DataDirect Networks

SAN DataDirector directMONITOR Installation Guide

This installation guide provides setup information for the SAN DataDirector (SDD) directMONITOR.

directMONITOR can be used to monitor the activities of the SDD via Ethernet. It logs the serial, SNMP, and syslog outputs from the SDD. directMONITOR offers a notification function which allows remote system administrators to be notified, via email, when there is a status change on the SDD. It can also function as a firewall for the SDD and provides security against unauthorized access.

This manual assumes you have a working knowledge of Linux operating system and its conventions, including network configuration.

1. Hardware Installation

1. Refer to the additional documentation supplied with the directMONITOR for information on how to install the computer in the rack and descriptions of the computer components.

2. Ethernet connections.

Connect network connector #1 (Figure 1) on the directMONITOR to your Ethernet backbone. This is the "eth0" in the directMONITOR software.

Connect network connector #2 to the SDD's Ethernet switch box. This is the "eth1" in the directMONITOR software.

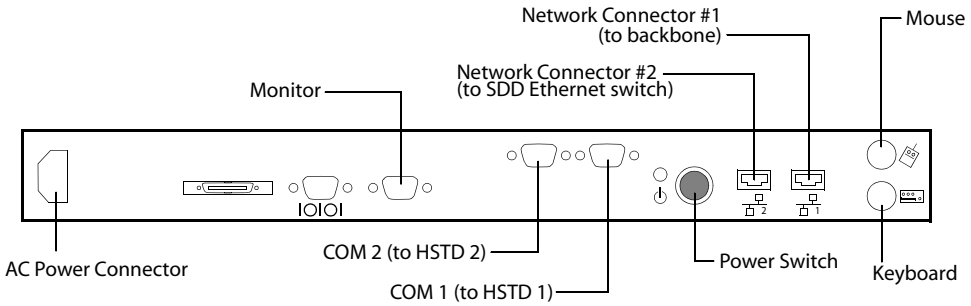


Figure 1. directMONITOR Rear Panel

3. Serial cable connections.

Connect the COM1 port on the directMONITOR to the Maintenance port on the front of HSTD1.

Connect the COM2 port on the directMONITOR to the Maintenance port on the front of HSTD2.

4. Connect your monitor, keyboard, and mouse to the back of the directMONITOR.

5. Using the power cord provided, connect the directMONITOR to the cabinet's power panel.

6. Power on the directMONITOR using the power switch on the rear panel. The Power LED on the front panel should turn green (Figure 2). If not, press the power switch on the front panel. Wait until boot up is complete.

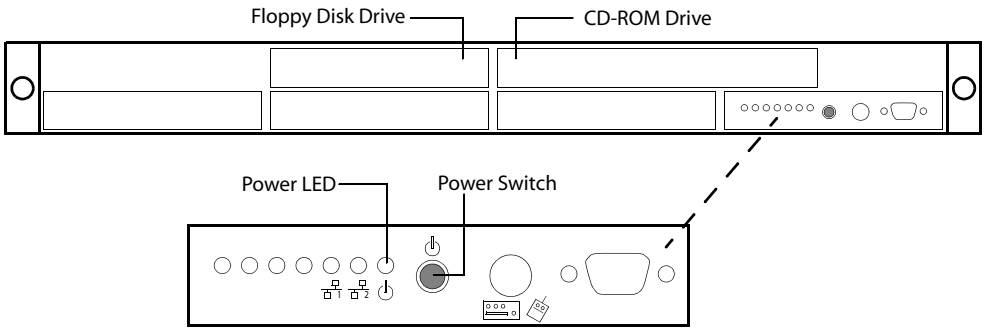


Figure 2. directMONITOR Front Panel

2. Configuration

The DDNMenu is used to configure all major components of the directMONITOR. It is invoked using the "ddnmenu" command. ("ddnmenu" is an alias which can be run by root from anywhere.)

DDNMenu should be run on the directMONITOR console to initially configure the software. This will configure the network interface, hostname, DNS, and email settings.

2.1 Login

Log into the directMONITOR using the account "root" and password "directMONITOR".

Then type "ddnmenu" and press <Enter>. The Main Menu appears (Figure 3). Use the arrow and <Tab> keys to move between fields. Use the spacebar to toggle option on and off. Press <Enter> to select the highlighted option.

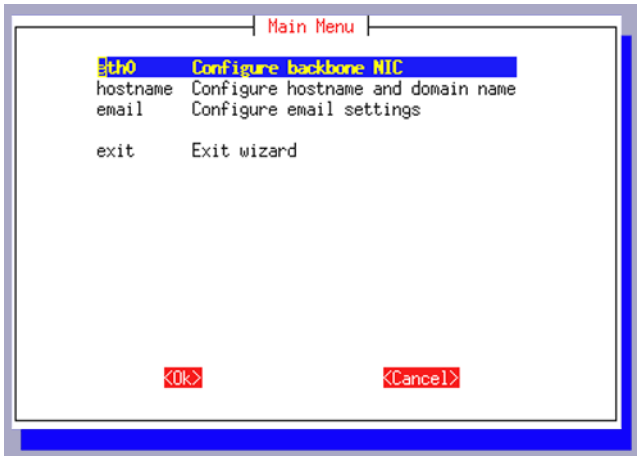


Figure 3. directMONITOR Main Menu

2.2 Network Interface

Before configuring the NIC (network interface card) interfaces, obtain an IP address from your network administrator.

1. In the Main Menu, select "eth0 Configure backbone NIC" and press <Enter>. The Configure Backbone NIC menu appears (Figure 4).

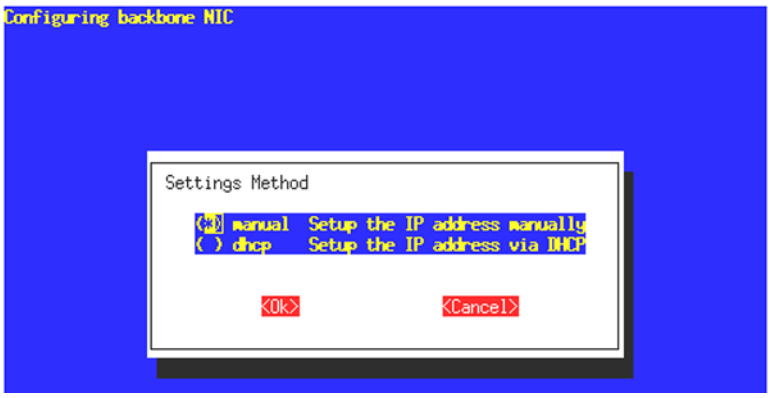


Figure 4. Configure Backbone NIC Menu

2. Select option "manual - Setup the IP address manually" and press <Enter>.

3. Type in the IP address obtained from your network administrator and press <Enter> (Figure 5). This address is assigned to the network connector #1 on the directMONITOR.

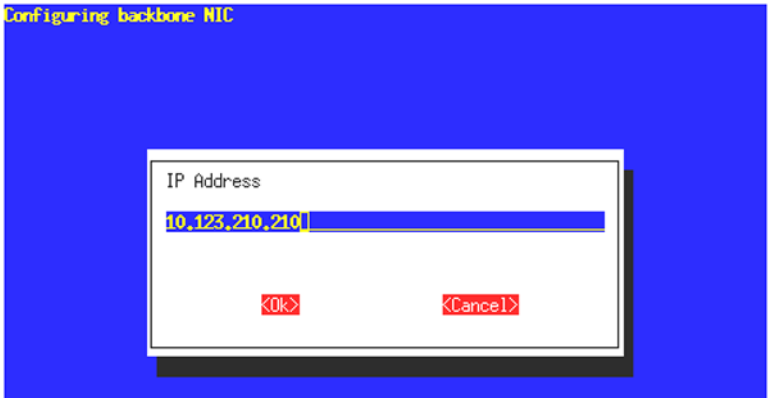


Figure 5. Configure Backbone NIC - IP Address

4. Type in the netmask obtained from your network administrator and press <Enter> (Figure 6).



Figure 6. Configure Backbone NIC - Netmask

5. Type in the default gateway obtained from your network administrator and press <Enter> (Figure 7).

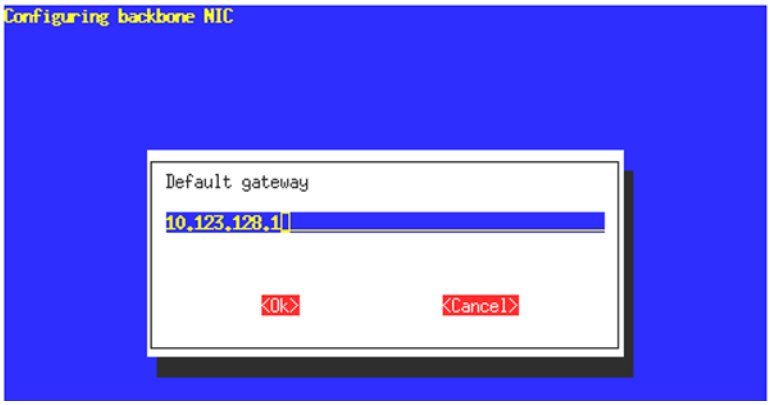


Figure 7. Configure Backbone NIC - Default Gateway

6. The message “Backbone NIC information changed. A reboot is needed to finalize settings.” appears. Select “OK” to continue. You may wait until configuration is complete before resetting the directMONITOR.

2.3 Hostname and DNS

1. Select option “hostname - Configure hostname and domain name” at the Main Menu.

2. Type in the desired hostname for the directMONITOR and press <Enter> (Figure 8).

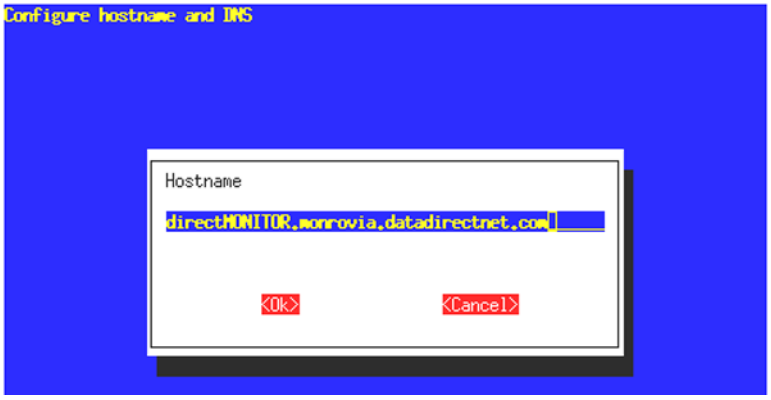


Figure 8. Configure Hostname and DNS - Hostname

3. Type in the domain name for the directMONITOR and press <Enter> (Figure 9).

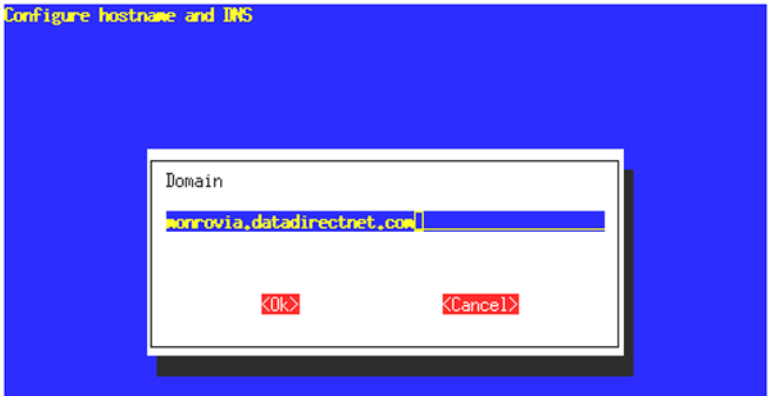


Figure 9. Configure Hostname and DNS - Domain

4. Type in the DNS server name for the directMONITOR and press <Enter> (Figure 10).

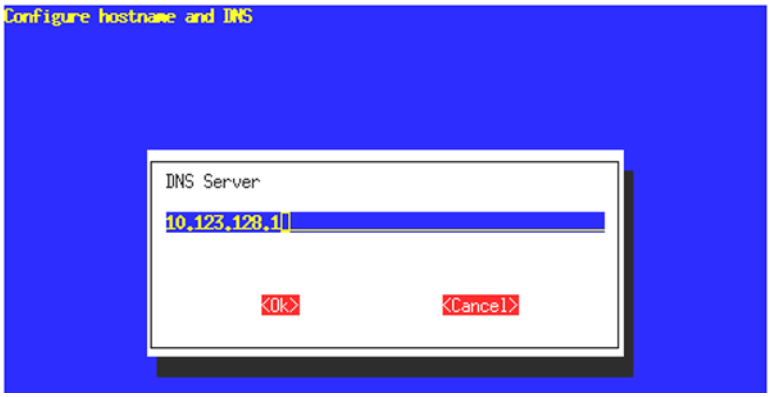


Figure 10. Configure Hostname and DNS - DNS Server

5. The message “Backbone NIC information changed. A reboot is needed to finalize settings.” appears. Select “OK” to continue. You may wait until configuration is complete before resetting the directMONITOR.

2.4 Email Settings

1. Select option “email - Configure email settings” at the Main Menu.

2. Type in the mail server name that the directMONITOR will use to send out email notices and press <Enter> (Figure 11).

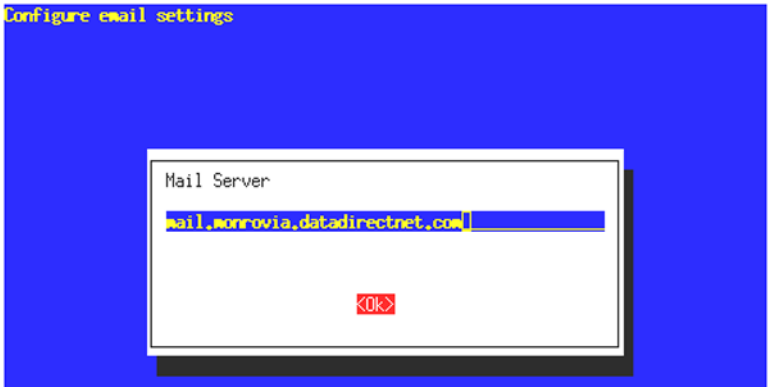


Figure 11. Configure Email Settings - Mail Server

3. Type in the addresses, separated by commas, to which the directMONITOR will send the email notices and press <Enter> (Figure 12).



Figure 12. Configure Email Settings - Email Addresses

4. Type in the author address which will appear to the email notice recipients and press <Enter> (Figure 13).

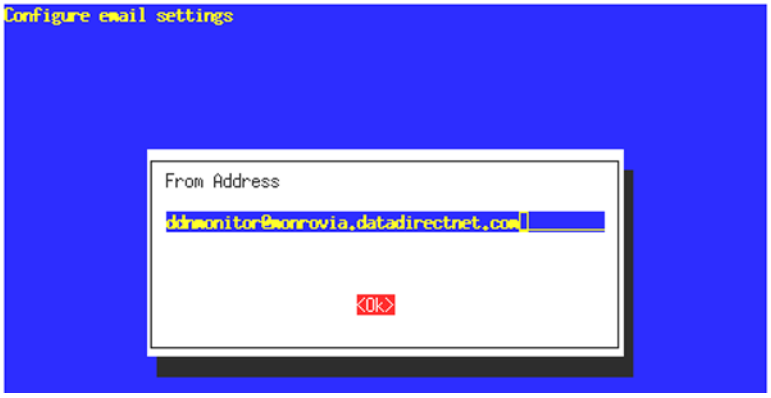


Figure 13. Configure Email Settings - From Address

5. Select the type of messages (SNMP, or Syslog, or both) to be sent and press <Enter> (Figure 14).

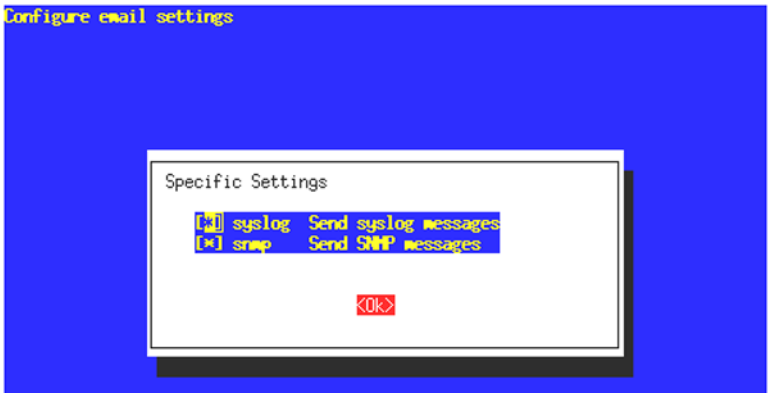


Figure 14. Configure Email Settings - Specific Settings

6. The message “Email settings saved. Change should happen immediately.” appears. Select “OK” to continue.

2.5 Reboot the directMONITOR

If you have changed the network interface, hostname, or DNS settings, a reboot is needed for the changes to take effect.

At the Main Menu, select “OK” or “exit” to leave the menu. At the command prompt, type “`reboot`” and press <Enter>. Wait until reset is complete.

The directMONITOR set up is complete.

3. Set Up on SAN DataDirector

The second NIC (eth1) on the directMONITOR is connected to the SDD Ethernet switch. This allows the directMONITOR to filter out traffic that would otherwise adversely affect the SDD performance.

The directMONITOR will route packets from the SDD to your backbone network as needed, and will route packets from the backbone to the SDD.

By default, eth1 is given the IP address 172.16.0.254, with a netmask 255.255.255.0. The SDD should be given the IP addresses 172.16.0.1 for HSTD1 and 172.16.0.2 for HSTD2.

You must make sure the SNMP services are enabled and the IP addresses are correctly set on **both** HSTDs. You can connect to the HSTDs using the Minicom (see Section 4.1 on page 9). Start with HSTD 1:

1. To display the current settings, use command: NETWORK (Figure 15).

```
HSTD 1: network

Network Configuration
IP Address: 10.100.100.20

NetMask: 255.255.255.0

Services:
   Telnet : DISABLED
   SNMP   : DISABLED
   SNMP Trap IP Address: 0.0.0.0
   Syslog : DISABLED
   Syslog IP Address   : 0.0.0.0

MAC Address: 00:01:ff:00:02:0a

OEM Code   : 0 (dataDIRECT Networks)
```

Figure 15. Current Network Configuration Screen

2. To change the HSTD's IP address, enter command:

```
NETWORK IP=172.16.0.1
```

3. Change the netmask of the HSTD, if needed, using command:

```
NETWORK NETMASK=255.255.255.0
```

4. To enable the SNMP service, enter command:

```
NETWORK SNMP=ON
```

5. Then enter the IP address of the directMONITOR (network connector #2):

```
NETWORK TRAPIP=172.16.0.254
```

6. To enable the Syslog function, enter command:

```
NETWORK SYSLOG=ON
```

7. Then enter the destination IP address for Syslog:

```
NETWORK SYSLOGIP=172.16.0.254
```

8. Connect to HSTD 2 and repeat Steps [1] to [7] above. Use IP address 172.16.0.2 in Step [2] for HSTD 2.

9. Issue command "`RESTART`" to both HSTDs for the changes to take effect.

It is important that both HSTDs have connectivity between both themselves and the directMONITOR. To ensure proper communication:

- use the "`PING`" command from the directMONITOR's console
- on both HSTDs, use command "`NETWORK PING=xxx.xxx.xxx.xxx`" (Note: replace `xxx.xxx.xxx.xxx` with the appropriate IP address)

Please refer to the *DataDirect Networks SAN DataDirector User Guide* for further information on network configuration.

4. Using the directMONITOR

4.1 Minicom

Minicom is a Telix clone for UNIX. It is a terminal interface to the serial ports on the directMONITOR, and is able to send firmware to the SDD via Xmodem.

To control HSTD 1, enter command "`minicom com1`" (Figure 16).
To control HSTD 2, enter command "`minicom com2`".

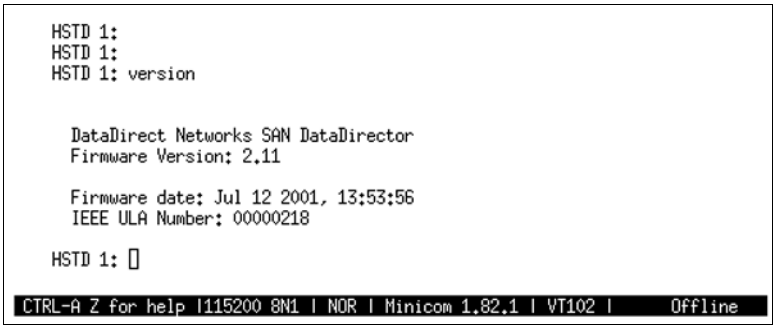


Figure 16. Minicom Command Screen

4.1.1 Command Summary Screen

To bring up the command summary screen, press “Control-A Z” (Figure 17).

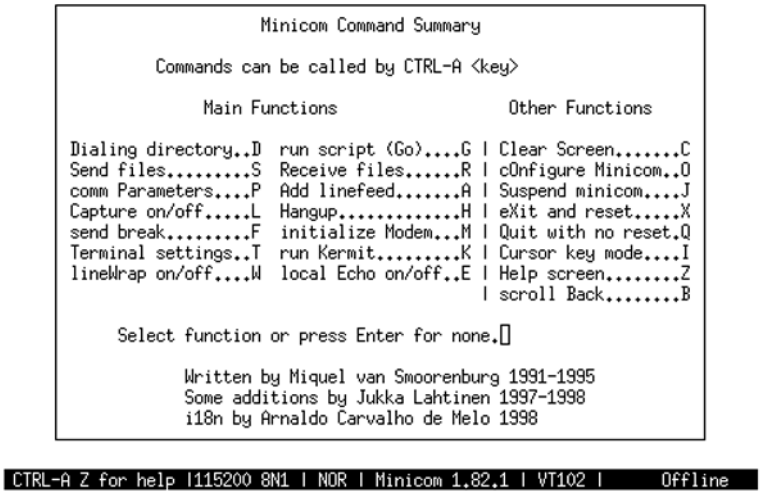


Figure 17. Minicom Command Summary Screen

4.1.2 Scroll Back Mode

To enter the scroll back mode, press “Control-A B”. A help line will be displayed at the bottom, listing commands to be used in scroll back mode (Figure 18). Press <Esc> to quit scroll back mode.



Figure 18. Minicom Scroll Back Screen

4.1.3 Sending Firmware to SDD

Follow the Firmware Upgrade Procedure given in the *SAN DataDirector User Guide* to prepare the HSTD for firmware upgrade.

1. Once the SDD is waiting for firmware to upload, press "Control-A S" to start the upload process.
2. Select "xmodem" in the Upload screen and press <Enter>.
3. Select the ".fsh" file which contains the SDD firmware.

4.2 Command Locations

All commands described in this document are in the path. The actual locations of the commands are:

- minicom - /usr/bin/minicom
- ddnmenu - alias to 'cd /root/directMONITOR/config; ./config_menu; cd -'

4.3 Firewall

Firewalling is done by the standard ipchains utility. The firewall rules are located in the `/etc/firewall` file, and are loaded at boot up. These may be modified to site-specific preferences.

By default, only SSH and ICMP access are allowed to the directMONITOR computer.

4.4 Log Files

There are three types of logging on the directMONITOR:

- Serial
  All serial output generated by the SDD is logged into the `/var/sdd` directory, using files named "`com1.log`" and "`com2.log`" for HSTD1 and HSTD2 respectively. The logs are rotated on a weekly basis, by appending a number to the end of the filename.
- SNMP
  All SNMP traps received from the SDD are logged into the `/var/log/snmptrapd.log` file.
- Syslog
  All Syslog messages received from the SDD are logged into the `/var/log/user.log` file. SDD messages have hstd1 and hstd2 in the host field.