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# Chapter 1: Introduction

## 1.1 About ERT-2501

### 1.1.1 ERT-2501 Feature

#### *User Interface*

ERT-2501 can use Command Line Interface (CLI) or NetGrip utility to configure. NetGrip is used to setup and management ERT-2501 with a user-friendly interface that works under Windows 95/98/NT/2000/ME. You can just select the command on the pull down menu, input data on the dialogue box as other windows program.

#### *Protocol and Routing*

- ▲ ERT-2501 support two network protocols, IP and IPX. It supports three WAN protocol on its WAN interface: PPP, HDLC and Frame-Relay. It supports three frame formats on its Ethernet Interface: Ethernet V2, 802.2, 802.3.
- ▲ Support Static routing and dynamic routing protocol, RIP.

#### *Data Rate*

- ▲ Its WAN interface data rate can be up to T1 (1.544Mbps) or E1 (2.048Mbps).
- ▲ Can utilize 100% of its T1/E1 data rate to transfer data.

#### *Bridging*

- ▲ Transparently bridges LAN that do not have routing function.
- ▲ Support Spanning Tree Algorithm

#### *Network Management*

- ▲ Connect PC to ERT-2501's console port, run NetGrip to manage it through the console port.
- ▲ Connect PC to ERT-2501 through Network, run NetGrip to manage it through the network.
- ▲ Connect PC to ERT-2501's console port, run VT-100 terminal-emulation program to manage it through command line interface.
- ▲ Connect PC to ERT-2501 through network, run Telnet to manage it through command line interface.
- ▲ ERT-2501 supports MIB II and can be managed by using SNMP management software.

#### *Security*

- ▲ Use IP packet filter technology to check network address, protocol type and port number.
- ▲ Use password checking function to insure the security of router's configuration.
- ▲

Table 1-1 The feature list of ERT-2501

Data Rate	WAN interface can have totally 2.048bps E1 Data rate 100% utilization to transmit / receive packets on T1/E1 data rate.
LAN protocol WAN protocol	IP, IPX PPP, HDLC, Frame Relay and X.25
Frame Relay Support	Complies to Q.920, Q.921 and Q.922 Supports RFC 1490 encapsulation Supports LMI and Annex-D Supports up to 23 PVCs Completely supports CIR/BIR/BECH
PPP Support	Completely supports RFC1661 (PPP and LCP) RFC 1332 (IPCP)

	RFC 1552 (IPXCP) RFC 1638 (BNCP)
Firewall support	"Connect to Internet securely by using guest-list technology"
Routing Support	IP RIP, IPX RIP
Compatibility	Compatible with major vendors' bridge and router
Bridging	Transparent bridge with all non-routable LAN protocol Support Spanning Tree Algorithm
Network Management	<ul style="list-style-type: none"> <li>♦ Can be managed through the following 4 methods:</li> <li>♦ NetGrip for Windows 95/98/NT/2000/ME</li> <li>♦ Telnet</li> <li>♦ VT-100 terminal program</li> <li>♦ Standard SNMP management system</li> </ul>
SNMP Agent	Support MIB II with bridging and router extension

### 1.1.2 Overview

The front and rear view of ERT-2501 is showed as Fig 1-1.



Figure 1-1 The front and rear view of ERT-2501

Table 1-1 ERT-2501 component illustration

Label	Description
POWER	110V/220V auto-sensing
CONSOLE	DB9 (male)
Ethernet	AUI (DB15 female) and RJ-45 auto-sensing
PORT 1 PORT 2	Two DB25(male) provide reliable WAN connection

The WAN port is connected to Data Terminal Equipment (DTE), you can use software to configure this port as RS-232, RS-422, RS-485 or V.35.

The RS-232 interface is standard and can be connect to Modem with standard cable. You need special cable for connect to other 3 non-standard interfaces.(See appendix A)

Table 1-2 ERT-2501 LED illustration

LED	Description	Color	Status
System Power	Power	Green	ON: Power on OFF: Power off
System Alarm	Error on Ethernet or WAN interface	Red	ON: Error OFF: OK
LAN Status	Ethernet connection	Yellow	ON: connected OFF: disconnected
LAN Collision	Collision	Green	ON: There is collision OFF: No collision
WAN1 TX	Transmit data	Yellow	ON: Link on Blink: Transmitting Data OFF: Link off
WAN2 TX	Transmit data	Yellow	ON: Link on Blink: Transmitting Data OFF: Link off
WAN1 RX	Receive data	Green	ON: Link on Blink: Receiving Data OFF: Link off
WAN2 RX	Receive data	Green	ON: Link on Blink: Receiving Data OFF: Link off

### 1.1.3 ERT-2501 Specification

Ethernet Port	Number	1 RJ-45 port, 1 AUI port
	Data Rate	10Mbps
	Protocol	Ethernet
	Physical Interface	10Bsse-T : RJ-45 10Base-5 : AUI(DB15)
WAN Port	Number	2
	Data Rate	Totally 2.048Mbps (E1) data rate
	Protocol	PPP, HDLC, Frame Relay and X.25
	Physical Interface	DB25
Console Port	Number	1
	Data Rate	9600bps
	Physical Interface	DB9
Dimension (Length x Width x height)		440mm x 270mm x 44mm
Operating Temperature		0 degree C to 40 degree C
Storage Temperature		-10 degree C to 50 degree C
Operating Relative Humidity		10% ~ 90% (non-condensing)
Storage Relative Humidity		10% ~ 90% (non-condensing)
AC power input		Input Voltage : 110V ~ 220V Input Frequency : 50 Hz ~ 60 Hz
Power Consumption		40W +/- 5 %
EMI certification		FCC Part 15, Class B EN55022, Class B
Safety Regulations		TUV EN60950 CUL CAS 950 UL 1950
Sensitivity		EN50082-1 (IEC801)

## 1.2 ERT-2501 Typical Application

The typical network application of ERT-2501 is:

- ▲ Point to Point Bridging.
- ▲ Point to Multi-Point Connection.
- ▲ Virtual Private Network (VPN).
- ▲ Internet connection

### 1.2.1 Bridging

The simplest application of ERT-2501 is Point to Point Bridging(see Fig 1-3). It simply connect to remote LAN. It is ERT-2501's default settings. You just need to "Plug and Play".

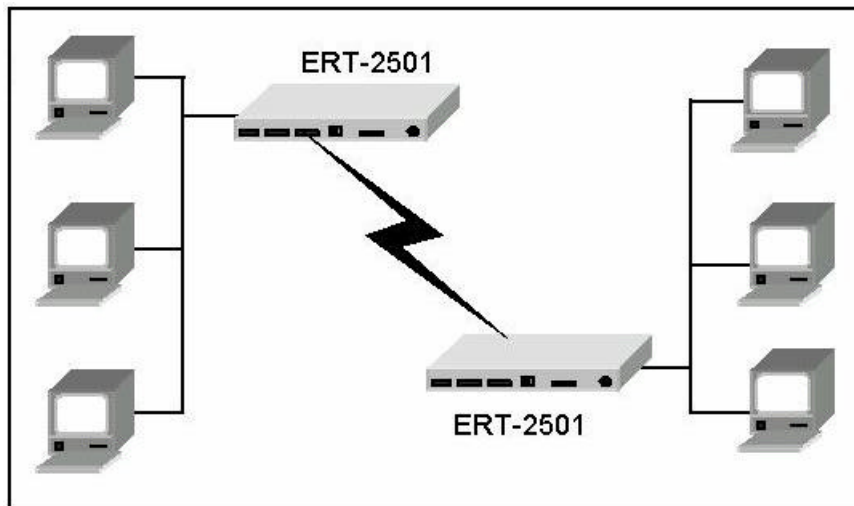


Fig 1-3 ERT-2501 Point to Point Bridging

### 1.2.2 Point to Multi-Point Connection

For users that want to connect all their remote sites to a central site, ERT-2501 will be a good solution for the remote sites. Users can connect the remote LANs with multi-protocol to a central multi-port routers located on the central site (see Fig. 1-4).

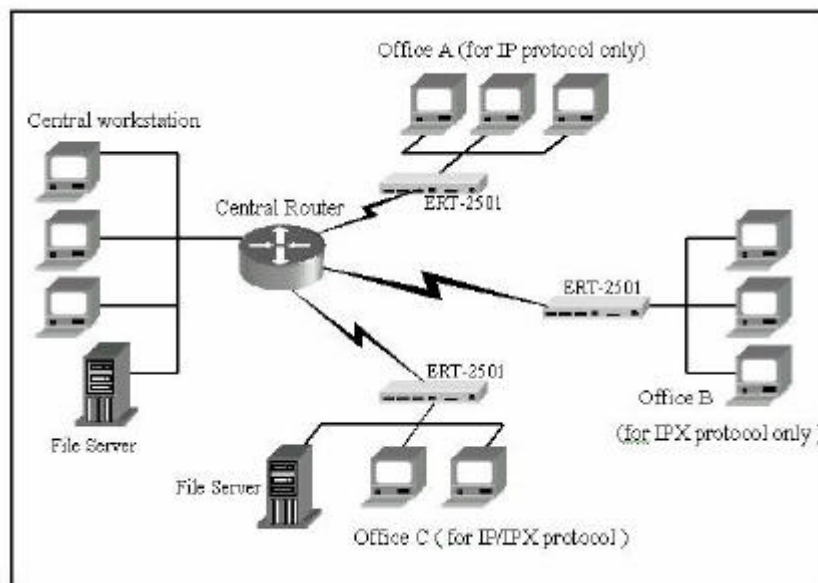


Fig 1-4 ERT-2501 Point to Multi-Point Application

On above example, each ERT-2501 is configured with PPP Protocol on its WAN Port and uses dial-up network to connect with central router. Some remote offices probably are RD centers that formed by UNIX workstation running TCP/IP. Some other remote offices probably are sales points that formed by Novell workstation running IPX/SPX. The other remote offices may support both IP and IPX as central Office.

Most service request come from remote offices to central offices. However, you probably need visit a remote office's server from another remote office or need messages transfer (including e-mail) between remote offices. All those data flow can go through central office's router.

You can disable the unused network protocol when configuration ERT-2501. Since use routing protocol, Bridging function should be also disabled. The central router probably is provided by other vender, thus its compression algorithm probably is incompatible from ERT-2501 and should also disable data compression.

### 1.2.3 Virtual Private Network

In a virtual private network (Fig 1-5), LAN to LAN is connected through the permanent virtual circuit of public frame relay network. Using virtual circuit can get better redundancy. In fact, complete network connection can realize by distribute independent virtual circuit for each ERT-2501 pairs.

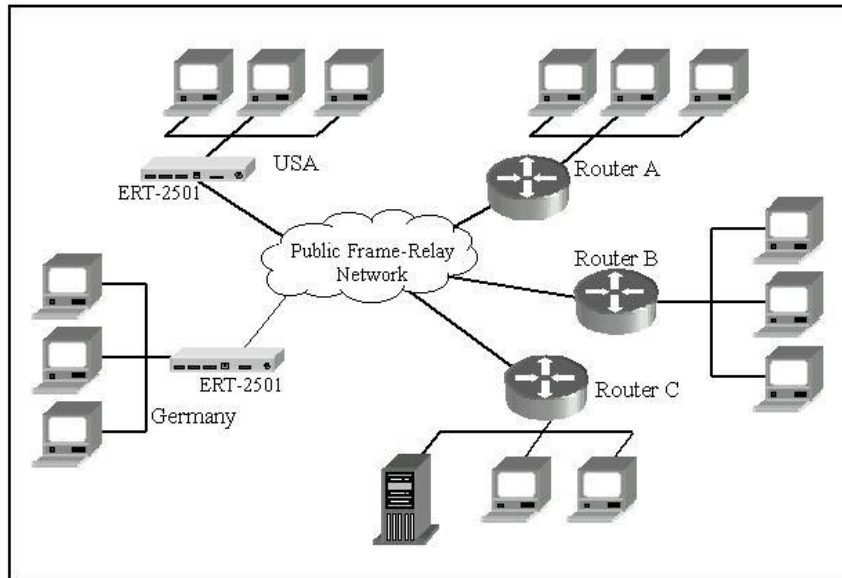


Fig 1-5 ERT-2501 Virtual Private Network

### 1.2.4 Internet connection

You can install ERT-2501 on client side for Internet connection. The connection between LAN and Internet is provided by the PPP link of Internet Service Provider.

## 1.3 Product Configuration

### 1.3.1 First configuration of ERT-2501

You can connect a PC, terminal or UNIX workstation to ERT-2501 console interface to make first configuration. You can also connect a Modem to ERT-2501's console port and dial in to make first configuration. The further configuration can be made through IP network. The following hardware requirement is suitable for console port connection.

#### *Requirement for Console Port connection:*

VT-100 terminal, or UNIX workstation or PC that run VT-100 terminal emulation program. The terminal should have the following settings:

Emulation type: VT-100

Baud rate: 9600

Data bit: 8

Parity Check : None

Stop bit: 1

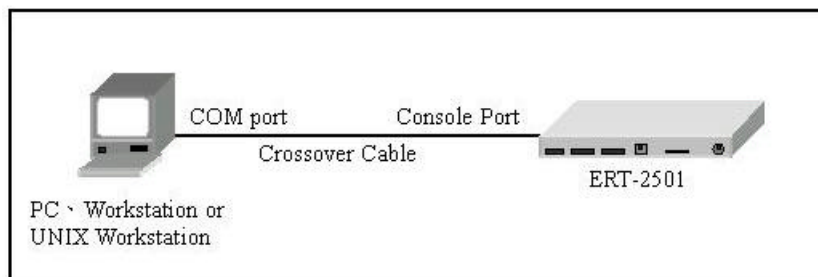
Flow Control: None

#### *Requirement for NetGrip:*

Use one Windows 95/98, Windows NT 3.51 or later Windows OS PC with DB9 (COM) serial port to connect the console port of ERT-2501. If there is only a DB25 (COM) serial port interface, you can use a DB9/DB25 interface converter to connect the control cable and PC's serial port.

### *Control cable for ERT-2501:*

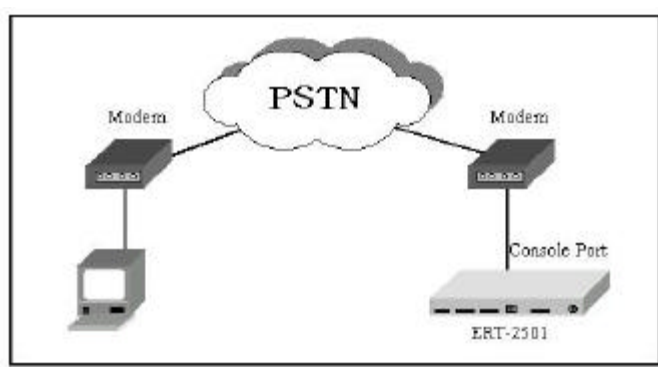
You need a Control Cable for connecting PC, terminal or a UNIX workstation to ERT-2501's console port (refer to Fig 1-7 and appendix A).



**Fig 1-7 Use Control Cable to connect ERT-2501's console port**

### *Requirement for connecting Modem to ERT-2501's console port:*

A modem cable with DB9 connector to connect. The Modem use the same parameter of console port connection (refer to Fig 1-8 and Appendix A).



**Fig 1-8 Connect Modem to console port of ERT-2501**

The following is the configuration procedure:

- ▲ Connect ERT-2501's console port to a PC
  1. Shut down the power of ERT-2501 before connecting.
  2. Connect Control Cable's DB9 connector to ERT-2501's console port. Connect another DB-9 connector to PC's serial port. Power on PC.
  3. Power on ERT-2501.
  4. Check if ERT-2501's power LED is green.
  5. Ready to enter its command line interface of install NetGrip program.
- ▲ Connect ERT-2501's console port to a workstation or terminal device.
  1. Start the UNIX workstation or VT-100 terminal.
  2. Connect the DB-9 connector of Control Cable to ERT-2501's console port, connect another DB-9 connector of Control Cable to a UNIX workstation or terminal device's serial port.
  3. Power on ERT-2501
  4. Check if ERT-2501's power LED is green.
  5. Ready to enter its command line interface to configure this router.

### **1.3.2 Install NetGrip management utility**

NetGrip can be used on Windows 95, Windows 98, Windows 2000 and Windows NT or later Windows version. ERT-2501 is provided with an installation CD. The installation procedure is as the following:

1. Insert the installation CD to your CD-ROM Drive. Click "Start" -> "Run" -> "e:\utility\setup.exe". (Assume letter E is the CD-ROM drive)
2. The Installation Wizard will startup the installation and guide you the whole process. After the installation, install wizard will create a small icon on the Desktop for easy locate and execute the program.

### 1.3.3 Connect to network

After configure ERT-2501' s console port parameters and save, you can connect to network by the following options:

- ▲ WAN connection: use PLANET V.35 WAN cable, or DB25 too DB25 (RS-232) WAN cable.
- ▲ LAN Ethernet connection: use 10Bast-T ( connect the RJ-45 port) or 10Base-5 cable (connect the DB-15 port)
- ▲ Modem connection: Use modem cable to connect ERT-2501' s WAN port.

## Chapter 2 NetGrip user's Guide

### 2.1 Enter NetGrip

Start NetGrip in Windows , you can see a screen like Figure 2-1.

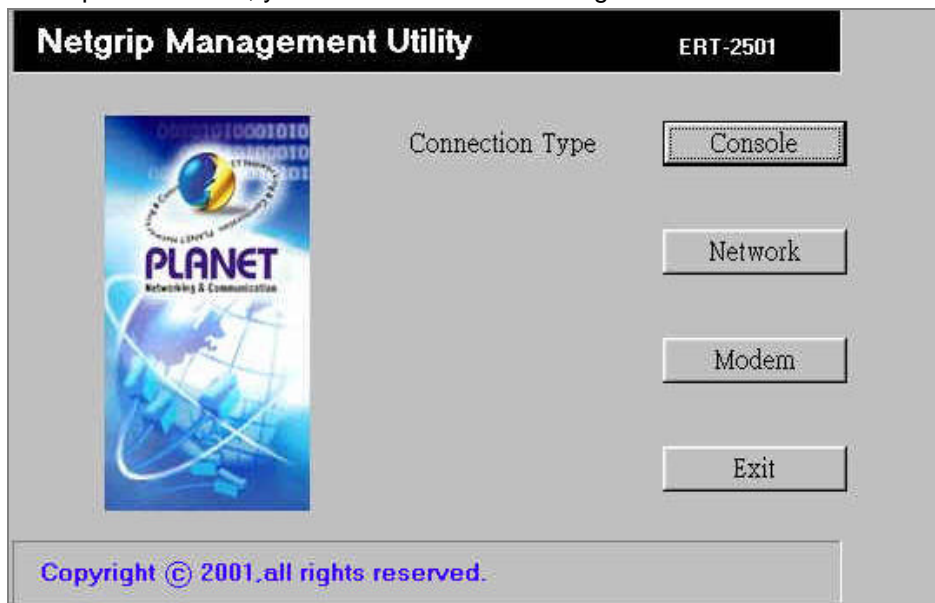


Figure 2-1 Connection Type Dialogue Box

*Connection Type options:*

- ▲ **Consol**      Use PC's serial port to connect ERT-2501's console port through Console Cable.
- ▲ **Network**      Use IP network to connect ERT-2501 Ethernet port
- ▲ **Modem**      Use modem to connect ERT-2501's console port.
- ▲ **Exit**      Quit NetGrip

#### 2.1.1 Connection Type > Console

When you select Console, please connect ERT-2501's console port to PC serial port. In general, we use this type of connection to connect ERT-2501 and configure its IP, IPX address or other network parameter, then we can enter ERT-2501 configuration screen through IP Network.

Click on **Console**, NetGrip will display "**Local Connect Settings**" dialogue box as shown on Figure 2-2.

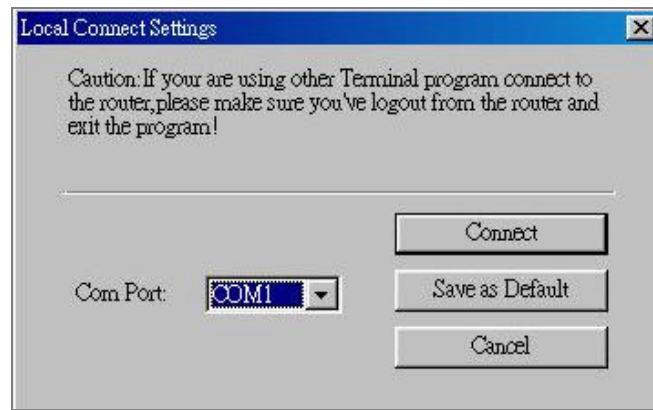


Figure 2-2 Connection Type > Console

You can select the default “COM1” or use the pull down list to select another console port.

- Click **Save as Default** to set the Com Port you selected become to default console port .
- Click **Connect** to establish connection to ERT-2501.

After click **Connect**, **Check Password** dialogue box will appear, like Figure2-3.

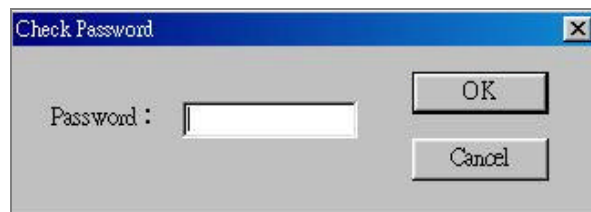


Figure 2-3 Check Password dialogue box

Please enter correct password and then click **OK**, now you can see the Validating password dialogue box, as Figure 2-4. After password checking, now you are connecting to ERT-2501. If you click “Cancel” button, you will back to Local Connect Settings dialogue box.

**NOTE:** The default password is “admin” all lower case.



Figure 2-4 Validating password dialogue box

Parameters of PC console port is as the following:

Bits per second ; 9600

Parity ; None

Data bit ; 8

Stop bit ; 1

Flow control ; None

To use NetGrip, there is no need to configure the parameters.

## 2.1.2 Connection Type > Network

Click **Network**, NetGrip will display **Network connection** dialogue box, as Figure 2-5.



Figure 2-5 Connection Type > Network

Please enter ERT-2501's IP address in **Remote IP Address**.

- i | Click **Add** to save **Remote IP Address** to Address book .
- i | Click **Connect** to establish communication with ERT-2501.

After click on **Connect**, **Check Password** dialogue box will appear. The operations is the same with Console-connection, please refer to section 2.1.1.



**Note!** Before use this configuration, you must use **console** port to set an IP address for ERT-2501, then you can configure ERT-2501 through the **Network**.

## 2.1.3 Connection Type > Modem

Click **Modem**, NetGrip will make a dial connection to ERT-2501's console port through modems as shown on Figure 2-6.



Figure 2-6 Connection Type > Modem

Select the Com Port you need from the pull down list:

- (1) Click **Save** to save the dial string on **Dial String** field.
- (2) Click **Dial** to make your modem start to dial.

After click Dial, **Check Password** dialogue box will appear. The operations is the same as Console connection, please refer to section 2.1.1.

"1234567" here, in dial string is the telephone number. Please refer to modem model and the other party's telephone number to setup the dial string.

Please set the modem's parameter as the following to connect ERT-2501's console port:

Bits per second; 9600

Parity; None

Data bit; 8

Stop bit; 1

Flow control; None

## 2.2 NetGrip Menu

After connect successfully, you can enter NetGrip's setup screen as shown on Figure 2-7.

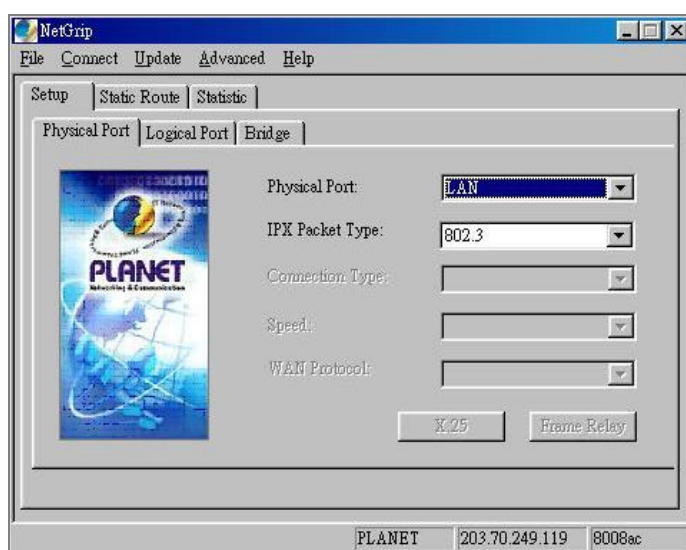


Figure 2-7 NetGrip setup screen

### 2.2.1 File menu

You can open or save NetGrip configuration file to your hard disk or a floppy disk as shown on Figure 2-8

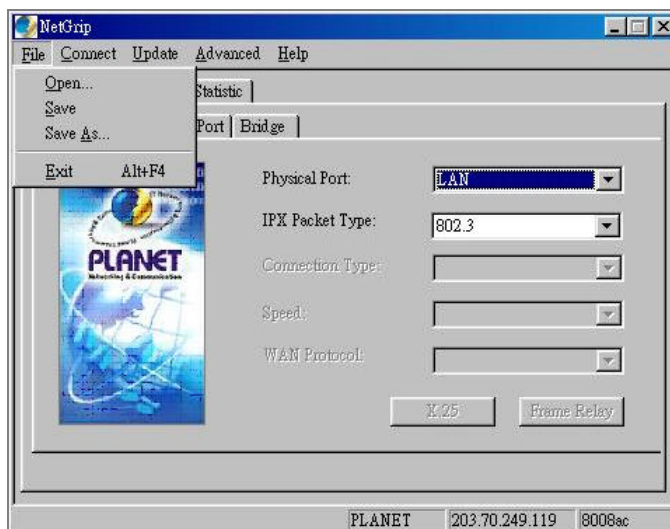


Figure 2-8 File Menu

**File > Open** Open a saved NetGrip configuration file. Select Open, NetGrip will display **Open** dialogue box, you can select the file you want to open in this dialogue box like Figure 2-9.

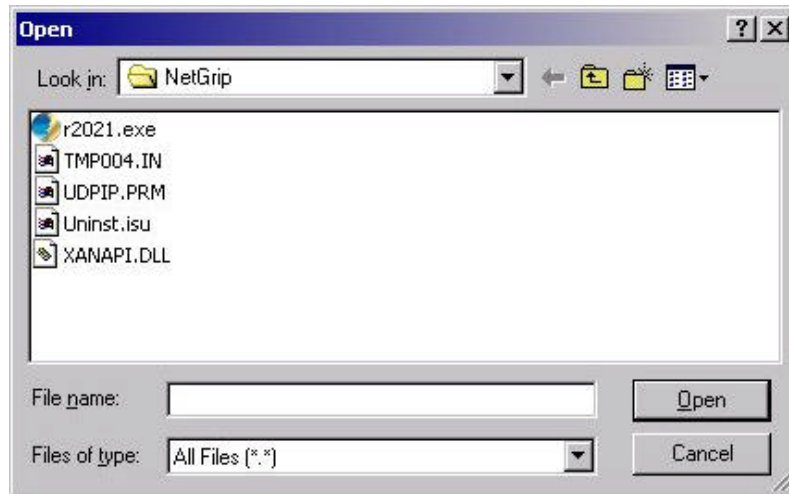


Figure 2-9 Open dialogue box

**File > Save** Save your configuration to a file.

**File > Save As** You can save the configuration to a specified file name. When you select Save As, you can see the **Save As** dialogue box as shown on Figure 2-10. Enter the file name and then click **OK**. You don't need to enter file extension name, NetGrip will automatically use the extension name as the product ID (for example, 007).

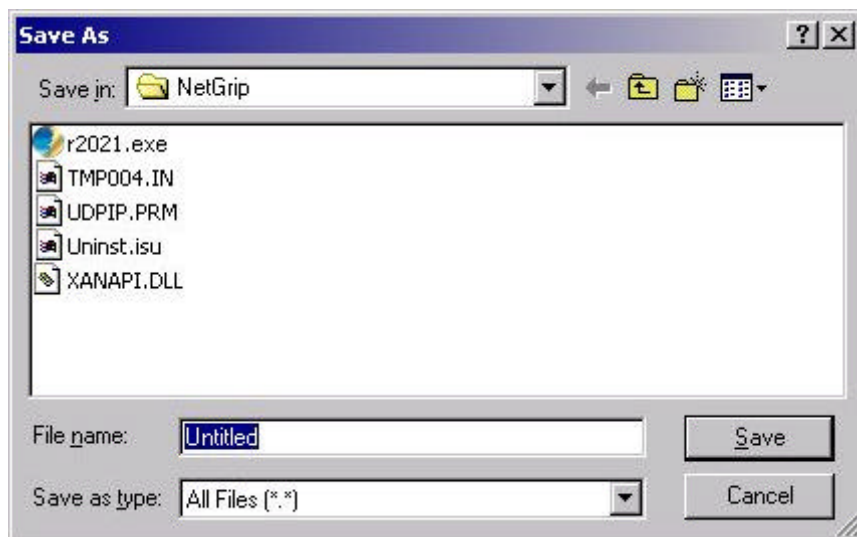


Figure 2-10 Save As dialogue box

**File > Exit** Exit NetGrip. If you don't save the configuration, NetGrip will prompt if you want to save the configuration to a file or not.

### 2.2.2 Connect menu

You can select one of the methods for NetGrip to connect to ERT-2501 as shown on Figure 2-11.

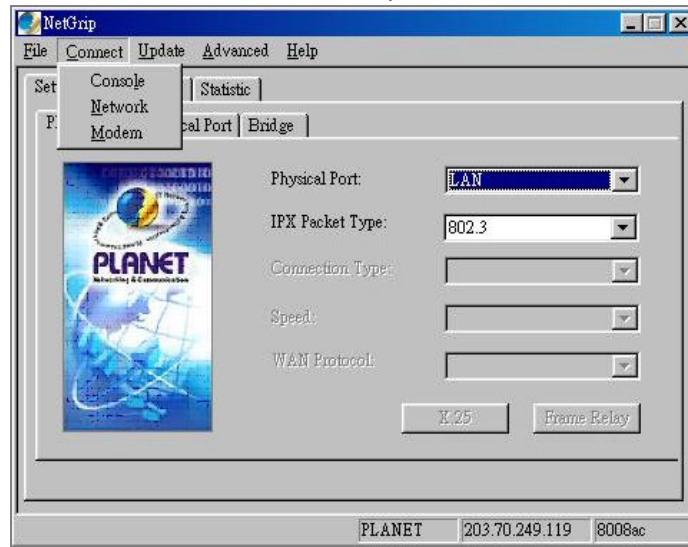


Figure 2-11 Connect Menu

You can select the following command:

- ▲ **Console:** Use a RS-232 cable to connect PC's serial port and ERT-2501's console port.
- ▲ **Network:** Connect to ERT-2501's Ethernet port through IP network.
- ▲ **Modem:** Connect to ERT-2501's console port through modem cable.

Please refer to Chapter 2.1 for detail.

### 2.2.3 Update menu

You can select the command in Update pull down list as shown on Figure 2-12.



Figure 2-12 Update Menu

**Update > Store to Flash** Use this command to transmit the new configuration to ERT-2501. After modify configuration or reload saved configuration file, please use this command to update ERT-2501.

**Update > Upgrade Firmware** Use this command to upgrade ERT-2501's firmware. You can download the latest firmware from Planet Web Site (<http://www.planet.com.tw>).

**Update > Read Configuration** Use this command to read ERT-2501's current configuration.

**Update > Reboot Router** Use this command to reboot ERT-2501.

## 2.2.4 Advance menu

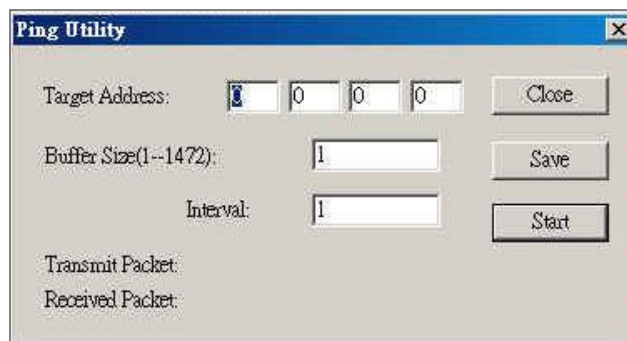
In Advanced pull down list, you can use some advanced function here, like Figure 2-13.



Figure 2-13 Advance Menu

**Advance > Ping** show **Ping** dialogue box, like Figure 2-14

You can use this function to test the connectivity between this router and remote network device by repeatedly transmit and receive ICMP Echo Request packets. If you can receive the ICMP Echo Reply packet correctly, it means your router can connect to the remote network device. If you do not receive the packet, it mean the remote network device is not working the network is blocking.



F2-14 Advanced > Ping

The following fields can be changed

- ▲ Target Address
- ▲ Buffer Size Max 1472 byte ^
- ▲ Interval In seconds ^

- (1) Click **Save** to save your changes.
- (2) Click **Start** to transmit packets. You can see total number of transmit and receive packet at the same time.
- (3) After Ping start, you can use the **Stop** button to stop.

**Advance > Setup Password** Show **Setup Password** dialogue box, like Figure 2-15.

- (1) Please enter the same words in "New Password" field and "Confirm Password" field.
- (2) Click **OK** to save the password.



Figure 2-15 Advanced > Setup Password dialogue box



Password setting in NetGrid will also apply to command line interface.

If you want to delete password, please click **Clear**. After password delete, password will restore to default password “admin”.

**Advanced > IP Firewall** Show IP firewall dialogue box, like Figure 2-16.

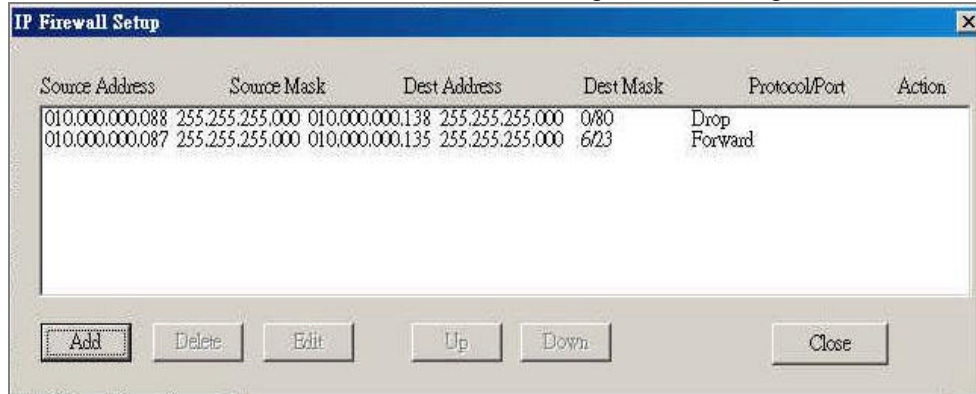


Figure 2-16 Advanced > IP Firewall dialogue box

**Note** You can have maximum 8 Firewall settings in the list.

After add IP Firewall parameter, you can see the following items on the IP Firewall list.

- **Source Address, Source Mask**
- **Dest Address, Dest mask**
- **Protocol/Port, Action** (Drop or Forward)

#### (1) Add IP Firewall

1. Click **Add**, IP Firewall dialogue box will pop-up, like Figure 2-17. Please enter the parameters in each field.

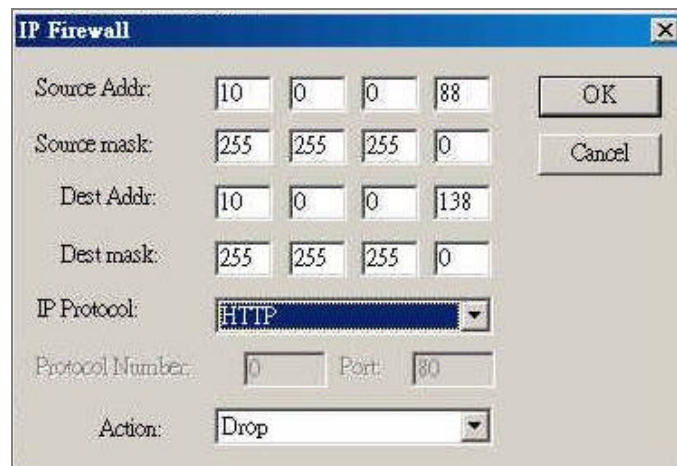
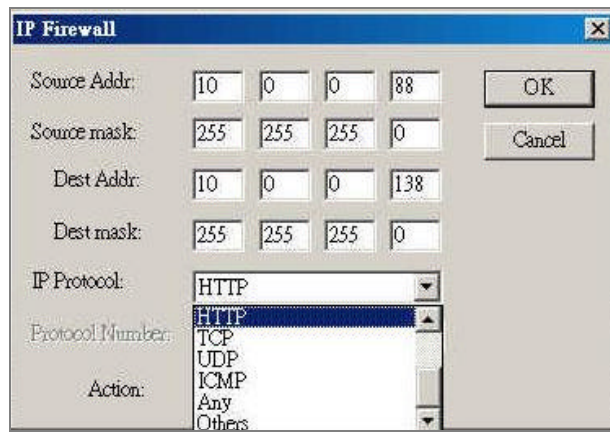


Figure 2-17 IP Firewall dialogue box

- 1.2 Please select an IP Protocol in IP protocol pull down list, like Figure 2-18. The available protocols are : Telnet, FTP, TFTP, NNTP, SMTP, HTTP, TCP, UDP, ICMP, Any, Others.



**F2-18 Select IP Protocol dialogue box**

- 1.3 You can select a method to process data packet on Action field, Drop or Forward.
- 1.4 Click **OK**, then you can see all the IP Firewall parameters are listed on the IP Firewall Setup window.

## **2. Modify IP Firewall parameter**

- 2.1 In **IP Firewall**, please select the item you want to modify, then click **Edit**, **IP Firewall** dialogue box will pop up.(Refer to Figure 2-17).
- 2.2 Change IP Firewall parameter, click **OK**, you can see the parameter had been changed in **IP Firewall Setup** window.
- 2.3 Adjust IP Firewall sequence in **IP Firewall** list .

Sequence on the list decides the function of Firewall. If you need to change their sequence, please select the IP Firewall you want to adjust and then click **UP** or **DOWN**.

## **(3) Delete IP Firewall**

- 3.1 Select the **IP Firewall** item you want to delete.
- 3.2 Click **Delete**. When NetGrip confirm window appear, click **Yes** to delete or **No** to return to **IP Firewall** window.

**Advanced > Display Router Info.** You can see the System name, System Version, Release date, Serial NO and Device ID in this Router Information box, like Figure 2-19.



**Figure 2-19 Advanced > Router Information**

## 2.2.5 Help menu

You can see the **Help** menu in NetGrip, like Figure 2-20.

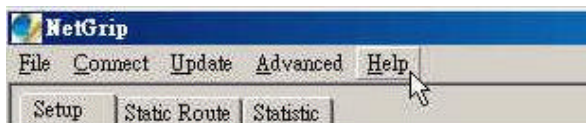


Figure 2-20 Help

After click **Help**, you can see the NetGrip Version and copyright information, like Figure 2-21.



Figure 2-21 Version Information

## 2.3 Router's parameters configuration

Router's parameters configuration is implemented by a series tab windows, as figure 2-22. You can click the tab button to switch different configuration windows (tab windows) and make the configuration of the router.

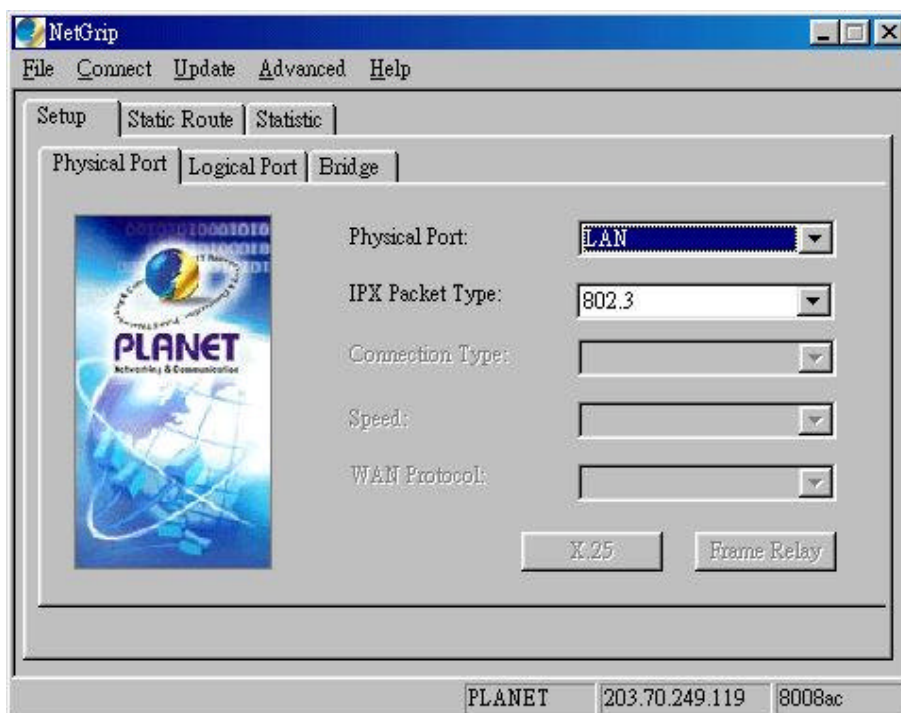


Figure 2-22 Tab Windows

### 2.3.1 Setup tab window

The Setup table window include the following sub tab windows.

- ▲ Physical Port window
- ▲ Logical Port window

- ▲ Bridge window

### 2.3.1.1 Introduction to Physical Port configuration

Click **Setup** button, it shows three options: **Physical Port**, **Logical Port** and **Bridge**. The physical Port configuration window is as shown on Figure 2-23.

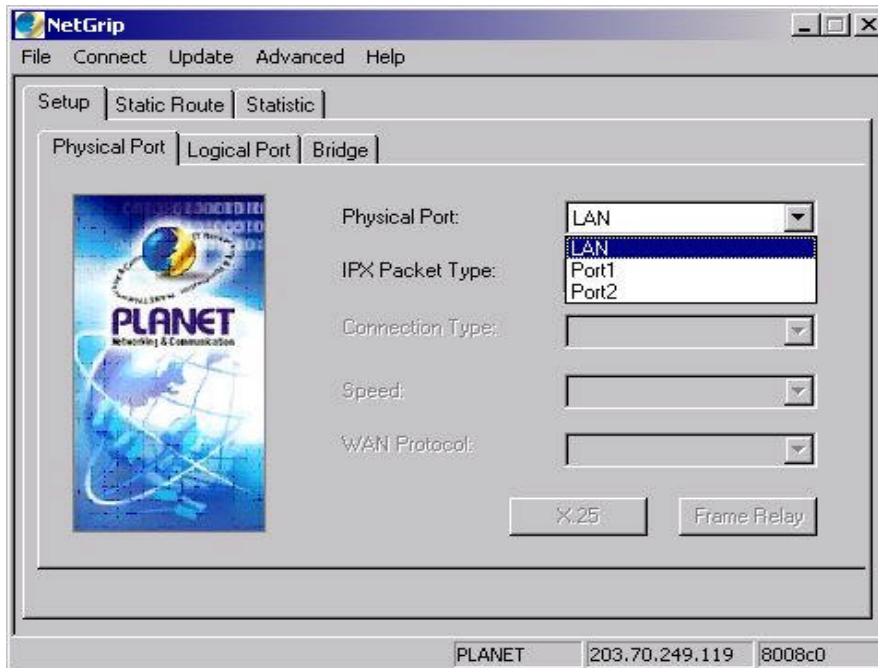


Figure 2-23 Physical Port

In this window, the available options is as the following:

- ▲ **Physical Port**
  - LAN
  - Port1
  - Port2
- ▲ **IPX encapsulation( for LAN port)**
  - 802.3
  - 802.2
  - V2

The following options are available for WAN port:

- ▲ **Connection Type**
  - V.35
  - RS-232
  - RS-422
  - RS-485
- ▲ **Speed (unit: bps)**
  - 9600, 14400, 19200, 28800, 38400, 57600, 64000, 115200, 256000, 512000, T1(1544000) or E1 (20480000).

Please refer to the following for maximum connection speed of each connection type:

Connection Type	Maximum Speed
V.35	T1 or E1
RS-232	64kbps
RS-422	T1 or E1
RS-485	T1 or E1

**Note!**



if transmit and receive compressed data, the speed of ERT-2501 should not be higher than 64kbps.

▲ **WAN protocol**

HDLC (only work between ERT-2501s)

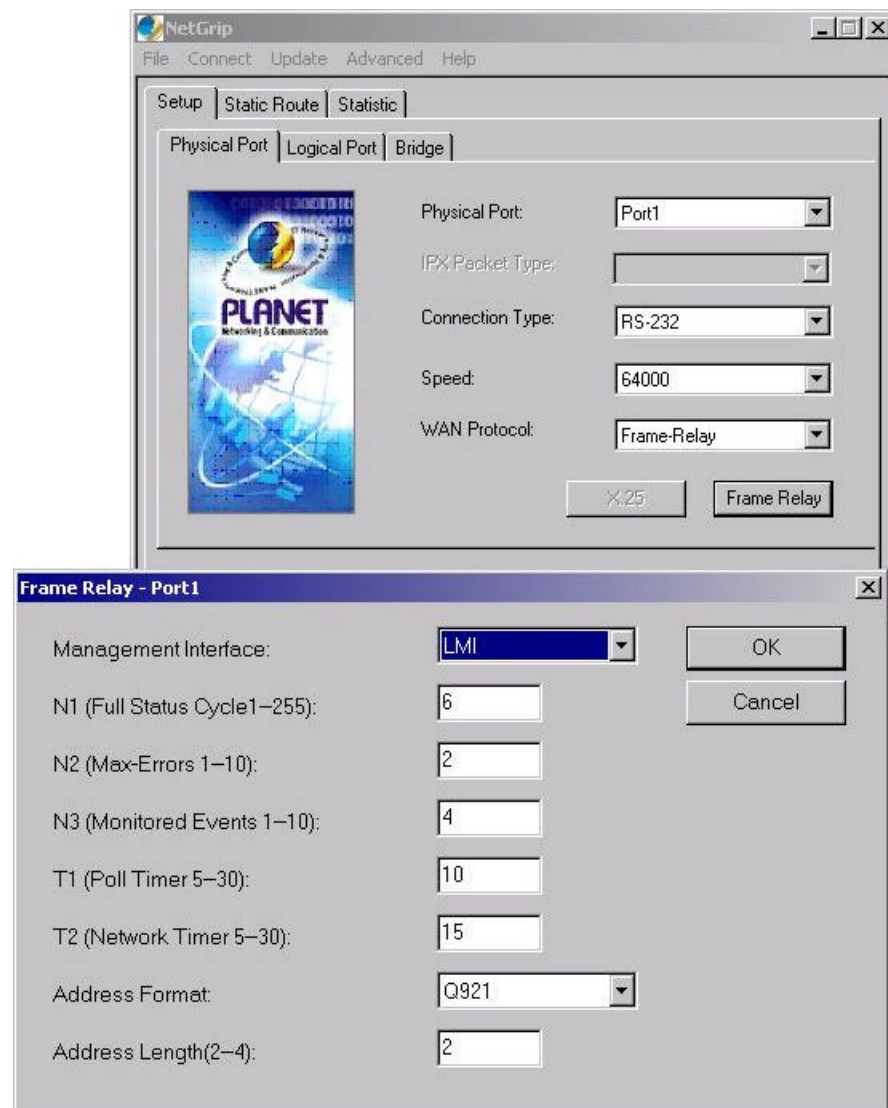
PPP

Frame-Relay (can not be used on dial-up connection)

X.25

✧ **Configuration of Frame-Relay**

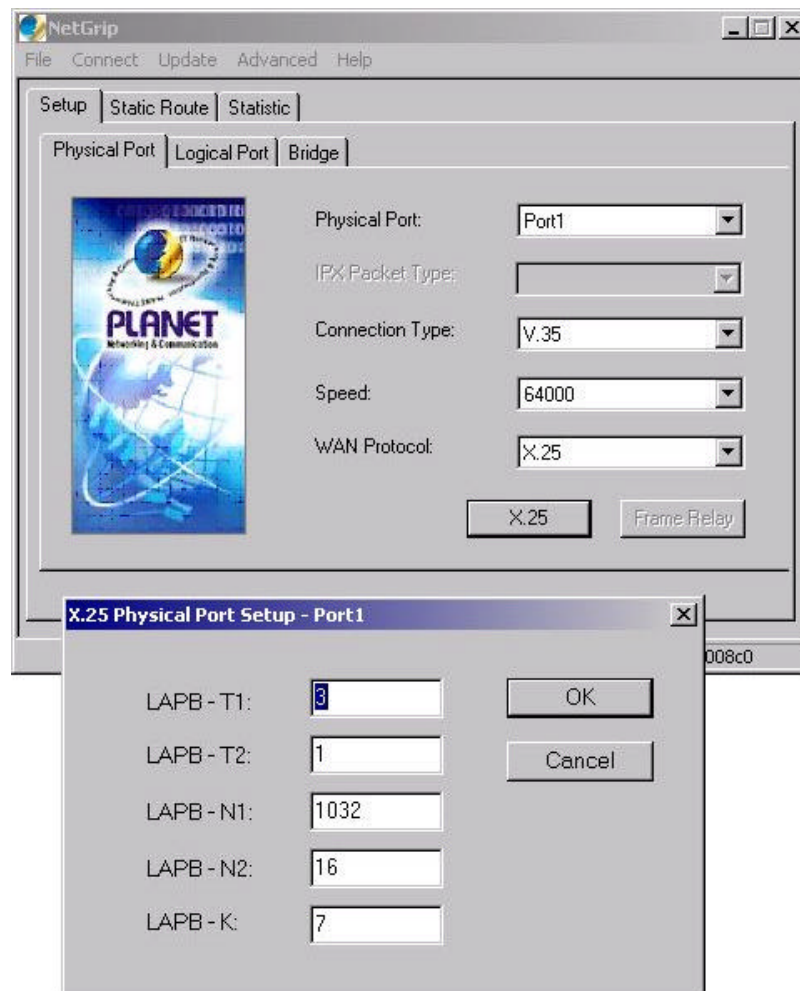
Select **FRAME-RELAY** on WAN protocol will activate **FRAME-RELAY** button, click this button will show frame relay dialogue box as figure 2-24. Please select LMI, Annex-D or Off on **Management Interface** field; select Q921, Q922 on **Address Format**. Then input corresponding value on other fields. Click **OK** to complete.



**Figure 2-24 WAN protocol – Frame Relay**

✧ **Configuration of X.25**

Select **X.25** on WAN protocol will activate **X.25** button, click this button will show X.25 dialogue box as figure 2-25. Input corresponding value on each field then click **OK** to complete.



**Figure 2-25 WAN Protocol - X.25**

### 2.3.1.2 Introduction to Logical Port Configuration

Click **Logical Port** tab window, select a item on list frame, double-click it or click **Edit** button, it will pop-up **Logical Port** setup dialogue box as show on 2-26.

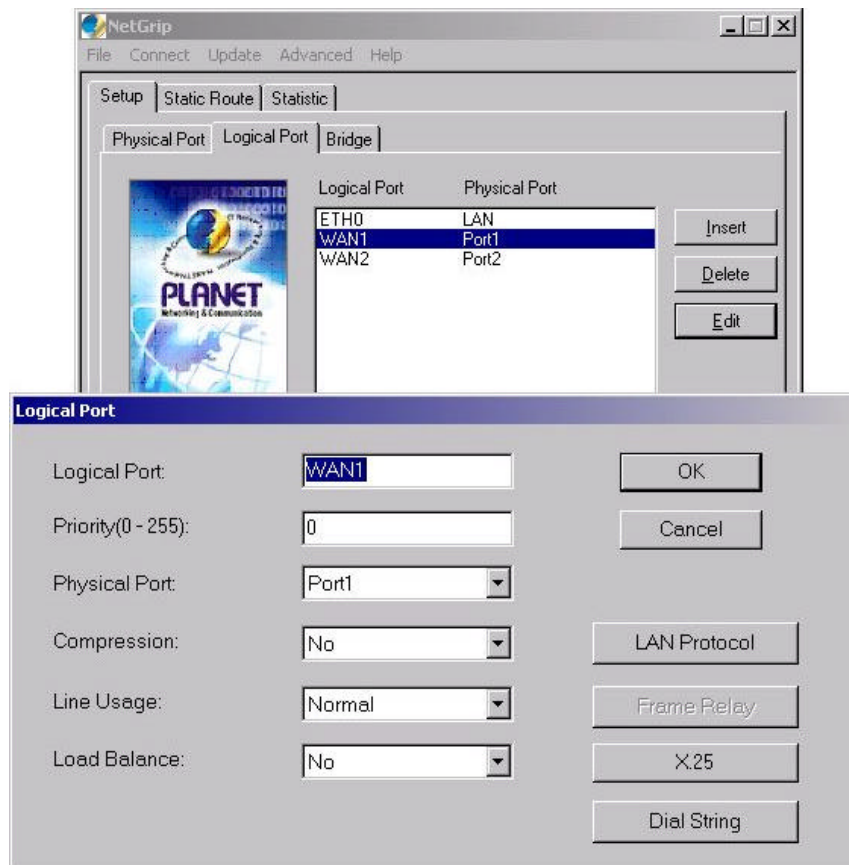


Figure 2-26 Logical Port setup dialogue box

# 1. Configure wan1 logical port (select from the pull-down list)

- ▲ **Logical Port:** Can keep or change the logical port's name.
- ▲ **Physical Port:** Select the suitable physical port.
- ▲ **Compression:** Select Yes or No.
- ▲ **Priority:** Input integer from 0 to 255, 0= highest priority, 1=next high priority ...
- ▲ **Line Usage:** Select one of the following mode on **Line Usage:**
  - ✧ **Normal:** Normal line means the port is always on. The line will be on when ERT-2501 is turn on or when the user initialize the logical port to be "Normal". When the link fail or the user prohibits the port, it will be terminated. When the initialization condition is met, ERT-2501 will run the command on **Dial String**. The **Dial String** dialogue box can be shown by click **Dial String** button, as shown on Figure 2-27.



Figure 2-27 Dial String dialogue box (Normal)

- ✧ **Dial-on-demand:** Dial on demand line is activated when data transmission is needed. If there is any data waiting for transmission, it is initialized. If there is no any data transmission for more than the **Inactivity Timeout** (default is 300 seconds), it will be terminated. If you have input Dial String, ERT-2501 will run the command when it starts to dial. The Dial String dialogue box will be shown when click **Dial String** button. You can also input **Inactivity Timeout** on this dialogue box as shown on Figure 2-28.

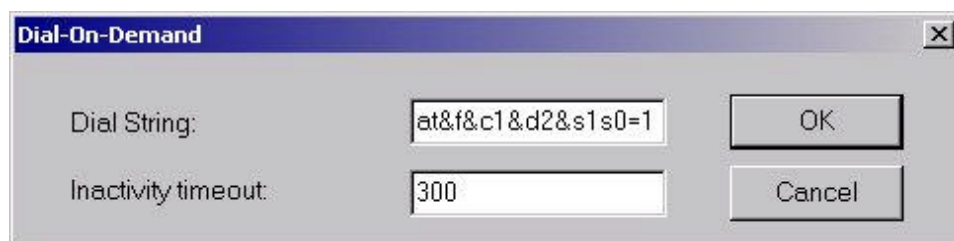


Figure 2-28 Dial string dialogue box (dial-on-demand)

- ✧ **Backup:** Backup line is a substitution path when the major link is faulty. When major line is faulty, the backup line is initialized. When the major line's problem is solved, the backup line is terminated. If you have input Dial String, ERT-2501 will run the command when it starts to dial. The **Dial String** dialogue box will be shown by click **Dial String** button. You can also input the major line's logical port as shown on Figure 2-29.



Figure 2-29 Dial String Dialogue Box (Backup)

- ✧ **Load Balance:** Select **Yes** on **Load Balance** field to add this logical port to **Load Balance** group. Select **No** to not add.

## 2. Configure **Frame Relay** of Logical Port

Click **Setup > Logical Port** tab window, select an item on list frame, double-click it or click Edit button, it will pop-up **Logical Port setup** dialogue box as show on 2-30.

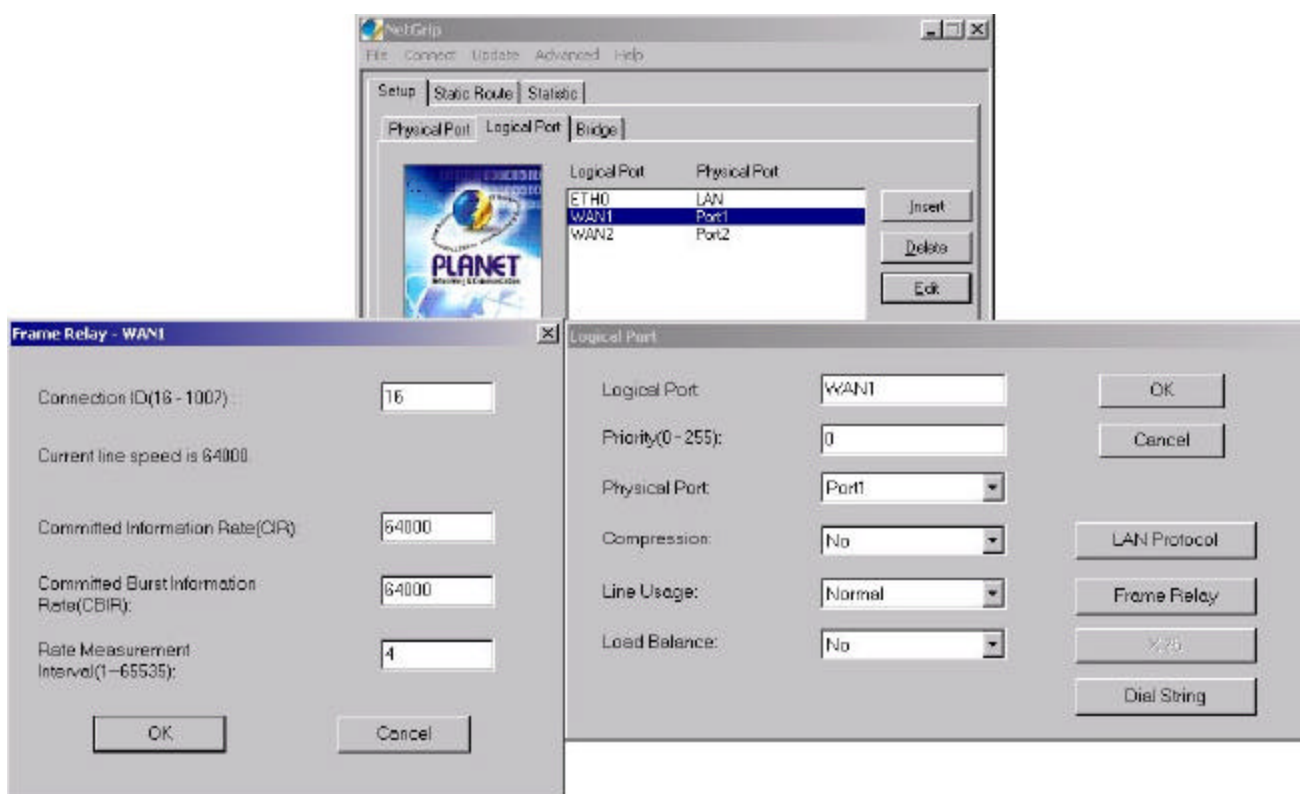


Figure 2-30 Configure Frame Relay for Logical Port

- 1) Double Click **Frame Relay** button on **Logical Port** window, it will show **Frame Relay – WAN1** dialogue box.
- 2) Input suitable Frame Relay parameters including **Connection ID**, **Committed Information Rate (CIR)**, **Committed Burst Information Rate (CBIR)** and **Rate Measurement Interval**.

**Note:** Only Frame Relay allow multiple logical port, ERT-2501 allow maximum 23 logical port and each frame relay logical port must have a unique Connection ID.

## 3. Configure Network Protocol of Logical Port

- 1) Click **Network Protocol** button on Logical Port window, it show **Network Protocol** dialogue box. It has three tab windows: **IP**, **Novell IPX** and **Bridge**.
- 2) Configuring IP, IPX and Bridge parameters based on a logical port. Click **IP** tab on **Network Protocol** window as shown on Figure 2-31.

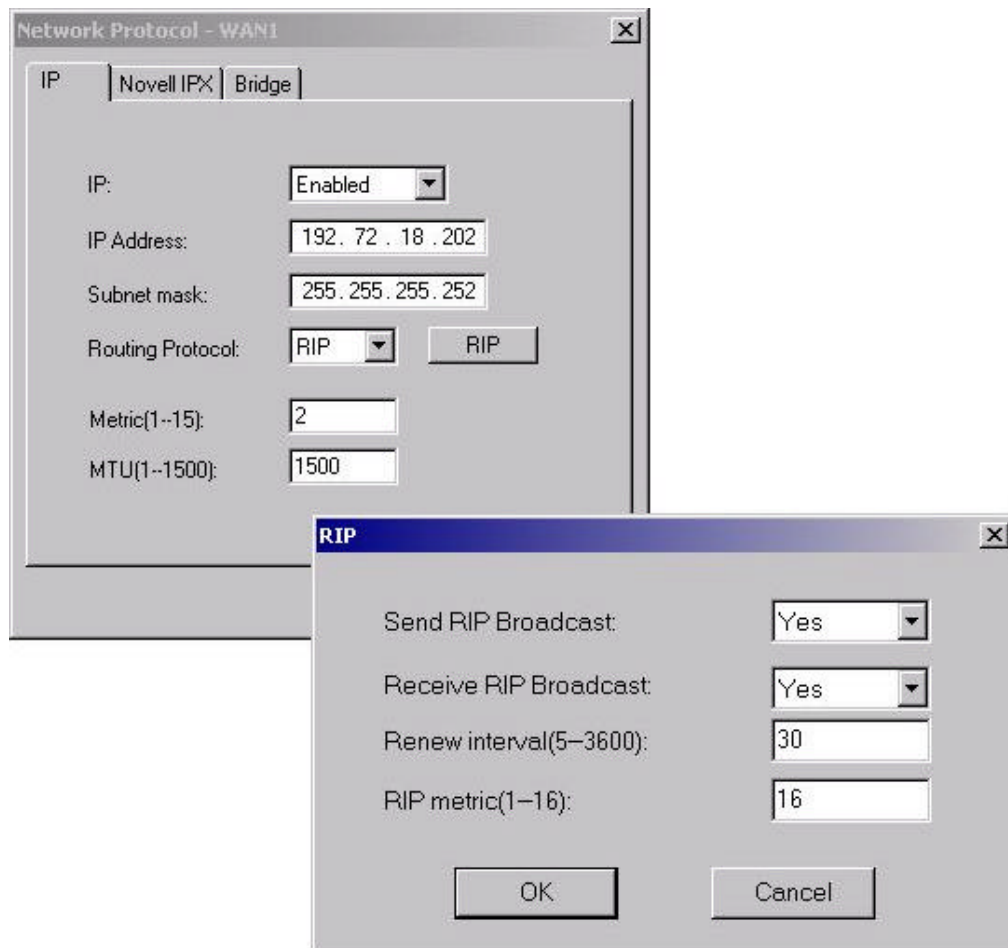


Figure 2-31 Configure IP protocol

- ▲ IP: Select **Enabled** or **Disabled** on pull down list.
- ▲ Input settings on **IP address** and **Subnet Mask** field.
- ▲ Select needed option on Routing Protocol pull down list. If select **RIP**, you can click **RIP** button to pop up the **RIP configuration** dialogue box as shown on Figure 2-31. Select needed option on **Send RIP broadcast** and **Receive RIP broadcast** pull down list and input the values for **Renew Interval** and **RIP metric**.
- ▲ Input proper value for **Metric** and **MTU** (Maximum Transmit Unit).

Click **Novell IPX** tab on **Network Protocol** window as shown on Figure 2-32.

- ▲ Select **Enabled** or **Disabled** from the pull down list of **Novell IPX** field.
- ▲ Input value on **Network Number**
- ▲ Input needed value on **Routing Protocol**, **Transmit RIP broadcast**, **Receive RIP broadcast**, **Send SAP broadcast** and **Monitor SAP broadcast** pull down list.

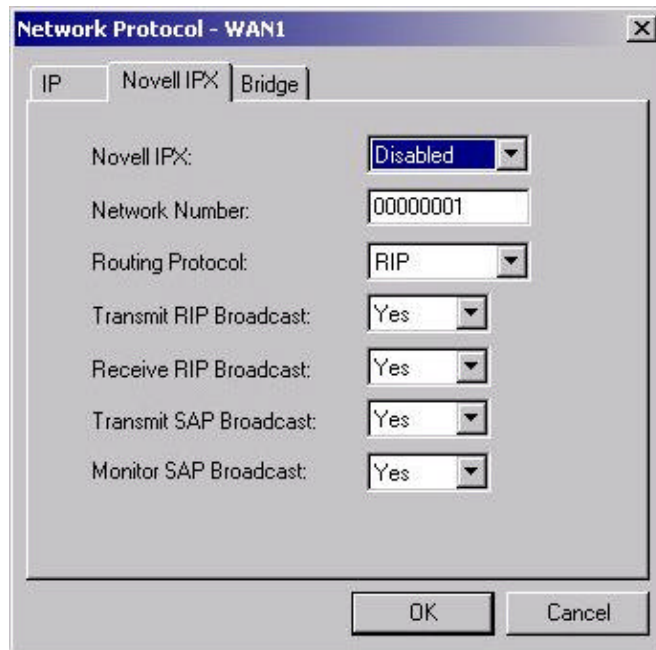


Figure 2-32 Configure IPX protocol

Click **Network Protocol** tab on **Network Protocol** window as shown on Figure 2-33. Select **Enable** or **Disable** on **Bridge** field.

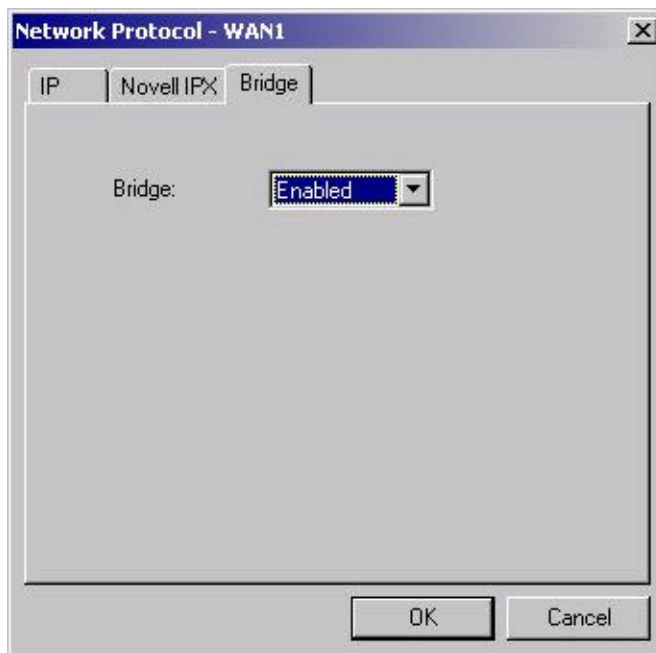


Figure 2-33 Configure Bridge

Insert or delete logical port

**Insert logical port:** Select **Logical Port** tab window, click **Insert** button, it show **Logical Port** dialogue box, configure needed information to add the logical port.

**Note:** Only WAN physical port with Frame Relay can add Logical Port.

**Delete logical port:** Select **Logical Port** tab window, select the logical port to be deleted from the list, click delete, a confirmation box will appear, click **Yes** to confirm, click **No** to cancel.

#### 4. Configure X.25 of Logical Port

Double-click Logical Port **WAN1** or **WAN2** (assuming **WAN1**'s corresponding WAN physical port has been configured with X.25 protocol in this example), it will show **Logical Port** dialogue box. Click **X.25** button to enter **X.25 Logical Port Setup** window and configure it. Shown as Figure 2-34.

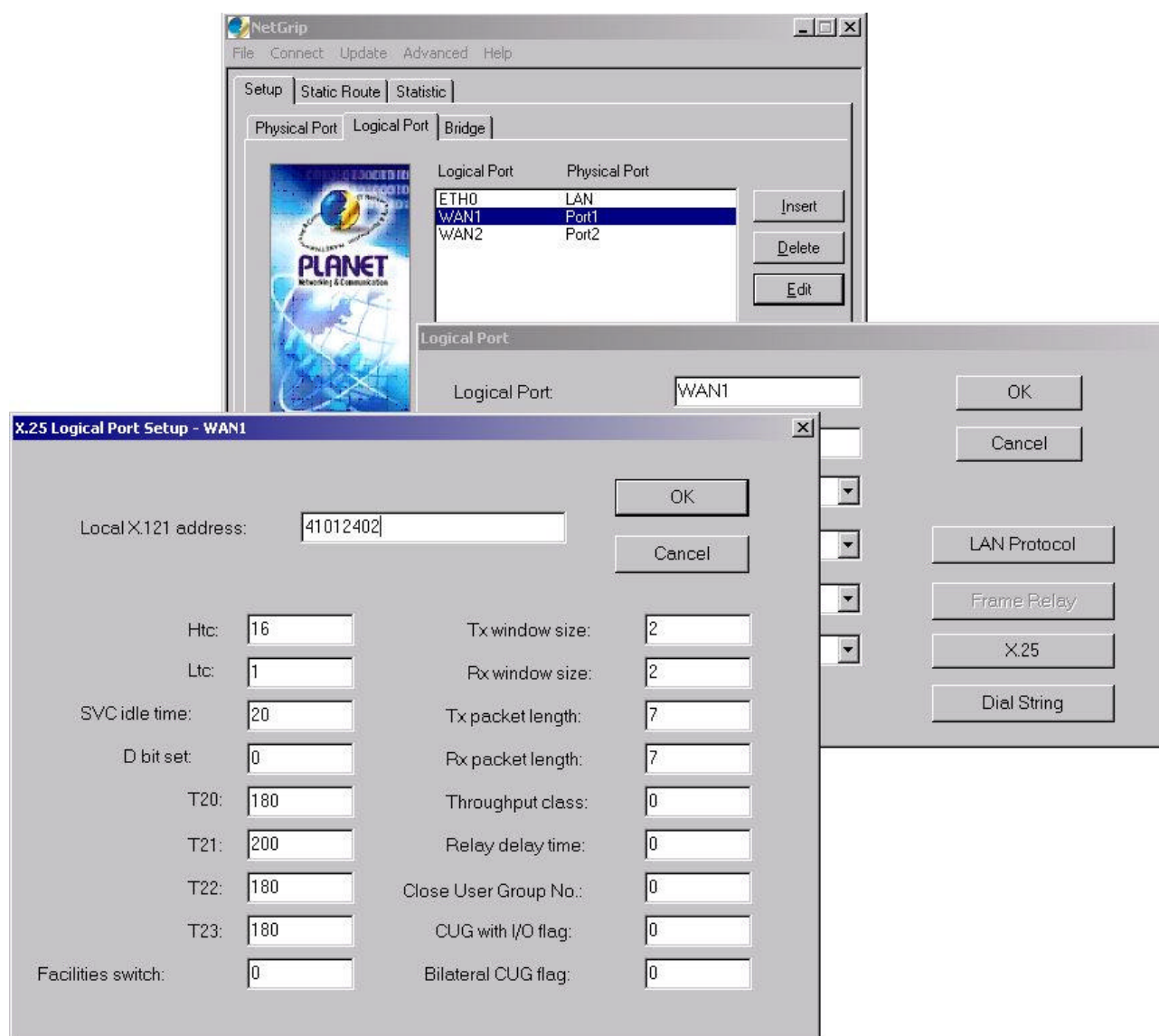


Figure 2-34 Configure X.25 of Logical Port

#### 2.3.1.3 Introduction to Bridge Configuration

In general, user uses bridge for non-IP and non-IPX protocol, and use IP and IPX static route at the same time.

Please Select **Bridge** on **Setup** tab, it will show **Bridge** window as figure 2-35.

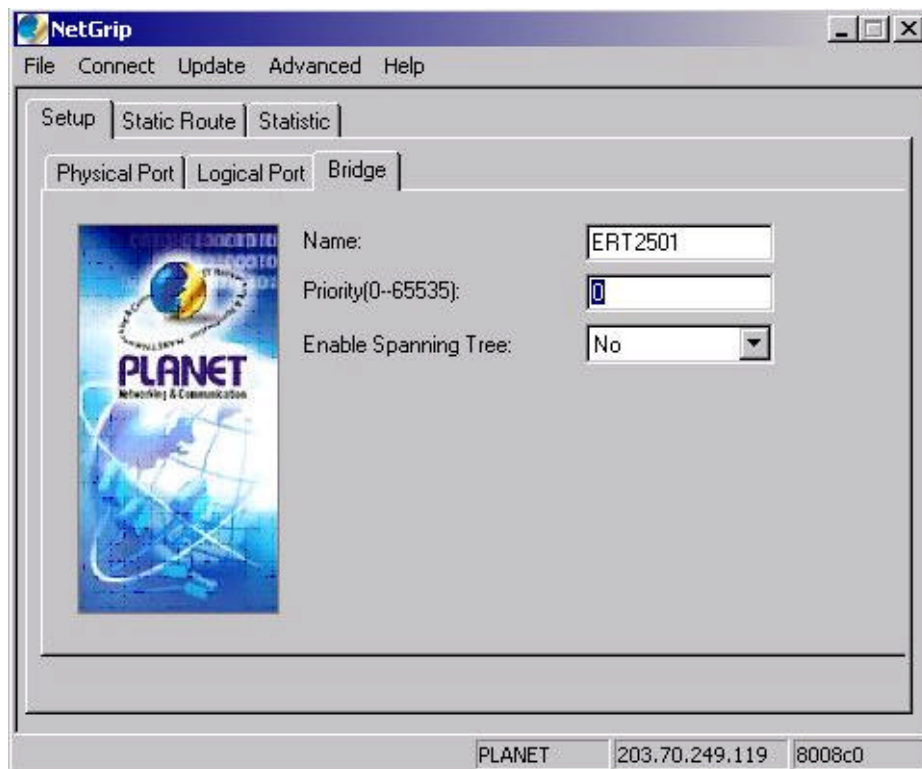


Figure 2-35 Bridge Window

The available parameters is:

- ▲ **Name:** the name of the bridge
- ▲ **Priority:** 0 = the highest priority, 1= the second high priority, 3=the third high priority, etc..
- ▲ **Enable Spanning Tree:** The default is No.

### 2.3.2 Static Route tab window

Static Router tab include the following sub window:

- ▲ **IP Route**
- ▲ **IPX Route**
- ▲ **IPX Service**
- ▲ **X.25 Mapping**
- ▲

In general, user use IP and IPX static route and bridge all non-IP and non-IPX protocol.

#### 2.3.2.1 Introduction to IP Route configuration

Please click **Static Route > IP Route** as shown on Figure 2-36.

Information listed on **IP Route** window are: **Destination IP, Destination Mask, Gateway and Metric.**

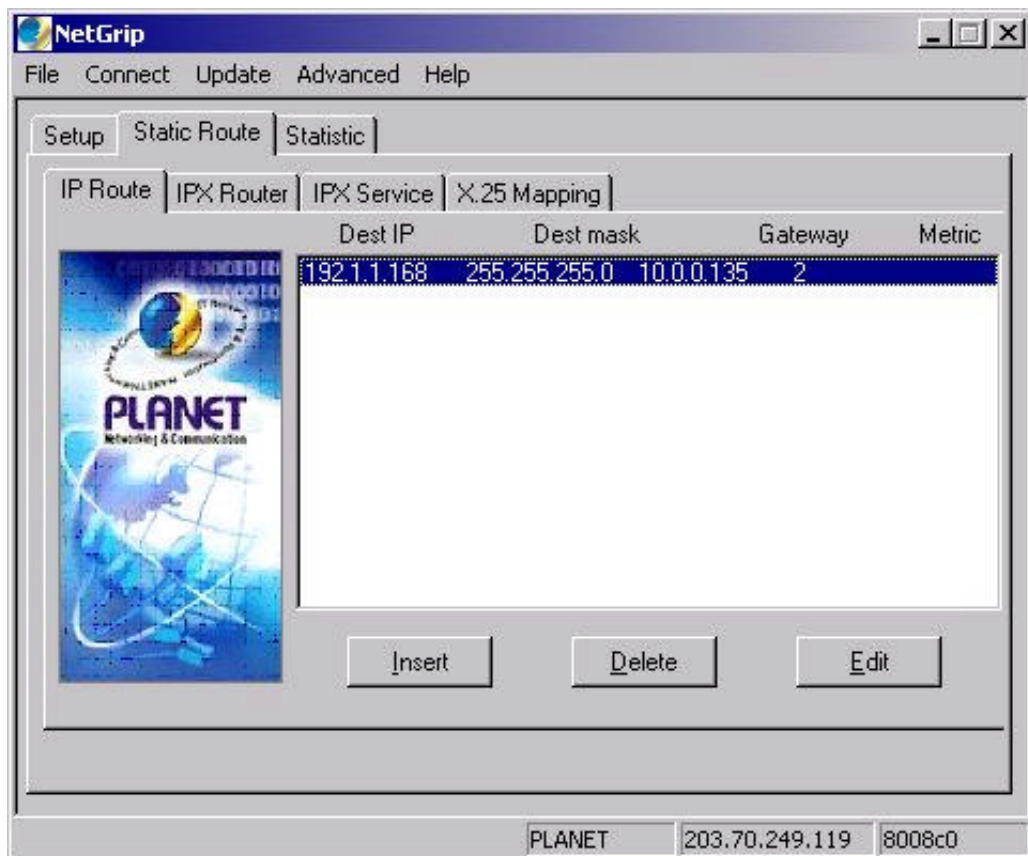


Figure 2-36 IP Routing Table

- ▲ Insert a static IP route  
Click **Insert**, **Static IP route** dialogue box will show as Figure 2-37.

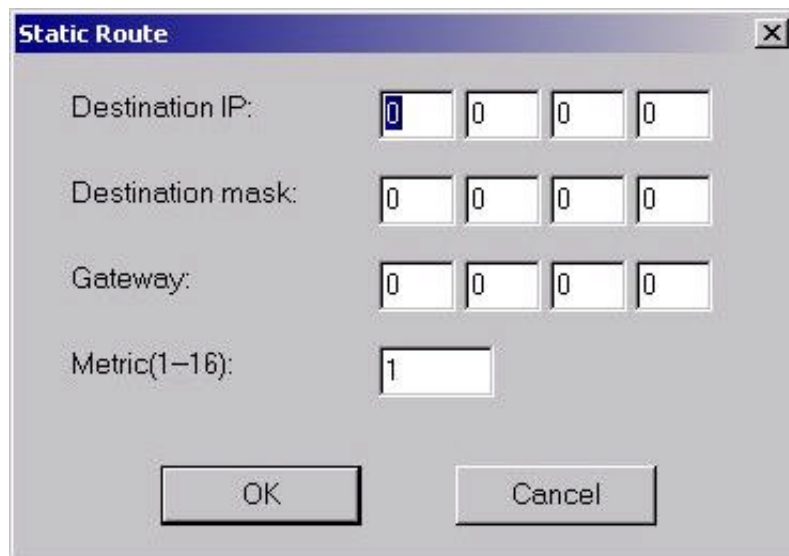


Figure 2-37 Configuration IP route dialogue box

Input proper values on each field and click **OK** to return **IP Route** window.

**Note!** Static IP Route table can have maximum 8 entries. If **IP RIP** is disabled, static route is selected automatically. Besides, static route must have at least 1 entry. After configuring IP Route, must "Store to Flash" and reboot to make it active. The default entry can be Destination IP: 0.0.0.0 and Mask: 0.0.0.0 so that all uncertain route's IP packet is sent to the default gateway.

- ▲ Edit a static IP route  
Double-click an entry (or click **Edit** button) on the IP Route table to enter **Static IP Route** dialogue box as shown on figure 2-37. You can change any information on the box. Click **OK** to return IP Route window.
- ▲ Delete a static IP route  
Select an entry on the IP Route table and click **Delete**. Click **Yes** to confirm or **No** to cancel.

### 2.3.2.2 Introduction to IPX Route Configuration

Please click **Static Route > IPX Route** as shown on Figure 2-38. You can have maximum 8 entries on the IPX Route table.

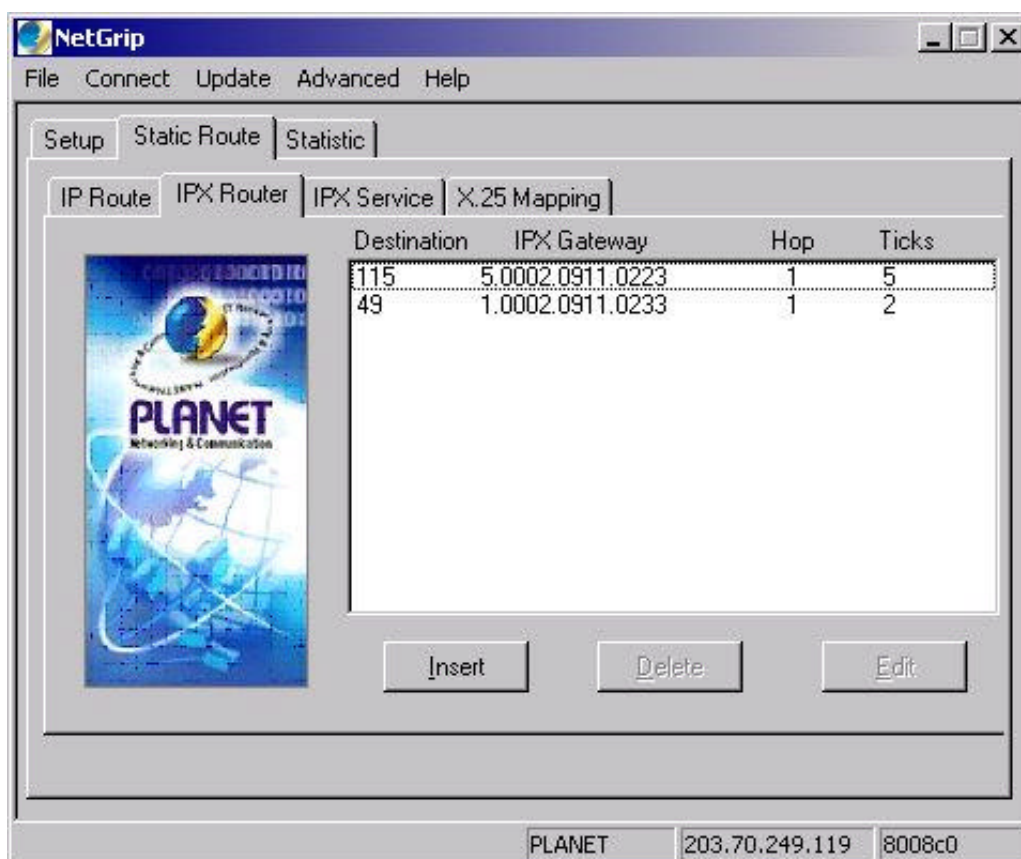


Figure 2-38 IPX Route Table

Information listed on IPX Route window are: **Destination, IPX Gateway, Hop** and **Ticks**.

- ▲ Insert a static IPX route  
Click **Insert**, Static IPX route dialogue box will shows as Figure 2-39. Input proper values on each field and click **OK** to return **IPX Route** window.



**Note!** **Static IPX Route** table can have maximum 8 entries. If IPX RIP is disabled, static route is selected automatically. Besides, static route must have at least 1 entry. After configuring IPX Route, must Store to Flash and reboot to make it active.

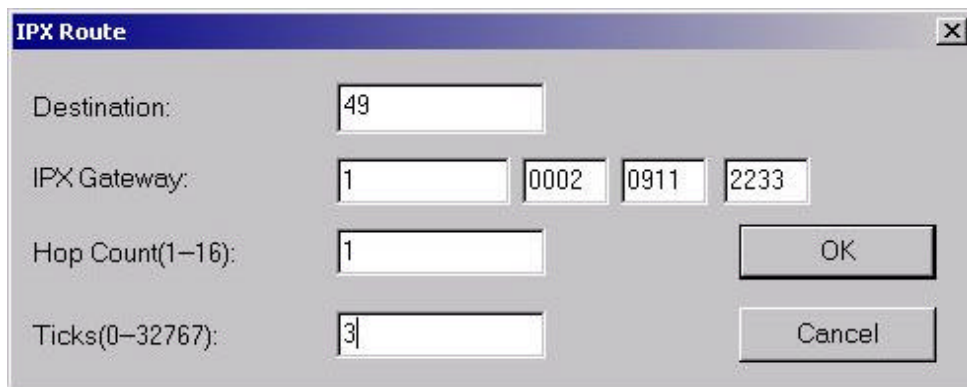


Figure 2-39 IPX Route configuration dialogue box

The meanings of each field on above figure is:

49= Destination IPX address's network ID

1= IPX address's network ID of next router

000209112233 = IPX address's node ID of next router.

- ▲ Edit a static IPX route  
Double-click an entry (or click **Edit** button) on the IPX Route table to enter **Static IPX Route** dialogue box as shown on figure 2-39. You can change any information on the box. Click **OK** to return **IPX Route** window.
- ▲ Delete a static IPX route  
Select an entry on the IP Route table and click **Delete**. Click **Yes** to confirm or **No** to cancel.

### 2.3.2.3 Introduction to **IPX Service** configuration

Please click Static Route > IPX Service as shown on Figure 2-40.

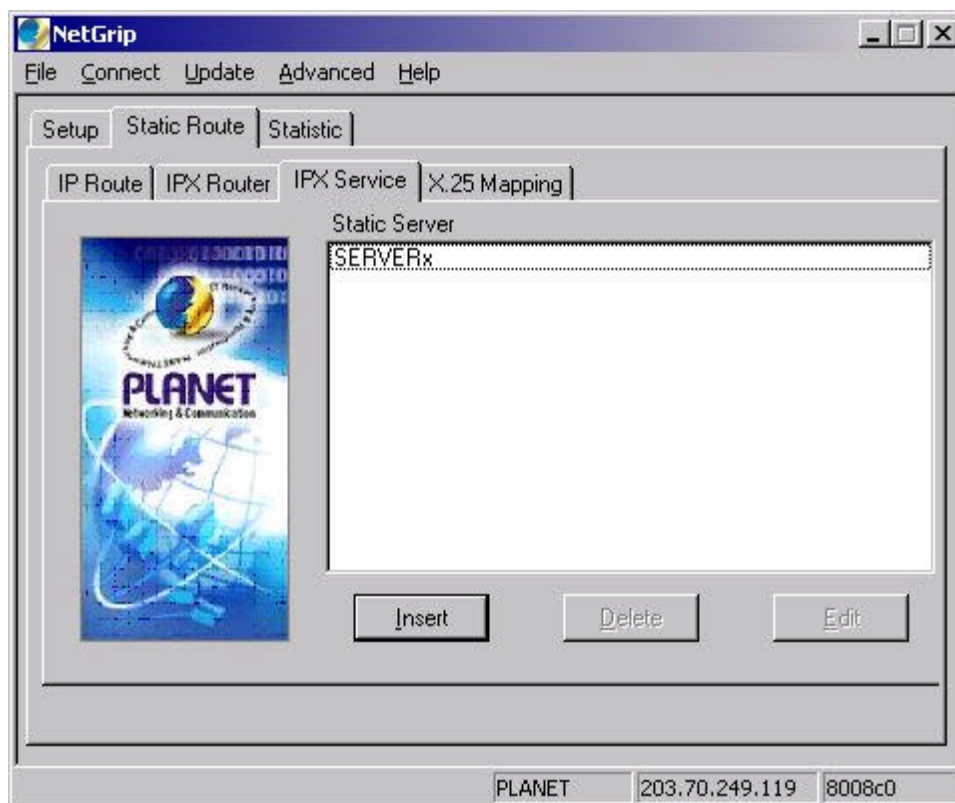


Figure 2-40 IPX Service window

- ▲ Insert a static IPX Server  
Click **Insert**, **Static IPX Service** dialogue box will show as Figure 2-41.  
Input proper values on each field and click **OK** to return **IPX Service** window.  
Note: After selecting **Server Type**, the **Server Type** value in hexadecimal format will automatically show.

The figure shows a 'Static IPX service' dialog box. It contains the following fields and values:

- Name: SERVERx
- Server Type: File Server
- Server Type Value: 4
- Network: 0
- Node: 00 00 00 00 00 00
- Socket(0-65535): 0
- Hop Count(0-15): 0

Buttons: OK, Cancel

Figure 2-41 Static IPX service

- ▲ Edit a static IPX Service  
Double-click an entry (or click **Edit** button) on the IPX Service table to enter **Static IPX Service** dialogue box as shown on figure 2-41. You can change any information on the box. Click **OK** to return **IPX Service** window.
- ▲ Delete a static IPX Service  
Select an entry on the **IPX Service** table and click **Delete**. Click **Yes** to confirm or **No** to cancel.

#### 2.3.2.4 Introduction to X.25 Mapping

Please click **Static Route > X.25 Mapping** as shown on Figure 2-42.  
Information listed on X.25 Mapping window are: **Destination IP Address**, **Destination X.25 Address**, **PVC Flag**, **Logical Channel** and **CUG number**.

The figure shows the 'NetGrip' application window with the 'X.25 Mapping' tab selected. The window has a menu bar (File, Connect, Update, Advanced, Help) and a toolbar (Setup, Static Route, Statistic). The main area contains a table with the following columns: Dest IP Addr, Dest X.25 Addr, PVC Flag, Logical Channel, and CUG No. The table is currently empty. Below the table are buttons for Insert, Delete, and Edit. The status bar at the bottom shows 'PLANET', '203.70.249.119', and '8008c0'.

Figure 2-42 X.25 address mapping window

- ▲ Insert a X.25 address mapping  
Click **Insert**, **X.25 Address Mapping** dialogue box will shows as Figure 2-43. Input proper values on each field and click **OK** to return **X.25 Mapping** window.

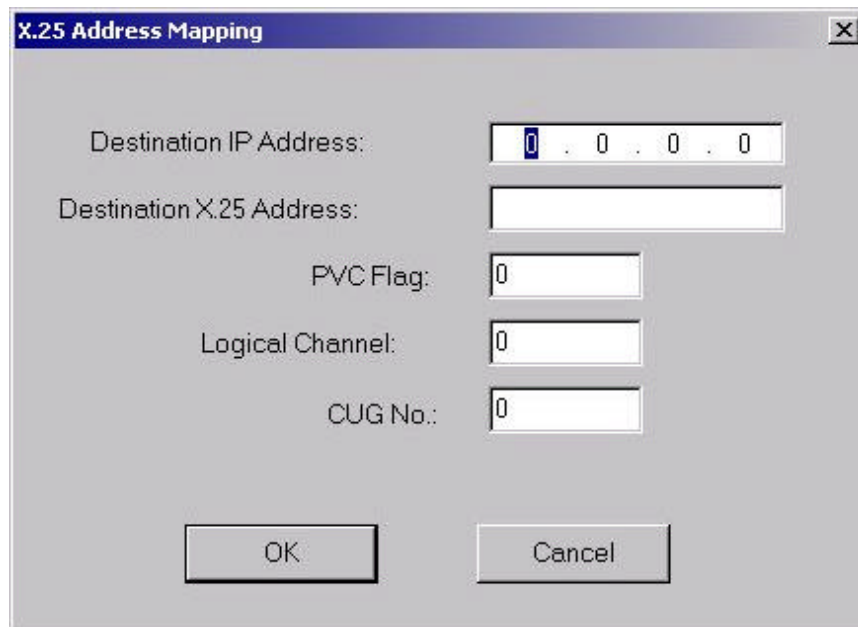
The image shows a Windows-style dialog box titled "X.25 Address Mapping". It has a standard title bar with a close button (X) in the top right corner. The dialog box contains five input fields arranged vertically. The first field is labeled "Destination IP Address:" and contains the text "0 . 0 . 0 . 0". The second field is labeled "Destination X.25 Address:" and is empty. The third field is labeled "PVC Flag:" and contains the text "0". The fourth field is labeled "Logical Channel:" and contains the text "0". The fifth field is labeled "CUG No.:" and contains the text "0". At the bottom of the dialog box, there are two buttons: "OK" on the left and "Cancel" on the right.

Figure 2-43 X.25 Address Mapping dialogue box



Both the **Destination IP Address** and **Destination X.25 Address** are unique.

- ▲ Edit a X.25 address mapping  
Double-click an entry (or click **Edit** button) on the **X.25 Mapping** table to enter **X.25 Address Mapping** dialogue box as shown on figure 2-43. You can change any information on the box. Click **OK** to return X.25 Mapping window.
- ▲ Delete a X.25 address mapping  
Select an entry on the **X.25 Address Mapping** table and click **Delete**. Click **Yes** to confirm or **No** to cancel.

### 2.3.3 Statistic tab window

Statistic tab window include the following sub window:

- ▲ Interface
- ▲ IP
- ▲ UDP
- ▲ IPX

### 2.3.3.1 Interface statistic

The **Interface** tab lists the information of each physical port as shown on figure 2-44.

Figure 2-44 Interface statistic information

- 1) **Logical Port:** select from the pull down list.
- 2) Click **Renew**, the information is listed on the following field.:
  - ▲ **State** Disabled (used on dial-up connection), Down, Up, Error (please call your dealer for help if it happens).
  - ▲ **IP State** Disabled, Enabled (the interface may have some problem), Active.
  - ▲ **IPX State** Disabled, Enabled (the interface may have some problem), Active.
  - ▲ **STP State** Disabled, Blocking, Listening, Learning or Forwarding. The last four states are allowed if STP is enabled. When the network status is changed (for example, add a new bridge), those states are normal.
  - ▲ **Forward Transitions:** Number of transitions from Blocking to Forwarding due to STP reconfiguration.
  - ▲ **MtuExceededDiscard:** Total number of frames the interface discard due to exceed the MTU (maximum transfer Unit).
  - ▲ **LastChange:** Time between system is boot and the last change of interface status (unit at 1/8 seconds).
  - ▲ **InOctets** Number of bytes the interface receives.
  - ▲ **InDiscards:** Number of frames the interface discards due to buffer overflow or other system resource problem.
  - ▲ **InErrors** Number of error frames the interface receives.
  - ▲ **OutOctets:** Number of bytes the interface transmits.
  - ▲ **OutErrors:** Number of frames affected by transmission error.

### 2.3.3.2 IP statistic

The **IP** tab lists the statistic information of IP as shown on figure 2-45.

The screenshot shows the NetGrip application window with the 'Statistic' tab selected. Under the 'Statistic' tab, the 'IP' sub-tab is active. The window displays a grid of network statistics with their corresponding values in text boxes. A 'Refresh' button is located at the bottom right of the grid. At the bottom of the window, the host name 'PLANET' and IP address '203.70.249.119' are shown, along with a MAC address '8008c0'.

DefaultTTL:	254	OutDiscards:	0
InReceives:	109857	OutNoRoutes:	0
InHeaderErrors:	3479	ReassembleNeeds:	0
InAddressErrors:	0	ReassembleTimeout:	0
InUnknownProtocols:	1288	ReassembleOks:	0
InDelivers:	18789	ReassembleFails:	0
InDiscards:	0	FragmentOks:	0
ForwardDatagrams:	89780	FragmentFails:	0
OutRequests:	19393	FragmentCreates:	0

Figure 2-45 IP statistic information

Click Renew, the information is listed on the following field:

⤴ <b>Default TTL</b>	The default value inserted into the Time-To-Live field of the IP header of datagrams originated at ERT-2501, whenever a TTL value is not supplied by the transport layer protocol.
⤴ <b>InReceives</b>	Total number of input datagrams received including those received in error.
⤴ <b>InHeaderErrors</b>	Number of input datagrams discarded due to errors in their IP headers.
⤴ <b>InAddressErrors</b>	Number of input datagrams discarded because the IP address in their IP header's destination field was not a valid address to be received at this device.
⤴ <b>InUnknownProtocols</b>	Number of locally-addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.
⤴ <b>InDeliver</b>	Total number of input datagrams successfully delivered to IP user-protocols (including ICMP).
⤴ <b>InDiscards</b>	Number of input IP datagrams for which no problems were encountered to prevent their continued processing, but which were discarded (for example, for lack of buffer space).
⤴ <b>ForwardDatagrams</b>	Number of input datagrams for which this device was not their final IP destination, as a result of which an attempt was made to find a route to forward them to that final destination.
⤴ <b>OutRequests</b>	Total number of IP datagrams that local IP user-protocols (including ICMP) supplied to IP in requests for transmission.
⤴ <b>OutDiscards</b>	Number of output IP datagrams for which no problem was encountered to prevent their transmission to their destination, but which were discarded (for example, for lack of buffer space).
⤴ <b>OutNoRoutes</b>	Number of IP datagrams discarded because no route could be found to transmit them to their destination.
⤴ <b>ReassembleNeeds</b>	Number of IP fragments received that needed to be reassembled at this device.
⤴ <b>ReassembleTimeout</b>	Maximum number of seconds that received fragments are held while they are awaiting reassemble at this device.
⤴ <b>ReassembleOKs</b>	Number of IP datagrams successfully reassembled.
⤴ <b>ReassembleFails</b>	Number of failures detected by the IP reassemble algorithm (for whatever reason: timed out, errors, and so on)
⤴ <b>FragmentOKs</b>	Number of IP datagrams that have been successfully fragmented.
⤴ <b>FragmentFails</b>	Number of IP datagrams that have been discarded because they needed to be fragmented but could not be, for example, because their Don't Fragment flag was set.
⤴ <b>FragmentCreates</b>	Number of IP datagram fragments that have been generated as a result of fragmentation.

### 2.3.3.3 UDP statistics

The UDP tab lists the statistic information of UDP as shown on figure 2-46.

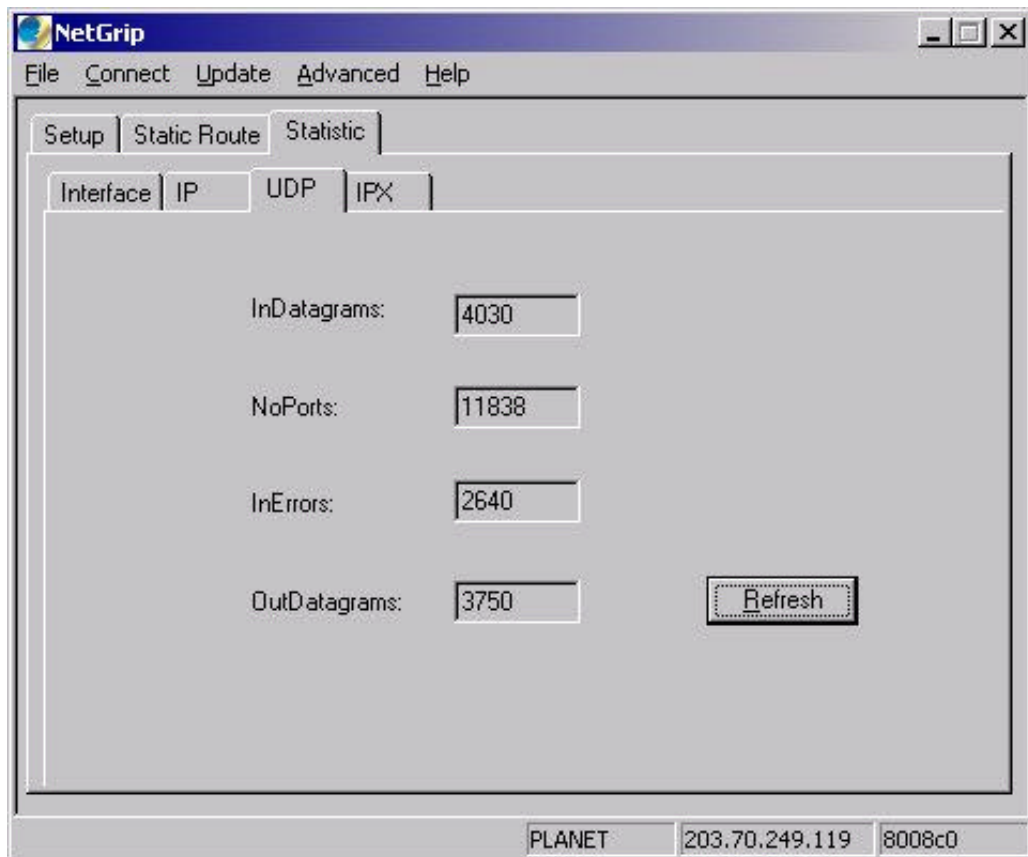


Figure 2-46 UDP statistic information

Click Renew, the information is listed on the following field:

- ▲ **InDatagrams** Total number of UDP datagrams delivered to UDP users.
- ▲ **NoPorts** Total number of received UDP datagrams for which there was no application at the destination port.
- ▲ **InErrors** Number of received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port.
- ▲ **OutDatagrams** Total number of UDP datagrams sent from this router.

### 2.3.3.4 IPX statistic

The IPX tab lists the statistic information of IPX as shown on figure 2-47.

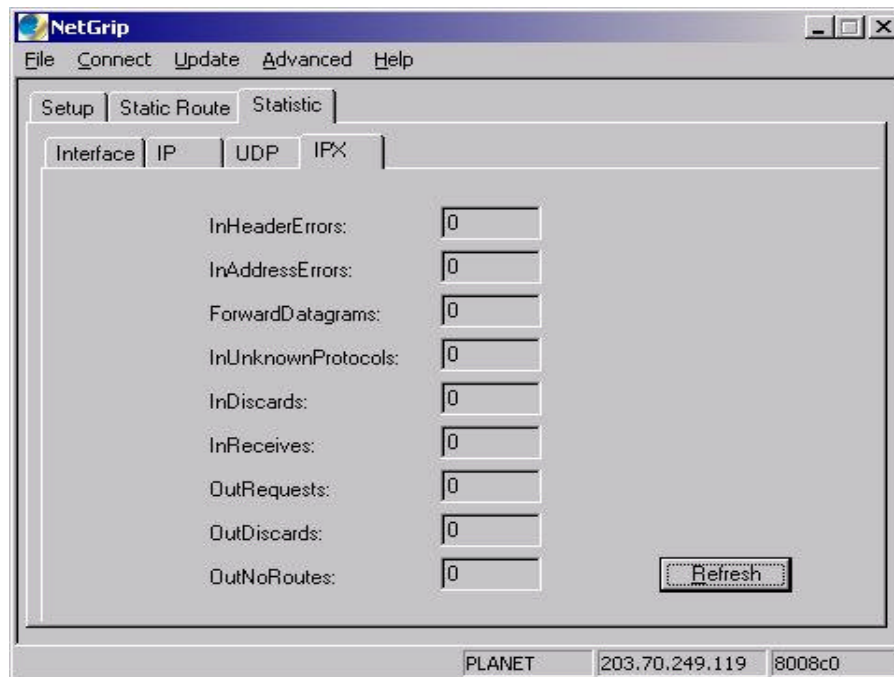


Figure 2-47 IPX statistic information

Click **Renew**, the information is listed on the following field:

- ▲ **InHeaderErrors**      Number of input packets discarded due to errors in their IPX headers.
- ▲ **InAddressErrors**      Number of input packets discarded because the destination address was not a valid address to be received at this router.
- ▲ **ForwardDatagrams**      Number of input packets for which this router was not their final IP destination, as a result of which an attempt was made to find a route to forward them to that final destination.
- ▲ **InUnknownProtocols**      Number of locally-addressed packets received successfully but discarded because of an unknown or unsupported protocol.
- ▲ **InDiscards**      Number of input IPX packets for which no problem were encountered to prevent their continued processing, but which were discarded (for example, for lack of buffer space).
- ▲ **InReceives**      Total number of input packets including those received in error.
- ▲ **OutRequests**      Total number of IPX packets that supplied to router in requests for transmission.
- ▲ **OutDiscards**      Number of out IPX packets for which no problem were encountered to prevent their transmission to their destination, but which were discarded (for example, for lack of buffer space)
- ▲ **OutNoRoutes**      Number of IPX packets discarded because no route could be found to transmit them to their destination.

## Chapter 3 Command Line Interface

### 3.1 System Commands

#### 3.1.1 Command List

System commands include:

add password  
delete password  
logout  
modify console  
modify debug mode  
modify password  
reboot  
save  
show console  
show debug mode  
show version

#### 3.1.2 add password

setup log on password

**add password** *newone*

Syntax Description:

*newone* New password. Password may be composed of alphabet, number, and symbols.

Usage Guidelines:

ERT-2501's default password is "admin". To activate new password, please save settings and restart your ERT-2501.

Sample Display:

Set password as "planet"  
cli> **add password planet**  
cli> **save**  
done config  
cli> **reboot**

Related Commands:

delete password, modify password, save, reboot

### 3.1.3 delete password

delete password

**delete password**

Usage Guidelines:

After deleting password, save settings and reboot ERT-2501, The password will return to default password "admin".

Sample Display:

cli> **delete password**

Related Commands:

add password, modify password, save, reboot

### 3.1.4 logout

Quit Command Line Interface (CLI)

**logout**

Sample Display:

cli> **logout**

goodbye

Related Commands:

reboot

### 3.1.5 modify console

Configure NetGrip to access ERT-2501 via console port or not

**modify console** *console*

Syntax Description:

*console* can be yes or no, and also can be y or n in short. Use this command to allow or prohibit NetGrip to access ERT-2501 via console port.

Default:

NetGrip is set to be able to access ERT-2501 via console port.

#### Usage Guidelines:

- ▲ This restriction only applies to NetGrip running on local computer for connecting to ERT-2501 through console port. It has no influence on the remote computer with NetGrip installed to access ERT-2501 via IP network. Users can setup firewall to control the accessibility to ERT-2501 for remote computer with NetGrip installed.
- ▲ Command: “modify console yes” will disable the accessibility from NetGrip to ERT-2501 by console port. Command: “modify console no” will enable the accessibility from NetGrip to ERT-2501 by console port.
- ▲ To activate modification, please save settings and restart ERT-2501.

#### Sample Display:

```
cli> modify console no
```

#### Related Commands:

show console, save, reboot

### 3.1.6 modify debug mode

#### Debug mode

```
modify debug mode dummy
```

#### Usage Guidelines:

This command is only used for internal development and test.

#### Sample Display:

```
cli> modify debug mode 0
```

#### Related Commands:

show debug mode

### 3.1.7 modify password

#### Modify user' s password

```
modify password newone
```

#### Syntax Description :

*newone* is the new password. Password could be composed of alphabet, number, and symbols.

Usage Guidelines:

Same as command “ add password “.

Sample Display:

```
cli> modify password planet
```

Related Commands:

add password, delete password, save, reboot

### 3.1.8 reboot

Reboot ERT-2501

**reboot**

Usage Guidelines:

After configure ERT-2501, it is required to save the configuration and reboot to activate the settings.

For example:

```
cli> reboot
```

Related Commands:

save

### 3.1.9 save

Save new setting or modified setting to flash.

**save**

Usage Guidelines:

After configuring ERT-2501, it is required to save settings and reboot ERT-2501 to activate the settings.

Sample Display:

```
cli> save  
done config
```

Related Commands:

reboot

### 3.1.10 show console

Display console port information:

**show console**

Usage Guidelines:

This command can be used to display console port for development and testing purpose.

Sample Display:

cli> **show console**

Netgrip Enabled	Yes	Console Port	3
Console State	3	Console Substate	4

Related Commands:

modify console

### 3.1.11 show debug mode

Display debug mode

**show debug mode**

Syntax Description:

This command is only used for development and testing.

Sample Display:

cli> **show debug mode**

debug mode 0

Related Commands:

modify debug mode

### 3.1.12 show version

Display ERT-2501 version information

**show version**

Usage Guidelines:

Different version of firmware may have different function, you can know the function or feature this router supports by checking its version information.

This command is able to display the following:

⤴ System Ident	System Identification
⤴ System Version	System Version
⤴ Release Date	Release Date
⤴ Installed Option	Installed Option
⤴ Serial Number	Serial Number
⤴ CLI Version	Command Line Interface Version

Sample Display:

cli> **show version**

System Ident	ERT-2501	System Version	05.09.01
Release Date	8-1-2000	Installed Option	a
Serial Number	010203	CLI Version	V1.0.7 Aug 08 2000

## 3.2 Port Configuration Commands

### 3.2.1 Physical Port configuration Commands

Includes:

modify line parameters

show line parameters

#### 3.2.1.1 *modify line parameters*

Modify physical port configuration

**modify line parameters** *line* [ **speed** *speed* | **encaps** *encaps* | **itype** *itype* | **intnum** *intnum* | **ioaddr** *ioaddr* | **memaddr** *memaddr* ]

Syntax Description:

*line* Name of physical port, it may be Ethernet port, **LAN**, or the WAN port: **Port1, Port2**.

*speed* Physical connection speed, unit is bps. Range **9600, 14400, 19200, 28800, 38400, 57600, 64000, 115200, 128000, 256000, 512000, 1544000, 2048000**. This parameter only applies to WAN port configuration.

*encaps* IPX packet type: **V2, 802.3** or **802.2**. This parameter only applies to the Ethernet port. V2 is the Ethernet standard **Ethernet Version 2.0** established by DIX. This parameter only specifies IPX packet type of Data Link Layer. The IP packet type of Data Link Layer is fixed to V2.

*itype* Connection Type **RS-232, RS-422, RS-485, V.35**. This parameter only applies to WAN port.

*intrnum* Interrupt number in hexadecimal format.

*ioaddr* I/O address in hexadecimal format.

*memaddr* Memory address in hexadecimal format.

Default:

Default value of Ethernet Port is : encaps=802.3; intrnum=0; ioaddr=0; memaddr=0; C

The default value of WAN Port are : speed=28800; itype=RS-232; intrnum=0; B  
ioaddr=0; memaddr=0; C

#### Usage Guidelines:

Users should configure ERT-2501 according to connection status and usage.

To obtain the optimized performance, please check the maximum connection speed of each interface shown as the following:

Connection Type	Maximum Connection Speed
V.35	T1 or E1
RS-232	64 kbps
RS-422	T1 or E1
RS-485	T1 or E1

By the way, if WAN port 1 is set to T1 connection speed, the connection speed of WAN port 2 must not more than 256k bps. The total connection speed should not more than 2M bps.

#### Sample Display:

Modify physical port Port1 to connection speed 57600, connection type as RS-232.

cli> **modify line parameters port1 speed 57600 itype rs-232**

#### Related Commands:

show line parameters

#### 3.2.1.2 show line parameters

Display physical port parameters

**show line parameters [ line line ]**

#### Syntax Description:

*line* Name of Physical Port

Default:

If do not specify the port name, it will display all the parameters of all physical ports.

Usage Guidelines:

This command displays the following information:

⤴	Physical Port	Name of Physical Port
⤴	Speed	Connection speed
⤴	WAN Protocol	WAN Protocol
⤴	IPX Encaps	IPX Encapsulation type
⤴	Interface Type	Connection Type
⤴	Interrupt Num	Interrupt Number
⤴	Mem Address	Memory Address
⤴	IO Address	I/O Address

Sample Display:

To display physical port Port1 parameters:

```
cli> show line parameters line port1
```

Physical Port	port1	Interface Type	RS-232
Speed	57600	Interrupt Num	0
WAN Protocol		Mem Address	0
IPX Encaps	802.3	IO Address	0

Related Commands:

modify line parameters

## 3.2.2 Logical Port Configuration Commands

The logical port configuration commands include

add lport parameters

delete lport parameters

modify lport parameters

show lport parameters

show lport statistics

### 3.2.2.1 add lport parameters

Add a logical port

```
add lport parameters lport line [ priority priority | circuit circuit | phone  
phone | idle idle | bkpri bkpri | loadbal loadbal | compress compress ]
```

#### Syntax Description:

<i>lport</i>	Name of Logical port (Only the physical port set as Frame Relay can be assigned multiple logical port, Maximum=23.)
<i>line</i>	Name of physical Port, it can be Ethernet port: <b>LAN</b> or WAN port: <b>Port1</b> , <b>Port2</b> .
<i>priority</i>	Priority. Range: <b>0 - 255</b>
<i>circuit</i>	circuit usage: <b>normal</b> , <b>dial-on-demand</b> or <b>backup</b>
<i>phone</i>	Dial String, 40 digits maximum.
<i>idle</i>	Idle time. Range: <b>10 – 1200</b> seconds.
<i>bkpri</i>	Backup port (logical), only used when circuit type is set to backup.
<i>loadbal</i>	load-balancing, value : <b>y</b> or <b>n</b> .
<i>compress</i>	Data compress, value : <b>y</b> or <b>n</b> .

#### Default:

When ERT-2501 is set to default, priority =0, Circuit type =Normal, dial string =none, idle time =300, backup logical port =none, load balance = No, data compress = No.

#### Usage Guidelines:

- ▲ The default mapping of physical and logical ports are shown as following:

Physical Port		Corresponding Logical Port
Ethernet port	LAN	eth0
DB25 WAN Port	Port1	wan1
DB25 WAN Port	Port2	wan2

Suggestion : Keep these default names in order to keep the consistency of ERT-2501 in your network topology.

- ▲ Only the physical port set as Frame Relay can be assigned multiple logical port (the maximum is 23), and the physical port configured as PPP or HDLC can be assigned only single logical port.
- ▲ Highest Priority is 0
- ▲ Dial-on-Demand only can be used with HDLC or Async PPP connection.  
When use HDLC, Dial-on-Demand can only be used to connect ERT-2501s.
- ▲ When use “show lport parameters” command, only the prior 18 characters can be seen, but users can see longer dial-up string in NetGrip setting.
- ▲ If circuit parameter is set as backup, “bkpri” parameters must be set also.
- ▲ Compression algorithm is only applicable between ERT-2501s. When using compression, connection speed should be set to 64kbps or slower. (Compression will be forbidden while connection speed is faster than 64kbps.)

Sample Display:

Add logical port WAN3 on physical port Port1, and configure the line usage as backup line, and the backup port is WAN1.

```
cli> add lport parameters wan3 port1 circuit backup bkpri wan1
```

Related Commands:

modify lport parameters, delete lport parameters, show lport parameters

### 3.2.2.2 *delete lport parameters*

Delete logical port

```
delete lport parameters lport
```

Syntax Description :

*lport* name of logical port

Usage Guidelines:

User may delete logical ports while the logical port is no longer used.

Sample Display:

Delete logical port 3

```
cli> delete lport parameters wan3
```

Related Commands:

add lport parameters, modify lport parameters, show lport parameters

### 3.2.2.3 *modify lport parameters*

Modify settings of logical port

```
modify lport parameters lport [ line line | priority priority | circuit circuit | phone phone | idle idle | bkpri bkpri | loadbad loadbad | compress compress ]
```

Syntax Description :

Same as the command "add lport parameters"

Usage Guidelines:

Users are not only able to modify the settings of a logical port, but also to configure the corresponding physical port.

Sample Display:

Modify the priority of logical port WAN3 to be 1, dial string to be AT&S1&C1&D2&S0  
cli> **modify lport parameters wan3 priority 1 phone AT&S1&C1&D2&S0=1**

Related Commands:

add lport parameters, delete lport parameters, show lport parameters

### 3.2.2.4 show lport parameters

Display configuration parameters of logical port

**show lport parameters [ lport lport ]**

Syntax Description:

*lport* name of logical port

Default:

If do not specify the port name, it will display all the parameters of all logical ports.

Usage Guidelines:

This command can display the following message:

▲ Logical Port	Logical Port Name
▲ Physical Port	Corresponding Physical Port
▲ Backup for Port	Port be backup
▲ Priority	Priority
▲ Load Balance	Enable Load Balance or not
▲ Circuit	Line usage
▲ Compression	Data compression or not
▲ Dial String	Dial string
▲ Idle Time	Idle time

Sample Display:

Display parameters of logical port WAN 3

cli> **show lport parameters wan3**

Logical Port	wan3	Circuit	Backup
Physical Port	Port1	Compression	No
Backup for Port	wan1	Dial String	1AT7M1ATDT201
Priority	1	Idle Time	300
Load Balance	No		

#### Related Commands:

add lport parameters, modify lport parameters, delete lport parameters

#### 3.2.2.5 *show lport statistics*

Display logical port statistics information

**show lport statistics**

#### Usage Guidelines:

This command can display the following information:

- ▲ lport                      Name of logical port
- ▲ ifInUcastPkts            The number of subnetwork-unicast packets delivered to a higher-layer protocol.
- ▲ ifInDiscards            Number of inbound packets for which no problems were encountered to prevent their continued processing, but which were discarded (for example, for lack of buffer space).
- ▲ ifInUnknownProto      The number of packets received via the interface which were discarded because of an unknown or unsupported protocol.
- ▲ ifOutUcastPkts          The number of unicast packets transmitted.
- ▲ ifOutDiscards          Number of outbound packets for which no problems were encountered to prevent their continued processing, but which were discarded (for example, for lack of buffer space).
- ▲ ifOutQLen                The length of the output packet queue (in packets).
- ▲ MtuExceededDisca      Total number of frames the interface discard due to exceed the MTU (maximum transfer Unit).
- ▲ InFrames                The number of frames received in logical port
- ▲ InDiscards              Number of inbound packets for which no problems were encountered to prevent their continued processing, but which were discarded (for example, for lack of buffer space).
- ▲ ifInOctets                The total number of octets received on the interface, including framing characters.
- ▲ ifInNUcastPkts          The number of non-unicast (i.e., subnetwork- broadcast or subnetwork-multicast) packets delivered to a higher-layer protocol.
- ▲ ifInErrors                The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
- ▲ ifOutOctets                The total number of octets transmitted out of the interface, including framing characters.
- ▲ ifOutNUcastPkts        The total number of packets that higher-level protocols requested be transmitted to a non- unicast (i.e., a subnetwork-broadcast or subnetwork-multicast) address, including those that were discarded or not sent.
- ▲ ifOutErrors                The number of outbound packets that could not be transmitted because of errors.
- ▲ DelayExceededDis      The number of frames discarded by this port due to excessive transit delay through the bridge.
- ▲ ForwardTransitio      Number of transitions from Blocking to Forwarding due to STP reconfiguration.
- ▲ OutFrames                The number of frames transmitted in logical port

Sample Display:

cli> **show lport statistics**

lport	wan2	ifInOctets	0
ifInUcastPkts	0	ifInNUcastPkts	0
ifInDiscards	0	ifInErrors	0
ifInUnknownProto	0	ifOutOctets	0
ifOutUcastPkts	0	ifOutNUcastPkts	0
ifOutDiscards	0	ifOutErrors	0
ifOutQLen	8	DelayExceededDis	0
MtuExceededDisca	0	ForwardTransitio	0
InFrames	0	OutFrames	0
InDiscards	0		
lport	wan1	ifInOctets	0
ifInUcastPkts	0	ifInNUcastPkts	0
ifInDiscards	0	ifInErrors	0
ifInUnknownProto	0	ifOutOctets	0
ifOutUcastPkts	0	ifOutNUcastPkts	0
ifOutDiscards	0	ifOutErrors	0
ifOutQLen	8	DelayExceededDis	0
MtuExceededDisca	0	ForwardTransitio	0
InFrames	0	OutFrames	0
InDiscards	0		
lport	eth0	ifInOctets	10916920
ifInUcastPkts	31036	ifInNUcastPkts	4461
ifInDiscards	0	ifInErrors	0
ifInUnknownProto	0	ifOutOctets	22380
ifOutUcastPkts	128	ifOutNUcastPkts	121
ifOutDiscards	0	ifOutErrors	0
ifOutQLen	64	DelayExceededDis	0
MtuExceededDisca	0	ForwardTransitio	0
InFrames	35497	OutFrames	0
InDiscards	2930		

## 3.3 WAN Protocol Configuration Commands

### 3.3.1 PPP Commands

PPP Commands:

```
add ppp line
delete ppp line
modify ppp line
show ppp line
```

### 3.3.1.1 *add ppp line*

Configure WAN protocol as PPP

```
add ppp line line [ maxc maxc | maxf maxf | maxt maxt | errth errth |  
events events | tpoll tpoll | trest trest ]
```

Syntax Description :

<i>line</i>	Physical port name
<i>maxc</i>	Maximum configure, range :1-255
<i>maxf</i>	Maximum failure, Range :1-255
<i>maxt</i>	Maximum terminate, range :1-255
<i>errth</i>	Error threshold, range : 1-10
<i>events</i>	Event counts, range : 1-10
<i>tpoll</i>	Polling timer, range : 1-3600 seconds ^
<i>trest</i>	Restart timer, range : 1-3600 seconds ^

Default Value

When ERT-2501 is set to default setting, Max. Configure =10, Maximum Error=10, Maximum Terminate =2, Error threshold=3, Event Counts =5, Poll Timer =10 sec, Restart Timer =3 sec.

Usage Guidelines:

This command is used to configure parameters of PPP protocol.

Sample Display:

Configure WAN protocol of physical port Port2 as PPP, and set the Max. Configure =10, Maximum Failure=15, Error Threshold=5, Event Counts=5, Restart timer =200 sec.

```
cli> add ppp line port2 maxc 10 maxt 15 errth 5 events 5 tpoll 200
```

Related Commands:

modify ppp line, delete ppp line, show ppp line

### 3.3.1.2 *delete ppp line*

Delete settings of PPP protocol.

```
delete ppp line line
```

Syntax Description:

*line* Name of physical port

Usage Guidelines:

User may delete PPP settings when PPP protocol is no longer used.

Sample Display:

Delete PPP protocol of physical port Port1

cli> **delete ppp line port1**

Related Commands:

add ppp line, modify ppp line, show ppp line

### 3.3.1.3 *modify ppp line*

Modify settings of PPP on physical (logical) port

**modify ppp line** *line* [ **maxc** *maxc* | **maxf** *maxf* | **maxt** *maxt* / **errth** *errth* | **events** *events* / **tpoll** *tpoll* | **trest** *trest* ]

Syntax Description:

Same as command “add ppp line “.

Usage Guidelines:

This command can be used only when the port has been configured as PPP protocol.

Sample Display:

Modify PPP settings of physical port Port1, set Max. Configure =50, Maximum Terminate=30, Event Counts=10, and the Polling timer=300 sec.

cli> **modify ppp line port1 maxc 50 maxt 30 events 10 tpoll 300**

Related Commands:

add ppp line, del ppp line, show ppp line

### 3.3.1.4 *show ppp line*

Display PPP settings of a specific port

**show ppp line** *line*

Syntax Description :

*line* Name of physical port

#### Usage Guidelines:

This command can be used to display the following messages :

^	Address Format	Address Format
^	Max. Configure	Maximum Configure
^	Max. Failure	Maximum Failure
^	Max. Terminate	Maximum Terminate
^	Error Threshold	Error Threshold
^	Events	Events count
^	Poll Timer	Poll Timer
^	Restart Timer	Restart Timer

#### Sample Display:

Display PPP parameters of physical port Port1

cli> **show ppp line port1**

Address Format	1	Error Threshold	3
Max. Configure	10	Events	5
Max. Failure	10	Poll Timer	10
Max. Terminate	2	Restart Timer	3

#### Related Commands:

add ppp line, modify ppp line, delete ppp line

### 3.3.2 HDLC Configuration Commands

HDLC configuration commands Include:

```
add hdlc line
add hdlc lport
delete hdlc line
delete hdlc lport
modify hdlc lport
show hdlc line
show hdlc lport
```

#### 3.3.2.1 add hdlc line

Set WAN protocol of physical interface to be HDLC

**add hdlc line** *line* [ **stype** *stype* ]

#### Syntax Description:

*line*      Name of physical port  
*stype*     Station type: dte or dce

Default:

Default setting of stype is dte.

Usage Guidelines:

This command is used to configure data link layer protocol of physical port to be HDLC. Only DTE device can be utilized for the time being.

Sample Display:

Configure WAN protocol of physical port 1 as HDLC, and the station type as DTE.

cli> **add hdlc line port1 stype dte**

Related Commands:

delete hdlc line, show hdlc line

### 3.3.2.2 *add hdlc lport*

Configure WAN protocol of logical port as HDLC

**add hdlc lport lport [ ht1 ht1 | hn2 hn2 | wsize wsize | psize psize ]**

Syntax Description:

*lport* Name of logical port

*ht1* Polling timer

*hn2* Maximum Error

*wsize* Window Size

*psize* Packet Size

Default:

When ERT-2501 is set to default, ht1=3000, hn2=20, wsize=7, psize=576.

Usage Guidelines:

This command is used to configure data link layer protocol of physical port to be HDLC.

Sample Display:

Configure WAN protocol of logical port as HDLC, and the Polling Timer =1 sec,  
Maximum Errors=20.

cli> **add hdlc lport wan1 ht1 1 hn2 20**

Related Commands:

modify hdlc lport, delete hdlc lport, show hdlc lport

### 3.3.2.3 *delete hdlc line*

Delete HDLC settings of physical port.  
`delete hdlc line line`

Syntax Description:

*line* Name of physical port.

Usage Guideline:

This command can be used to delete HDLC settings of physical port.

Sample Display:

Delete HDLC settings of physical port port1

```
cli> delete hdlc line port1
```

Related Commands:

add hdlc line, show hdlc line

### 3.3.2.4 *delete hdlc lport*

Delete HDLC settings of logical port

**delete hdlc lport *lport***

Syntax Description:

*lport* Name of logical port

Usage Guidelines:

This command is used to delete HDLC settings of logical port.

Sample Display:

Delete HDLC settings of the logical port WAN1

```
cli> delete hdlc lport wan1
```

Related Commands:

add hdlc lport, modify hdlc lport, show hdlc lport

### 3.3.2.5 *modify hdlc lport*

Modify HDLC settings of logical port

`modify hdlc lport lport [ht1 ht1 | hn2 hn2 | wsiz wsiz | psiz psiz]`

Syntax Description:

Same parameter usage as command “add hdlc lport”.

Usage Guidelines:

This command is used to modify HDLC settings of logical port.

Sample Display:

Modify HDLC settings of logical port WAN1, Maximum Error=10, Window Size =16 and the packet size =576.

```
cli> modify hdlc lport wan1 hn2 10 wisze 16 psize 576
```

Related Commands:

add hdlc lport, delete hdlc lport, show hdlc lport

### 3.3.2.6 *show hdlc line*

Display HDLC settings of logical port  
*show hdlc line line*

Syntax Description:

*line* Name of physical port

Usage Guidelines:

This command is used to display station type of physical port.

Sample Display:

Display HDLC parameters of physical port Port1.

```
cli> show hdlc line port1
```

Station	Type
	DTE

Related Commands:

add hdlc line, delete hdlc line.

### 3.3.2.7 *show hdlc lport*

Display HDLC parameters of logical port.  
*show hdlc lport lport*

Syntax Description:

*lport* Name of logical port.

Usage Guidelines:

This command is used to display the following information:

▲ Polling Timer	Polling Timer
▲ Window Size	Window Size
▲ Max. Errors	Maximum Errors
▲ Packet Size	Packet Size

For example

Display HDLC parameters of physical port Port1.

cli> **show hdlc lport wan1**

Polling Timer	3000	Window Size	7
Max. Errors	20	Packet Size	576

Related Commands:

add hdlc lport, modify hdlc lport, delete hdlc lport

## 3.4 Frame Relay Configuration Commands

3.4.1 Frame Relay configuration commands Include:

```
add fr line
add fr lport
delete fr line
modify fr line
modity fr lport
show fr line
show fr lport
```

### 3.4.1.1 add fr line

Configure WAN port protocol of physical port as Frame Relay.

```
add fr line line [ addrfmt addrfmt | addrlen addrlen | dlcml dlcml |
n1 n1 | n2 n2 | n3 n3 | t1 t1 | t2 t2 ]
```

Syntax Description:

*line* Name of physical port.

*addrfmt* Address format: **Q921** or **Q922**

*addrlen* Address length

*dlcml* Frame Relay management interface: **LMI**, **Anney-D** or **Offn1** Polling Cycle,  
range: 1-255

*n2* Maximum Errors, range: 1-10

*n3* Maximum Events, range: 1-10

- t1 Polling Timer, range: 5-30 (sec)
- t2 Network Timer, range: 5-30 (sec)

Default:

When ERT-2501 is set to default, the Address Format =Q921, Address Length=2, Frame Relay Management Interface=LMI, Polling Cycle =6, Maximum Errors = 2, Maximum Events = 4, Polling Timer=10 sec, and the Network Timer =15 sec.

Usage Guidelines:

- ⤴ The N1 parameter specifies the ratio of normal STATUS ENQUIRY messages to full STATUS ENQUIRY messages. The full STATUS ENQUIRY message is used by the router to request a full STATUS message from the network. The full STATUS message is the message that contains the status of all DLCs known to the network. Since the status of DLCs is not expected to change frequently and the full STATUS message is longer than the normal STATUS message, it is usual to set N1 to a number greater than 1 to ensure that excess bandwidth is not devoted to LMI messages. The value n1 must be a number between 1 and 255 inclusive, and defaults to 6.
- ⤴ The N2 parameter specifies the number of error events in the last N3 events that will cause an alarm condition to be flagged. An event in this context is the reception of a reply to the STATUS ENQUIRY message sent by the router. An error event is a timeout before this message is received, or a reply being received with an incorrect format. The value n2 must be a number between 1 and 10 inclusive, and must be less than or equal to the value of N3. The default value for N2 is 2.
- ⤴ The N3 parameter specifies the number of events used to determine alarm conditions and the negation of the alarm condition. If N2 out of the last N3 events are in error, an alarm is set. The alarm is cleared again when N3 events are received without error. The value n3 must be a number between 1 and 10 inclusive, and must be greater than or equal to the value of N2. The default value for N3 is 4.
- ⤴ Note the dependence of N2 and N3 on each other. Any value may be specified for N2 and N3, as long as at the end of processing the command line, the value of N2 is less than or equal to the value of N3.
- ⤴ The T1 parameter specifies the interval, in seconds, between STATUS ENQUIRY messages transmitted by the router to the Frame Relay network.. The STATUS ENQUIRY message is the basic poll message of the LMI dialogue. The value t1 must be a multiple of 5 and must fall between 5 and 30 inclusive. The default value for T1 is 10. The change to the value of T1 takes place immediately, although the effect only takes place after the next STATUS ENQUIRY message is sent to the network..

- ▲ The values of T1 and N1 combine to determine how often full STATUS ENQUIRY messages are sent to the network. The minimum value for the period between full STATUS ENQUIRY messages is 5 seconds and the maximum value is 7650 seconds (255 x 30 seconds).

#### Sample Display:

Configure WAN protocol of physical port Port1 as Frame Relay, and set the Address Format =Q921, Address length=2, Frame Relay Management Interface = LMI, Polling Cycle=10, Polling Timer =5 sec, and Network Timer =10 sec.

```
cli> add fr line port1 addfmt q921 addrlen 2 dlcmi lmi n1 10 t1 5 t2 10
```

#### Related Commands:

modify fr line, delete fr line, show fr line

#### 3.4.1.2 add fr lport

Configure Frame Relay to logical port.

```
add fr lport lport dlc[ frcir frcir | frcbir frcbir | frtc frtc]
```

#### Syntax Description:

*lport* Name of logical port.  
*dlci* data link connection identification, range: 16-1007  
*frcir* Frame Relay Committed Information Rate, in bps  
*frcbir* Frame Relay Committed Burst Information Rate, in bps  
*frtc* Measure Rate Interval, in sec

#### Default:

When ERT-2501 is set to default, DLCI =0, Committed Information Rate, and Committed Burst Information Rate = line speed, and the Measure Rate Interval=4

#### Usage Guidelines:

This command is used to add Frame Relay to logical port.

#### Sample Display:

Add a Frame Relay of logical port WAN1, and set DLCI=16, and the CIR, CBIR=57600.

```
cli> add fr lport wan3 16 frcir 57600 frcbir 57600
```

#### Related Commands:

modify fr lport, show fr lport

### 3.4.1.3 *delete fr line*

Delete Frame Relay configuration from physical port.

**delete fr line** *line*

Syntax Description:

*line* Name of physical port.

Usage Guidelines:

This command is used to delete Frame Relay settings of physical port.

Sample Display:

Delete Frame Relay settings of physical port Port1.

cli> **delete fr line port1**

Related Commands:

add fr line, modify fr line, show fr line

### 3.4.1.4 *modify fr line*

Modify Frame Relay parameters of physical port.

**modify fr line** *line* [ **addrfmt** *addrfmt* | **addrlen** *addrlen* | **dlcml** *dlcml* | **n1** *n1*  
| **n2** *n2* | **n3** *n3* | **t1** *t1* | **t2** *t2* ]

Syntax Description:

Same parameter usage as the command : "add fr line"

Usage Guidelines:

This command is used to modify Frame Relay parameters of physical port.

Sample Display:

Modify Frame Relay Parameters of physical port Port1, and set Address Format =Q922, Polling Cycle = 15, Maximum Errors=3, and the Polling Timer=10.

cli> **modify fr line port1 addrfmt q922 n1 15 n2 3 t1 10**

Related Commands:

add fr line, delete fr line, show fr line

### 3.4.1.5 *modify fr lport*

Modify Frame Relay parameters of logical port.

**modify fr lport** *lport* [ **dlci** *dlci* | **frcir** *frcir* | **frcbir** *frcbir* | **frtc** *frtc* ]

Syntax Description:

Same parameter usage as commands : “add fr lport”.

Usage Guidelines:

This command is used to modify Frame Relay configuration of logical port.

Sample Display:

Modify Frame Relay parameters of logical port WAN1, and set DLCI =50, CIR=CBIR=57600bps.

cli> **modify fr lport wan1 dlci 50 frcir 57600 frcbir 57600**

Related Commands:

add fr lport, show fr lport

### 3.4.1.6 show fr line

Show Frame Relay parameters of physical port.

**show fr line line**

Syntax Description:

*line* Name of physical port

Usage Guidelines:

This command is used to display the following messages : j G

▲ Address Format	Address Format
▲ Address Length	Address Length
▲ DLCMI	Frame Relay Management Interface
▲ Polling Cycle	Polling Cycle, N1
▲ Max. Errors	Maximum Errors, N2
▲ Max. Events	Maximum Events, N3
▲ Polling Timer	Polling Timer, T1
▲ Network Timer	Network Timer, T2

Sample Display:

Display Frame Relay parameters of physical port Port2

cli> **show fr line port2**

Address Format	Q921	Max. Errors	2
Address Length	2	Max. Events	4
DLCMI	LMI	Polling Timer	10
Polling Cycle	6	Network Timer	15

Related Commands:

add fr line, modify fr line, delete fr line

### 3.4.1.7 *show fr lport*

Show Frame Relay parameters of logical port.

**show fr lport lport**

Syntax Description:

*lport* Name of logical port

Usage Guidelines:

This command is used to display the following messages:

^	DLCI	Data Link Connection Indicator
^	Measure Rate	Measure Rate Interval
^	Committed Rate	Committed Information Rate, CIR
^	Burst Rate	Committed Burst Information Rate, CBIR

Sample Display:

Display Frame Relay parameters of logical port WAN1

cli> **show fr lport wan1**

DLCI	0	Committed Rate	64000
Measure Rate	4	Burst Rate	64000

Related Commands:

add fr lport, modify fr lport

## 3.4.2 X.25 Configuration Commands :

X.25 Configuration commands include the following:

```
add x25 line
add x25 lport
add x25 map
clear x25 lport
delete x25 line
delete x25 lport
delete x25 map
modify x25 line
modify x25 lport
modify x25 map
reset x25 lport
restart x25 lport
show x25 line
show x25 lport
show x25 map
```

### 3.3.4.1 *add x25 line*

Configure WAN protocol of physical port as X.25

**add x25 line line [ xt1 xt1 | xt2 xt2 | xn1 xn1 | xn2 xn2 | xk xk ]**

#### Syntax Description:

<i>line</i>	Name of physical port
<i>xt1</i>	LAPB (Link Access Procedure Balanced) parameter T1
<i>xt2</i>	LAPB parameter T2
<i>xn1</i>	LAPB parameter N1
<i>xn2</i>	LAPB parameter N2
<i>xk</i>	LAPB parameter K

#### Default:

When ERT-2501 is set to default, T1=3sec, T2=1sec, N1=1032, N2=16, K=7.

#### Usage Guidelines:

##### LAPB Parameters:

- ▲ *t1*: Unit in second, This specifies the maximum time to wait for acknowledgment of a frame. Resend the frame if exceed this time.
- ▲ *t2*: Unit in seconds, This specifies the maximum time to wait before sending an acknowledgment for a sequenced frame. A value of zero means there will be no delay in acknowledgement generation.
- ▲ *n1*: Unit =bit. The N1 frame size used for the maximum number of bits in a frame.
- ▲ *n2*: The N2 retry counter used for this interface. This specifies the number of times a frame will be resent after the T1 timer expires without an acknowledgement for the frame.
- ▲ *k*: The window size for this Interface. This is the maximum number of unacknowledged sequenced frames that may be outstanding from this DTE at any one time.

#### Sample Display:

Configure WAN port protocol of physical port Port1 as X.25. T1=8, T2=3, N1=1500, N2=5, K=7.

```
CLI> add x25 line port1 xt1 8 xt2 3 xn1 1500 xn2 5 xk 7
```

#### Related Commands:

modify x25 line, delete x25 line, show x25 line

### 3.3.4.2 add x25 lport

Configure X.25 parameters of logical port.

```
add x25 lport lport [local_x25addr local_x25addr | htc htc | ltc ltc | xidle xidle |  
t20 t20 | t21 t21 | t22 t22 | t23 t23 | dbit dbit | faciswitch faciswitch |  
win_send win_send | win_rcv win_rcv | plen_send plen_send | plen_rcv plen_rcv |  
thro_class thro_class | relaydelay relaydelay | cugs cugs | cugio cugio | bcug bcug ]
```

#### Syntax Description:

<i>lport</i>	Name of logical port
<i>local_x25addr</i>	Local X.25 address
<i>htc</i>	Highest two-way channel number
<i>ltc</i>	Lowest two-way channel number
<i>xidle</i>	SVC Idle time
<i>dbit</i>	Dbit set

<i>t20</i>	Restart timer
<i>t21</i>	Value of the Call Request timer
<i>t22</i>	Value of the Reset Request timer
<i>t23</i>	Value of the Clear Request timer
<i>faciswitch</i>	Facilities Switch
<i>win_send</i>	Transmit window size
<i>win_rcv</i>	Receive window size
<i>plen_send</i>	Transmit packet length
<i>plen_rcv</i>	Receive packet length
<i>thro_class</i>	Class of throughput
<i>relaydelay</i>	Relay delay time
<i>cugs</i>	Closed User Groups (CUG) number
<i>cugio</i>	CUG with IO flag
<i>bcug</i>	Bilateral CUG flag

#### Default:

When ERT-2501 is set to default, htc=16, ltc=1, xidle=20 sec, dbit=0, t20=180 sec, t21=200 sec, t22=180 sec, t23=180 sec, faciswitch=0, win\_send=2, win\_rcv=2, plen\_send=7, plen\_rcv=7, thro\_class=0, relaydelay=0, cugs=0, cugio=0, bcug=0; C

#### Usage Guidelines:

##### ▲ Basic parameters :

<b>local_x25_addr</b>	Local X.25 address, an address composed of 1-15 digits. Each X.25 leased line will be assigned such an address.
<b>htc</b>	Highest Two-way Channel. User have to specify the range of available Logical Channel Number (LCN) according to subscription contract. The typical range is 1~16. The default setting of htc is 16 and maximum setting is 64.
<b>ltc</b>	Lowest Two-way Channel, default value=1, minimum=1, and htc>=ltc (please refer to htc.)
<b>xidle</b>	Switched Virtual Circuit (SVC) idle time. If SVC idle time exceeds the value, SVC will be closed.
<b>Dbit</b>	Dbit setting. If Dbit of data packet is set to 0, the data packet is acknowledge by local end. If it is set to 1, the data packet is acknowledge by remote end.

##### ▲ Optional facilities parameters:

<b>faciswitch</b>	Switch of optional facilities. 1 means that SVC call request packet will carry a facilities field to negotiate with remote DTE. 0 means that SVC call request packet will not carry this field and use the default settings.
<b>win_send</b>	Transmission window size, range from 2 to modulus -1.
<b>win_rcv</b>	Reception window size, range from 2 to modulus -1.
<b>plen_send</b>	Transmission packet length, range from 4 to 12. Default value=7 i.e. sent packet length = 128 bytes C
<b>plen_rcv</b>	Reception Packet length, range from 4 to 12. Default value = 7 i.e. Received Packet length=128 bytes
<b>thro_class</b>	Throughput class, represents the maximum transmission speed on Virtual Circuit. It should be higher than the connection speed of Data Link Layer. The throughput class is coded by an octet ( separated to two 4-bit, in hexadecimal) The first represents called DTE, the second represents calling DTE. Their mappings are as following:

HEX	Transmitting Speed	bit/s	^
3	75		
4	150		
5	300		
6	600		
7	1200		
8	2400		
9	4800		
a	9600		
b	19200		
c	48000		

The typical value is aa (in hexadecimal) which mean the called and calling DTE are both set to 9600bit/s. The default is 0 which mean that do not negotiate this value.

- relaydelay** G Relay delay, The delay of network transmission in millisecond. This value can be specified on call request packet of the SVC. The default is 0, mean do not specify this value.
- cug** G Close User Group Number. Range from 1-9999 in decimal. This service needs to be subscribed with service provider. The default value is 0, mean disable this service. The following value is applicable only if cug is not 0.
- cugiq** G Close User Group with I/O flag. 0: without Incoming/Outgoing access. 1: Outgoing access. 2: Incoming access.
- bcug** G Bilateral Close User Group flag. 0: do not subscribe the service. 1: have subscribed the service. The mapping of CUG with the corresponding X.25 address of remote DTE is shown on X.25 address mapping table.

Sample Display:

Configure X.25 parameter of logical port WAN1, and set HTC=16, Relay Delay = 2 ms and others are set as default value.

```
CLI> add x25 lport wan1 htc 16 relaydelay 2
```

Related Commands:

modify x25 lport, delete x25 lport, show x25 lport

### 3.3.4.3 add x25 map

Add X.25 address mapping entry.

```
add x25 map destip remote_x25addr pvc_flag lcn cug
```

Syntax Description:

<i>destip</i>	WAN port IP address of Destination DTE
<i>remote_x25addr</i>	X.25 address of Destination DTE
<i>pvc_flag</i>	PVC Flag, configure Virtual Circuit type of destination address
<i>lcn</i>	Logical Channel Number
<i>cug</i>	Closed User Groups number of Destination DTE

Default:

When ERT-2501's configuration is set to default, its `destip=0`, `remote_x25addr=0`, `pvc_flag=0`, `lcn=0`, `cug=0`.

Usage Guidelines:

<b>destip</b>	G	WAN port IP address of Destination DTE
<b>remote_x25addr</b>		X.25 address of destination DTE, which is composed of 1 to 15 digits.
<b>pvc_flag</b>		PVC flag, configuration the virtual circuit type of destination address. 1=PVC, 0=SVC.
<b>lcn</b>		Logical Channel Number, if <code>vcflag=1</code> , i.e. PVC assigns its logical channel number( this value is assigned by your service provider when subscribe PVC), range = 1 ~ 64. If <code>vcflag=0</code> , i.e. SVC is not required to assigned the logical channel number, <code>lcn=0</code> .
<b>cug</b>		Close User Groups number of Destination DTE, range from 1~9999, default value = 0 means that there is no CUG number.

Sample Display:

Add X.25 address mapping entry, destination IP address = 10.0.0.2, X.25 address = 2101, X.25 address = 2101, PVC flag =1, Logical Channel Number `lcn` = 16, CUG number of Destination DTE = 2

```
CLI> add x25 map 10.0.0.2 2101 1 16 2
```

Related Commands:

modify x25 map, delete x25 map, show x25 map

#### 3.3.4.4 clear x25 lport

Clear SVC

```
clear x25 lport lport lcn
```

Syntax Description:

<i>lport</i>	Name of logical port
<i>lcn</i>	Logical Channel Number

Usage Guidelines:

This command is used to clear connection of switched virtual circuit.

Sample Display:

Clear `lcn=16` SVC of logical port `wan1`

```
CLI> clear x25 lport wan1 16
```

Related Commands:

reset x25 lport, restart x25 lport

#### 3.3.4.5 *delete x25 line*

Delete X.25 configuration of physical port.

**delete x25 line** *line*

Syntax Description:

*line*            Name of physical port.

Hint ;

This command is used to delete X.25 configuration of physical port.

Sample Display:

Delete X.25 configuration of physical port Port1.

CLI> **delete x25 line port1**

Related Commands:

add x25 line, modify x25 line, show x25 line

#### 3.3.4.6 *delete x25 lport*

Delete X.25 parameters of logical port.

**delete x25 lport** *lport*

Syntax Description:

*lport*            Name of logical port.

Usage Guidelines:

This command is used to delete the X.25 parameters of logical port.

Sample Display:

Delete X.25 parameters of logical port WAN1.

CLI> **delete x25 lport wan1**

Related Commands:

add x25 lport, modify x25 lport, show x25 lport

#### 3.3.4.7 *delete x25 map*

Delete X.25 address mapping entry.

**delete x25 map** *destip*

Syntax Description:

*destip*        IP address of destination DTE.

#### Usage Guidelines:

This command is used to delete the address mapping entry.

#### Sample Display:

Delete the X.25 address mapping entry of IP: 10.0.0.2.

```
CLI> delete x25 map 10.0.0.2
```

#### Related Commands:

add x25 map, modify x25 map, show x25 map

### 3.3.4.8 *modify x25 line*

Modify X.25 parameters of physical port.

```
modify x25 line line [ xt1 xt1 | xt2 xt2 | xn1 xn1 | xn2 xn2 | xk xk ]
```

#### Syntax Description:

Same parameter usage as the command: “add x25 line”.

#### Usage Guidelines:

This command is used to modify the parameters of physical port.

#### Sample Display:

Modify X.25 parameters of physical port Port1, and set T1=6, T2= 9, K=6

```
CLI> modify x25 line port1 xt1 6 xt2 9 xk 6
```

#### Related Commands:

add x25 line, delete x25 line, show x25 line

### 3.3.4.9 *modify x25 lport*

Modify X.25 parameters of logical port.

```
modify x25 lport lport [ local_x25addr local_x25addr | htc htc | lrc lrc | xidle xidle  
| t20 t20 | t21 t21 | t22 t22 | t23 t23 | dbit dbit | faciswitch faciswitch |  
win_send win_send | win_rcv win_rcv | plen_send plen_send | plen_rcv plen_rcv  
| thro_class thro_class | relaydelay relaydelay | cugs cugs | cugio cugio | bcug  
bcug ]
```

#### Syntax Description:

Same parameter usage as command: “add x25 lport”.

#### Usage Guidelines:

This command is used to modify X.25 parameters of logical port.

Sample Display:

Modify X.25 parameters of logical port WAN1 and set htc=64, relaydelay=4ms, thro\_class=9600bit/s

```
CLI> modify x25 lport wan1 htc 64 relaydelay 4 thro_class aa
```

Related Commands:

add x25 lport, delete x25 lport, show x25 lport

#### 3.3.4.10 *modify x25 map*

Modify address mapping entry of X.25.

```
modify x25 map destip [ remote_x25addr remote_x25addr | pvc_flag pvc_flag | lcn lcn | cug cug ]
```

Syntax Description:

Same parameter usage as command: “ add x25 map “.

Usage Guidelines:

This command is used to modify the address mapping of X.25 .

Sample Display:

Modify X.25 address mapping entry of IP (10.0.0.2), X.25 address=36168, logical channel number (lcn) =20.

```
CLI> modify x25 map 10.0.0.2 remote_x25addr 36168 lcn 20
```

Related Commands:

add x25 map, delete x25 map, show x25 map

#### 3.3.4.11 *reset x25 lport*

Reset PVC, SVC

```
reset x25 lport lport lcn
```

Syntax Description:

*lport* Name of logical port.

*lcn* Logical Channel Number

Usage Guidelines:

This command is used to reset PVC, SVC.

Sample Display:

Reset lcn=16 SVC of logical port WAN1.

```
CLI> reset x25 lport wan1 16
```

Related Commands:

clear x25 lport, restart x25 lport

### 3.3.4.12 *restart x25 lport*

Restart logical port

**restart x25 lport lport**

Syntax Description:

*lport*      Name of logical port.

Usage Guidelines:

This command can be used to restart logical port.

Sample Display:

Restart the virtual circuit of logical port WAN1.

CLI> **restart x25 lport wan1**

Related Commands:

clear x25 lport, reset x25 lport

### 3.3.4.13 *show x25 line*

Show X.25 parameters of physical port.

**show x25 line line**

Syntax Description:

*line*      Name of physical port.

Usage Guidelines:

Please refer to the “add x25 line” command.

Sample Display:

Display X.25 parameters of physical port Port1.

CLI> **show x25 line port1**

LAPB_T1	8	LAPB_N1	1500
LAPB_T2	3	LAPB_N2	5
LAPB_K	7		

Related Commands:

add x25 line, delete x25 line, modify x25 line

### 3.3.4.14 *show x25 lport*

Display X.25 parameters of logical port.

**show x25 lport lport**

Syntax Description:

*lport*      Name of logical port.

Usage Guideline:

Please refer to the “add x25 lport” command.

Sample Display:

Display X.25 parameters of logical port WAN1

CLI> **show x25 lport wan1**

Local x25address	0	Win_send	2
Htc	64	Win_rcv	2
Ltc	1	Plen_send	7
Idle Time	20	Plen_rcv	7
Dbit	0	Thro_class	aa
T20	180	Relaydelay	4
T21	200	Cugs	0
T22	180	Cugio	0
T23	180	bcug	0
Faciswitch	0		

Related Commands:

add x25 lport, delete x25 lport, modify x25 lport

### 3.3.4.15 *show x25 map*

Display X.25 address mapping information.

**show x25 map [ destip destip ]**

Syntax Description:

*destip* WAN Port IP address of destination DTE.

Default:

If do not specify parameter, this command can be used to display all the X.25 address mapping entries.

Usage Guidelines:

Please refer to “add x25 map” command.

Sample Display:

Display X.25 address mapping entry of destination IP(10.0.0.2)

CLI> **show x25 map 10.0.0.2**

Destination IP	10.0.0.2	Lcn	16
Remote x25address	2101	Cug	2
Pvc_flag	1		

Related Commands:

add x25 map, delete x25 map, modify x25 map

## 3.4 Network Protocol Configuration Commands

### 3.4.1 IP Configuration Commands :

IP configuration commands include the following :

```
add ip lport
add ip route
add iprip lport
delete ip lport
delete ip route
delete iprip lport
modify ip lport
modify ip route
modify iprip lport
show arp table
show icmp statistics
show ip lport
show ip route
show ip statics
show tcp statistics
show udp statistics
```

#### 3.4.1.1 *add ip lport*

Configure the IP address of logical port.

**add ip lport lport destip maskip [ mtu mtu | metric metric ]**

Syntax Description:

<i>lport</i>	Name of the logical port.
<i>destip</i>	IP address of the logical port.
<i>maskip</i>	Subnet mask
<i>mtu</i>	Maximum Transmitting Unit, range : 1-1546
<i>metric</i>	Measure count, range:1-15

Default:

When ERT-2501's configuration is set to default, mtu=576, metric=1.

Usage Guidelines:

- ▲ Port's IP address and subnet mask, are in dotted decimal notation.
- ▲ For configuration convenience, it is required that any 2 ports on ERT-2501 must not be assigned to the same subnet.

#### Sample Display:

Configure logical port wan1 IP as 130.1.2.100, subnet mask = 255.255.255.0, mtu=1500, metric=1

```
cli> add ip lport wan1 130.1.2.100 255.255.255.0 mtu 1500 metric 1
```

#### Related Commands:

modify ip lport, delete ip lport, show ip lport

#### 3.4.1.2 add ip route

Add static IP route

```
add ip route destip gwip maskip metric
```

#### Syntax Description:

<i>destip</i>	Destination IP address
<i>gwip</i>	Gateway IP address
<i>maskip</i>	Subnet mask
<i>metric</i>	Measure count, range : 1-16

#### Usage Guidelines:

- ▲ The process of routing packets consists of selectively forwarding data packets from one network to another. The router bases its decision to send the packet to a particular network on the information it can learn dynamically from listening to the selected route protocol, as well as the static information entered as part of the configuration process.
- ▲ The router maintains a table of routes which tells the router how to find a remote network or host. The route table holds information about routes to destinations. A route is uniquely identified by IP address, subnet mask, next hop IP address (gateway IP) and metrics.
- ▲ A list of routes is uniquely identified by its IP address and subnet mask. When an IP packet is received, the routing table is scanned to find the lowest metric route to the destination. It is then forwarded to that route by sending it to the router specified by the next hop. If no route exists the table is scanned for the default route (0.0.0.0) and forwarded as before. If no direct route or default route exists, the packet is discarded and an ICMP message to that effect is sent back to the source.

#### Sample Display:

Add a static IP route, destination IP=130.1.2.100, gateway=130.1.11.2, subnet mask = 255.255.255.0, and the metric=1

```
cli> add ip route 130.1.2.100 130.1.11.2 255.255.255.0 1
```

#### Related Commands:

modify ip route, delete ip route, show ip route

#### 3.4.1.3 add iprip lport

Configure dynamic IP routing

```
add iprip lport lport [ flags flags | ripmetric ripmetric | time time | rtp rtp ]
```

#### Syntax Description:

<i>lport</i>	Name of logical port.
<i>flags</i>	Flags can be used to indicate whether allow sending , receiving RIP broadcasting packets or not. The available parameters are: <b>send</b> , <b>listen</b> = allow sending and receiving, <b>send</b> = allow sending only, <b>listen</b> = allow receiving only, <b>none</b> = disable both sending and receiving.
<i>ripmetric</i>	Dynamic Routing Metric.
<i>time</i>	Interval between RIP renewal broadcast, range : 5 – 3600(sec).
<i>rtp</i>	IP Routing Protocol: RIP or None.

#### Default:

When ERT-2501 is set to default, flags = SEND, LISTEN, ripmetric=1, time=30, rtp = RIP.

#### Usage Guidelines:

- ▲ This command is used to enable the dynamic routing function of logical port, and it only works on the logical port that enables IP function.
- ▲ Dynamic IP route and static IP route can be adopted at the same time, but it is not recommended. If dynamic IP route is not adopted, users have to create at least one route in IP static route. It can have maximum 128 dynamic route entries in dynamic routing table, and maximum 8 static route entries in IP static route table.
- ▲ Variable Length Subnet Mask§ VLSM only be supported on static route.
- ▲ RIP uses Hop Count to estimate the distance to destination host, this is called “Routing Metric”. In RIP, The hop count to the network which router directly connects to is 0 (It is defined as “1” in some protocol.). The hop count to the next reachable network is 1, and so on. To limit the convergence time, RIP set the range of metric from 0 to 15, if hop count is larger than 16 metrics, the distance will be treated as infinite.
- ▲ To improve performance, ERT-2501 supports split horizon algorithm on RIP protocol, and it adapts triggered update to refresh the routing information.

#### Sample Display:

Configure dynamic route of logical port WAN1 to allow sending RIP broadcast packet on this port, and the renew interval is 100 seconds.

```
cli> add iprip lport wan1 flags send time 100
```

#### Related Commands:

modify iprip lport, delete iprip lport

#### 3.4.1.4 delete ip lport

Disable IP function of logical port.

**delete ip lport lport**

#### Syntax Description:

*lport* Name of logical port.

#### Usage Guidelines:

This command is used to disable the IP function of logical port.

For example:

Disable IP function of logical port WAN1.

```
cli> delete ip lport wan1
```

Related Commands:

add ip lport, modify ip lport, show ip lport

#### 3.4.1.5 *delete ip route*

Delete static IP route.

```
delete ip route destip
```

Syntax Description:

*destip* Destination IP address

Usage Guidelines:

This command is used to delete specific static IP route.

Sample Display:

Delete the static IP route of 130.1.1.100

```
cli> delete ip route 130.1.1.100
```

Related Commands:

add ip route, modify ip route, show ip route

#### 3.4.1.6 *delete iprip lport*

Disable dynamic IP route.

```
delete iprip lport lport
```

Syntax Description:

*lport* Name of logical port.

Usage Guidelines:

This command is used to disable dynamic route of specific logical port, this command only applies to the logical port which enable IP function.

Sample Display:

Disable dynamic IP route of logical port WAN1.

```
cli> delete iprip lport wan1
```

Related Commands:

add iprip lport, modify iprip lport

#### 3.4.1.7 *modify ip lport*

Modify the IP address of logical port.

**modify ip lport** *lport* [ **destip** *destip* | **maskip** *maskip* | **mtu** *mtu* | **metric** *metric* ]

Syntax Description:

Same parameter usage as command: “ add ip lport “.

Usage Guidelines:

This command is used to modify the IP address parameter of specific logical port. If this IP is disabled before, users may enable it again via this command. If do not specify some parameters, enabling logical port will recover the prior settings.

Sample Display:

Modify logical port WAN1 IP = 130.1.2.100, subnet mask = 255.255.255.0, and the mtu=512.

cli> **modify ip lport wan1 destip 130.1.2.100 maskip 255.255.255.0 mtu 512**

Related Commands:

add ip lport, delete ip lport, show ip lport

#### 3.4.1.8 *modify ip route*

Modify static IP route configuration.

**modify ip route** *destip* [ **gwip** *gwip* | **maskip** *maskip* | **metric** *metric* ]

Syntax Description:

Same parameter usage as command: “ add ip route”.

Usage Guidelines:

This command is used to modify specific static routing table.

Sample Display:

Modify the static IP route of 130.1.2.100, gateway=130.1.12.2, subnet mask = 255.255.255.0, and the metric = 15.

cli> **modify ip route 130.1.2.100 gwip 130.1.12.2 maskip 255.255.255.0 metric 15**

Related Commands:

add ip route, delete ip route, show ip route

#### 3.4.1.9 *modify iprip lport*

Modify dynamic route

**modify iprip lport** *lport* [ **flags** *flags* | **ripmetric** *ripmetric* | **time** *time* ]

Syntax Description:

Same as commands: " add iprip lport".

Usage Guidelines:

If Logical Port has activated the dynamic routing, users can use this command to modify the activated dynamic routing table, this command can not be used to activate dynamic routing of logical port.

Sample Display:

Modify dynamic routing of logical port WAN1, allow to receive RIP broadcast packets at this port, and the RIP broadcast renew interval = 200 seconds.

```
cli> modify iprip lport wan1 flags listen time 200
```

Related Commands:

add iprip lport, delete iprip lport

### 3.4.1.10 show arp table

Show ARP address table.

```
show arp table
```

Usage Guidelines:

This command is used to display MAC address of ARP table.

Sample Display :

```
cli> show arp table
```

```
010.000.000.014  00:00:21:e2:f6:01
```

```
010.000.000.212  00:00:b4:50:45:04
```

### 3.4.1.11 show icmp statistics

Show ICMP statistic information.

```
show icmp statistics
```

Usage Guidelines:

This command is used to show the following information :

- |                    |  |
|--------------------|--|
| ▲ icmpInMsgs       | Total number of ICMP messages which the Router received. Note that this counter includes all those counted by icmpInErrors.      |
| ▲ icmpInDestUnreac | Number of ICMP Destination Unreachable messages received.  |
| ▲ icmpInParmProbs  | Number of ICMP Parameter Problem messages received.  |
| ▲ icmpInRedirects  | Number of ICMP Redirect messages received.   |
| ▲ icmpInEchoReps   | Number of ICMP Echo Reply messages received.   |
| ▲ icmpInTimestampR | Number of ICMP Timestamp Reply messages received.  |
| ▲ icmpInAddMaskre  | Number of ICMP Address Mask Reply messages received  |
| ▲ icmpOutErrors    | Number of ICMP messages which the router can not sent due to ICMP-specific errors (for example, bad ICMP checksums, bad length). |
| ▲ icmpOutTimeExcds | Number of ICMP Time Exceeded messages sent.  |
| ▲ icmpOutSrcQuench | Number of ICMP Source Quench messages sent.  |

▲ icmpOutEchos	Number of ICMP Echo (request) messages sent.
▲ icmpOutTimestamp	Number of ICMP Timestamp (request) messages sent.
▲ icmpOutAddrMasks	Number of ICMP Address Mask Request messages sent.
▲ icmpInErrors	Number of ICMP messages which the router received but determined as having ICMP-specific errors (for example, bad ICMP checksums, bad length).
▲ icmpInTimeExcds	Number of ICMP Time Exceeded messages received.
▲ icmpInSrcQuenchs	Number of ICMP Source Quench messages received.
▲ icmpInEchos	Number of ICMP Echo (request) messages received.
▲ icmpInTimeStamps	Number of ICMP Timestamp (request) messages received.
▲ icmpInAddrMasks	Number of ICMP Address Mask Request messages received.
▲ icmpOutMsgs	Total number of ICMP messages which the router sent.
▲ icmpOutDestUnreal	Number of ICMP Destination Unreachable messages sent.
▲ icmpOutParmProbs	Number of ICMP Parameter Problem messages sent.
▲ icmpOutRedirects	Number of ICMP Redirect messages sent.
▲ icmpOutEchoReps	Number of ICMP Echo Reply messages sent.
▲ icmpOutTimestampR	Number of ICMP Timestamp Reply messages sent.
▲ icmpOutAddrMaskR	Number of ICMP Address Mask Reply messages sent.

Sample Display:

cli> **show icmp statistics**

icmpInMsgs	141	icmpInErrors	0
icmpInDestUnreac	0	icmpInTimeExcds	0
icmpInParmProbs	0	icmpInSrcQuenchs	0
icmpInRedirects	127	icmpInEchos	7
icmpInEchoReps	7	icmpInTimestamps	0
icmpInTimestampR	0	icmpInAddrMasks	0
icmpInAddrMaskRe	0	icmpOutMsgs	0
icmpOutErrors	0	icmpOutDestUnrea	0
icmpOutTimeExcds	0	icmpOutParmProbs	0
icmpOutSrcQuench	0	icmpOutRedirects	0
icmpOutEchos	22	icmpOutEchoReps	7
icmpOutTimestamp	0	icmpOutTimestamp	0
icmpOutAddrMasks	0	icmpOutAddrMaskR	0

### 3.4.1.12 show ip lport

Show IP information of logical port

**show ip lport lport**

Syntax Description:

*lport*      Name of Logical Port.

Usage Guidelines:

This command is used to display the following messages:

- ▲ IP Address            IP Address of the logical port
- ▲ Subnet Mask        Subnet Mask
- ▲ MTU                Maximum Transmitted Unit
- ▲ Metric             Metric
- ▲ Protocol           Routing Protocol
- ▲ Flags               RIP protocol flags
- ▲ RIP Def. Metric    RIP default metric
- ▲ RIP Bcast Time    RIP broadcast interval

This command can not display the IP information of disabled Logical Port.

Sample Display:

Display IP information of logical port WAN1

cli> **show ip lport wan1**

IP Address	130.1.2.100	Protocol	RIP
Subnet Mask	255.255.255.0	Flags	SEND, LISTEN
Bcast Address	130.1.2.255	RIP Def. Metric	1
MTU	46	RIP Bcast Time	30
Metric	1		

If the IP function is disabled, the following message will be shown.

cli> **show ip lport wan1**

IP not enabled on lport

Related Commands:

add ip lport, modify ip lport, delete ip lport

### 3.4.1.13 show ip route

Show configuration of static IP route

**show ip route [ destip destip ]**

Syntax Description:

*destip*      Destination IP address.

Default:

If do not specify parameter, this command is used to display all configuration of static IP route

Usage Guidelines:

This command is used to display the following messages:

- ▲ Destination IP      Destination IP address : used to indicate destination IP address or destination IP network
- ▲ IP Route Mask      Subnet mask: Used with IP address to indicate destination network. Users can combine IP address and subnet mask to generate destination network address.
- ▲ Next Hop            Next Hop IP address: IP address of next hop that IP packet will pass through. Same as gateway IP address of “add ip route” command.
- ▲ Metric              Metric

Sample Display:

```
cli> show ip route 130.1.2.100
```

Destination IP	130.1.2.100	IP Route Mask	255.255.255.0
Next Hop	130.1.12.2	Metric	1

Related Commands:

add ip route, modify ip route, delete ip route

#### 3.4.1.14 *show ip statistics*

Show IP statistic Information

**show ip statistics**

Usage Guidelines:

This command is used to show the following information:

- ▲ ipForwarding Indication of whether this router is acting as an IP gateway in respect to the forwarding of datagrams received by, but not addressed to, this router. IP gateways forward datagrams. IP hosts do not (except those source-routed via the host).
- ▲ ipInRceives Total number of input datagrams received including those received in error.
- ▲ ipInAddErrors Number of input datagrams discarded because the IP address in their IP header's destination field was not a valid address to be received at this device.
- ▲ ipInUnknownProtos Number of locally-addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.
- ▲ ipInDelivers Total number of input datagrams successfully delivered to IP user-protocols (including ICMP).
- ▲ ipOutDiscards Number of output IP datagrams for which no problem was encountered to prevent their transmission to their destination, but which were discarded (for example, for lack of buffer space).
- ▲ ipReasmTimeout Maximum number of seconds that received fragments are held while they are awaiting reassemble at this device.
- ▲ ipReasmOks Number of IP datagrams successfully reassembled.
- ▲ ipFragOKs Number of IP datagrams that have been successfully fragmented.
- ▲ ipFragCreates Number of IP datagram fragments that have been generated as a result of fragmentation.
- ▲ ipDefault TTL The default value inserted into the Time-To-Live field of the IP header of datagrams originated at ERT-2501, whenever a TTL value is not supplied by the transport layer protocol.
- ▲ ipInHdrErrors Number of input datagrams discarded due to errors in their IP headers.
- ▲ ipForwDatagrams Number of input datagrams for which this device was not their final IP destination, as a result of which an attempt was made to find a route to forward them to that final destination.

▲ ipInDisCards	Number of input IP datagrams for which no problems were encountered to prevent their continued processing, but which were discarded (for example, for lack of buffer space).
▲ ipOutRequests	Total number of IP datagrams that local IP user-protocols (including ICMP) supplied to IP in requests for transmission.
▲ ipOutNoRoute	Number of IP datagrams discarded because no route could be found to transmit them to their destination.
▲ ipReasmReqds	Number of IP fragments received that needed to be reassembled at this router.
▲ ipReasmFails	Number of failures detected by the IP reassemble algorithm (for whatever reason: timed out, errors, and so on)
▲ ipFragFails	Number of IP datagrams that have been discarded because they needed to be fragmented but could not be, for example, because their Don't Fragment flag was set.
▲ ipRoutingDiscard	Number of routing entries that were chosen to be discarded even though they are valid.

Sample Display:

cli> **show ip statistics**

ipForwarding	1	ipDefaultTTL	254
ipInReceives	180	ipInHdrErrors	0
ipInAddrErrors	0	ipForwDatagrams	0
ipInUnknownProto	0	ipInDiscards	0
ipInDelivers	180	ipOutRequests	87
ipOutDiscards	0	ipOutNoRoutes	0
ipReasmTimeout	0	ipReasmReqds	0
ipReasmOKs	0	ipReasmFails	0
ipFragOKs	0	ipFragFails	0
ipFragCreates	0	ipRoutingDiscard	0

#### 3.4.1.15 show tcp statistics

Display TCP statistic information

**show tcp statistics**

Usage Guidelines:

This command is used to show the following information : j G

▲ tcpRtoAlgorithm	The algorithm used to determine the timeout value used for retransmitting unacknowledged octets. j G=other, 2=constant, 3=MIL-STD-1778, 4=Van Jacobson algorithm
▲ tcpRtoMax	The maximum value permitted by a TCP implementation for the retransmission timeout.
▲ tcpActiveOpens	Number of times TCP connections have made a direct transition to the SYN-SENT state from the CLOSED state.
▲ tcpAttemptFails	Number of times TCP connections have made a direct transition to the CLOSED state from either the SYN-SENT state or the SYN-RCVD state, plus the number of times TCP connections have made a direct transition to the LISTEN state from the SYN-RCVD state.
▲ tcpCurrEstab	Number of current TCP connections for which the current state is either ESTABLISHED or CLOSE- WAIT.

▲ tcpOutSegs	Total number of TCP segments sent, including those on current connections but excluding those containing only retransmitted octets.
▲ tcpInErrs	Total number of segments received in error (for example, bad TCP checksums).
▲ tcpRtoMin	The minimum value permitted by a TCP implementation for the retransmission timeout.
▲ tcpMaxCom	The limit on the total number of TCP connections the router can support.
▲ tcpPassiveOpens	Number of times TCP connections have made a direct transition to the SYN-RCVD state from the LISTEN state.
▲ tcpEstabResets	Number of times TCP connections have made a direct transition to the CLOSED state from either the ESTABLISHED state or the CLOSE-WAIT state.
▲ tcpInSegs	Total number of segments received, including those received in error. This count includes segments received on currently established connections.
▲ tcpRetransSegs	Total number of segments retransmitted - that is, the number of TCP segments transmitted containing one or more previously transmitted octets.
▲ tcpOutRsts	Number of TCP segments sent containing the RST flag.

Sample Display:

cli> **show tcp statistics**

tcpRtoAlgorithm	4	tcpRtoMin	0
tcpRtoMax	0	tcpMaxConn	10
tcpActiveOpens	0	tcpPassiveOpens	2
tcpAttemptFails	0	tcpEstabResets	0
tcpCurrEstab	2	tcpInSegs	58
tcpOutSegs	16	tcpRetransSegs	46
tcpInErrs	0	tcpOutRsts	0

### 3.4.1.16 *show udp statistics*

Show UDP statistic information.

**show udp statistics**

Usage Guidelines:

This command is used to show the following information:

▲ InDatagrams	Total number of UDP datagrams this router received.
▲ InErrors	Number of received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port.
▲ Noports	Total number of received UDP datagrams for which there was no application at the destination port.
▲ OutDatagrams	Total number of UDP datagrams sent from this router.

Sample Display:

```
cli> show udp statistics
```

udpInDatagrams	47	udpNoPorts	120
udpInErrors	0	udpOutDatagrams	73

### 3.4.2 IPX Commands :

IPX commands include the following:

- add ipx lport
- add ipx route
- add ipx server
- add ipxrip lport
- add ipxsap lport
- delete ipx lport
- delete ipx route
- delete ipx server
- delete ipxrip lport
- delete ipxsap lport
- modify ipx lport
- modify ipx route
- modify ipx server
- modify ipxrip lport
- modify ipxsap lport
- show ipx lport
- show ipx route
- show ipx server
- show ipx statistics

#### 3.4.2.1 add ipx lport

Add IPX address of logical Port

```
add ipx lport lport ipxnet
```

Syntax Description:

*lport*      Name of Logical Port.

*ipxnet*    IPX network number in hexadecimal format, 8 digits maximum.

Usage Guidelines:

IPX address is composed of network number and a node ID. Network number identifies a physical network. It is 4 bytes long (32bits) and must be unique in an IPX inter-network. It is expressed with 8 hexadecimal digits in configuration command. You do not need to input all 8 digit; the prior 0 can be omitted.

Sample Display:

Configure logical port WAN1's IPX network number as 5

```
cli> add ipx lport wan1 5
```

Related Commands:

modify ipx lport, delete ipx lport, show ipx lport

### 3.4.2.2 *add ipx route*

Add static IPX route

**add ipx route** *destipx ipxgnet ipxgmac ticks hops*

Syntax Description:

*destipx* Destination IPX network number  
*ipxgnet* IPX gateway network number in hexadecimal format, 8 digits maximum.  
*ipxgmac* IPX gateway MAC address  
*ticks* Ticks, (1 second =18.3tick) range : 0–65535  
*hops* Hops, range : 0 - 16

Usage Guidelines:

This command is used to add a IPX route in IPX static routing table.

Sample Display:

Add static IPX route, destination network number=77, gateway network number = 55, gateway MAC address = 00:02:09:01:02:04, ticks = 1, and hop = 2.

```
cli> add ipx route 77 55 00:02:09:01:02:04 1 2
```

Related Commands:

modify ipx route, delete ipx route, show ipx route

### 3.4.2.3 *add ipx server*

Add static IPX service

**add ipx server** *srvname ipxnet servaddr servtype socket hops*

Syntax Description:

*srvname* Name of IPX service  
*ipxnet* IPX network number in hexadecimal format, 8 digits Maximum.  
*servaddr* IPX server address, used with ipxnet to represent the address of the IPX server that providing IPX service.  
*servtpe* Types of IPX services in hexadecimal format  
*socket* Socket of IPX service.  
*hops* the numbers of hops to reach IPX server, range : 0 - 15

Usage Guidelines:

The service type of IPX server is expressed in hexadecimal format:0x0000=unknown, 0x0003 = Print Queue, 0x0004 = File Server, 0x0005 = Job Server, 0x0009 = Archie Server, 0x0024 = Remote Bridge Server, 0x0047 = Advertisement Print Server.

Sample Display:

Add static IPX service, servername = srv1, network number = 101, node = 00:10:01:02:01:02,  
Service Type = File Server, socket number = 4, hop = 10

```
cli> add ipx server srv1 101 00:10:01:02:01:02 4 4 10
```

Related Commands:

modify ipx server, delete ipx server, show ipx server

### 3.4.2.4 add ipxrip lport

Configure dynamic IPX route

```
add ipxrip lport lport [ flags flags ]
```

Syntax Description:

*lport* Name of Logical Port.

*flags* Flags is used to indicate whether allow sending , receiving RIP broadcasting packets or not. The available parameters are: **send,listen** = allow sending and receiving, **send** = allow sending only, **listen** = allow receiving only, **none** = disable both sending and receiving.

Default:

When ERT-2501 is set to default, flags = SEDN, LISTEN

Usage Guidelines:

Dynamic IPX route and static IPX route can be adopted at the same time, but it is not recommended. If dynamic IPX route is not adopted, users have to create at least one route in IPX static route. It can have maximum 128 dynamic route entries in dynamic routing table, and maximum 8 static route entries in IPX static route table.

Sample Display:

Configure dynamic IPX route of Logical Port WAN1, and allow it to send RIP broadcast packets.

```
cli> add ipxrip lport wan1 flags send
```

Related Commands:

modify ipxrip lport, delete ipxrip lport

### 3.4.2.5 add ipxsap lport

Configure IPX SAP(service advertising protocol).

```
add ipxsap lport lport [ sapflags sapflags ]
```

Syntax Description:

*lport* Name of Logical Port.

*sapflags* Sapflags is used to indicate whether allow sending , receiving SAP broadcasting packets or not. The available parameters are: **send,listen** = allow sending and receiving, **send** = allow sending only, **listen** = allow receiving only, **none** = disable both sending and receiving.

Default:

Default settings of sapflags are SEND,LISTEN.

Usage Guidelines:

This command is used to configure IPX SAP protocol.

Sample Display:

Configure IPX SAP protocol of logical port WAN1 to allow the router to send SAP broadcast.

```
cli> add ipxsap lport wan1 sapflags send
```

Related Commands:

modify ipxsap lport, delete ipxsap lport

### 3.4.2.6 *delete ipx lport*

Delete IPX function of Logical Port.

```
delete ipx lport lport
```

Syntax Description:

*lport*    Name of Logical Port.

Usage Guidelines:

This command is used to disable IPX function of specific Logical Port.

Sample Display:

Disable IPX function of logical port WAN1.

```
cli> delete ipx lport wan1
```

Related Commands:

add ipx lport, modify ipx lport, show ipx lport

### 3.4.2.7 *delete ipx route*

Delete static IPX route.

```
delete ipx route destipx
```

Syntax Description:

*destipx*    Destination IPX network number

Usage Guidelines:

This command is used to delete specified IPX static route.

Sample Display:

Deletes a static IPX route with network number 107.

```
cli> delete ipx route 107
```

Related Commands:

add ipx route, modify ipx route, show ipx route

#### 3.4.2.8 *delete ipx server*

Delete a static IPX service.

**delete ipx server** *srvname*

Syntax Description:

*srvname*      name of IPX service

Usage Guidelines:

This command is used to delete specified static IPX service.

Sample Display:

Delete static IPX service svr1

cli> **delete ipx server svr1**

Related Commands:

add ipx server, modify ipx server, show ipx server

#### 3.4.2.9 *delete ipxrip lport*

Disable dynamic IPX route

**delete ipxrip lport** *lport*

Syntax Description:

*lport*      Name of Logical Port

Hint :

This command is used to disable dynamic IPX route of specified logical port

Sample Display:

Delete dynamic route of IPX on logical port WAN1.

cli> **delete ipxrip lport wan1**

Related Commands:

add ipxrip lport, modify ipxrip lport

#### 3.4.2.10 *delete ipxsap lport*

Delete SAP protocol of IPX

**delete ipxsap lport** *lport*

Syntax Description:

*lport*      Name of Logical Port.

Usage Guidelines:

This command is used to delete the IPX SAP protocol specified logical port.

Sample Display:

Delete SAP protocol on logical port WAN1.

```
cli> delete ipxsap lport wan1
```

Related Commands:

add ipxsap lport, modify ipxsap lport

### 3.4.2.11 *modify ipx lport*

Modify IPX address of logical port

```
modify ipx lport lport [ ipxnet ipxnet ]
```

Syntax Description:

Same parameter usage as the command: “add ipx lport”.

Usage Guidelines:

This command is used to modify the IPX network number of logical port. If it is disabled, users can re-enable IPX function using this command. If network number is not specified in this command, it will recover the prior network number.

Sample Display:

Modify IPX network number of logical port WAN1 to be 15.

```
cli> modify ipx lport wan1 ipxnet 15
```

Related Commands:

add ipx lport, delete ipx lport, show ipx lport

### 3.4.2.12 *modify ipx route*

Modify static IPX route.

```
modify ipx route destipx [ ipxgnet ipxgnet | ipxgmac ipxgmac | ticks ticks |  
hops hops ]
```

Syntax Description:

Same parameter usage as command: “add ipx route”

Usage Guidelines:

This command can be used to modify statistic IPX route.

Sample Display:

Modify network number 67 of static IPX route to gateway network number = 55, and hop = 15.

```
cli> modify ipx route 67 ipxnet 55 hops 15
```

Related Commands:

add ipx route, delete ipx route, show ipx route

#### 3.4.2.13 *modify ipx server*

Modify static IPX service.

```
modify ipx serve srvname [ ipxnet ipxnet | servaddr servaddr | servtype servtype | socket socket | hops hops ]
```

Syntax Description:

Same parameter usage as command: “ add ipx server”.

Usage Guidelines:

This command is used to modify static IPX service.

Sample Display:

Modify static IPX service srv1 with network number = 101, server node = 0:10:01:02:29:30, socket = 1, hop = 12

```
cli> modify ipx server srv1 ipxnet 101 servaddr 00:10:01:02:29:30 socket 1 hops 12
```

Related Commands:

add ipx server, delete ipx server, show ipx server

#### 3.4.2.14 *modify ipxrip lport*

Modify dynamic IPX route.

```
modify ipxrip lport lport [ flags flags ]
```

Syntax Description:

Same parameter usage as command: “ add ipxrip lport “.

Usage Guidelines:

If dynamic IPX route on logical port has been enabled, users can use this command to modify IPX dynamic route configuration of logical port. This command can not be used to enable the dynamic IPX route of logical port.

Sample Display:

Modify dynamic IPX route of logical port WAN1, and allow it to receiving RIP broadcast packets.

```
cli> modify ipxrip lport wan1 flags listen
```

Related Commands:

add ipxrip lport, delete ipxrip lport

### 3.4.2.15 *modify ipxsap lport*

Modify configuration of IPX SAP protocol.

**modify ipxsap lport** *lport* [ **sapflags** *sapflags* ]

Syntax Description:

Same parameter usage as command: “ add ipxsap lport “.

Usage Guidelines:

This command is used to modify configuration of IPX SAP protocol on logical port WAN1.

Sample Display:

Modify IPX SAP protocol of logical port WAN1 to allow router to receive SAP broadcast.

cli> **modify ipxsap lport wan1 sapflags listen**

Related Commands:

add ipxsap lport, delete ipxsap lport

### 3.4.2.16 *show ipx lport*

Show IPX address information of logical port.

**show ipx lport** *lport*

Parameters :

*lport* Name of Logical Port.

Usage Guidelines:

This command can be used to show IPX information of logical port:

- ▲ Network Number IPX Network Number
- ▲ RIP Flags RIP Flags
- ▲ SAP Flags SAP Flags
- ▲ Protocol IPX dynamic routing protocol

This command can not show information of logical port of which IPX function have been disabled.

Sample Display:

Display IPX address information of active IPX logical port WAN1.

cli> **show ipx lport wan1**

Network Number	15	RIP Flags	SEND, LISTEN
SAP Flags	SEND, LISTEN	Protocol	RIP

If IPX function of WAN1 is disabled, it will response the following message:

cli> **show ipx lport wan1**

IPX not enabled on lport

Related Commands:

add ipx lport, modify ipx lport, delete ipx lport

### 3.4.2.17 *show ipx route*

Show static IPX route information.

**show ipx route** [**destipx** *destipx*]

Syntax Description:

*destipx* Destination IPX Network number

Default:

If do not specify parameter, this command will show all the IPX information.

Usage Guidelines:

This command is used to display the following information:

- ▲ Destination Net Destination IPX Network Number.
- ▲ Gateway Net IPX gateway network number
- ▲ Gateway MAC IPX gateway MAC address.
- ▲ Ticks How many ticks will it take to the destination.
- ▲ Hops How many hops will it take to the destination.

Sample Display:

Display Static IPX route information.

cli> **show ipx route destipx 77**

Destination Net	77	Ticks	1
Gateway Net	55	Hops	2
Gateway MAC	00:20:0a:11:22:34		

Related Commands:

add ipx route, modify ipx route, delete ipx route

### 11.4.2.18 *show ipx server*

Show static IPX server information.

**show ipx server** *srvname*

Parameters:

*srvname* IPX service name

Usage Guidelines:

This command is used to show the following information:

- ▲ IPX Server IPX server name
- ▲ Network Number IPX network number
- ▲ Server Address IPX server address (node number)
- ▲ Server Type IPX Service Type
- ▲ Socket Socket number of IPX service
- ▲ Hops How many hops will it take to the destination.

Sample Display:

Show statistic information of static IPX server srv1.

cli> **show ipx server srv1**

IPX Server	srv1	Server Type	4
Network Number	257	Socket	4
Server Address	01:02:01:02:01:02	Hops	10

Related Commands:

add ipx server, modify ipx server, delete ipx server

### 3.4.2.19 *show ipx statistics*

Show IPX statistics information

**show ipx statistics**

Usage Guidelines:

This command is used to show the following information:

- ▲ ipxInReceives Total number of input packets including those received in error.
- ▲ ipxInAddrErrors Number of input packets discarded because the destination address was not a valid address to be received at this router.
- ▲ ipxInUnknownProt Number of locally-addressed packets received successfully but discarded because of an unknown or unsupported protocol.
- ▲ ipxInDelivers The number of packets delivered to a higher layer protocol.
- ▲ ipxOutDiscards Number of out IPX packets for which no problem were encountered to prevent their transmission to their destination, but which were discarded (for example, for lack of buffer space)
- ▲ ipxInHdrErrors Number of input packets discarded due to errors in their IPX headers.
- ▲ ipxForwDatagrams Number of input packets for which this router was not their final IP destination, as a result of which an attempt was made to find a route to forward them to that final destination.
- ▲ ipxInDiscards Number of input IPX packets for which no problem were encountered to prevent their continued processing, but which were discarded (for example, for lack of buffer space).
- ▲ ipxOutRequests Total number of IPX packets that supplied to router in requests for transmission.
- ▲ ipxOutNoRoutes Number of IPX packets discarded because no route could be found to transmit them to their destination.

Sample Display:

cli> **show ipx statistics**

ipxInReceives	2	ipxInHdrErrors	0
ipxInAddrErrors	0	ipxForwDatagrams	0
ipxInUnknownProt	0	ipxInDiscards	0
ipxInDelivers	2	ipxOutRequests	4
ipxOutDiscards	0	ipxOutNoRoutes	3

## 3.5 Firewall Configuration Commands

### 3.5.1 Command List

Firewall configuration commands include the following:

add ip filter

delete ip filter  
modify ip filter  
show ip filter

### 3.5.2 add ip filter

Add an item on the IP firewall list

add ip filter srcip srcmask destip desmask port protocol action

#### Syntax Description:

*srcip* Source IP address  
*srcmask* Subnet mask of Source IP address  
*destip* Destination IP address  
*desmask* Subnet mask of Destination IP address (Drop action does not apply to desmask and desip.)  
*port* Port numbers of TCP and UDP.  
*protocol* IP upper layer protocol number  
*action* Action : drop = Discard the packets which match the IP firewall list  
forward = Forward the packets which match the IP firewall list

#### Usage Guidelines:

Concerning to different application protocols, the corresponding IP upper layer protocol number and port number are listed below:

	Telnet	ftp	tftp	nntp	smtp	http	tcp	udp	icmp	any
Protocol Number	6	6	0	0	6	0	6	17	1	0
Port Number	23	21	69	11 9	25	80	0	0	0	0

This command is used to configure how ERT-2501 handles the IP packets. Forward legal IP packets and discard illegal IP packets to secure the network.

#### Sample Display:

Prevent computers on network segment (130.1.2.0) to perform http access.

cli> **add ip filter 130.1.2.0 255.255.255.0 0.0.0.0 0.0.0.0 80 0 drop**

#### Related Commands:

modify ip filter, delete ip filter, show ip filter

### 3.5.3 delete ip filter

Delete an item on IP firewall list

**delete ip filter srcip**

#### Syntax Description:

*srcip* Source IP address of filter

Usage Guideline:

This command is used to delete an item on the IP firewall list.

Sample Display:

Delete IP firewall item (130.1.2.0)

```
cli> delete ip filter 130.1.2.0
```

Related Commands:

add ip filter, modify ip filter, show ip filter

### 3.5.4 modify ip filter

Modify an item on IP firewall list

```
modify ip filter srcip [ srcmask srcmask | destip destip | desmask desmask |  
port port | protocol protocol | action action ]
```

Syntax Description:

Same parameter usage as the command: “add ip filter”.

Usage Guidelines:

This command is used to modify an item on that IP firewall list.

Sample Display:

Modify the IP firewall list of the source IP (130.1.2.0) of which ftp is its upper layer protocol.

```
cli> modify ip filter 130.1.2.0 port 21 protocol 6
```

Related Commands:

add ip filter, delete ip filter, show ip filter

### 3.5.5 show ip filter

Display configuration information of IP firewall list

```
show ip filter [ srcip srcip ]
```

Syntax Description:

*srcip*      Source IP address

Default:

If do not specify parameter, this command will display all the configuration information of IP firewall list.

Usage Guidelines:

This command is used to display the following information:

▲ Source IP	Source IP address
▲ Source Mask	Subnet mask of Source IP network
▲ Destination IP	Destination IP address
▲ Destination Mask	Subnet mask of Destination IP network
▲ Port	Port numbers of TCP and UDP.
▲ Protocol	Protocol numbers of IP upper layer protocols.
▲ Action	Action

Sample Display:

```
cli> show ip filter 130.1.2.0
Source IP          130.1.2.0      Port          80
Source Mask        255.255.255.0   Protocol       0
Destination IP     0.0.0.0        Action        Forward
Destination Mask    0.0.0.0
```

Related Commands:

add ip filter, modify ip filter, delete ip filter

## 3.6 Bridge Connection Configuration Commands

### 3.6.1 Commands List

Bridge connection includes the following commands:

add bridge lport  
 add bridge parameters  
 delete bridge lport  
 modify bridge parameters  
 show bridge lport  
 show bridge parameters  
 show bridge statistics

### 3.6.2 add bridge lport

Add bridge on logical port

**add bridge lport** *lport*

Syntax Description:

*lport*    Name of Logical Port

Usage Guidelines:

This command is used to add bridge to logical port.

Sample Display:

Add a bridge on the logical port WAN1.

```
cli> add bridge lport wan1
```

Related Commands:

delete bridge lport, show bridge lport

### 3.6.3 add bridge parameters

Add bridge configuration parameters

**add bridge parameters** *name* [**priority** *priority* | **stp** *stp*]

Syntax Description:

*name* Bridge name

*priority* Priority of bridge, range: 0 -65535

*stp* Spanning Tree Protocol, enabled or disabled.

Default:

When ERT-2501 is set to default, bridge priority = 0, and the spanning tree protocol is disabled.

Usage Guidelines:

Spanning tree protocol utilizes bridge ID to select the root bridge. Bridge ID is composed of bridge priority and MAC address of their Ethernet port. Due to the uniqueness of MAC address, the bridge IDs will be different even they are assigned the same priority. Root bridge is chosen by comparing the bridge ID.

Sample Display:

Configure parameters of bridge: name = vegas1, priority = 15, and enable spanning tree protocol.

cli> **add bridge parameters vegas1 priority 15 stp enabled**

Related Commands:

modify bridge parameters, show bridge parameters

### 3.6.4 delete bridge lport

Disable bridge function of logical port

**delete bridge lport** *lport*

Syntax Description:

*lport* Name of the Logical Port.

Usage Guidelines:

This command is used to disable the bridge function of logical port.

Sample Display:

Disable the bridge function of logical port WAN1.

cli> **delete bridge lport wan1**

Related Commands:

add bridge lport, show bridge lport

### 3.6.5 modify bridge parameters

Modify parameters of bridge configuration.

**modify bridge parameters** [ **name** *name* | **priority** *priority* | **stp** *stp* ]

Syntax Description:

Same parameter usage as command: " add bridge parameters".

Usage Guidelines:

This command is used to modify the parameters of bridge configuration.

Sample Display:

Modify bridge name = vegas1, priority = 10 and disable the spanning tree protocol.

cli> **modify bridge parameters name br1 priority 10 stp disabled**

Related Commands:

add bridge parameters, show bridge parameters

### 3.6.6 show bridge lport

Show whether bridge on logical port is enabled or not.

**show bridge lport** *lport*

Syntax Description:

*lport* Name of Logical Port.

Usage Guidelines:

This command is used to show whether bridge enabled or not.

Sample Display:

cli> **show bridge lport wan1**

Bridge Enable        Yes

Related Commands:

add bridge lport, delete bridge lport

### 3.6.7 show bridge parameters

Show configuration of bridge

**show bridge parameters**

Usage Guidelines:

This command is used to display the following information:

- ▲ Bridge Name      Bridge name
- ▲ Hello Time      Interval of Hello packets
- ▲ Aging Time      Aging Time of MAC address table
- ▲ Forward Delay   Forward Delay
- ▲ Priority          Priority of bridge
- ▲ STP Enable      STP Enable or not
- ▲ Max. Age        Maximum aging time of spanning tree information
- ▲ Multicast Addr   Multicast address

Sample Display:

```
cli> show bridge parameters
```

Bridge Name	bridge1	Hello Time	10
Aging Time	3600	Forward Delay	10
Priority	0	STP Enable	Yes
Max. Age	30	Multicast Addr	01:80:c2:00:00:00

Related Commands:

add bridge parameters, modify bridge parameters

### 3.6.8 show bridge statistics

Show bridge statistics information

```
show bridge statistics
```

Usage Guidelines:

This command is only used for development and tuning purpose.

Sample Display:

```
cli> show bridge statistics
```