

# Diagnostics and Troubleshooting NetPerformer<sup>®</sup> System Reference



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# Frequently Asked Questions

---

## 1.1 Getting Support

### 1.1.1 How can I reach NetPerformer Technical Support?

By telephone: +1 514 738-4781

Via the Internet: email us at [NetPerformer.Support@memotec.com](mailto:NetPerformer.Support@memotec.com).

### 1.1.2 Opening a case with NetPerformer Technical Support

Contact NetPerformer Technical Support as described above, and prepare a full description of the problem you are experiencing. Turn on the capture feature of your terminal emulation program to save the results of the following:

1. Identify the unit hardware components using the Display Hardware Information command. Enter **DHI** at the NetPerformer console command line.
2. Identify the Signaling Engine status, type of cards installed and the status of all DSPs in the unit using the Signaling Engine Information command. Enter **SEI**.
3. Dump the current unit configuration using the Display Parameters command. Enter the menu sequence **DP ↵ ALL**.
4. Execute the Display Alarms command. Enter **DA**.
5. If any alarms of the type **M=XXX A=YYY D=ZZZ** have occurred, execute the Exit Record command. Enter **ER**.

NetPerformer Technical Support will inform you where to send this information, and will open a case for your problem.

### 1.1.3 Setting up a modem for Remote Access by Support

#### For an SDM-8400 or SDM-9606

1. Use the cable kit supplied with the product. This kit includes:
  - A console cable with RJ45 male connectors at both ends
  - A TIA-232/V24 terminal adaptor, RJ45 female to DB-9 female
2. Connect the RJ-45 console cable to the NetPerformer console port, labelled **CSL**
3. Connect the DB-9 side of the terminal adaptor to an asynchronous modem for dialup connection from the remote console (NetPerformer Technical Support)
4. Leave the console port in auto-sensing mode (the default setting)
5. Configure your modem with the following AT commands:
  - **at&d0** to ignore DTR
  - **ats0=1** to ignore Auto Answer
  - **at&w0** to save the modem configuration

6. Provide Technical Support with the phone number of your modem.

### **For all other products**

1. Use a standard TIA-232/V.24 straight through cable with a DB-9 female connector at one end and a DB-25 male connector at the other end
2. Connect the DB-9 connector to the NetPerformer console port, labelled **CONSOLE** or **CSL**
3. Connect the DB-25 connector to an asynchronous modem for dialup connection from the remote console (NetPerformer Technical Support)
4. Continue with step 4, above.

#### **1.1.4 How do I save a traffic capture for analysis?**

If you have executed a traffic capture with the SC (Setup Capture) or STC (Start Capture) command, you can save the capture buffer and send the file to NetPerformer Technical Support for analysis.

- Enter **SAVE** at the NetPerformer console command line.  
The latest capture information will be copied to the NetPerformer file system as the **CAPTURE.DAT** file.
- To view the contents of the NetPerformer file system, enter **DIR**.
- NetPerformer Technical Support can use FTP or Zmodem to transfer the file, targeting the IP address of your unit.
- If you carry out another traffic capture or restart the unit, you can restore the saved capture information. Enter **LOAD CAPTURE.DAT**.

#### **1.1.5 How do I return a NetPerformer product?**

You must have a NetPerformer Return of Material Authorization (RMA) number before you can ship a unit to us. Products received without an RMA number will be refused.

1. Contact NetPerformer Technical Support for an RMA request form
2. Fill out the form, and send it to **NetPerformer.Support@memotec.com**
  - We will create a case for you, and verify whether the problem can be resolved through software update
  - If it is a hardware problem, your case will be forwarded to our RMA Administration Department
3. If your product is under warranty, we will issue an RMA number to you along with instructions on how to return the product
4. If your product is not under warranty, we will send you a quote for repairs. You must provide a Purchase Order for this amount before we will issue an RMA number to you.

## 1.2 Getting Information

### 1.2.1 Where can I find NetPerformer firmware and documentation?

1. Access the Memotec website: <http://www.memotec.com>
2. Select the **PARTNERS** page
3. Enter the email address and password for your **Partner Login**
4. Select the **NetPerformer** product link.

### 1.2.2 How can I reach my NetPerformer sales representative?

Email us at [sales@memotec.com](mailto:sales@memotec.com).



## 1.3 Unit Access

### 1.3.1 How can I track who has accessed a particular unit?

1. Enter the menu sequence: **SE** ↓ **GLOBAL** on the console command line of the unit
2. Change the value of the *Enable user access logging* parameter to **ENABLE**  
After this parameter is enabled, an alarm will be logged each time someone accesses the unit. Each alarm identifies the username and their method of accessing the unit.
3. Enter **DA** (Display Alarms) to view the username entries, for example:

```
Alarm> USER MARTIN WED 2006/06/28 11:33:39
Alarm> LOGGED IN VIA CONSOLE WED 2006/06/28 11:33:39
```

### 1.3.2 How can I tell who changed the unit configuration?

Enter **DJOURNAL** to display the configuration journal. All changes to the configuration are labelled with either:

- The username of the person who made the change, for example:

```
2006/01/29 15:18:44 MARTIN TELNET
[frpvc 2] Mode CHANGED FROM: OFF TO BROADCAST
```

- The IP address of the network management unit, for example:

```
2006/01/24 10:53:56 170.025.021.001 SNMP
[iflan 2] Protocol CHANGED FROM: OFF TO ETH AUTO
```

### 1.3.3 How can I prevent someone from accessing my unit?

#### Set up exclusive access to the console

1. Enter the menu sequence: **SE** ↓ **GLOBAL**
2. Change the value of the *Exclusive access to console* parameter to **ENABLE**



**Caution:** You must disconnect from the console to allow someone else to connect. Enter **QUIT** at the NetPerformer console command line.

---

**NOTE:** If you are using a dialup or TELNET connection to the console, you will be disconnected automatically after a period of inactivity, **even if the *Exclusive access to console* parameter is enabled.**

---

#### Restrict a user's access privileges

1. Enter the menu sequence: **SE** ↓ **USER**

2. Enter the *User Name*
3. Change the value of the *Access Privilege* parameter to **MONITOR**

The user will be able to view the NetPerformer console, but will not be able to configure the unit or monitor its operations.



**Caution:** Do not change the access privileges of the **ADMIN** username, as you will no longer be able to adjust the NetPerformer configuration. Contact NetPerformer Technical Support for a workaround.

### 1.3.4 How can I access the unit if I forget the password?

If you forget the login password or have accidentally changed the *Access Privilege* of the **ADMIN** username from **FULL** to **MONITOR**, contact NetPerformer Technical Support for a workaround using the *Service Password*. Prepare a modem so that NetPerformer Technical Support can access your unit (see [“Setting up a modem for Remote Access by Support” on page 1-2](#)).



**Caution:** NetPerformer Technical Support can use the *Service Password* only if the global extended parameter **ACTACCESS** is set to **CONSOLE** or **FULL** (the default setting). To check the current setting, enter:

```
EP GLOBAL ACTACCESS ?
```

If **ACTACCESS** is set to **DISABLE**, NetPerformer Technical Support cannot access your unit without the password you created for it. **In this case, if you lose your password the unit can no longer be managed and must be returned to for repair.**

If you intend to disable **ACTACCESS**, first make sure that the configured password for the unit is saved in a known place, or that you have a dependable, independent means of retrieving the password in case of loss.

## 1.4 Unit Performance

### 1.4.1 How can I tell if there is insufficient bandwidth on the unit?

If the bandwidth falls below a sufficient level for all traffic, the message **CLOSE WINDOW FOR COMMAND** will appear at the NetPerformer console command line.

## 1.5 Hardware Connections

### 1.5.1 Can I use my own cable for a NetPerformer serial port?

**No, you cannot.** NetPerformer serial ports require custom HD-26 cables. These custom cables are available only from Memotec Inc. or your NetPerformer distributor. If you need a cable, email us at [Sales@memotec.com](mailto:Sales@memotec.com) indicating the type of cable required:

- Male-to-male (DTE cable connecting to a DCE device) or male-to female (DCE cable connecting to a DTE device)
- The interface of the attached equipment: V.35/V.11, TIA-232 (V.24), X.21, X.21 EU, TIA-449 (V.36) or TIA-530.

### 1.5.2 What hardware has been installed in a remote unit?

1. Access the remote unit with the Relay command:
  - Enter **RE**
  - Specify the *Unit name* configured on the remote unit
  - Press <Enter> three times
  - Enter the User login and password, if requested.
2. Identify the remote unit's hardware components using the Display Hardware Information command. Enter **DHI** at the NetPerformer console command line.
3. Identify the remote unit's Signaling Engine status, type of cards installed and the status of all DSPs in the unit using the Signaling Engine Information command. Enter **SEI**.
4. To return to the local console:
  - Enter **QU** to quit the remote console
  - Press the key combination <CTRL-Z> three times.

### 1.5.3 LAN port sometimes freezes on an SDM-9360

The SDM-9360 is a legacy product that can experience problems on the Ethernet LAN port when it operates in half-duplex mode at 100 Mbps. Change the speed to 10 Mbps to prevent this problem:

1. At the SDM-9360 console command line, enter the menu sequence: **SE ↵ PORT**
2. Enter **ETH** at the *Port number* prompt
3. Set the *LAN speed (mbps)* parameter to **10 MBPS**.

## 1.6 Software Files

### 1.6.1 Identify the NetPerformer software version

At the NetPerformer console command line:

- Enter **DV** (Display Version),  
**or**
- Enter **DA** (Display Alarms).

The main application, Signaling Engine and DSP software versions are displayed with both of these commands.

### 1.6.2 How do I put a file in the file system?

- Use FTP or Zmodem to transfer the file, targeting the IP address of the NetPerformer unit.
- To determine whether the transfer was successful, execute the Display Alarms command. Enter **DA** at the NetPerformer console command line.
- To view the files installed on the NetPerformer unit, including current, backup and renamed files, enter **DIR**.

## 1.7 Tips for PowerCell Applications

### 1.7.1 How do I configure PowerCell over IP?

The Frame Relay over IP (FRoIP) function allows the NetPerformer to route a PVC connection over IP instead of Frame Relay. This permits using PowerCell over the Internet to integrate voice and data. The NetPerformer configuration requires:

- IP connectivity on both NetPerformer units, usually via the LAN port (**ETH**)
- A Frame Relay port defined on both NetPerformer units, for WAN/PVCR transport

---

**NOTE:** Set the *Cell packetization* parameter to **YES** on this port, to permit longer frames and reduce overhead.

---

- Global parameters (enter **SE ↵ GLOBAL**):
  - *Global CIR for FR over IP*: The maximum throughput accepted on the IP port when FRoIP is activated. Values: **1 - 100000000** bps (def. **64000** bps)
  - *Timer in ms for FR over IP*: The FRoIP check timer interval, which controls the timeout of frames on the IP port when FRoIP is activated. Values: **1 - 1000** ms (def. **50** ms)
  - *Max number of voice channels over IP*: Defines the maximum number of voice channels permitted on the IP port for FRoIP. Values: **0 - 10000** (def. **10000** for no call blocking)
  - *Max voice channels over IP if high priority data*: Defines the maximum number of voice channels permitted on the IP port when data traffic has been assigned the highest priority (with the port *Class* parameter). Values: **0 - 10000** (def. **1000**).
- PVC parameters (enter **SE ↵ PVC**):
  - *Mode*: **For FRoIP, must be set to PVCR or RFC1490 only.**
  - *Port*: **For FRoIP, this parameter must be set to 0.**
  - *DLCI*: Select a unique, non-zero DLCI address between **1** and **1022**. For each connection, the local and remote DLCI addresses must match.
  - *Frame over IP, source*: The IP address of the source of traffic sent over this PVC. If left at its default value, **000.000.000.000**, the NetPerformer uses the IP address of the port that sends the FRoIP frames over the network.
  - *Frame over IP, destination*: The IP address of the remote unit that receives traffic from this PVC. **Do not leave this parameter at its default value, 000.000.000.000.**

- *Frame over IP, port number*: IP address of the source UDP port that transmits the FRoIP frames. This parameter can be used to allow transmission across a firewall. Values: **1** - **65535** (def: **1024**).
- *Frame over IP, precedence*: Determines the relative priority of the traffic on this PVC with respect to other traffic. Values: **0** (low) - **7** (high) (def:**0**).
- *Use a forced route*: Determines whether all FRoIP traffic from this PVC will be sent through a specific serial (WAN) or LAN port, digital channel or PVC connection. Set this parameter to **YES** to activate the forced route. Two more parameters appear for defining the forced route:

*Port*: The specific port, channel or PVC connection for the forced route

*Next hop*: The IP address of the next unit on the path to the final destination that will receive traffic from this PVC.

---

**NOTE:** The *Burst Information rate (BIR)* parameter is not required for FRoIP PVCs.

---

- Extended parameters: To prevent the FRoIP PVCs from going up and down, you must disable the extended IP parameter **MULTIHOMEDTYPE**. Enter the following at the console command line:

```
EP IP MULTIHOMEDTYPE DISABLED
```

## 1.8 Tips for Voice Applications

### 1.8.1 How can I tell what kind of DSP is installed?

Enter **DHI** (Display Hardware Information) at the NetPerformer console command line. The last line of the display shows the DSP type, for example:

```
Hardware Info> SIMM DSP(6) 5416-120Mhz
```

### 1.8.2 How do I load a DSP?

A new DSP must be loaded with a voice algorithm before it will work. The Signaling Engine Information (**SEI**) command shows **Ready to Load** for unloaded DSPs.

1. Enter **DSP LOAD** at the NetPerformer console command line
2. Enter **LOAD** at the prompt
3. Select the number of DSPs to load, keeping in mind that:
  - A DSP-120 or DSP-160 has 5 channels
  - An HD DSP has 10 channels
- 4.

---

**NOTE:** The number of voice channels you can configure to a particular voice *Algorithm group* is limited by the number of DSP channels that have already been allocated to another *Algorithm group* by the NetPerformer unit. This allocation is carried out dynamically by the unit when the *Protocol* parameter is defined, and varies according to the type of DSP module.

---

When you select a voice algorithm with the *Protocol* parameter, all channels on the DSP processor (or pair of processors in the case of the high density DSP module) are allocated to the *Algorithm group* to which that *Protocol* belongs.

### 1.8.3 How do I know if my VoIP SIP unit is registered?

At the NetPerformer console command line, enter the menu sequence **DS** ↵ **SIP**. The *Registration status* indicates whether the unit is currently registered with a registration server.

### 1.8.4 Problems connecting with another vendor's ISDN device

The treatment of ISDN supplementary services on the NetPerformer may be interfering with the connection to another vendor's ISDN device. Disable supplementary services by entering the following at the NetPerformer console command line:

```
EP VPORT voice_port_number SUPPSERVE DISABLE
```

### 1.8.5 Only the first channel of an ISDN port connects a call?

The ISDN Restart function may be disabled on the port. Enable ISDN Restart by entering the following at the NetPerformer console command line:

```
EP PORT voice_port_number ISDNRESTART YES
```

### 1.8.6 Compatible voice protocols with new/legacy products?

If your network includes a mix of NetPerformer products, select voice protocols according to the following table to ensure compatibility across the network:

	Type A	Type B	Type C
<b>Product mix:</b>	SDM-9210, SDM-9220 and SDM-9230 only	<b>Type A</b> plus SDM-9360, SDM-9380 or SDM-9585	<b>Type A</b> plus SDM-8200, SDM-9300, SDM-9350 or SDM-9400
<b>Compatible voice protocols when using PowerCell transport:</b>	G723, G726 16K to 40K, G729, G729A, ACELP-CN, MELP, G711 (PCM64K), TRANSPARENT	G723, G726 16K to 40K, G729, G729A, ACELP-CN, G711 (PCM64K), TRANSPARENT	ACELP-CN, G711 (PCM64K), TRANSPARENT
<b>Compatible voice protocols when using SIP VoIP transport:</b>	G723, G726 16K to 40K, G729, G729A, G711 (PCM64K), TRANSPARENT	G723, G726 16K to 40K, G729, G729A, G711 (PCM64K), TRANSPARENT	G711 (PCM64K), TRANSPARENT

Table 1-1: Compatible voice protocols

---

**NOTE:** The voice protocol is set with the *Protocol* parameter, which is listed with the **SETUP/SLOT/CHANNEL** submenu (or the **SETUP/PORT** submenu on some legacy products).

---



## 1.9 Tips for Satellite Applications

### 1.9.1 What determines the speed of a SkyPerformer port?

The speed of a SkyPerformer port (*Protocol* set to **SP**) is configured with the *Port speed (bps)* parameter, and can be from **1200** to **6144000** bps. However, the speed that is used may differ from the configured speed.

To view the *Speed used [bps]* statistic, enter the menu sequence:

- **DS** ↵ **PORT** for a built-in port,  
**or**
- **DS** ↵ **SLOT** for a card interface.

Interpret the *Speed used [bps]* statistic as follows:

- If internal clocking is used on the SP port (*Clocking mode* set to **INTERNAL**), the *Speed used [bps]* statistic indicates the port speed measured by the SkyPerformer, **based on the transmit clock (TX)**. Usually, the speed that is displayed closely approximates the configured speed of the port.

The SP port *Clocking mode* should be set to **INTERNAL** when DCE cables are installed on the port.

- If external clocking is used on the SP port (*Clocking mode* set to **EXTERNAL**), the *Speed used [bps]* statistic indicates the port speed measured by the SkyPerformer, **based on the receive clock (RX)**.

The SP port *Clocking mode* should be set to **EXTERNAL** when DTE cables are installed on the port.

---

**NOTE:** The rate of transmissions to the satellite modem (the access speed) is slower than the speed of the SP port, due to the amount of delay. The *Speed used [bps]* statistic must not be taken as the access speed.

---

### 1.9.2 Enabling TCP Acceleration on a WAN port?

- The TCP Acceleration software must be activated on the NetPerformer unit (an SDM-9210, SDM-9220 or SDM-9230 only) before you can configure and use any TCP Acceleration features. This software is available as a licensed option.
- TCP Acceleration can be enabled on a built-in serial port, a serial port on the Dual Serial interface card, or a digital data channel of a unit installed with the TCP Acceleration option.
- The port or channel must have its *Protocol* set to **PVCR** or **PPP**.

**To enable TCP Acceleration on the port or channel:**

1. Access the port or channel from the NetPerformer command line:

- For a built-in port:
    - Enter the menu sequence: **SE** ↵ **PORT**
    - Select the *Port number*.
  - For a serial port on the Dual Serial interface card:
    - Enter the menu sequence: **SE** ↵ **SLOT**
    - Select the *Slot number*
    - Select the *Channel number*.
  - For a digital data channel (*Signaling mode* on the **LINK** set to **NONE**):
    - Enter the menu sequence: **SE** ↵ **SLOT**
    - Select the *Slot number*
    - Enter **CHANNEL**
    - Select the *Channel number*.
2. Enter carriage returns until you reach the *TCP acceleration* parameter.
  3. Set the *TCP acceleration* parameter to **YES**.

## 1.10 Tips for Frame Relay Applications

### 1.10.1 Configuring the BIR/CIR for a Frame Relay connection

The *Burst Information rate* (BIR) and *Committed Information rate* (CIR) parameters are PVC characteristics; enter **SE ↵ PVC**. Both rates range from **4000** to **6144000** bps. The BIR represents the throughput when the PVC is in burst mode, and should be greater than the CIR.

The information rate that is applied is:

- The BIR if no congestion has been detected (no BECN received),
- The CIR if the BIR is not working or if congestion occurs while running at the BIR.

For example, if you configure the BIR at 64000 bps and the CIR at 56000 bps, the NetPerformer will transmit at 64000 bps unless congestion occurs, when the rate will be reduced to 56000 bps.

---

**NOTE:** The BIR and CIR are not required for a PVC in **SP-MULTIPLEX** mode.

---

The information rate is also influenced by the global extended parameter **FRCHECKTIMER** (Frame Relay Check Timer), which controls the timeout of frames on Frame Relay ports. This can be used to adjust the BIR and CIR timers on networks that integrate bursty high-speed traffic with constant low-speed traffic.

To set the **FRCHECKTIMER**, enter the following at the NetPerformer console command line:

**EP GLOBAL FRCHECKTIMER *value***

where *value* is between **1** and **250** (def. **20**).

- The lower the value of the **FRCHECKTIMER**, the more often low bit rate, high priority traffic can be transmitted. A low value can also reduce the number of lost packets.
- The default setting is ideal for the following applications:
  - Frame Relay networks based on switches that have a low capacity for storing frames
  - Networks that integrate bursty traffic with constant bit rate traffic, e.g. LAN + Voice, LAN + Passthrough, WAN + Voice.
- For other applications, you can raise the **FRCHECKTIMER** value, if desired.





# System Settings and Diagnostics

---

## 2.1 About System Settings and Diagnostics

This chapter presents some of the functions and displays that are available from the NetPerformer console for verifying the unit configuration, its available options and system settings:

- Display of hardware characteristics of the unit (see the next section, [“Viewing Hardware Characteristics” on page 2-3](#))
- Display of current configuration settings (see [“Viewing the Current Configuration” on page 2-7](#))
- Commands for manipulating system files and settings (see [“Manipulating System Files and Settings” on page 2-15](#))

---

**NOTE:** Unless noted otherwise in the following sections, these functions can be executed by users with **FULL** or **MONITOR** console access.

---

## 2.2 Viewing Hardware Characteristics

The following commands are available for examining the hardware characteristics of a NetPerformer unit:

- “[Display Hardware Information \(DHI\)](#)” on page 2-3 (see next section)
- “[Signaling Engine Channels \(SEC\)](#)” on page 2-3
- “[Signaling Engine Information \(SEI\)](#)” on page 2-4
- “[Display Production Information \(DPI\)](#)” on page 2-5.

### 2.2.1 Display Hardware Information (DHI)

The Display Hardware Information (**DHI**) command provides:

- Information about the main board of the unit, such as its revision ID, FPGA version and processor information
- Identification of any interface cards installed in the slots
- The type of DSP installed on the main board.

To execute this command:

- Enter **DHI** at the NetPerformer console command prompt.

```
HA-9220>DHI
DISPLAY HARDWARE INFO
Hardware Info> Processor version (PVR): 0x8081
Hardware Info> Processor revision (PVR): 0x1014
Hardware Info> Processor mask number (IMMR): 0x0062
Hardware Info> CPM RISC microcode revision: 0x002D
Hardware Info> Main board Id: 3
Hardware Info> Main FPGA version id: 3.2.1 option id: 2
Hardware Info> Slot 1 - Analog Quad FXS rev. card Id: 0
Hardware Info> Slot 1 - Analog Quad FXS rev. FPGA Id: 7
Hardware Info> Slot 2 - Dual Serial SCC card rev. Id: 0
Hardware Info> Slot 2 - Dual Serial SCC FPGA rev. Id: 9
Hardware Info> SIMM DSP(3) 5416-120Mhz
```

### 2.2.2 Signaling Engine Channels (SEC)

The Signaling Engine Channels (**SEC**) command displays Signaling Engine channel information, including the correspondences between slots and SE channels. To display this information:

- Enter **SEC** at the console command prompt.

```
HA-9220>SEC
SIGNALING ENGINE CHANNELS
SLOT> Slot number (1/2/ALL,def:ALL) ?

VOICE 101 --> CHANNEL 0
```

```
VOICE 102 --> CHANNEL 1
VOICE 103 --> CHANNEL 2
VOICE 104 --> CHANNEL 3

PORT 201 --> NO SE CHANNEL
PORT 202 --> NO SE CHANNEL
```

---

**NOTE:** The message **NO SE CHANNEL** is displayed for serial interfaces on the Dual Serial interface card.

---

### 2.2.3 Signaling Engine Information (SEI)

The Signaling Engine Information (**SEI**) command displays:

- Signaling Engine software version and status
- The type of interface cards that are installed in the slots
- The status of all DSPs installed in the unit.

To display this information:

- Enter **SEI** at the console command prompt.

```
HA-9220>SEI
SIGNALING ENGINE INFORMATION

SIGNALING ENGINE SOFTWARE:
  Signaling Engine vX.X.X
  State: RUNNING

SLOT 1> FXS Interface - 4 ports    DSP 25 Running(ACELP)
SLOT 2> Dual Serial SCC Interface

  DSP SIMM 1
1 Ready to load    7 No DSP          13 No DSP          19 No DSP
2 Ready to load    8 No DSP          14 No DSP          20 No DSP
3 Ready to load    9 No DSP          15 No DSP          21 No DSP
4 No DSP           10 No DSP         16 No DSP          22 No DSP
5 No DSP           11 No DSP         17 No DSP          23 No DSP
6 No DSP           12 No DSP         18 No DSP          24 No DSP
```



## 2.2.4 Display Production Information (DPI)

The Display Production Information (**DPI**) command provides detailed information about the unit hardware, including the main application, DSP, interface cards that are installed, serial numbers, burned-in address (BIA), test reports and fan controls.

This information may be requested when you contact NetPerformer Technical Support.

To execute this command:

- Enter **DPI** at the console command prompt.

```
HA-9220>DPI
DISPLAY PRODUCTION INFORMATION
Product information type (def:ALL) ? ?
CHOICE: APPLICATION DSP          INTERFACE  MAIN BOARD  ALL

Product information type (Default value:ALL, Current value:ALL) ?

Main EEPROM application information
Default CSL speed: 9600
Active program: 0
OEM: 0
DBG start: 0
Main board error code: 0x00000000
Slot 1 error code: 0x00000000
Slot 2 error code: 0x00000000
PCI active devices: 0x00000000

DSP simm EEPROM information
Serial number: B457399
Working order: WC0309-SOC53700
Assembly: 100-1091-003
Revision: A
Options:
Test report: FF FF FF FF FF FF FF FF  *** INVALID INFO ***

Interface EEPROM information
Slot 1 - FXS Interface - 4 ports
Serial number: B467346
Working order: WF0402-00000001
Target type: 21
Assembly: 100-1106-002
Revision: D
Options:
Fpga number: 274-1291-001-3
Test report: 80 00 00 00 00 00 00 00  (Diag: 0.0.0 R0)
Slot 2 - Dual serial SCC Interface
Serial number: B458056
Working order: WB0314-PO6371
Target type: 19
Assembly: 100-1126-001
Revision: 1
Options:
Fpga number: 274-1296-001-1
Test report: 80 00 00 00 00 00 00 00  (Diag: 0.0.0 R0)

Main EEPROM product information
```

Board serial number: B458642  
Board work order: WA0334-00000001  
BIA 1: 00200AB08E0D  
BIA 2: 00200AB08E0E  
Board assembly: 100-1128-002-2  
Options: T  
Product number: 9230  
FPGA number: 274-1286-002-C  
Unit serial number: U064671  
Unit assembly: 150-0020-000  
Unit work order: WXXX \*\*\* INVALID INFO \*\*\*  
Test report: BF F4 F1 00 03 03 00 81  
Fan control low: 35  
Fan control high: 45

## 2.3 Viewing the Current Configuration

Several commands are available from the NetPerformer console for examining the current configuration of the unit:

- “Display Version (DV)” on page 2-7 (see next section)
- “Display the Current Time (DT)” on page 2-7
- “Display Configuration Parameters (DP)” on page 2-8
- “Display Config Text (DCFG)” on page 2-10
- “Display DSP Allocation (DDSP)” on page 2-11
- “Display Map File (DMF)” on page 2-12
- “Display NAT Table (DN)” on page 2-14.

### 2.3.1 Display Version (DV)

The Display Version (**DV**) command displays the product name, software versions, type of console connection, the voice transport method (PowerCell or SIP VoIP), and any licensed software options that have been activated on the unit. To execute this command:

- Enter **DV** at the console command prompt.

Here is an example from a NetPerformer configured for PowerCell voice transport:

```
HA-9220>DV
DISPLAY VERSION
SDM-9220 vX.X.X Memotec Inc. (c) 2006
Signaling Engine vX.X.X Memotec Inc. (c) 2006
DSP QBxxxxx.BIZ code version: X.X.X
Console connected through TELNET
Voice transport method: PowerCell
```

Here is an example from a NetPerformer configured for SIP VoIP voice transport:

```
GWVOIP-9230>DV
DISPLAY VERSION
NetPerformer EG SDM-9230 vX.X.X Memotec Inc. (c) 2006
Signaling Engine vX.X.X Memotec Inc. (c) 2006
DSP QBxxxxx.BIZ code version: X.X.X
Console connected through TELNET
Voice transport method: SIP VoIP
```

### 2.3.2 Display the Current Time (DT)

The Display Time (**DT**) command shows the current date and time. To execute this command:

- Enter **DT** at the console command prompt.

```
HA-9220>DT
DISPLAY TIME
Time> MON 2006/09/25 16:08:16
```

## Setting the Time (ST)

Use the Set Time (**ST**) command to change the date and time on the NetPerformer unit.

The **ST** command is available to users with **FULL** console access only. To change access privileges for a particular user, refer to the chapter *Controlling Access to the NetPerformer* in the *Quick Configuration* module of this document series.

To execute the **ST** command:

1. Enter **ST** at the console command prompt.
2. Modify the *Year, Month, Day of the month, Day of the week, Hour, Minute* and *Second* settings, as required.
3. Enter **YES** at the *Confirm new time* prompt to accept the changes.

```
HA-9220>ST
SET TIME
CLOCK> Year (1992-2030,def:2006) ?
CLOCK> Month (1-12,def:9) ?
CLOCK> Day of the month (1-30,def:25) ? 26
CLOCK> Day of the week (def:MONDAY) ? TUESDAY
CLOCK> Hour (0-23,def:16) ?
CLOCK> Minute (0-59,def:9) ?
CLOCK> Second (0-59,def:35) ?

Time> TUE 2006/09/26 16:09:35

Accept new time? (NO/YES,def:YES) ? YES
```

### 2.3.3 Display Configuration Parameters (DP)

The DP command provides a complete list of current values for all configuration parameters. To display the configuration parameters and their values:

1. Enter **DP** at the console command prompt.
2. Enter either:
  - The name of the submenu of parameters you want to inspect  
**The list of DP command options (the *Item* prompt) includes only those connection types that have been configured on the unit.**
  - Enter **ALL**, to display all configuration parameters.  
**This option also lists all currently active extended parameters.**

If you would like to view the display of all configuration parameters one screen at a

time, enter **YES** at the prompt *Wait for <ENTER> after each screen.*

- Depending on the option you select, you may be prompted to specify a single connection for viewing, e.g. a single port, channel or PVC. Enter the identifier at the prompt.

Here is an example of how to list a single submenu of parameters:

```
HA-9220>DP
DISPLAY PARAMETERS
Item (BRIDGE/CLASS/CUSTOM/GLOBAL/IP/IPX/MAP/PORT/PVC/REDUNDANCY/SLOT/
SNMP/SS7/USER/ALL,def:SLOT) ? PVC
PVC number (1-300,def:1) ? 1
PVC 1> Mode.....PVCR
PVC 1> Port.....202
PVC 1> DLCI address.....100
PVC 1> Committed Information rate.....2048000
PVC 1> Burst Information rate.....2048000
PVC 1> Remote unit name.....8400
PVC 1> Type.....DEDICATED
PVC 1> Timeout (ms).....1000
PVC 1> Number of retransmission retries.....100
PVC 1> Compression.....YES
PVC 1> IP address.....000.000.000.000
PVC 1> Subnet mask (number of bits).....8 {255.000.000.000}
PVC 1> NAT enable.....NO
PVC 1> IP RIP.....DISABLE
PVC 1> OSPF.....DISABLE
PVC 1> IP multicast active.....NO
PVC 1> IPX RIP.....DISABLE
PVC 1> IPX SAP.....DISABLE
PVC 1> IPX network number.....00000000
PVC 1> BRG connection.....NO
PVC 1> Filter.....ALL
PVC 1> Broadcast group.....NO
PVC 1> Maximum number of voice channels.....10000
PVC 1> Maximum Voice Channels If High Priority Data 10000
PVC 1> Use this port as default gateway.....NO
PVC 1> Redundant link.....NO
```

Here is an example of how to list all configuration parameters:

```
HA-9220>DP
DISPLAY PARAMETERS
Item (BRIDGE/CLASS/CUSTOM/GLOBAL/IP/IPX/MAP/PORT/PVC/REDUNDANCY/
SLOT/
SNMP/SS7/USER/ALL,def:PVC) ? ALL
Wait for <ENTER> after each screen (NO/YES,def:YES) ? NO
SDM-9220 vX.X.X Memotec Inc. (c) 2006
Signaling Engine vX.X.X Memotec Inc. (c) 2006
DSP QBxxxxx.BIZ code version: X.X.X
Console connected through TELNET
Voice transport method: PowerCell
GLOBAL> Unit name.....HA-9220
GLOBAL> Unit routing version.....1
GLOBAL> Contact name.....Memotec
```

```

GLOBAL> Unit location.....VERSION DESK
GLOBAL> Loopback.....NO
GLOBAL> Link timeout delay.....0
GLOBAL> Transit delay (s).....4
GLOBAL> Daylight saving time.....NO
GLOBAL> Default IP address.....000.000.000.000
GLOBAL> Default IP mask (number of bits).....0
{000.000.000.000}
...
...
...
EXTENDED PARAMETERS
GLOBAL> (SENDRENAMEFILE) Rename file when retrieving YES
IP> (MULTIHOMEDTYPE) Multihomed type.....DISABLED
Time> MON    2006/09/25 16:20:03

```

### 2.3.4 Display Config Text (DCFG)

The Display Config Text (**DCFG**) command displays the entire contents of the current text-based configuration file, **CFG.TXT**. This includes:

- Under the [**HEADER**] section, information on product hardware and firmware versions
- Under the various text-based configuration sections, a list of all configuration parameters that have been changed from their default values.

This information can be useful for both reporting and troubleshooting purposes.

To view the text-based configuration file:

1. Enter **DCFG** at the console command prompt.
2. Enter **YES** at the prompt *Wait for <ENTER> after each screen* if you would like to view the file one screen at a time.

```

GWVOIP-9230>DCFG
DISPLAY CONFIG TEXT

Wait for <ENTER> after each screen (NO/YES,def:NO) ?

[HEADER]
VERSION=1.0
NetPerformer EG SDM-9230 vX.X.X Memotec Inc. (c) 2006
Code base vX.X.X Memotec Inc. (c) 2006
Signaling Engine vX.X.X Memotec Inc. (c) 2006
DSP QBxxxxx.BIZ code version: X.X.X
  Subfile 0x0178: TMS320VC5416 code - 120/20 MHz bootstrap
  Subfile 0x0101: TMS320VC5416 code - ACELP-CN
Portable SIP Stack X.X.X
BOOTSTRAP vX.X.X Memotec Inc. (c) 2006
BOOT vX.X.X Memotec Inc. (c) 2006
Hardware Info> Processor version (PVR): 0x8081
Hardware Info> Processor revision (PVR): 0x1014
Hardware Info> Processor mask number (IMMR): 0x0062
Hardware Info> CPM RISC microcode revision: 0x002D

```



```
7      156    157    158    159    160    161
8      162    163    164    165    166    167
9      168    169    170    171    172    173
10     174    175    176    177    178    179
11     180    181
12
13
14
15
16
17
18
19
20
21
22
<ENTER>
23
24
```

### 2.3.6 Display Map File (DMF)

There are two commands that display MAP file entries:

- Display Map File (**DMF**), which shows the entire MAP file:  
Enter **DMF**.
- Display Parameters (**DP**), which shows a single MAP entry:  
Enter the menu sequence: **DP ↵ MAP**.

---

**NOTE:** The **DP** command is discussed in “[Display Configuration Parameters \(DP\)](#)” on page 2-8.

---

Here is an example of the **DMF** command from a NetPerformer configured for PowerCell voice transport:

```
HA-9220>DMF
DISPLAY MAP FILE
NUMBER OF MAPS: 2

MAP 2401> Map type.....NAME
MAP 2401> Entry digits.....2401
MAP 2401> Destination name.....HA-9380
MAP 2401> Destination extension source.....MAP
MAP 2401> Destination extension.....401
MAP 2401> Extended digits source.....NONE
MAP 2401> Use SVC connection.....NO

MAP 1401> Map type.....NAME
MAP 1401> Entry digits.....1401
MAP 1401> Destination name.....HA-9360
```



```
MAP 1401> Destination extension source.....MAP
MAP 1401> Destination extension.....401
MAP 1401> Extended digits source.....NONE
MAP 1401> Use SVC connection.....NO
```

Here is an example from a NetPerformer configured for SIP VoIP voice transport:

```
GWVOIP-9230>DMF
DISPLAY MAP FILE
NUMBER OF MAPS: 3

MAP 999> Map type.....DIALIP
MAP 999> Entry digits.....999
MAP 999> Digits string length.....3
MAP 999> Egress hunt group pattern.....SEQUENTIAL
MAP 999> Egress hunt group ports.....301
MAP 999> Strip prefix number of digits.....I0 E0
MAP 999> Ingress\Egress prepend string.....NONE
MAP 999> Ingress\Egress append string.....NONE
MAP 999> Enter an IP address.....5.0.1.101

MAP 6101> Map type.....DIALSTRING
MAP 6101> Entry digits.....6101
MAP 6101> Digits string length.....4
MAP 6101> Egress hunt group pattern.....SEQUENTIAL
MAP 6101> Egress hunt group ports.....301
MAP 6101> Strip prefix number of digits.....I0 E0
MAP 6101> Ingress\Egress prepend string.....NONE
MAP 6101> Ingress\Egress append string.....NONE

MAP SUPERMAP> Map type.....SUPERMAP
MAP SUPERMAP> Egress hunt group pattern.....SEQUENTIAL
MAP SUPERMAP> Egress hunt group ports.....301
MAP SUPERMAP> Strip prefix number of digits.....I0 E0
MAP SUPERMAP> Ingress\Egress prepend string.....NONE
MAP SUPERMAP> Ingress\Egress append string.....NONE
```

## Clearing MAP Entries

Use the Erase Map File (**EMF**) command to remove one or more entries from the Voicing Mapping table; enter **EMF** at the NetPerformer console command prompt.

---

**NOTE:** The **EMF** command is available to users with **FULL** console access only. To change access privileges for a particular user, refer to the chapter *Controlling Access to the NetPerformer* in the *Quick Configuration* module of this document series.

---

### 2.3.7 Display NAT Table (DN)

The Display NAT Table Information (**DN**) command displays the NAT translation table, which includes:

- Source and destination IP and NAT IP addresses
- Source and destination TCP/UDP ports and NAT (NAPT) ports
- The current timeout for each address mapping.

To execute this command:

- Enter **DN** at the console command prompt.

```
BOSTON>DN
DISPLAY NAT TABLE INFORMATION
IP NAT rule number (1/2/3/4/5/6/7/8/9/10/ALL,def:1) ? 1

Active translation entries:

           Rule           IP           Nat IP           Port   Nat Port   Timeout
-----
Source    : 1  010.000.000.001  205.168.043.010    0       0
Destination: 206.001.001.001  206.001.001.001    0       0      1440
-----
Source    : 1  010.000.000.003  205.168.043.012    0       0
Destination: 206.001.001.002  206.001.001.002    0       0      1439
-----
Source    : 1  010.000.000.003  205.168.043.012   21     60000
Destination: 206.001.001.003  206.001.001.003   21       21      1439
```

---

**NOTE:** In the above example, the first two entries are in NAT mode, and the last is in NAPT mode.

---

### Clearing NAT Entries

Use the Clear NAT Entry (**CN**) command to remove one or more entries from the NAT translation table; enter **CN** at the NetPerformer console command prompt, then select **SINGLE**, **RULE** or **ALL** entries.

---

**NOTE:** The **CN** command is available to users with **FULL** console access only. To change access privileges for a particular user, refer to the chapter *Controlling Access to the NetPerformer* in the *Quick Configuration* module of this document series.

---

## 2.4 Manipulating System Files and Settings

The NetPerformer includes a set of system commands for manipulating files installed on the unit. These commands are similar in name and function to commonly used MS-DOS<sup>®</sup> commands:

- [“Check File System \(CHKFS\)” on page 2-15](#)
- [“Display File List \(DIR\)” on page 2-16](#)
- [“Copy File \(COPY\)” on page 2-16](#)
- [“Rename File \(RENAME\)” on page 2-17](#)
- [“Delete File \(DELETE\)” on page 2-18](#)
- [“Defragment File System \(DEFRAG\)” on page 2-18](#)
- [“Format File System \(FORMAT\)” on page 2-19.](#)

Two other commands are specific to the NetPerformer for managing the DHCP client and DNS cache. Refer to:

- [“Managing the DHCP IP Address” on page 2-19](#)
- [“Managing the DNS Entries” on page 2-20.](#)

---

**NOTE:** To set the time on the NetPerformer unit, see [“Setting the Time \(ST\)” on page 2-8.](#)

---

### 2.4.1 Check File System (CHKFS)

The Check File System (**CHKFS**) command verifies the integrity of all system files, and lists the number of free, allocated and fragmented blocks as well as the amount of free space available.

---

**NOTE:** The **CHKFS** command is available to users with **FULL** console access only.

---

To execute this command:

- Enter **CHKFS** at the console command prompt.

```
GWVOIP-9230>CHKFS
CHECK FILE SYSTEM
In progress...

Number of free blocks = 1
Number of allocated blocks = 3774
Free space = 2953216 bytes

File system checked OK!
```

## 2.4.2 Display File List (DIR)

The Display File List (**DIR**) command displays information concerning:

- The software files installed on the NetPerformer unit, including current, backup and renamed files
- The amount of used space and free space in the configuration buffer.

To execute this command:

- Enter **DIR** at the console command prompt.

```
GWVOIP-9230>DIR
DISPLAY FILE LIST

JOURNAL.TXT           3707 BYTES    2006/07/11  15:33:52
HA1023R09.BIN        3019776 BYTES 2006/09/01  11:37:36
QB121R09.BIZ         550054 BYTES  2006/09/01  11:37:18
HAV153R2.DRV         442891 BYTES  2006/06/09  14:28:31
QC121R09.BIZ         547704 BYTES  2006/09/01  11:37:07
IFV109R1.DRV         100816 BYTES  2006/06/09  14:28:20
INFO.HID              1233 BYTES    2006/06/15  14:25:33
CURRENT.ALR           47760 BYTES   2006/09/01  11:55:33
MAP_BKP.TXT           1396 BYTES    2006/07/11  11:15:11
CAPTURE.TXT           1175 BYTES    2006/09/01  12:02:42
MAP.TXT               1540 BYTES    2006/07/11  11:15:22
CFG.TXT               1903 BYTES    2006/08/16  15:50:09
CFG_BKP.TXT           1931 BYTES    2006/08/16  15:48:37
```

```
Used space = 4721886 bytes
Free space = 2953216 bytes
```

For each file in the list, the **DIR** command shows:

- The name of the file in standard *filename.extension* format
- The size of the file, in bytes
- The date and time that the file was installed or saved in the NetPerformer unit.

---

**NOTE:** For a list of DSP software files (**Q\*.BIZ**) use the Signaling Engine Information (**SEI**) command, described on [“Signaling Engine Information \(SEI\)” on page 2-4](#).

---

## 2.4.3 Copy File (COPY)

The Copy File (**COPY**) command allows you to create a new file that is identical to a file already installed on the NetPerformer unit.

---

**NOTE:** The **COPY** command is available to users with **FULL** console access only. To change access privileges for a particular user, refer to the chapter *Controlling*

*Access to the NetPerformer in the Quick Configuration module of this document series.*

---

To execute the **COPY** command:

- Enter **COPY** *old\_filename.extension new\_filename.extension*, where:  
*new\_filename* is a maximum of 8 characters and *extension* is 3 characters.

The name you assign to *new\_filename* must be different from all other files on the system.

```
CHICAGO>COPY CFG.TXT NEWCFG.TXT
COPY FILE

In progress...

Completed
```

#### 2.4.4 Rename File (RENAME)

The Rename File (**RENAME**) command allows you to change the name of a file already installed on the NetPerformer unit.

---

**NOTE:** The **RENAME** command is available to users with **FULL** console access only.

---

To execute this command:

- Enter **RENAME** *old\_filename.extension new\_filename.extension*, where:  
*new\_filename* is a maximum of 8 characters and *extension* is 3 characters.

The name you assign to *new\_filename* must be different from all other files on the system.



**Caution:** Do not change the name of any file which may be called by a system function or referenced by another file, as this will have serious consequences for NetPerformer operations. **If in doubt, contact Memotec Technical Support for confirmation before you change the filename.**

```
CHICAGO>RENAME NEWCFG.TXT MSTR_CFG.TXT
RENAME FILE

In progress...

File renamed!
```

### 2.4.5 Delete File (DELETE)

The Delete File (**DELETE**) command allows you to erase a file from the NetPerformer.

---

**NOTE:** The **DELETE** command is available to users with **FULL** console access only.

---

To execute this command:

1. Enter **DELETE** *filename.extension*, where:

*filename* is a maximum of 8 characters and *extension* is 3 characters.

2. Enter **YES** at the confirmation prompt.



**Caution:** Do not delete any file which may be called by a system function or referenced by another file, as this will have serious consequences for NetPerformer operations. **If in doubt, contact Memotec Technical Support for confirmation before you delete the file.**

```
CHICAGO>DELETE NEWCFG.TXT
DELETE FILE
Delete file NEWCFG.TXT, please confirm (NO/YES,def:NO) ? YES

In progress...

File removed!
```

### 2.4.6 Defragment File System (DEFRAG)

The Defragment File System (**DEFRAG**) command allows you to clear the NetPerformer file system of fragmented blocks.

---

**NOTE:** This command is available to users with **FULL** console access only.

---

To execute the **DEFRAG** command:

1. Enter **DEFRAG**
2. Enter **YES** at the confirmation prompt.

```
BOSTON>DEFRAG
DEFRAGMENT FILE SYSTEM
Clean file system, please confirm (NO/YES,def:NO) ? YES

In progress...

File system cleaned!
```

## 2.4.7 Format File System (FORMAT)

The Format File System (**FORMAT**) command erases all files in the system and reinitializes the file system. This allows the NetPerformer unit to receive new files through a download process.

---

**NOTE:** The **FORMAT** command is available to users with **FULL** console access only.

---



**Caution:** If this command is executed without prior preparation for downloading new files, all NetPerformer operations will cease. **The FORMAT command must not be executed without the supervision of Memotec Technical Support.**

To execute the **FORMAT** command:

1. Enter **FORMAT**
2. Enter **YES** at the first confirmation prompt
3. Enter **YES** again at the second confirmation prompt.

```
BOSTON>FORMAT
FORMAT FILE SYSTEM
Format file system (NO/YES,def:NO) ? YES
Format file system, please confirm (NO/YES,def:NO) ? YES

In progress...

File system format OK!
```

## 2.4.8 Managing the DHCP IP Address

The DHCP Client (**DHCP**) command can be used to release or renew the DHCP IP address assigned by the DHCP server. To execute this command:

1. Enter **DHCP** at the console command line
2. For a product with more than one LAN port, select the *Ethernet port*
3. Select one of the following operations:
  - **RELEASE:** To clear the IP address that was learned from the DHCP server.
  - **RENEW:** To get a new IP address from the DHCP server.

Here is an example of releasing the IP address:

```
GWVOIP-9230>DHCP
DHCP CLIENT
Ethernet port (ETH1/ETH2,def:ETH1) ?
Operation (RELEASE/RENEW,def:RELEASE) ?
Release IP address, please confirm (NO/YES,def:NO) ? YES
```

Here is an example of renewing the IP address:

```
GWVOIP-9230>DHCP
DHCP CLIENT
Ethernet port (ETH1/ETH2,def:ETH1) ?
Operation (RELEASE/RENEW,def:RELEASE) ? RENEW
Renew IP address, please confirm (NO/YES,def:NO) ? YES
```

## 2.4.9 Managing the DNS Entries

The DNS Cache (**DNS**) command can be used to display or clear the DNS entries that were defined with the **SETUP/IP/DNS** submenu (refer to the chapter *DNS Address Resolution* in the *LAN Connection and IP Networks* module of this document series).

---

**NOTE:** The **DNS** command is available to users with **FULL** console access only.

---

To execute the **DNS** command:

1. Enter **DNS** at the NetPerformer console command prompt.
2. Select one of the following operations:
  - **DISPLAY:** To view the current DNS entries
  - **CLEAR:** To delete the DNS entries.

```
CHICAGO>DNS
DNS CACHE
Operation (DISPLAY/CLEAR,def:DISPLAY) ? DISPLAY
```

DESTINATION	IP ADDRESS	TTL
A.ACME.COM	192.168.001.001	30 s
TEST.ACME.COM	172.016.035.233	1 h

---

**NOTE:** The Time To Live statistic (**TTL** column) is displayed only if the *Ignore DNS time to live* parameter has been set to **NO**.

---





# 1 Troubleshooting Procedures

---

## 3.1 About Troubleshooting

This chapter presents some of the functions and displays that are available from the NetPerformer console for troubleshooting the unit and its network connections:

- Unit statistics, including the counters, number of errors and status of each network connection on the unit (see the next section, [“Viewing Unit Statistics” on page 3-3](#))
- Event histories, including the alarm log, configuration journal, exit record, error log, voice call log, ARP cache and any system file (see [“Viewing Event Histories” on page 3-10](#))

A alphabetical list of alarms with their interpretation is provided in the appendix [“System Alarms” on page 4-1](#).

- Real-time displays of connection activity (see [“Running Real-time Displays” on page 3-19](#))
- Locate network components through routing and connection tables, and ensure their accessibility with loopbacks, PINGs and tones across the network (see [“Locating Network Components” on page 3-27](#))
- Capture and view the traffic that passes across a particular network connection or system component (see [“Analyzing the Traffic” on page 3-41](#)).

---

**NOTE:** Unless noted otherwise in the following sections, these functions can be executed by users with **FULL** or **MONITOR** console access.

---

## 3.2 Viewing Unit Statistics

The NetPerformer is able to display system statistics, including the counters, number of errors and status of each network connection. Available commands include:

- “Display Counters (DC)” on page 3-3 (see next section)
- “Display Errors (DE)” on page 3-5
- “Display States (DS)” on page 3-7
- “Display Active PUs (AP)” on page 3-8
- “Display Bridge Statistics (DB)” on page 3-9
- “Display Bridge Addresses (DBA)” on page 3-9.

### 3.2.1 Display Counters (DC)

The Display Counters command (**DC**) shows all counters stored in memory for all network connections on the unit.

To display the counters for a particular network connection:

1. Enter **DC** at the NetPerformer console command prompt
2. Enter the name of the connection type you want to inspect

---

**NOTE:** The list of **DC** command options (the *Item* prompt) includes only those connection types that have been configured on the unit.

---

3. Depending on the option you select, you may be prompted to specify a single connection for viewing, e.g. a single port, channel or PVC.

Here is an example of the **DC** command from a NetPerformer configured for PowerCell voice transport:

```
HA-9220>DC
DISPLAY COUNTERS
Item (BOOTP/CHANNEL/CONFIG/DNS/GROUP/IP/NAT/PORT/PVC/Q922/Q933/
QOS/
REDUNDANCY/SLOT/SNMP/TIMEP,def:BOOTP) ? IP
In received.....4983173
In header errors.....0
In address errors.....6277
In unknown protocols.....0
In discarded.....108
In delivered.....4976386
Reasm timeout.....0
Reasm requested.....0
Reasm ok.....0
Reasm failed.....0
Forwarded datagrams.....402
```

```
Out requested.....1480070
Out discarded.....24
Out no routes.....0
Fragmentation ok.....0
Fragmentation failed.....0
Fragments created.....0
Out DF discarded.....0
RIP frames discarded.....1
```

Here is an example of the **DC** command from a NetPerformer configured for SIP VoIP voice transport:

```
GWVOIP-9230>DC
DISPLAY COUNTERS
Item (BOOTP/CHANNEL/CONFIG/DNS/GROUP/IP/NAT/PORT/QOS/REDUNDANCY/
SIP/
SLOT/SNMP/TIMEP,def:BOOTP) ? SIP
SIP> Number of SIP request messages Rx.....2327
SIP> Number of SIP request messages Tx.....2275
SIP> Number of SIP response messages Rx.....2270
SIP> Number of SIP response messages Tx.....2327
SIP> Number of total transactions.....9199
SIP> Number of INVITE requests Rx.....200
SIP> Number of INVITE requests Tx.....100
SIP> Number of ACK requests Rx.....95
SIP> Number of ACK requests Tx.....100
SIP> Number of BYE requests Rx.....125
SIP> Number of BYE requests Tx.....175
SIP> Number of CANCEL requests Rx.....10
SIP> Number of CANCEL requests Tx.....20
SIP> Number of REGISTER requests Rx.....3600
SIP> Number of REGISTER requests Tx.....3600
SIP> Number of 1xx class SIP responses Rx.....200
SIP> Number of 1xx class SIP responses Tx.....100
SIP> Number of 2xx class SIP responses Rx.....95
SIP> Number of 2xx class SIP responses Tx.....200
SIP> Number of 3xx class SIP responses Rx.....0
SIP> Number of 3xx class SIP responses Tx.....0
SIP> Number of 4xx class SIP responses Rx.....15
SIP> Number of 4xx class SIP responses Tx.....0
SIP> Number of 5xx class SIP responses Rx.....20
SIP> Number of 5xx class SIP responses Tx.....0
SIP> Number of 6xx class SIP responses Rx.....0
SIP> Number of 6xx class SIP responses Tx.....0
SIP> Number of INVITE retries.....10
SIP> Number of BYE retries.....5
SIP> Number of CANCEL retries.....8
SIP> Number of REGISTER retries.....20
SIP> Number of RESPONSE retries.....10
```

The above example shows the SIP counters, which include the number of times six

different classes of SIP responses have been received (**Rx**) or transmitted (**Tx**), as follows:

Class No.	Type	Function
1xx	Informational	Request received or in process
2xx	Success	Action received, acknowledged and accepted successfully
3xx	Redirection	Further action required to complete the request
4xx	Client Error	Bad syntax in the request, or request cannot be fulfilled at this location
5xx	Server Error	Server failed to fulfill a valid request
6xx	Global Failure	Failure to fulfill a valid request at any server

**Table 1**

## Clearing the Unit Counters

Use the Reset Counters (**RC**) command to return all statistics counters to zero; enter **RC** at the console command prompt.

---

**NOTE:** The **RC** command is available to users with **FULL** console access only. To change access privileges for a particular user, refer to the chapter *Controlling Access to the NetPerformer* in the *Quick Configuration* module of this document series.

---

### 3.2.2 Display Errors (DE)

To display the number of errors that have occurred on a particular network connection:

1. Enter **DE**
2. Enter the name of the connection type you want to inspect

---

**NOTE:** The list of **DE** command options (the *Item* prompt) includes only those connection types that have been configured on the unit.

---

3. Depending on the option you select, you may be prompted to specify a single connection for viewing, e.g. a single port, channel or PVC.

The **DE** command options are similar on a NetPerformer configured for PowerCell or SIP VoIP voice transport.

```

HA-9220>DE
DISPLAY ERRORS
Item (BOOTP/CHANNEL/DICT/GROUP/NAT/PORT/PVC/Q922/REDUNDANCY/SLOT/
TIMEP,
def:Q922) ? PORT
PORT ETH 1> Number of excessive collisions.....0
PORT ETH 1> Number of late TX collision errors...0
PORT ETH 1> Number of underruns.....0
PORT ETH 1> Number of late RX collision errors...0
PORT ETH 1> Number of overruns.....0
PORT ETH 1> Number of busy conditions.....0
PORT ETH 1> Number of FCS errors.....1
PORT ETH 1> Number of alignment errors.....4
PORT ETH 1> Number of carrier sense errors.....0
PORT ETH 1> Number of bad frames.....1      ----B-
PORT ETH 1> Number of retries.....0
PORT ETH 1> Number of restarts.....0
PORT CSL> Number of bad frames.....0      -----
PORT 1> Number of bad frames.....0      -----
PORT 1> Number of underruns.....0
PORT 1> Number of retries.....0
PORT 1> Number of restarts.....5
PORT 1> Number of frames discarded (overrun)....0
PORT 1> Number of octets discarded (bad).....0
PORT 1> Number of octets discarded (overrun)....0
Bad flags: U:Bad LENGTH Q:Overflow F:Flush S:Overrun B:Bad CRC
A:Abort

```

---

**NOTE:** An error detected by the **DE** command is usually accompanied by an alarm. Enter the Display Alarms (**DA**) command to view a chronological list of alarms (see “[Display Alarms \(DA\)](#)” on page 3-10). Refer to the appendix “[System Alarms](#)” on page 4-1 for an alphabetical list of alarms, with a brief interpretation of each.

---

## Clearing the Errors

Use the Reset Counters (**RC**) command to return all error counters to zero; enter **RC** at the console command prompt.

---

**NOTE:** The **RC** command is available to users with **FULL** console access only. To change access privileges for a particular user, refer to the chapter *Controlling Access to the NetPerformer* in the *Quick Configuration* module of this document series.

---

### 3.2.3 Display States (DS)

To display the current status of a particular network connection or component:

1. Enter **DS**
2. Enter the name of the connection type you want to inspect

---

**NOTE:** The list of **DS** command options (the *Item* prompt) includes only those connection types that have been configured on the unit.

---

3. Depending on the option you select, you may be prompted to specify a single connection for viewing, e.g. a single port, channel or PVC.

Here is an example of the **DS** command on a NetPerformer configured for PowerCell voice transport:

```

HA-9220>DS
DISPLAY STATES
Item (GLOBAL/PORT/PVC/REDUNDANCY/SLOT,def:GLOBAL) ? SLOT
SLOT> Slot number (1/2/ALL,def:ALL) ?
PORT 100> State.....ENABLE

VOICE 101> State.....IDLE
VOICE 101> Protocol.....ACELP-CN
VOICE 101> Last error.....NONE
VOICE 101> DSP relay rate.....NO DSP
VOICE 101> DSP relay mode.....NO DSP

PORT 201> Protocol.....PVC
PORT 201> Interface.....DCE-X.21
PORT 201> Speed used (bps).....2048k
PORT 201> TxC speed (bps).....N.A.
PORT 201> RxC speed (bps).....N.A.
PORT 201> Modem signals.....CI
PORT 201> State.....DATA 10ms

PORT 202> Protocol.....FR-USER
PORT 202> Interface.....DTE-V35
PORT 202> Speed used (bps).....2048k
<ENTER>
PORT 202> TxC speed (bps).....2048k
PORT 202> RxC speed (bps).....2048k
PORT 202> Modem signals.....STDRC-
PORT 202> State.....DATA

Modem signals: d(S)r d(T)r (D)cd (R)ts (C)ts r(I) (-)off

```

Here is an example of the **DS** command on a NetPerformer configured for SIP VoIP voice transport:

```

GWVOIP-9230>DS

```

```
DISPLAY STATES
Item (GLOBAL/PORT/REDUNDANCY/SIP/SLOT,def:GLOBAL) ? SIP
SIP> Version.....SIP/2.0
SIP> Current operational state.....UP
SIP> Registration status.....Unregistered
SIP> Free SIP ports.....120
```

---

**NOTE:** A change in status is usually accompanied by an alarm. Enter the Display Alarms (**DA**) command to view a chronological list of alarms (see “[Display Alarms \(DA\)](#)” on page 3-10). Refer to the appendix “[System Alarms](#)” on page 4-1 for an alphabetical list of alarms, with a brief interpretation of each.

---

### Error LED Status

Enter the menu sequence **DS** ↵ **GLOBAL** to view the current status of the Error (DIAG) LED from the console.

```
GWVOIP-9230>DS
DISPLAY STATES
Item (GLOBAL/PORT/REDUNDANCY/SIP/SLOT,def:SIP) ? GLOBAL
GLOBAL> DIAG LED.....GREEN
```

If the Error (DIAG) LED is **RED**, use the Clear ERR/DIAG LED (**CE**) command to extinguish this LED; enter **CE**.

---

**NOTE:** The **CE** command is available to users with **FULL** console access only. To change access privileges for a particular user, refer to the chapter *Controlling Access to the NetPerformer* in the *Quick Configuration* module of this document series.

---

### 3.2.4 Display Active PUs (AP)

The Active PU (**AP**) command identifies which PUs are currently active in SNA/SDLC polling mode.

To view a list of currently active PUs:

- Enter **AP** at the console command prompt.

```
BOSTON>AP
ACTIVE PU
Active PU> 1,2,3,4,5,6,7
```



### 3.2.5 Display Bridge Statistics (DB)

The Display Bridge (**DB**) command displays the current status of the bridge and all ports participating in the bridge topology. To access the bridge statistics:

- Enter **DB** at the console command prompt.

Here is an example of the bridge counters and other information provided with this command:

```
HA-9220>DB
DISPLAY BRIDGE STATISTICS
BRIDGE      > Address discard.....0
BRIDGE      > Transparent frame discard.....0
BRIDGE      > Designated root.....7FFF00500CD01F4C
BRIDGE      > Root cost.....0
BRIDGE      > Root port.....NONE
BRIDGE      > Frame filtered.....0
BRIDGE      > Frame timeout discard.....0
```

---

**NOTE:** To view all active bridge addresses, use the Display Bridge Addresses (**DBA**) command, described next.

---

### 3.2.6 Display Bridge Addresses (DBA)

The Display Bridge Addresses (**DBA**) command lists all active bridge addresses and displays all MAC addresses that have been learned by the bridge in transparent mode.

To view the list of bridge addresses:

- Enter **DBA** at the console command prompt.

```
BOSTON>DBA
DISPLAY BRIDGE ADDRESSES

ADDRESS          PORT      TIME(sec)
002083000435     LAN      1180
0020830008B0     1        276
```

## 3.3 Viewing Event Histories

Several console commands are available to help you ascertain what events have taken place on the NetPerformer and its connections:

- “[Display Alarms \(DA\)](#)” on page 3-10 (see next section)
- “[Display Journal \(DJOURNAL\)](#)” on page 3-11
- “[Display Exit Record \(ER\)](#)” on page 3-12
- “[Display Error Log \(ELOG\)](#)” on page 3-14
- “[Display Log \(DL\)](#)” on page 3-14
- “[Display/Clear ARP Cache \(ARP\)](#)” on page 3-15
- “[Dump File Contents \(TYPE\)](#)” on page 3-17.

### 3.3.1 Display Alarms (DA)

NetPerformer alarms indicate communication activation or deactivation, unit failure or restart, and information such as notification of power-on, user actions and firmware download.

To display the alarms that have occurred since the last time the alarm buffer was cleared:

- Enter **DA** at the console command prompt.

```
HA-9220>DA
DISPLAY ALARMS
SDM-9220 vX.X.X Memotec Inc. (c) 2006
Signaling Engine vX.X.X Memotec Inc. (c) 2006
DSP QBxxxxx.BIZ code version: X.X.X
Console connected through TELNET
Voice transport method: PowerCell
Time> TUE 2006/09/26 11:32:02
Alarm> TELNET TIMEOUT (172.016.037.013) TUE 2006/09/26 10:36:14
Alarm> LINK 201 UP (HA-9380) THU 2006/09/21 1:16:56
Alarm> LINK 200 IN SYNC THU 2006/09/21 1:16:53
Alarm> LINK 200 OUT OF SYNC THU 2006/09/21 1:16:39
Alarm> PVC 1 UP (8400) FRI 2006/09/15 11:21:55
Alarm> FRAME RELAY LINK (202) UP FRI 2006/09/15 11:21:55
Alarm> FRAME RELAY LINK (202) DOWN FRI 2006/09/15 11:21:43
Alarm> PVC 1 DOWN (8400) FRI 2006/09/15 11:21:36
Alarm> ALARMS CLEARED FRI 2006/09/01 11:57:42
```

For each alarm the display includes:

- The type of alarm
- Details concerning the network connection or system file involved
- The date and time the alarm occurred.

To interpret an alarm, refer to the appendix “[System Alarms](#)” on page 4-1, which provides a list of alarms in alphabetical order.

## Clearing the Alarm Buffer

Use the Clear Alarms (**CA**) command to empty the alarm buffer; enter **CA** at the console command prompt. The **ALARMS CLEARED** alarm is logged when the **CA** command is executed.

---

**NOTE:** The **CA** command is available to users with **FULL** console access only. To change access privileges for a particular user, refer to the chapter *Controlling Access to the NetPerformer* in the *Quick Configuration* module of this document series.

---

### 3.3.2 Display Journal (DJOURNAL)

The Display Journal Log (**DJOURNAL**) command displays the contents of the configuration log file, **JOURNAL.TXT**. This can be useful for viewing a historical journal of all events that have affected the unit configuration, and for reporting a configuration problem to Memotec Technical Support.

---

**NOTE:** The **DJOURNAL** command is available to users with **FULL** console access only.

---

To view the journal:

1. Enter **DJOURNAL** at the console command prompt.
2. Set *Display full log* to **YES** to view the date, time, username and connection type for each journal entry. If *Display full log* is set to **NO**, only the date and time are displayed with each entry.
3. Enter **YES** at the prompt *Wait for <ENTER> after each screen* if you would like to view the file one screen at a time.

```

GWVOIP-9230>DJOURNAL
DISPLAY JOURNAL LOG
Display full log (NO/YES,def:NO) ? YES
Wait for <ENTER> after each screen (NO/YES,def:NO) ?

Time> TUE    2006/09/26 11:34:54

2006/09/01 12:02:43  ADMIN                TELNET
CAPTURE TEXT FILE UPDATED

2006/09/01 12:02:32  ADMIN                TELNET
END TEST OF CFGPARAM.C

2006/09/01 12:02:32  ADMIN                TELNET
PARAMETERS MISSING ID=455

```

```
2006/09/01 12:02:24 ADMIN TELNET
BEGIN TEST OF CFGPARAM.C

2006/09/01 11:38:54 BOOT_SEQUENCE LOCAL
CAPTURE TEXT FILE USED

2006/09/01 11:38:54 BOOT_SEQUENCE LOCAL
MAP TEXT FILE USED

2006/09/01 11:38:54 BOOT_SEQUENCE LOCAL
CURRENT CONFIG FILE USED

2006/09/01 11:38:54 BOOT_SEQUENCE LOCAL
UNIT RESTARTED WITH v10.2.3 (R9) (SDM-9230)

2006/08/16 15:48:39 ADMIN TELNET
CONFIGURATION UPDATED

2006/08/16 15:48:27 ADMIN TELNET
[ifwan 202] Protocol CHANGED FROM: OFF TO HDLC

2006/07/11 15:33:52 ADMIN TELNET
FILE JOURNAL.TXT DELETED
```

---

**NOTE:** In this display, message strings may be truncated to fit the screen. The full strings are available in the file **JOURNAL.TXT**, which can be retrieved from the unit using the FTP *get* command, targeting the IP address of the unit.

---

### 3.3.3 Display Exit Record (ER)

The Display Exit Record (**ER**) command allows you to view the exit record produced when a fatal alarm occurs. It also includes information on the product hardware and firmware versions installed when the problem occurred. The Exit Record may be requested from NetPerformer Technical Support when you report this problem.

To view the exit record:

- Enter **ER** at the console command prompt.

Much of the information displayed is also available from other commands:

- [“Display Version \(DV\)” on page 2-7](#)
- [“Display Production Information \(DPI\)” on page 2-5](#)
- [“Display File List \(DIR\)” on page 2-16](#)
- [“Display Alarms \(DA\)” on page 3-10.](#)

```
HA-9220>ER
DISPLAY EXIT RECORD
```

Wait for <ENTER> after each screen (NO/YES,def:YES) ? **NO**

DISPLAY VERSION

SDM-9220 X.X.X Memotec Inc. (c) 2006  
 Code base vX.X.X Memotec Inc. (c) 2006  
 Signaling Engine vX.X.X Memotec Inc. (c) 2006  
 DSP QBxxxxx.BIZ code version: X.X.X  
     Subfile 0x0178: TMS320VC5416 code - 120/20 MHz bootstrap  
     Subfile 0x0001: TMS320VC5416 code - ACELP-CN  
 BOOTSTRAP v1.4.2 (R1) Memotec Inc. (c) 2006  
 BOOT v1.2.1 (R4) Memotec Inc. (c) 2006  
 Hardware Info> Processor version (PVR): 0x8081  
 Hardware Info> Processor revision (PVR): 0x1014  
 ...  
 ...

DISPLAY PRODUCTION INFORMATION

Main EEPROM application information  
 Default CSL speed: 9600  
 Active program: 0  
 OEM: 0  
 DBG start: 0  
 Main board error code: 0x00000000  
 ...  
 ...

DISPLAY FILE LIST

JOURNAL.TXT	20231 BYTES	2006/06/27	14:13:09
QB121R09.BIZ	550054 BYTES	2006/09/01	11:48:26
HA1023R09.BIN	3019776 BYTES	2006/09/01	11:48:53
CURRENT.ALR	720 BYTES	2006/09/01	11:57:42
...			
...			

DISPLAY ALARMS

Time> TUE 2006/09/26 12:00:08  
 Alarm> TELNET TIMEOUT (172.016.037.013) TUE 2006/09/26 10:36:14  
 Alarm> PVC 1 UP (8400) FRI 2006/09/15 11:21:55  
 Alarm> FRAME RELAY LINK (202) UP FRI 2006/09/15 11:21:55  
 Alarm> FRAME RELAY LINK (202) DOWN FRI 2006/09/15 11:21:43  
 Alarm> PVC 1 DOWN (8400) FRI 2006/09/15 11:21:36  
 Alarm> ALARMS CLEARED FRI 2006/09/01 11:57:42  
 00BB8000: 00000000 00000000-00000000 00000000 .....  
 00BB8010: 00000000 00000000-00000000 00000000 .....  
 00BB8020: 00000000 00000000-00000000 00000000 .....  
 00BB8030: 00000000 00000000-00000000 00000000 .....  
 00BB8040: 00000000 00000000-00000000 00000000 .....  
 00BB8050: 00000000 00000000-00000000 00000000 .....  
 00BB8060: 00000000 00000000-00000000 00000000 .....  
 00BB8070: 00000000 00000000-00000000 00000000 .....  
 ...  
 ...

### 3.3.4 Display Error Log (ELOG)

The Display Error Log (**ELOG**) command provides details on each error that has occurred on the unit. The Error Log may be requested from NetPerformer Technical Support when you report a critical problem.

To execute this command:

- Enter **ELOG** at the NetPerformer console command line.

```
HA-9220>ELOG
ERROR LOG
Time> TUE 2006/09/26 12:01:16
2006/09/01-12:22:18 DSP 25:0 CHANNEL 101/0 JITTER_UNDERFLOW 0x0501
2006/09/01-12:22:17 DSP 25:0 CHANNEL 101/0 JITTER_ZERO_LEN 0x0507
2006/09/01-12:22:05 DSP 25:0 CHANNEL 101/0 JITTER_OVERFLOW 0x0500
2006/09/01-12:22:05 DSP 25:0 CHANNEL 101/0 JITTER_OVERFLOW 0x0500
2006/09/01-12:22:05 DSP 25:0 CHANNEL 101/0 JITTER_OVERFLOW 0x0500
2006/09/01-11:50:19 ERROR LOG STARTED
```

### 3.3.5 Display Log (DL)

The Display Log (**DL**) command provides details on each voice/fax call placed from this unit, including:

- Speed Dial number
- Extended digits
- Local port number
- Destination unit and port number
- Begin time and duration of the call.

To display information about the PowerCell voice/fax calls that have occurred since the last time the call log was cleared:

- Enter **DL** at the console command prompt.

---

**NOTE:** This command is available only when the *Voice transport method* is set to **PowerCell**.

---

```
HA-9220>DL
DISPLAY LOG

2 Logged Entries

SPEED DIAL: 1401 EXTENDED: LOCAL PORT: 101
DST NAME: HA-9360 DST PORT: 401 BEGIN: 12:22:17 2006/09/01 DUR:
4

SPEED DIAL: 2401 EXTENDED: LOCAL PORT: 101
DST NAME: HA-9380 DST PORT: 401 BEGIN: 12:22:05 2006/09/01 DUR:
3
```

---

**NOTE:** If the log file is full when you execute the Display Log (**DL**) command, the *Lost entries* counter indicates the number of calls that have been excluded from the log file.

---

## Clearing the Call Log

On system startup the NetPerformer logs an alarm if the log file for PowerCell voice/fax calls is nearly or completely full.

- **LOG ALMOST FULL** indicates that the log file has exceeded 90% capacity (more than 1800 calls have been logged)
- **LOG FULL** indicates that the log file has reached 100% capacity (2000 calls). No more calls can be logged.

To avoid a **LOG FULL** condition, use the Erase Log File (**EL**) command to empty the call log buffer.

---

**NOTE:** This command is available to users with **FULL** console access only.

---

To execute this command:

- Enter **EL** at the console command prompt.

```
HA-9220>EL
ERASE LOG FILE
All Log entries will be erased, continue (NO/YES,def:NO) ? YES
Log file erased !
```

The **LOG CLEARED** alarm is logged when the **EL** command is executed. In addition, the *Lost entries* counter is reset to zero, and is no longer displayed with the **DL** command.

### 3.3.6 Display/Clear ARP Cache (ARP)

The Display/Clear ARP Cache (**ARP**) command can be used to view or delete the ARP table entries, which indicate the IP address of the destination unit, its MAC address, the current state of the connection and its Time to Live (TTL).

---

**NOTE:** This command is available to users with **FULL** console access only.

---

To execute this command:

1. Enter **ARP** at the NetPerformer console command line

2. Select one of the following operations:

- **DISPLAY:** To view the ARP table
- **CLEAR:** To delete all ARP table entries.

Here is an example of displaying the ARP table:

```
GWVOIP-9230>ARP
ARP CACHE
Operation (DISPLAY/CLEAR,def:DISPLAY) ?

The ARP cache has 17 entry(ies) used on a maximum of 300 entries

DESTINATION      MAC ADDRESS      STATE      TTL
005.000.001.106  00200AB0B082    RESOLVED   3   h
005.000.001.107  00200AB0D746    RESOLVED   3   h
005.000.001.121  00200AB0CD3D    RESOLVED   3   h
005.000.001.172  00200AB0CD20    RESOLVED   3   h
005.000.001.059  00200AB0981B    RESOLVED   3   h
005.000.001.124  00200AB0B276    RESOLVED   3   h
005.000.001.105  00200AB0B677    RESOLVED   3   h
005.000.001.152  00200AB0B13F    RESOLVED   3   h
005.000.001.160  0020830049FB    RESOLVED   3   h
005.000.001.161  0020830072CC    RESOLVED   3   h
005.000.001.162  002083001809    RESOLVED   3   h
005.000.001.164  002083001D24    RESOLVED   3   h
005.000.001.163  002090008375    RESOLVED   3   h
005.000.001.095  00200AB0A519    RESOLVED   3   h
005.000.001.096  00200AB0C123    RESOLVED   3   h
005.000.001.057  00200AB0B103    RESOLVED   4   h
005.000.001.001  00200AB092C0    RESOLVED   4   h
```

Here is how the ARP table is cleared:

```
GWVOIP-9230>ARP
ARP CACHE
Operation (DISPLAY/CLEAR,def:DISPLAY) ? CLEAR
```



### 3.3.7 Dump File Contents (TYPE)

The Dump File Contents (**TYPE**) command allows you to display the contents of any system file on the console screen.

---

**NOTE:** This command is available to users with **FULL** console access only.

---

To execute this command:

1. Enter **TYPE** *filename.extension*, where:  
*filename* is a maximum of 8 characters and *extension* is 3 characters.
2. Enter **YES** at the prompt *Display ASCII only* if you would like the hexadecimal version to be hidden from the display
3. Enter **YES** at the prompt *Wait for <ENTER> after each screen* if you would like to view the file one screen at a time.

Here is an example showing the ASCII version only:

```
HA-9220>TYPE MAP.TXT
DUMP FILE CONTENTS
Display ASCII only (NO/YES,def:NO) ? YES

Wait for <ENTER> after each screen (NO/YES,def:NO) ?

[HEADER]
VERSION=1.0
SDM-9220 v10.2.3 (R9) Memotec Inc. (c) 2006
Code base v10.2.3 (R9) Memotec Inc. (c) 2006
Signaling Engine v10.2.3 (R9) Memotec Inc. (c) 2006
DSP QB121R09.BIZ code version: 1.2.1 R09
  Subfile 0x0178: TMS320VC5416 code - 120/20 MHz bootstrap
...
...
```

Here is the same example, showing both the hexadecimal and ASCII versions:

```
HA-9220>TYPE MAP.TXT
DUMP FILE CONTENTS
Display ASCII only (NO/YES,def:NO) ?

00000000: 5B 48 45 41 44 45 52 5D-0D 0A 56 45 52 53 49 4F [HEADER]..VERSIO
00000010: 4E 3D 31 2E 30 0A 53 44-4D 2D 39 32 32 30 20 76 N=1.0.SDM-9220 v
00000020: 31 30 2E 32 2E 33 20 28-52 39 29 20 56 65 72 73 10.2.3 (R9) Vers
00000030: 6F 20 54 65 63 68 6E 6F-6C 6F 67 69 65 73 2C 20 o Technologies,
00000040: 49 6E 63 2E 20 28 63 29-20 32 30 30 36 20 0A 43 Inc. (c) 2006 .C
00000050: 6F 64 65 20 62 61 73 65-20 76 31 30 2E 32 2E 33 ode base v10.2.3
00000060: 20 28 52 39 29 20 56 65-72 73 6F 20 54 65 63 68 (R9) Memotec
00000070: 6E 6F 6C 6F 67 69 65 73-2C 20 49 6E 63 2E 20 28 nologies, Inc. (
00000080: 63 29 20 32 30 30 36 20-0A 53 69 67 6E 61 6C 69 c) 2006 .Signali
00000090: 6E 67 20 45 6E 67 69 6E-65 20 76 31 30 2E 32 2E ng Engine v10.2.
000000A0: 33 20 28 52 39 29 20 56-65 72 73 6F 20 54 65 63 3 (R9) Memotec
```

```
000000B0: 68 6E 6F 6C 6F 67 69 65-73 2C 20 49 6E 63 2E 20 hnologies, Inc.  
000000C0: 28 63 29 20 32 30 30 36-20 0A 44 53 50 20 51 42 (c) 2006 .DSP QB  
000000D0: 31 32 31 52 30 39 2E 42-49 5A 20 63 6F 64 65 20 121R09.BIZ code  
000000E0: 76 65 72 73 69 6F 6E 3A-20 31 2E 32 2E 31 20 52 version: 1.2.1 R  
000000F0: 30 39 0A 20 53 75 62 66-69 6C 65 20 30 78 30 31 09. Subfile 0x01  
...  
...
```

## 3.4 Running Real-time Displays

The NetPerformer console provides several continuous statistical displays for real-time analysis of active network connections:

- “Display Channel States (DCS)” on page 3-19
- “Continuous Display of Port States (DPORT)” on page 3-21
- “Continuous Display of PPPOE States (DPPPOE)” on page 3-22
- “Continuous Display of PU States (DPU)” on page 3-22
- “Continuous Display of PVC States (DPVC)” on page 3-23
- “Continuous Display of PVC DLCI States (DDLCLI)” on page 3-24
- “Continuous Display of SVC States (DSVC)” on page 3-25.

### 3.4.1 Display Channel States (DCS)

The Display Channel States command (**DCS**) shows the status of all digital channels in real time. The display is refreshed continuously.

To execute this command:

- Enter **DCS** at the console command prompt
- Reduce the console speed if you are using a slow connection, e.g. Telnet. This question is not repeated during the same console session.
- The display begins with the first slot or span in the unit. Change to another slot or span using the left arrow or right arrow key.

The slot number and type of interface card installed in that slot appear above the channel display.

- Press any other key to exit from the display.

Here is an example from a NetPerformer configured for PowerCell voice transport:

```
HA-9220>DCS
DISPLAY CALL STATES
Console speed (bps) (300-115200,def:115200) ? 9600
Active Calls: 000 Total Active Calls: 000
----- SLOT 1 : FXS -----
| # Status Remote Unit Name # Rate | # Status Remote Unit Name # Rate | |
|101 IDLE | |103 OFF |
|102 ONLINE HA-9360 1 8.0Kx1|104 OFF |
-----
```

Use LEFT and RIGHT arrow keys to change slot. Press any other key to exit.

Here is an example from a NetPerformer configured for SIP VoIP voice transport:

```
GWVOIP-9230>DCS
DISPLAY CALL STATES
Console speed (bps) (300-115200,def:115200) ? 9600
----- SLOT 2 : T1 -----
# Status DNIS Rate | # Status DNIS Rate
01 Data channel |13 OFF
02 CONNECT 15146192262 G729A 2ppf |14 OFF
03 OFF |15 OFF
04 OFF |16 OFF
05 OFF |17 OFF
06 OFF |18 OFF
07 OFF |19 OFF
08 OFF |20 OFF
09 OFF |21 OFF
10 OFF |22 OFF
11 OFF |23 OFF
12 OFF |24 OFF
-----
TS: 201-ABCD 202-ABCD 203-ABCD 204-ABCD 205-ABCD 206-ABCD 207-ABCD 208-ABCD
```

Use UP and DOWN arrow keys to scroll timeslots.  
Use LEFT and RIGHT arrow keys to change slot. Press any other key to exit.

### 3.4.2 Continuous Display of Port States (DPORT)

The Display Port States (**DPORT**) command provides a real time status display of all serial ports (including ports on the dual serial interface card) and interface card channels. The display is refreshed continuously.

To execute this command:

- Enter **DPORT** at the console command prompt
- Reduce the console speed if you are using a slow connection, e.g. Telnet. This question is not repeated during the same console session.
- Use the **<Home>**, **<End>**, up arrow and down arrow keys to scroll through the entire display
- Press any other key to exit from the display.

```

GWVOIP-9230>DPORT
DISPLAY PORT STATES
Console speed (bps) (300-115200,def:115200) ?
-----
|PORT#  PROTOCOL    INTERFACE  SPEED      MODEM      STATE DELAY
|          (BPS)          SIGNALS
|-----|
|   1  FR-USER      DCE-V35    128k       S-D---     WAIT
|   2  PVCN         UNDEFINED  56000      - - - - -  OFF
|  101 PVCN         T1-TE      1472k      STDRC-     DATA 13ms
|  201 ACELP-CN     T1         NO DSP     - - - - -  IDLE
|  301 ACELP-CN     ANALOG FXS NO DSP     - - - - -  IDLE
|  401 PPP          DTE-V35    0          -T-R--     CALL
|  402 HDLC         UNDEFINED  0          - - - - -  CALL
|-----|
Modem signals: d(S)r d(T)r (D)cd (R)ts (C)ts r(I) (-)off
-----
Use HOME, END, UP and DOWN arrow keys to scroll. Press any other key to exit.

```

In this example:

- Ports 1 and 2 are the two built-in serial ports on the SDM-9360 base unit
- Port 101 is the first channel on a T1 interface card installed in slot 1. This channel is configured for WAN data transport (PVCN)
- Port 201 is the first channel on another T1 interface card installed in slot 2. This channel is configured for voice transport (ACELP-CN)
- Port 301 is the first voice channel on an FXS interface card installed in slot 3
- Ports 401 and 402 are on a dual serial interface card installed in slot 4.

### 3.4.3 Continuous Display of PPPOE States (DPPPOE)

The Continuous Display of PPPOE States (**DPPPOE**) command provides a real time status display of all PPPOE connections. The display is refreshed continuously.

To execute this command:

- Enter **DPPPOE** at the console command prompt
- Reduce the console speed if you are using a slow connection, e.g. Telnet. This question is not repeated during the same console session.
- Use the **<Home>**, **<End>**, up arrow and down arrow keys to scroll through the entire display
- Press any other key to exit from the display.

```

GWVOIP-9220>DPPPOE
DISPLAY PPPOE STATES
Console speed (bps) (300-115200,def:115200) ? 9600
-----
|  PPPOE#    PPPOE-STATE    PPP-STATE    Access Concentrator Name |
|-----|-----|-----|-----|
|      1      DATA        DATA        ank2-ctrlpstdol         |
|      2      CALL          INIT                                     |
|-----|-----|-----|-----|

```

Use HOME, END, UP and DOWN arrow keys to scroll. Press any other key to exit.

### 3.4.4 Continuous Display of PU States (DPU)

The Display PU States (**DPU**) command shows the status of all PUs in real time. The information is organized according to PU number, in ascending order. The display is refreshed continuously.

To execute this command:

- Enter **DPU** at the console command prompt
- Reduce the console speed if you are using a slow connection, e.g. Telnet. This question is not repeated during the same console session.

- Use the **<Home>**, **<End>**, up arrow and down arrow keys to scroll through the entire display
- Press any other key to exit from the display.

```

HA-9220>DPU
DISPLAY PU STATES
Console speed (bps) (300-115200,def:115200) ? 9600
-----
|  PU#  STATE                SESSIONS STATE:  #SA=5  #SP=2  |
|-----|
|  1  WAIT SEC ACTIVE        |
|  2  CONNECTED              |
|  3  CONNECTED              |
|  4  WAIT PRI CONN          |
|  5  CONNECTED              |
|  6  CONNECTED              |
|  7  PAUSE                   |
|  8  CONNECTED              |
|  9  CONNECTION OFF         |
| 10  CONNECTION OFF         |
| 11  CONNECTION OFF         |
| 12  CONNECTION OFF         |
| 13  CONNECTION OFF         |
|-----|
Use HOME, END, UP and DOWN arrow keys to scroll. Press any other key to exit.

```

### 3.4.5 Continuous Display of PVC States (DPVC)

The Display PVC States (**DPVC**) command shows the status of all PVCs in real time. The information is organized according to PVC number, in ascending order. The display is refreshed continuously.

To execute this command:

- Enter **DPVC** at the console command prompt
- Reduce the console speed if you are using a slow connection, e.g. Telnet. This question is not repeated during the same console session.
- Use the **<Home>**, **<End>**, up arrow and down arrow keys to scroll through the entire display
- Press any other key to exit from the display.

```

HA-9220>DPVC
DISPLAY PVC STATES
Console speed (bps) (300-115200,def:115200) ?
-----FR PVC-----
|PVC MODE          INFO.      SPEED      PORT      DLCI DESTINATION      STATE & |
|                  SIGNALS    (BPS)      |         |         NAME         | DELAY(MS) |
|-----|-----|-----|-----|-----|-----|-----|
| 1 PVCR           USER -A--- 2048 k    WAN 202 100 8400           DATA 12ms |
| 2 MULTIPLEX     USER -A--- 56000    |         | 100 NEW YORK     DATA 13ms | | | | |
| 3 PVCR          off line   56000    |         | 101 PHILADELPHIA DOWN      |
| 4 PVCR          USER -A--- 56000    |         | 102 PARIS        DATA 19ms |
| 5 PVCR          off line   56000    |         | 0                DOWN      |
| 6 PVCR          off line   56000    |         | 0                DOWN      |
| 7 PVCR          off line   56000    |         | 0                DOWN      |
| 8 PVCR          off line   56000    |         | 0                DOWN      |
| 9               |         |         |         |         |         |         |
| 10              |         |         |         |         |         |         |
| 11              |         |         |         |         |         |         |
| 12              |         |         |         |         |         |         |
| 13              |         |         |         |         |         |         |
| 14              |         |         |         |         |         |         |
| 15              |         |         |         |         |         |         |
| 16              |         |         |         |         |         |         |
| 17              |         |         |         |         |         |         |
|-----|-----|-----|-----|-----|-----|
Information signals: NETwork/USER (N)ew (A)ctive (C)ir (F)ecn (B)ecn (-)off
-----
Use HOME, END, UP and DOWN arrow keys to scroll. Press any other key to exit.

```

### 3.4.6 Continuous Display of PVC DLCI States (DDLCI)

The Display PVC DLCI States (**DDLCI**) command also shows the status of all PVCs in real time. Unlike the **DPVC** command, however, the information is organized according to DLCI number, in ascending order.

To execute this command:

- Enter **DDLCI** at the console command prompt
- Reduce the console speed if you are using a slow connection, e.g. Telnet. This question is not repeated during the same console session.
- Use the **<Home>**, **<End>**, up arrow and down arrow keys to scroll through the entire display
- Press any other key to exit from the display.



```

HA-9220>DDLCI
DISPLAY PVC DLCI STATES
Console speed (bps) (300-115200,def:115200) ? 9600
-----
|DLCI PVC MODE          INFO.      SPEED      PORT      DESTINATION  STATE & |
|                       SIGNALS    (BPS)     |      NAME    DELAY(MS) |
|-----|-----|-----|-----|-----|-----|
|100  1  PVCR          USER -A--- 2048 k   16384  BOSTON      DATA 5ms |
|200  2  PVCR          USER -A--- 56000   WAN 202 8400  CALL      |
|-----|-----|-----|-----|-----|
Information signals: NETwork/USER (N)ew (A)ctive (C)ir (F)ecn (B)ecn (-)off
-----
Use HOME, END, UP and DOWN arrow keys to scroll. Press any other key to exit.

```

In this example the first PVC is over IP, as indicated by the port number **16384**.

### 3.4.7 Continuous Display of SVC States (DSVC)

The Display SVC States (**DSVC**) command shows the status of all SVCs in real time. The display is refreshed continuously.

To execute this command:

- Enter **DSVC** at the console command prompt
- Reduce the console speed if you are using a slow connection, e.g. Telnet. This question is not repeated during the same console session.
- Use the **<Home>**, **<End>**, up arrow and down arrow keys to scroll through the entire display
- Press any other key to exit from the display.

```
HA-9220>DSVC
DISPLAY SVC STATES
Console speed (bps) (300-115200,def:115200) ? 9600
```

SVC MODE	INFO. SIGNALS	SPEED (BPS)	CRV	DLCI	DESTINATION NAME	STATE & DELAY(MS)
1 PVCR	USER -A---	20160	32771	20	9350	DATA 20ms
2 OFF	USER -----	0	0	0		OFF
3 OFF	USER -----	0	0	0		OFF
4 OFF	USER -----	0	0	0		OFF
5 OFF	USER -----	0	0	0		OFF
6 OFF	USER -----	0	0	0		OFF
7 OFF	USER -----	0	0	0		OFF
8 OFF	USER -----	0	0	0		OFF
9 OFF	USER -----	0	0	0		OFF
10 OFF	USER -----	0	0	0		OFF
11 OFF	USER -----	0	0	0		OFF
12 OFF	USER -----	0	0	0		OFF
13 OFF	USER -----	0	0	0		OFF
14 OFF	USER -----	0	0	0		OFF
15 OFF	USER -----	0	0	0		OFF
16 OFF	USER -----	0	0	0		OFF
17 OFF	USER -----	0	0	0		OFF

Information signals: NETwork/USER (N)ew (A)ctive (C)ir (F)ecn (B)ecn (-)off

Use HOME, END, UP and DOWN arrow keys to scroll. Press any other key to exit.

## 3.5 Locating Network Components

The NetPerformer includes several commands that display routing tables and other interface connections, and test the validity of these connections.

- “Display Routing Table (DR)” on page 3-27 (see next section)
- “Display Connections (DX)” on page 3-29
- “Display Destination Table (DD)” on page 3-30
- “Trace IP Route (TRACEROUTE)” on page 3-31
- “Loopback on Serial Ports - Loopback Test (LT)” on page 3-31
- “PING Remote Unit (PING)” on page 3-37
- “Start Test Tone (STARTTONE)” on page 3-40.

### 3.5.1 Display Routing Table (DR)

The Display Routing Table (**DR**) command provides the current status of all network connections that use IP or IPX routing and travel via the NetPerformer unit. The **DR** command displays several types of IP and IPX routing tables:

- IP UNICAST RIP
- IP UNICAST MULTIHOMED
- IP MULTICAST GROUP
- IP MULTICAST IGMP
- IPX RIP
- IPX SAP

To view a routing table:

1. Enter **DR** at the console command prompt.
2. Enter the targeted routing table type as a menu sequence.

For example, to view the IP UNICAST RIP routing table, enter the menu sequence: **IP** ↓ **UNICAST** ↓ **RIP**.

Here are examples of the IP Unicast routing tables available with the **DR** command:

```
BOSTON>DR
DISPLAY ROUTING TABLE
Item (IP/IPX,def:IP) ? IP
Item (UNICAST/MULTICAST,def:UNICAST) ? UNICAST
Item (RIP/MULTIHOMED,def:RIP) ? RIP

The routing table has 4 entry(ies)

DESTINATION  VAL COST  INTRF NEXT HOP          AGE  MASK                TYPE PROT
128.128.000.000 Y 0      LAN-1 128.128.000.001 0    s 255.255.000.000 SUB  LOCAL
128.128.000.001 Y 0      LAN-1 128.128.000.001 0    s 255.255.255.255 HOST LOCAL
128.128.000.002 Y 1      2001 000.000.000.000 12   s 255.255.255.255 HOST RIP
128.129.000.000 Y 1      2001 000.000.000.000 12   s 255.255.000.000 NET  RIP
```

```
BOSTON>DR
DISPLAY ROUTING TABLE
Item (IP/IPX,def:IP) ?
Item (UNICAST/MULTICAST,def:UNICAST) ?
Item (RIP/MULTIHOMED,def:RIP) ? MULTIHOMED

DESTINATION      MASK                VALID METRIC  INTRF TTL
128.128.000.000  255.255.000.000    Y     0      LAN-1 10 m
128.128.000.001  255.255.000.000    Y     0      LAN-1 10 m
128.128.000.002  255.255.000.000    Y     1      2001 10 m
```

Here are examples of the IP Multicast routing tables available with the **DR** command:

```
BOSTON>DR
DISPLAY ROUTING TABLE
Item (IP/IPX,def:IP) ? IP
Item (UNICAST/MULTICAST,def:UNICAST) ? MULTICAST
Item (GROUP/IGMP,def:GROUP) ? GROUP

Group: 225.000.001.001
Source: 005.000.001.128 upstream neighbor: 005.061.002.002
Incoming interface: 2 # frames received: 10958
Outgoing interface: LAN # frames transmitted: 10958

Group: 225.000.002.002
Source: 005.000.001.128 upstream neighbor: 005.061.002.002
Incoming interface: 2 # frames received: 10422
Outgoing interface: LAN # frames transmitted: 10422

Group: 225.000.003.003
Source: 005.000.001.128 upstream neighbor: 005.061.002.002
Incoming interface: 2 # frames received: 10329
Outgoing interface: LAN # frames transmitted: 10329

Group: 225.000.004.004
Source: 005.000.001.128 upstream neighbor: 005.061.002.002
Incoming interface: 2 # frames received: 10206
Outgoing interface: LAN # frames transmitted: 10206
```

```
BOSTON>DR
DISPLAY ROUTING TABLE
Item (IP/IPX,def:IP) ? IP
Item (UNICAST/MULTICAST,def:UNICAST) ? MULTICAST
Item (GROUP/IGMP,def:IGMP) ? IGMP

ADDRESS      INTRF  AGE  TTL  LAST REPORTER
225.000.001.001 LAN    399 s 234 s 005.001.000.001
225.000.002.002 LAN    407 s 238 s 005.001.000.001
225.000.003.003 LAN    403 s 231 s 005.001.000.001
225.000.004.004 LAN    402 s 232 s 005.001.000.001
```

Here are examples of the IPX routing tables available with the **DR** command:

```
CHICAGO>DR
DISPLAY ROUTING TABLE
Item (IP/IPX,def:IPX) ? IPX
Item (RIP/SAP,def:SAP) ? RIP
```

The RIP table has 8 entry(ies)

NETWORK NUMBER	TICKS	HOP COUNT	NEXT HOP	AGE
30212251	2	1	FCFEE67F	57 s
B45A3DAD	2	1	FCFEE67F	57 s
B9360001	3	2	00000000	25 s
B9360002	4	3	00000000	25 s
B9360003	2	1	00000000	25 s
B9360004	3	2	00000000	25 s
BADBABE0	3	2	FCFEE67F	50 s
FCFEE67F	1	0	FCFEE67F	0 s

```
CHICAGO>DR
DISPLAY ROUTING TABLE
Item (IP/IPX,def:IPX) ? IPX
Item (RIP/SAP,def:RIP) ? SAP
```

The SAP table has 10 entry(ies)

NET NUM	NODE	SOCKET	SERVICE NAME	TYPE	HOP COUNT	AGE
30212251	000000000001	0000	PRE-RD-001	027B	1	37 s
30212251	000000000001	0005	PRESTICOM	026B	1	37 s
30212251	000000000001	0451	PRE-RD-001	0004	1	37 s
30212251	000000000001	4006	PRESTICOM	0278	1	37 s
30212251	000000000001	4014	ISPRE-RD-0011872400800000	0102	1	37 s
30212251	000000000001	4015	LDPNVIRUS_PROTECT_5122213	0102	1	37 s
30212251	000000000001	4016	IVPRE-RD-0011872400800000	0102	1	37 s
30212251	000000000001	401F	PRE-RD-001	0237	1	37 s
30212251	000000000001	4800	PRE-RD-001	0238	1	37 s
30212251	000000000001	8059	BSER4.00-6.10_30212251000	004B	1	37 s

### 3.5.2 Display Connections (DX)

The Display Connections (**DX**) command displays all active PowerCell (PVCR link), IP and IPX (LAN port) and console (Relay) connections on the NetPerformer unit. To execute this command:

- Enter **DX** at the console command prompt.

```
BOSTON>DX
DISPLAY CONNECTIONS
GROUP to CHICAGO [SDM-9360]
LINK 1 [port]
CLASS 1
CHANNEL IP to CHICAGO : (tx1/rx1) compressed
CHANNEL IPX to CHICAGO : (tx2/rx2) compressed
CLASS 0
CHANNEL MGMT1 to CHICAGO : (tx3/rx3) uncompressed
CHANNEL RELAY to CHICAGO : (tx3/rx3) uncompressed
```

### 3.5.3 Display Destination Table (DD)

The Display Destination Table (**DD**) command provides a display of the current status of all destinations reached via ports and PVCs configured with the PVCR protocol. To execute this command:

- Enter **DD** at the console command prompt.

```
CHICAGO>DD
DISPLAY DESTINATION TABLE

The destination table has 3 entry(ies)

DESTINATION      VAL  COST   INTRF  NEXT HOP      AGE
NEWYORK          Y    0       1      MONTREAL      0  s
LOSANGELES       Y    0       2      MONTREAL      0  s
CHICAGO          Y    1       2      LOSANGELES    646 s
```

#### Refining the Results

You can also enter a character string as an argument to refine the results of this command.

---

**NOTE:** This option is not available if the unit is configured with Unit Routing Version 1 using the **SETUP/GLOBAL** command.

---

For example, enter a shortened version of a *Unit ID* to view the status of all destinations that match this character string:

```
BOSTON>DD CHICAGO
DISPLAY DESTINATION TABLE

Send request...Wait response.

The matching list with 'CHICAGO' has 3 entry(ies)

DESTINATION      VAL  COST
CHICAGO.0        YES   1
CHICAGO.1        YES   2
CHICAGO.2        YES   2
```

---

**NOTE:** The **INTRF** (*Interface*), **NEXT HOP** and **AGE** statistics are not displayed when you execute the **DD** command with an argument.

---

### 3.5.4 Trace IP Route (TRACEROUTE)

The **TRACEROUTE** command shows the path taken by IP packets between two points in the network. This path is represented by a list of the IP addresses of various routers that the packets pass through to reach their final destination. **TRACEROUTE** is similar to the **TRACERT** command available with Microsoft Windows®.

**TRACEROUTE** can be used to:

- Troubleshoot PowerCell over IP, as it shows the path that IP packets take from the NetPerformer to a particular IP address.
- Find out how many routers separate two NetPerformer units in a Voice over IP application, which can help determine the cause of choppy voice quality.

To execute the **TRACEROUTE** command:

- Enter **TRACEROUTE** *IP\_address*, *or*
- Enter **TRACEROUTE** and enter appropriate values for the *IP address*, *Timeout in milliseconds* and *Number of hops to trace*.

```
BOSTON>TRACEROUTE 192.146.35.75
TRACEROUTE
Tracing route to: 192.146.035.075
Traceroute in progress...
```

Hops				IP address
1	1 ms	0 ms	0 ms	005.000.003.001
2	1 ms	1 ms	1 ms	192.146.035.010
3	2 ms	1 ms	1 ms	192.146.035.075

Traceroute complete

### 3.5.5 Loopback on Serial Ports - Loopback Test (LT)

Console	SNMP
LT	(not available)

A loopback function is available from the NetPerformer console for troubleshooting point-to-point serial (WAN/user) connections and T1/ E1 connections. For the serial connections, loopback tests are normally used for testing a dial-up line. They determine whether there is a break in communications between the two ends of a link, and if so, where that break occurs. Two loopback tests are available on all NetPerformer data ports:

**Local Port Test:** A test sequence is sent from the local port (on Unit #1), captured and compared with the original sequence.

**Remote Port Test:** A test sequence is sent from the local port to the remote port (on Unit #2), which echoes back the sequence to the local port where it is compared with the original sequence.

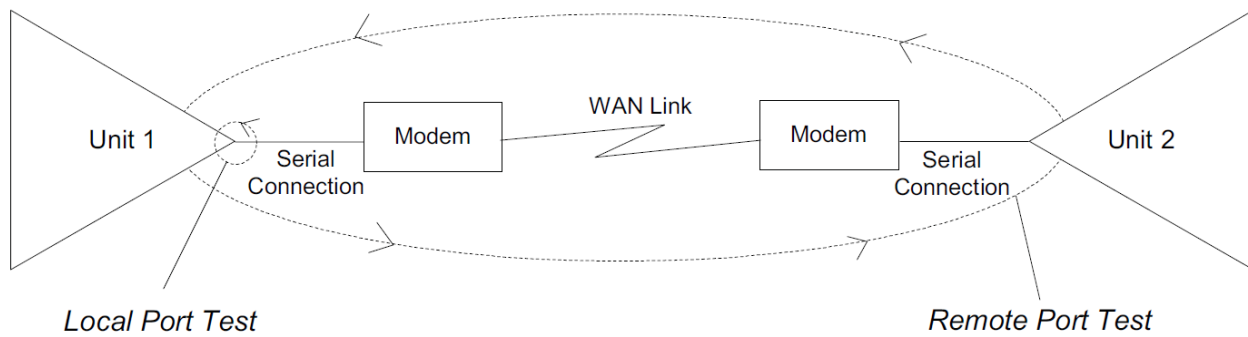


Figure 3-1: Loopback Tests

### Local Port Test

To execute a local loopback test on a serial (WAN/user) port:

1. Install a loopback connector (or similar device) on the port. This connector should loop the data back to the local console. Ensure that the connector you use is appropriate to the port interface type. There is no need to install a cable on the port.
2. Execute the Loopback Test command by entering LT at the console command prompt.
3. At the prompt “Display old loopback counters”, enter YES to view the latest loopback test results, or NO to pass to the next question.
4. Select the number of the port that you want to test by entering its number at the “Port number” prompt.
5. Enter MANUAL at the “Type” prompt. When the port is in Manual mode, it sends a frame, waits for the echo and validates the result.
6. Select the protocol mode, either synchronous or asynchronous, for the data carried by this port. Enter SYNC or ASYNC at the “Protocol mode” prompt.
7. Select the port interface from the interface types presented at the “Interface” prompt. Keep in mind that a DTE interface requires EXTERNAL clocking mode, and a DCE interface requires INTERNAL clocking mode.
8. Select the port clocking mode by entering INTERNAL or EXTERNAL at the “Clocking mode” prompt.
9. Enter the port speed in bits per second at the “Speed” prompt. The speed you enter should be the same as that of the link. If you do not enter a speed value, NetPerformer will use the default speed.

---

**NOTE:** Configuration of parameters such as the speed, interface and clocking mode is required since NetPerformer cannot access regular port parameter values during a loopback test.

---



10. Enter the port coding type, either NRZ or NRZI, at the “Coding” prompt.
11. Enter the idle character, either MARK or FLAG, at the “Idle” prompt. Note that COP and DDCMP data are tested as HDLC data.
12. Specify the number of frames you want sent during the test at the “Number of frames to send” prompt. The data itself is taken from the NetPerformer memory.
13. Enter the number of bytes to be sent from each frame at the “Length” prompt. If a frame is longer than the length you specify, only the first part of the frame will be sent. The loopback timeout is the anticipated delay in milliseconds before the frame will be received back at the port. The timeout can be short for a local test. The default value, 1000 ms, is sufficient for a simple test with a low number of frames. Enter the desired value at the “Timeout in milliseconds” prompt.
14. The “Background” prompt refers to how the test should be carried out and the results displayed. Enter NO to have the test results appear in the foreground. A new row of data will be displayed every 5 seconds for the duration of the test. Enter YES to have the test performed in the background. You can continue immediately with another console command.

Here is an example of a successful local port loopback test executed in foreground mode:

```

BOSTON>LT
LOOPBACK TEST
LOOP Display old loopback counters (NO/YES,def:NO) ? NO
Port number (1/2/3/4,def:1) ? 2
LOOP Type (MANUAL/ECHO,def:MANUAL) ? MANUAL
LOOP Protocol mode (SYNC/ASYN,def:SYNC) ?
LOOP Interface (DCE-RS232/DTE-RS232/DCE-V35/DTE-V35/DCE-X21/DTE-X21/DCE-RS530/
DTE-RS530/DCE-RS449/DTE-RS449,def:DCE-V35) ? DCE-RS232
LOOP Clocking mode (INTERNAL/EXTERNAL,def:INTERNAL) ? INTERNAL
LOOP Speed (bps) (1200-2000000,def:1200) ?
LOOP Coding (NRZ/NRZI,def:NRZ) ?
LOOP Idle (MARK/FLAG,def:MARK) ?
LOOP Number of frames to send (1-1000,def:1) ? 30
LOOP Length (2-4096,def:2) ? 10
LOOP Timeout in milliseconds (0-1000000,def:1000) ? 1000
LOOP Background (NO/YES,def:NO) ? NO
LOOPBACK to Port #2
Time      Tx      Rx      TimeoutTx  TimeoutRx  Error  MinResp  MaxResp  MeanResp
=====  =====  =====  =====  =====  =====  =====  =====  =====
5.010    96      95      0          0          0      0.039    0.041    0.039
10.037   217     216     0          0          0      0.039    0.041    0.039
15.062   336     335     0          0          0      0.039    0.042    0.039
20.087   456     455     0          0          0      0.039    0.042    0.039
25.113   576     575     0          0          0      0.039    0.042    0.039
30.138   696     695     0          0          0      0.039    0.042    0.039
35.163   816     815     0          0          0      0.039    0.042    0.039
40.188   936     935     0          0          0      0.039    0.042    0.039
43.211  1000   1000     0          0          0      0.039    0.042    0.039

```

Figure 3-2: Port Loopback Test

Each row of results has been added after a five-second interval. The display includes the following information:

- **Time:** the elapsed time, in seconds, since the beginning of the test.
- **Tx:** the number of frames transmitted.
- **Rx:** the number of frames received.
- **TimeoutTx:** the number of timeouts that occur while transmitting a frame from the port.
- **TimeoutRx:** the number of timeouts that occur while receiving a frame at the port.
- **Error:** the number of times a loopback response was invalid due to bad frames, line failures or other error situations. Here the contents of the transmitted and received data are compared.
- **MinResp:** the fastest response time, in milliseconds.
- **MaxResp:** the slowest response time, in milliseconds. If there is a large difference between this statistic and the MinResp statistic, reduce the port speed or frame length on the next loopback test. If the two statistics are quite close, you can increase the port speed.
- **MeanResp:** the average response time, in milliseconds.

If the loopback test has been performed in background mode, you can view the test results as follows:

1. Execute the Loopback Test command again.
2. Enter YES at the prompt “Display old loopback counters”. Only the final test results are displayed.
3. Press Esc to return to the main console prompt.

Here is an example:

```

BOSTON>LT
LOOPBACK TEST
LOOP Display old loopback counters (NO/YES,def:NO) ? YES
LOOPBACK to Port #2
Time   Tx    Rx      TimeoutTx Timeout  Rx Error MinResp  MaxResp  MeanResp
=====
2.006  50    50      0          0        0        0.009   0.010   0.009
LOOP Port (1/2/3,def:2) ? [Esc]
BOSTON>
```

Figure 3-3: ESC to main console prompt

### Remote Port Test

To execute a loopback test from a local PVCr port to a remote port and back again:

1. Install a cable on the local port.
2. Connect the other end of the cable to either the remote port that is to be tested (if located at the same site), or the port that communicates with the remote port (if on an external device).

3. Ensure that the local and remote NetPerformers are communicating with each other via a PVC/R link, either by executing the Display Connections (DX) command or the Display Destinations Table (DD) command.
4. Access the remote unit with the Relay (RE) command, entering the remote unit name at the console prompt. Here is an example:

```

BOSTON> RE
RELAY
Unit name (def:) ? CHICAGO
Press ENTER three times to connect
Press CTRL/Z three times to exit
+SDM-9530/E v7.1.0 Verso Technologies, Inc. (c) 1998
+Console connected through link relay
+Display commands, type HE
+CHICAGO.1>
```

*Figure 3-4: Relay RE command*

5. Execute the Loopback Test command on the remote unit by entering LT at the console command prompt.
6. At the prompt “Display old loopback counters”, enter YES to view the latest loopback test results, or NO to pass to the next question.
7. Select the number of the remote port that will be participating in the test by entering its number at the “Port” prompt.
8. Enter ECHO at the “Type” prompt. When the port is in Echo mode, it sends back all frames that it receives.
9. Select the protocol mode, either synchronous or asynchronous, for the data carried by this port. Enter SYNC or ASYNC at the “Protocol mode” prompt.
10. Select the port interface from the interface types presented at the “Interface” prompt. Keep in mind that a DTE interface requires EXTERNAL clocking mode, and a DCE interface requires INTERNAL clocking mode.
11. Select the port clocking mode by entering INTERNAL or EXTERNAL at the “Clocking mode” prompt.
12. Enter the port speed in bits per second at the “Speed” prompt. The speed you enter should be the same as that of the link. If you do not enter a speed value, NetPerformer will use the default speed.

---

**NOTE:** Configuration of parameters such as the speed, interface and clocking mode is required since NetPerformer cannot access regular port parameter values during a loopback test.

---

13. At the “Time Duration for Echo” prompt, enter the amount of time, in seconds, that the remote port should remain in echo mode for the loopback test. The duration of the remote port echo must be long enough to allow you to return to the local side and enter the required parameter values for the test, as well as the time for the test itself.



**CAUTION:** Ensure that you have chosen the correct remote port and the correct Time Duration for Echo. If not, you may require someone at the remote site to access the console locally in order to stop the loopback function. To do this, have that person execute the LT command, enter YES at the Stop the loopback function prompt and then press Esc to return to the main console prompt.

14. The port is now in echo mode. Press CTRL-Z three times to exit and return to the local unit console. Here is an example of the remote port settings:

```
+CHICAGO>LT
+LOOPBACK TEST
+LOOP Display old loopback counters (NO/YES,def:NO) ? NO
+LOOP Port (1/2/3,def:1) ? 1
+LOOP Type (MANUAL/ECHO,def:MANUAL) ? ECHO
+LOOP Protocol mode (SYNC/ASYNC,def:SYNC) ? SYNC
+LOOP Interface (DCE-V35,def:DCE-V35) ?
+LOOP Clocking mode (INTERNAL/EXTERNAL,def:INTERNAL) ?
+LOOP Speed (bps) (1200-2000000,def:64000) ? 144000
+LOOP Time Duration for Echo (sec) (1-3600,def:120) ? 150
+The port is now in echo mode.
+Press CTRL-Z three times to exit. [CTRL-Z][CTRL-Z][CTRL-Z]
Return to local
BOSTON>
```

*Figure 3-5: Remote port settings*

15. Back at the local console, execute the Loopback Test command as though you were performing a local port test.
16. For the loopback timeout (“Timeout in milliseconds” prompt), select a higher value than the default to allow sufficient time for round-trip transmission of all frames.

The following is an example where the loopback test indicates a problem receiving the data from the remote port:

```

BOSTON>LT
LOOPBACK TEST
LOOP Display old loopback counters (NO/YES,def:NO) ? NO
LOOP Port (1/2/3,def:1) ? 1
LOOP Type (MANUAL/ECHO,def:ECHO) ? MAN
LOOP Protocol mode (SYNC/ASync,def:SYNC) ?
LOOP Interface (DCE-RS232/DTE-RS232/DCE-V35/DTE-V35/DCE-X21/DTE-X21/
DCE-RS530/
DTE-RS530/DCE-RS449/DTE-RS449,def:DCE-RS232) ? DCE-RS232
LOOP Clocking mode (INTERNAL/EXTERNAL,def:INTERNAL) ?
LOOP Speed (bps) (1200-256000,def:64000) ?
LOOP Coding (NRZ/NRZI,def:NRZ) ?
LOOP Idle (MARK/FLAG,def:MARK) ?
LOOP Number of frame to send (1-1000,def:1000) ? 50
LOOP Length (2-4096,def:4096) ? 55
LOOP Timeout in milliseconds (0-1000000,def:10) ? 1000
LOOP Background (NO/YES,def:NO) ? NO
LOOPBACK to Port #1
Time    Tx    Rx  TimeoutTx  TimeoutRx  Error  MinResp  MaxResp  MeanResp
=====  =====
5.009   4    0    4          0          0      0.000    0.000    0.000
10.034 10   0    9          0          0      0.000    0.000    0.000
15.059 15   0    14         0          0      0.000    0.000    0.000
20.084 20   0    19         0          0      0.000    0.000    0.000

```

Figure 3-6: Loopback Test result

### 3.5.6 PING Remote Unit (PING)

The Ping Remote Unit (**PING**) command pings any NetPerformer units or IP devices to determine if they are still alive, that is, responding to the ping. This can be used to test the current status of gateway/router connections. To execute this command:

1. Enter **PING** at the console command prompt.
2. At the *Display old PING counters* prompt, enter **YES** to view the latest **PING** results, or **NO** to pass to the next question.
3. Select the ping type:
  - **CR**: to send a ping along PowerCell (PVCR) routes. You will be requested to specify the *PING destination*. Enter the *Unit name* of the destination NetPerformer unit.
  - **IP**: to send a ping via other routers. You will be requested to specify the *PING destination* (an IP address), *Source IP address* and *PING length* (in bytes).

You can also ping a domain name. Refer to [“PING a Domain Name” on page 3-39](#).
4. Enter the desired *PING test duration in seconds*. This is the duration of the entire test, including retries.
5. Specify the *PING timeout in milliseconds*. If no response is detected during this time, another ping is sent to the gateway. This cycle will continue until either a response is received or the configured test duration runs out.

6. Set the *Delay between PINGs in milliseconds* to the minimum delay required between each ping.
7. Set *Background* to **YES** if you want the ping to be performed in the background. Enter **NO** to have the ping results appear on the screen as the ping is being executed. A new row of data will be displayed every 5 seconds for the duration of the test.
8. If the ping is in **BACKGROUND** mode, enter the *Number of test repetitions*.

Here is an example of pinging a PowerCell address (the **CR** option):

```

BOSTON>PING
PING REMOTE UNIT
Display old PING counters (NO/YES,def:NO) ? YES
PING to: 000.000.000.000
  Time    Transmit  Receive  Timeout   Error   MinResp   MaxResp   MeanResp
  6.030      5         0        5         0     0.000     0.000     0.000
PING Type (IP/CR,def:IP) ? CR
PING destination (def:?) ? CHICAGO
PING test duration in seconds (0-1000000,def:5) ?
PING timeout in milliseconds (0-1000000,def:1000) ?
Delay between PINGs in milliseconds (0-1000000,def:100) ?
Background (NO/YES,def:NO) ?
Ping in progress...

PING to: CHICAGO
  Time    Transmit  Receive  Timeout   Error   MinResp   MaxResp   MeanResp
  5.005      30        29         0         0     0.066     0.071     0.070
  6.030      30        30         0         0     0.066     0.071     0.070
    
```

Here is an example of pinging an IP address:

```

BOSTON>PING
PING REMOTE UNIT
Display old PING counters (NO/YES,def:NO) ? NO
PING Type (IP/CR,def:IP) ? IP
PING destination (def: ) ? 128.129.0.1
Source IP address (def:128.128.000.001) ?
PING length (0-4096,def:64) ?
PING test duration in seconds (0-1000000,def:5) ?
PING timeout in milliseconds (0-1000000,def:1000) ?
Delay between PINGs in milliseconds (0-1000000,def:100) ?
Background (NO/YES,def:NO) ?
Ping in progress...

PING to: 128.129.000.001
  Time    Transmit  Receive  Timeout   Error   MinResp   MaxResp   MeanResp
  5.005      30        29         0         0     0.041     0.071     0.069
  5.029      30        30         0         0     0.041     0.071     0.069
    
```

## PING a Domain Name

The PING command has been modified in NetPerformer V9.2.0 and higher to support host domain names in addition to IP addresses.

---

**NOTE:** A domain name can be entered as the object of the PING command **only if the NetPerformer unit has been configured to support Domain Name Server (DNS) client for DNS address resolution**. Refer to the chapter *DNS Address Resolution* in the *LAN Connection and IP Networks* module of this document series.

---

To PING a host domain name:

- Enter the host name with the PING command at the NetPerformer console command prompt, *or*
- Define the *PING destination* parameter of the PING command with a host name instead of an IP address. When displaying the PING results, the NetPerformer interprets the domain name in standard 4-byte IP address notation.

Here is an example of pinging a domain name by entering the host name with the PING command at the NetPerformer console command prompt:

```
NEW YORK>PING WWW.MEMOTEC.COM
PING REMOTE UNIT
Ping in progress...

PING to: 010.001.001.005
  Time      Transmit  Receive  Timeout  Error  MinResp  MaxResp  MeanResp
  5.005      26        25       0        0      0.097    0.106    0.098
  6.030      26        26       0        0      0.097    0.106    0.098
```

Here is an example of pinging a domain name by defining the *PING destination* parameter of the PING command with a host name instead of an IP address:

```
NEW YORK>PING
PING REMOTE UNIT
Display old PING counters (NO/YES,def:NO) ?
PING Type (IP/CR,def:IP) ?
PING destination (def:5.0.1.1) ? WWW.MEMOTEC.COM
Source IP address (def:176.012.037.081) ?
PING length (0-4096,def:64) ?
PING test duration in seconds (0-1000000,def:5) ?
PING timeout in milliseconds (0-1000000,def:1000) ?
Delay between PINGS in milliseconds (0-1000000,def:100) ?
Background (NO/YES,def:NO) ?
Ping in progress...

PING to: 010.001.001.005
  Time      Transmit  Receive  Timeout  Error  MinResp  MaxResp  MeanResp
  5.005      26        25       0        0      0.097    0.120    0.098
  6.030      26        26       0        0      0.097    0.120    0.098
```

---

**NOTE:** If the PING command cannot resolve the host name, the following is displayed at the console:

---

```
CHICAGO>PING C.ACME.COM
PING REMOTE UNIT
DNS resolution of C.ACME.COM host name failed.
```

### 3.5.7 Start Test Tone (STARTTONE)

The Start Test Tone (STARTTONE) command is used to send a tone frequency over a NetPerformer voice port (phone line) for testing purposes. This tone can be used to measure the line impedance setting required for an FXO port.

To execute this command:

1. Enter **STARTTONE** at the console command prompt.
2. Select the *Slot number*.
3. Select the *Frequency (Hz)* of the tone.
4. Select the *Amplitude (dBm)* of the tone.

```
BOSTON>STARTTONE
START TEST TONE
SLOT> Slot number (1/2/3/4,def:1) ? 1
Frequency (Hz) > (300/404/1004/2713/2804/3300,def:300) ?
Amplitude (dBm) > (0/-5/-10/-15/-20/-25/-30,def:0) ?
```

When **STARTTONE** is executed a tone is sent over the NetPerformer phone line specified by the slot number, as long as the voice port is not hanged up.

---

**NOTE:** Execute the **STARTTONE** command again to change the tone *Frequency* and/or *Amplitude* that is sent on the phone line. If the *Amplitude* is set to **0**, no tone is generated.

---



## 3.6 Analyzing the Traffic

The NetPerformer offers commands which allow you to capture traffic passing across one or more interfaces, and view an analysis of this traffic at a later time:

- “Setup Capture (SC)” on page 3-41
- “Start Capture (STC)” on page 3-44
- “View Capture (VC)” on page 3-44
- “End Capture (EC)” on page 3-47
- “SAVE Command” on page 3-47
- “LOAD Command” on page 3-48
- “Capture Frame Length (CL)” on page 3-49.

### 3.6.1 Setup Capture (SC)

Use the Setup Capture (**SC**) command to determine which interfaces on the NetPerformer unit will be scanned during execution of the traffic capture. The actual capture may be executed with this command, or at a later time using the Start Capture (**STC**) command (see “Start Capture (STC)” on page 3-44).

To execute the **SC** command:

1. Enter **SC** at the console command prompt.
2. Select a *Capture ITEM*:

Only those items which have been configured on the unit will be displayed as a *Capture ITEM* option.

- **DSP**: Select the *DSP number*, and confirm whether *DSP Pings* and/or *DSP Data* should be included with the capture
- **PORT**: Select the desired port
- **PU**: Select the PU number
- **PVC**: Select the PVC number
- **SE**: to capture events between the main board of the unit and the Signaling Engine, using real traffic. Select the *Slot number* and *Channel Number*
- **SLOT**: Select the *Slot number* and *Channel Number*
- **SIP**: (*for unit with SIP VoIP voice transport only*) to capture SIP voice channel information. Select the *Slot number* and *Channel Number*, and confirm whether *SEAPI*, *SEV-to-CCIP*, *CCIP-to-SIP*, *Auth/Accounting* (for SIP-related authentication and accounting events), *Capture UDP socket events*, *RTP/FAX data* and/or *RTCP* events should be included with the capture.

If the desired SIP capture options are unchanged since the last traffic capture, set *Capture Default* to **YES**. The other SIP capture options are not displayed at the console in this case.

- **SVC:** (for unit with PowerCell voice transport only) Select the SVC number.
3. Select more than one *Capture ITEM* by entering **YES** at the *Capture another item* confirmation prompt. You will be prompted for the additional capture item.
  4. Set the Capture direction:
    - **RX:** Traffic received by the unit only
    - **TX:** Traffic transmitted by the unit only
    - **BOTH:** Both transmitted and received traffic.
  5. Set the *Capture mode*:
    - **FULL:** The capture will terminate when the capture buffer is filled.
    - **CONTINUE:** The capture will terminate according to the specified *Capture ending*.
  6. Set the *Capture ending*:
    - **MANUAL:** The capture will terminate when you press the **<Esc>** key (**BACKGROUND** mode only) or execute the End Capture (**EC**) command (see [“End Capture \(EC\)” on page 3-47](#)).
    - **TRIG:** The capture will terminate when a special trigger is received across one of the captured interfaces.

---

**NOTE:** If you select a trigger ending, you will be prompted for the *Trigger offset*, which determines which byte in the header contains the trigger value, the *Trigger mask*, which defines the relevant bits that will be examined for the trigger value, and the *Trigger value*, which is the value that must be found in the header before the NetPerformer will end the capture.

---

7. Set the *Capture activation* mode:
  - **BACKGROUND:** The capture status will not be displayed during execution. Once capture setup is complete, you return immediately to the NetPerformer console command prompt.
  - **FOREGROUND:** The capture status will be displayed during execution of the capture. Press the **<Esc>** key to stop the capture (**MANUAL Capture ending** only).

You can terminate the capture before its normal termination by executing the End Capture (**EC**) command (see [“End Capture \(EC\)” on page 3-47](#)).

8. Enter **YES** at the *Start capture* confirmation prompt to begin the traffic capture immediately. Enter **YES+BOOT** to reboot the unit before starting the capture.

Here is a simple example of setting up the capture of traffic passing across the LAN port of a unit configured for PowerCell voice transport:

```

HA-9220>SC
SETUP CAPTURE
Capture ITEM (DSP/PORT/PU/PVC/SE/SLOT/SVC,def:DSP) ? PORT
Capture port (ETH1/ETH2/CSL/1,def:ETH1) ?
Capture another item, please confirm (NO/YES,def:NO) ?
Capture direction (def:BOTH) ?
Capture mode (def:CONTINUE) ?
Capture ending (def:MANUAL) ?
Capture activation (def:FOREGROUND) ?
Start Capture (def:YES) ?
The capture is activated in Foreground, use BACKSPACE to continue
in Background
  Baseboard:      36,      4 Kb ( 3 %) <Esc>
The capture is terminated

```

Here is an example of setting up a capture of SIP events on a unit configured for SIP VoIP voice transport. To select all SIP options, *Capture Default* must be set to **NO**, and the values for *Capture RTP/FAX data* and *Capture RTCP* changed to **YES**.

```

GWVOIP-9220>SC
SETUP CAPTURE
Capture ITEM (DSP/PORT/PVC/SE/SIP/SLOT,def:SE) ? SIP
SLOT> Slot number (1,def:1) ? 1
SLOT> Channel Number (101,def:101) ? 101
Capture Default (NO/YES,def:YES) ? NO
Capture SEAPI (NO/YES,def:YES) ?
Capture SEV<-->CCIP (NO/YES,def:YES) ?
Capture CCIP<-->SIP (NO/YES,def:YES) ?
Capture Auth/Accounting (NO/YES,def:YES) ?
Capture UDP socket events (NO/YES,def:YES) ?
Capture RTP/FAX data (NO/YES,def:NO) ? YES
Capture RTCP (NO/YES,def:NO) ? YES
Capture another item, please confirm (NO/YES,def:NO) ?
Capture direction (def:BOTH) ?
Capture mode (def:CONTINUE) ?
Capture ending (def:MANUAL) ?
Capture activation (def:FOREGROUND) ?
Start Capture (def:YES) ?
The capture is activated in Foreground, use BACKSPACE to continue
in Background
  Baseboard:      41,      6 Kb ( 5 %)

```

### 3.6.2 Start Capture (STC)

The Start Capture (**STC**) command executes a capture that has been previously defined with the Setup Capture (**SC**) command. The way the capture is executed and terminated follows the **SC** command settings.

To execute the **STC** command:

- Enter **STC** at the console command prompt
- To continue the capture in *Background* mode, press the backspace key.

To end the capture:

- If in *Foreground* mode, press the <**Esc**> key
- If in *Background* mode, enter **EC** (End Capture) at the console command prompt (see “End Capture (EC)” on page 3-47).

```
HA-9220>STC
START CAPTURE
The capture is activated in Foreground, use BACKSPACE to continue
in Background
  Baseboard:      26,          1 Kb ( 1 %) <Esc>
The capture is terminated
```

### 3.6.3 View Capture (VC)

The View Capture (**VC**) command lets you view the traffic that was captured by the Setup Capture (**SC**) or Start Capture (**STC**) command. You can select all or a subset of the interfaces captured. The display includes:

- Software and hardware versions running on the unit
- Start and stop times for the capture
- Relative time for each data block
- Traffic direction (**TX** or **RX**)
- Interface type
- Type and length of each block
- The actual traffic, in hexadecimal format.
- Decoding of the control field (if this option is selected).

To execute the **VC** command:

1. Enter **VC** at the console command prompt.
2. For each interface that was captured, include (**YES**) or exclude (**NO**) its traffic from the capture display, following the console prompts.
3. To include control field decoding with the display of a particular traffic type, enter **YES** at the *Decode control field* prompt and set the following:
  - For a port in HDLC mode, the *Decode Modulo*.
  - For all captures, the *Decode With Starting Block Number*.

4. Set *Wait for <ENTER>* after each screen to **YES** if you want to analyze the traffic one screen at a time from the console.

Here is an example of PVC traffic displayed with the VC command:

```

HA-9220>VC
VIEW CAPTURE
Include PVC 1 (NO/YES,def:YES) ?
Decode control field (NO/YES,def:YES) ?
Display block headers (NO/YES,def:YES) ?
Capture Direction (RX/TX/BOTH,def:BOTH) ?
Display ASCII? (NO/YES,def:NO) ?
Include Unrequested Blocks? (NO/YES,def:YES) ?
Decode With Starting Block Number (1-28,def:1) ?
Wait for <ENTER> after each screen (NO/YES,def:YES) ?

SDM-9220 vX.X.X Memotec Inc. (c) 2006
Code base vX.X.X Memotec Inc. (c) 2006
Signaling Engine vX.X.X Memotec Inc. (c) 2006
DSP QBxxxxx.BIZ code version: X.X.X
  Subfile 0x0178: TMS320VC5416 code - 120/20 MHz bootstrap
  Subfile 0x0001: TMS320VC5416 code - ACELP-CN
BOOTSTRAP vX.X.X Memotec Inc. (c) 2006
BOOT vX.X.X Memotec Inc. (c) 2006
Hardware Info> Processor version (PVR): 0x8081
Hardware Info> Processor revision (PVR): 0x1014

Unit name: HA-9220>

Capture started> WED 2006/09/27 18:35:59
Capture ended> WED 2006/09/27 18:36:04

TIME(SEC)DIR      INDEX  TYPE      LNG DATA
0.000  RX FR      PVC   1 HEADER   2  BLOCK = 1
<ENTER>
                                           DLCI=100,  C/R=0
                                           FECN=0,  BECN=0,  DE=0

                                           1841

0.000  RX FR      PVC   1 VAR      5  BLOCK = 2
                                           HEADER VERSION = 1
                                           SEQ NUMBER = 0
                                           CHAN NUMBER = 0
                                           TYPE = BLOC HELLO

                                           000325AD 33

0.645  TX FR      PVC   1 HEADER   2  BLOCK = 3
                                           DLCI=100,  C/R=0
                                           FECN=0,  BECN=0,  DE=0

                                           1841

<ENTER>
0.645  TX FR      PVC   1 VAR      5  BLOCK = 4
                                           HEADER VERSION = 1
                                           SEQ NUMBER = 0
                                           CHAN NUMBER = 0
                                           TYPE = BLOC HELLO

                                           000325AD 33

```

Here is an example of how SIP events are displayed with the VC command:

```

BOSTON>VC
VIEW CAPTURE
Include Slot 2 Channel 201 (NO/YES,def:YES) ?
Decode control field (NO/YES,def:YES) ?
Include Unrequested Blocks? (NO/YES,def:YES) ?
Decode With Starting Block Number (1-740,def:1) ?
Wait for <ENTER> after each screen (NO/YES,def:YES) ? NO

NetPerformer EG SDM-9380 vX.X.X Memotec Inc. (c) 2002
Code base vX.X.X Memotec Inc. (c) 2002
Signaling Engine X.X.X
SE interface hardware info (Slot 3):
Type: ISDN BRI
Board ID: 2
FPGA software version: 5
DSP Operational Code, (G.711, G.729/A) Ver. 2.0.71.2
Portable SIP Stack 1.0.10
DBG v2.3.0 (R8) Memotec Inc. (c) 2001
BOOT v1.1.0 Memotec Inc. (c) 2001
Hardware Info> Main Board Id: 5
Hardware Info> Slave Board Id: 4
Hardware Info> Slave Board FPGA Id: 10
Hardware Info> Slave Board MACH Id: 0
Released Version.

Capture started> THU 2002/05/02 16:31:41
Capture ended> THU 2002/05/02 16:32:00

TIME(SEC)DIR INDEX TYPE LNG DATA
0.000 RX SEAPI 201 CMD 24 BLOCK = 1
COMMAND: SETUP
REFERENCE: 201
SEAPI CHANNEL: 0

0.000 RX SEAPI 201 IE 108 BLOCK = 2
CC MESSAGE HEADER
LENGTH: 5
MSG LENGTH: 108
CHANNEL: 0
CRV: 00000002
PORT: 1
TIME SLOT: 0
CHANNEL IE: 0
CRV IE: 00000002
SIGNALING IE:
LENGTH: 2
00000003 00000000
BEARER CAPS IE:
LENGTH: 7
00000000 00000001 00000000
00000000

00000000 00000000 00000000

0.000 SEV->CCIP 201 SIP REQ/IND 36 BLOCK = 3
REQ: SEV_IE_IND

00006E23 000000C9 0000006C 0062942C
00000001 001938C4 0062942C 00000000
00000000

0.000 SEV->CCIP 201 SIP REQ/IND 36 BLOCK = 4

```

```
REQ: SEV_OFF_HOOK_IND
```

```
00006E14 000000C9 00000020 00000000
00000001 00000001 00771AA8 00000000
00771AC0
```

```
...
...
...
```

### 3.6.4 End Capture (EC)

The End Capture (**EC**) command terminates a capture that is executing in **BACKGROUND** mode before the capture buffer is full. The command indicates the following statistics about the capture:

- Amount of time the capture was allowed to run, in seconds
- Capture size, in Kb
- Percentage of the capture buffer used.

To execute this command:

- Enter **EC**.

```
HA-9220>EC
END CAPTURE
Baseboard:      36,      4 Kb ( 3 %)
The capture is terminated
```

### 3.6.5 SAVE Command

The **SAVE** command copies the latest traffic capture as a file named **CAPTURE.DAT**, which is kept in the NetPerformer file system for later retrieval and analysis. **Subsequent captures will write over the capture buffer contents, so this is a way to ensure that important capture information is not lost.**

To execute this command:

- Enter **SAVE** at the console command prompt.

The **CAPTURE.DAT** file can be retrieved from the NetPerformer unit using FTP or Zmodem, and sent to NetPerformer Technical Support for analysis.

Here is an example where the **SC** command (see [“Setup Capture \(SC\)” on page 3-41](#)) is followed by the **SAVE** command. The **DIR** command (see [“Display File List \(DIR\)” on page 2-16](#)) is then executed to view the **CAPTURE.DAT** file in the system file listing.

```
HA-9220>SC
SETUP CAPTURE
Capture ITEM (DSP/PORT/PU/PVC/SE/SLOT/SVC,def:PVC) ? PORT
Capture port (ETH1/ETH2/CSL/1,def:ETH1) ?
Capture another item, please confirm (NO/YES,def:NO) ?
Capture direction (def:BOTH) ?
Capture mode (def:CONTINUE) ?
```

```
Capture ending (def:MANUAL) ?
Capture activation (def:BACKGROUND) ?
Start Capture (def:YES) ?
The capture is activated in Foreground, use BACKSPACE to continue
in Background
  Baseboard:      65,      6 Kb ( 5 %) <Esc>
The capture is terminated
```

```
HA-9220>SAVE
SAVE CAPTURE
CAPTURE SAVED
```

```
HA-9220>DIR
DISPLAY FILE LIST
```

JOURNAL.TXT	29961 BYTES	2006/06/27	14:13:09
QB121R09.BIZ	550054 BYTES	2006/09/01	11:48:26
HA1023R09.BIN	3019776 BYTES	2006/09/27	14:27:17
CURRENT.ALR	288 BYTES	2006/09/27	14:32:10
IFV109R1.DRV	100816 BYTES	2006/06/27	12:44:14
HAV153R2.DRV	442891 BYTES	2006/06/27	12:44:03
CFG_BKP.TXT	2305 BYTES	2006/09/27	17:49:06
CFG.TXT	2305 BYTES	2006/09/27	17:49:13
QC121R09.BIZ	547704 BYTES	2006/09/27	14:26:55
CAPTURE.TXT	1110 BYTES	2006/09/28	10:43:00
MAP.TXT	1306 BYTES	2006/09/27	17:49:17
INFO.HID	1148 BYTES	2006/09/27	17:49:15
MAP_BKP.TXT	1306 BYTES	2006/09/26	10:30:16
<b>CAPTURE.DAT</b>	<b>1872 BYTES</b>	<b>2006/09/28</b>	<b>10:43:07</b>

```
Used space = 4702842 bytes
Free space = 2965504 bytes
```

### 3.6.6 LOAD Command

The **LOAD** command restores an old capture file (**CAPTURE.DAT**) to the capture buffer for viewing at the NetPerformer console. This is useful if you want to analyze a capture that was saved before the capture buffer was loaded with a newer traffic capture, or after a unit restart, when the capture buffer is empty.

To execute this command:

- Enter **LOAD** at the console command prompt.

The filename does not need to be specified, but can be added if you prefer; enter **LOAD CAPTURE.DAT**.

```
HA-9220>LOAD
LOAD CAPTURE
CAPTURE LOADED
```



### 3.6.7 Capture Frame Length (CL)

The Capture Frame Length (**CL**) command analyzes and displays frame length statistics for traffic sent from a Frame Relay port or PVC. These statistics can be helpful for troubleshooting transmission problems on some public Frame Relay networks.

To execute this command:

1. Enter **CL** at the console command prompt.
2. Select one of the **CL** command options:
  - **START**: Set the *Number of frames* you want analyzed, set the *Type* to **PORT** or **PVC**, and enter the port or PVC number.

The **CL** command operates in background mode. Let it run for a sufficient amount of time before viewing the frame length analysis.

- **STOP**: To stop the capture before the entire frame sample has been collected.
- **DISPLAY**: To view the frame length analysis.
- **DELETE**: To delete the contents of the capture buffer.

---

**NOTE:** Since each capture overwrites the buffer contents, you do not need to clear the buffer before executing another capture.

---

Here is an example showing all of the **CL** command options:

```
HA-9220>CL
CAPTURE FRAME LENGTH
Operation (START/STOP/DELETE/DISPLAY,def:START) ?
Number of frames (0-10000,def:1000) ?
Type (PORT/PVC,def:PORT) ? PVC
Capture PVC (1-300,def:1) ?
Capture of frame length is running !
```

```
HA-9220>CL
CAPTURE FRAME LENGTH
Operation (START/STOP/DELETE/DISPLAY,def:START) ? STOP
```

```
HA-9220>CL
CAPTURE FRAME LENGTH
Operation (START/STOP/DELETE/DISPLAY,def:STOP) ? DISPLAY
Number of frames ..... 1
Smallest frame ..... 6
Largest frame ..... 6
Mean length ..... 6
Distribution: less than 10 bytes ..... 1
              10 to 19 bytes ..... 0
              20 to 29 bytes ..... 0
              30 to 49 bytes ..... 0
              50 to 74 bytes ..... 0
              75 to 99 bytes ..... 0
              100 to 249 bytes ..... 0
              250 to 499 bytes ..... 0
              500 to 749 bytes ..... 0
              750 to 999 bytes ..... 0
              1000 to 1499 bytes ..... 0
              1500 to 1999 bytes ..... 0
              2000 to 3999 bytes ..... 0
              more than 4000 bytes ..... 0
```

```
HA-9220>CL
CAPTURE FRAME LENGTH
Operation (START/STOP/DELETE/DISPLAY,def:DISPLAY) ? DELETE
```



# System Alarms

---

## 4.1 About System Alarms

The following is a list of alarms that may appear at the NetPerformer console with the Display Alarms (**DA**) command (refer to [“Display Alarms \(DA\)” on page 3-10](#)). **They are presented here in alphabetical order, with a brief interpretation of each.**

Variables are indicated by a single percentage sign followed by a letter, e.g. **%s**, **%d**, **%x**. In the alarm displayed at the NetPerformer console, each variable is replaced by a value, e.g. a specific port, PVC, remote unit, etc.

---

**NOTE:** If you encounter an alarm that does not appear in this list, contact NetPerformer Technical Support for further assistance.

---

## 4.2 Variables

4.2.1 %s (0x%08X)

4.2.2 %s (0x%08X)

4.2.3 %s CONFIG CONFLICT (%d)

4.2.4 %s HIGH PRIORITY PORT %d

4.2.5 %s invalid in global

See [%s invalid on %s](#).

4.2.6 %s invalid on %s

4.2.7 %s's S/W Uncompatible. two same nodes run

## **4.3 Numerics**

**4.3.1 48 volts power supply down**

**4.3.2 48 volts power supply up**

**4.3.3 860 FILE NOT FOUND**

## 4.4 A

### 4.4.1 ALARMS CLEARED

Indicates that all previously logged alarms have been erased with the Clear Alarms (**CA**) command. The **ALARM CLEARED** alarm provides the date and time that the **CA** command was executed.

```
UNIT>DA
DISPLAY ALARMS
SDM-9380 vX.X.X Memotec Inc. (c) 2003
Signaling Engine X.X.X
DSP Operational Code, (G.711, ACELP) Ver. X.X.X.X
Console connected on port CSL
Time> WED 2006/09/29 11:13:42
Alarm> ALARMS CLEARED WED 2006/09/20
11:13:41
```

### 4.4.2 All fans are working properly

### 4.4.3 ALL REDUN PVCR PVC DOWN

In a redundant system, all redundant PVCR PVC links on the local unit have lost communication with the destination unit for a period of time exceeding the value of the *Delay before declaring PVCR PVC link down (sec)* parameter in the **SETUP/REDUN/CRITERIA** menu.

### 4.4.4 ALL REDUN PVCR PVC DOWN (remote\_unit\_name)

In a redundant system, all redundant PVCR PVC links on the specified remote unit have lost communication with the destination unit for a period of time exceeding the value of the *Delay before declaring PVCR PVC link down (sec)* parameter in the **SETUP/REDUN/CRITERIA** menu.

### 4.4.5 ALL REDUN PVCR PVC UP

In a redundant system, all redundant PVCR PVC links on the local unit have established communication with the destination unit.

### 4.4.6 ALL REDUN PVCR PVC UP (remote\_unit\_name)

In a redundant system, all redundant PVCR PVC links on the specified remote unit have established communication with the destination unit.

**4.4.7 Assert: File %s, Line %d**

**4.4.8 ATTEMPT %d TO LOAD DSP %d**

**4.4.9 AVAILABLE SPEED = %d [kbps]**



## 4.5 B

### 4.5.1 BACKUP CALL

A WAN link has failed, and the NetPerformer has activated a BACKUP-CALL link. This alarm is generated only if there is a valid phone profile configured for the backup port, if that port is configured with the Dialer parameter set to **AT-9600**, **AT-19200**, **V25-B** or **V25-H**.

### 4.5.2 BACKUP HANG

A WAN link has been restored, and the NetPerformer has deactivated a BACKUP-CALL link.

### 4.5.3 BACKUP MODE STARTED

In a redundant system, the local unit has completed a switch to **BACKUP** mode, and is currently operating in **BACKUP** mode.

### 4.5.4 BAD DEST %s

See [“BAD DEST PVC %D” on page 4-7](#).

### 4.5.5 BAD DEST PORT %D

The specified WAN port (PVCR protocol) has been configured with an incorrect remote unit name. This alarm does not affect operation, as the link connection can usually be made without the remote unit name. When the link goes up, the correct remote unit name will appear in the accompanying alarm.

### 4.5.6 BAD DEST PVC %D

The specified PVC link (PVCR mode) has been configured with an incorrect remote unit name. This alarm does not affect operation, as the link connection can usually be made without the remote unit name. When the link goes up, the correct remote unit name will appear in the accompanying alarm.

### 4.5.7 BAD DEST SVC %D

### 4.5.8 BAD FILTER (%d)

### 4.5.9 BAD IN PASSWORD, PPP %s

See [“BAD IN PASSWORD, PPP LINK %d” on page 4-8](#).

**4.5.10 BAD IN PASSWORD, PPP LINK %d**

An invalid incoming password was supplied for the specified PPP link.

**4.5.11 Bad mode (send\_rx\_frame)**

**4.5.12 Bad MSG (check\_frame\_rxbd)**

**4.5.13 Bad MSG (check\_rawcell\_rxbd)**

**4.5.14 BAD OUT PASSWORD, PPP %s**

See [“BAD OUT PASSWORD, PPP LINK %d” on page 4-8.](#)

**4.5.15 BAD OUT PASSWORD, PPP LINK %d**

An invalid outgoing password was supplied for the specified PPP link.

**4.5.16 BEGINNING SWITCH TO BACKUP MODE**

In a redundant system, the local unit has initiated a switch to **BACKUP** mode, which should take 10 seconds to complete.

**4.5.17 BEGINNING SWITCH TO NORMAL MODE**

In a redundant system, the local unit has initiated a switch to **NORMAL** mode, which should take 10 seconds to complete.

**4.5.18 BOND DE-TRIG %D%%**

The NetPerformer has determined that link utilization has fallen below the de-trig level for a period of time exceeding the value of the BOD Hang parameter, and has deactivated a CALL-BOD link. The NetPerformer computes the de-trig level from the BOD Level and the number of links currently up and running.

**4.5.19 BOND TRIG %D%%**

The NetPerformer has determined that link utilization has risen above the value of the BOD Level parameter, and has activated a CALL-BOD link.

**4.5.20 Boot error (0x%04x) DSP %d**

**4.5.21 BOOT SECTOR STORED**

## 4.6 C

### 4.6.1 CAN'T UPGRADE TO %s

### 4.6.2 Can't write into DSP %d

### 4.6.3 Capture stopped by %s

### 4.6.4 CARD %D DOWN

See “[CARD %d DOWN \(%s\)](#)” on page 4-9.

### 4.6.5 CARD %d DOWN (%s)

The specified card has lost communication with the main board of the NetPerformer. If this has occurred on a remote unit, the remote *Unit name* is provided. This message is issued when a card is removed from the chassis.

### 4.6.6 CARD %d LNKCTL DOWN (%d)

See “[PVC %d LNKCTL DOWN \(%d\)](#)” on page 4-27.

### 4.6.7 CARD %d LNKCTL HANG (%d)

See “[PVC %d LNKCTL HANG \(%d\)](#)” on page 4-27.

### 4.6.8 CARD %d PVCR DOWN (%x)

See “[PVC %d PVCR DOWN \(%x\)](#)” on page 4-27.

### 4.6.9 CARD %D UP

See “[CARD %d UP \(%s\)](#)” on page 4-9.

### 4.6.10 CARD %d UP (%s)

The specified card has established communication with the main board of the NetPerformer. If this has occurred on a remote unit, the remote *Unit name* is provided. This message is issued when a card is inserted into the chassis.

**4.6.11 CCIPPORT %4d, EVENT %2d, STATE %d**

**4.6.12 CFG Header(s) skipped=%d**

**4.6.13 CFG Parameter(s) skipped=%d**

**4.6.14 CONFIGURATION STORED**

The upload of a new configuration, through FTP or Zmodem, has been successful.

**4.6.15 CONNECTED VIA FTP. IP ADDRESS %s**

**4.6.16 CONNECTED VIA TELNET. IP ADDRESS %s**

**4.6.17 CONNECT IND IN LDB (%d)**

**4.6.18 COULD NOT LOAD %s (%d)**

**4.6.19 COULDN'T START RSP ON WAN (port\_number)**

This alarm can occur in a redundant system when the user tries to configure more than one serial port with the **RSP** protocol. Each NetPerformer unit supports a maximum of one port configured with this protocol.

## 4.7 D

### 4.7.1 DETECTED SPEED = %d [kbps]

### 4.7.2 DISC RECEIVED

The host or front-end processor has forced the PU to disconnect.

### 4.7.3 DLCI CONFLICT, %s %d AND %s %d

There is a conflict between the DLCI numbers of the two specified PVCs.

### 4.7.4 DM RECEIVED

The controller has forced the PU to disconnect.

### 4.7.5 DNS failed for primary SIP proxy

### 4.7.6 DNS failed for secondary SIP proxy

### 4.7.7 DSP %d crashed, rebooting

### 4.7.8 DSP %d no voice

### 4.7.9 DSP %d no voice, rebooting

### 4.7.10 DSP binary not found

## **4.8 E**

**4.8.1 E\_CS\_TIMEOUT**

**4.8.2 ERROR DELETING OLD TRAFFIC**

**4.8.3 ERROR DELETING OLD VOICE TRAFFIC**

**4.8.4 EXCEEDS CHANNEL SPEED LIMIT ON CHANNEL %d**

## 4.9 F

### 4.9.1 FAN DOWN

In a redundant system, a fan is inoperative on the local unit. This alarm is logged only if the unit has been configured to monitor the status of the fans with the *Watch power supplies and fans* global parameter.

### 4.9.2 FAN DOWN (remote\_unit\_name)

In a redundant system, a fan is inoperative on the specified remote unit. This alarm is logged only if the remote unit has been configured to monitor the status of the fans with the *Watch power supplies and fans* global parameter.

### 4.9.3 FANS FAULT

One or both fans are inoperative. This alarm can be logged only if the unit has been configured to monitor the status of the fans.

### 4.9.4 FAN UP

In a redundant system, a fan has resumed normal operation on the local unit.

### 4.9.5 FAN UP (remote\_unit\_name)

In a redundant system, a fan has resumed normal operation on the specified remote unit.

### 4.9.6 FILE %s IS INCOMPATIBLE

### 4.9.7 FILE %s STORED

The specified file has been successfully uploaded to the unit. Execute the Reset Unit (**RU**) command to begin using the new file.

### 4.9.8 FILE CFG.TXT NOT FOUND

### 4.9.9 FILE SYSTEM FULL

### 4.9.10 FIRMWARE STORED

The upload of a new NetPerformer firmware version, through the console or FTP, has been successful.

#### 4.9.11 FORCED BACKUP MODE

In a redundant system, the unit has been forced to restart in **BACKUP** mode. It occurs on a Primary Master or Primary Slave when the *Force unit to restart in backup mode* parameter has been set to **YES**.

#### 4.9.12 FRAME RELAY LINK (%d) DOWN

The specified Frame Relay link (port in FR-USER protocol) has lost communication with the Frame Relay network for a period of time exceeding the value of the *Link timeout* parameter of the **SETUP/GLOBAL** menu.

#### 4.9.13 FRAME RELAY LINK (%d) UP

The specified Frame Relay link (port in FR-USER protocol) has established communication with the Frame Relay network.

#### 4.9.14 FRF.8 %s DOWN

See [“PVC %d DOWN \(%s\)” on page 4-26](#).

#### 4.9.15 FRF.8 %s UP

See [“PVC %d UP \(%s\)” on page 4-27](#).

#### 4.9.16 FRM TOO LONG #%D

The NetPerformer has received a frame longer than the maximum frame size configured for this PU.

#### 4.9.17 FTP CTRL TIMEOUT (%S)

The FTP control connection inactivity timer (30 minutes) has timed out on the specified client.

#### 4.9.18 FTP DATA TIMEOUT (%S)

The FTP data connection inactivity timer (2 minutes) has timed out on the specified client.



## 4.10 G

### 4.10.1 GLOBAL VOICE CALL CLEAR

The **MODEMCALLCLEAR** extended parameter cleared all voice calls when modem signals DSR, DCD, DTR and RTS (RI and RL in X.21) came up on a transparent data port.

---

**NOTE:** If a capture using the Start Capture (**SC**) command is currently active on a voice channel that is cleared, the **GLOBAL VOICE CALL CLEAR** event will be recorded.

---

## **4.11 I**

### **4.11.1 Invalid length packet received on DSP %d**

### **4.11.2 IP BACKUP CALL, PORT %d**

An IP-triggered link backup call has occurred on the specified PPP port.

### **4.11.3 IP BACKUP HANG, PORT %d**

An IP-triggered link backup call has ended on the specified PPP port.

## 4.12 L

### 4.12.1 LAN %D LINK DOWN

### 4.12.2 LAN %D LINK UP

### 4.12.3 LAN PHYSICAL DOWN

### 4.12.4 LAN PHYSICAL UP

### 4.12.5 LICENSES RESET

All installed licensed software options have been removed due to execution of the Factory Setup (**FS**) command or the installation of a new version of the NetPerformer software.

### 4.12.6 LINK %D DOWN

See [“LINK %s DOWN \(%s\)”](#) on page 4-17.

### 4.12.7 LINK %s DOWN (%s)

The specified WAN link (port in PVCr protocol) has lost communication with the remote NetPerformer for a period of time exceeding the value of the *Link timeout* parameter of the **SETUP/GLOBAL** menu. If the problem occurred on a remote unit, the remote *Unit name* is provided.

### 4.12.8 LINK %d LNKCTL DOWN (%d)

See [“PVC %d LNKCTL DOWN \(%d\)”](#) on page 4-27.

### 4.12.9 LINK %d LNKCTL HANG (%d)

See [“PVC %d LNKCTL HANG \(%d\)”](#) on page 4-27.

### 4.12.10 LINK %d PVCr DOWN (%x)

See [“PVC %d PVCr DOWN \(%x\)”](#) on page 4-27.

### 4.12.11 LINK %D UP

See [“LINK %s UP \(%s\)”](#) on page 4-18.

#### 4.12.12 LINK %s UP (%s)

The specified WAN link (port in PVC protocol) has established communication with the remote NetPerformer. If the remote WAN link came back up, the remote *Unit name* is provided.

#### 4.12.13 LINK PVC %D DOWN

See “PVC %d DOWN (%s)” on page 4-26.

#### 4.12.14 LINK PVC %D UP

See “PVC %d UP (%s)” on page 4-27.

#### 4.12.15 LLC FRMR RCVD

A PU with an LLC connection has received a rejected frame via the LAN.

#### 4.12.16 LLC RECALLED %D

#### 4.12.17 LOG ALMOST FULL (90%%)

On system startup the NetPerformer logs an alarm if the log file for PowerCell voice/fax calls is nearly or completely full. **LOG ALMOST FULL** indicates that the log file has exceeded 90% capacity (more than 1800 calls have been logged). To avoid a **LOG FULL** condition, execute the Erase Log (**EL**) command at the console command line.

#### 4.12.18 LOG CLEARED

The file containing a log of voice/fax calls has been cleared with the Erase Log (**EL**) command.

#### 4.12.19 LOGGED IN VIA CONSOLE. USER %s

#### 4.12.20 LOGGED IN VIA FTP. USER %s

#### 4.12.21 LOGGED IN VIA TELNET. USER %s

#### 4.12.22 LOG IS FULL

On system startup the NetPerformer logs an alarm if the log file for PowerCell voice/fax calls is nearly or completely full. **LOG FULL** indicates that the log file has reached 100% capacity (2000 calls). The next call will not be logged.

- Once the log file is full, no further calls can be logged. When you execute the Display Log (**DL**) command, a *Lost entries* counter indicates the number of calls that have been excluded from the log file.
- To correct a **LOG FULL** condition, execute the Erase Log (**EL**) command at the console command line. The *Lost entries* counter is reset to zero, and is no longer displayed with the **DL** command.

#### 4.12.23 Lynx Rev ID incompatible

## 4.13 M

### 4.13.1 M=xxx A=yyy D=zzzzz

A module of the NetPerformer software has failed to execute. **M=** indicates the module number, **A=** indicates the alarm number and **D=** indicates the log entry. If you would like further information on the nature of one of these alarms, contact NetPerformer Technical Support for assistance.

### 4.13.2 MANUAL CALL

A WAN link has been manually activated using the CALL command from the NetPerformer console.

### 4.13.3 MANUAL HANG

A WAN link has been manually deactivated using the HANG command from the NetPerformer console.

### 4.13.4 MAP FILE STORAGE FAILED

### 4.13.5 MAP FILE STORED

A new MAP file has been successfully downloaded via FTP.

### 4.13.6 MAP Header(s) skipped=%d

### 4.13.7 MAP Parameter(s) skipped=%d

### 4.13.8 MAP TEXT FILE STORED

### 4.13.9 MAXIMUM RETRY

The NetPerformer has not received a response to polls for the last number of retries set for the PU (Primary SDLC device only).

## 4.14 N

### 4.14.1 NAME CONFLICT/GO TO BACKUP MODE

In a redundant system, the primary unit has discovered that the same *Unit name* is currently employed on more than one unit under its control. To avoid a name conflict, it has started a switch to **BACKUP** mode and will change its own name to its *Backup name*.

### 4.14.2 NAME SIMULATOR IS NOT ALLOWED

### 4.14.3 NO C\_CONF (%d)(%s)

### 4.14.4 No first bit (check\_frame\_rxbd)

### 4.14.5 No MSG (check\_frame\_rxbd)

### 4.14.6 No MSG (check\_rawcell\_rxbd)

### 4.14.7 NO PRIMARY ONLINE CONFIRMATION

In a redundant system using a Redundancy Controller, the operator did not execute the intervention required to switch the system to **NORMAL** mode within the permitted 60-second delay.

### 4.14.8 NORMAL MODE STARTED

In a redundant system, the local unit has completed a switch to **NORMAL** mode, and is currently operating in **NORMAL** mode.

### 4.14.9 NORMAL NAME (%D)

In a redundant system, modem signals have started up again on the specified port, and the unit has returned from **STANDBY** mode to **NORMAL** mode. This alarm will be logged only if the extended parameter **STANDBYMODE** has been enabled.

### 4.14.10 NO SVC SUPPORT AVAILABLE

The NetPerformer has tried to set up an SVC, and no SVC support is available.

### 4.14.11 NOT ENOUGH MEM

See “[NOT ENOUGH MEM \(%08X %08X\)](#)” on page 4-22.

#### **4.14.12 NOT ENOUGH MEM (%08X %08X)**

The NetPerformer has insufficient resources required for processing. If this alarm has been logged, contact NetPerformer Technical Support for assistance.

#### **4.14.13 NOT ENOUGH MEM SIP (%08X %08X)**

See [“NOT ENOUGH MEM \(%08X %08X\)”](#) on page 4-22.

#### **4.14.14 NOT ENOUGH MEM SLAVE (%08X %08X)**

See [“NOT ENOUGH MEM \(%08X %08X\)”](#) on page 4-22.

#### **4.14.15 NO XID TO REPLY**

A PU in SDLC Secondary mode has received an XID and has no XID to reply, forcing the PU to disconnect.



## 4.15 O

### 4.15.1 OPERATOR REQUEST

The operator has deactivated a PU by changing the value of the *Controller active* parameter to **NO** or by setting the PU mode to **OFF**. This alarm is normally followed by a **PU DOWN** indication.

## 4.16 P

### 4.16.1 PERIOD %D ENDED

The specified Schedule period has been deactivated.

### 4.16.2 PERIOD %D STARTED

The specified Schedule period has been activated.

### 4.16.3 PHONE:%d - MAX NB OF LINKS:%d

### 4.16.4 POOL EMPTY (CELL)

### 4.16.5 POOL EMPTY (MSG)

The message receiving queue of the NetPerformer is empty. If this alarm should occur, contact NetPerformer Technical Support for assistance.

### 4.16.6 PORT %4d, EVENT %2d, STATE %d

### 4.16.7 PORT %d SDLC DOWN

### 4.16.8 PORT %d SDLC UP

### 4.16.9 Power supply down

In a redundant system, a power supply is inoperative on the local unit. This alarm is logged only if the unit has been configured to monitor the status of the power supplies with the *Watch power supplies and fans* global parameter.

### 4.16.10 Power supply down (remote\_unit\_name)

In a redundant system, a power supply is inoperative on the specified remote unit. This alarm is logged only if the remote unit has been configured to monitor the status of the power supplies with the *Watch power supplies and fans* global parameter.

### 4.16.11 Power supply up

In a redundant system, a power supply has resumed normal operation on the local unit.

### 4.16.12 Power supply up (remote\_unit\_name)

In a redundant system, a power supply has resumed normal operation on the specified

remote unit.

#### **4.16.13 PRIMARY ONLINE CONFIRMATION**

In a redundant system using a Redundancy Controller, the operator has successfully executed the intervention required on the Redundancy Controller to switch the system to **NORMAL** mode.

#### **4.16.14 PROBLEM WITH PRIMARY SET**

In a redundant system, the Secondary Master has detected a fault on one of the units in the primary set. For details, examine the *Reason for the last fault* statistic (using the **DS/REDUNDANCY** command), the other alarms that occurred at the same time, or turn to the alarm log on the Primary Master.

#### **4.16.15 PROBLEM WITH SECONDARY SET**

In a redundant system, the Primary Master has detected a fault on one of the units in the secondary set. For details, examine the *Reason for the last fault* statistic (using the **DS/REDUNDANCY** command), the other alarms that occurred at the same time, or turn to the alarm log on the Secondary Master.

#### **4.16.16 PROBLEM WITH SECONDARY SET FIXED**

In a redundant system, the Primary Master has detected that the problem previously found in the secondary set has now been fixed.

#### **4.16.17 PRIORITY 1-%d DISCONNECTED BY %d**

See [“PRIORITY 2-%d DISCONNECTED BY %d” on page 4-25.](#)

#### **4.16.18 PRIORITY 2-%d DISCONNECTED BY %d**

#### **4.16.19 PU #%D DOWN**

The specified PU has failed to respond to polling from the NetPerformer.

#### **4.16.20 PU #%D UP**

The specified PU has started responding to polling from the NetPerformer.

#### **4.16.21 PVC %D ACTIVE LOST**

The DLCI of the specified PVC was not included in the status response from the remote side.

#### 4.16.22 PVC %d, CROSS-LINKED ON PORT %d

The specified PVC has been linked with two or more ports. The NetPerformer selects the lowest numbered port to carry traffic from this PVC. This alarm is logged for the other port(s), which remain inactive.

#### 4.16.23 PVC %d DOWN (%s)

This alarm occurs when the NetPerformer determines that the specified PVC is inactive. This can occur in two circumstances:

- The specified PVC has lost communication with the specified remote unit for a period of time exceeding the value of the *Link timeout* parameter of the **SETUP/ GLOBAL** menu.
- The *Active* bit is not set in a status response for this PVC.

In alternate versions of this alarm the PVC mode is indicated first, and the remote unit name is last, for example:

```
Alarm>      ATMPPP PVC 1 DOWN (BOSTON)          MON    2006/09/18
18:59:13
Alarm>      RFC1483 PVC 2 DOWN (RIO)           MON    2006/09/18
18:59:11
```

#### 4.16.24 PVC %d DOWN (FP:%s)

See [“PVC %d DOWN \(%s\)” on page 4-26](#).

#### 4.16.25 PVC %d DOWN (RFC1490)

See [“PVC %d DOWN \(%s\)” on page 4-26](#).

#### 4.16.26 PVC %d, INVALID TYPE FOR PORT %d

The specified PVC is the wrong type of PVC to be linked with the specified port. For example, only Multiplex and Transparent PVCs can be linked with an X25 port.

**4.16.27 PVC %d LNKCTL DOWN (%d)****4.16.28 PVC %d LNKCTL HANG (%d)****4.16.29 PVC %d PVCR DOWN (%x)****4.16.30 (pvc\_mode) PVC xx UP (remote\_unit\_name)****4.16.31 PVC %d UP (%s)**

The specified PVC has established communication with the specified remote unit and is fully active in both directions. In alternate versions of this alarm the PVC mode is indicated first, and the remote unit name is last, for example:

```
Alarm>      ATMPVCR PVC 3 UP (9380)           MON   2006/09/18
19:03:29
Alarm>      RFC1483 PVC 2 UP (RIO)           MON   2006/09/18
19:02:31
```

**4.16.32 PVC %d UP (FP:%s)**

See [“PVC %d UP \(%s\)” on page 4-27](#).

**4.16.33 PVC %d UP (RFC1490)**

See [“PVC %d UP \(%s\)” on page 4-27](#).

## 4.17 Q

### 4.17.1 Q922 LINK (%d) DOWN

The specified Q.922 link went down. This will occur if too many errors have occurred on the Q.922 link or if the Frame Relay port (FR-USER protocol) is down.

---

**NOTE:** Although the Q.922 link relies on the Frame Relay port to send and receive messages, its status (**UP** or **DOWN**) is independent of port status. For example, the Q.922 link will often be up before the Frame Relay port reaches the **DATA** state. Also, the Q.922 link may be down while the Frame Relay port remains functional. Separate alarms are issued for the Frame Relay port (see [“FRAME RELAY LINK \(%d\) UP”](#) on page 4-14 and [“FRAME RELAY LINK \(%d\) DOWN”](#) on page 4-14).

---

### 4.17.2 Q922 LINK (%d) UP

The specified Q.922 link is up. The local unit can now use SVCs because it has established a Q.922 link with the Frame Relay switch.

## 4.18 R

### 4.18.1 RCVD INV PDLC CMD %D

An invalid PDLC command has been received, and the voice connection cannot be completed. This alarm is logged when an unknown block type is received from the remote side. The error code indicates the command that caused the problem. Contact NetPerformer Technical Support for further assistance.

### 4.18.2 RD RECEIVED

The PU has received a Request Disconnect frame.

### 4.18.3 REDUN PVCR PVC DOWN

In a redundant system, a redundant PVCR PVC link on the local unit has lost communication with the destination unit for a period of time exceeding the value of the *Delay before declaring PVCR PVC link down (sec)* parameter in the **SETUP/REDUN** menu.

### 4.18.4 REDUN PVCR PVC DOWN (remote\_unit\_name)

In a redundant system, a redundant PVCR PVC link on the specified remote unit has lost communication with the destination unit for a period of time exceeding the value of the *Delay before declaring PVCR PVC link down (sec)* parameter in the **SETUP/REDUN** menu.

### 4.18.5 REDUN PVCR PVC UP

In a redundant system, a redundant PVCR PVC on the local unit has established communication with the destination unit.

### 4.18.6 REDUN PVCR PVC UP (remote\_unit\_name)

In a redundant system, a redundant PVCR PVC on the specified remote unit has established communication with the destination unit.

### 4.18.7 RESET BY USER

The operator has restarted the NetPerformer using the Reset Unit (**RU**) command from the console.

### 4.18.8 RESET REDUNDANCY MODE

In a redundant system, the Reset Redundancy Mode (**RRM**) command has been executed from the local unit console.

#### 4.18.9 RFC1483 %s DOWN (%s)

See “PVC %d DOWN (%s)” on page 4-26.

#### 4.18.10 RFC1483 %s UP (%s)

See “PVC %d UP (%s)” on page 4-27.

#### 4.18.11 RIP RTE GONE (%S)

An entry in the IP RIP routing table has disappeared, indicating that the route was lost. This alarm is logged only if the extended parameter **LOSTRROUTEALARM** has been enabled.

#### 4.18.12 RIP RTE TIMEOUT (%S)

An entry in the IP RIP routing table has become invalid, indicating that the route was lost. This alarm is logged only if the extended parameter **LOSTRROUTEALARM** has been enabled.

#### 4.18.13 ROUTER DISABLED, BOOTP NOT ACTIVATED

The BOOTP protocol has been enabled, but the BOOTP relay agent cannot be activated because the router is disabled. To correct this problem, activate the router or disable BOOTP.

#### 4.18.14 RSP STARTED ON WAN (port\_number)

In a redundant system, more than one serial port was configured with the **RSP** protocol, and the user has changed the value of the *Protocol* parameter on one of them to resolve the conflict. The alarm indicates which serial port the NetPerformer is now using as the RSP link (*port\_number*).

#### 4.18.15 RTCP Socket in wrong state to open\n

#### 4.18.16 RTCP unable to allocate buffer\n



## 4.19 S

### 4.19.1 SDLC FRMR RECEIVED

A PU with an SDLC connection has received a rejected frame.

### 4.19.2 SDLC TIME-OUT

A PU with an SDLC connection has timed out. This means that the NetPerformer has not received polls for a period of time exceeding the value of the *SDLC retries* parameter times the value of the *SDLC retransmission timeout* parameter for this PU.

### 4.19.3 SETUP RESET

The operator has reinitialized the configuration using the Factory Setup (**FS**) command from the console.

### 4.19.4 SEVPORT %4d, EVENT %2d, STATE %d

### 4.19.5 SIGNALING ENGINE STORED

### 4.19.6 SNMP NO SOCKET

SNMP does not have any sockets available for connection to an SNMP manager. This means that more than 30 managers are trying to communicate at the same time. To permit connection, remove some unused managers.

### 4.19.7 SNRM RECEIVED

The host or front-end processor has restarted the PU.

### 4.19.8 SOFT START (PWR)

The NetPerformer has been powered on (cold start).

### 4.19.9 SOFT START (RST)

The NetPerformer has been restarted (warm start).

---

**NOTE:** During a warm start the ERR or DIAG LED on the rear panel of the NetPerformer will turn red. To turn this LED back to green, execute the Clear ERR/DIAG LED (**CE**) command from the console.

---

#### **4.19.10 STANDBY NAME (%D)**

The specified port has stopped receiving modem signals, and the unit has fallen into standby mode. This alarm will be logged only if the extended global parameter **STANDBYMODE** has been enabled.

#### **4.19.11 STK %08X %08X %08X**

#### **4.19.12 STOP CAPTURE**

#### **4.19.13 STOP CAPTURE %d**

#### **4.19.14 Stop Capture - Buffer not admissible**

See [“Stop Capture - DSP Load Request” on page 4-32.](#)

#### **4.19.15 Stop Capture - Call Setup Timeout**

See [“Stop Capture - DSP Load Request” on page 4-32.](#)

#### **4.19.16 Stop Capture - DSP External Memory Problem**

See [“Stop Capture - DSP Load Request” on page 4-32.](#)

#### **4.19.17 Stop Capture - DSP Internal Memory Problem**

See [“Stop Capture - DSP Load Request” on page 4-32.](#)

#### **4.19.18 Stop Capture - DSP Load Request**

#### **4.19.19 Stop Capture - DSP Stack Overflow**

See [“Stop Capture - DSP Load Request” on page 4-32.](#)

#### **4.19.20 Stop Capture - Invalid Type**

See [“Stop Capture - DSP Load Request” on page 4-32.](#)

#### **4.19.21 STP NO MORE INDEX**

No more indexes are available for the Spanning Tree Protocol. This means that more than 255 indexes, or destinations, are being used by the bridge.

#### **4.19.22 STP TIMEOUT PORT %s**

The Spanning Tree Protocol has declared a timeout on the route passing through the

specified port. No Hello frames were received from this route for the duration defined by the *Hello frames maximum age* bridge parameter.

#### **4.19.23 SVC ADDRESS TYPE NOT SUPPORTED**

The NetPerformer has tried to set up an SVC, but the requested SVC addressing is not available.

## 4.20 T

### 4.20.1 TCP TIMEOUT (%4.4X)

### 4.20.2 TCP TIMEOUT (%S)

A TCP connection has timed out. Two indications are provided with this alarm:

- The number of the local port participating in the connection.
- The IP address of the device to which the port was connected.

### 4.20.3 TELNET TIMEOUT (%S)

The inactivity timer (5 minutes) has timed out on port 23 of the TCP connection for the specified client.

### 4.20.4 TEST ALARM #%D

### 4.20.5 Time adjusted (DST).

### 4.20.6 TIME CLIENT FAILED TO SYNC (%D)

Synchronization of the real-time clock using the TIMEP function has failed.

- If the time client is in **UDP** mode, this alarm indicates that the client was not able to get the time after all retransmissions were executed.
- If the time client is in **TCP** mode, this alarm indicates that the time client was unable to establish a connection with the server.

---

**NOTE:** The error code that appears at the end of this alarm is provided for diagnostic purposes, and may vary from **0** to **4**. Report this code to NetPerformer Technical Support.

---

### 4.20.7 TIME INVALID EVENT S:%d E:%d

An invalid event was received during execution of the TIMEP function. The **S:** code indicates the TCP client state number, and **E:** is the TCP client event number.

The invalid event can be interpreted as follows:

No.	State (S:%d)	Event (E:%d)
0	N/A	TIMEP_EVENT_TIMER_EXPIRE
1	TIMEP_CLIENT_STATE_WAIT_ TIME_TO_SEND	TIMEP_EVENT_RECEIVE_A_TCP_ DATA_IND
2	TIMEP_CLIENT_STATE_ CONNECTING	TIMEP_EVENT_RECEIVE_A_TCP_ DISCONNECT_IND
3	TIMEP_CLIENT_STATE_ CONNECTED_AND_WAIT_FO R_REPLY	TIMEP_EVENT_RECEIVE_A_TCP_ CONNECT_IND
4	TIMEP_CLIENT_STATE_WAIT_ FOR_DISCONNECT_CONF	TIMEP_EVENT_RECEIVE_A_TCP_ CONNECT_CONF
5	N/A	TIMEP_EVENT_RECEIVE_A_TCP_ DISCONNECT_CONF

Table 0-1

#### 4.20.8 TOO MANY RESTART

The unit has reset too often, that is, more than 10 times in less than 1 minute. The BIA cannot be read in the EEPROM. Contact NetPerformer Technical Support for further assistance.

#### 4.20.9 TRIED TO CONNECT VIA FTP. IP ADDRESS %s

#### 4.20.10 TRIED TO CONNECT VIA TELNET. IP ADDRESS %s

#### 4.20.11 TRIED TO LOG IN VIA FTP. USER %s

## 4.21 U

### 4.21.1 UNABLE TO ALLOCATE MEM FOR DOWNLOAD

### 4.21.2 Uninitialized RTCP Context buffer\n

### 4.21.3 UNIT DOWN (*remote\_unit\_name*)

In a redundant system, the specified remote unit is down, or has detected that one or more other units are down.

### 4.21.4 UNIT NAME: *local\_unit\_name*

In a redundant system, the local unit has assumed the specified name. This alarm occurs on system startup and every time the operating mode changes, to indicate the name that is currently being used for this unit. In **NORMAL** operating mode this is the *Unit name*. In **BACKUP** mode, it is the *Backup name*.

### 4.21.5 UNIT UP (*remote\_unit\_name*)

In a redundant system, the specified remote unit has established communication with the rest of the redundant system.

### 4.21.6 Unknown boot error (0x%04x) DSP %d

### 4.21.7 UNKNOWN FRAME

The NetPerformer has received an invalid frame, causing a PU to go down.

### 4.21.8 UNRESOLVED FORWARD SVC ADDR TYPE

This alarm is logged in two circumstances:

- SVCs are not active on the local unit (no FR-USER port that supports SVCs). The unit attempts a voice connection, and a NAK\_BUSY or NAK\_DOMAIN is received with an SVC address. The call cannot be placed, because the unit does not support SVCs.
- Two types of SVCs are active on the local unit (a FR-USER port running E.164 and another FR-USER port running X.121). The unit attempts a voice connection, and a NAK\_BUSY or NAK\_DOMAIN is received with an unspecified type of SVC address. The call cannot be placed, because the unit cannot determine which port to send it on.

If this alarm occurs, ensure that the unit is configured to support SVCs (FR-USER port configuration) and that the SVCs are active (MAP entry configuration). In the case of a NAK\_BUSY, the call may go through when you try again. For a NAK\_DOMAIN, the

problem can be resolved only by reconfiguring the unit.

## **4.22 V**

**4.22.1 VOICE IN LDB (%d)(%s)**

**4.22.2 VPI/VCI conflict on PVC %d & %d**

**4.22.3 VPI/VCI out of range on PVC %d**



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