troubleshooting Tips

If you are not able to get the frame relay connection up, there are several things to check. This section will describe possible problems and steps to eliminate them.

Frame Relay Link is down

Cabling:

- On the **T1 Module menu**, check the **Alarm Status**. If you have a LOS alarm, verify that your straight through RJ-45 cable is plugged into the correct port.

Packet Endpoint not mapped:

- Go to **Packet Manager/Packet Endpts/Status/Current Port** and make sure that a physical port is indicated.

Signaling Mismatch:

- Go to **Packet Manager/Packet Endpts/Config/Signaling Type** and verify that the signaling type matches that provided by the carrier and the external DTE.

Link is Active but not passing data

DLCI not active:

- Go to **Packet Manager/Packet Endpts/Performance** and verify that the DLCI shows active. If the DLCI is shown as inactive and the packet endpoint is configured as the **USER** side of UNI, the frame relay network has not activated this DLCI.

No data on DLCI:

- Go to **Packet Manager/Packet Endpts/Performance/Link Stats** and watch the **TX Packets and RX Packets**. If no packets are being received, verify that external equipment is configured to transmit data on this DLCI.
- Go to **Packet Manager/Packet Cncts** and verify that this DLCI is mapped.

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