

# PollCat NetLink II

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Secure CDR Recorder

Firmware Version 2.0 and Higher



## User's Guide





## **Warnings and Cautions: INSTALLATION INSTRUCTIONS**



### **SECURE RACKING**

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If Secure Racked units are installed in a closed or multi-unit rack assembly, they may require further evaluation by Certification Agencies. The following items must be considered.

1. The ambient within the rack may be greater than room ambient. Installation should be such that the amount of air flow required for safe operation is not compromised. The maximum temperature for the equipment in this environment is 45°C. Consideration should be given to the maximum rated ambient.
2. Installation should be such that a hazardous stability condition is not achieved due to uneven loading.

### **INPUT SUPPLY**

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1. Check nameplate ratings to assure there is no overloading of supply circuits that could have an effect on overcurrent protection and supply wiring.
2. When installing 48 VDC rated equipment, it must be installed only per the following conditions:
  - A. Connect the equipment to a 48 VDC supply source that is electrically isolated from the alternating current source. The 48 VDC source is to be connected to a 48 VDC SELV source.
  - B. Input wiring to terminal block must be routed and secured in such a manner that it is protected from damage and stress. Do not route wiring past sharp edges or moving parts.
  - C. A readily accessible disconnect device, with a 3 mm minimum contact gap, shall be incorporated in the fixed wiring.

### **GROUNDING**

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Reliable earthing of this equipment must be maintained. Particular attention should be given to supply connections when connecting to power strips, rather than direct connections to the branch circuit.

### **No Serviceable Parts Inside; Authorized Service Personnel Only**

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Do not attempt to repair or service this device yourself. Internal components must be serviced by authorized personnel only.

- **Shock Hazard - Do Not Enter**

### **Disconnect Power**

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If any of the following events are noted, immediately disconnect the unit from the outlet and contact qualified service personnel:

1. If the power cord becomes frayed or damaged.
2. If liquid has been spilled into the device or if the device has been exposed to rain or water.

## **FCC Part 15 Regulation**

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

**WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment**

## **Industry Canada**

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This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This product meets the applicable Industry Canada technical specifications

The Ringer Equivalence Number is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed five

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# 1. Introduction

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The PollCat NetLink II Call Accounting Terminal is a highly reliable, PBX data recorder designed for SMDR/CDR data collection and alarm monitoring. The NetLink II can collect data from an RSP compatible PBX via a TCP/IP connection, and can also collect data from a conventional PBX switch via a serial port connection. Collected call records can be retrieved via TCP/IP network, via FTP client, via modem, or by a local PC connected directly to the NetLink II unit.

In addition to storing call data, NetLink II can also monitor call records for suspicious phone activity or critical alarm conditions. When an alarm is detected, the unit can immediately notify the proper personnel by pager, modem, email or SNMP trap. The NetLink II also provides secure access to connected serial devices such as PBX maintenance ports or Console/AUX ports.

## **Network and Modem Access**

All command functions, including data retrieval and unit configuration, can be accessed via network, modem or local PC. When the NetLink II is installed in a TCP/IP environment, Telnet is used to access the command mode. If out-of-band access is required, you can also dial-up NetLink II's internal modem. Stored data can be reliably retrieved using your terminal emulation program, or SFTP/FTP client. Password protection and dialback security prevent unauthorized access to control functions.

## **RSP Compatibility**

In addition to collecting data via a conventional serial port connection to your PBX switch, the NetLink II can also collect data from remote RSP compatible PBX switches such as an Avaya PBX. Call records are sent from the RSP format PBX to the NetLink II unit via a TCP/IP connection, and then stored safely until they are needed by your call accounting system.

## **Nonvolatile Flash Memory**

NetLink II uses reliable, low-cost flash memory to store operating parameters and configuration information. This eliminates the need to check and replace depleted batteries. If power to the unit is interrupted or disconnected, stored parameters can be retained for up to one year. Call records are stored on reliable, battery backed SRAM memory.

## SNMP Traps

Alarm messages, memory full status, and a variety of other conditions can be reported to your network manager via standard SNMP traps. SNMP Traps can be used to provide notification when an alarm event occurs, or to perform a wellness check at user selected time intervals.

## Alarm Notification Via Email

The NetLink II can provide prompt notification via email when it's memory is nearly full, when the data flow from the PBX is interrupted, or when one of the user-defined alarms is activated. Alarm Notification can be sent to two user defined email addresses, and can be configured to include a message that describes the alarm, the exact call record that triggered the alarm, and current unit status.

## Easy Firmware Upgrades

When program upgrades are available, there is no need to struggle while removing the old EPROM and installing an updated chip. NetLink II's flash memory allows you to upload the latest firmware revisions via modem or console port.

## Disclaimer on Toll Fraud

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We do not guarantee that if you use the NetLink II, you will not become the victim of toll fraud. We provide this device to assist you in minimizing your exposure to such losses. By monitoring call records as they are received, you can potentially catch calls that should not be made before they escalate and cost you large sums of money. However, responding to alarms and determining what is fraud and abuse are still up to you. Western Telematic, Incorporated assumes no responsibility for any losses due to improper use of this product.

## Typographic Conventions

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In this user's guide, typefaces and characters are used as follows:

- |                     |  |
|---------------------|--|
| <b>^ (e.g., ^B)</b> | Indicates a key combination used to invoke a command. For example, " <b>^B</b> " (Control B) indicates that the <b>[Ctrl]</b> key and <b>[B]</b> key should be pressed simultaneously. |
| <b>COURIER FONT</b> | Indicates characters typed on the keyboard. For example, <b>^B16</b> or <b>^B01</b> .  |
| <b>[Bold Font]</b>  | Text set in bold face and enclosed in square brackets indicates a specific key. For example, <b>[Enter]</b> or <b>[Esc]</b> .  |

## 2. Unit Description

### 2.1. Front Panel Indicators

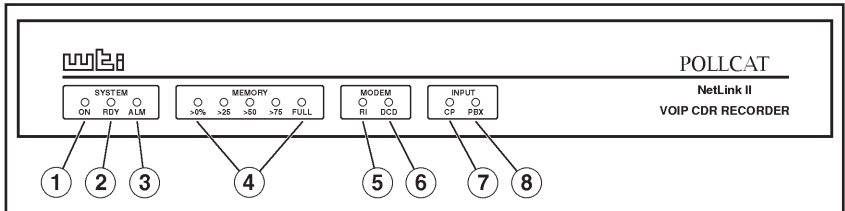


Figure 2.1: Front Panel Indicators

#### SYSTEM Indicators:

- ① **ON:** Lights when power is applied to the unit.
- ② **RDY:** Flashes slowly to indicate the unit is operational.
- ③ **ALM:** Lights when a Toll Fraud Alarm or PBX Inactivity Alarm is triggered.

#### MEMORY Indicators:

A bank of LEDs which light to indicate memory usage.

- ④ **Percent Full Indicators:** Five LEDS which light to indicate approximate Memory Full conditions.

#### MODEM Indicators:

Two LEDs which indicate modem conditions as follows:

- ⑤ **RI:** (Ring Indicator) Lights when the NetLink II's internal modem is ringing.
- ⑥ **DCD:** (Data Carrier Detect) Lights when carrier is detected.

#### INPUT Indicators:

A bank of four LEDs which indicate data reception as follows:

- ⑦ **CP:** Lights when commands are received via the Console Port.
- ⑧ **PBX:** Lights when data is received at the PBX input port.

## 2.2. Back Panel

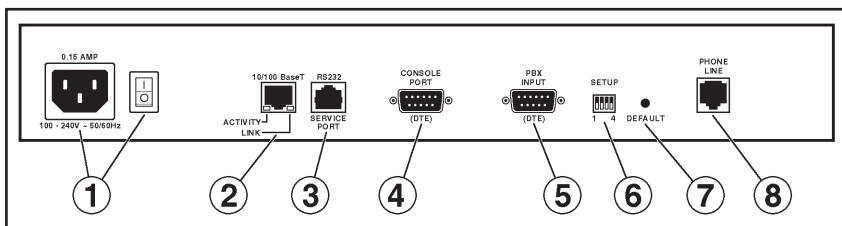


Figure 2.2: Back Panel

- ① **AC Power Components:** On/Off Switch and Power Cable receptacle.
- ② **Network Port:**  
A 100Base-T connector with two LED indicator(s):
  - **ACTIVITY:** Flashes when data or commands are transmitted.
  - **LINK:** Lights when a network connection is present.
- ③ **Service Port:** For factory use only
- ④ **Console Port:** For connection to a local PC or terminal.
- ⑤ **PBX Input Connector:** A DB9 Connector (DTE) used for connection to your PBX SMDR Port.
- ⑥ **Set-Up Switches:** A bank of four dip switches, which are used to select options and configuration settings as described in Section 4.2.
- ⑦ **Default Button:** Used to reset the NetLink II to defaults and clear memory as described in Section 4.3.
- ⑧ **Phone Line:** For connection to your telecommunications (phone) line.

## 3. Quick Start Guide

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This Quick Start Guide describes a simplified installation procedure for the NetLink II hardware, which will allow you to communicate with the unit in order to demonstrate basic features and check for proper operation.

Note that this Quick Start Guide does not provide a detailed description of unit configuration, or discuss advanced operating features in detail. In order to take full advantage of the complete range of features offered by the unit, it is recommended to review the remainder of this User's Guide after performing the Quick Start procedure.

### 3.2. Hardware Installation

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#### 3.2.1. Apply Power to the NetLink II

Refer to the power rating nameplate on the NetLink II back panel, and then connect the unit to an appropriate power source. The NetLink II features a self-adjusting power supply that automatically adapts for 115 or 230 VAC operation. Set the Master Power Switch on the NetLink II back panel to the ON position; the front panel indicators should light. After a brief pause, the RDY indicator should begin to flash, indicating that the unit is ready to receive commands.

#### 3.2.2. Connect your PC to the NetLink II

In order to configure the NetLink II unit, invoke commands or retrieve data, you must first access the NetLink II command mode. The NetLink II offers three different methods for activating the command mode; from a local PC that is cable connected directly to the NetLink Console Port, from a remote PC that communicates with NetLink via modem, or from a remote PC that communicates with the NetLink via Ethernet connection.

To connect your PC to the NetLink II, proceed as follows:

- **Control via Network:** Connect your 10Base-T or 100Base-T network interface to the NetLink II's Network Port.
- **Control via Console Port:** Use the supplied null modem cable to connect your PC COM port to the NetLink II's Console Port.
- **Control via Modem:** Connect your phone line to the NetLink II's Phone Line Port.

PollCat NetLink II	Main Menu:	Administrator Mode
FUNCTIONS:		CONFIGURATION:
1. Status Displays		21. Reboot System (Default)
2. Buffer Functions		22. Port Configuration
3. System Functions		23. System Parameters
4. System Diagnostics		24. Scheduled Action Parameters
5. ^Bxx Command Help		25. Alarm Configuration
6. Recall Parameters		26. Data Filter Configuration
7. Save Parameters		
8. Exit Command Mode		
Enter selection ...		

Figure 3.1: The Main Menu

### 3.3. Communicating with the NetLink II

The command mode can be accessed via the Console Port, network connection or Modem. Note however, that before you can communicate with the unit via network, you must first access command mode via Modem or Console Port and define certain network parameters.

#### 3.3.1. Access via Console Port or Modem

To access command mode via Console Port or Modem, proceed as follows:

- Console Port (Local Access):** This is the simplest way to access the NetLink II command mode. Your system communicates with the NetLink via a direct cable connection to the Console Port.
  - Start your communications program (e.g., Tera Term Pro<sup>®</sup>) and press **[Enter]**. The NetLink II will display a login prompt.
  - Key in the login name and press **[Enter]**, and then key in the password and press **[Enter]**. The Default Administrator Login name and Password are both "SUPER" (all uppercase, no quotes.)
- Access Via Modem:** Start your communications program and dial the number for the phone line connected to the NetLink II.
  - After the carrier is detected, the system will display a login prompt.
  - Key in the login name and press **[Enter]**, and then key in the password and press **[Enter]**. The Default Administrator Login name and Password are both "SUPER" (all uppercase, no quotes.)

**Note:** NetLink II will allow 5 attempts to enter a valid password. If a valid password is not entered in 5 attempts, the unit will disconnect.

After a brief pause, the "READY" message will be sent. Press **[Enter]** to display the NetLink II Main Menu as shown in Figure 3.1.



```

NETWORK PORT:

COMMUNICATION SETTINGS
1. IP Address:      192.168.168.168
2. Subnet Mask:    255.255.255.0
3. Gateway Addr:   (undefined)
4. DHCP:           Off
5. IP Security:    Off

OUTPUT PARAMETERS
21. Output Mode:   ASCII Record
22. Data on ^B01:  On
23. Hold End Data: On
24. Line # Tag:    Off
25. Send Compress: Off
26. Auto Delete:   Off

GENERAL PARAMETERS
11. Command Echo:  On
12. Response Type: Inhibit Menu
13. "Sure" Prompt: On
14. CMD Timeout:   15 Mins
15. Audit Trail:   Off

SERVERS AND CLIENTS
31. Telnet Access: On
32. SSH Access:    On
33. SYSLOG IP Addr: (undefined)
34. SNMP Access:   Off
35. SNMP Trap:     Off
36. TACACS:        Off
37. RADIUS:        Off
38. Email/Txt Msg  Off
39. PPP Dialout    Off

ACTION PARAMETERS
16. Action Delay:  10 Secs

Enter selection,
Press <ESC> to return to previous menu ...

```

Figure 3.2: The Network Parameters Menu

### 3.3.2. Access via Network

Before you can communicate with the NetLink II via network, you must first access command mode via the Console Port or Modem, and set up network parameters as described below.

1. **Access Command Mode:** Access the NetLink II command mode via Console Port or Modem as described in the previous section. When the READY message appears, press **[Enter]** to display the main menu.
2. **Configure the Network Port:** At the Main Menu, type **22** and press **[Enter]** to display the Port Configuration Menu. At the Port Configuration Menu, type **23** and press **[Enter]** to display the Network Port Configuration menu (Figure 3.2):

**Note:** Consult your network administrator to determine appropriate IP settings.

- a) **IP Address:** Type **1** and press **[Enter]**.  
(Default = 192.168.168.168).
- b) **Subnet Mask:** Type **2** and press **[Enter]**.  
(Default = 255.255.255.0)
- c) **Gateway Address:** Type **3** and press **[Enter]** (If needed.)  
(Default = undefined.)
- d) **Telnet Access:** In order to communicate with the unit via network, Telnet Access must be enabled. Type **31** and press **[Enter]** to display the Telnet Access menu, then type **1** and press **[Enter]** to enable Telnet Access.

3. **Save Configuration Parameters and Exit Command Mode:** Press the **[Esc]** key several times to return to the main menu. From the main menu, type **7** and press **[Enter]** to save the network parameters entered in Step 2 above. After parameters have been saved, type **8** and press **[Enter]** to exit from command mode.
4. **Access Command Mode via Network:** Start your communications program, and then key the NetLink II's IP address (defined in Step 2a) into the address field. Select TCP Port 23 and then click OK or press **[Enter]**.
  - a) A login prompt will be displayed; key in your login name and press **[Enter]**, and then key in the password and press **[Enter]**. The default login name and password are both "**SUPER**" (all uppercase, no quotes.)
  - b) After a brief pause, the READY message will be displayed. Press **[Enter]** to display the NetLink main menu.

After you have successfully accessed command mode, you are then ready to connect your PBX, configure the NetLink II unit and begin collecting data.

### **3.4. Connect your PBX to the NetLink II**

---

The NetLink II can collect data from both a local PBX unit, connected by cable directly to the PBX Input Port and from a second RSP compatible PBX unit (PBX-IP) that communicates with the NetLink via an IP connection to the NetLink's Ethernet port.

- **Connecting a PBX to the NetLink II PBX Input Port:** Use an appropriate data cable to connect your PBX SMDR port to the NetLink II PBX Input Port. The serial PBX Input Port is a male, DB9 connector, wired in a DTE configuration. The type of cable used will vary, depending on the configuration of your PBX. For a description of NetLink's PBX Input Port interface, please refer to Appendix B.
- **Connecting to a PBX via the Network Port (PBX-IP Port):** Refer to your PBX user's guide, and then configure your RSP compatible PBX to send data to the IP address for the NetLink II unit (defined in Step 2a in Section 3.3.2.) In the default configuration, the NetLink II will receive data via port number 9000.

This completes the Quick Start Guide for the NetLink II. Prior to placing the unit into operation, it is recommended to refer to the remainder of this User's Guide for complete installation, configuration and operation procedures. If you have further questions regarding the IPS unit, please contact WTI Customer Support as described in Appendix E.

## 4. Hardware Installation

---

The hardware installation procedure includes the following steps:

1. Connect the NetLink II unit to an appropriate power supply (see Section 4.1).
2. Use the Set-Up Switches to select default communication parameters and NetLink II options (see Section 4.2).
3. Reset the NetLink II unit to default parameters (see Section 4.3).
4. Connect the data cables, network cable and telephone line (see Section 4.4)

### 4.1. Connect the NetLink II to your Power Supply

---

#### Notes:

- When Switch 2 is UP (enable Power Up Console Defaults) and there is a power interruption, Console Port communication parameters will be reset to the default settings: 9600 bps, eight data bits, no parity, 1 stop bit.
- After configuring the unit with menu selected parameters, you may wish to return Set-Up Switch 2 to the DOWN position. This will cause NetLink II to use menu selected parameters whenever the unit is powered off and on.



**CAUTION:** This device should only be operated with the type of power source indicated on the instrument nameplate. If you are not sure of the type of power service available, please contact your local power company.

Plug the power cable into the receptacle on the NetLink II back panel. The NetLink II features a self-adjusting power supply that automatically adapts for 115 or 230 VAC. Place the AC Power Switch in the ON position to apply power, the ON indicator will light and the RDY indicator will flash.

## 4.2. Set-Up Switches

The Set-Up Switches on the NetLink II back panel are used to enable/disable the Console Port Password, Power-Up Console Default and internal modem speaker.

### 4.2.1. Console Port Password (Sw1)

Switch One enables/disables the Console Port Password. When this feature is enabled (Sw1 = Up), the NetLink II will prompt you to enter a password before allowing command mode access via the Console Port. The password prompt will accept either an Administrator Password (allows access to all configuration functions) or a User Password (does not allow access to configuration functions.) The default Administrator Password is "SUPER" and the default User Password is "SMDR". For a summary of User Mode and Administrator Mode functions, please refer to Appendix C.

**Note:** If the Console Port password is disabled, NetLink II will always start up in Administrator Mode when contacted via the Console Port.

Switch 1	Console Port Password
Down *	Password Not Required at Console Port
Up	Password Required at Console Port

\* = Factory Setting

### 4.2.2. Power Up Console Defaults (Sw2)

When the "Power Up Console Defaults" feature is enabled, Console Port communications parameters will be returned to their default settings (9600 bps, eight data bits, no parity, hardware handshake and one stop bit) whenever power to the unit is switched off or interrupted.

**CAUTION:** If Set-Up Switch 2 is UP (enable Power Up Console Defaults), and there is a loss of power, port parameters will be set to their default values.

If the Power Up Default is disabled (Sw2 = Down), when there is a power interruption, NetLink II will be configured according to the parameters currently saved in flash memory.

Switch 2	Power Up Console Defaults
Down *	Disabled (Use Saved Console Port Parameters)
Up	Enabled (Re-Set to Default Console Port Parameters)

\* = Factory Setting

### 4.2.3 Modem Speaker (Sw4)

Set-Up Switch four is used to enable or disable the internal modem speaker. When disabled (Sw4 = UP), the modem will continue to function, but the modem speaker will be disconnected and will not produce any sound.

Switch 4	Modem Speaker
Down*	Modem Speaker Enabled
Up	Modem Speaker Disabled

\* = Factory Setting

#### Notes:

- Set-Up Switch Three is included as a spare, and is not used.
- When Set-Up Switch configuration is changed, it is not necessary to reinitialize the unit; Set-Up Switch settings are read whenever the unit is powered up, and each time the command mode is accessed via the Console Port. Settings for Switch 4 (Modem Speaker) will be applied immediately.

## 4.3. Reset to Defaults

This procedure will reset all parameters to default settings and reboot the NetLink II unit. When the unit is shipped from the factory, defaults are reset and the memory is cleared. However, if the NetLink II has been previously installed, this procedure should be performed.

#### Notes:

- When this procedure is performed, all menu defined parameters will be cleared. If you wish to preserve configuration settings, parameters should be saved (as described in Section 14.2), before beginning this procedure.
- All SSH keys will be cleared during this default procedure.
- The Reset Procedure will also clear all network port settings, disable Telnet capability and erase any stored data.

To reset parameters to default settings and reboot the unit, first power the unit on and then wait for the RDY Indicator to flash. Next, press and hold the Default Button (located on the back panel.) Continue to hold the Default button (for approximately five seconds) until the front panel memory indicators flash.

After the memory indicators flash, release the Reset Button; the NetLink II will reboot and reset default parameters. Note that after the Reset procedure is performed, it will take approximately two to three minutes for the NetLink II to reboot. This delay is due to the time required to generate new SSH keys.

## 4.4. Connecting Cables and Phone Line

---

Your cable layout should account for the following factors:

**Command Mode Access:** NetLink II provides several methods for accessing command mode

- **Network Access:** NetLink II is managed via Ethernet, using a Telnet Client.
- **Local Access:** NetLink II is managed by a local PC connected to the Console Port.
- **Modem Access:** NetLink II is managed by a remote PC that communicates with the unit via modem.
- **Multiple Access:** NetLink II can be managed via Network, Console Port, or Modem.

**Alarm Actions:** When an alarm is generated, NetLink II offers several methods to notify the user:

- **SNMP Trap:** An SNMP Trap is sent to a network management station.
- **Console Port Action:** Alarms are sent to a local PC connected to the Console Port.
- **Modem or Pager:** Alarms are sent via Modem to a remote PC or Pager.
- **Email or Text Message:** Alarms are sent via email or text message, to up to two user-defined email addresses.
- **Combination of Methods:** Each alarm is directed to a different target. The alarm configuration screens select notification methods for each alarm.

The physical layout is determined by the Command Mode access method and Alarm Actions required for your application. Determine which method(s) will be used, and install cables as outlined in the following sections.

**Note:** Prior to connecting data lines, make certain that cables are compatible with NetLink II. Please refer to the interface descriptions in Appendix B.

#### **4.4.1. PBX Input Port**

The PBX Input Port is a male DB9 connector, wired in a DTE configuration, which is used for connection to your PBX SMDR Port. The type of cable used to connect the PBX to the PBX Input Port will vary, depending on the configuration of your PBX. For a description of the NetLink II PBX Input Port interface, please refer to Appendix B.

#### **4.4.2. Modem Port (Phone Line)**

The Phone Line port should be connected to an outside telephone line. When an outside phone line is connected, the NetLink II can be managed and polled via modem. When an alarm is generated, the NetLink II can also provide notification via modem or pager.

#### **4.4.3. Console Port**

The Console Port is a male DB9 connector, wired in a DTE configuration, which is used to connect a local PC to the NetLink II unit. When connecting the Console Port to a PC, a standard Null Modem cable is generally used. Please refer to Appendix B for a description of the Console Port interface.

#### **4.4.4. Network Port**

The Network Port allows connection to a TCP/IP network. When installation is complete, the NetLink II unit can be managed and polled via network, and can also be used to collect data from Avaya PBX units. The NetLink II can also provide alarm notification via SNMP trap. Use a straight wired 100Base-T cable.





## 5. Configuration

---

This section describes how to configure the NetLink II to meet the requirements of almost any data collection application. When the NetLink II is shipped from the factory, options and parameters are set to fit the requirements of most call accounting applications. In many cases, if you do not choose to include NetLink II's advanced features, no further configuration is required.

However, if you do intend to use advanced features (such as the Data Filter or Alarm Filter), or if your application requires parameters other than the defaults described in this section, the unit must be properly configured.

Although NetLink II provides a substantial assortment of advanced program features, it is not necessary to include all of these features in your system configuration. You may wish to complete the basic set-up first, and then add optional features as needed.

When configuring the unit, note that the Status Screens can be accessed via item 1 in the Main Menu. For more information on the Status Screens, please refer to Section 7.

### 5.1. Command Mode Access

---

When the command mode is active, the unit will display a series of menus that are used to select parameters, enable options, and retrieve stored data. To access command mode for initial configuration, proceed as follows:

PollCat NetLink II Main Menu:	Administrator Mode
FUNCTIONS:	CONFIGURATION:
1. Status Displays	21. Reboot System (Default)
2. Buffer Functions	22. Port Configuration
3. System Functions	23. System Parameters
4. System Diagnostics	24. Scheduled Action Parameters
5. ^Bxx Command Help	25. Alarm Configuration
6. Recall Parameters	26. Data Filter Configuration
7. Save Parameters	
8. Exit Command Mode	
Enter selection ...	

Figure 5.1: Main Menu

1. **Local Access:** To communicate with the NetLink II via the Console Port, first start your communications program (e.g., Tera Term Pro®.)
  - a) If Set-Up Switch 1 is UP (enable Console Port Password), the system will display a login/password prompt.
  - b) Key in the login name and press **[Enter]**, and then key in the password and press **[Enter]**. The Default Administrator Login name and Password are both "SUPER" (all uppercase, no quotes.)
2. **Access Via Modem:** Start your communications program (e.g., Tera Term Pro®) and dial the NetLink II unit.
  - a) After the carrier is detected, the system will display a login/password prompt.
  - b) Key in the login name and press **[Enter]**, then key in the password and press **[Enter]**. The Default Administrator Login name and Password are both "SUPER" (all uppercase, no quotes.)
3. **Access via Network:** Before you can communicate with the NetLink II via network, you must first access command mode via the Console Port or Modem, and set network parameters as follows:
  - a) **Access Command Mode:** Access command mode via Console Port or Modem as described above. When the READY message appears, press **[Enter]** to display the main menu.
  - b) **Configure the Network Port:** Refer to Section 5.4.5, and then set network parameters as follows:
    - **IP Address:** Type **1** and press **[Enter]**.  
(Default = 192.168.168.168)
    - **Subnet Mask:** Type **2** and press **[Enter]**.  
(Default = 255.255.255.0)
    - **Gateway Address:** Type **3** and press **[Enter]** (If needed.)  
(Default = undefined.)
    - **Telnet Access:** Type **31** and press **[Enter]** to display the Telnet Access menu, then type **1** and press **[Enter]** to enable Telnet Access.
  - c) **Save Configuration Parameters and Exit Command Mode:** From the main menu, type **7** and press **[Enter]** to save the network parameters entered above. After parameters have been saved, type **8** and press **[Enter]** to exit command mode.

**Note:** Consult your network administrator to determine settings for the IP Address, Subnet Mask, and Gateway Address.

- d) **Access Command Mode via Network:** Start your communications program, and then key the NetLink II's IP address into the address field, and then click OK or press **[Enter]**.

**Note:** NetLink II will allow 5 attempts to enter a valid password. If a valid password is not entered in 5 attempts, the unit will disconnect, and you must then re-establish your connection to the NetLink II unit.

After a brief pause, the "READY" message will be sent. Press **[Enter]** to display the NetLink II Main Menu as shown in Figure 5.1.

---

## 5.2. Menu System Conventions

---

1. **Access to Submenus:** All menus are key activated. To access a menu, key in the number for the desired item and press **[Enter]**.
2. **User Level / Administrator Level Functions:** Note that most configuration menus are not available in User Mode. In order to perform the setup procedures described in this section, the Administrator Mode must be active, and therefore, you must login to command mode using an account that permits access to Administrator level commands (Default = **SUPER**.) The top of the Main Menu indicates whether User or Administrator Mode is currently selected. For more information on User and Administrator Mode commands, please refer to Appendix C.
3. **Save Parameters:** After NetLink II has been properly configured, it is recommended to save parameters to flash memory. To save parameters, go to the Main Menu, type **7**, press **[Enter]**, and follow the instructions in the resulting submenu.

```
SYSTEM PARAMETERS:

1. User Directory
2. Site ID Msg:           (undefined)
3. Real-Time-Clock:      06/16/2005 Thu 16:00:25
4. Wrap-Around:         Off
5. Alarm Data Wrap-Around: On

Enter selection,
Press <ESC> to return to previous menu ...
```

Figure 5.2: System Parameters Menu

---

### 5.3. Set System Parameters

---

The System Parameters menu (Figure 5.2) is used to set common parameters, such as command mode passwords and the Site ID Message. To access the System Parameters menu, go to the Main Menu, type **23** and press **[Enter]**. The following items can be configured via this menu:

1. **User Directory:** Creates, modifies, reviews and deletes User Accounts as described in Section 5.3.1. The User Directory also allows you to set the security level for each account, in order to determine whether the user will be allowed to change configuration parameters.
2. **Site ID Message:** Defines a text string (up to 32 characters) that can be used to note the unit's location. When defined, the Site ID will be displayed prior to the Login prompt. **(Default = undefined)**.

**Note:** If the Site I.D. begins with an underscore (  ), the message will be displayed *after* the "PollCat-NetLink" message during login. If the Site ID message does not begin with an underscore, then the message will be displayed *before* the "PollCat-NetLink" message.

3. **Real-Time Clock:** Sets the internal clock and calendar as described in Section 5.3.2.
4. **Wrap-Around:** Allows new data to be written over older data when internal memory becomes full. The Wrap-Around option applies to both alarm data and non-alarm data. New data will not overwrite older data in the current partition while command mode is active; instead, new data will be stored outside the top boundary. If memory is completely full, no additional data will be stored while data is being read from the unit. **(Default = On)**.

**Note:** When Wrap-Around is enabled and memory becomes full, there will be a delay while the unit clears old data and writes new data to memory. During this period, NetLink II will delay response to additional commands. Newly received data will *not* be lost during this delay.

5. **Alarm Data Wrap-Around:** This feature is identical to item 6 above, except that the Alarm Data Wrap-Around only applies to data that matched a user-defined Alarm Clue. For more information on Alarms and Alarm Clues, please refer to Section 9. (**Default = Off**).

### 5.3.1. The User Directory

Whenever you attempt to access NetLink II's command mode, you will be prompted to enter a login name and password. Each login name / password combination is defined within a "user account." User accounts can be created, edited and deleted via the User Directory menu. In addition to login names and passwords, user accounts can also define a "dialback number" for the account, and set the security level ("Administrator" or "User") for each account.

Accounts that provide "Administrator" command capability will be able to invoke all NetLink II commands and access all configuration menus. Accounts that provide "User" access privileges will only be allowed to retrieve data, and will not have access to configuration functions.

To add new accounts, edit accounts, or display account details, go to the System Parameters menu, type **1** and press **[Enter]**. The User Directory Menu will appear as shown in Figure 5.3. The User Directory Menu offers the following options:

1. **Add User Name / Password:** Defines new User Accounts as described in Section 5.3.1.2.
2. **Edit / Delete from List:** This item is used to edit or delete existing User Accounts. Desired accounts are selected from a list of all accounts as described in Section 5.3.1.3.

**Note:** When the last User Account is deleted from the directory, the default "SUPER" and "SMDR" accounts will be automatically restored.

#### USER DIRECTORY:

1. Add User Name/Password
2. Edit/Delete from List
3. Edit/Delete from Search
4. View User Directory
5. Default User Directory

Enter selection,  
Press <ESC> to return to previous menu ...

Figure 5.3: The User Directory Menu

3. **Edit / Delete from Search:** This item is also used to edit or delete existing User Accounts; except in this case, accounts are selected using a Search Function, which can locate accounts based on login name or password as described in Section 5.3.1.3.

**Note:** When the last User Account is deleted from the directory, the default "SUPER" and "SMDR" accounts will be automatically restored.

4. **View User Directory:** Displays a summary of all defined User Accounts, including the login name, dialback number, status of the Dialback option, and currently selected Access Mode for each account as described in Section 5.3.1.4. Note that this option does not display actual passwords, and instead lists the password as "defined."
5. **Default User Directory:** Clears all user-defined accounts and restores the default "SUPER" and "SMDR" User Accounts.

**Notes:**

- When this command is invoked via Telnet, the User Account that was employed to access command mode will not be deleted.
- Deleted accounts cannot be recovered.

#### 5.3.1.1. Administrator Access

In order to prevent configuration parameters from being changed by unauthorized personnel, the NetLink II allows you to enable or disable Administrator commands for each user account. Note that in the default state, the NetLink II includes one predefined user account that provides access to Administrator commands; the default login name for this account is "SUPER" (uppercase, no quotation marks), and the password for the account is also "SUPER".

**Notes:**

- It is recommended that when initially setting up the unit, you should either change the login name and password for the default "SUPER" account, or preferably, a new account with Administrator access should be created, and the "SUPER" account should then be deleted. This will prevent unauthorized users, who are familiar with the default NetLink II login information, from gaining access to command mode
- If the NetLink II is reset to default parameters, all user accounts will be cleared, and the default "SUPER" account will be restored.

```

ADD USER NAME/PASSWORD:

1. User Name:      (undefined)
2. Password:      (undefined)
3. Dial Back #:   (undefined)
4. Dial Back Mode: Off
5. Access Mode:   User
6. SSH Host Keys: (undefined)
7. Save Entry

Enter selection,
Press <ESC> to return to previous menu ...

```

Figure 5.4: The Add User Name/Password Menu

### 5.3.1.2. Adding New User Accounts

The Add User Name/Password menu (Figure 5.4) allows you to create up to sixteen user accounts, and define login names, passwords and dialback numbers, and set the security level for each account.

1. **User Name:** The name entered at the login prompt. The user name is also the account name. (4 to 16 Characters; **Default = undefined.**)
2. **Password:** (4 to 16 Characters; **Default = undefined.**)
3. **Dial Back #:** The number that will be dialed, when NetLink II is contacted via modem, and the Dial Back Mode is enabled. For more information on Dial Back Security, please refer to Section 5.4.4.1. (Up to 32 Characters, **Default = undefined.**)

**Note:** If the Dialback Number is not defined, then Dialbacks will not be performed for this user.

4. **Dial Back Mode:** Enables/Disables the Dial Back Mode for this account. The Dial Back Mode can be employed to provide an additional level of security for Modem access to the NetLink II command mode. For more information on Dial Back Security, please refer to Section 5.4.4.1. (**Default = Off.**)
5. **Access Mode:** Determines whether this account will be allowed to invoke all commands (Administrator) or will be limited to commands used to retrieve data (User.) For more information on Administrator and User commands, please refer to Appendix C. (**Default = User.**)
6. **SSH Host Keys:** This prompt is used to enter the SSH Host Keys for this user. When the SSH Host Keys for a given user have been defined, that User becomes a "trusted host" and will be allowed to login to the NetLink II unit without first entering a password. Client public keys must be made with the username and no passphrase. (**Default = undefined.**)
7. **Save Entry:** After all account information has been defined, this option is used to save each entry to NetLink II's internal memory.

### 5.3.1.3. Editing and Deleting User Accounts

Items 2 and 3 in the User Directory Menu are used to edit or delete existing User Accounts. Both of these options allow you to change the login name, password, Dial Back Number, Dial Back Mode and Access Mode for any user account, or delete the account entirely. The difference between these two options, is that when Item 2 is selected, the target account (the account that you wish to edit or delete) is chosen from a list of all accounts, and when Item 3 is selected, a search function is used to locate the account based on the login name or password.

**Note:** When the last user-defined account is deleted from the directory, the default "SUPER" and "SMDR" User Accounts will be automatically restored.

1. **Edit/Delete from List:** When item 2 is selected, NetLink II will display a screen which lists all defined accounts.
  - a) Use the ">" and "<" keys to scroll through the list, until the desired account name appears at the bottom of the list.
  - b) When the desired account appears at the bottom of the list, type **E** and press **[Enter]**; a screen will be displayed, which allows you to edit and save or delete the selected account.
  - c) To edit or delete the selected account, key in the number for the desired option or parameter, press **[Enter]** and follow the instructions in the resulting submenu.
  - d) To exit the "Edit/Delete from List" function, press **[Esc]**; NetLink II will return to the User Directory menu.
2. **Edit/Delete from Search:** When item 3 is selected, NetLink will display a screen which prompts you to search by user name (login name) or search by password.
  - a) **Search by User Name:** Type **1** and press **[Enter]**. NetLink II will prompt you to key in the desired user name and press **[Enter]**. If the user name is found, a screen will be displayed which allows you to edit and save or delete the selected account.
  - b) **Search by Password:** Type **2** and press **[Enter]**. The unit will prompt you to key in the desired password and press **[Enter]**. If the password is found, a screen will be displayed which allows you to edit and save or delete the selected account.

If several accounts which share the same password are found, use the ">" and "<" keys to scroll through the search matches until the desired account is found.



User Name	Dial Back Phone Number	DB	MODE	KEY
SMDR	(undefined)	Off	User	No
SUPER	(undefined)	Off	Adm	No
accounting	(undefined)	Off	Adm	Yes
data center	5554412	Off	User	Yes
engineering	5556789	On	Adm	No
guest	(undefined)	Off	User	No
dave	(undefined)	Off	Adm	Yes
everette	5553409	On	Adm	No
nancy	5550976	On	Adm	No
donnie	(undefined)	Off	User	Yes
mark	5551112	On	User	No
kristy	5551331	On	User	No
mario	(undefined)	Off	Adm	Yes
dennis	5557690	On	User	No
sharon	5556615	On	User	No
chris	5558272	On	User	No

Reached End of Directory.  
Press <Enter> to return to menu ...

Figure 5.5: The "View User Directory" Screen (Sample Data Shown)

- c) To edit or delete the selected account, key in the number for the desired option or parameter, press **[Enter]** and follow the instructions in the resulting submenu.
- d) To exit the "Edit/Delete from Search" function, press **[Esc]**. NetLink II will return to the User Directory menu.

#### Notes:

- Deleted accounts cannot be automatically restored.
- The NetLink II allows you to delete the default "SUPER" account, which is included to permit initial access to command mode. Before deleting the "SUPER" account, make certain to create another account that permits Administrator Access. If you do not retain at least one account with Administrator Access, you will not be able to invoke administrator level commands.

#### 5.3.1.4. Viewing the User Directory

The "View User Directory" option allows you to display a screen that lists the Login Name, Dial Back Number, Dial Back Mode, Access Mode and whether or not an SSH Key has been defined for each defined user account as shown in Figure 5.5 above.

To view account details, go to the System Parameters menu (Main Menu, Item 23), type **1** and press **[Enter]** to display the User Directory Menu, and then type **4** and press **[Enter]** to display the User Directory as shown in Figure 5.5.

```
REAL-TIME-CLOCK:

1. Date:           12/17/2047
2. Time:           02:16:12
3. Time Zone:      (GMT+0000) GMT (No DST)
4. NTP Enable:     Off
5. NTP IP Addr 1:  (undefined)
6. NTP IP Addr 2:  (undefined)
7. NTP Timeout:    3 Secs

Enter selection,
Press <ESC> to return to previous menu ...
```

Figure 5.6: The Real Time Clock Menu

### 5.3.2 Real-Time Clock Settings

This menu is used to set the Real-Time clock and calendar, select the time zone, and configure and enable the NTP (Network Time Protocol) feature. The Real Time Clock menu offers the following settings:

1. **Date:** Sets the Month, Date and Year for the real-time clock/calendar.
2. **Time:** Sets the Hour, Minute and Second for the real time clock/calendar. Key in the time using the 24-hour (military) format.
3. **Time Zone:** Sets the time zone, relative to Greenwich Mean Time. Note that the Time Zone setting will function differently, depending on whether or not the NTP feature is enabled and properly configured: **(Default = GMT.)**
  - **NTP Enabled:** The Time Zone setting is used to automatically adjust the Greenwich Mean Time value (received from the NTP server) to determine the local time for the selected time zone.
  - **NTP Disabled:** If disabled, or if NetLink II cannot access the NTP server, then status screens and activity logs will list the selected Time Zone and currently defined clock value, but will not apply the correction factor to the displayed value.
4. **NTP Enable:** When enabled, NetLink II will contact an NTP server at the selected IP Address once a day, and update clock settings based on the current NTP server time and selected Time Zone. **(Default = Off.)**

**Note:** The NetLink II will also contact the NTP server and update the time whenever you change NTP parameters.
5. **NTP IP Address 1:** Defines the IP address for the primary NTP server. **(Default = undefined.)**
6. **NTP IP Address 2:** The IP address for the secondary, fallback NTP Server. **(Default = undefined.)**
7. **NTP Timeout:** Defines how much time will elapse between each attempt to contact the NTP server. **(Default = 3 Seconds.)**

PORT CONFIGURATION:	
PBX SERIAL INPUT PORTS	COMMAND PORTS
1. PBX Port	21. Console Port
	22. Modem Port
	23. Network Port
PBX IP INPUT PORTS	POLLING PORTS
11. PBX IP Port	31. Push
	32. Server
Enter selection, Press <ESC> to return to previous menu ...	

Figure 5.7: Port Configuration Menu

## 5.4. Port Configuration

To configure the PBX Input Ports, Console Port, Modem Port, Network Port or Push FTP Feature, go to the Main Menu, type **22** and press **[Enter]**. The Port Configuration Menu (Figure 5.7), will be displayed. To select and configure ports, proceed as follows.

### 5.4.1. PBX Serial Input Port

At the Port Configuration Menu, type **1** and then press **[Enter]**. The PBX Port Configuration menu (Figure 5.8) includes the following items:

#### Communication Settings:

1. **Baud Rate:** Selects the baud rate for the PBX Input Port. Any standard rate from 1200 bps to 115.2K bps. (**Default = 9600.**)
2. **Data Bits:** Selects 7 or 8 Data Bits. (**Default = 7.**)
3. **Parity:** Selects Even, Odd, or No Parity. (**Default = Even.**)
4. **Stop Bits:** Selects 1 or 2 stop bits. (**Default = 1.**)
5. **Handshake Mode:** Selects flow control for the PBX Input Port; XON/XOFF, RTS/CTS, both, or None. (**Default = None.**)

#### Input Parameters:

11. **Time/Date Stamp:** The date stamp can be inserted at the beginning of each record received by this port. This prompt is used to disable the function, or select the short format or long format. The short format (PollCat III Compatible) lists Month, Date, Hour and Minute; the long format lists Month, Date, Year, Hour, Minute, and Second. (**Default = Off.**)
12. **Serial Number Stamp:** Inserts a six digit number at the beginning of all records received by this port. (**Default = Off.**)

PBX PORT:

COMMUNICATION SETTINGS

1. Baud Rate: 9600

2. Data Bits: 7

3. Parity: Even

4. Stop Bits: 1

5. Handshake Mode: None

INPUT PARAMETERS

11. Time/Date Stmp: Off

12. Serial No Stmp: Off

13. Strip Non-Prnt: On

14. End Character: ^J

15. Alarm Filter: Off

16. Store Alm Data: Both

17. Data Filter: Off

18. PBX Inact Alm: Off

FIELD SUPPRESSION

31. Lucent Switch

Enter selection,

Press <ESC> to return to previous menu ...

Figure 5.8: PBX Port Configuration Menu

- 13. **Strip Non-Printables:** Conserves memory by excluding characters such as Nuls and Dels. (**Default = On.**)
- 14. **End Character:** Defines the End-of-Record (EOR) character that NetLink II expects to see at the end of each record received at this port. (**Default = ^J (Line Feed).**)
- 15. **Alarm Filter:** Enables/disables the Alarm Filter and selects the Alarm Filter for this port. The Alarm Filter monitors data, and notifies the user when specific types of data are detected. For more information, please refer to Section 9. (**Default = Off.**)
- 16. **Store Alarm Data:** Determines where NetLink II will store alarm data received via this port. Alarm Records can be stored in the Alarm File, the Standard (non-alarm) File, or both files. For more information, please refer to Section 15.1.1. (**Default = Both.**)
- 17. **Data Filter:** Enables/disables the Data Filter and selects the Data Filter used by this port. The Data Filter conserves memory and cuts polling time by excluding records not needed for your application. For more information, please refer to Section 8. (**Default = Off.**)
- 18. **PBX Inactivity Alarm:** Enables/disables the PBX Inactivity Alarm and selects the format for this port. The inactivity alarm monitors the flow of data from the PBX and notifies the user if the flow stops. For further instructions, please refer to Section 10. (**Default = Off.**)

**Field Suppression:**

- 31. **Lucent Switch:** This Item can be used to suppress the phone number field in certain data records, as described in Section 5.4.1.1. This feature is useful in instances where local regulations prohibit the transfer of phone number records via network.

```

LUCENT SWITCH:

GENERAL PARAMETERS
1. Supp Num In:      Source
2. Supp Num Out:     Off
3. Supp Trunk:       Off
4. Num Chars In:     4
5. Num Chars Out:    4

FIELD LOCATION
11. Dest Num Loc:    12
12. Src Num Loc:     34
13. In Trunk Loc:    14
14. Out Trunk Loc:   50

FIELD LENGTH
21. Dest Num Len:    22
22. Src Num Len:     12
23. In Trunk Len:    24
24. Out Trunk Len:   4

Enter selection,
Press <ESC> to return to previous menu ...

```

Figure 5.9: Field Suppression: The Lucent Switch Option

#### 5.4.1.1. Field Suppression; The Lucent Switch Feature

This feature is used to suppress portions of the data record that may contain phone numbers and trunk numbers, allowing HIPPA compliant data transmission. This feature is useful in situations where either local laws or regulating agencies prohibit the transmission of phone numbers. The Lucent Switch configuration menu offers the following options:

##### General Parameters:

1. **Suppress Number:** When enabled, all or part of each phone number will be suppressed and not included in transmitted call records. This item can be used to select destination numbers, source numbers, both types of numbers or neither (Off.) **(Default = Off.)**
2. **Suppress Trunk:** When enabled, all or part of trunk numbers will be suppressed and not included in transmitted call records. This item can be used to select the inbound trunk, outgoing trunk, both or neither (Off.) **(Default = Off.)**
3. **Call Direction:** This item is used to determine if the VIP will suppress incoming phone numbers, outgoing phone numbers or both types of numbers. **(Default = Outgoing.)**
4. **Number of Characters In:** This item determines how many characters (counting from right to left) will be stripped from the source number field. (Default = 4.)
5. **Number of Characters Out:** This item determines how many characters (counting from right to left) will be stripped from the destination number field. (default = 4.)

**Field Location:**

11. **Destination Number Location:** This item is used to define the beginning of the field that is normally used to store the destination phone number. **(1 to 216 Characters; Default = 16.)**
12. **Source Number Location:** Defines the beginning of the field that is normally used to store the source phone number. **(1 to 216 Characters; Default = 34.)**
13. **Inbound Trunk Location:** Defines the beginning of the field that is normally used to store the inbound trunk number. **(1 to 216 Characters; Default = 46)**
14. **Outbound Trunk Location:** Defines the beginning of the field that is normally used to store the outbound trunk location. **(1 to 216 Characters; Default = 50.)**

**Field Length:**

21. **Destination Number Length:** This item is used to define the length of the field that is normally used to store the destination phone number. **(1 to 32 Characters; Default = 18.)**
22. **Source Number Length:** Defines the length of the field that is normally used to store the source phone number. **(1 to 32 Characters; Default = 12.)**
23. **Inbound Trunk Length:** Defines the length of the field that is normally used to store the inbound trunk number. **(1 to 32 Characters; Default = 4.)**
24. **Outbound Trunk Length:** Defines the length of the field that is normally used to store the outbound trunk number. **(1 to 32 Characters; Default = 4.)**

PBX IP PORT:	
COMMUNICATION SETTINGS	
1. Service:	On
2. Port Number:	9000
3. Window Size:	6
4. Keep Alive Send:	60 Secs
5. Keep Alive Resp:	60 Secs
6. SDM Resp:	30 Secs
INPUT PARAMETERS	
11. Time/Date Stmp:	Off
12. Serial No Stmp:	Off
13. Strip Non-Prnt:	On
14. End Character:	^J
15. Alarm Filter:	Off
16. Store Alm Data:	Alarm
17. Data Filter:	Off
18. PBX Inact Alm:	Off
MISCELLANEOUS	
21. Disconnect	
22. Last Status	
FIELD SUPPRESSION	
31. Lucent Switch	
Enter selection, Press <ESC> to return to previous menu ...	

Figure 5.10: PBX IP Port Configuration Menu

### 5.4.2. PBX IP Port Configuration

The PBX IP Port allows the NetLink II to collect data via network connection, from an RSP type PBX, such as an Avaya PBX Switch. To configure the PBX IP Port, first go to the Port Configuration Menu (Main Menu, Item 22.) Type **11** and press **[Enter]**. The menu shown in Figure 5.10 will be displayed. The following options are available:

**Note:** If an asterisk (\*) appears next to a menu item, this indicates that the change cannot be implemented until later. For example, an asterisk will appear next to the Port Number if that Port Number is already in use.

#### Communication Settings:

1. **Service:** (Default = On.)
2. **Port Number:** The RSP Port Number. Cannot be a Telnet Port, FTP Port, SMTP Port or HTTP Port. (From 1 to 65535; **Default = 9000.**)
3. **Window Size:** The RSP Window Size. (From 1 to 255; **Default = 6.**)
4. **Keep Alive Send:** The "keep alive send" timeout in seconds. (From 1 to 3600; **Default = 60 Seconds.**)
5. **Keep Alive Response:** The "keep alive response" timeout in seconds. (From 1 to 3600; **Default = 60 Seconds.**)
6. **SDM Response:** The session disconnect message response timeout in seconds. (From 1 to 3600; **Default = 30 Seconds.**)

### Input Parameters:

11. **Time/Date Stamp:** The time/date stamp can be inserted at the beginning of each record received by this port. This prompt is used to disable the function, or select the short format or long format. The short format (PollCat III Compatible) lists Month, Date, Hour and Minute; the long format lists Month, Date, Year, Hour, Minute, and Second. (**Default = Off.**)
12. **Serial Number Stamp:** Inserts a six digit number at the beginning of each record received by this port. (**Default = Off.**)
13. **Strip Non-Printables:** Conserves memory by excluding characters such as Nuls and Dels. (**Default = On.**)
14. **End Character:** Defines the End-of-Record (EOR) character that NetLink II will expect to see at the end of each record received at this port. (**Default = ^J (Line Feed).**)
15. **Alarm Filter:** Enables/disables the Alarm Filter and selects the Alarm Filter that will be used by this port. For more information on the Alarm Filters, please refer to Section 9. (**Default = Off.**)
16. **Store Alarm Data:** Determines where the NetLink II will store alarm data received via this port. Alarm Records can be stored in the Alarm File, the Standard (non-alarm) File, or both files. For more information, please refer to Section 15.1.1. (**Default = Both.**)
17. **Data Filter:** Enables/disables the Data Filter, and selects the Data Filter that will be used by this port. For more information on the Data Filters, please refer to Section 8. (**Default = Off.**)
18. **PBX Inactivity Alarm:** Enables/disables the PBX Inactivity Alarm and selects the format for this port. The inactivity alarm monitors the flow of data from the PBX and provides notification if the flow stops. For further instructions, please refer to Section 10. (**Default = Off.**)

### Miscellaneous:

21. **Disconnect:** Terminates the connection to the RSP server.
22. **Last Status:** Displays the current status of the RSP connection.

### Field Suppression:

31. **Lucent Switch:** This Item can be used to suppress the phone number field in certain data records, as described in Section 5.4.1.1. This feature is useful in instances where local regulations prohibit the transfer of phone number records via network.



```

CONSOLE PORT:

COMMUNICATION SETTINGS
1. Baud Rate:      9600
2. Data Bits:      8
3. Parity:         None
4. Stop Bits:      1
5. Handshake Mode: RTS/CTS

OUTPUT PARAMETERS
21. Output Mode:   ASCII Record
22. Data on ^B01:  On
23. Hold End Data: On
24. Line # Tag:    Off
25. Send Compress: Off
26. Auto Delete:   Off

GENERAL PARAMETERS
11. Command Echo:  On
12. Response Type: Inhibit Menu
13. "Sure" Prompt: On
14. CMD Timeout:   15 Mins
15. Audit Trail:   Off

ACTION PARAMETERS
16. Action Delay:  10 Secs

Enter selection,
Press <ESC> to return to previous menu ...

```

Figure 5.11: Console Port Configuration Menu

### 5.4.3. Console Port Configuration

The Console Port is used for connection to a local control device, such as a PC or laptop. To configure the Console Port, first go to the Port Configuration Menu (Main Menu, item 22). Type **21** and press **[Enter]**. The menu shown in Figure 5.11 will be displayed, offering the following options:

#### Communication Settings:

1. **Baud Rate:** Selects the baud rate for the Console Port. Any standard rate from 1200 bps to 115.2K bps. (**Default = 9600.**)
2. **Data Bits:** Selects 7 or 8 Data Bits. (**Default = 8.**)
3. **Parity:** Selects Even, Odd, or No Parity. (**Default = None.**)
4. **Stop Bits:** Selects 1 or 2 stop bits. (**Default = 1.**)
5. **Handshake Mode:** Selects flow control for the PBX Input Port; XON/XOFF, RTS/CTS, both, or None. (**Default = RTS/CTS.**)

#### General Parameters:

11. **Command Echo:** Enables / Disables the command echo for this port. When enabled, keystrokes sent to the NetLink II via the Console Port will also be displayed on your monitor. (**Default = On.**)
12. **Response Type:** Determines how the Console Port will react when command mode is activated. If "Send Menu" is selected, NetLink II will immediately display the Main Menu when command mode is activated. If "Inhibit Menu" is selected, NetLink II will not display the Main Menu until **[Enter]** is pressed. (**Default = Inhibit Menu.**)

13. **"Sure" Prompt:** When irreversible commands (such as "Erase Data") are invoked at this port, the NetLink II can display the "Sure" prompt to allow one last chance to confirm that the command should be executed. **(Default = On.)**
14. **Command Timeout:** Sets the Timeout value for this port. When the NetLink II detects no command activity at this port for the specified timeout period, the port will exit command mode and disconnect. **(Default =15 minutes.)**
15. **Audit Trail:** Enables the Audit Trail function at this port, and determines whether or not log entries will be sent to the SYSLOG IP address (defined via the Network Port configuration menu.) When enabled, NetLink II will log command activity at this port. For more information on the Audit Log function, please refer to Section 16.1.6. The Audit Trail function offers the following options: **(Default = Off.)**
  1. **Record with SYSLOG:** Enable the Audit Trail function, and send log entries to the user-defined SYSLOG IP Address. Note that in order for this feature to work, the SYSLOG IP Address must be defined as described in Section 5.4.5.
  2. **Record without SYSLOG:** Enable the Audit Trail function, and do not send out log entries via SYSLOG.
  3. **Off:** Audit Trail Function disabled.

#### Action Parameters:

16. **Action Delay:** When multiple alarm actions are directed to this port, the action delay determines how much time will elapse between actions. The Action Delay makes it easier to connect to the port, by providing a window when the port is not busy sending out actions. (Zero to 9999 Seconds; **Default = 10 seconds.**)

#### Output Parameters:

21. **Output Mode:** Selects the data output format for this port; ASCII Record, XModem-CRC or ZModem. **(Default = ASCII Record.)**

**Note:** When using Zmodem output mode, please refer to the cautions listed in Section 15.7.
22. **Data on ^B01:** If enabled, NetLink II will immediately begin sending data when the data release command is invoked (Menu or ^B01). If disabled, NetLink II will send the "READY" message, then wait for Command ^B02 before releasing data. **(Default = On.)**

- 23. **Hold "End Data":** At the end of each data release session, NetLink II will send the "End Data" message before returning to command mode. When this option is enabled, this port will wait for Command ^B02 before sending the End Data message. (**Default = On.**)
- 24. **Line # Tag:** Inserts a Line Number at the beginning of each record released by this port. These Line Numbers are not stored in internal memory, but are added when data is released. (**Default = Off.**)
- 25. **Send Compressed:** Determines whether this port will release data in space compressed or normal format. (**Default = Off.**)
- 26. **Auto Delete:** When enabled, data will be automatically deleted from NetLink II's memory at the end of each successful read. If the read operation is interrupted, data will *not* be deleted. (**Default = Off.**)

**Note:** Prior to enabling the Auto Delete function, please refer to the cautions listed in Section 15.6.

MODEM PORT:Modem Installed

COMMUNICATION SETTINGS

1. Baud Rate:57600

2. Data Bits:8

3. Parity:None

4. Stop Bits:1

5. Handshake Mode:None

6. MODEM Strings

7. Reset Modem

OUTPUT PARAMETERS

21. Output Mode:ASCII Record

22. Data on ^B01:On

23. Hold End Data:On

24. Line # Tag:Off

25. Send Compress:Off

26. Auto Delete:Off

CALLOUT PARAMETERS

31. Dial Attempts:3

32. Sequence Att:3

33. Sequence Delay:10 Mins

34. Imm Callout:Off

35. Imm Phone #: (undefined)

(Cont.):

36. Dialback Scrty:DB with Pswd

GENERAL PARAMETERS

11. Command Echo:On

12. Response Type:Inhibit Menu

13. "Sure" Prompt:On

14. CMD Timeout:15 Mins

15. Audit Trail:Off

ACTION PARAMETERS

16. Action Delay:300 Secs

Enter selection,

Press <ESC> to return to previous menu ...

Figure 5.12: Modem Port Configuration Menu

5.4.4. Modem Port Configuration

To configure the Modem Port, go to the Port Configuration Menu (Main Menu, item 22), type **22** and press **[Enter]**. The configuration menu shown in Figure 5.12 will appear. The following options are available:

Communication Settings:

- Baud Rate:** Selects the baud rate for the Console Port. Any standard rate from 1200 bps to 115.2K bps. (**Default = 57600.**)
- Data Bits:** Selects 7 or 8 Data Bits. (**Default = 8.**)
- Parity:** Selects Even, Odd, or No Parity. (**Default = None.**)
- Stop Bits:** Selects 1 or 2 stop bits. (**Default = 1.**)
- Handshake Mode:** Selects flow control for the PBX Input Port; XON/XOFF, RTS/CTS, both, or None. (**Default = None.**)
- Modem Strings:** Sets the Modem Reset String, Modem Initialization String and Hang-up String as described below.
  - Modem Reset String:** Type **1**, press **[Enter]**, and then key in the desired string in the resulting submenu. (Up to 16 Characters, **Default = ATZ.**)
  - Initialization String:** Type **2**, press **[Enter]**, and then key in the desired string in the resulting submenu. (Up to 32 Characters, **Default = ATE0M0Q1&C1&D2S0=1.**)

3. **Hang-Up String:** Type **3**, press **[Enter]**, and then key in the desired string in the resulting submenu. (Up to 32 Characters, **(Default = undefined.)**)
7. **Reset Modem:** Resets the internal modem.

**General Parameters:**

11. **Command Echo:** Enables / disables command echo (duplex mode) for this port. When enabled, keystrokes sent to the NetLink II via the Modem Port will also be displayed on your monitor. **(Default = On.)**
12. **Response Type:** Determines how this port will react when command mode is activated. If "Send Menu" is selected, NetLink II will immediately display the Main Menu when command mode is activated. If "Inhibit Menu" is selected, NetLink II will not display the Main Menu until **[Enter]** is pressed. **(Default = Inhibit Menu.)**
13. **"Sure" Prompt:** When irreversible commands (such as "Erase Data") are invoked at this port, the NetLink II can display the "Sure" prompt to allow one last chance to confirm that the command should be executed. **(Default = On.)**
14. **Command Timeout:** Sets the Timeout value. When no additional command activity is detected at this port during the specified timeout period, the port will exit command mode and disconnect. (Zero to 999 Minutes, **Default =15 minutes.**)
15. **Audit Trail:** Enables the Audit Trail function at this port, and determines whether or not log entries will be sent to the SYSLOG IP address (defined via the Network Port configuration menu.) When enabled, NetLink II will log command activity at this port. For more information on the Audit Log function, please refer to Section 16.1.6. The Audit Trail function offers the following options: **(Default = Off.)**
  1. **Record with SYSLOG:** Enable the Audit Trail function, and send log entries to the user-defined SYSLOG IP Address. Note that in order for this feature to work, the SYSLOG IP Address must be defined as described in Section 5.4.5.
  2. **Record without SYSLOG:** Enable the Audit Trail function, and do not send out log entries via SYSLOG.
  3. **Off:** Audit Trail Function disabled.

**Action Parameters:**

16. **Action Delay:** When multiple alarm actions are directed to this port, the action delay determines how much time will elapse between actions. The Action Delay makes it easier to connect to the port, by providing a window when the port is not busy sending out actions. (Zero to 9999 Seconds; **Default = 300 seconds.**)

**Output Parameters:**

21. **Output Mode:** Selects the data output format for this port; ASCII Record, XModem-CRC or ZModem. (**Default = ASCII Record.**)

**Note:** When using ZModem Output Mode, please refer to the cautions listed in Section 15.7.

22. **Data on ^B01:** When enabled, NetLink II will immediately begin sending data when the data release command is invoked (Menu or ^B01). When disabled, NetLink II will send the "READY" message, then wait for Command ^B02 before releasing data. (**Default = On.**)
23. **Hold "End Data":** At the end of each data release session, NetLink II will send the "End Data" message before returning to command mode. When enabled, this port will wait for Command ^B02 before sending the End Data message. (**Default = On.**)
24. **Line # Tag:** Inserts a Line Number at the beginning of each record released by this port. These Line Numbers are not stored in internal memory, but are added when data is released. (**Default = Off.**)
25. **Send Compressed:** Determines whether this port will release data in space compressed or normal format. (**Default = Off.**)
26. **Auto Delete:** When enabled, data will be automatically deleted from NetLink II's memory at the end of each successful read. If the read is interrupted, data will not be deleted. (**Default = Off.**)

**Note:** Before enabling the Auto Delete function, please refer to the cautions listed in Section 15.6.

**Callout Parameters:**

31. **Dial Attempts:** The number of times the modem will redial a phone number when there is no answer, or the carrier is not received. (Zero to 99 attempts; **Default = 3.**)
32. **Sequence Attempts:** The number of times the modem will restart the callout routine if the defined number of dial attempts is performed and there is no answer, or the carrier is not received. (Zero to 99 attempts; **Default = 3.**)
33. **Sequence Delay:** The amount of time between sequence attempts. (Zero to 999 Minutes; **Default = 10 Minutes**)
34. **Immediate Callout:** Activates the Immediate Callout feature. When enabled, NetLink II will dial the Immediate Phone Number after the user disconnects. Note that this feature must be enabled prior to each use, and the Immediate Phone Number must be defined in order for this feature to function. (**Default = Off.**)
35. **Immediate Phone #:** The number that is dialed when an Immediate Callout is performed. (Up to 32 characters; **Default = undefined.**)
36. **Dialback Security:** Defines and enables dialback security parameters. For more information, please refer to Section 5.4.4.1. (**Default = Dialback with Password.**)

#### 5.4.4.1. Dialback Security

This feature provides an extra measure of security for modem access to command mode. When this option is properly configured and enabled, callers will not be granted immediate access to command mode upon entering a valid password; instead, the unit will disconnect, and then dial a user-defined number before allowing access via that number. If desired, users may also be required to re-enter the password after the NetLink II dials back.

In order for Dialback Security to function, you must first select a Dial Back option via the Modem Port menu (Section 5.4.4.), and then define a Dialback Number for each desired user account (Section 5.3.1.) Note that Dialback Numbers are defined via the User Directory menu, and if desired, each user can have a different Dialback number.

To access the Dialback Security menu from the Modem Port Configuration menu, type **36** and press **[Enter]**. The Dialback Security menu offers the following options:

1. **Dial Back with Password:** Dialbacks will be performed for user accounts that include a Dialback Number, and the login prompt will be displayed when the user's modem answers (accounts that include a Dialback Number will be required to re-enter their login name/ password when their modem answers.) If the account does *not* include a Dialback Number, then that user will be granted immediate access and a Dialback will not be performed.
2. **Dial Back without Password:** Dialbacks will be performed for user accounts that include a Dialback Number, and the login prompt will *not* be displayed when the user's modem answers. If the account does *not* include a Dialback Number, then that user will be granted immediate access to command mode, and a Dialback will not be performed.



```

NETWORK PORT:

COMMUNICATION SETTINGS
1. IP Address:      192.168.168.168
2. Subnet Mask:    255.255.255.0
3. Gateway Addr:   (undefined)
4. DHCP:           Off
5. IP Security:    Off

GENERAL PARAMETERS
11. Command Echo:   On
12. Response Type:  Inhibit Menu
13. "Sure" Prompt:  On
14. CMD Timeout:    15 Mins
15. Audit Trail:    Off

ACTION PARAMETERS
16. Action Delay:   10 Secs

OUTPUT PARAMETERS
21. Output Mode:    ASCII Record
22. Data on ^B01:   On
23. Hold End Data:  On
24. Line # Tag:     Off
25. Send Compress:  Off
26. Auto Delete:    Off

SERVERS AND CLIENTS
31. Telnet Access:  Off
32. SSH Access:     On
33. SYSLOG IP Addr: (undefined)
34. SNMP Access:    Off
35. SNMP Trap:      Off
36. TACACS:         Off
37. RADIUS:         Off
38. Email/Txt Msg   Off
39. PPP Dialout     Off

Enter selection,
Press <ESC> to return to previous menu ...

```

Figure 5.13: Network Configuration Menu

### 5.4.5. Network Port Configuration

Settings for network parameters, such as the IP Address and Subnet Mask, will be determined by your network configuration. Please contact your network administrator for appropriate settings, then assign parameters as described in this section. The Network Port Configuration Menu (Figure 5.13) offers the following options:

**Note:** Network parameters cannot be changed while a network connection is in progress.

#### Communication Settings:

1. **IP Address:** NetLink II's IP Address (**Default = 192.168.168.168.**)
2. **Subnet Mask:** (**Default = 255.255.255.0**)
3. **Gateway Address:** (**Default = undefined.**)
4. **DHCP:** Enables and configures Dynamic Host Configuration Protocol. When this option is enabled and properly configured, NetLink II will perform a DHCP request. Note that the MAC address for the NetLink II is listed on the Network Status Screen. (**Default = Off.**)

**Note:** Before configuring this feature, make certain that your DHCP server is set up to assign a known, fixed IP address. You will need this new IP address in order to reestablish a network connection with the NetLink II unit.

5. **IP Security:** Enables and configures the IP Security function. When enabled, the IP Security function allows you to restrict command mode access based on the user's IP address. For more information on the IP Security function, please refer to Section 5.4.5.1. (**Default = Off.**)

### General Parameters

11. **Command Echo:** Enables / disables command echo (duplex mode) for this port. When enabled, keystrokes sent to the NetLink II will be displayed on your monitor. (**Default = On.**)
12. **Response Type:** Determines how this port will react when command mode is activated. If "Send Menu" is selected, NetLink II will immediately display the Main Menu when command mode is activated. If "Inhibit Menu" is selected, NetLink II will not display the Main Menu until **[Enter]** is pressed. (**Default = Inhibit Menu.**)
13. **"Sure" Prompt:** When irreversible commands (such as "Erase Data") are invoked, this port can display the "Sure" prompt to allow one last chance to confirm that the command should be executed. (**Default = On.**)
14. **Command Timeout:** Sets the Timeout value. If no additional command activity is detected at this port during the defined timeout period, this port will exit command mode and disconnect. (**Default =15 minutes.**)
15. **Audit Trail:** Enables the Audit Trail function at this port, and determines whether or not log entries will be sent to the SYSLOG IP address (defined via the Network Port configuration menu.) When enabled, NetLink II will log command activity at this port. For more information on the Audit Log function, please refer to Section 16.1.6. The Audit Trail function offers the following options: (**Default = Off.**)
  1. **Record with SYSLOG:** Enable the Audit Trail function, and send log entries to the user-defined SYSLOG IP Address. Note that in order for this feature to work, the SYSLOG IP Address must be defined.
  2. **Record without SYSLOG:** Enable the Audit Trail function, and do not send out log entries via SYSLOG.
  3. **Off:** Audit Trail Function disabled.

**Action Parameters:**

16. **Action Delay:** When multiple alarm actions are directed to this port, the action delay determines how much time will elapse between actions. This makes it easier to connect to the port, by providing a window when the port is not busy sending out actions. (Zero to 9999 Seconds; **Default = 10 Seconds.**)

**Output Parameters:**

21. **Output Mode:** Selects the data output format for this port; ASCII Record, XModem-CRC or ZModem. (**Default = ASCII Record.**)  
**Note:** When using ZModem Output Mode, please refer to the cautions listed in Section 15.7.
22. **Data on ^B01:** When enabled, NetLink II will immediately begin sending data when the data release command is invoked (Menu or ^B01). When disabled, NetLink II will send the "READY" message, then wait for Command ^B02 before releasing data. (**Default = On.**)
23. **Hold End Data:** At the end of each data release session, NetLink II will send the "End Data" message before returning to command mode. When "Hold End Data" is enabled, this port will wait for Command ^B02 before sending the End Data message. (**Default = On.**)
24. **Line # Tag:** Inserts a Line Number at the beginning of each record released by this port. These Line Numbers are not stored in NetLink II's internal memory, but are added when data is released. (**Default = Off.**)
25. **Send Compressed:** Determines whether this port will release data in space compressed or normal format. (**Default = Off.**)
26. **Auto Delete:** When enabled, data will be automatically deleted from NetLink II's memory at the end of each successful read. If the read is interrupted, data will *not* be deleted. (**Default = Off.**)  
**Note:** Before enabling the Auto Delete function, please refer to the cautions listed in Section 15.6.

## Servers and Clients

31. **Telnet Access:** Enables/disables Telnet access to the NetLink II. When Telnet Access is "Off," users and administrators will not be able to establish a Telnet connection to the unit. **(Default = Off.)**  
  
**Note:** When the NetLink II unit is reset to defaults, the Telnet Access option will return to the default "Off" state. In order to communicate with the unit after it has been set to defaults, you must first access command mode via Console Port or Modem and enable Telnet Access.
32. **SSH Access:** Enables/disables SSH communication with the NetLink II. **(Default = On.)**
33. **SYSLOG IP Address:** The IP Address for the Syslog Daemon that will receive Audit Trail records generated by the NetLink II. For more information, please refer to Section 16.1.6. **(Default = undefined.)**
34. **SNMP Access:** Enables and configures SNMP Polling. The submenu for this item offers three options:
  1. **Enable:** Enables/disables SNMP Polling. **(Default = Off.)**
  2. **Contact:** The SNMP Contact. **(Default = undefined.)**
  3. **Location:** The SNMP Location. **(Default = undefined.)**
  4. **Community:** The SNMP Community. **(Default = Public.)**
35. **SNMP Trap:** Enables and configures the SNMP Trap function. When enabled, NetLink II can send SNMP traps in order to provide notification when alarms and other events are detected. For more information on Alarm Actions, please refer to Section 12. The submenu for this item offers three options:
  1. **SNMP Manager 1:** Defines the IP Address for the first SNMP Manager. NetLink II allows definition of two SNMP Managers. **(Default = undefined.)**
  2. **SNMP Manager 2:** Defines the IP Address for the second SNMP Manager. **(Default = undefined.)**
  3. **SNMP Community:** Defines the SNMP Community. **(Default = public.)**

36. **TACACS:** Enables and configures TACACS capability. The submenu for this item offers five options:
1. **Enable:** Enables/disables the TACACS feature. (**Default = Off.**)
  2. **IP Address 1:** Defines the IP Address for your primary TACACS server. (**Default = undefined.**)
  3. **IP Address 2:** Defines the IP Address for your secondary, fallback TACACS server (if present.) (**Default = undefined.**)
  4. **Secret Word:** Defines the shared TACACS Secret Word for both TACACS servers (IP Address 1 and IP Address 2.) (**Default = undefined.**)
  5. **Fallback Local:** Determines whether or not the NetLink II will fallback to its own User Directory when an authentication attempt fails. When enabled, NetLink II will first attempt to authenticate the password by checking the TACACS Server; if this fails, NetLink II will then attempt to authenticate the login information by checking its own internal user directory. (**Default = Off.**)
37. **RADIUS:** Enables and configures the RADIUS feature. The submenu for this item offers seven options:
1. **Enable:** Enables/disables the RADIUS feature. (**Default = Off.**)
  2. **IP Address 1:** Defines the IP Address for your primary RADIUS server. (**Default = undefined.**)
  3. **Secret Word 1:** Defines the RADIUS Secret Word for the primary RADIUS server (IP Address 1.) (**Default = undefined.**)
  4. **IP Address 2:** Defines the IP Address for your secondary, fallback RADIUS server (if present.) (**Default = undefined.**)
  5. **Secret Word 2:** Defines the RADIUS Secret Word for the secondary RADIUS server (IP Address 2.) (**Default = undefined.**)
  6. **Fallback Timer:** Determines how long NetLink II will continue to attempt to contact the primary RADIUS Server before falling back to the secondary RADIUS Server. (**Default = 3 Seconds.**)
  7. **Fallback Local:** Determines whether or not NetLink II will fall back to its own user directory when an authentication attempt fails. When enabled, NetLink II will first attempt to authenticate login information by checking the RADIUS server. If this fails, the unit will then attempt to authenticate the login information by checking its own internal user directory. (**Default = Off.**)

38. **Email / Txt Msg:** This item is used to define parameters that are employed when the NetLink II automatically generates an email or text message in order to notify the operator that an alarm has been detected. Note that these same parameters are also used when the "Scheduled Actions" feature is configured to send email or text messages. Email parameters are described further in Section 5.4.5.2.
39. **PPP Dialout:** When a cable Ethernet connection is not available, the PPP Dialout feature allows the NetLink II to dial out to an internet service provider, in order download stored call data. PPP Dialout parameters are described in detail in Section 5.4.5.3.

#### 5.4.5.1. The IP Security Feature

NetLink II can restrict unauthorized IP addresses from establishing an inbound Telnet connection to the unit. This allows the user to grant Telnet access to only a specific group of IP addresses, or block a particular IP address. In the default state, the NetLink II accepts incoming IP connections from all hosts.

The IP Security Function employs a TCP Wrapper program which allows the use of standard, Linux operators, wild cards and net/mask pairs to create a host based access control list.

As shown in Figure 5.14, the IP Security configuration menu allows you to define a "hosts.allow" client list and "hosts.deny" client list. Basically, when setting up IP Security, you must enter IP addresses for the hosts that you wish to allow in the Allow list, and addresses for hosts that you wish to deny in the Deny list. Since Linux operators, wild cards and net/mask pairs are allowed, these lists can indicate specific addresses, or a range of addresses.

```
IP SECURITY:

1. CLIENT LIST FOR "hosts.allow"
2. CLIENT LIST FOR "hosts.deny"

Enter selection,
Press <ESC> to return to previous menu ...
```

*Figure 5.14: The IP Security Configuration Menu*

When the IP Security feature is properly enabled, and a client attempts to connect, NetLink II will perform the following checks:

1. If the client's IP address is found in the "hosts.allow" list, the client will be granted immediate access. Once an IP address is found in the Allow list, the NetLink II will not check the Deny list, and will assume that you wish to allow the address to connect.
2. If the client's IP address is not found in the Allow list, the NetLink II will then proceed to check the Deny list.
3. If the client's IP Address is found in the Deny list, the client will not be allowed to connect.
4. If the client's IP Address is not found in the Deny list, the client will be allowed to connect, even if the address was not found in the Allow list.

#### **Notes:**

- If NetLink II finds an IP Address in the Allow list, it will not check the Deny list, and will allow the client to connect.
- If both the Allow and Deny lists are left blank, then the IP Security feature will be disabled, and all IP Addresses will be allowed to connect (providing that the proper password and/or SSH key is supplied.)
- When the Allow and Deny lists are defined, the user is only allowed to specify the Client List; the Daemon List and Shell Command cannot be defined.

```
CLIENT LIST FOR "hosts.allow":
```

1. (undefined)
2. (undefined)
3. (undefined)
4. (undefined)
5. (undefined)
6. (undefined)
7. (undefined)
8. (undefined)

```
Enter selection,  
Press <ESC> to return to previous menu ...
```

Figure 5.15: IP Security: The Allow List

### Adding IP Addresses to the Allow and Deny Lists

To add an IP Address to the Allow or Deny list, and begin configuring the IP Security feature, proceed as follows.

#### Notes:

- Both the Allow and Deny list can include Linux operators, wild cards, and net/mask pairs.
- In some cases, it is not necessary to enter all four "digits" of the IP Address. For example, if you wish to allow access to all IP addresses that begin with "192", then you would only need to enter "192."
- The IP Security Configuration menu is only available to accounts that allow access to Administrator level commands.

1. Access the IP Security Configuration Menu. From the Main Menu, type **22** and press **[Enter]** to access the Port Configuration Menu, then type **23** and press **[Enter]** to access the Network Port Configuration menu. From the Network Configuration menu, type **6** and press **[Enter]** to display the IP Security Menu, shown in Figure 5.14.
2. **Allow List:**
  - a) From the IP Security Menu, type **1** and press **[Enter]** to access the Allow List.
  - b) Enter the IP Address(es) for the clients that you wish to allow. Note that if an Address is found in the Allow List, the client will be allowed to connect, and NetLink will not check the Deny List.
  - c) Note the number for the first empty field in the Allow List, then type that number at the command prompt, press **[Enter]**, and then follow the instructions in the resulting submenu.



### 3. Deny List:

- a) From the IP Security Menu, type **2** and press **[Enter]** to display the Deny List.
- b) Enter the IP Address(es) for the clients that you wish to deny. Note that if the client's IP Address is not found in the Deny List, that client will be allowed to connect. Use the same procedure for entering IP Addresses described in Step 2 above.

**Note:** After IP addresses have been added to the Allow or Deny list, the IP Security feature will be automatically enabled, and the Network Configuration menu will indicate that the feature is "On."

### Linux Operators and Wild Cards

In addition to merely entering a specific IP address or partial IP address in the Allow or Deny list, you may also use any standard Linux operator or wild card. In most cases, the only operator used is "EXCEPT" and the only wild card used is "ALL", but more experienced Linux users may note that other operators and wild cards may also be used.

#### EXCEPT:

This operator creates an exception in either the "allow" list or "deny" list.

For example, if the Allow list includes a line which reads "192. EXCEPT 192.255.255.6," then all IP address that begin with "192." will be allowed; except 192.255.255.6 (providing that address appears in the Deny List.)

#### ALL:

The ALL wild card indicates that all IP Addresses should be allowed or denied. When ALL is included in the Allow list, all IP addresses will be allowed to connect; conversely, if ALL is included in the Deny List, all IP Addresses will be denied (except for IP addresses listed in the Allow List.)

For example, if the Deny List includes a line which reads "ALL EXCEPT 168.255.192.192, then all IP addresses except 168.255.192.192 will be denied (except for IP addresses that are listed in the Allow List.)

#### Net/Mask Pairs:

An expression of the form "n.n.n.n/m.m.m.m" is interpreted as a "net/mask" pair. A host address is matched if "net" is equal to the bitwise AND of the address and the "mask."

For example, the net/mask pattern "131.155.72.0/255.255.254.0" matches every address in the range "131.155.72.0" through "131.155.73.255."

## IP Security Examples

1. **Mostly Closed:** Access is denied by default and the only clients allowed, are those explicitly listed in the Allow list. To deny access to all clients except 192.255.255.192 and 168.112.112.05, the Allow and Deny Lists would be defined as follows:

Allow List:

1. 192.255.255.192
2. 168.112.112.05

Deny List:

1. ALL

2. **Mostly Open:** Access is granted by default, and the only clients denied access, are those explicitly listed in the Deny List, and as exceptions in the Allow list. To allow access to all clients except 192.255.255.192 and 168.112.112.05, the Allow and Deny Lists would be defined as follows:

Allow List:

1. ALL EXCEPT 192.255.255.192, 168.112.112.05

Deny List:

1. 192.255.255.192, 168.112.112.05

### Notes:

- When defining a line in the Allow or Deny List that includes several IP addresses, each individual address is separated by either a space, a comma, or a comma and a space as shown in Example 2 above.
- Take care when using the "ALL" wild card. When ALL is included in the Allow List, it should always include an EXCEPT operator in order to allow the unit to proceed to the Deny list and determine any addresses you wish to deny.

EMAIL AND TEXT MESSAGING:	
<b>SMTP SERVER PARAMETERS</b>	
1. IP Address:	(undefined)
2. Port Number:	25
3. User Name:	(undefined)
	(Cont.):
	(Cont.):
4. Password:	(undefined)
5. Auth Type:	LOGIN
<b>EMAIL PARAMETERS</b>	
21. From Name:	(undefined)
22. From Address:	(undefined)
	(Cont.):
	(Cont.):
23. To Name #1:	(undefined)
24. To Address #1:	(undefined)
	(Cont.):
	(Cont.):
25. To Name #2:	(undefined)
26. To Address #2:	(undefined)
	(Cont.):
	(Cont.):
27. Priority:	Normal
28. Subject:	(undefined)
	(Cont.):
	(Cont.):
<b>MISCELLANEOUS</b>	
11. Send Test Email	
12. Stop Email Sess	
13. Last Email Stat	
Enter selection, Press <ESC> to return to previous menu ...	

Figure 5.16: The SMTP Parameters Configuration Menu

#### 5.4.5.2. The Email & Text Messaging Parameters Menu

The Email and Text Messaging menu includes a series of prompts that are used to define parameters for the NetLink II's email and text message notification features. Note that this menu allows you to define parameters for up to two possible email recipients, and that the individual configuration menus for each alarm or scheduled action are then used to select either one or both of these possible recipients. The Email and Text Messaging menu (Figure 5.16) is accessed via item 38 in the Network Port Configuration Menu and includes the following items:

##### SMTP Server Parameters:

1. **IP Address:** The IP Address of your SMTP server  
(Default = undefined.)
2. **Port Number:** The Port Number that is used when connecting to your SMTP server. (Default = 25.)
3. **User Name:** The User Name that is used when logging on to your SMTP server. (Default = undefined.)
4. **Password:** The Password that is used when logging on to your SMTP server. (Default = undefined.)
5. **Authentication Type:** The type of authentication protocol that is used when logging on to your SMTP server. (Default = Login.)

**Note:** Before selecting email and text messaging parameters, please consult your network administrator in order to determine appropriate settings.

**Miscellaneous:**

11. **Send Test Email:** Sends a test email, based on the configuration currently selected via the SMTP Parameters Menu.
12. **Stop Email Session:** Aborts the current email session and cancels any pending retries.
13. **Last Email Stat:** Displays the current status of the email server.

**Email Parameters:**

21. **From Name:** The name that will appear in the "From" field in email messages generated by the NetLink II. **(Default = undefined.)**
22. **From Address:** The email address that will appear in the "From" field in email messages generated by the NetLink II. **(Default = undefined.)**
23. **To Name #1:** The first of two user-defined email address that will receive messages that are generated according to the NetLink's "Scheduled Action" menus, or when an alarm is generated and the Email action has been selected. **(Default = undefined.)**

**Note:** The Email / Text Message Parameters menu allows you to define two names/addresses that will receive messages generated by the NetLink II unit. The individual configuration menu for each alarm or scheduled action is then used to select one or both of these two, user-defined names/addresses.

24. **To Address #1:** The email address or cell phone address that will receive email or text messages when Name #1 is selected. **(Default = undefined.)**

**Note:** To send text messages, enter a cell phone address in the "To Address" field. To send email messages, enter an email address in this field.

25. **To Name #2:** The name for the second, user-defined email / text message recipient. **(Default = undefined.)**
26. **To Address #2:** The email address that will be used when sending mail or text messages to Name #2. **(Default = undefined.)**
27. **Priority:** The priority level that will be assigned to all email messages that are generated by this NetLink II unit. **(Default = Normal.)**
28. **Subject:** The subject text that will be used for all email messages generated by this NetLink II unit. **(Default = undefined.)**

```

PPP DIALOUT:

PARAMETERS
1.  Enable:                               Off                20.  SFTP/FTP over PPP: Off
2.  Phone #1:                             (undefined)
3.  Phone #2:                             (undefined)
4.  Username:                             (undefined)
5.  Password:                             (undefined)
6.  Username Prompt:                       login
7.  Password Prompt:                      password

MISCELLANEOUS
10. Show Status: PPP has not been executed
11. Start Test:  Not Executing.
    File Test:   Off                File Force: Off
12. Stop PPP

Enter selection,
Press <ESC> to return to previous menu ...

```

Figure 5.17: The PPP Dialout Configuration Menu

### 5.4.5.3. PPP Dialout Configuration

The PPP Dialout feature (Point to Point Protocol) allows the NetLink II to dialout to an internet service provider in order to download stored call data when an Ethernet connection is not available. As shown in Figure 5.17, The PPP Dialout configuration menu offers the following options:

1. **Enable:** When enabled, the NetLink II will dial out to a user defined ISP service in order to download stored data. **(Default = Off.)**
2. **Phone Number 1:** The first (primary) number for your dial-up ISP. **(Default = undefined.)**
3. **Phone Number 2:** The secondary (back-up) number for your dial-up ISP. **(Default = undefined.)**
4. **Username:** The username that is normally entered when logging in to your ISP. **(Default = undefined.)**
5. **Password:** The password that is normally used when logging in to your ISP. **(Default = undefined.)**
6. **SFTP/FTP over PPP:** Allows the NetLink II to perform FTP or SFTP data transfer over the PPP network connection. **(Default = Off.)**
10. **Show Status:** Displays the current status of the PPP feature.
11. **Start Test:** Creates a test PPP connection, using currently defined parameters.
12. **Stop PPP:** Terminates any currently existing PPP connection.
20. **SFTP/FTP over PPP:** When enabled, NetLink II will allow SFTP and FTP operations over the PPP connection. **(Default = Off.)**

PUSH FILE CONFIGURATION:

SERVER PARAMETERS

1. Server Address: (undefined)

2. UserName: (undefined)

3. File Name: (undefined)

4. Directory: (undefined)

(Cont.):

(Cont.):

5. File Mode: ---

6. File Ext Inc: ---

FTP SERVER PARAMETERS

11. Password: (undefined)

12. Account: (undefined)

SFTP SERVER PARAMETERS

21. SFTP Server Key

22. SFTP Client Key

Enter selection,

Press <ESC> to return to previous menu ...

ACTION PARAMETERS

31. Read Session

32. Push Action: Off

33. Periodic Push: 1440 Mins

34. Xmit Attempts: 5

35. Xmit Delay: 5 Mins

36. Auto Delete: Off

37. Start Time: (undefined)

MISCELLANEOUS

41. Force Push

42. Test Push

43. Stop Push

Figure 5.18: The Push File Configuration Menu

In order to use the PPP option, you must first define the parameters that are called via the PPP configuration menu. In order to program the unit to automatically download data, you must then configure the Push feature as described in Section 5.4.6.

5.4.6. Push File Configuration

The Push File Configuration menu is used to choose parameters for the Push feature and select either the SFTP or FTP protocol. Push capability allows the NetLink II to automatically download stored call records to your SFTP or FTP server. Downloads can be performed on demand, according to a user defined schedule or at a user-defined start time. For more information, please refer to Section 15.4.

To configure the Push feature, go to the Port Configuration menu (Main Menu, item 22,) and then type 31 and press [Enter]. The menu shown in Figure 5.18 will be displayed.

Server Parameters

1. **Server Address:** The IP address for your SFTP/FTP server (the address that will receive transferred files.) (Up to 15 char, **Default = undefined.**)

2. **User Name:** The name that the NetLink II will use when accessing the Server. (Up to 16 characters, **Default = undefined.**)

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3. **File Name:** The first four characters of the file name that the Push feature will assign to each "chunk" of data transferred from this unit. For more information, please refer to Section 15.4.1. (Up to four characters, **Default = undefined.**)

**Note:** If several different NetLink II units will be transferring data to the same server, a unique file name should be assigned to each unit. This will prevent data from the various units from overwriting each other.

4. **Directory:** The server directory that will receive files sent from the NetLink II. (Up to 48 characters, **Default = undefined.**)

**Note:** If several different NetLink II units will be transferring data to the same server, a unique directory should be assigned to each unit. This will prevent data from the various units from overwriting each other.

5. **File Mode:** Determines whether NetLink will add new data to the existing file, or overwrite the file each time new data is received. If "Append" is selected, each data transfer will be added to the target file on the server. If "Replace" is selected, each data transfer will overwrite the target file. If the target file does not exist, then both Append and Replace will create a new file. (**Default = Append.**)

**Notes:**

- The File Mode cannot be set until the Push Action (Item 32) is enabled/selected.
- When the SFTP Push Action is selected, the File Mode is always set to "Replace."

14. **File Extension Increment:** Enables/disables automatic sequential numbering of file names created by the Push feature. When enabled, NetLink II will append a sequentially numbered three digit file name extension (000 to 999,) which will be incremented for each new file created by a successful data transfer. (**Default = Off.**)

**Notes:**

- The File Extension Increment option cannot be set until the Push Action (Item 32) is enabled/selected.
- When the SFTP Push Action is selected, the File Extension Increment feature will always be enabled.

### FTP Server Parameters:

11. **Password:** The password that the NetLink II will use when accessing the FTP server. (Up to 16 characters, **Default = undefined.**)
12. **Account:** The account name that will be used to access the FTP server. (Up to 16 characters, **Default = undefined.**)

### SFTP Server Parameters:

21. **SFTP Server Key:** This item is used to display the currently defined SFTP Server Key, or upload a new SFTP Server Key to the NetLink II unit. The SFTP Server Key can be obtained from your SFTP Server.
22. **SFTP Client Key:** Downloads an RSA or DSA format SFTP Client Key, which can then be entered into your SFTP Server, allowing your server to recognize the NetLink II when an SFTP connection is made.

### Action Parameters:

31. **Read Session:** Specifies the type(s) of files that will be sent. When PBX data is collected, records are sorted according to the port that received the data and the Alarm Filter matched. The "Read Session" item allows you to select data based on these criteria. For more information, please refer to Section 15.2.2.
  1. **Source Port:** Selects records based on the port that received the data. When selected, NetLink II will display an additional submenu, which can be used to select one or both of the available source ports. (**Default = Both.**)
  2. **Data Type:** Allows you to choose records based on one of the following Data Types: (**Default = All.**)
    1. **All:** Sends all records; both Alarm and Non-Alarm.
    2. **Standard (Non-Alarm):** Send only records that did not match a clue for Alarm Filter 1 or Alarm Filter 2.
    3. **Alarm Filter 1 (All):** Send only records that matched any clue defined for Alarm Filter 1.
    4. **Alarm Filter 1 (By Clue):** Send only records that matched a specific clue defined for Alarm Filter 1.
    5. **Alarm Filter 2 (All):** Send only records that matched any clue defined for Alarm Filter 2.
    6. **Alarm Filter 2 (By Clue):** Send only records that matched a specific clue defined for Alarm Filter 2.
    7. **All Alarms:** Send all records that matched either Alarm Filter 1 or Alarm Filter 2.



**Notes:**

- When the "By Clue" options are selected, NetLink II will prompt you to enter the clue name. If an invalid clue name is entered, the prompt will be redisplayed.
  - When Data Type and Source Port are assigned, then the Push function will "own" this partition while the data transfer is in progress. Other users will not be able to read data from this partition until the Push action is complete. For example, if Push is set to select Non-Alarm Data (Data Type) received via the PBX IP Port (Source Port), other users will not be able to read data from this partition until the Push action is complete and the partition is released.
3. **Start Record:** The starting point for data release. Note that this value can be either positive or negative. (**Default = 1.**)
- **Positive Numbers:** The unit will count forward from the beginning of the selected partition (Source Port / Data Type.) For example, if this value is set at "15", then NetLink II will begin with the 15th record in the selected partition.
  - **Negative Numbers:** The unit will count backwards from the end of the records in the selected partition. For example, if Start Record is set at "-3", then NetLink II will send the last three records in the selected partition.
32. **Push Action:** Enables/disables the Push operation and selects FTP Push or SFTP Push. The Push Action must be enabled/selected in order for the Push feature to function. (**Default = Off.**)
33. **Periodic Push:** This item determines how often the Push feature will regularly transfer data to your server. For example, if the Periodic Push is set at 30 minutes, then every 30 minutes the NetLink II will automatically transfer stored data to your server. (1 to 9,999 Minutes, **Default = 1,440 Minutes /24 Hours.**)

**Notes:**

- A periodic Push operation will be delayed if targeted files are being accessed by another user at the time scheduled for data transfer. NetLink II will delay the Periodic Push until the partition is released, or the other user exits command mode. If the delay lasts longer than the user defined Xmit Delay period (Item 15,) the Periodic Push will be canceled.
- A Periodic Push will not be performed if the specified files are empty (no data.)

34. **Xmit Attempts:** The number of times NetLink II will attempt to retransmit data if the operation fails. (1 to 99 Attempts, **Default = 5 Attempts.**)  
**Note:** NetLink II will not perform additional transmit attempts if the specified file(s) are empty, or if the correct Server Address, User Name, Password or Account information have not been defined.
35. **Xmit Delay:** The amount of time that will elapse between Transmit Attempts (Xmit Attempts.) (1 to 99 Minutes, **Default = 5 Minutes.**)
36. **Auto Delete:** Enables/disables the Auto Delete function for Push operations. When enabled, NetLink II will automatically delete records from memory after the server acknowledges reception. (**Default = Off.**)
37. **Start Time:** Specifies an exact start time for the next Push operation as described in Section 15.4.2. (**Default = undefined.**)

**Miscellaneous:**

41. **Force Push:** When selected, the unit will immediately perform a Push operation using the parameters currently defined by Push Configuration menu. If the partition owned by the Push feature is empty, NetLink II will not attempt to connect to the server. A Forced Push will not effect the Periodic Push schedule.
42. **Test Push:** Sends test data in order to determine if Push parameters are correctly set. If the Test Push cannot establish a connection with the server, NetLink II will display a message that describes the reason that the test failed (e.g., incorrect password.)  
**Note:** After you have selected new Push parameters, it is recommended to use the Test Push feature to make certain that newly defined parameters will work with your SFTP/FTP application.
43. **Stop Push:** Terminates any Push operation that is currently in progress. Note that when this item is selected, NetLink II will immediately terminate a Periodic Push or Force Push.

```
SFTP/FTP SERVER CONFIGURATION:

PARAMETERS
1.  UserName:      (undefined)
2.  Password:      (undefined)
3.  Filename:      (undefined)
4.  Auto Delete:   Off
5.  Audit Trail:   Off
6.  FTP Enable:    Off
7.  SFTP Enable:   Off

MISCELLANEOUS
11. Stop FTP Session
12. Stop SFTP Session

Enter selection,
Press <ESC> to return to previous menu ...
```

Figure 5.19: The Server Configuration Menu

### 5.4.7. Server Configuration

This menu is used to configure the NetLink II's Server function. When the Server feature is enabled, the NetLink II unit will function as an SFTP/FTP file server, allowing you to use your SFTP or FTP client to retrieve stored call data from the unit. The Server Configuration Menu includes the following items:

1. **User Name:** The user name that will be used when logging into the NetLink II's SFTP/FTP server. (Up to sixteen characters, **Default = undefined.**)
2. **Password:** The password that will be used when logging into the Server. (Up to sixteen characters, **Default = undefined.**)
3. **File Name:** The first four characters of the file name that the Server feature will assign to each "chunk" of data transferred from this unit. For more information, please refer to Section 15.5.1. (Up to four characters, **Default = undefined.**)

**Note:** If you will be retrieving data from several different NetLink II units, a unique file name should be assigned to each unit. This will prevent data from the various units from overwriting each other.

4. **Auto Delete:** Enables/disables the Auto Delete function for Server operations. When enabled, NetLink II will automatically delete records from memory after the SFTP or FTP client acknowledges reception. (**Default = Off.**)

5. **Audit Trail:** Enables/Disables the Audit Trail function for the Server feature, and determines whether or not log entries will be sent to the SYSLOG IP Address (defined via the Network Port Configuration menu.) When enabled, the NetLink II will log all file transfer activity at the Server. For more information on the Audit Trail function, please refer to Section 16.1.6. The Audit Trail function offers the following options: **(Default = Off.)**
  1. **Record with SYSLOG:** Enables the Audit Trail function, and sends log entries to the user-defined SYSLOG IP Address. Note that in order for this option to work, the SYSLOG IP Address must be defined.
  2. **Record without SYSLOG:** Enables the Audit Trail function, but does not send out log entries via SYSLOG.
  3. **Off:** Disables the Audit Trail Function.
6. **FTP Enable:** Enables/Disables the NetLink II's FTP server. Note that this feature must be enabled in order for the FTP server to work. **(Default = Off.)**
7. **SFTP Enable:** Enables/Disables the NetLink II's SFTP server. Note that this feature must be enabled in order for the SFTP server to work. **(Default = Off.)**

**Miscellaneous:**

11. **Stop FTP Session:** Stops any FTP session that is currently in progress.
12. **Stop SFTP Session:** Stops any SFTP session that is currently in progress.

## 6. Menu System Description

The NetLink II operating system features a series of menus, which are used to select options, invoke commands, and review status. This section provides an overview of the NetLink II operating system, in order to help the user locate specific items in the various submenus.

### 6.1. Software Tree

Command functions are accessed via the Main Menu, which is the first screen displayed when command mode is activated. The Main Menu branches off into a series of submenus. Each submenu is dedicated to a specific task, such as port configuration, buffer management, etc. To access a submenu, type the number for the desired item and press **[Enter]**.

Main Menu Item	Submenu(s)/Function(s)
1. Status Displays	Display Status Screens for user-defined parameters, memory usage, and alarm conditions (See Section 7).
2. Buffer Functions	<ol style="list-style-type: none"><li>1. Set Read Session Parameters</li><li>2. Set Partition</li><li>3. Release Partition</li><li>4. Enter Read Session</li><li>5. Erase Partition Data</li><li>6. Erase All Data</li><li>7. Erase All Data &amp; Clear Alarm Counters</li><li>8. Release Remote Partition</li></ol>
3. System Functions	<ol style="list-style-type: none"><li>1. PassThrough Mode</li><li>2. Monitor Mode</li><li>3. Clear Alarm Condition</li><li>4. Clear Alarm Clue Counters</li><li>5. Download Parameters</li><li>6. Audit Trail Functions</li><li>7. Upload Firmware</li><li>8. Download SSH Server Key</li></ol>
4. System Diagnostics	<ol style="list-style-type: none"><li>1. Load &amp; Test Memory</li><li>2. Send Test Message</li><li>3. Test Pager</li><li>4. Send Test SNMP Trap(s)</li><li>5. Send Test SYSLOG Message</li></ol>
5. ^Bxx Command Help	Lists all ^Bxx format (manually entered) commands. (See Section 17). "A" option allows access to menu with additional command help.
6. Recall Parameters	Restores previously saved parameters.
7. Save Parameters	Writes user-defined parameters from temporary memory to flash memory.
8. Exit Command Mode	Exits from command mode, disconnects, and puts Console Port to sleep.
9. - 20.	Reserved for Future Use.

Main Menu Item	Submenu(s)/Function(s)	
21. Reboot System	<ol style="list-style-type: none"><li>1. Reboot Only (Do Not Default Parameters)</li><li>2. Reboot &amp; Default (Keep IP Parameters)</li><li>3. Reboot &amp; Default (Keep SSH Keys)</li><li>4. Reboot &amp; Default (All Parameters)</li><li>5. Default (Keep IP Parameters)</li><li>6. Default (Keep SSH Keys)</li><li>7. Default (All Parameters)</li></ol>	
22. Port Configuration	1. PBX Port	<b>Communication Settings</b> <ol style="list-style-type: none"><li>1. Baud Rate</li><li>2. Data Bits</li><li>3. Parity</li><li>4. Stop Bits</li><li>5. Handshake Mode</li></ol> <b>Input Parameters</b> <ol style="list-style-type: none"><li>11. Time Date Stamp</li><li>12. Serial Number Stamp</li><li>13. Strip Non-Printable Characters</li><li>14. End Character</li><li>15. Alarm Filter</li><li>16. Store Alarm Data</li><li>17. Data Filter</li><li>18. PBX Inactivity Alarm</li></ol> <b>Field Suppression</b> <ol style="list-style-type: none"><li>31. Lucent Switch</li></ol>
	11. PBX IP Port	<b>Communication Settings</b> <ol style="list-style-type: none"><li>1. Service</li><li>2. Port Number</li><li>3. Window Size</li><li>4. Keep Alive Send</li><li>5. Keep Alive Response</li><li>6. SDM Response</li></ol> <b>Input Parameters</b> <ol style="list-style-type: none"><li>11. Time Date Stamp</li><li>12. Serial Number Stamp</li><li>13. Strip Non-Printable Characters</li><li>14. End Character</li><li>15. Alarm Filter</li><li>16. Store Alarm Data</li><li>17. Data Filter</li><li>18. PBX Inactivity Alarm</li></ol> <b>Miscellaneous</b> <ol style="list-style-type: none"><li>21. Disconnect</li><li>22. Last Status</li></ol> <b>Field Suppression</b> <ol style="list-style-type: none"><li>31. Lucent Switch</li></ol>

Main Menu Item	Submenu(s)/Function(s)	
22. Port Configuration (Continued)	21. Console Port	<b>Communication Settings</b> 1. Baud Rate 2. Data Bits 3. Parity 4. Stop Bits 5. Handshake Mode <b>General Parameters</b> 11. Command Echo 12. Response Type 13. "Sure" Prompt 14. Command Timeout 15. Audit Trail <b>Action Parameters</b> 16. Action Delay <b>Output Parameters</b> 21. Output Mode 22. Data on ^B01 23. Hold End Data 24. Line Number Tag 25. Send Compressed 26. Auto Delete
	22. Modem Port	<b>Communication Settings</b> 1. Baud Rate 2. Data Bits 3. Parity 4. Stop Bits 5. Handshake Mode 6. Modem Strings 7. Reset Modem <b>General Parameters</b> 11. Command Echo 12. Response Type 13. "Sure" Prompt 14. Command Timeout 15. Audit Trail <b>Action Parameters</b> 16. Action Delay <b>Output Parameters</b> 21. Output Mode 22. Data on ^B01 23. Hold End Data 24. Line Number Tag 25. Send Compressed 26. Auto Delete <b>Callout Parameters</b> 31. Dial Attempts 32. Sequence Attempts 33. Sequence Delay 34. Immediate Callout 35. Immediate Phone Number 36. Dialback Security

Main Menu Item	Submenu(s)/Function(s)	
22. Port Configuration (Continued)	23. Network Port	<b>Communication Settings</b> 1. IP Address 2. Subnet Mask 3. Gateway Address 4. DHCP 5. IP Security <b>General Parameters</b> 11. Command Echo 12. Response Type 13. "Sure" Prompt 14. Command Timeout 15. Audit Trail <b>Action Parameters</b> 16. Action Delay <b>Output Parameters</b> 21. Output Mode 22. Data on ^B01 23. Hold End Data 24. Line Number Tag 25. Send Compressed 26. Auto Delete <b>Servers and Clients</b> 31. Telnet Access 32. SSH Access 33. Syslog IP Address 34. SNMP Access 35. SNMP Trap 36. TACACS 37. RADIUS 38. Email/Text Messaging 39. PPP Dialout
	31. Push	<b>Server Parameters</b> 1. Server Address 2. User Name 3. File Name 4. Directory 5. File Mode 6. File Extension Increment <b>FTP Server Parameters</b> 11. Password 12. Account <b>SFTP Server Parameters</b> 21. SFTP Server Key 22. SFTP Client Key <b>Action Parameters</b> 31. Read Session 32. Push Action 33. Periodic Push 34. Transmit Attempts 35. Transmit Delay 36. Auto Delete 37. Start Time <b>Miscellaneous</b> 41. Force Push 42. Test Push 43. Stop Push



Main Menu Item	Submenu(s)/Function(s)	
22. Port Configuration (Continued)	32. Server	<b>Server Parameters</b> 1. User Name 2. Password 3. File Name 4. Auto Delete 5. Audit Trail 6. FTP Enable 7. SFTP Enable <b>Miscellaneous</b> 11. Stop FTP Session 12. Stop SFTP Session
23. System Parameters	1. User Directory 2. Site ID Message 3. Real-Time Clock 4. Wrap-Around 5. ALarm Data Wrap Around	
24. Scheduled Action Parameters	1. Scheduled Action #1	<b>Schedule</b> 1. Schedule Action (On/Off) 2-8. Define Schedule <b>Exclusions (MM/DD)</b> 11. Add Exclusion 12. Delete Exclusion <b>Alarm Action Parameters</b> 21. Action 22. Phone Number 23. Pager ID 1 24. Pager ID 2 25. Pager ID 3 26. SNMP Management 27. Email / Text Message To 28. Message 29. Auto Execute 30. Execute Commands
	2. Scheduled Action #2	<b>Schedule</b> 1. Schedule Action (On/Off) 2-8. Define Schedule <b>Exclusions (MM/DD)</b> 11. Add Exclusion 12. Delete Exclusion <b>Alarm Action Parameters</b> 21. Action 22. Phone Number 23. Pager ID 1 24. Pager ID 2 25. Pager ID 3 26. SNMP Management 27. Email / Text Message To 28. Message 29. Auto Execute 30. Execute Commands

Main Menu Item	Submenu(s)/Function(s)	
25. Alarm Configuration	1. Alarm Filter 1	1. Define Format 2. Display Clue Details 3. Define Clues 4. Edit Clues 5. Delete Clues 6. Define Alarm Review Schedule
	2. Alarm Filter 2	1. Define Format 2. Display Clue Details 3. Define Clues 4. Edit Clues 5. Delete Clues 6. Define Alarm Review Schedule
	3. PBX Inactivity Alarm 1	<b>Schedule</b> 1. Weekday Alarm (On/Off) 2-5. Weekday Schedules & Timers 6. Weekend Alarm (On/Off) 7-10. Weekend Schedules & Timers <b>Exclusions (MM/DD)</b> 11. Add Exclusion 12. Delete Exclusion <b>Alarm Action Parameters</b> 21. Action 22. Phone Number 23. Pager ID 1 24. Pager ID 2 25. Pager ID 3 26. SNMP Management 27. Email / Text Message To 28. Message 29. Auto Execute 30. Execute Commands
	4. PBX Inactivity Alarm 2	<b>Schedule</b> 1. Weekday Alarm 2-5. Weekday Schedules & Timers 6. Weekend Alarm 7-10. Weekend Schedules & Timers <b>Exclusions (MM/DD)</b> 11. Add Exclusion 12. Delete Exclusion <b>Alarm Action Parameters</b> 21. Action 22. Phone Number 23. Pager ID 1 24. Pager ID 2 25. Pager ID 3 26. SNMP Management 27. Email / Text Message To 28. Message 29. Auto Execute 30. Execute Commands

Main Menu Item	Submenu(s)/Function(s)	
25. Alarm Configuration (continued)	5. 80% Full Alarm	<b>Alarm</b> 1. 80% Full Alarm <b>Alarm Action Parameters</b> 21. Action 22. Phone Number 23. Pager ID 1 24. Pager ID 2 25. Pager ID 3 26. SNMP Management 27. Email / Text Message To 28. Message 29. Auto Execute 30. Execute Commands
	<b>Default Alarm Filter Action</b> 21. Action 22. Phone Number 23. Pager ID 1 24. Pager ID 2 25. Pager ID 3 26. SNMP Management 27. Email / Text Message To 28. Message 29. Auto Execute 30. Execute Commands 31. Send Alarm Record	
26. Data Filter Configuration	1. Data Filter 1	1. Data Filter Action 2. Define Format 3. Display Clue Details 4. Define Clues 5. Edit Clues 6. Delete Clues
	2. Data Filter 2	1. Data Filter Action 2. Define Format 3. Display Clue Details 4. Define Clues 5. Edit Clues 6. Delete Clues



## 7. Status Screens

---

NetLink II includes a series of Status Screens that list the current state of all program features and options.

During normal operation, these screens are used to check memory conditions, review alarm status, and display the standing of NetLink II options and parameters. The Status Screens are also helpful during Setup and configuration; allowing the user to determine if parameters need to be changed.

This section summarizes NetLink II's various Status Screens, and explains individual items in each screen. To access the Status Screens, go to the Main Menu, type **1** and press **[Enter]**. NetLink II will display the screen shown in Figure 7.1 below.

```
STATUS DISPLAYS:

1.  Buffer Status
2.  File List
3.  System Status
4.  User Directory

11. PBX Port

15. PBX IP Port

21. Console Port
22. Modem Port
23. Network Port

31. Scheduled Action 1
32. Scheduled Action 2
33. PBX Inactivity Alarm 1
34. PBX Inactivity Alarm 2
35. 80% Full Alarm
36. Data Filters & Alarms
37. Alarm Condition
38. Reason For Action

41. Alarm Filter 1 Clue Status (PBX)
42. Alarm Filter 2 Clue Status (PBX)

51. Alarm Filter 1 Clue Status (PBX IP)
52. Alarm Filter 2 Clue Status (PBX IP)

Enter selection,
Press <ESC> to return to previous menu ...
```

*Figure 7.1: Status Display Menu*

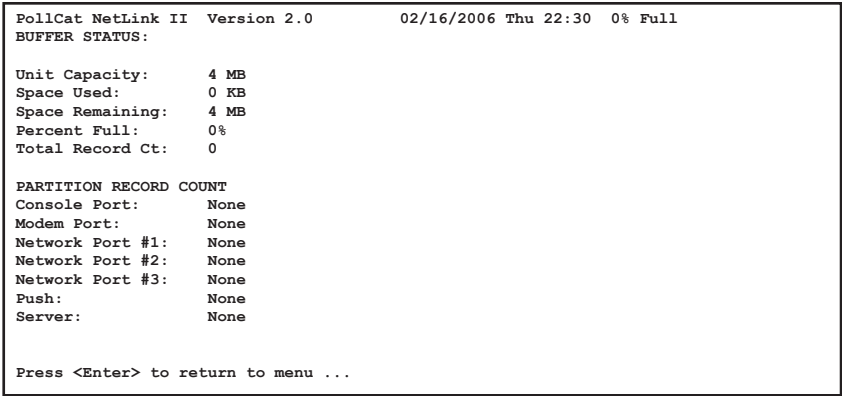


Figure 7.2: Buffer Status Screen

### 7.1. Buffer Status Screen

As shown in Figure 7.2, the Buffer Status screen lists current memory conditions, including the following items:

- **Unit Capacity:** The total amount of internal memory.
- **Space Used:** The approximate amount of memory currently in use.
- **Space Remaining:** The approximate amount of free memory.
- **Percent Full:** The approximate percentage of memory in use.
- **Total Record Count:** The total number of records stored.
- **Partition Record Count:** The number of records in the partitions for the Console Port, Modem Port, Telnet Ports, and FTP functions. When data is released, each port or FTP function is temporarily designated as "owner" of a specific type of record (see Section 15.1)
  - **Console Port:** The number of records in the partition owned by the Console Port.
  - **Modem Port:** The number of records in the partition owned by the Modem Port.
  - **Network Ports 1 to 3:** The number of records in the partitions owned by each Telnet port.
  - **Push:** The number of records in the partition owned by the Push function.
  - **Server:** The number of records in the partition owned by the Server function.

PollCat NetLink II Version 2.0			02/16/2006 Thu 22:31		0% Full
FILE LIST:					
Port	Data Type	Total Record Ct	Partition Record Ct	Partition Owner	
-----					
PBX	Standard	574	552	None	
PBX	Alarm 1	144	143	None	
PBX	Alarm 2	212	209	None	
PBX-I	Standard	642	603	None	
PBX-I	Alarm 1	76	76	None	
PBX-I	Alarm 2	24	24	None	
Press <Enter> to return to menu ...					

Figure 7.3: File List (Sample Values Shown)

## 7.2. File List Screen

As shown in Figure 7.3, this screen shows a breakdown of the types of records stored in buffer memory. Records are listed according to Data Type and Receiving Port. There are three Data Types; Standard (Non-Alarm), Alarm Filter 1, and Alarm Filter 2. There are two Receiving Ports; the Serial PBX Port (PBX) and the PBX IP Port (PBX-I.) When Data Type and Receiving Port are combined, this provides six possible file types. For more information, please refer to Section 15.1.1.

The File List includes the following information:

- **Port:** The Input Port (Serial PBX Port or PBX IP Port) that received the records.
- **Data Type:** The type of record is listed as follows:
  - **Standard:** (Non-Alarm) Records that did not match an Alarm Clue.
  - **Alarm Filter 1:** Records that match any Clue from Alarm Filter 1.
  - **Alarm Filter 2:** Records that match any Clue from Alarm Filter 2.
- **Total Record Count:** The total number of records of this type, including records that may have been stored outside of the current partition after the partition was set.
- **Partition Record Count:** The number of records in this partition.
- **Partition Owner:** The name of the command port (Console Port, Modem Port, or Net Port) or FTP Function that owns the partition for this type of record. When data is released, each command port or FTP Function is temporarily designated as "owner" of a specific type of record. For example, the Console port may own all records received via PBX Port A, or the Modem Port may own all records that match a clue for Alarm Filter 1.

PollCat NetLink II	Version 2.0	02/16/2006 Thu 16:30	99% Full
SYSTEM STATUS:			
MEMORY CONFIGURATION		SYSTEM PARAMETERS	
Base Memory:	16 MB	Site ID Msg:	(undefined)
Extension Memory:	16 MB	(Cont.):	
Unit Capacity:	32 MB	Wrap-Around:	Off
DIP SWITCH SETTINGS		Alm Data Wrap-Arnd:	On
SW-1 SW-2 SW-3		COMMAND PORT STATUS	
Down Down Down		Console Port:	Off Line
SERIAL PORT COMMUNICATION SETTINGS		Modem Port:	Off Line
PBX Port:	9600,E,7,1,None	Network Port #1:	On Line
Console Port:		Network Port #2:	Off Line
Modem Port:		Network Port #3:	Off Line
		POLLING PORT STATUS	
		Push:	Off Line
		Server:	Off Line
Press <Enter> to return to menu ...			

Figure 7.4: System Status Screen

### 7.3. System Status Screen

As shown in Figure 7.4, this screen summarizes communication parameters and general system parameters. The System Status Screen also lists installed memory modules, command port connection status, and Set-Up Switch Status:

- **Memory Configuration:** Installed memory modules, the amount of base memory, and total memory capacity.
- **Dip Switch Settings:** Shows the current status of the first three DIP (Set-Up) Switches. Set-Up Switch functions are described in Section 4.2. (Note that the status of Sw4 is not shown; Sw4 is a hardwired switch that controls the Modem speaker.)
- **Serial Port Communications Settings:** Baud rate, parity, data bits and stop bits information for the PBX Input Port, Console Port and Modem Port.
- **System Parameters:** User-defined access passwords (Supervisor Password not shown), Site I.D. message, and the status of the wrap-around feature.
- **System Parameters:** List the user defined Site ID message, plus the status of the Invalid Access Lockout feature, Wrap Around feature, and Alarm Data Wrap Around feature.
- **Command Port Status:** Shows current online/offline conditions for the Console Port, Modem Port and Network ports.
- **Polling Port Status:** The online/offline status of the Push function and Server Function.



User Name	Dial Back Phone Number	DB	MODE	KEY
SMDR	(undefined)	Off	User	No
SUPER	(undefined)	Off	Adm	No
accounting	(undefined)	Off	Adm	Yes
data center	5554412	Off	User	Yes
engineering	5556789	On	Adm	No
guest	(undefined)	Off	User	No
dave	(undefined)	Off	Adm	Yes
everette	5553409	On	Adm	No
nancy	5550976	On	Adm	No
donnie	(undefined)	Off	User	Yes
mark	5551112	On	User	No
kristy	5551331	On	User	No
mario	(undefined)	Off	Adm	Yes
dennis	5557690	On	User	No
sharon	5556615	On	User	No
chris	5558272	On	User	No

Reached End of Directory.  
Press <Enter> to return to menu ...

Figure 7.5: The User Directory Status Screen (Sample Values Shown)

## 7.4. The User Directory

As discussed in Section 5.3.1, the User Directory is a listing of all currently defined user accounts. The user directory can either be viewed via the System Parameters menu (see Section 5.3.1.4), or via the Status Screen menu. The User Directory includes the following:

- **User Name:** The defined User Name for each account; this is the name that is entered at the "Login" prompt.
- **Dial Back Phone Number:** The Dial Back Number for each account. This is the number that will be dialed when Dial Back Security is enabled, and the user attempts to access command mode via the Modem Port.
- **DB (Dial Back):** This column indicates whether or not the Dial Back Security feature has been enabled for each user account.
- **ACS (Access):** This column indicates the security level that is assigned to each user account.
- **Key:** This column indicates whether or not a SSH Host Key has been specified for each user account.

```
PollCat NetLink II  Version 2.0          02/16/2006 Thu 14:15   0% Full
PBX PORT:

COMMUNICATION SETTINGS
Com Settings:          9600,E,7,1,None

INPUT PARAMETERS
Time/Date Stamp:      Off
Serial # Stamp:       Off
Strip Non-Print:      On
End Character:        ^J
Alarm Filter:         None
Store Alarm Data:     Alarm
Data Filter:          None
PBX Inact Alarm:      None

Press <Enter> to return to menu ...
```

Figure 7.6: Serial PBX Port Status Screen

---

## 7.5 PBX Port Status Screen

---

This screen lists currently defined parameters for the serial PBX Input Port. As described in Section 5.4, port parameters are selected via the Port Configuration menus.

**Communication Settings:** Lists Baud Rate, Parity, Data Bits, Stop Bits, and Handshake Mode for this port.

**Input Parameters:** Selected input parameters for this port:

- **Time Date Stamp:** When enabled, NetLink II will insert a Long Format or Short Format Time/Date Stamp at the beginning of each record received via this port.
- **Serial Number Stamp:** When enabled, a serial number will be inserted at the beginning of each record received by this port.
- **Strip Non-Print:** When enabled, NetLink II will remove non-printable characters from all records received via this port.
- **End Character:** The selected End-of-Record character for this port.
- **Alarm Filter:** The Alarm Filter selected for this port.
- **Store Alarm Data:** Indicates where NetLink II will store alarm records received via this port.
- **Data Filter:** The Data Filter selected for this port.
- **PBX Inact Alarm:** The On/Off status of the PBX Inactivity Alarm for this port.

```

PollCat NetLink II Version 2.0      02/16/2006 Thu 14:15  0% Full
PBX IP PORT:

COMMUNICATION SETTINGS
Service:           On
Port Number:      9000
Window Size:      6
Keep Alive Send:  60 Secs
Keep Alive Resp:  60 Secs
SDM Resp:         30 Secs

INPUT PARAMETERS
Time/Date Stamp:  Off
Serial # Stamp:   Off
Strip Non-Print:  On
End Character:    ^J
Alarm Filter:     None
Store Alarm Data: Alarm
Data Filter:      None
PBX Inact Alarm:  None

Press <Enter> to return to menu ...

```

Figure 7.7. The PBX IP Port Status Screen

## 7.6. The PBX IP Port Status Screen

This screen lists the currently defined parameters for the PBX IP Port, and includes the following:

### Communication Settings:

- **Service:** Indicates whether or not the PBX IP Port has been enabled.
- **Port Number:** The TCP/IP port number for the PBX IP Port.
- **Window Size:** The RSP Window Size.
- **Keep Alive Send:** The Keep Alive Send timeout value in seconds.
- **Keep Alive Response:** The Keep Alive Response timeout in seconds.
- **SDM Response:** The SDM Response timeout in seconds.

### Input Parameters:

- **Time/Date Stamp:** Current setting of the Time/Date Stamp.
- **Serial Number Stamp:** Current setting of the Serial Number Stamp.
- **Strip Non-Print.:** The Strip Non-Printable Codes feature.
- **End Character:** The End of Record character for the PBX IP Port.
- **Alarm Filter:** The selected Alarm Filter (if any) for the PBX IP Port.
- **Store Alarm Data:** Indicates where NetLink II will store alarm data received via this port. Alarm Records can be stored in the Alarm File, the Standard (Non-Alarm) File, or in both files.
- **Data Filter:** The selected Data Filter (if any) for the PBX IP Port.
- **PBX Inactivity Alarm:** The On/Off status of the PBX Inactivity Alarm at this port.

PollCat NetLink II	Version 2.0	02/16/2006 Thu 14:15	0% Full
CONSOLE PORT:			
COMMUNICATION SETTINGS		OUTPUT PARAMETERS	
Com Settings:	9600,N,8,1,RTS	Output Mode:	ASCII Record
		Data on ^B01:	On
		Hold "End Data":	On
		Line # Tag:	Off
		Send Compressed:	Off
		Auto Delete:	Off
GENERAL PARAMETERS			
Command Echo:	On		
Response Type:	Inhibit Menu		
"Sure" Prompt:	On		
CMD Port Timeout:	15 Mins		
Audit Trail:	Off		
ACTION PARAMETERS			
Action Delay:	10 Secs		
Press <Enter> to return to menu ...			

Figure 7.8: Console Port Status Screen

## 7.7. The Console Port Status Screen

**Communication Settings:** Baud Rate, Parity, Data Bits, Stop Bits, and Handshake Mode for the Console Port.

**General Parameters:**

- **Command Echo:** When enabled, commands sent to this port will be echoed back to the polling device.
- **Response Type:** Upon start up, this port can either display the Main Menu, or withhold the Main Menu until **[Enter]** is pressed.
- **"Sure" Prompt:** When enabled, a prompt will be displayed before destructive commands are completed.
- **CMD Port Timeout:** The Console Port timeout value.
- **Audit Trail:** When enabled, NetLink II will log command activity.

**Action Parameters:** The amount of time that will elapse between alarm actions sent from this port.

**Output Parameters:** Lists the following parameters for this port:

- **Output Mode:** The format used when data is released via this port.
- **Data on ^B01:** When disabled, ^B02 is sent to begin data release.
- **Hold End Data:** When enabled, a ^B02 is required in order to release the "End Data" message.
- **Line # Tag:** When enabled, a line number will be inserted at the beginning of each record released by this port.
- **Send Compressed:** The On/Off setting of the compression feature.
- **Auto Delete:** The On/Off setting of the Auto Delete feature.

PollCat NetLink II	Version 2.0	02/16/2006 Thu 14:15	0% Full
MODEM PORT:	Modem Installed		
COMMUNICATION SETTINGS		OUTPUT PARAMETERS	
Com Settings:	57600,N,8,1,None	Output Mode:	ASCII Record
Reset String:	ATZ	Data on ^B01:	On
Init String:	ATEOMQ1&C1&D2S0	Hold "End Data":	On
(Cont.):	=1	Line # Tag:	Off
Hang-Up String:	(undefined)	Send Compressed:	Off
(Cont.):		Auto Delete:	Off
GENERAL PARAMETERS		CALLOUT PARAMETERS	
Command Echo:	On	Dial Attempts:	2
Response Type:	Inhibit Menu	Sequence Attempts:	3 Att/10 Mins
"Sure" Prompt:	On	Immediate Callout:	Off
CMD Port Timeout:	15 Mins	Immediate Phone #:	(undefined)
Audit Trail:	Off	(Cont.):	
ACTION PARAMETERS		Dialback Security:	DB with Pswd
Action Delay:	300 Secs		
Press <Enter> to return to menu ...			

Figure 7.9: Modem Port Status Screen

## 7.8. The Modem Port Status Screen

### Communication Settings:

- **Com Settings:** Baud Rate, Parity, Data Bits, Stop Bits, and Handshake Mode for the Modem Port.
- **Reset String:** The Modem Reset String.
- **Init. String:** The Modem Initialization String.
- **Hang-Up String:** The Modem Hang-Up String.

### General Parameters:

- **Command Echo:** The On/Off status of Command Echo feature at this port.
- **Response Type:** Upon login, this port will either display the Main Menu immediately, or wait until **[Enter]** is pressed.
- **"Sure" Prompt:** When enabled, a prompt is displayed before destructive commands are completed.
- **CMD Port Timeout:** The command mode timeout value for this port.
- **Audit Trail:** When enabled, NetLink II will log command activity.
- **Action Parameters:** The amount of time that will elapse between alarm actions sent from this port.

### Output Parameters:

- **Output Mode:** The format used when data is released via this port.
- **Data on ^B01:** When disabled, ^B02 is sent to begin data release.
- **Hold End Data:** When enabled, ^B02 is sent to release the "End Data" message.

- **Line # Tag:** When enabled, a line number will be inserted at the beginning of each record released by this port.
- **Send Compressed:** When enabled, this port will release data in space compressed format.
- **Auto Delete:** When enabled, stored data will be erased after the polling device acknowledges reception.

**Callout Parameters:**

- **Dial Attempts:** The number of times NetLink II will attempt to dial a callout number.
- **Sequence Attempts:** The number of times NetLink II will restart the dial-out process, and delay between each sequence of attempts.
- **Immediate Callout:** When enabled, NetLink II will dial the Callout Number immediately after the user disconnects.
- **Immediate Phone #:** The Immediate Callout phone number.
- **Dialback Security:** The status of the Dialback Security feature.

---

## 7.9. The Network Port Status Screen

---

As shown in Figure 7.10, this screen lists Network Port parameters.

**Communication Settings:**

- **MAC Address:** The Media Access Control Address.
- **IP Address:** NetLink II's IP Address.
- **Subnet Mask:** NetLink II's Subnet Mask.
- **Gateway:** NetLink II's Gateway Address.
- **DHCP:** The On/Off status of the Dynamic Host Configuration Protocol feature.
- **IP Security:** The On/Off status of the IP Security feature.

**General Parameters:**

- **Command Echo:** The On/Off status of the Command Echo feature at this port.
- **Response Type:** Upon login, this port can either display the Main Menu immediately, or wait until **[Enter]** is pressed.
- **"Sure" Prompt:** When enabled, a prompt will be displayed before destructive commands are completed.
- **CMD Port Timeout:** The Network Port timeout value.
- **Audit Trail:** When enabled, NetLink II will log command activity.

```

PollCat NetLink II  Version 2.0           02/16/2006 Thu 14:15   0% Full
NETWORK PORT:

COMMUNICATION SETTINGS                     OUTPUT PARAMETERS
MAC Address:      00-10-ec-80-6b-25      Output Mode:      ASCII Record
IP Address:       192.168.168.168        Data on ^B01:    On
Subnet Mask:      255.255.255.0          Hold "End Data": On
Gateway:          (undefined)            Line # Tag:      Off
DHCP:             Off                    Send Compressed: Off
IP Security:      Off                    Auto Delete:     Off

GENERAL PARAMETERS                         SERVERS AND CLIENTS
Command Echo:     On                     Telnet Access:   Off
Response Type:    Inhibit Menu           SSH Access:      On
"Sure" Prompt:    On                     SYSLOG IP Addr:  (undefined)
CMD Port Timeout: 15 Mins                 SNMP Access:     Off
Audit Trail:      Off                     SNMP Trap:       Off
                                           TACACS:         Off
                                           RADIUS:         Off

ACTION PARAMETERS
Action Delay:     10 Secs

Press <Enter> to return to menu ...

```

Figure 7.10: Network Port Status Screen

**Action Parameters:** The Action Delay lists the amount of time that will elapse between actions sent out via this port.

#### Output Parameters:

- **Output Mode:** The format used when data is released via this port.
- **Data on ^B01:** When disabled, ^B02 is sent to begin data release.
- **Hold End Data:** When enabled, ^B02 is sent to release the "End Data" message.
- **Line # Tag:** The current status of the Line Number Tag feature.
- **Send Compressed:** When enabled, this port will release data in space compressed format.
- **Auto Delete:** The current status of the Auto Delete feature at this port.

#### Servers and Clients:

- **Telnet Access:** When disabled, you will not be able to establish a Telnet session with the NetLink II.
- **SSH Access:** When disabled, you will not be able to establish an SSH connection with the NetLink II.
- **SYSLOG IP Address:** The IP Address for the SYSLOG Daemon that will receive Audit Trail records generated by the NetLink II.
- **SNMP Access:** The current status of the SNMP Polling function.
- **SNMP Trap:** The current status of the SNMP Trap feature.
- **TACACS:** The enabled/disabled status of the TACACS feature.
- **RADIUS:** The enabled/disabled status of the RADIUS feature.

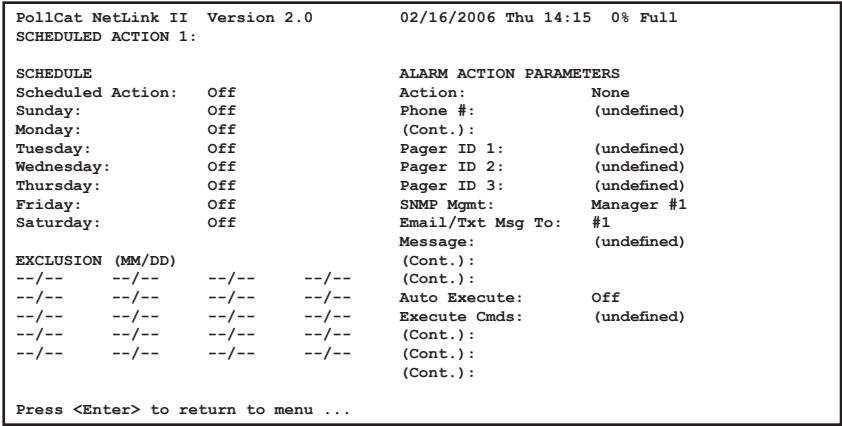


Figure 7.11: Scheduled Action Status Screen (Schedule 1 Shown)

## 7.10. Scheduled Action Status Screens

As shown in Figure 7.11, this screen lists parameters for the Scheduled Action feature. There are two separate Action Schedules. Section 13 describes the procedure for defining these schedules. This screen includes the following:

- Schedule:** The currently defined action schedule. Days that are not included are listed as "OFF".
- Exclusions:** Specific dates (such as holidays) when the schedule will be automatically disabled.
- Action Parameters:**
- **Action:** The type of scheduled action.
  - **Phone Number:** Number dialed for a scheduled callout or page.
  - **Pager ID Numbers:** The ID numbers that are used for a scheduled alphanumeric page.
  - **SNMP Manager:** The SNMP Manager(s) that will receive SNMP Traps generated by this schedule.
  - **Email / Text Message To:** The address(es) that will receive email and text messages generated by this schedule.
  - **Message:** The message sent when a scheduled callout, alphanumeric page, SNMP Trap, email action, or console port action is performed.
  - **Auto Execute:** The current status of the Auto Execute feature.
  - **Execute Commands:** The command string that will be performed when the Auto Execute feature is enabled, and a Scheduled Callout or console action is generated.



PollCat NetLink II Version 2.0				02/16/2006 Thu 14:15 0% Full	
PBX INACTIVITY ALARM 1:					
SCHEDULE				ALARM ACTION PARAMETERS	
Weekday Alarm:		Off		Action:	None
Weekday Schedule 1:		00:00-00:00		Phone #:	(undefined)
Weekday Timer 1:		00:00		(Cont.):	
Weekday Schedule 2:		00:00-00:00		Pager ID 1:	(undefined)
Weekday Timer 2:		00:00		Pager ID 2:	(undefined)
Weekend Alarm:		Off		Pager ID 3:	(undefined)
Weekend Schedule 1:		00:00-00:00		SNMP Mgmt:	Manager #1
Weekend Timer 1:		00:00		Email/Txt Msg To:	#1
Weekend Schedule 2:		00:00-00:00		Message:	(undefined)
Weekend Timer 2:		00:00		(Cont.):	
				(Cont.):	
EXCLUSION (MM/DD)				Auto Execute: Off	
--/--	--/--	--/--	--/--	Execute Cmds:	(undefined)
--/--	--/--	--/--	--/--	(Cont.):	
--/--	--/--	--/--	--/--	(Cont.):	
--/--	--/--	--/--	--/--	(Cont.):	
--/--	--/--	--/--	--/--	(Cont.):	
Press <Enter> to return to menu ...					

Figure 7.12: PBX Inactivity Alarm Status Screen (Alarm 1 Shown)

## 7.11. PBX Inactivity Alarm Status Screens

NetLink II includes two separate PBX Inactivity Alarms. Each alarm has its own status screen (Figure 7.12,) which lists the following:

**Schedule:** On/Off Status, Schedules, and Timers.

**Exclusions:** Dates (such as holidays) when alarms will be disabled.

**Alarm Action Parameters:** The action that will be performed when this alarm is triggered.

- **Action:** Selected action for this alarm
- **Phone Number:** The number dialed when the PBX Inactivity Alarm generates a callout or page action.
- **Pager ID Numbers:** The pager ID numbers used when this alarm generates an alphanumeric page.
- **SNMP Manager:** The SNMP Manager(s) that will receive SNMP Traps generated by this alarm.
- **Email / Text Message To:** The address(es) (defined via the Network Port configuration menu) that will receive email and text messages generated by this alarm.
- **Message:** The message that will be sent when this PBX Inactivity Alarm generates a callout, alphanumeric page, SNMP Trap, email action, or console action.
- **Auto Execute:** The current status of the Auto Execute feature.
- **Execute Commands:** The command string performed when Auto Execute is enabled, and a callout or console action is generated.

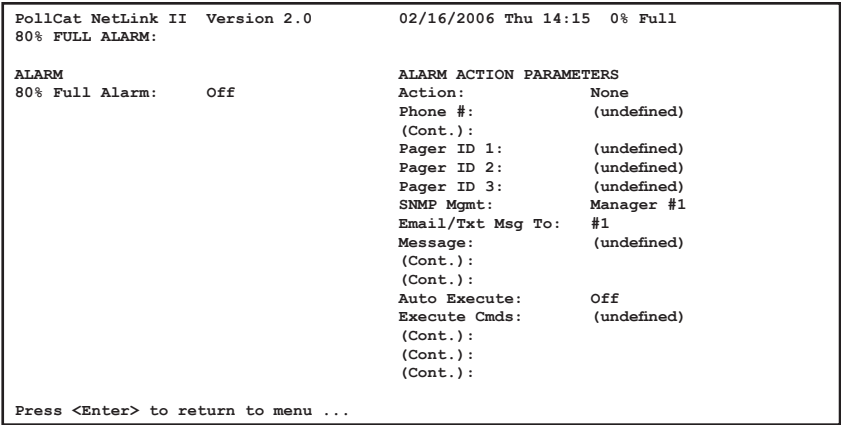


Figure 7.13: 80% Full Alarm Status Screen

## 7.12. 80% Full Alarm Status Screen

As shown in Figure 7.13, this screen lists parameters for the 80% Full Alarm. For more information, please refer to Section 11. This status screen lists the following:

### Alarm:

- **80% Full Alarm:** The enabled/disabled status of the alarm.

### Alarm Action Parameters:

- **Action:** The selected action that will be performed when an 80% Full Alarm is generated.
- **Phone Number:** The number dialed when the 80% Full Alarm generates a callout or page action.
- **Pager ID Numbers:** The ID numbers that are used when the 80% Full Alarm generates an alphanumeric page.
- **SNMP Manager:** The SNMP manager that will receive SNMP Traps generated by this alarm.
- **Email / Text Message To:** The address(es) (defined via the Network Port configuration menu) that will receive email and text messages generated by this schedule.
- **Message:** The message sent when this alarm generates a callout, alphanumeric page, SNMP Trap, email action, or console action.
- **Auto Execute:** The On/Off state of the Auto Execute feature.
- **Execute Commands:** A command string that can be automatically executed when the 80% Full Alarm is triggered.

```

PollCat NetLink II Version 2.0          02/16/2006 Thu 14:15  0% Full
DATA FILTERS & ALARMS:

FILTERS & ALARMS      PORT      DEFAULT ALARM FILTER ACTION
Alarm Filter 1:       None      Action:                None
Alarm Filter 2:       None      Phone #:                (undefined)
Data Filter 1:        None      (Cont.):
Data Filter 2:        None      Pager ID 1:            (undefined)
PBX Inact Alarm 1:    None      Pager ID 2:            (undefined)
PBX Inact Alarm 2:    None      Pager ID 3:            (undefined)
                        SNMP Mgmt:   Manager #1
OTHER ALARMS          Email/Txt Msg To:      #1
80% Full Alarm:       Off      Message:               (undefined)
                        (Cont.):
                        (Cont.):
                        Auto Execute: Off
                        Execute Cmds: (undefined)
                        (Cont.):
                        (Cont.):
                        (Cont.):
                        Send Alarm Records: Off,2048,On,Off

Press <Enter> to return to menu ...

```

Figure 7.14: Data Filters & Alarms Status Screen

## 7.13. Data Filters & Alarms Status Screen

**Filters & Alarms:** Shows which port(s) are currently assigned to the Alarm Filters, Data Filters, and PBX Inactivity Alarms. If a Filter or Alarm is not currently assigned, the Port column will read "NONE".

**Other Alarms:** The On/Off status of the 80% Full Alarm.

**Default Alarm Filter Action:** Default values for all new alarm clues.

- **Action:** The default action performed when an alarm is generated.
- **Phone Number:** The default number dialed for a callout or page.
- **Pager ID Numbers:** The default ID numbers used when the Alarm Filter generates an alphanumeric page.
- **SNMP Manager:** The default SNMP manager(s), which will receive SNMP Traps generated by Alarm Clues.
- **Email / Text Message To:** The address(es) that will receive text message and email generated by this schedule.
- **Message:** The default message sent when the Alarm Filter generates a callout, alphanumeric page, SNMP Trap, email action, or console port action.
- **Auto Execute:** The On/Off state of the Auto Execute feature.
- **Execute Commands:** The default Auto-Execute command string. This command string will be performed when the Auto Execute feature is enabled, and a callout or console action is generated.
- **Send Alarm Records:** The On/Off status of the "Send Alarm Records" feature, which allows you to include the exact record that triggered the alarm when an Alphanumeric Page action is generated by the Alarm Filter.

ALARM CONDITION:			
ALARM		PENDING	
Alarm Filter 1 (PBX):		No	No
Alarm Filter 2 (PBX):		No	No
Alarm Filter 1 (PBX IP):		No	No
Alarm Filter 2 (PBX IP):		No	No
80% Full Alarm:		No	No
Press <Enter> to return to menu ...			

Figure 7.15: Alarm Condition Status Screen

## 7.14. Alarm Condition Status Screen

As shown in Figure 7.15, this screen lists alarm actions that have not been completed. For example, if the modem port is busy, and an alarm is generated which requires transmission via modem, NetLink II will place the alarm in a queue to await processing. During this time, the Alarm Condition Status Screen will list the alarm action as "pending".

PollCat NetLink II	Version 2.0	02/22/2006 Wed 14:58	1% Full
REASON FOR ACTION:			
Reason:	Alarm Action		
Alarm Type:	Alarm Filter Match		
Port:	PBX		
Alarm Filter:	1		
Clue Name:	ALPHA		
Threshold Count:	25		
Match Count:	25		
Message:	ALARM ALPHA		
Press <Enter> to return to menu ...			

Figure 7.16: Reason for Action Screen

## 7.15. Reason for Action Screen

This screen (Figure 7.16) can be used to determine the exact reason for an alarm. Note that if an Alarm or Scheduled Action has not occurred, NetLink II will display a message which reads, "Session Not Initiated by NetLink II." The Reason for Action Screen includes the following:

- **Reason:** The reason why the last alarm or Scheduled Action was generated.
- **Alarm Type:** The type of Alarm that generated the action.
- **Port:** The port that received the record that was responsible for the last Action that was generated.
- **Alarm Filter:** The alarm filter that generated the action.
- **Clue Name:** The clue that generated the alarm action.
- **Threshold Count:** The number of times that the monitored event must occur in order to generate an Alarm Action.
- **Match Count:** The current counter value for the clue.
- **Message:** The user-defined alarm message for the clue that generated the alarm action.

PollCat NetLink II	Version 1.02	08/01/2005 Mon 14:15	0% Full
ALARM FILTER 1 CLUE STATUS (PBX) :			
Current Zone: Non-Business Hours			
Clue Name	Threshold	Match Count	Reset Timer Alarm Status
-----			
Press <Enter> to return to menu ...			

Figure 7.17: Alarm Filter Clue Status Screen (Filter 1 Shown)

## 7.16. Alarm Filter Clue Status Screens

As shown in Figure 7.17, these screens list the status of clues defined for Alarm Filters 1 and 2. Note that there are four separate Alarm Filter Clue Status Screens, with each screen reporting status for a specific input port and Alarm Filter matched. For more information on Alarm Filters and clues, please refer to Section 9. The Alarm Filter Clue Status Screen includes the following items:

- **Current Zone:** Indicates whether Business Hour parameters (Threshold and Duration) or Non-Business Hour parameters are currently in effect. Note that Business Hours are defined via the Alarm Configuration Menu for each Alarm Filter, and that each Alarm Filter can be configured to cover different business hours..
- **Clue Name:** The names of the clues defined for this Alarm Filter. Each clue describes a specific type of PBX event (e.g., off-hours long distance calls).
- **Threshold:** The number of times this event must occur in order to generate an alarm. Note that clues can be defined to apply a different threshold for Business Hours and Non-Business Hours.
- **Match Count:** The number of times this event has occurred since the last counter reset.
- **Reset Timer:** The amount of time remaining until the next counter reset. Note that the counter reset time (Duration) is defined via the clue definition menus, and that separate reset times can be defined for Business Hours and Non-Business Hours.
- **Alarm Status:** The status of the last alarm generated by each clue as follows:
  - **Pending:** The alarm is still waiting to be sent
  - **Success:** The alarm has already been sent.
  - **Failure:** The unit was not able to send the Alarm
  - **Ellipsis (...):** No Alarm has been generated.

## 8. The Data Filters

---

The Data Filters allow you to make the most efficient use of NetLink II memory by excluding records (such as inbound calls) that are not needed for your call accounting application. When the Data Filters are correctly configured, NetLink II will monitor each record received from the PBX. Records that do not meet the user-defined criteria will not be stored.

The configuration procedure consists of three tasks:

- Define the Data Filter Format
- Define the Data Filter Parameters
- Enable the Data Filter

NetLink II features two separate Data Filters. Each filter has its own format, variables, and storage criteria. When two dissimilar PBX units are connected to the NetLink II, this provides a separate Data Filter for each PBX.

### Notes:

- When NetLink II is connected to two *different* types of PBX units, it is recommended to define a separate Data Filter for each PBX.
- A Data Filter that is defined for one type of PBX may not function correctly if applied to another type of PBX.
- Note that the Data Filter and Alarm Filter are two separate features, and are configured independently of one another. The function of the Data Filter is to screen out irrelevant data, and the function of the Alarm Filter is to provide notification when specific types of data are detected.

Each Data Filter Consists of a "Format" and one or more "Clues". The Format assigns variables to individual call record locations; Clues define the parameters that will be used as the criteria for rejection or storage of each call record.

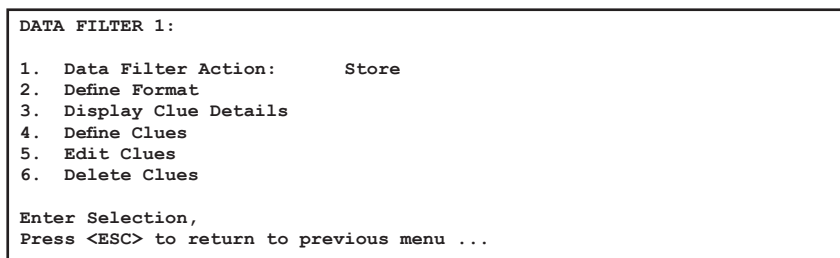


Figure 8.1: Data Filter Configuration Menu (Data Filter 1 Shown)

## 8.1. The Data Filter Configuration Menus

---

To access the Data Filter Configuration Menus, from the Main Menu, type **26** and press **[Enter]**. A selector menu will appear. Type **1** for Data Filter 1, or **2** for Data Filter 2, and then press **[Enter]**. The Data Filter Configuration Menus (Figure 8.1) offer the following options:

1. **Data Filter Action:** Determines whether the Filter will store or reject records that match Clues. If the Data Filter Action is "Reject", NetLink II will reject all records that match Data Filter clues. If the action is "Store", NetLink II will store all records that match clues.
2. **Define Format:** Defines the Data Filter Format as described in Section 8.2.
3. **Display Clue Details:** After clues are defined, this item can be used to review the parameters assigned to each clue.
4. **Define Clues:** Several Data Filter parameters can be combined into a single clue, or individual parameters can be defined under separate clues to create a logical "Or" condition. Section 8.3 describes clue definition.
5. **Edit Clues:** Allows the user to edit or alter existing Clues.
6. **Delete Clues:** This item can be used to delete user-defined clues as described in Section 8.3.





```
DEFINE FORMAT:
```

In order to assist the user during format definition, several data records  
and the previous format are displayed in the following order:

Data Records	(If available)
Previous Format	(If available)

Enter new format at cursor.  
<Space><Enter> to clear.  
Use upper case letters for fields,  
'-' between fields

08:16 075 B.JOHNSON	IN	00:55 00.00
08:18 067 R.JONES	OUT 19495839514	05:36 00.75
08:20 092 J.SMITH	OUT 18008547226	11:15 00.00
(undefined)		
+-----+	+-----+	+-----+
-AAAAA-		

Figure 8.3: Data Filter Format Definition Example

3. From the Main Menu, type **26** and press **[Enter]** to access the Data Filter selector menu. From the selector menu, type **1** (for Data Filter 1) or **2** (for Data Filter 2) and then press **[Enter]**. The Data Filter Configuration menu will appear (Figure 8.1).
4. From the Data Filter Configuration menu, type **2** (Define Format) and press **[Enter]**. The Data Filter Format definition menu will appear as shown in Figure 8.2.
5. The Data Filter Format definition menu will show three sample PBX records, followed by the previous format definition (if available). Although the structure will differ for each type of PBX, call records will look something like those shown in Figure 8.2. Examine the call records to locate the field location(s) you intend to monitor.
6. **Define the Data Filter Format:** The prompt at the bottom of the menu is used to define the Data Filter.
  - a) Press the dash key to indicate a field position that you do not need to monitor. In the last line in Figure 8.3, dashes have been entered in the first three fields of the call record.
  - b) When you reach a field that you need to monitor, type any uppercase letter from A to Z to assign that variable to the position. For example, to assign "A" to represent the first seven digits of the number dialed, enter seven A's (**AAAAAAA**) as shown in Figure 8.3. The same variable is repeated for each position in the field. It is not necessary to define variables in alphabetic order.
  - c) When you reach the end of the call record, or the last position you need to monitor, press **[Enter]**. The Data Filter Format will be saved, and NetLink II will return to the Data Filter Configuration menu.

---

### 8.3. Defining Data Filter Clues

---

Data Filter match parameters describe the specific criteria that NetLink II will use to determine if call records should be stored or discarded. Storage/rejection criteria are referred to as "Clues". Parameters can be combined under a single clue, or divided between a series of clues to create a logical "OR" condition.

Clues are defined using item 4 in the Data Filter Configuration menu (Figure 8.1). Each clue will usually include the following:

- **Variable(s):** One or more variables from the Data Filter Format, which designate the field(s) to be monitored. For example, the variable may represent the call record field for the number dialed.
- **Operator(s):** One or more of the logical or comparative operators described in Section 8.4.
- **Parameter(s):** A description of call characteristics which will be used as the criteria for storage or rejection. For example, specific numbers or area codes for which records will not be stored.

To define Data Filter clues, proceed as follows:

1. Access the Data Filter Configuration Menu.
2. **Data Filter Action:** Type 1 and press **[Enter]** to specify whether the filter will store or reject records that match Clue Parameters.
3. **Define Clues:** Type 4 and press **[Enter]** to define parameters that will be used as the criteria for storage or rejection. The Define/Edit Clue menu will appear.
  - a) **Clue Name:** Type 1 and press **[Enter]** to assign a Clue Name. This name can be used to reference a specific clue when altering or deleting clues.
  - b) **Match Parameters:** Type 2 and press **[Enter]** to define the criteria for storage or rejection. Match Parameters consist of one or more variable(s) from the Data Filter Format, one of the logical operators discussed in Section 8.4, and the value that will be matched (e.g., the number dialed).

**Example:** If the Data Filter Format assigns "A" to represent the call record field for the number dialed, then **A=5551212** tells NetLink II to check this field for the number "5551212".
  - c) Match Parameters may reference several variables, may include logical operators, and may also include logical AND/OR conditions. Please refer to the examples in Section 8.7.

- 4. **Display Clue Details:** Item 3 can be used to review clue parameters. Type **3** and press **[Enter]**, NetLink II will list all defined clue names. Key in the name of the desired clue and press **[Enter]**; parameters for the specified clue will be displayed.
- 5. **Edit Clues:** To alter an existing Clue, type **5** and press **[Enter]**. NetLink II will list all clue names defined for the current filter. Key in the desired clue name and then press **[Enter]**. The Define/Edit Clue menu will be displayed, allowing the user to edit clue parameters.
- 6. **Delete Clues:** To delete an existing Clue, type **6** and press **[Enter]**. NetLink II will list all clue names defined for the current filter. Key in the name of the clue you that wish to delete and press **[Enter]**; the clue will be deleted.

**Note:** Deleted clues cannot be automatically restored.

**8.4. Logical and Relational Operators**

---

Variables and operators are combined to form match parameters. Variables are the uppercase letters A through Z, as defined in the Data Filter Format. Relational and logical operators are described below.

Operator	Function
>	Greater Than
<	Less Than
>=	Greater Than or Equal to
<=	Less Than or Equal to
~	Not. Can also precede other comparison operators (e.g. ~<, Not Less Than)
=	Equal To
\$	Contains String. Searches for specified string anywhere in a field
-	(Dash) Wild Card Character
( )	(Parentheses) Used to Combine and Prioritize Operations
+ or	Logical OR Conditions
* or &	Logical AND Conditions

### 8.4.1. Logical AND/OR Conditions

Logical AND/OR conditions can be created by including the AND operators, or the OR operators in the match parameter definition. A logical OR condition can also be created by defining a series of match parameters using a separate Clue for each parameter.

#### 8.4.1.1. Logical AND Conditions

The AND operators (\* and &) link parameters in a manner where two or more conditions must *all* be true in order for the record to match the filter.

**Example:** Assume "A" represents the field for the number dialed, and "B" represents the extension number. To define a Data Filter Clue that accepts records for calls placed to 555-1111 from extension 013, match parameters would be defined as follows:

**A=5551111\*B=013 or A=5551111&B=013**

This Data Filter Clue would *only* accept calls placed to 555-1111 AND placed from extension 013. Calls to 555-1111 from extension 086 would *not* be accepted, and calls to 555-2222 from extension 013 would also not be accepted.

#### 8.4.1.2. Logical OR Conditions

The OR operators (+ and |) link parameters in a manner where *any* of two or more conditions must be true in order for the record to match the filter.

**Example:** Assume the variable "A" represents the field for the number dialed, and "B" represents the extension number. To define a Data Filter Clue that accepts records for calls placed to 555-1111 OR placed from extension 013, match parameters would be defined as follows:

**A=5551111+B=013 or A=5551111|B=013**

This Data Filter Clue would accept all calls that are placed to 555-1111 OR placed from extension 013. Calls to 555-1111 from extension 086 *would* be accepted, and calls to 555-2222 from extension 013 *would also* be accepted.

Another method for creating an OR condition is to define match parameters using separate clues. When a series of clues are defined, the record will be flagged if any of the defined clues are matched. In the preceding example, the same results could also be achieved by defining the following clues:

Clue Name	Match Parameter
NUMBER	A=5551111
EXTENSION	B=013

08:16 075 B.JOHNSON	OUT 17145551212	00:55 00.00
08:18 067 R.JONES	OUT 19495557714	05:36 00.75
08:20 092 J.SMITH	OUT 18007140000	11:15 00.00
-----AAAAAAAAA-----		

Figure 8.4: The "Contains String" Operator Example

### 8.4.2. The "Contains String" Operator

The "Contains String" Operator (\$) is used to search an entire variable field for a given value or text string, without regard for the item's position within the field.

For example, assume the variable "A" represents the first eleven characters in the "Number Dialed" field as shown in Figure 8.4. If Match Parameters are defined as "A\$714", then NetLink II will search all eleven digits of the field. This Data Filter would match any record that contains "714" *anywhere* in the phone number, including records where 714 is the area code, and records where 714 is part of the number dialed.

### 8.5. Real Time Variables

Data Filter clues can also include Real-Time variables that monitor the NetLink II's internal clock and calendar

Real-Time variables do not use the Data Filter Format, or monitor the contents of the call record. When Real-Time variables are used, NetLink II will check its internal clock and calendar as each record is received. If the time or date matches the clue definition, the call is then stored or rejected as specified by the Data Filter Action parameter. In this case, NetLink II's internal clock, rather than the contents of the call record, determines whether the record is stored or rejected.

The following Real-Time variables can be used to monitor the internal clock and calendar.

**Note:** Real-Time variables are entered as lowercase characters.

- t Time:** Tells NetLink II to determine the time each record is received. Time is entered in HH:MM format, where HH is the hour (00 - 23), and MM is the minute (00 - 59).
- w Day of the Week:** Tells NetLink II to determine the day of the week when the record is received. The day of the week is entered as a single digit, where 1 = Sunday, 2 = Monday, 3 = Tuesday, 4 = Wednesday, 5 = Thursday, 6 = Friday, and 7 = Saturday.
- d Date:** Tells NetLink II to determine the date the record is received. The date is entered in MM/DD format, where MM is the month (01 - 12) and DD is the date (01 - 31).

**Example 1:** To create a Data Filter Clue that will reject call records received on Sunday, match parameters would be defined as **w=1**. Where **w** is the Real-Time variable for the day of the week, and **1** indicates Sunday.

**Example 2:** To create a Data Filter Clue that will reject call records received after 6:00 PM (18:00) or before 7:00 am (07:00), match parameters would be defined as follows:

**t>18:00+t<07:00**

Where **t** is the Real-Time variable for the time of the day, and **+** is the logical OR operator.

**Notes:**

- Real-Time variables are not defined in the Data Filter Format.
- Match parameters can include both Real-Time variables and regular variables, as well as logical and relational operators.
- Real-Time variables function independently from the Time/Date Stamp. The Time/Date Stamp does not have to be enabled in order for the Real-Time variables to function.
- Values from the internal clock/calendar are not included in the call record, unless the Time/Date Stamp is enabled.

## **8.6. Assigning the Data Filter to a Port**

---

After the Data Filter is defined, the next step is to assign the filter to one or both of the two PBX inputs (serial PBX Input or PBX IP Port.) The port configuration menus are used to assign one of the two available Data Filters to each port as described in Section 5.4. Note that Data Filters will not function unless they are assigned to a port.

## 8.7. Data Filter Definition Examples

---

When designing your Data Filter, be aware that the record format will differ from those shown in the examples. When defining the Data Filter Format and Match Parameters the following factors should be considered:

- **Exact Match:** Alphanumeric values in parameter definitions must exactly match those found in the call record. If the record lists the time as "09:00", then the parameter definition must also list time as "09:00" (rather than "0900" or "9:00".)
- **Number of Characters :** For any given variable, the number of characters specified in the Data Filter Format must exactly match the number of characters indicated in the Match Parameters definition. For example, if the filter format defines "B" as the first seven characters of the number dialed, then the parameter definition must account for all seven characters.
- **Cumulative Effect:** Each time a Data Filter clue is defined, NetLink II will add the new parameter to the existing definition. When multiple clues are defined, an OR condition is created. If the call record matches a defined clue, the record is then stored or rejected as indicated by the Data Filter Action.
- **Searching for Operator Characters:** When searching for a string that contains a space (or any character that is also used as an operator,) a backslash (\) must precede the space or operator. For example, to search for "\*\*\*Error\*\*\*", match parameters would be defined as "\\\*\\\*\\\*Error\\\*\\\*\\\*". Likewise, to search for "hello there", match parameters would be defined as "hello\\ there".
- **Variable Case:** When defining and using variables, take care to use the correct case. Real Time variables are always entered as lowercase characters; regular variables are always entered as uppercase characters.



08:16 075 B. JOHNSON	IN	00:55 00.00
08:18 067 R. JONES	OUT 19495839514	05:36 00.75
08:20 092 J. SMITH	OUT 18008547226	11:15 00.00
-----AAA-----		

Figure 8.6: Data Filter Example 2

### Example 1: Multiple AND Conditions

This example shows a Data Filter that uses multiple AND conditions to simultaneously monitor two different call characteristics. Assume the Data Filter Format is defined as shown in Figure 8.5.

Where:

- A** The field that lists the time the call was received or placed.
- B** The field that lists call duration.

Define a Data Filter that will only store records for calls received or placed between 8:00 am (08:00) and 5:00 PM (17:00), and lasting longer than five (5) minutes. The Data Filter Action would be set at "Store", and Match Parameters would be defined as:

**A>08:00&A<17:00&B>05:00**

Where:

- A>08:00** Stores records for calls received or placed after 08:00.
- &** Logical AND
- A<17:00** Stores records for calls received or placed before 17:00.
- &** Logical AND
- B>05:00** Stores records for calls that last longer than five minutes.

08:16 075 B.JOHNSON	IN	00:55 00.00
08:18 067 R.JONES	OUT 19495839514	05:36 00.75
08:20 092 J.SMITH	OUT 18008547226	11:15 00.00
-----AAA-----		

Figure 8.6: Data Filter Example 2

**Example 2: Multiple OR Conditions**

This example shows a Data Filter that uses multiple OR conditions to store call records which conform to one of several listed characteristics. Assume the Data Filter Format is defined as shown in Figure 8.6.

Where **A** indicates the field that lists the extension number.

Define a Data Filter that will only store records for calls received or placed by extensions 013, 086, 099, or 101. The Data Filter Action would be set at "Store", and Match Parameters would be defined as follows:

**A=013+A=086+A=099+A=101**

Where:

- A=013** Stores records for calls received or placed at extension 013.
- +** Logical OR
- A=086** Stores records for calls received or placed at extension 086.
- +** Logical OR
- A=099** Stores records for calls received or placed at extension 099.
- +** Logical OR
- A=101** Stores records for calls received or placed at extension 101.

**Note:** Match Parameters for this Data Filter could also be defined by entering each "A=xxx" expression under a separate clue name.

08:16 075 B. JOHNSON	IN	00:55 00.00
08:18 067 R. JONES	OUT 19495839514	05:36 00.75
08:20 092 J. SMITH	OUT 18008547226	11:15 00.00
-AAAAA-BBB-----		

Figure 8.7: Data Filter Example 3

### Example 3: Combining Logical AND Conditions and Logical OR Conditions

This example combines a logical AND condition and a logical OR Condition. Assume the Data Filter Format is defined as shown in Figure 8.7.

Where:

- A** Is the field that lists the time the call was received or placed.
- B** Is the field that lists the extension number.

Given the Data Filter Format shown in Figure 8.7, define a Data Filter that will store records for calls received or placed between 7:00 am (07:00) and 6:30 PM (18:30). In addition, the Data Filter must also store records for calls received or placed by extension 013. The Data Filter Alarm Action would be set at "Store", and Match Parameters would be defined as follows:

**(A>07:00&A<18:30)+B=013**

Where:

- A>07:00** Stores records for calls received or placed after 07:00.
- &** Logical AND
- A<18:30** Stores records for calls received or placed before 18:30.
- +** Logical OR
- B=013** Stores records for calls received or placed at extension 013.

**Note:** Parentheses are used to group the parts of the logical AND condition.

08:16 075 B.JOHNSON	IN	00:55 00.00
08:18 067 R.JONES	OUT 19495839514	05:36 00.75
08:20 092 J.SMITH	OUT 18008547226	11:15 00.00
-----A-----		

Figure 8.8: Data Filter Example 4

**Example 4: The "Wild Card" Operator**

This example shows a Data Filter that uses the "Wild Card" operator. Assume the Data Filter Format is defined as shown in Figure 8.8.

Where **A** represents the first seven characters of the call record field that lists the number dialed.

Assume that you only need to store records for long distance calls. The Data Filter Action would be set at "Store". Since long distance numbers begin with the number 1, Match Parameters would be defined as follows:

**A=1-----**

Where:

**A=1-----** Stores records for calls dialed to any number that begins with a "1", regardless of the remaining six positions.

**Note:** Since this Data Filter uses only the first position of the "A" field, the remaining six positions (specified by the Data Filter Format) must also be accounted for. The wild card operator (-) is used to fill out the remaining six positions in the "A" field.

## 9. The Alarm Filters (Toll Fraud Detection)

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The Alarm Filters allow NetLink II to monitor call records, and check for characteristics of Toll Fraud or other forms of phone abuse. When suspect calls are detected, NetLink II can send an SNMP Trap or an email message, contact a local PC via the Console Port, or dial a modem or pager. The Alarm Filter has priority over the Data Filter; even if a call is rejected by the Data Filter, it will still be counted and stored if it matches an Alarm Clue.

NetLink II features two separate Alarm Filters. Each filter has its own format, variables, and alarm criteria and separate operating hours and counter reset schedules can be defined for each filter. When two dissimilar PBX units are connected to the NetLink II, this provides a separate Alarm Filter for each. Each Alarm Filter includes a "Format", and one or more "Clues" with associated "Actions". The Format describes the location of specific data items within each call record. Alarm Filter Clues define the criteria that determine whether or not a record will be flagged and counted. "Actions" determine how NetLink II will react when an alarm is generated.

### **Notes:**

- When the NetLink II is connected to two different types of PBX units, it is recommended to define a separate Alarm Filter for each PBX.
- An Alarm Filter defined for one type of PBX may not function correctly if applied to another type of PBX.
- Note that the Alarm Filter and Data Filter are two separate features, and are configured independently from one another. The function of the Alarm Filter is to provide notification when specific types of data are detected, and the function of the Data Filter is to screen out irrelevant data.

## 9.1. Common Types of Suspect Phone Activity

---

The first step in the detection of Toll Fraud, is to determine the type of calls you wish to monitor. The following types of calls may provide an indication of potential Toll Fraud:

- Repeated unsuccessful attempts to access voice mail
- After-hours long distance calls
- After-hours calls to your 800 number
- Lengthy international calls
- Calls to countries where you don't normally conduct business

NetLink II can also be programmed to monitor calls that can indicate internal phone abuse. Examples of these types of calls are as follows:

- Calls to your competitor's phone number
- Extensions with exceptionally high call activity
- Calls to "900" numbers

All of these call types will have specific characteristics which can be easily recognized when NetLink II examines PBX call records.

## 9.2. The Alarm Configuration Menu

---

To set-up the Alarm Filters, you must first access the Alarm Configuration Menu. In addition to defining the two Alarm Filters, the Alarm Configuration Menu is also used to access submenus for the PBX Inactivity Alarms and the 80% Full Alarm. The Alarm Configuration Menu is only available in Administrator Mode.

To access the Alarm Configuration Menu (Figure 9.1) from the Main Menu, type **25** and press **[Enter]**. Items 1 through 5 provide access to submenus for the various alarms. Items 21 through 31 define Default Alarm Filter Action parameters.

ALARM CONFIGURATION:	
ALARMS	DEFAULT ALARM FILTER ACTION
1. Alarm Filter 1	21. Action: None
2. Alarm Filter 2	22. Phone #: (undefined)
3. PBX Inact Alarm 1	(Cont.):
4. PBX Inact Alarm 2	23. Pager ID 1: (undefined)
5. 80% Full Alarm: Off	24. Pager ID 2: (undefined)
	25. Pager ID 3: (undefined)
	26. SNMP Mgmt: Manager #1
	27. Email/Msg To: #1
	28. Message: (undefined)
	(Cont.):
	(Cont.):
	29. Auto Execute: Off
	30. Execute Cmds: (undefined)
	(Cont.):
	(Cont.):
	(Cont.):
	31. Send Alm Rec: Off,2048,On,Off
Enter selection,	
Press <ESC> to return to previous menu ...	

Figure 9.1: Alarm Configuration Menu

### 9.2.1. Default Alarm Filter Actions

Alarm Action parameters determine how NetLink II will react when an alarm is generated. The Default Alarm Filter Actions select parameters that are applied to all newly defined clues, allowing you to assign identical actions to clues without manually entering parameters for each clue.

#### Notes:

- Definition of the Default Alarm Action parameters is optional.
- Default Alarm Action parameters are only applied to newly defined Alarm Clues. These defaults will not be applied to PBX Inactivity Alarms or the 80% Full Alarm.
- When new Alarm Clues are defined, the default values can be altered or eliminated, as discussed in Section 9.5.1.

The following Default Alarm Action Parameters are available.

21. **Action:** The default action that will be performed when an alarm is generated. For more information, please refer to Section 12.
22. **Phone Number:** The default number that will be dialed when an Alarm Clue generates a callout or page action.

**Note:** For Numeric Paging, this prompt can specify both the Pager phone number and a numeric "message". In this case, the phone number is entered using the following format:

**PHONENO@MESSAGENO#**

Where **PHONENO** is the pager number, and **MESSAGENO** is any user-selected number that will notify the receiver that an alarm has occurred. For example, to dial 555-1212 and send the message "111", the phone number would be defined as **"5551212@111#"**.

23. **Pager ID 1:** The first default Pager ID number. If alphanumeric pager notification is selected, this is the first pager dialed when an Alarm is triggered. NetLink II can dial up to three pagers for each clue.
24. **Pager ID 2:** The second default Pager ID Number.
25. **Pager ID 3:** The third default Pager ID Number.
26. **SNMP Management:** The default SNMP Manager, that will receive SNMP Traps generated by Alarm Clues. IP Addresses for SNMP Managers are defined via the Network Port Configuration Menu, as described in Section 5.4.5.
27. **Email/Message To:** The default email address(es) that will receive email and text messages generated by Alarm Clues. This item can select either or both of the two user-defined email addresses, which are defined via the Network Port Configuration Menu, Item 38 (Section 5.4.5.)
28. **Message:** Defines the default message sent when the alarm action is Alphanumeric Page, Numeric Page, SNMP Trap or Console.
29. **Auto Execute:** Sets the default state for the Auto Execute feature. When enabled, NetLink II will execute the command string defined under item 30 when a Callout or Console action is generated.
30. **Execute Commands:** The default Auto Execute command string. This command string will be invoked when Auto Execute is enabled, and a Callout or Console Action is generated.

**Example:** To send the Site ID Message and then send all alarm records, the Auto Execute Command String would be defined as "03/01,ALM". Note that the ^B is not included in the command string, and that each command is separated by a slash (/).
31. **Send Alarm Record:** Enables and configures the "Send Alarm Record" option for the Alphanumeric Page action. When enabled, NetLink II will include the record that triggered the alarm in the text that is sent to your Alphanumeric pager. Please consult your pager service when configuring the Maximum Message Length, Multi-Block Message and Strip Control Codes options.

**Note:** The "Send Alarm Record" function applies to the Alarm Filters only. This function is not available to the PBX Inactivity Alarms or the 80% Full Alarm.



```
ALARM FILTER 1:

1. Define Format
2. Display Clue Details
3. Define Clues
4. Edit Clues
5. Delete Clues
6. Define Alarm Review Schedule

Enter selection,
Press <ESC> to return to previous menu ...
```

Figure 9.2: Alarm Filter Configuration Menu (Alarm Filter 1 Shown)

### 9.3. The Alarm Filter Configuration Menus

The Alarm Filter Configuration menus (Figure 9.2) are used to set-up the two Alarm Filters. Each filter has its own configuration menu, and both menus are accessed from the general Alarm Configuration menu (Figure 9.1). Both menus include the following options:

1. **Define Format:** The Alarm filter Format (see Section 9.4.)
2. **Display Clue Details:** This item is used to review the parameters assigned to each Clue.
3. **Define Clues:** The criteria that determine if each record should be flagged and counted. Section 9.5 describes Alarm Clue definition.
4. **Edit Clues:** Allows the user to edit or alter existing Clues.
5. **Delete Clues:** Deletes clues as described in Section 9.5.2.
6. **Define Alarm Review Schedule:** This item is used to indicate your normal business hours. When clues are defined, this allows each clue to count the number of times that a specific event occurs within business hours, and also the number of times that the event occurs outside of normal business hours. **(Default = 08:00 to 17:00, Monday through Friday.)**

#### Notes:

- Since the NetLink II uses the Alarm Review Schedule to determine Business Hours and Non-Business hours, it is very important to accurately define the Alarm Review Schedule. Business Hours and Non-Business hours are used when counting alarm events and resetting the alarm counters.
- If the Alarm Review Schedule is cleared, then the Non-Business Hours Threshold and Duration will be applied to all clues for this filter, and the Business Hours Threshold and Duration will not be applied.

```

DEFINE FORMAT:

In order to assist the user during format definition, several data records
and the previous format are displayed below in the following order:

Data Records      (If available)
Previous Format    (If available)

Enter new format at cursor.
<Space><Enter> to clear.
Use upper case letters for fields,
 '-' between fields

|08:16|075|B.JOHNSON      |IN |      |00:55|00.00|
|08:18|067|R.JONES       |OUT|19495839514      |05:36|00.75|
|08:20|092|J.SMITH       |OUT|18008547226      |11:15|00.00|
(undefined)
+-----+-----+-----+-----+-----+-----+

```

Figure 9.3: Alarm Filter Format Definition Screen

## 9.4. Defining the Alarm Filter Format

The Alarm Filter Format describes the location of various "fields" within each call record. Proper definition of the Format tells NetLink II where to look, in order to determine if a record should be counted as a match.

Different types of PBX units will produce records with a slightly different structure. In order to define the Alarm Filter Format, you must first examine several records from the PBX in order to determine the exact record structure. After the format is established, the next step is to assign variables to the fields you intend to monitor. The Alarm Filter Format allows definition of up to 26 variables (the uppercase letters A through Z), which indicate specific record fields or locations. These variables are used when defining the Alarm Filter Clues.

When defining the Alarm Filter Format, particular attention must be paid to recognize the exact format used by the PBX. For example, if the call record shows the time as "09:00", then the Alarm Filter Format must account for all five digits, including the colon that separates hours and minutes.

To define the Alarm Filter Format, proceed as follows.

1. Activate the Command Mode as described in Section 17.1. From the Main Menu, type **1** and press **[Enter]** to access the Status Screens. Check the Status Screen for the port you intend to monitor (Serial PBX Port or PBX IP Port), and make certain the Time/Date Stamp is Off. The Port Configuration menus are used to enable/disable the Time/Date Stamp as described in Section 5.4.

**Note:** If the Time/Date Stamp is On, field locations will be altered when data is released to the polling device. The Time/Date Stamp appends extra characters to each record. This may cause errors in the Alarm Filter Format. Disable this feature prior to storing records that will be used when defining the Alarm Filter Format.



## 9.5. Defining Alarm Filter Clues

---

Alarm Filter Clues describe specific criteria that NetLink II will use to determine if each record should be counted as a match. Up to sixteen clues can be defined for each Alarm Filter. When an Alarm Filter is assigned to an input port, all data received by that port will be monitored. NetLink II will scan each record to determine if it matches any of the defined Alarm Clues. Records that match clues are flagged and counted. When data is released to the polling device, alarm records can be sorted according to the name of the clue that was matched.

When defining clues, the following factors should be considered:

- **Clue Name:** Names should describe the type of call the clue will monitor.
- **Threshold:** The number of times this type of call must occur in order to generate an alarm. Note that the Alarm Clue Definition menus allow you to define a separate Threshold value for Business Hours and Non-Business hours.
- **Duration (Alarm Counter Reset Time):** The Duration parameter determines how often the counter for each clue will be reset. Note that the Alarm Clue Definition menus allow you to define a separate duration value for Business Hours and Non-Business Hours.
- **Match Parameters:** The qualities that identify a suspect call. For example, long distance calls are easily recognized because they begin with the number one. Call characteristics are expressed in the form of an equation, which includes the following elements:
  - **Variable(s):** One or more variables from the Alarm Filter Format or one or more Real-Time variables. Variables determine which field(s) will be monitored. For example, the variable may represent the field for the number dialed.
  - **Operator(s):** One or more of the logical/relational operators described in Section 9.6.
  - **Parameter(s):** A description of the characteristics that determine whether each record is counted as a match. For example, calls to a specific phone number, or calls made after a specific time.
- **Action Parameters:** A Series of parameters that determine how NetLink II will react when the counter for this clue reaches the defined threshold. NetLink II can send an SNMP Trap or email message, call a modem or pager, or contact the user via the Console Port. For more information on Alarm Actions, please refer to Section 12.

CLUE PARAMETERS		ALARM ACTION PARAMETERS	
1. Clue Name:	(undefined)	21. Action:	None
2. Bus Hr Thrsh:	0	22. Phone #:	(undefined)
3. Bus Hr Dur:	00:00	(Cont.):	
4. N-Bus Hr Thrsh:	0	23. Pager ID 1:	(undefined)
5. N-Bus Hr Dur:	00:00	24. Pager ID 2:	(undefined)
6. Match Params:	(undefined)	25. Pager ID 3:	(undefined)
(Cont.):		26. SNMP Mgmt:	Manager #1
(Cont.):		27. Email/Msg To:	#1
(Cont.):		28. Message:	(undefined)
		(Cont.):	
		(Cont.):	
		29. Auto Execute:	Off
		30. Execute Cmds:	(undefined)
		(Cont.):	
		(Cont.):	
		(Cont.):	
		31. Send Alm Rec:	Off,2048,On,Off

Enter selection, Press <ESC> to return to previous menu ...

Figure 9.5: Alarm Clue Definition Menu

### 9.5.1. Alarm Clue Definition

To define Alarm Clues, access the Alarm Clue Definition Menu (Figure 9.5) as follows:

1. From the NetLink II Main Menu, type **25** and press **[Enter]** to display the Alarm Configuration Menu (Figure 9.1).
2. When the Alarm Configuration Menu appears, type **1** (to configure Alarm Filter 1) or **2** (Alarm Filter 2), and then press **[Enter]**. The Alarm Filter Configuration Menu (Figure 9.2) will be displayed.
3. From the Alarm Filter Configuration Menu, type **3** and press **[Enter]**. The Alarm Clue Definition Menu (Figure 9.5) will appear.
4. From the Alarm Filter Configuration menu, type **3** and press **[Enter]**. The Alarm Clue Definition menu will be displayed as shown in Figure 9.5.

The Alarm Clue Definition Menu includes the following:

#### Clue Parameters:

1. **Clue Name:** This name is used to reference a specific clue when reviewing, altering, or deleting clues. When data is released, records can also be sorted according to the Clue Name matched. Names can be up to 16 characters long, and cannot include <Esc>, <Null>, or quotation marks.

2. **Business Hours Threshold:** The number of times that this type of call must occur during defined business hours in order to trigger an alarm. This value can be any positive whole number from zero to 999,999,999. Note that business hours are defined via the Alarm Filter Configuration menu, as described in Section 9.3. **(Default = 0.)**
3. **Business Hours Duration:** Determines how often the alarm counter will be reset during defined business hours. For example, if the Business Hours Duration is set at two hours, then the counter for this Alarm Clue will be reset once every two hours during defined business hours. **(Default = 00:00.)**
4. **Non Business Hours Threshold:** Determines the number of times that this type of call must occur during non-business hours in order to trigger an alarm. Non-business hours are defined as any portion of the day that is not covered by the business hours specified for the Alarm Counter Schedule, as described in Section 9.3. **(Default = 0.)**
5. **Non Business Hours Duration:** Determines how often the alarm counter will be reset during non-business hours. For example, if the Non Business Hours Duration is set at three hours, then the counter for this Alarm Clue will be reset once every three hours during non-business hours. **(Default = 00:00.)**

**Notes:**

- When either of the Duration parameters are redefined, the corresponding alarm counter will be reset to zero.
  - If the Alarm Review Schedule (Business Hours) is cleared, then the Non-Business Hours Threshold and Duration will be applied at all times, and the Business Hours Threshold and Duration will not be used.
3. **Match Parameters:** Defines criteria that determine if each record will be flagged as an alarm. Match Parameters consist of a variable from Alarm Filter Format, a logical operator (see Section 9.6,) and the value that will be matched (e.g., the number dialed).

**Example:** If the Alarm Filter Format assigns the variable "A" to the "Number Dialed" field, then A=5551212 tells NetLink II to check this field for the number 555-1212.

**Note:** Match Parameters may reference several variables, may include several operators, and may also include "AND/OR" conditions. Please refer to the examples in Section 9.9.

**Action Parameters (Items 21 - 31):** These items determine how NetLink II will react when the counter for this clue exceeds the threshold value. If default Alarm Filter Action parameters have been defined (Section 9.2.1) each prompt will be configured according to the default. Action Parameters for each Clue can be individually defined, and parameters specified by defaults can also be edited. This allows you to assign different Pager Numbers and etc. to each clue. For more information, please refer to Section 12.

### **9.5.2. Editing and Deleting Clues**

The Alarm Filter Configuration menu is used to edit, delete or display parameters defined for each clue.

1. From the Main Menu, type **25** and press **[Enter]**. The Alarm Configuration Menu will be displayed.
2. From the Alarm Configuration Menu, type **1** (for Alarm Filter 1) or **2** (for Alarm Filter 2) and then press **[Enter]**. The Alarm Filter Configuration Menu (Figure 9.2) will be displayed.
3. **Display Clue Details:** To review parameters assigned to each clue, type **2** and press **[Enter]**. NetLink II will list all clue names for this Alarm Filter. Key in the name of the desired clue and press **[Enter]**; parameters for the specified clue will be displayed.
4. **Edit Clues:** To alter an existing Clue, type **4** and press **[Enter]**. NetLink II will list all clues defined for this Alarm Filter. Key in the name of the desired clue and then press **[Enter]**. The Define/Edit Clue menu will be displayed.
5. **Delete Clues:** To delete an existing Clue, type **5** and press **[Enter]**. NetLink II will list all clues defined for this Alarm Filter. Key in the name of the clue that you wish to delete and then press **[Enter]**. The clue will be deleted.

**Note:** Deleted Alarm Clues cannot be recovered.

## 9.6. Logical and Relational Operators

Variables and operators are combined to form match parameters. Variables are the uppercase letters A through Z, as defined in the Alarm Filter Format. Relational and logical operators are described below.

Operator	Function
>	Greater Than
<	Less Than
>=	Greater Than or Equal To
<=	Less Than or Equal To
~	Not. Can also precede other comparison operators (e.g. ~<, Not Less Than).
=	Equal To
\$	Contains String. Searches for specified string anywhere in a field
-	(Dash) Wild Card Character
( )	(Parentheses) Used to Combine and Prioritize Operations
+ or	Logical OR Conditions
* or &	Logical AND Conditions

### 9.6.1. Logical AND/OR Conditions

Logical AND/OR conditions are created by including the AND operators, or the OR operators in the Match Parameter definition.

#### 9.6.1.1. Logical AND Conditions

The AND operators (\* and &) link parameters in a manner where two or more conditions must all be true in order for the call record to flagged and counted.

**Example:** Assume the variable "A" represents the field for the number dialed, and "B" represents the extension number. To define an Alarm Clue that counts calls placed to 555-1111 from extension 013, match parameters would be defined as follows:

**A=5551111\*B=013 or A=5551111&B=013**

This Alarm Filter Clue would *only* count calls that are placed to 555-1111 AND placed from extension 013. Calls to 555-1111 from extension 086 would *not* be counted, and calls to 555-2222 from extension 013 would also *not* be counted.



08:16 075 B. JOHNSON	OUT 17145551212	00:55 00.00
08:18 067 R. JONES	OUT 19495557714	05:36 00.75
08:20 092 J. SMITH	OUT 18007140000	11:15 00.00
-----	AAAAAAAAA	-----

Figure 9.6: Alarm Filter Format; "Contains String" Example

9.6.1.2. Logical OR Conditions

The OR operators (+ and |) link parameters in a manner where any of two or more conditions must be true in order for the call record to be counted.

**Example:** Assume the variable "A" represents the field for the number dialed, and "B" represents the extension number. To define an Alarm Clue that counts calls placed to 555-1111, OR placed from extension 013, match parameters would be defined as follows:

**A=5551111+B=013 or A=5551111|B=013**

This Alarm Clue would count all calls that are placed to 555-1111 OR placed from extension 013. Calls to 555-1111 from extension 086 would be counted, and calls to 555-2222 from extension 013 would also be counted.

9.6.2. The "Contains String" Operator

The "Contains String" Operator (\$) allows the NetLink II to search an entire variable field for a given value or text string, without regard for the item's position within the field.

For example, assume the variable "A" represents the first eleven characters in the field for the number dialed as shown in Figure 9.6. If Match Parameters are defined as "A\$714", then NetLink II will search all eleven "digits" of the phone number for the value "714". This Alarm Clue would count any record that contains the string 714 anywhere in the phone number. This would include records where 714 was the area code, and records where 714 was a part of the number dialed.

## 9.7. Real Time Variables

---

Alarm Filter Clues can also include Real-Time variables that monitor the NetLink II's internal clock and calendar.

Real-Time variables do not use the Alarm Filter Format, or monitor the contents of the call record. When Real-Time variables are used, NetLink II will check its internal clock and calendar as each call record is received. If the time and/or date matches the Clue definition, the call is flagged and counted. NetLink II's internal clock, rather than the contents of the call record, determines whether the record is counted. The following Real-Time variables can be used to monitor the internal clock and calendar.

**Note:** Real Time variables are always entered as lowercase characters.

- t Time:** Tells NetLink II to determine the time each record is received. The time is entered in "HH:MM" format, where HH is the hour (00 - 23), and MM is the minute (00 - 59).
- w Day of the Week:** Tells NetLink II to determine the day of the week when the record is received. The day of the week is entered as a single digit, where 1 = Sunday, 2 = Monday, 3 = Tuesday, 4 = Wednesday, 5 = Thursday, 6 = Friday, and 7 = Saturday.
- d Date:** Tells NetLink II to determine the date the record is received. The date is entered in "MM/DD" format, where MM is the month (01 - 12) and DD is the date (01 - 31).

**Example 1:** To create an Alarm Filter Clue that will count call records received on Sunday, match parameters would be defined as **w=1**. Where **w** is the Real-Time variable for the day of the week, and **1** indicates Sunday.

**Example 2:** To create an Alarm Filter Clue that will count call records received after 6:00 PM (18:00) or before 7:00 am (07:00), match parameters would be defined as follows:

**t>18:00+t<07:00**

Where **t** is the Real-Time variable for the time, and **+** is the logical OR.

### Notes:

- Real-Time variables are not defined in the filter format.
- The match parameter definition can include both Real-Time variables and regular variables, as well as logical and relational operators.
- Real-Time variables function independently from the Time/Date Stamp. The Time/Date Stamp does not have to be enabled in order for the Real-Time variables to function.
- Values from the internal clock/calendar are not included in the call record, unless the Time/Date Stamp is enabled.

---

## 9.8. Assigning the Alarm Filter to a Port

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After defining the Alarm Filter, the next step is to assign the filter to one or both PBX input ports. The Port Configuration menus are used to assign one of the available Alarm Filters to each port as described in Section 5.4. Note that Alarm Filters will not function until they are assigned to a port.

---

## 9.9. Match Parameter Definition Examples

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The following examples are based on fictional PBX call record formats. When designing your Alarm Filter, be aware that the record structure will differ from those shown in the examples. When defining the Alarm Filter Format and Match Parameters the following factors must be considered:

- **Exact Match:** Alphanumeric values in parameter definitions must exactly match those found in the call record. If the record shows the time as "09:00", then the match parameters must also list the time as "09:00", and not "0900" or "9:00".
- **Number of Characters:** For any given variable, the number of characters specified in the Alarm Filter Format must exactly match the number of characters indicated in the Match Parameters definition. For example, if the filter format defines the variable "B" as the first seven characters of the number dialed, then the parameter definition must account for all seven characters.
- **Searching for Operator Characters:** When searching for a text string which contains a space or any character that is also one of NetLink II's operators (e.g. >, <, or &) a backslash (\) must precede the space or operator. For example, to search for "\*\*\*Error\*\*\*", the match parameter would be defined as "\\\*\\\*\\\*Error\\\*\\\*\\\*". Likewise, when searching for "hello there", the match parameter would be defined as "hello\\ there".
- **Variable Case:** When defining and using variables, take care to use the correct case. Real Time variables are always entered as lowercase characters; regular variables are always entered as uppercase characters.

08:18 001 VMAIL	IN	00:20 00.00
08:20 092 J.SMITH	OUT 18008547226	01:07 01.30
08:21 001 VMAIL	IN	00:15 00.00
-AAAAA-BBB-CCCC	-----DDDDDD-----	-----EEEE-----

Figure 9.7: Alarm Filter Format; Match Parameters Example 1

**Example 1: Repeated Attempts to Access Voice Mail**

This Alarm Clue counts short calls to voice mail. This type of call could indicate that a caller is dialing into voice mail and randomly trying access codes in an attempt to find an outside line.

For this example, assume the Alarm Filter Format is defined as in Figure 9.7. Note that the first three lines in Figure 9.7 are sample call records, and the fourth line is the Alarm Filter Format. The variables A, B, and D are not used for this clue.

Where:

- CCCCC is the first five characters of the username.
- EEEEEE is the field that lists the call duration.

Match Parameters for this Alarm Clue would be defined as follows:

C=VMAIL\*E<=00:30

Where:

- C=VMAIL Counts calls with "VMAIL" in the username field.
- \*
- E<=00:30 Tells NetLink II to count calls which last 30 seconds or less.

19:18 067 R.JONES	OUT 12145551234	25:36 04.75
19:20 092 J.SMITH	OUT 18008547226	01:07 00.00
21:21 002 R.JONES	OUT 12135551212	30:15 05.75
-AAAAA-BBB-CCCC-----DDDDDD-----EEEE-----		

Figure 9.8: Alarm Filter Format; Match Parameters Example 2

**Example 2: After Hours Long Distance Calls.**

This clue counts long distance calls placed after 6:00 PM and before 7:00 am. This type of call could indicate that a hacker has obtained an access code for an outside line and is using the line to dial long distance numbers after work hours.

For this example, assume the Alarm Filter Format is defined as shown in Figure 9.8. Note that the first three lines in Figure 9.8 are sample call records, and the fourth line is the Alarm Filter Format. The variables B, C, and E are not used for this clue.

Where:

- A** is the time the call was received or placed.
- D** is the first seven digits of the number dialed.

Match Parameters for this Alarm Clue would be defined as follows:

**(A>18:00+A<07:00)\*D=1-----**

Where:

- (A>18:00+A<07:00)** Counts calls placed after 18:00 or before 07:00.
- \*** is the logical AND operator.
- D=1-----** Counts calls where the first digit of the number dialed is "1". Note that the remaining 6 digits are entered as wild card characters (-).

17:28 067 T.WILLIAMS	OUT 011811234567	45:36 20.75
17:20 092 J.SMITH	OUT 18008547226	01:07 00.00
17:21 002 P.BROWN	OUT 19495839514	00:57 00.20
-AAAAA-BBB-CCCC-----	DDDDDD-----	EEEE-----

Figure 9.9: Alarm Filter Format; Match Parameters Example 3

**Example 3: Lengthy International Calls**

This clue requires that you are familiar with the average duration of international calls placed in the course of a normal day. For example, if your average international call lasts about 10 minutes, and you are suddenly billed for a two hour call, this could indicate phone abuse.

For this example, assume that the Alarm Filter Format is defined as shown in Figure 9.9. Note that the first three lines in Figure 9.9 are sample call records, and the fourth line is the Alarm Filter Format. The variables A, B, and C are not used for this clue.

Where:

- D is the field that lists the first seven digits of the number dialed.
- E is the field that lists the call duration.

Match Parameters for this Alarm Clue would be defined as follows:

D=011-----\*E>=20:00

Where:

- D=011----- Counts calls where the first three digits of the number dialed are "011". The remaining 4 digits are entered as wild card characters (-).
- \* is the logical AND operator.
- E>=20:00 Counts calls that last 20 minutes or longer.

08:18 067 R.JONES	OUT	5553333 05:36 00.75
08:20 091 R.PETERS	OUT	19005551212 31:07 41.00
08:21 002 P.BROWN	OUT	1900555444411#2 00:57 00.20
-----AAAAAAAAAAAAAAAA-----		

Figure 9.10: Alarm Filter Format; Match Parameters Example 4

**Example 4: The "Contains String" Operator (\$)**

This clue provides an example of how the "Contains String" operator (\$) can search a field for a specific text string, without regard for the string's position within the field. This is useful in cases where the call record includes a field with right justified numbers (e.g., the number dialed).

For this example, assume that the Alarm Filter Format is defined as shown in Figure 9.10. Note that the first three lines in Figure 9.10 are sample call records, and the fourth line is the Alarm Filter Format. Where **A** is the field that lists the number dialed.

In this example, the PBX also records digits entered after the call has connected. This is often seen in cases where the caller is prompted to press numbers in order to access a specific department or extension. In the third line of the example, the digits "11#2" represent digits entered after the call was connected.

Match Parameters for this Alarm Clue would be defined as follows:

**A\$1900**

Where A\$1900 tells NetLink II to count calls that have the string "1900" anywhere in the "A" field. When the "\$" operator is used, wild card characters are not used to fill the remaining digits.

**Note:** When the "Contains String" operator is used, the clue may also count call records that do not fit the intended purpose of the clue. For example, the clue in this example would also count calls to any number that contains the string "1900", such as "555-1900".





## 10. PBX Inactivity Alarms

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The PBX Inactivity Alarms allow NetLink II to provide notification in the event of PBX failure or disconnection. If NetLink II does not receive PBX data for a user-defined period of time, an alarm will be generated, allowing you to investigate as quickly as possible.

NetLink II features two separate PBX Inactivity Alarms. When NetLink II is connected to more than one PBX unit, this allows the user to define two alarm schedules, and apply the most appropriate schedule to each PBX. Each PBX Inactivity Alarm includes four schedules with associated timers; two for weekdays and two for weekends, as summarized below:

- PBX Inactivity Alarm 1
  - Weekday Alarm
    - ◆ Weekday Schedule/Timer 1 (For Busy Periods)
    - ◆ Weekday Schedule/Timer 2 (For Slow Periods)
  - Weekend Alarm
    - ◆ Weekend Schedule/Timer 1 (For Busy Periods)
    - ◆ Weekend Schedule/Timer 2 (For Slow Periods)
- PBX Inactivity Alarm 2
  - Weekday Alarm
    - ◆ Weekday Schedule/Timer 1 (For Busy Periods)
    - ◆ Weekday Schedule/Timer 2 (For Slow Periods)
  - Weekend Alarm
    - ◆ Weekend Schedule/Timer 1 (For Busy Periods)
    - ◆ Weekend Schedule/Timer 2 (For Slow Periods)

### 10.1. Schedules and Timers

---

In order to allow NetLink II to differentiate between periods when less PBX activity is expected (e.g., lunch hour), and periods where a lack of activity could indicate a problem, each PBX Inactivity Alarm has two weekday schedules and two weekend schedules.

During any business day, there are periods when one can expect a lower level of PBX traffic. For example, the PBX may receive about one call every five minutes for the majority of the day, and then drop to one call every 30 minutes during lunch hour. Likewise, on weekends the number of calls may also decline.

Two separate weekday schedules allow you to specify slow and heavy PBX activity periods during the work week; the two weekend schedules allow you to define slow and heavy periods on weekends. In both cases, Schedule 1 is assigned to the busy period, and Schedule 2 is assigned to the slow period. Note that Schedule 2 has priority over Schedule 1, and timer schedules are often defined to overlap.

In order to prevent NetLink II from generating PBX Inactivity Alarms on holidays, up to 20 user defined holidays (exclusions) can be defined. This allows the alarm to be suppressed on holidays, or on any other day when you expect low PBX activity.

**Example:** If you receive one call every five minutes from 8:00 am to 5:00 PM, Timer One would be set for five minutes and Schedule One would be defined as 08:00 to 17:00. In order to compensate for a drop in activity to one call every 30 minutes during lunch, Timer Two would be set for 30 minutes and Schedule Two would be defined as 12:00 to 13:00.

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## 10.2. Enabling the PBX Inactivity Alarm

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Access Command Mode. From the Main Menu, type **25 [Enter]**. When the Alarm Configuration menu appears, type **3 [Enter]** for PBX Inactivity Alarm 1, or **4 [Enter]** for PBX Inactivity Alarm 2. The screen shown in Figure 10.1 will appear, allowing you to define the following:

**Schedule:** Defines the schedules and timers for busy and slow portions for weekdays and weekends.

1. **Weekday Alarm:** Enables/disables the Weekday Schedule.
2. **Weekday Schedule 1:** The weekday time period when you expect the highest level of PBX traffic. This period will be monitored by Weekday Timer 1. Enter the time using 24 hour (military) format.
3. **Weekday Timer 1:** The maximum time that may elapse between calls while Weekday Schedule 1 is active. (01 to 99 minutes).
4. **Weekday Schedule 2:** The weekday time period when you expect the lowest level of traffic. This time period will be monitored by Weekday Timer 2. Enter the time using 24 hour (military) format.
5. **Weekday Timer 2:** The maximum time that may elapse between calls while Weekday Schedule 2 is in effect. (01 to 99 minutes).
6. **Weekend Alarm:** Enables/disables the Weekend Alarm Schedule.

PBX INACTIVITY ALARM 1:			
SCHEDULE		ALARM ACTION PARAMETERS	
1. Weekday Alarm:	Off	21. Action:	None
2. Weekday Schdl 1:	00:00-00:00	22. Phone #:	(undefined)
3. Weekday Timer 1:	00:00	(Cont.):	
4. Weekday Schdl 2:	00:00-00:00	23. Pager ID 1:	(undefined)
5. Weekday Timer 2:	00:00	24. Pager ID 2:	(undefined)
6. Weekend Alarm:	Off	25. Pager ID 3:	(undefined)
7. Weekend Schdl 1:	00:00-00:00	26. SNMP Mgmt:	Manager #1
8. Weekend Timer 1:	00:00	27. Email/Msg To:	#1
9. Weekend Schdl 2:	00:00-00:00	28. Message:	(undefined)
10. Weekend Timer 2:	00:00	(Cont.):	
EXCLUSIONS (MM/DD)		(Cont.):	
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
11. Add Exclusion		29. Auto Execute:	Off
12. Delete Exclusion		30. Execute Cmds:	(undefined)
(Cont.):			
(Cont.):			
(Cont.):			
Enter selection, Press <ESC> to return to previous menu ...			

Figure 10.1: PBX Inactivity Alarm Set-Up Menu (Alarm 1 Shown)

7. **Weekend Schedule 1:** The weekend time period when you expect the highest level of traffic. This time period will be monitored by Weekend Timer 1. Enter the time using 24 hour (military) format.
8. **Weekend Timer 1:** The maximum time that may elapse between calls while Weekend Schedule 1 is active. (01 to 99 minutes).
9. **Weekend Schedule 2:** The weekend time period when you expect the lowest level of PBX activity. This period will be monitored by Weekend Timer 2. Enter the time using 24 hour (military) format.
10. **Weekday Timer 2:** The maximum time that may elapse between calls while Weekend Schedule 2 is in effect. (01 to 99 minutes).

**Exclusions:** Defines holidays or other days when there will be little or no PBX activity. The PBX Inactivity Alarm will be suppressed on these days. Exclusions will be displayed on the lines above item 11.

11. **Add Exclusions:** Defines holidays and other excluded days using MM/DD format. To define exclusions, type **11**, press **[Enter]** and follow the instructions in the submenu.
12. **Delete Exclusions:** Deletes days from the exclusion list. To delete a holiday, type **12** **[Enter]** and follow instructions in the submenu.

**Alarm Action Parameters:** Determines how NetLink II will react when a PBX Inactivity Alarm is generated.

21. **Action:** The type of action that will be performed when a PBX Inactivity Alarm is generated; None, Callout, Alphanumeric Page, Numeric Page, SNMP Trap, Email, and Console. For more information, please refer to Section 12.

22. **Phone Number:** The number dialed for a callout or page.

**Note:** For Numeric Paging, this prompt can specify both the pager number and a numeric "message", as follows:

**PHONENO@MESSAGENO#**

Where **PHONENO** is the phone number, and **MESSAGENO** is any user-selected number which will notify the receiver that an alarm has occurred. For example, to dial 555-1212 and send the message "123", item 14 would be defined as "**5551212@123#**".

23. **Pager ID 1:** The first Pager ID number dialed for an alphanumeric page. NetLink II can dial up to three pagers for each inactivity alarm.
24. **Pager ID 2:** The second Pager ID Number for this Alarm.
25. **Pager ID 3:** The third Pager ID Number for this Alarm.
26. **SNMP Management:** The network manager that will receive SNMP Traps generated by this alarm. This selects one, both or none of two available SNMP Managers. The IP addresses for each manager are defined via the Network Port Configuration Menu.
27. **Email/Message To:** The email address(es) that will receive email or text messages generated by this alarm. This item can select either or both of the two user-defined email addresses, which are defined via the Network Port Configuration Menu, Item 38 (Section 5.4.5.)
28. **Message:** The message that is sent when a Callout, Alphanumeric Page, SNMP Trap, Email Action, or Console Action is generated by this alarm.
29. **Auto Execute:** If enabled, NetLink II will execute the command string defined under item 22 when a callout or console action is generated by this alarm.

30. **Execute Commands:** The command string performed when the Auto Execute feature is enabled, and a callout or console action is generated. This command string consists of a series of ^Bxx commands, which are listed in the Command Help Screen, and discussed further in Section 17. For more information, please refer to Section 12.3. (Up to 64 characters; **Default = undefined**).

**Example:** To send the Site ID Message and then send all alarm records, the Auto Execute Command String would be defined as "**03/01,ALM**".

**Notes:**

- When the Auto-Execute string is defined, commands are entered without the ^B character, and each individual command is separated by a slash character.
- In order for the Auto Execute feature to function, item 29 must be enabled, the command string must be defined under item 30, and the action must be set at either Callout or Console.



## 11. The 80% Full Alarm

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The 80% Full Alarm is designed to notify the user when internal memory is nearly full. When memory becomes 80% full, NetLink II can send an SNMP Trap, call a modem or pager, send email notification or contact the user via the Console Port.

To configure the alarm, go to the Main Menu. Type **25** and press **[Enter]** to access the Alarm Configuration menu. When the menu appears, type **5** and press **[Enter]**. The 80% Full Alarm Configuration Menu (Figure 11.1) offers the following options:

### Alarm:

1. **80% Full Alarm:** Enables/disables the 80% Full Alarm. In order to function, the alarm must be enabled.

### Alarm Action Parameters:

21. **Action:** Determines how NetLink II will react when an 80% Full Alarm is generated. The options are None, Callout, Alphanumeric Page, Numeric Page, SNMP Trap, Email / Text Message, or Console action. For more information, please refer to Section 12.
22. **Phone Number:** The number dialed for a callout or page.

**Note:** For Numeric Paging, this prompt can specify both a phone number and numeric "message". In this case, the number is entered as follows:

**PHONENO@MESSAGENO#**

Where **PHONENO** is the pager number, and **MESSAGENO** is any number that notifies the user that an alarm has occurred. For example, to dial 555-1212 and send the message "999", item 3 would be defined as "**5551212@999#**".

23. **Pager ID 1:** The first Pager ID Number dialed for an Alphanumeric Page action. NetLink II can dial up to three pagers for this alarm.
24. **Pager ID 2:** The second Pager ID Number for the 80% Full Alarm.
25. **Pager ID 3:** The third Pager ID Number for the 80% Full Alarm.

80% FULL ALARM:

ALARM

1. 80% Full Alarm: Off

ALARM ACTION PARAMETERS

21. Action: None

22. Phone #: (undefined)

(Cont.):

23. Pager ID 1: (undefined)

24. Pager ID 2: (undefined)

25. Pager ID 3: (undefined)

26. SNMP Mgmt: Manager #1

27. Email/Msg To: #1

28. Message: (undefined)

(Cont.):

(Cont.):

29. Auto Execute: Off

30. Execute Cnds: (undefined)

(Cont.):

(Cont.):

(Cont.):

Enter selection,  
Press <ESC> to return to previous menu ...

Figure 11.1: The 80% Full Alarm Configuration Menu

- 26. **SNMP Management:** The network manager that will receive SNMP Traps generated by this alarm. This item selects one, both or none of the two available SNMP Managers. IP Addresses for these SNMP Managers are defined via the Network Port Configuration Menu.
- 27. **Email/Message To:** The email address(es) that will receive email and text messages generated by this alarm when the Email /Text Message Alarm action is selected. This item can select either or both of the two user-defined email addresses, which are defined via the Network Port Configuration Menu, Item 38 (Section 5.4.5.)
- 28. **Message:** The message that is sent when a Callout, Alphanumeric Page, SNMP Trap, Email Action or Console Action is generated.
- 29. **Auto Execute:** If enabled, NetLink II will execute the command string defined under item 30 when a Callout or Console action is generated by this alarm.
- 30. **Execute Commands:** The Auto-Execute command string. This command string consists of a series of ^Bxx commands with each command separated by a backslash and forward slash character (e.g., \ /03 \ /01). ^Bxx commands are discussed further in Section 17. For more information, please refer to the example in Section 12.3. (Up to 64 characters; **Default = undefined.**)

**Note:** In order for Auto Execute to function, item 29 must be enabled, the command string must be defined, and either a Callout or Console action must be selected.



## 12. Alarm Actions

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When an alarm is generated, NetLink II can call a modem or pager, send an SNMP Trap, send an email message, or contact the user via the Console Port. These tasks are referred to as "Alarm Actions".

The Alarm Actions discussed in this chapter can be applied to Toll Fraud Alarms, PBX Inactivity Alarms, or the 80% Full Alarm. In addition, NetLink II can also perform these Alarm Actions according to a user-defined schedule, as described in Section 13.

The configuration menu for each individual alarm is used to select the specific action that will be performed when the alarm is triggered. The alarm configuration menus offer the following Alarm Actions:

- **None:** When an alarm is generated, NetLink II will not attempt to contact the user. Call records will continue to be flagged, counted and sorted.
- **Callout:** When an alarm is generated, NetLink II will call a user-specified modem number in order to download data or report conditions.
- **Alphanumeric Page:** When an alarm is generated, NetLink II will dial up to three alphanumeric pagers.
- **Numeric Page:** When an alarm is generated, NetLink II will dial one numeric pager.
- **SNMP Trap:** When an alarm is generated, NetLink II will send an SNMP Trap to the selected SNMP manager.
- **Email / Text Message:** When an alarm is generated, NetLink II will send an email or text message to a user-defined address.
- **Console:** When an alarm is generated, NetLink II will contact the device connected to the Console Port in order to download data or report conditions.

## **12.1. Alarm Actions for Alarm Filter Clues**

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NetLink II allows the definition of up to sixteen Alarm Clues for each of the two Alarm Filters. Each clue can be assigned its own individual Alarm Action. For example, when one Alarm Clue is triggered, the unit may perform a callout, when another clue is triggered, the unit may send an email message.

In addition, each clue can be assigned separate callout numbers or pager numbers. When Alphanumeric Page is selected, up to three different Pager ID Numbers can be assigned to each clue. This allows the NetLink II to direct calls to a specific employee, depending on the nature of the alarm.

When Alarm Filters are configured, NetLink II provides the option of defining default Alarm Actions that can be applied to all newly defined clues. In cases where an identical action will be applied to a series of clues, this allows you to enter action parameters for all clues without manually entering specifications for each clue. Note that these default parameters are not applied to the PBX Inactivity Alarms, or 80% Full Alarms.

## **12.2. Alarm Action Summary**

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### **12.2.1. None (No Alarm Action)**

When this Alarm Action is selected, NetLink II will not perform a special task when an alarm is generated. Note however, that call records will still be counted and flagged according to the clue matched. When data is released to the polling device, call records can still be sorted by the Alarm Clue matched.

### 12.2.2. Callout

If "Callout" is selected, NetLink II will call a remote modem when an alarm is generated. After contacting the modem, NetLink II can then send an Alarm Message and/or execute a user-defined command string. Typically, the Alarm Message describes the type of event that has occurred, and the Auto Execute Command string will usually report status or prompt the NetLink II to download data.

**Note:** In order to use the Callout action, Modem Port parameters must first be properly defined as described in Section 5.4.4.

When the Callout action is selected, the following items must be defined at the configuration menu for the specified alarm:

- **Phone Number:** Enter the number for your remote modem.
- **Message:** (Optional) Enter a message to describe the type of alarm event that occurred; for example "CHECK PBX".
- **Auto-Execute:** (Optional) Enable the Auto-execute function and then define the command string at the "Execute Commands" prompt. Auto Execute command strings are discussed further in Section 12.3.

### 12.2.3. Alphanumeric Page

When this Alarm Action is selected, NetLink II will dial up to three alphanumeric pagers when an alarm is generated. After contacting each pager, NetLink II can then send an Alarm Message that describes the nature of the alarm.

**Note:** In order to use the Alphanumeric Page action, Modem Port communications parameters must be properly defined as described in Section 5.4.4.

When Alphanumeric Page is selected, the following items must be defined at the configuration menu for the specified alarm:

- **Phone Number:** Enter the number for your pager service.
- **Pager ID Numbers:** Enter up to three Pager ID numbers. When an alarm is generated, NetLink II will contact all defined Pager ID numbers, starting with Pager ID #1.
- **Message:** (Optional) Enter a message to describe the type of alarm event that occurred; for example "80% FULL".

#### 12.2.4. Numeric Page

When "Numeric Page" is selected, NetLink II will contact one numeric pager at a user defined number.

**Note:** Modem Port communications parameters must be properly defined as described in Section 5.4.4.

The following item must be defined at the configuration menu for the specified alarm:

- **Phone Number:** Enter the number for your numeric pager.

**Note:** For Numeric Paging, the Phone Number prompt can specify both the Pager phone number and a numeric "message". The phone number and message are entered in the following format:

**PHONENO@MESSAGENO#**

Where **PHONENO** is the pager phone number, and **MESSAGENO** is any number that will notify the user when an alarm occurs. For example, to dial 555-1212 and send the message "321", the phone number would be defined as "**5551212@321#**".

#### 12.2.5. SNMP Trap

If this option is selected, NetLink II will send an SNMP Trap to a user-defined IP address when an alarm is generated. The SNMP Trap can also include an alarm message.

**Note:** Network Port parameters must first be properly defined as described in Section 5.4.5. Make certain to specify IP Addresses for the SNMP Manager(s) that will receive the trap.

When the SNMP Trap action is selected, the following items must be defined at the configuration menu for the specified alarm:

- **SNMP Management:** Select one, both or none of the defined SNMP Managers. Note that IP addresses are defined via the Network Port configuration menu.
- **Message:** (Optional) Enter a message to describe the type of alarm event that occurred; for example "CHECK PBX".

### 12.2.6. Email / Text Message

If the "Email/Text Message" action is selected, NetLink II can send an email or text message to a user-defined address when an alarm is generated.

#### **Notes:**

- In order to use the Email / Text Message action, target email addresses must first be defined via the Network Port Configuration Menu, Item 38, as described in Section 5.4.5.
- The Address that is entered in the "Mail To:" field will determine whether an email or text message is sent when this type of action is performed. If a cell address (e.g., 5551234@cellservice.com) is entered in the "Mail To" field, a text message will be sent; if an email message is entered in the "Mail To" field, an email will be sent.

When the Email action is selected, the following item must be defined at the configuration menu for the specified alarm.

- **Email/Message To:** Selects one or both of the two email addresses that are defined via the Network Port Parameters menu.
- **Message:** (Optional) Enter a message to describe the type of alarm event that occurred; for example "80% FULL".

### 12.2.7. Console

If this action is selected, NetLink II will send a message via the Console Port when an alarm is generated. Typically, this message describes the type of alarm event that occurred. NetLink II can also execute a user-defined command string to report status or download data.

**Note:** In order to use the Console action, Console Port communication parameters must first be defined as described in Section 5.4.3.

When the Console action is selected, the following items should be defined at the configuration menu for the specified alarm.

- **Message:** (Optional) Enter a message to describe the type of alarm event that occurred; for example "80% FULL".
- **Auto-Execute:** (Optional) Enable or disable the Auto-execute function and then define the command string at the "Execute Commands" prompt. Auto Execute command strings are discussed further in Section 12.3.

### 12.3. The Auto Execute Function

---

Both the Callout action and Console action allow NetLink II to automatically execute a user-defined command string. This command string is usually employed to report system status or download data to the polling device.

The Auto Execute command consists of a string of ^Bxx Commands, which are listed in Section 17 of this User's Guide. Note that when the Auto-Execute string is defined, commands are entered without the ^B character, and each individual command is separated by a backslash followed by a forward slash character.

**Example 1:** To display system status and then download all stored alarm records, the Auto Execute string would be defined as follows:

**\ /16\ /01 ,ALM**

Where:

- 16** Indicates ^B16 (Display System Status).
- 01 ,ALM** Indicates ^B01,ALM (Download all Alarm Records).

**Example 2:** To Display the Site ID message, display the reason for the Callout or Console action, and then download all alarm records that matched a clue named "TEST", the Auto Execute string would be defined as follows:

**\ /03\ /18\ /01 , "TEST"**

Where:

- 03** Indicates ^B03 (Send Site ID Message).
- 18** Indicates ^B18 (Display Reason for Callout or Console Action).
- 01 , "TEST"** Indicates ^B01,"TEST" (Release Alarm Records for the Alarm Clue Named "TEST").

## 13. Scheduled Actions

---

Scheduled Actions are generally used to retrieve data or to perform a "wellness" check according to a user-defined time table. Typically, the NetLink II will contact your PC at the scheduled time and day, and then automatically download collected data. Note that in addition to the Scheduled Actions described in this section, you can also schedule the unit to regularly perform a Push action, as described in Section 5.4.6.

NetLink II allows a great deal of flexibility in configuration of the Scheduled Action feature. The unit can perform any of the following actions according to the user-defined schedule:

- **Callout:** NetLink II will contact a remote PC via modem, and execute a series of user-defined commands. Although these commands are usually employed to download data, they can also report memory conditions, alarm status, and etc.
- **Page:** NetLink II will dial an alphanumeric pager and send a user-defined message. This allows NetLink II to perform a wellness check, or inform system managers that the unit is operating properly.
- **SNMP Trap:** NetLink II will send an SNMP Trap to a network manager. This option can also be used to perform a wellness check, or notify personnel that it is time to check the unit.
- **Console Port:** NetLink II will contact the device connected to its Console Port in order to download data or report status.
- **Email / Text Message:** NetLink II will send a text message or email to a user defined address.

Each of the two available schedules allow up to seven scheduled actions per week. This provides a total of fourteen events per week. For more information on these actions, please refer to Section 12.

SCHEDULED ACTION 1:

SCHEDULE		ALARM ACTION PARAMETERS	
1. Schdl Action:	Off	21. Action:	None
2. Sunday:	Off	22. Phone #:	(undefined)
3. Monday:	Off	(Cont.):	
4. Tuesday:	Off	23. Pager ID 1:	(undefined)
5. Wednesday:	Off	24. Pager ID 2:	(undefined)
6. Thursday:	Off	25. Pager ID 3:	(undefined)
7. Friday:	Off	26. SNMP Mgmt:	Manager #1
8. Saturday:	Off	27. Email/Msg To:	#1
		28. Message:	(undefined)
		(Cont.):	
		(Cont.):	
EXCLUSION (MM/DD)		29. Auto Execute:	Off
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
--/--	--/--	--/--	--/--
11. Add Exclusion		30. Execute Cnds:	(undefined)
12. Delete Exclusion		(Cont.):	
		(Cont.):	
Enter selection,			
Press <ESC> to return to previous menu ...			

Figure 13.1: Scheduled Action Configuration Menu (Schedule 1 Shown)

To access the Scheduled Action configuration menus from the Main Menu, type **24** and press **[Enter]**, a selection menu will be displayed. Next, type **1** for Schedule 1, or **2** for Schedule 2, and press **[Enter]**. Both configuration menus include the following:

**Schedule:**

- 1. **Scheduled Action:** Enables/disables the Scheduled Action function. Note that in addition to enabling the schedule, the user must also define the schedule and specify the action that will be performed according to schedule.
- 2-8. **Daily Schedules:** Defines the time that the action will be performed on each day of the week. Time values are entered in 24-hour (Military) format.

**Exclusions:**

- 11. **Add Exclusion:** Defines dates (such as holidays) when the Scheduled Action will not be performed. As each exclusion is defined, it will be added to the display above item 11.
- 12. **Delete Exclusion:** Deletes a date from the exclusion list.

**Alarm Action Parameters:**

- 21. **Action:** Defines the type of event that will occur according to the schedule. The user may select None, Callout, Alphanumeric Page, Numeric Page, SNMP Trap, Email/Text Message, or Console.



22. **Phone #:** Defines the phone number that will be dialed for a scheduled Callout or Page. This is the number for your remote modem or pager service.

**Note:** For Numeric Paging only, this prompt can specify both a pager phone number and a numeric "message". In this case, the phone number is entered using the following format:

**PHONENO@MESSAGENO#**

Where **PHONENO** is the pager number, and **MESSAGENO** is any number which will notify the user that a scheduled page has occurred. For example, to dial 555-1212 and send the message "999", the phone number would be defined as "**5551212@999#**".

23. **Pager ID 1:** The first Pager ID Number used when a scheduled alphanumeric page is performed. NetLink II will dial up to three pagers for each schedule.
24. **Pager ID 2:** The second Pager ID for this schedule.
25. **Pager ID 3:** The third Pager ID for this schedule.
26. **SNMP Mgmt:** The SNMP Manager(s) that will receive SNMP Traps generated by this schedule. This prompt can select Manager 1, Manager 2, or both. Note that IP addresses for each SNMP Manager are defined via the Network Port Configuration menu.
27. **Email/Message To:** The email address(es) that will receive email and text messages generated by this schedule when the Email/Text Message action is selected. This item can select either or both of the two email addresses, which are defined via the Network Port Configuration Menu, Item 38 (Section 5.4.5.)
28. **Message:** Defines the message that will be sent for a Scheduled Callout, Alphanumeric Page, SNMP Trap, Email Action, or Console Action.
29. **Auto Execute:** When this item is enabled, NetLink II can be scheduled to automatically execute the command string defined under item 30.

30. **Execute Commands:** The Auto-Execute command string. This command string consists of a series of NetLink II ^Bxx commands, with each command separated by a backslash character and a forward slash character (e.g., `\04\01`). ^Bxx commands are described in Section 17. For more information on Auto- Execute command strings, please refer to Section 12.3.

When the Scheduled Action feature is used to download data or send a wellness message, the Auto Execute string must be defined in order to specify the exact task to be performed. For example, to instruct the NetLink II to automatically send the Site ID message and then send all alarm records, the Auto Execute string would be defined as `"\03\01,ALM"`.

**Notes:**

- When the Auto-Execute string is defined, commands are entered without the ^B character, and each individual command is separated by a slash character.
- In order for the Auto Execute feature to function, item 29 must be enabled, the command string must be defined, and item 21 (Action) must be set to perform a Callout, Email Action or Console action.

## 14. Saving NetLink II Parameters

---

This chapter discusses NetLink II functions related to saving and restoring user-defined parameters. Two different functions are discussed; saving parameters to flash memory, and saving parameters to an ASCII file at your polling device.

### 14.1. Saving Parameters to Flash Memory

---

During configuration, newly defined parameters are stored in NetLink II's temporary memory. Although these new parameters will determine the unit's current setup, parameters stored in temporary memory may be lost if there is a power interruption. To ensure that setup parameters are retained, it is recommended to save parameters to flash memory.

When parameters are changed, the unit will display a prompt to notify the user that newly defined parameters have not been saved. Main Menu item 7 is used to save parameters from temporary memory to flash memory.

If the user exits from command mode without first saving new parameters, NetLink II will display a menu that offers the following options:

- **Save and Exit:** NetLink II will save all configuration parameters to flash memory and then exit.
- **Exit Without Saving:** NetLink II will exit from command mode without saving parameters to flash memory. Newly defined parameters will still be stored in temporary memory, but may be lost if there is an interruption of power to the unit.
- **Restore Previous Parameters:** Newly defined parameters will be discarded and NetLink II will be reconfigured with the parameters that were previously saved to flash memory.

**Note:** Command ^B74 can also be used to save user-defined NetLink II parameters to flash memory. As described in Section 16, Command ^B74 offers the option save parameters to flash memory or restore parameters from flash memory.

### 14.2. Saving and Restoring Parameters from an ASCII File

---

After NetLink II has been configured, parameters can be saved to an ASCII text file using the File Mode in ProComm or another communications program. Later, if the configuration is altered or deleted, saved parameters can be uploaded to quickly reconfigure the unit without the need to manually enter each parameter.

When parameters are downloaded to an ASCII File, NetLink II will send the parameters that are displayed by the status screens. NetLink II offers two different methods for saving parameters to an ASCII file; the Menu Driven Method and the Command Driven Method.

#### **14.2.1. Saving Parameters to an ASCII File (Menu Driven Method)**

This method uses NetLink's menu system to initiate the download.

1. Set your communications program (e.g., Tera Term) to receive an ASCII text file and specify a file name for the saved parameters.
  - a) When using ProComm, press **[Page Down]** to activate the "Receive Parameters" mode. Select "Raw ASCII". Type in a filename for the saved parameters and press **[Enter]**.
2. Access the NetLink II Command Mode as described in Section 17.1.
3. Download NetLink's parameter settings to an ASCII file.
  - a) From the NetLink II Main Menu, type **3** and press **[Enter]**, the System Functions menu will appear as shown in Figure 14.1.
  - b) When the System Functions menu appears, type **5** and press **[Enter]** to begin the download. NetLink II will send parameters to the polling device, where they will be saved to the ASCII filename selected in Step 1.
  - c) Invoke the appropriate command to exit from your communication program's Receive Parameters Mode.

#### **14.2.2. Saving Parameters to an ASCII File (Command Driven Method)**

NetLink II parameters can also be saved to an ASCII file using Command ^B99. Command ^B99 performs the same task as the System Function Menu's "Download Parameters" function.

To save parameters to an ASCII file using the Command Driven Method, proceed as follows:

1. Set your communications program (e.g., Tera Term) to receive an ASCII text file and specify a file name for the saved parameters.
  - a) When using ProComm, press **[Page Down]** to activate the "Receive Parameters" mode. Select "Raw ASCII". Type in a filename for the saved parameters and press **[Enter]**.

**SYSTEM FUNCTIONS:**

1. "Passthrough" Mode
2. "Monitor" Mode
3. Clear Alarm Condition
4. Clear Alarm Clue Counters
5. Download Parameters
6. Audit Trail Functions
7. Upload Firmware
8. Download SSH Server Key

Enter selection,  
Press <ESC> to return to previous menu ...

*Figure 14.1: System Functions Menu*

2. Access command mode as described in Section 17.1.
  - a) If the password function is enabled, enter the valid Administrator Level password. NetLink II must be operating in Administrator Mode in order for the download command to function.
  - b) Note that this procedure can be performed from anywhere in the NetLink II menu system.
3. Before invoking Command ^B99, make certain the command echo is disabled at the NetLink II command port which will drive the download. If the command echo is enabled when Command ^B99 is invoked, the ^B99 command will be included in the file with the saved parameters. This will cause problems when the file is uploaded to the NetLink II unit,
  - a) The Command Echo is enabled/disabled using the Port Configuration Menus as described in Section 5.4.
  - b) If desired, the command echo can also be temporarily suppressed by entering the ^A character in place of the ^B character (e.g. ^A99). Note that this method can also be applied to other ^Bxx commands to temporarily suppress the command echo.
4. Invoke command ^B99. From any NetLink II command menu, type ^B99 (or ^A99) and then press **[Enter]**. NetLink II parameters will be sent to the polling device, where they will be saved to the ASCII filename selected in Step 1.
  - a) Invoke the appropriate command to exit from your communication program's Receive Parameters Mode when the download is complete.

### 14.3. Configuring NetLink II with Saved Parameters

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Once parameters have been saved to an ASCII file, the file can then be uploaded to the NetLink II to reconfigure the unit without manually defining each parameter.

The ASCII file with the saved parameters can also be uploaded to other NetLink II units. This allows rapid set-up when a number of units will be configured with the same parameters.

1. Access command mode as described in Section 17.1.
  - a) If the password function is enabled, enter the valid Administrator Level password. NetLink II must be operating in Administrator Mode in order for this procedure to function.
  - b) Note that this procedure can be performed from anywhere in the NetLink II menu system.
2. Use your communication program's (e.g., Tera Term's) upload function to transfer the file that contains the saved parameters to the NetLink II unit via modem or the Console Port.
  - a) Select ASCII File Format.
  - b) Specify the filename and directory location for the file with the saved parameters. Note that it is very important to enter the correct filename and location. Sending an incorrect file to the NetLink II unit will cause unpredictable results.
3. If an Error message is received at any time during the parameter upload, repeat steps 1 and 2 above to resend the entire file.

#### **Notes:**

- If the file with the saved parameters is sent to NetLink II via the Computer Port (from a local PC), changes will take effect immediately.
- If the parameter file is sent to NetLink II via the Modem Port, Modem Communication Parameters will not take effect until after you exit from Command Mode. The Port Status Screen will not show the new Modem Port parameters until you have exited and re-entered Command Mode.

## 15. Buffer Functions (Polling)

---

The procedures in this section are used to retrieve data that has been collected from the PBX. NetLink II offers three different polling methods:

1. **Menu Driven:** NetLink II is contacted via modem or Console Port, and the Buffer Functions Menu is used to release data.
2. **Command Driven:** NetLink II is contacted via modem or Console Port, and ^Bxx commands are entered at the command prompt to release data.
3. **Push:** NetLink II automatically downloads records via TCP/IP connection to your SFTP or FTP server.
4. **Server:** NetLink II is configured to function as an SFTP or FTP server. An SFTP or FTP Client is used to retrieve stored data from the NetLink II Unit.

### 15.1. Memory Partitions and Shared Data

---

After data is collected from the PBX, it is stored in NetLink II's flash memory. Stored data can be retrieved via the Console Port, Modem Port, Network Port, Push function, or Server function. In order to prevent conflicts when two ports attempt to access the same data, partitions are set to temporarily grant "ownership" of a specific type of data to a specific port. For example, the Console Port may own all data received via the serial PBX Port, or the Modem Port may own all records that matched Alarm Filter 1.

When a partition is set for a specific command port, other command ports will not be able to access the partitioned data. For example, if the Console Port partition is set to include data received via PBX IP Port, then the Modem Port will not be able to access this data until the partition is released.

These partitions also simplify the process of clearing data after it has been read. After downloading data from your command port partition, command ^B25 or the Item 5 in the Buffer Functions menu can be used to clear the partition. Note that records that are received after the partition is set will not be erased. Once a partition is set, it will remain in effect until the partition owner exits command mode, invokes one of the partition release commands, or the FTP/SFTP action is completed.

		Source Port	
		PBX Serial Port (PA)	PBX IP Port (PI)
Data Type	Standard, Non-Alarm (D)	(PA) (D)	(PI) (D)
	Alarm Filter 1 (A1)	(PA) (A1)	(PI) (A1)
	Alarm Filter 2 (A2)	(PA) (A2)	(PI) (A2)

Figure 15.1: Data Partitions and Files

15.1.1. Partitions and Files

When data is received from the PBX, NetLink II sorts each record into one of six possible "files." Records are sorted according to Data Type and Source Port. There are three Data Types; Standard Data (Non-Alarm Records), Records that match Alarm Filter 1, and Records that match Alarm Filter 2. There are two source ports; the Serial PBX Port and the PBX IP Port.

As shown in Figure 15.1, each file contains a specific data type received from a specific port. When a command port sets a partition, that port is granted ownership of one or more of these files. The File List screen (Status Displays, Item 2) can be used to determine which files are linked to each command port.

Note that these files are always "open"; new data is continually added to each file. When a partition is set, all records received up to that point will be available for reading or erasure. However, new records received after the partition is set will not be available until the partition is reset.

Note also that the "Store Alarm Data" option can be used to override the default storage location for alarm records. Using this option, alarm records for a selected port can be stored in the Alarm Files, in the Standard File (Non-Alarm), or in both the Alarm File and Non-Alarm File. This allows Alarm Records to be used for call accounting purposes only, alarm tracking only, or for both. The "Store Alarm Data" option is located in the configuration menus for the serial PBX Input Port and the PBX IP Port.



### **15.1.2. Setting the Partition**

The following events will cause NetLink II to set a data partition:

1. **Menu-Driven Read Session:** When the Buffer Functions menu is used to release data, a partition will be set for the port that initiated the read session. This partition will include all data selected by the Read Session Parameters menu. For more information, please refer to Section 15.2.
2. **Command Driven Read Session:** When command ^B01 is invoked, a partition will be set for the port that initiated the command. This partition will include all data specified by the ^B01 command arguments. For more information, please refer to Section 15.3.
3. **Set Partition Function:** When the Set Partition function (Buffer Functions Menu) is initiated, a partition will be set for the port that activated the function. This partition will include all data currently specified by the Read Session Parameters menu. If the Data Type and Source port have not been selected, the partition will include all data by default. For more information, please refer to Section 15.2.
4. **Command ^B00:** When command ^B00 (Set Partition) is invoked with the proper arguments, a partition will be set for the port that invoked the command. This partition will include all data specified by the ^B00 command arguments. For more information, please refer to Section 15.3.1.
5. **Push:** When a Push operation is in progress, a partition will be set which will include all files that were requested via the Push Configuration menu. For more information, please refer to Section 15.4.
6. **Server:** While data is being downloaded from the NetLink II using the Server feature, a partition will be set which will include all files that were requested by the SFTP/FTP client. For more information, please refer to Section 15.5.

#### **Notes:**

- Partitions remain in effect until the partition owner exits command mode, invokes one of the partition release commands, sets a new partition, or the SFTP/FTP operation is complete.
- Other ports are not allowed to access partitioned data until the partition is released.

### 15.1.3. Releasing the Partition

Any of the following events will release the partition:

1. **Exit Command Mode:** When the Console Port, Modem Port, or Network Port exits command mode, NetLink II will release the partition for that port.
2. **Release Partition Function:** When this function is performed, NetLink II will release the partition for the port that invoked the command. For more information, please refer to Section 15.2.
3. **Release Remote Partition:** (Administrator Mode Only) This function is used to release a partition that was established by another port. The Release Remote Partition function is available via the Buffer Functions menu, or by invoking command ^B76 with the proper arguments. For more information, please refer to Section 17.
4. **Command ^B00,R:** When command ^B00 is invoked with the "R" argument (^B00,R), NetLink II will release the partition for the port that invoked the command. For more information, please refer to Section 15.3.1.
5. **At the End of a Push Session:** When the Push feature finishes sending requested data, the partition that was set for the Push feature will be released. For more information, please refer to Section 15.4.
6. **At the End of a Server Transfer:** When the Server feature is used, the partition will be released when the SFTP or FTP transfer is complete. For more information, please refer to Section 15.5.

**Note:** The Release Remote Partition function and Command ^B00,R cannot be used to release a partition that has been established by the Push feature or the Server feature while an FTP or SFTP file transfer is in process.

---

## **15.2. Menu Driven Data Release**

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NetLink II offers four different methods for retrieving buffered data; menu driven data release, command driven data release, Push function and the Server function. During menu driven data release, the Buffer Functions menu controls and configures the data release process. The menu driven procedure consists of the following three steps:

**Note:** Prior to reading data, you must configure output options for the port that will drive the data release, as described in Section 5.4.

1. **Set Read Session Parameters:** Use item 1 in the Buffer Functions menu to select desired data types, source port, and other options as described in Section 15.2.2.
2. **Set Partition:** Use item 2 in the Buffer Functions menu to set the partition for your command port as described in Section 15.2.1.
3. **Begin Data Release:** Use item 4 in the Buffer Functions menu to begin data release as described in Section 15.2.1.

### **15.2.1. The Buffer Functions Menu**

After configuring the command port, go to the NetLink II Main Menu, and type **2 [Enter]** to display the Buffer Functions Menu (Figure 15.2.) The Buffer Functions menu offers the following options:

1. **Set Read Session Parameters:** Selects Read Session parameters, including the Source Port and Data Type, Start Record, and Record Count. For more information, please refer to Section 15.2.2.
2. **Set Partition:** Sets the partition for the user's port according to currently selected Read Session Parameters. If Read Session Parameters have not been redefined, the partition for this port will include all records by default.
3. **Release Partition:** Releases the port's partition, allowing other ports to access the formerly partitioned data.

**BUFFER FUNCTIONS:**

1. "Read" Session Parameters
2. Set Partition
3. Release Partition
4. Enter "Read" Session
5. Erase Partition Data
6. Erase All Data
7. Erase All Data & Clear Alarm Clue Counters
8. Release Remote Partition

Enter Selection,  
Press <ESC> to return to previous menu ...

Figure 15.2: Buffer Functions Menu

4. **Enter "Read" Session:** When this item is selected, NetLink II will display a submenu before beginning data release. The following options are available:
  - a) **Start Data Output:** To begin, press [Enter].
  - b) **Next Group (^B02):** Used when releasing groups of records as described in Section 15.2.2. To release the next group, invoke command ^B02.
  - c) **Re-read Last Data Record (^B06):** Used when releasing groups of records (Record Count) as described in Section 15.2.2. To resend a group, invoke command ^B06.
  - d) **Exit (^B30):** To exit data release mode and return to the Buffer Functions menu, invoke command ^B30.

**Notes:**

- When all specified records have been released, the "End Data" message is sent. If "Hold End Data" is enabled, a ^B02 command is required in order to release the End Data message and complete the data release procedure.
  - If "Data On ^B01" is disabled, a ^B02 command must be sent in order to begin the data release.
5. **Erase Partition Data:** Erases all data in the current memory partition. NetLink II will display a "Sure?" prompt; if confirmation is given, all data in the partition will then be erased. Note that this function will not erase records received *after* the partition was set.
  6. **Erase All Data:** Erases all stored records, including records in partitions owned by other ports. Note that NetLink II will not erase records that are currently being read by another port.

```
"READ" SESSION PARAMETERS:

1. Source Port:      PBX, PBX IP
2. Data Type:       All
3. Start Record:    1
4. Record Count:    All

Enter selection,
Press <ESC> to return to previous menu ...
```

Figure 15.3: Set Read Session Parameters Menu

7. **Erase All Data & Clear Alarm Counters:** Erases all stored records (including records in partitions owned by other ports), and resets all Alarm Clue Counters to zero.

**Note:** Erased call records *cannot* be recovered.

8. **Release Remote Partition:** (Administrator Mode Only) Releases a partition established by another port. Allows access to data assigned to another port. Note that a remote partition *cannot* be released while another port is in the process of reading data from that partition.

### 15.2.2. Read Session Parameters

The Set Read Session Parameters submenu (Figure 15.3) is used to select options that are applied when data is released.

**Note:** If the port partition has not been set, values selected for the Source Port and Data Type options will determine the partition location. When a Read Session is initiated, or the Set Partition option is selected, the partition is set according to the Source Port and Data Type options.

1. **Source Port:** NetLink II can release all data, or only data received via a selected port. You may select the serial PBX Input Port, the PBX IP Port, or both.

2. **Data Type:** Determines which type of data will be released. The following data types may be selected:
  1. **All:** Releases all data from the buffer, including both alarm data and non- alarm data.
  2. **Standard (Non-Alarm):** Release records that did not match an Alarm Clue.
  3. **Alarm 1 (All):** Release all data that matched any Alarm Clue defined for Alarm Filter 1.
  4. **Alarm 1 (By Clue):** Release records that matched a specific Alarm Clue for Alarm Filter 1.
  5. **Alarm 2 (All):** Release all data that matched any Alarm Clue defined for Alarm Filter 2.
  6. **Alarm 2 (By Clue):** Release records that matched a specific Alarm Clue for Alarm Filter 2.
  7. **All Alarms:** Release records that matched Alarm Filter 1 and records that matched Alarm Filter 2.
3. **Start Record:** Determines the starting point for data release. For example, if Start Record is set at 153, the 153rd record in memory will be the first record released. Note that if a negative value is entered, NetLink II will determine the starting point by counting backwards from the end of the records in the current partition. For example, if the Start Record is set at -10, NetLink II will release the last ten records in the current partition.
4. **Record Count:** Determines how many records are released in each group. For example, if Record Count is set at 20, NetLink II will release 20 records and then pause. Invoke command ^B02 to release the next group.

### 15.3. Command Driven Data Release

---

Data can also be released by invoking Command ^B01. The ^B01 command line can include optional arguments which are used to release specific types of data. These arguments are similar to the options offered under the Set Read Session Parameters menu. The command driven procedure consists of the following steps:

**Note:** Prior to reading data, the user must select output options (Output Mode, Data on ^B01, etc.) for the port that will drive the data release, as described in Section 5.4.

1. **Release Data Partition:** Use command ^B00 to release the current partition for your port. At the command prompt type ^B00, **R** and then press [Enter]. Other ^B00 command options are listed in Section 15.3.1.

**Notes:**

- The Release Remote Partition function (Administrator Mode Only) can also be used to access data that has been assigned to another port. Please refer to command ^B76 in the Command Reference Guide (Section 17.)
  - A remote partition *cannot* be released while another port is reading data from that partition.
2. **Begin Data Release:** Invoke command ^B01 with the appropriate arguments to release the desired data. Section 15.3.2 describes the various arguments for command ^B01.

### 15.3.1. Command ^B00 (Set/Release Partition)

Command ^B00 can be used to set or release the partition prior to beginning command driven data release.

#### Notes:

- If the ^B00 command line does not include an argument, the partition will be set to include all data by default.
- Although the ^B00 command line can include both the Data Type and Source Port arguments, the Release partition argument (R) cannot be combined with another argument.

Command ^B00 uses the following format:

**^B00 [ , type ] [ , source ] or ^B00 , R**

Where:

<b>, type</b>	<b>Data Type:</b> Offers the following options:
<b>, D</b> or <b>, STD</b>	(Standard Data) Records that did not match an Alarm Filter Clue.
<b>, A1</b> or <b>A</b>	Records that matched a Clue for Alarm Filter 1.
<b>, A2</b>	Records that matched a Clue for Alarm Filter 2.
<b>, ALM</b>	Records that matched Alarm Filter 1 and records that matched Alarm Filter 2.
(Not Specified)	Include all data types.
<b>, source</b>	<b>Source Port:</b> Offers the following options:
<b>, PA</b>	Records received via the serial PBX Input Port.
<b>, PI</b>	Records received via the PBX IP Port.
(Not Specified)	Records received from either port.

#### Release Partition:

<b>, R</b>	Release the current data partition. Cannot be combined with other ^B00 arguments.
------------	---

#### Examples:

<b>^B00 , D</b>	Set partition to include all records that did not match an Alarm Clue, regardless of the Input Port that received them.
<b>^B00 , A1 , PI</b>	Set partition to include records that matched Alarm Filter 1, and were received via the PBX IP Port.
<b>^B00 , R</b>	Release the current data partition.



### 15.3.2. The ^B01 Command Line

If the ^B01 command line does not include optional arguments, and no partitions have been set, command ^B01 will release all data by default.

**Note:** If the partition for your port has not been set, the ^B01 command arguments will set the partition location.

Command ^B01 offers the following options:

**^B01 [ , type ] [ , source ] [ @n ] [ , n ] [Enter]**

Where:

- |                            |  |
|----------------------------|--|
| <b>, type</b>              | <b>Data Type:</b> The following options are available:   |
| <b>, A1</b> or <b>, A</b>  | Records that matched a Clue from Alarm Filter 1.   |
| <b>, A2</b>                | Records that matched a Clue from Alarm Filter 2.   |
| <b>, ALM</b>               | Records that matched Alarm Filter 1 and records that matched Alarm Filter 2.   |
| <b>, STD</b> or <b>, D</b> | Standard (Non-Alarm) Records.  |
| <b>, "clue"</b>            | <b>Clue Name:</b> Release Alarm Records for clue. The Clue Name must be enclosed in quotation marks.   |
| <b>, source</b>            | <b>Source Port:</b> The following options are available:   |
| <b>, PA</b>                | Records received via the serial PBX Input Port.  |
| <b>, PI</b>                | Records received via the PBX IP Port.  |
| <b>@n</b>                  | <b>Start Record (Offset):</b> Releases records starting with the "nth" record. For example, if <b>^B01@234</b> is entered, data release will start with the 234th record. If a negative value is entered, NetLink II will determine the starting point by counting backwards from the end of the records in the current partition. |
| <b>, n</b>                 | <b>Record Count:</b> Releases records in groups of "n". For example, if <b>^B01, 20</b> is entered, NetLink II will release groups of 20 records, and then pause until ^B02 is sent.   |

### Notes:

- If both Alarm Filters include identical clue names, the data release command must specify the desired Filter. For example, if Alarm Filters 1 and 2 both include a clue named **TEST**, to retrieve alarm data from filter 1, the command would be invoked as **^B01,A1,"TEST"**.
- Square brackets are *not* included in the command line. They are shown here to indicate optional command arguments.
- Each option is preceded by a comma, with the exception of the Start Record option (**@n.**) Do not enter a comma before the "@" character.
- When all specified records have been released, the "End Data" message is sent. If "Hold End Data" is enabled, a ^B02 command is required in order to release the End Data message, and complete the data release operation.
- If "Data On ^B01" is disabled, a ^B02 command must be sent in order to begin data release.
- When Command ^B01,n is invoked to release data in groups of n records, type **^B02 [Enter]** to release the next group of records, or type **^B06 [Enter]** to resend the previous group.

### 15.3.3. Command ^B01 Examples

As shown in the examples below, arguments can be combined in a single command line to further define the data release format.

#### Examples:

- **^B01,PA,10** would release only data received via the Serial PBX Port. Data would be released in groups of ten records. A ^B02 would be required in order to release any subsequent groups of data.
- **^B01,PA@10** would release only data received via the Serial PBX Port, beginning with the tenth record.
- **^B01,PI@65,12** would release only data received via the PBX IP Port. Data would be released in groups of twelve records, beginning with the 65th record. Note that a ^B02 would be required in order to release any subsequent groups of data.

### 15.3.4. Other Commands Used During Data Release

The following commands are often used during command driven data release. For a complete listing of all available commands, please refer to Section 17.

1. **Site ID:** To send the Site ID, type **^B03 [Enter]**.
2. **Display Current Alarm Record:** Type **^B08 [Enter]**.

3. **Remaining Memory Space:** To send a message that lists NetLink II's remaining memory, type **^B21 [Enter]**.
4. **Set-Up Switches:** To send a message that lists the current status of the Set-Up Switches, type **^B24 [Enter]**.
5. **Number of Stored Records:** To list the number of records in the current partition, type **^B20** and press **[Enter]**.
6. **Display Separator Line:** To send a line of dashes, which can be used to separate downloaded data, type **^B26** and press **[Enter]**.
7. **Continuous Binary Block Read:** To initiate a continuous binary block read, invoke command **^B07**. Blocks are sent continuously, without acknowledgment, and cannot be retransmitted during the read session. Data is sent in binary block format, regardless of the current output setting. All data type and source port arguments are available. For more information, please see Section 17.

**Note:** Command **^B07** (Continuous Binary Block Read) should not be used while Auto Delete is enabled. If **^B07** is invoked while Auto Delete is enabled, the unit will erase data without waiting for reception to be acknowledged.

## **15.4. Retrieving Data Using the Push Function**

---

Push capability allows the NetLink II to automatically download stored call records via network to your SFTP or FTP server. Downloads can be performed on demand, according to a user-defined schedule, or according to a user-specified start time.

In order to use this feature, your installation must include the following:

- A network connection to the NetLink II unit. Note that the network must be running TCP/IP in order for the Push function to work.
- A network connected SFTP or FTP server on subnet, or the gateway address must allow packets from NetLink II to be routed to your SFTP or FTP server.

To configure the Push function, access the NetLink II command mode as described in Section 17.1 and then select parameters as described in Section 5.4.6.

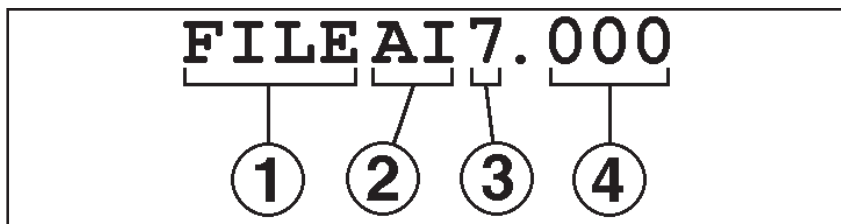


Figure 15.4: Push Function File Names

#### 15.4.1. File Names Created by the Push Function

When the Push function is used, NetLink II will assign a name to the file that receives the data. This file name will be based on the user-defined, base file name, the source port, and data type. If desired, file names can also include an automatically incremented three character extension. As shown in Figure 15.4, the filename consists of the following components:

**Note:** This file naming convention applies only to data transferred by the Push function. A different file naming convention is employed when data is transferred using the Server feature.

- ① **File Name (Up to Four Characters):** The base file name defined via item 3 in the Push Configuration menu. If the file name is not defined, NetLink II will use the first three characters of the Site ID message. If the Site ID message is not defined, the letters "PNL" will be used. Note that if the file name is less than four characters, the remaining characters in this field will not be used.
- ② **Source Port (Up to Three Characters):** NetLink II will enter from one to three characters to indicate which input port(s) originally received the data. NetLink II will enter an "A" for the Serial PBX Port or an I for the PBX IP Port. If fewer than two source ports are indicated, the remaining character in this field will not be used.
- ③ **Data Type (One Character):** The selected Data Type (File Type.) NetLink II will list the number for the data type selected at the Push Configuration menu (see item 31 "Read Session.") These numbers are as follows:
  1. **All:** Both Alarm Records and Non-Alarm Records.
  2. **Standard (Non-Alarm):** Only Non-Alarm Records.
  3. **Alarm Filter 1 (All):** All records that matched any clue defined for Alarm Filter 1.

4. **Alarm Filter 1 (By Clue):** Only records that matched a specific clue defined for Alarm Filter 1.
5. **Alarm Filter 2 (All):** All records that matched any clue defined for Alarm Filter 2.
6. **Alarm Filter 2 (By Clue):** Only records that matched a specific clue defined for Alarm Filter 2.
7. **All Alarms:** All records that matched any clue defined for either Alarm Filter 1 or Alarm Filter 2.

For example, if Data Type is defined as "All" (item 1) then the file name will have a "1" in this field.

- ④ **File Extension (Three Characters; Optional):** NetLink II can append a sequentially numbered (000 to 999) three digit extension. This number will be incremented after each successful data transfer. If the Data Type or Source Port are changed, the file extension will be reset to "000".

**Note:** When the SFTP protocol is used, the Push function will always increment the file extension.

**Examples:**

- If the File Name is "DATA", and the Push Configuration menu has been set to download all data (Option 1) received via the Serial PBX Port (A), then the first file name written at your server would be "**DATAA1.000**".
- If the File Name is "PBX", and the Push Configuration menu has been set to download Standard Data (Option 2) received via the PBX IP Port (I), then the first file name written at your server would be "**PBXI2.000**".
- If the File Name has not been defined, but the Site ID message is "ATLANTA", and the Push Configuration Menu has been set to download all alarm data (Option 7) received via the Serial PBX Port (A) and the PBX IP Port (I), then the first file name written at your server would be "**ATLAI7.000**".

### 15.4.2. Push Start Time

The "Start Time" parameter in the Push Configuration menu allows you to specify an exact start time for a Push operation. The Start Time is indicated using 24 hour (military clock) format. Note that the Push operation specified by the Push Start Time will be performed in addition to any Periodic Push actions that are defined, and that after the Push Start Time elapses, additional Periodic Pushes will be scheduled relative to this user defined Start Time.

For example, assume that the Periodic Push value is 120 minutes (two hours.) Normally, NetLink II might perform a Periodic Push at 1:30, 3:30, 5:30 and etc. However, if the Push Start Time is then set at 4:00, NetLink II will perform the 1:30 and 3:30 Periodic Pushes according to the previous schedule, but will then perform an additional Push at 4:00 (as specified by the Push Start Time), the timer will then be reset, and the next periodic push will not occur until 6:00 (two hours after the start time,) and additional periodic pushes would be scheduled for two hour intervals after the Push Start Time.

Providing that all Server parameters are defined, and the real-time clock has been accurately set, the Push Start Time will cause the unit to perform one Push operation at the specified start time, and then reset the timer for Periodic Push operations. After the Push Start Time is selected, it will be applied once during the next 24 hour period, and that Start Time will effectively be established as the new "zero hour" for timing future periodic push operations.

**Note:** Although the Push Start Time will normally only be observed once during the 24 hour period after it is first set, the Push Start Time will also apply when any of the following events occur:

- When the Push Start Time is defined or changed.
- When the "Push Action" parameter (Push Configuration Menu, Item 32) is enabled or re-enabled.
- When the value for the "Periodic Push" parameter (Push Configuration Menu, Item 33) is changed.
- When saved parameters are uploaded to the NetLink II unit as described in Section 14.2.
- When the NetLink II unit is powered Off, and then powered On again.

## 15.5. Retrieving Data Using the Server Function

The Server feature allows you to use your SFTP or FTP client to retrieve data from the NetLink II unit. When the Server feature is properly configured and enabled, the NetLink II will function as an SFTP/FTP file server, allowing you to download files as needed.

In order to use this feature, your installation must include the following:

- A network connection to the NetLink II unit. Note that the network must be running TCP/IP in order to retrieve data using your SFTP or FTP client.
- An appropriate SFTP or FTP client.

To configure the Server feature, access the NetLink II command mode, and then select parameters as described in Section 5.4.7.

### 15.5.1. File Names Created by the Server Feature

When the Server feature is used, NetLink II will assign a name to the file that contains the data. This file name will be based on the user-defined base file name, the source port and the data type. File names created by the Server feature do not include an extension. As shown in Figure 15.5, the file name consists of the following components:

**Note:** This file naming convention applies only to data that is transferred by the Server feature. A different file naming convention is employed when data is transferred using the Push feature.

- ① **File Name (Up to Four Characters):** The base file name that is defined via item 3 in the Server configuration menu. If the file name is not defined, NetLink II will use the first three characters of the Site ID message. If the Site ID message is not defined, the letters "PNL" will be used. Note that if the file name is less than four characters long, the remaining characters in this field will not be used.

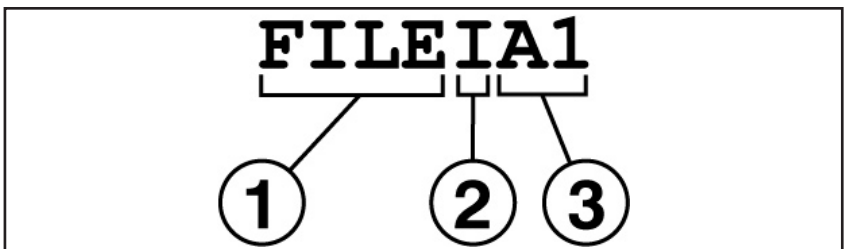


Figure 15.5: Server Function File Names

- ② **Source Port (One Character):** This character is used to indicate which input port originally received the data. NetLink II will enter an "A" to indicate that the data was received via the serial PBX Port, or an "I" to indicate data received via the PBX IP Port.
- ③ **Data Type (Two Characters):** The last two characters indicate the data type as follows:
1. **ST:** The letters "ST" indicate that the file contains standard (non-alarm) data; this is all data that did not match either of the two Alarm Filters.
  2. **A1:** This indicates that the file contains data that matched Alarm Filter 1.
  3. **A2:** This indicates that the file contains data that matched Alarm Filter 2.

**Examples:**

- If the base File Name is defined as "**DATA**," and the file contains data that was received from the Serial PBX Port (**A**), that did not match either Alarm Filter (**ST**), then the file would be named "**DATAAST**".
- If the base File Name is defined as "**PBX**," and the file contains data that was received via the PBX-IP Port (**I**), that matched Alarm Filter 1 (**A1**), then the file would be named "**PBXIA1**".
- If the base File Name has not been defined, but the Site ID Message is "**DENVER**," and the file contains data received via the Serial PBX Port (**A**), that matched Alarm Filter 2 (**A2**), then the file would be named "**DENVAA2**".



## 15.6. The Auto Delete Function

---

When the Auto Delete option is enabled, NetLink II will delete data from internal memory immediately after the polling device acknowledges reception.

### Notes:

- When Auto Delete is enabled, the "Hold End Data" function must also be enabled. The data release command must also specify the number of records that will be included in each read. This will ensure that data will not be deleted until reception is acknowledged.
- Do not invoke Command ^B07 (Continuous Binary Block Read) while Auto Delete is enabled, because NetLink II will erase data without waiting for the polling device to acknowledge reception.
- When Auto Delete is enabled, data cannot be released according to the Clue Name matched.
- When Auto Delete is used with ASCII, Binary Block, or Xmodem data release, data is deleted in 16 kilobyte blocks. Auto Delete will not clear a block unless all data from the 16K block has been released. Therefore, if the user releases only part of a block, resets the partition, and then re- invokes the original data release command, records from the partial (undeleted) block will be released again.
- Auto Delete functions independently for each command port and for each SFTP/FTP method. In other words, Auto Delete may be *enabled* for menu driven data retrieval via the Network Port, and at the same time, *disabled* for the Push function.

## 15.7. Zmodem Data Release Mode

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When using Zmodem to release data, make certain your communications program (e.g., Tera Term) is set to prompt for a new file name when downloaded data is stored. This will prevent the communications program from accidentally overwriting data from the previous download. When NetLink II's Auto Delete function is enabled, the "prompt for filename" option also prevents the unit from deleting unread data when your communication program's crash recovery feature is enabled.



## 16. Other Menu Functions

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In addition to the configuration and polling features discussed previously, the NetLink II menu system also includes functions related to system management and diagnostics.

### 16.1. System Functions

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The System Functions menu (Figure 16.1), is used to access features related to general system management.

#### 16.1.1. Pass-Through Mode

The Pass-Through Mode allows direct communication with devices connected to NetLink II ports, and can be used to communicate via the serial PBX Input Port, PBX IP Port, Console Port or Modem Port.

**Note:** While Pass-Through Mode is active, NetLink II will not store additional data, and will not check for new records that match alarm clues.

To activate the Pass-Through Mode proceed as follows:

1. From the Main Menu, type **3** and press **[Enter]** to activate the System Functions menu.
2. From the System Functions menu, type **1** and press **[Enter]**. NetLink II will prompt you to specify a destination port. Key in the number for the desired port and press **[Enter]**.

**CAUTION:** Do not attempt to alter PBX configuration unless you are authorized to do so. Please refer to the PBX user's guide for further instructions.

3. To exit Pass-Through Mode and return to command mode, type **^B30** and press **[Enter]**.

#### SYSTEM FUNCTIONS:

1. "Passthrough" Mode
2. "Monitor" Mode
3. Clear Alarm Condition
4. Clear Alarm Clue Counters
5. Download Parameters
6. Audit Trail Functions
7. Upload Firmware
8. Download SSH Server Key

Enter selection,  
Press <ESC> to return to previous menu ...

Figure 16.1: System Functions Menu

### 16.1.2. Monitor Mode

The Monitor Mode is similar to the Pass-Through Mode, in that it also allows direct communication with devices connected to the NetLink II unit. Note however, that while Monitor Mode is active, NetLink II *will* store new PBX records and *will* continue to check for records that match Alarm Clues.

To activate the Monitor Mode proceed as follows:

1. From the Main Menu, type **3** and press **[Enter]** to access the System Functions menu.
2. From the System Functions menu, type **3** and press **[Enter]**. NetLink II will prompt the user to specify a destination port. Key in the number for the desired port and press **[Enter]**.
3. To exit Monitor Mode and return to command mode, type **^B30** and press **[Enter]**.

### 16.1.3. Clear Alarm Condition

The "Clear Alarm Condition" function is used to cancel pending Alarm Actions. Note that this function will not clear Alarm Counters, and therefore, additional records that match a counter which has passed the threshold will continue to generate additional Alarm Actions.

**Example:** Assume that the counter for an Alarm Clue named "TEST" has exceeded its threshold and has generated five pending Alarm Actions. If the Clear Alarm Condition function is invoked, pending actions will be canceled, but the counter for TEST will not be reset. Any additional call records that match the TEST Clue will generate additional Alarm Actions.

To activate the Clear Alarm Condition function from the Main Menu, type **3** and press **[Enter]** to access the System Functions menu. From the System Functions Menu, type **4** and press **[Enter]**. All pending Alarm Actions will be canceled.

#### **16.1.4. Clear Alarm Counters**

This function is used to reset Alarm Clue Counters to zero:

1. From the Main Menu, type **3** and press **[Enter]** to access the System Functions Menu. From the System Functions Menu, type **5** and press **[Enter]**.
2. NetLink II will prompt the user to select Alarm Filter 1 or 2. Key in the number for the desired filter and press **[Enter]**.
3. NetLink II will list all clues for the selected Alarm Filter.
  - a) To reset the counter for a specific Alarm Clue, key in the name of the desired clue and press **[Enter]**.
  - b) To reset counters for all clues for the selected Alarm Filter, type **\*** (asterisk) and press **[Enter]**.
  - c) To exit from the clue selector screen and return to the Alarm Filter selector screen, press **[Esc]**.

#### **16.1.5. Download Parameters**

The Download Parameters function is used to save NetLink II parameters and configuration settings to an ASCII file. For more information on saving and restoring parameters, please refer to Section 14.2.

### 16.1.6. Audit Trail

The Audit Trail Function displays a record of command activity at the Console Port, Modem Port, Network Port or Server function. When the Audit Trail function is activated, NetLink II will create a log which lists command activity at that port.

Each activity record is time/date stamped and arranged in chronological order. The Audit Trail function uses flash memory to store records for up to 128 events. To create and review the Audit Trail, proceed as follows:

**Note:** Audit Trail records can also be sent to the SYSLOG IP address, as described in Section 5.4.5.

1. **Enable Audit Trail Log:** Go to the configuration menu for the desired port(s) (see Section 5.4), and enable the Audit Trail function. Item 15 in each port configuration menu is used to enable/disable the Audit Trail.
2. **Log Actions:** After enabling the Audit Trail at the desired port, allow the port to log command actions. NetLink II will only log activity at ports where the Audit Trail is enabled.
3. **Review Audit Trail Log:** To display Audit Trail records, access the System Functions menu (Main Menu, item 3). From the System Functions menu, type **6**, press **[Enter]** to display the Audit Trail Functions menu. The Audit Trail Functions menu offers the following options:
  - a) **Set Audit Trail Read Parameters:** This function selects the Start Record and Record Count. The Start Record determines where the data release will begin, and the Record Count determines how many records will be released at a time.
  - b) **Enter Audit Trail Read Session:** Displays log records as specified by the Audit Trail Read Parameters.
  - c) **Erase All Audit Trail Records:** Erases log records. Note that erased records cannot be recovered.

### 16.1.7. Upload Firmware

This function is used to upload NetLink II firmware updates. Updates can be uploaded to the NetLink II via modem, Telnet, Console Port or SFTP client. To upload firmware, proceed as follows:

1. Obtain the update file. Firmware modifications can either be mailed to the customer, or downloaded from WTI. Place the disk or diskette in your drive and/or copy the file to your hard drive.
2. This upload procedure may erase all parameters from flash memory and will clear stored data from the unit. Therefore, it is recommended to retrieve stored data and download parameters *before* beginning this procedure.
  - a) Access command mode. Poll the unit to retrieve all stored data as described in Section 14.
  - b) Use the Download Parameters function (see Section 14.2) to save all user- defined parameters.
3. Press **[Esc]** to return to the Main Menu. Select item 3 "System Functions". When the System Functions menu appears, type **7** and press **[Enter]** to activate the Upload Firmware function.
4. NetLink II will display a screen which offers four options:
  1. **Only Keep IP Parameters:** The NetLink II operating firmware will be updated, all stored data will be erased and all parameters *except* the following will be cleared:
    - **Network Port Parameters:** IP Address, Subnet Mask, Gateway Address, IP Security (Host Allow, Host Deny), Telnet Access, SSH Access and SNMP Access.
    - **System Parameters:** NTP Addresses and Time Zone.
  2. **Keep All Parameters:** The operating firmware will be updated, and all existing user-defined parameters and stored data will be retained. Any new parameters added by the update will be set to default values.
  3. **Start SFTP Session and Wait for Uploaded File:** The operating firmware will be updated via an SFTP connection, and all existing user-defined parameters and stored data will be retained. Any new parameters added by the update will be set to default values.
  4. **Abort:** The upgrade procedure will not be performed, and the unit will return to the System Functions menu.

### Notes:

- When Items 1 or 2 are selected, NetLink will immediately begin the upgrade procedure without displaying a "Sure" prompt.
- Access to NetLink II Command Mode will be blocked during the firmware upgrade procedure.

5. Transfer the update file to the NetLink II unit.
  - a) If Items 1 or 2 have been selected, use your communication program's upload function to transfer the update file to the NetLink II unit via modem, Telnet or the Console Port. Select Binary file format, and then specify the filename and directory location for the firmware upgrade file.
  - b) If Item 3 has been selected, use your SFTP client to transfer the update file to the NetLink II unit.

**Note:** The Upload function will time-out after one minute of inactivity. If the function times out, reselect the desired upgrade option (type **1**, **2**, or **3**), and press **[Enter]** to continue, or type **4** and press **[Enter]** to abort.

6. If the upload is successful, NetLink II will install the new firmware and then reboot itself.
7. **Incomplete Upload:** If the upload is interrupted, times-out, or if the file is corrupted during transfer, NetLink II will display an error message, and then return to the Upload Firmware menu. To proceed, re-enter the desired upgrade option (type **1**, **2**, or **3**) and then press **[Enter]**. To abort, type **3** and then press **[Enter]**.

When firmware upgrades are available, WTI will provide the necessary files via download or mail. At that time, an updated User's Guide or addendum will also be available.

### 16.1.8. Download SSH Server Keys

This function can be used to download SSH Server Keys, which can then be entered into your SSH client in order to verify your identity when you attempt to connect to the NetLink II unit via SSH. The Download SSH Server Keys function can be used to generate either an RSA format key or a DSA format key.



```
SYSTEM DIAGNOSTICS:

1. Load & Test Memory
2. Send Test Message
3. Test Pager
4. Send Test SNMP Trap(s)
5. Send Test SYSLOG Message

Enter selection,
Press <ESC> to return to previous menu ...
```

Figure 16.2: System Diagnostics Menu

## 16.2. System Diagnostics

The System Diagnostics menu allows access to functions used to test memory, modem communication, pager, and SNMP Trap operation.

### 16.2.1. Load and Test Memory

This function tests NetLink II's internal memory. When activated, NetLink II will clear the internal data flash and load a test pattern which is used to verify memory conditions.

**CAUTION:** When this test is performed, all data stored in NetLink II's memory will be lost. Note, that user-defined parameters will not be effected.

To initiate this test, go to the System Diagnostics menu, type **1** and press **[Enter]**. NetLink II will display a confirmation prompt. To proceed with the test, type **Y**, press **[Enter]**, and wait for the test to be completed.

When the test is complete, NetLink II will list all installed memory modules, along with the Pass/Fail status of each module. If test results indicate a memory error, please contact WTI Customer Service as described in Appendix E. To return to the System Diagnostics menu when the test is complete, press **[Esc]**.

### 16.2.2. Send Test Message

This function is used to test the modem transmitter. When the Send Test Message function is enabled, the unit will send a continuous test message which should be received by your PC. If the test message is not received, this could indicate that NetLink II's modem is not transmitting properly.

To initiate this test, go to the System Diagnostics menu, type **2** and press **[Enter]**, a submenu will appear. Select "On" to enable the test. To exit the Send Test Message Mode, press **[Esc]**.

**TEST PAGER**

1. Phone #: (undefined)
2. Pager ID #: (undefined)
3. Type: Alpha
4. Start Test

Enter Selection,  
Press <ESC> to return to previous menu ...

Figure 16.3: Pager Test Menu

### 16.2.3. Test Pager

The Test Pager function sends a test message or number to your alphanumeric or numeric pager. When testing an alphanumeric pager, NetLink II will send the message "Test Page from PollCat NetLink". When testing a numeric pager, NetLink II can send a numeric message entered at the Phone Number prompt.

To initiate the pager test, go to the System Diagnostics menu, type **3** and press **[Enter]**. NetLink II will display the screen shown in Figure 16.3. Enter parameters for the Pager Test as follows:

1. **Phone #:** The phone number for your numeric pager or alphanumeric pager service. Type **1**, press **[Enter]**, and follow the instructions in the submenu.
  - a) For numeric pagers, this prompt can specify both the pager number and a numeric "message". In this case the phone number is entered as follows:

**PHONENO@MESSAGENO#**

Where **PHONENO** is the pager number, and **MESSAGENO** is any user-selected number. For example, to dial 555-1212 and send the message "333", the phone number would be **"5551212@333#"**.

2. **Pager ID #:** When testing an alphanumeric pager, this item defines the Pager ID number. Type **2**, press **[Enter]**, and follow the instructions in the submenu. Note that this prompt is not used when testing a numeric pager.
3. **Type:** Selects a numeric or alphanumeric pager test. Type **3**, press **[Enter]**, and follow the instructions in the submenu.
4. **Start Test:** After entering the appropriate information at the prompts, type **4** and press **[Enter]** to initiate the pager test. To cancel a test in progress, use the "Clear Alarm Condition" function as described in Section 16.1.4 or type **^B30** and press **[Enter]**.

#### **16.2.4. Send Test SNMP Trap(s)**

This function will send a test SNMP trap to the network manager(s). In order to function, SNMP Managers must first be defined and selected as described in Section 5.4.5. When this function is executed, NetLink II will send an SNMP Trap to each defined SNMP Manager.

#### **16.2.5 Send Test SYSLOG Message**

This function will send a test SYSLOG Message to the currently defined SYSLOG IP Address. The SYSLOG IP Address is defined via Item 33 in the Network Port Configuration menu (as described in Section 5.4.5.)

---

### **16.3. Reboot System (Default)**

This function (Main Menu, Item 21), can be used to Reboot the NetLink II unit and/or reset parameters to default values. Note that this option is only available when you have logged into command mode using an account that permits access to Administrator Level commands.

The Reboot function offers the option to include or omit network parameters, SSH keys, and other user-selected parameters. To reboot the unit or reset parameters to default, go to the main menu, type **21** and press **[Enter]**. The "Reboot System" function offers the following options:

1. **Reboot Only (Do Not Default Parameters):** Reboots the NetLink II unit, but does not reset parameters to default values.
2. **Reboot & Default (Keep IP Parameters):** Reboots the NetLink II unit, and sets all user-defined parameters to default values, except for the IP address, Gateway Address and Subnet Mask. NetLink II will set all parameters to default values, except for those parameters that are required in order to contact the unit via network.

#### **Notes:**

- Although the IP Address, Gateway Address and Subnet Mask may be retained, Telnet Access will be disabled after the Default procedure is performed.
- In order to communicate with the NetLink II via Telnet after resetting the unit to defaults, you must first access command mode via either Console Port or Modem, and use the Network Parameters menu to enable Telnet Access as described in Section 3.2.3 or Section 5.4.5.

3. **Reboot & Default (Keep SSH Keys):** Reboots the NetLink II unit, and sets all user-defined parameters to default values, except for the SSH Keys. This allows you to easily establish an SSH connection to the unit after the Reboot procedure is complete.
4. **Reboot & Default (All Parameters):** Reboots the NetLink II unit, and sets all user defined parameters to default values. Note that after this command is executed, you will not be able to contact the unit via Telnet or SSH until the Network Port communication parameters and SSH keys have been reset to appropriate values.
5. **Default (Keep IP Parameters):** Keeps currently defined Network communications parameters, and resets all other options to default values without rebooting the unit. This allows you to set the unit to default parameters, without changing parameters that are required in order to contact the unit via network. Note that this command is not available if you are communicating with the NetLink II via modem.
6. **Default (Keep SSH Keys):** Keeps currently defined SSH keys, and resets all other options to default values without rebooting the unit. This allows you to communicate with the unit via SSH after the Default procedure is complete, without the need to redefine the SSH keys first. Note that this command is not available if you are communicating with the NetLink II via modem.
7. **Default (All Parameters):** Resets all currently defined NetLink II parameters to default values, including Network Communication values and SSH Keys. Note that this command is not available if you are communicating with the NetLink II via modem.

## 17. Command Reference Guide

---

### 17.1. Command Mode Access

---

When the NetLink II has been properly installed and configured, command mode can be accessed by a local PC connected directly to the Console Port, by a remote PC that communicates via modem, or via TCP/IP network.

#### Notes:

- If the Site I.D. Message (System Parameters Menu, Item 4) has been defined, the Site I.D. will be displayed before the "PollCat-NetLink" prompt.
- When the Administrator Password is entered, NetLink II will start up in Administrator Mode, allowing access to all menu functions. When a User password is entered, NetLink II will start up in User Mode, which allows limited access to menu functions.
- The Default Administrator Mode Password is **SUPER**, and the default User Mode Password is **SMDR**.

1. **Remote Access (via Modem):** Start your communications program and dial the NetLink.
  - a) The unit will respond with the "PollCat-NetLink" (password) prompt after the carrier is detected.
  - b) Key in a valid password and press **[Enter]**. Note that the Password feature is case-sensitive.
  - c) The Main Menu or the "Ready" prompt will be displayed. If the "Ready" prompt is displayed, press **[Enter]** to display the NetLink II Main Menu. Note that if the Dialback Number has been defined for your User Account, NetLink II will perform a dialback operation before allowing access to command mode. For more information, please refer to Section 5.4.4.1.
2. **Local Access (Console Port):** Start your communications program.
  - a) If Set-Up Switch 1 is UP (Enable Console Port Password), the "PollCat-NetLink" (password) prompt will be displayed.
  - b) Key in a valid password and press **[Enter]**. Note that the Password feature is case-sensitive.
  - c) The Main Menu or the "Ready" prompt will be displayed. If the "Ready" prompt is displayed, press **[Enter]** to display the NetLink II Main Menu.

3. **Access via TCP/IP Network:** If network parameters for the NetLink II unit have been assigned (see Section 5.4.5), key the NetLink II's IP address into your Telnet client, or establish a telnet session using the following format:

**telnet ipaddress [port] [Enter]**

Where:

**ipaddress** NetLink II's assigned IP Address.

**port** (Optional) The desired Port Number. If this item is omitted, telnet will connect to port #23 by default; Command Echo will be set according to NetLink II's current configuration, and \$FF Stuffing will be enabled. Options:

**2001** Behaves the same as Port #23.

**3001** Preconfigured with echo enabled and \$FF Stuffing Off.

- a) If the password is enabled, the "PollCat-NetLink" (password) prompt will appear.
- b) Key in a valid password and press **[Enter]**. Note that the Password feature is case-sensitive.
- c) After a brief pause, the Main Menu or the "Ready" prompt will appear. If the "Ready" prompt is displayed, press **[Enter]** to display the NetLink II Main Menu.
- d) To end a session, disconnect using your Telnet software.

### **Notes:**

- In order to control or configure the unit via network, you must first access command mode via the Modem Port or Console Port, and enable the Telnet Access option (Network Parameters Menu, Item 31) as described in Section 5.4.5.
- When the NetLink II unit is reset to default parameters, Telnet Access will be disabled by default.

## 17.2. Command Help

To display the Command Help screen shown in Figure 17.1, go to the Main Menu, type **5** and press **[Enter]**. To display additional command help, go to the Command Help screen, type **A** and press **[Enter]**. The screen shown in Figure 17.2 will be displayed.

```

^Bxx COMMAND HELP:

^B00 Set/Reset Memory Partition      ^B20 Display Partition Record Ct
^B01 Enter Data Read Mode            ^B21 Display Remaining Space
^B02 Send Next Data                  ^B22 Display Capacity & PBX Baud
^B03 Display Site ID                 ^B24 Display DIP Switch Settings
^B04 Define Site ID Message          ^B25 Erase Partition Data
^B05 Define End Character             ^B26 Display "Separator" Line
^B06 Re-Send Last Data               ^B27 Enter Test Message Mode
^B08 Display Current Alarm Record    ^B28 Enter Echo Test Mode
^B09 Exit Cmd Mode, Disconnect       ^B29 Enter Passthrough Mode
^B11 Set Real Time Clock/Calendar    ^B30 Exit, Return To Command Mode
^B13 Display Site ID/Alarm Messages  ^B39 Erase All Data
^B16 Display System Status           ^B50 Default Parameters
^B17 Display PBX Inact Parameters    ^B51 Select Store Alarm Data
^B18 Display Reason For Action        ^B52 Enable/Disable Hold End Data
^B19 Display Action Schedule          ^B53 Enable/Disable Data Compression
                                      ^B54 Enable/Disable Data on ^B01
                                      ^B55 Strip Non-printable Codes

A. More ^Bxx Command Help

Enter selection,
Press <ESC> to return to previous menu ...

```

Figure 17.1: Command Help Screen

```

MORE ^Bxx COMMAND HELP:

^B56 Select Data Filters              ^B76 Release Remote Partition
^B57 Enable/Disable XON/XOFF          ^B77 Define Modem Init Message
^B59 Enable/Disable Line ID           ^B78 Display Modem Messages
^B60 Define Console/Modem bits-parity ^B79 Display User Directory
^B61 Define PBX Port bits-parity      ^B83 Display Alarm Clue Summary
^B62 Select Output Format              ^B84 Clear Alarm Condition
^B64 Enable/Disable Wrap Around        ^B86 Reset Alarm Clue Counters
^B65 Select Alarm Filters              ^B89 Test Alpha Pager
^B66 Enable/Disable Time/Date Stamp    ^B90 Define/Reset Modem Port
^B67 Enable/Disable Auto Delete        ^B91 Define Console Port Comm
^B68 Enable/Disable Command Echo       ^B92 Define PBX Port Comm
^B70 Define/Enable/Disable Immediate   ^B94 Enter Monitor Mode
    and 80% Callout                   ^B95 Display Program Version
^B72 Display Time, Day, Date           ^B97 Define/Display Network Parameters
^B74 Save/Recall Parameters            ^B98 Reset Network Port
^B75 Enable/Disable "SURE? (Y/N)"      ^B99 Download Current Parameters

Press <Esc> for previous screen ...

```

Figure 17.2: More Command Help

## 17.3. Command Syntax

---

Most commands conform to the following conventions:

- In the command line examples shown in this section, square braces (**[ ]**) are used to indicate an optional argument, and greater than / less than symbols (**< >**) are used to indicate a required argument. For example, in the sample command line **^B[ ,port]< ,action>**, "**port**" would be an optional argument and "**action**" would be a required argument.
- Commands normally begin with the ASCII "Control B" character (written as **^B** throughout this manual).
- To temporarily suppress the Command Echo for any command, use the **^A** character in place of the **^B** character. For example, if Command Echo is enabled and Command **^B03** (Send Site ID) is invoked, NetLink II will echo the command back to the polling device and send the Site ID message. If **^A** is substituted for **^B** (e.g. **^A03**), the Site ID message will be sent, but the command will *not* be echoed back to the polling device.
- Each command is invoked by pressing the **[Enter]** key.
- A comma ( **,** ) is used to separate a command from its options or parameters (e.g. **^B01 , 10**).

## 17.4. Command Summary

---

### **^B00 Set/Reset Memory Partition**

---

Sets or releases the memory partition for your command port.

#### **Notes:**

- If this command does not include an argument, the partition will be set to include all data by default.
- The Release partition argument (**R**) cannot be combined with other arguments.
- The **^B00** command line can specify two source ports (e.g., **^B00,PA,PI**), but *cannot* specify two data types.
- Square brackets are not included in the command line. They are shown here to indicate an option.



**^B00 Set/Reset Memory Partition (Continued)**

Command ^B00 uses one of the following formats:

**^B00 [ ,type ] [ ,source ] [Enter] or ^B00 [ ,R ] [Enter]**

Where:

- ,type**     **Data Type:** Offers the following options:
- ,D or ,STD**     Standard (Non-Alarm) Records
  - ,A1 or ,A**     Records that match Alarm Filter 1
  - ,A2**     Records that match Alarm Filter 2
  - ,ALM**     Include All Alarm Records
  - (Not Specified)     Include all data
- ,source**     **Source Port:** Offers the following options:
- ,PA**     Records received via the Serial PBX Port
  - ,PI**     Records received via the PBX IP Port
  - (Not Specified)     Records from both ports
- ,R**     **Release Data Partition:** The "R" option cannot be combined with other ^B00 arguments.

**Examples:**

- ^B00 ,D**     Set partition to include all records that did not match an Alarm Clue, regardless of Input Port that received them.
- ^B00 ,A1 ,PI**     Include records that match Alarm Filter 1, and were received via the PBX IP Port.
- ^B00 ,R**     Release the current data partition.

**Corresponding Menu Function:** Buffer Functions, Items 2 and 3.

**^B01 Enter Data Release Mode**

Releases data collected from the PBX Ports.

**Notes:**

- When data is released in groups of "n" records (e.g., ^B01,30), command ^B02 is sent to release the next group.
- To exit Data Release Mode and return to command mode, type **^B30 [Enter]**.
- If the XON/XOFF function is enabled at the appropriate port, NetLink II will respond to XON/XOFF flow control codes during data release mode.
- If "Data on ^B01" is disabled, and ^B01,n is invoked to release data in groups of "n" records, a ^B02 is required in order to release the first group.
- If "Hold End Data" is enabled, a ^B02 is required in order to release the End Data message.

## **^B01 Data Release Mode (Continued)**

### **Command Options:**

When Command ^B01 is invoked, the following format is used:

**^B01 [ , type ] [ , source ] [ @n ] [ , n ] [Enter]**

Where:

- , type**     **Data Type:** Offers the following options:
- , D** or **, STD**     Standard (Non-Alarm) Records.
  - , A** or **, A1**     Records for Alarm Filter 1.
  - , A2**     Records for Alarm Filter 2.
  - , ALM**     Records for both Alarm Filters.
  - , "clue"**     Records for **clue** only. The clue name must be enclosed in quotes.
- , source**     **Source Port:** Offers the following options:
- , PA**     Records received via the Serial PBX Port.
  - , PI**     Records received via the PBX IP Port.
- @n**     **Offset:** Data release starts with the "nth" record. For example, **^B01@50** will start with the 50th record. If a negative offset value is entered, NetLink II will determine the starting point by counting backwards from the end of the current partition.
- , n**     **Count:** Releases records in groups of "n", where n is a positive, whole number.

### **Notes:**

- If both Alarm Filters include a clue with the same name, the command must specify the desired filter. For example, if Alarm Filters 1 and 2 both include a clue named **TEST**, to retrieve data from filter 1, the command line would read **^B01, A1, "TEST"**.
- Each command option is preceded by a comma, with the exception of the Offset option (**@n**). This option is preceded by the "@" character. Do not enter a comma before the @ character.
- Square brackets are not included in the command line. They are shown here to indicate an option.

Options can also be combined. For example, **^B01, "clue", n** will release records for clue in groups of **n** records.

**Corresponding Menu Function:** Main Menu, Item 2.

## **^B02 Send Next Data**

---

When Command ^B01,n is invoked, NetLink II will release a group of "n" records and then pause. To display the next group, type **^B02 [Enter]**. Command ^B02 is only valid in Data Release Mode and cannot be used in an Auto Execute string.

### **Notes:**

- If "Data on ^B01" is disabled, a ^B02 is required in order to release the first group of records.
- If "Hold End Data" is enabled, a ^B02 is required in order to release the End Data message.

## **^B03 Display Site ID**

---

Displays the user-defined Site ID message. Type **^B03 [Enter]**.

## **^B04 Define Site ID**

---

**(Administrator Mode Only)** Defines a Site ID Message up to 32 characters long. Type **^B04 , text** and press **[Enter]** (where "text" is the desired Site ID). The Site ID cannot include quotes or ASCII control characters (e.g. STX, ETX). Normally, the Site ID message will precede the command prompt upon login, but if the Site ID begins with an underscore character ("\_"), the message will be displayed *after* the command prompt. To clear the Site ID, type **^B04 , [Space]** and press **[Enter]**.

### **Notes:**

- The "\_" character will not appear in the displayed Site ID Message.
- If the Console Port Password is disabled (Sw1=Down), the Site ID Message will not be displayed when the unit is contacted via the Console Port.

**Corresponding Menu Function:** System Parameters menu, Item 2.

## **^B05 Define End-of-Record Character**

---

**(Administrator Mode Only)** Redefines the End-of-Record (EOR) character that NetLink II expects to see at the end of each record (**Default=^J**). Command ^B05 uses the following format:

**^B05 [ ,port] < ,char> [Enter]**

Where:

- ,port**     **Input Port:** If this argument is omitted, ^B05 will define the EOR character for the Serial PBX Port by default. Offers the following options:
- ,A**        Serial PBX Port
  - ,I**        PBX IP Port
- ,char**     **EOR Character:** If a space character is entered, the EOR character for the target port will be cleared.

**Corresponding Menu Function:** Serial PBX or PBX IP Port Configuration menus, Item 14.

## **^B06 Re-send Last Data**

---

This command is used in the event of a transmission error during the previous read. Command ^B06 will only function when ^B01,n is invoked, or when the Record Count option (Read Session Parameters) is used. To re-send data, type **^B06 [Enter]**.

## **^B08 Display Current Alarm Record**

---

Displays the last record that triggered an alarm. Type **^B08** and press **[Enter]**.

## **^B09 Exit Command Mode (Disconnect/HangUp)**

---

Exits command mode, discontinues connection to the NetLink II, and resets the internal modem. To exit and disconnect, type **^B09 [Enter]**.

**Corresponding Menu Function:** Main Menu, item 8.

---

**^B11 Set Real-Time Clock/Calendar**

---

**(Administrator Mode Only)** Sets NetLink II's real-time clock and calendar. Command ^B11 uses the following format:

**^B11 , hh : mm , MM \ DD \ YY [Enter]**

Where:

- hh** Is the Hour (00 to 23)
- mm** Is the Minute (00 to 59)
- MM** Is the Month (01 to 12)
- DD** Is the Date (01 to 31)
- YY** Is the Year (00 to 99)

**Corresponding Menu Function:** System Parameters, Item 3.

---

**^B13 Display Site ID Message / Alarm Message**

---

Displays the user-defined Site ID Message, along with the name of any clue that is in the alarm state, and the status of the counter for that clue. Type ^B13 and press [Enter].

---

**^B16 Display System Status**

---

Displays a series of screens which list the status of most options and parameters. Note that when command ^B16 is invoked *without* arguments, the unit will display the Buffer Status Screen, but if the command line includes the item number for a specific status screen (as shown in Figure 7.1), the command will display the corresponding status screen for that item. For example, to display the PBX Port status screen, type ^B16 , 11 and press [Enter].

**Corresponding Menu Function:** Status Displays, items 1 to 52.

---

**^B17 Display PBX Inactivity Alarm Parameters**

---

Displays currently defined PBX Inactivity Alarm parameters. When the argument is omitted, the command will display parameters for Alarm 1 by default.

**Command Options:**

- ^B17 , 1** Display Parameters for PBX Inactivity Alarm 1 (**Default**).
- ^B17 , 2** Display Parameters for PBX Inactivity Alarm 2.

**Corresponding Menu Functions:** Status Displays, item 33 (Alarm 1); Status Displays, item 34 (Alarm 2).

### **^B18 Display Reason For Action**

---

When NetLink II has generated an Alarm Action, Command ^B18 can be used to determine the reason. After receiving an Alarm Action, type ^B18 and press [Enter].

**Corresponding Menu Function:** Status Displays, Item 38.

### **^B19 Display Action Schedule**

---

Displays parameters for the Scheduled Actions. If the argument is omitted, the command will display Schedule 1 by default.

#### **Command Options:**

^B19,1 Display Parameters for Action Schedule 1 (**Default**).

^B19,2 Display Parameters for Action Schedule 2.

**Corresponding Menu Functions:** Status Displays, item 31 (Schedule 1); Status Displays, item 32 (Schedule 2).

### **^B20 Display Partition Record Count**

---

Displays the number of records in your port's current memory partition. Type ^B20 and press [Enter].

**Corresponding Menu Function:** Status Displays, Item 1

### **^B21 Display Remaining Space**

---

Displays the approximate amount of memory (in characters/bytes) that is currently available. Type ^B21 and press [Enter].

**Corresponding Menu Function:** Status Displays, Item 1.

### **^B22 Display Memory Capacity & Serial PBX Port Communication Parameters**

---

Lists installed memory modules, total memory capacity, and PBX Port communication parameters. Type ^B22 [Enter].

**Corresponding Menu Functions:** Status Displays, Items 1 and 11.

### **^B24 Display DIP Switch Settings**

---

Displays the up/down configuration of NetLink II's Set-Up Switches; type ^B24 and press [Enter].

**Corresponding Menu Function:** Status Displays, item 3.

---

**^B25 Erase Partition Data**

---

Clears all call records in your port's current memory partition; type **^B25** and press **[Enter]**.

If the "Sure" option is enabled, a prompt will be displayed before this command is completed. Type **Y** to proceed or **N** to abort, and then press **[Enter]**.

**CAUTION:** Erased records cannot be recovered.

**Command Options:**

- ^B25**      Display "Sure" prompt (if enabled), Erase Partition Data.
- ^B25, Y**    Suppress "Sure" prompt, Erase Partition Data.

**Corresponding Menu Function:** Buffer Functions, Item 5

---

**^B26 Display Separator Line**

---

Creates a line of dashes that can be used to visually separate displayed material. To send a line of dashes, type **^B26 [Enter]**.

---

**^B27 Enter Test Message Mode**

---

Tests the modem transmitter. When command **^B27** is invoked, the unit will send a continuous test message. To initiate the test, type **^B27** and then press **[Enter]**. To terminate the test, type **^B30 [Enter]**.

**Corresponding Menu Function:** System Diagnostics, item 2.

---

**^B28 Enter Echo Test Mode**

---

Tests the modem receiver. When Command **^B28** is invoked, NetLink II will echo back a test character. If characters are not echoed back, this can indicate that the modem is not receiving properly. To initiate the test, type **^B28 [Enter]**. To terminate the test, type **^B30 [Enter]**.

## **^B29 Enter Pass-through Mode**

---

**(Administrator Mode Only)** Allows direct communication with a connected device. Data can be received directly from the PBX in order to check for correct reception. Commands can also be sent directly to the PBX. While Pass-Through Mode is active, additional call records will *not* be stored. To exit Pass-Through Mode, type ^B30 and press [Enter].

**CAUTION:** Do not attempt to alter PBX configuration unless you are authorized to do so. Please refer to the PBX user's guide for further instructions.

### **Command Options:**

- ^B29      Pass-Through to Serial PBX Port.
- ^B29 , A      Pass-Through to Serial PBX Port.
- ^B29 , I      Pass-Through to PBX IP Port.
- ^B29 , C      Pass-Through to Console Port.
- ^B29 , M      Pass-Through to Modem Port.

**Corresponding Menu Function:** System Functions, item 1.

## **^B30 Exit, Return to Command Mode**

---

Exits from Data Release Mode, Send Continuous Test Message Mode, Echo Test Mode, Pass-Through Mode, or Monitor Mode and returns to command mode. Type ^B30 [Enter].

## **^B39 Erase All Data**

---

Erases all stored data, including records stored outside your port's memory partition. Command ^B39 includes an option that allows the user clear all data *and* reset all Alarm Clue Counters to zero.

**CAUTION:** Erased call records cannot be restored.

If the "Sure" option is enabled, a prompt will be displayed. Type **Y** to proceed, or **N** to abort, and then press [Enter].

### **Command Options:**

- ^B39      Clear all records, leave Alarm Clue Counters intact.
- ^B39 , 2      Clear all records *and* reset Clue Counters to zero.
- ^B39 , Y      Suppress "Sure" prompt, Clear all records, leave Alarm Clue Counters intact. Note that the Y argument can also be combined with the "2" argument (e.g., ^B39 , 2 , Y).

**Corresponding Menu Function:** Buffer Functions, item 6.



## **^B50 Default Parameters**

**(Administrator Mode Only)** Resets options and parameters to default settings, and/or reboots NetLink II unit. When this command is invoked, the input ports and command ports are reset to the default baud rate, and the Modem Port is reset to 57600 bps, 8 bits, no parity, one stop bit. Note that command ^B50 offers the same command options as Item 21 in the main menu; for more information, please refer to Section 15.3

**CAUTION:** Options, parameters, and filters that have been erased cannot be automatically restored, unless they have been previously saved to an ASCII file as described in Section 13.2.

If the "Sure" option is enabled, a prompt will be displayed. Type **Y** to proceed, or **N** to abort, and then press **[Enter]**.

### **Command Options:**

- ^B50 , 1** Reboots NetLink II unit, but does not default parameters.
- ^B50 , 2** Reboots NetLink II unit, and defaults all parameters except IP (Network) parameters.
- ^B50 , 3** Reboots NetLink II unit, and defaults all parameters except the SSH Keys.
- ^B50 , 4** Reboots NetLink II unit, and defaults *all* parameters.
- ^B50 , 5** Defaults all parameters except IP (Network) parameters (Not available when command is invoked via network.)
- ^B50 , 6** Defaults all parameters except SSH Keys. (Not available when command is invoked via network.)
- ^B50 , 7** Defaults *all* parameters. (Not available when command is invoked via network.)
- , Y** (Optional Argument) Suppress "Sure" prompt. If desired, the "Y" argument can be combined with any other ^B50 command option in order to suppress the "Sure" prompt. (e.g., **^B50 , 2 , Y**).

**Corresponding Menu Function:** Main Menu, item 21.

## **^B51 Store Alarm Data**

---

**(Administrator Mode Only)** Allows the user to determine where alarm data will be stored. NetLink II can either store alarm records in the Alarm File (default), in the Standard (non-alarm) File, or in both files. Command ^B51 uses the following format:

**^B51 [ ,port] < ,file> [Enter]**

Where:

<b>,port</b>	<b>Input Port:</b> If this argument is omitted, ^B51 will select the alarm storage location for the Serial PBX Port by default. <b>,A</b> Serial PBX Port <b>,I</b> PBX IP Port
<b>,file</b>	<b>Storage Location:</b> Determines where Alarm Data from this port will be stored. Offers the following options: <b>,1</b> Alarm File. <b>(Default)</b> <b>,2</b> Standard File. <b>,3</b> Both the Alarm File and Standard File.

**Corresponding Menu Function:** Port Configuration Menus, Item 16.

## **^B52 Release / Hold End Data Message**

---

Configures the unit to either hold or release the "END DATA" message. When "Hold End Data" is selected, the message will be held until a ^B02 is received. Note that this command will only effect the port that invoked the command.

**Command Options:**

**^B52 ,1** Release End Data Message  
**^B52 ,2** Hold End Data Message **(Default)**

**Corresponding Menu Function:** Console, Network and Modem Port Configuration Menus, Item 23.

## **^B53 Set Compression Mode**

---

Determines whether data will be released in space compressed or decompressed (normal) format. Note that this command will only effect the port that invoked the command.

**Command Options:**

**^B53 ,1** Release Data in Compressed Format.  
**^B53 ,2** Release Data in Decompressed Format **(Default)**

**Corresponding Menu Function:** Console, Modem and Network Port Configuration Menus, Item 25.

**^B54 Release Data on ^B01**

---

Determines how NetLink II will react when command ^B01,n is invoked to release data in groups of "n". Note that this command will only effect the port that invoked the command.

**Command Options:**

- ^B54,1** Release First Group without ^B02 (**Default**).
- ^B54,2** Wait for Command ^B02.

**Corresponding Menu Function:** Console, Modem and Network Port Configuration Menus, Item 22.

**^B55 Strip Non-Printable Codes**

---

**(Administrator Mode Only)** Conserves memory by omitting non-printable characters, such as NULs, and DELs. NetLink II will remove most non-printable characters except carriage returns, line feeds, and the selected EOR character. This command uses the following format:

**^B55[,port]<,action> [Enter]**

Where:

- ,port** **Input Port:** If this argument is omitted, ^B55 will set the Strip Non-Printable codes option for the Serial PBX Port.  
Options:
  - ,A** Serial PBX Port
  - ,I** PBX IP Port
- ,action** **Store/Strip Codes:** Offers the following options:
  - ,1** Store Non-Printable Codes (**Default**)
  - ,2** Strip Non-Printable Codes

**Corresponding Menu Function:** Serial PBX and PBX IP Port Configuration Menus, Item 13.

## **^B56 Select Data Filters**

---

**(Administrator Mode Only)** Determines which data filter will be used for each input port. This command uses the following format:

**^B56 [ ,port] < ,filter > [Enter]**

Where:

- ,port**     **Input Port:** If this argument is omitted, ^B56 will assign the selected filter to the Serial PBX Port. Options:
- ,A**        Serial PBX Port
  - ,I**        PBX IP Port
- ,filter**   **Data Filter:** Selects or disables the Data Filter. The following options are available:
- ,1**        Disable Data Filter at Selected Port **(Default)**
  - ,2**        Assign Data Filter #1 to Selected Port
  - ,3**        Assign Data Filter #2 to Selected Port

**Corresponding Menu Function:** Serial PBX and PBX IP Port Configuration Menus, Item 17.

## **^B57 Enable / Disable XON / XOFF Function**

---

**(Administrator Mode Only)** Enables/Disables the XON/XOFF function at the Serial PBX Port. NetLink II can send an XOFF when memory becomes 98% full, and an XON when more data can be accepted.

**Command Options:**

- ^B57 ,1**    Enable XON/XOFF at Serial PBX Port.
- ^B57 ,2**    Disable XON/XOFF at Serial PBX Port. **(Default)**

**CAUTION:** Some PBX switches may lock up when XON/XOFF is used. Other PBX switches will not respond to XON/XOFF commands. Consult your PBX User's Guide before attempting to employ this feature.

**Corresponding Menu Function:** Serial PBX Port Configuration Menu, Item 5

## **^B59 Line ID Option**

Inserts an eight digit Line ID number at the beginning of each record. Line ID numbers are not stored, but are added when data is released. Each time data is polled, the first line number will always be 00000001. This command will only effect the port that invoked the command.

### **Command Options:**

- ^B59,1**    Disable Line ID Option (**Default**)
- ^B59,2**    Enable Line ID Option

**Corresponding Menu Function:** Console, Modem and Network Port Configuration Menus, Item 24.

## **^B60 Define Console/Modem Port Bits & Parity**

**(Administrator Mode Only)** Selects bits and parity parameters for the Console Port or Modem Port. Command ^B60 uses the following format:

**^B60 [ ,port ] < ,set > [Enter]**

Where:

- ,port**    **Port:** If this argument is omitted, ^B60 will set bits and parity for the Console Port. Offers the following options:
  - ,C**        Set Bits/Parity for Console Port
  - ,M**        Set Bits/Parity for Modem Port
- ,set**     **Bits/Parity Setting:** Sets Bits and Parity for the selected port. Offers the following options:
  - ,1**        7 Bits, Even Parity
  - ,2**        7 Bits, Odd Parity
  - ,3**        8 Bits, No Parity (**Default**)
  - ,4**        7 Bits, No Parity

**Note:** This command is included to maintain compatibility with PollCat II units. If compatibility is not an issue, use the Port Configuration Menus, or command ^B90 (Modem Port Parameters) or ^B91 (Console Port Parameters.)

**Corresponding Menu Function:** Console and Modem Port Configuration Menus, Items 2 and 3.

### **^B61 Define Serial PBX Port Bits & Parity**

---

**(Administrator Mode Only)** Selects bits and parity settings for the Serial PBX Port, using the following format:

#### **Command Options:**

- ^B61 , 1** 7 Bits, Even Parity **(Default)**
- ^B61 , 2** 7 Bits, Odd Parity
- ^B61 , 3** 8 Bits, No Parity
- ^B61 , 4** 7 Bits, No Parity

**Note:** This command is included to maintain compatibility with PollCat II units. If compatibility is not an issue, use the Port Configuration Menus, or command ^B92.

**Corresponding Menu Function:** Serial PBX Port Configuration Menu, Items 2 and 3.

### **^B62 Select Output Mode**

---

Selects the format that will be used when data is released to the polling device. Note that this command will only effect the port that invoked the command.

#### **Command Options:**

- ^B62 , 1** Release Data in ASCII Format **(Default)**
- ^B62 , 2** Release Data in ASCII Format
- ^B62 , 4** Release Data in Xmodem Format
- ^B62 , 5** Release Data in Zmodem Format

**Corresponding Menu Function:** Console, Modem and Network Port Configuration Menus, Item 21.

### **^B64 Enable / Disable Wrap Around Mode**

---

**(Administrator Mode Only)** The wrap around mode allows new data to be written over older data when NetLink II's memory becomes full. This allows NetLink II to continually recycle its memory.

#### **Command Options:**

- ^B64 , 1** Disable Wrap Around Mode **(Default)**
- ^B64 , 2** Enable Wrap Around Mode

**Corresponding Menu Function:** System Parameters Menu, Item 5.

## **^B65 Select Alarm Filters**

**(Administrator Mode Only)** Determines which user-defined Alarm Filter will be used for the Serial PBX Port and/or PBX IP Port. This command uses the following format:

**^B65 [ ,port ] < ,filter > [Enter]**

Where:

- ,port** Input Port: If this argument is omitted, ^B65 will assign the selected filter to the Serial PBX Port. Offers the following options:
- ,A** Serial PBX Port **(Default)**
  - ,I** PBX IP Port
- ,filter** Alarm Filter: Selects or disables the Alarm Filter. The following options are available:
- ,1** Disable Alarm Filter at Selected Port **(Default)**
  - ,2** Assign Alarm Filter #1 to Selected Port
  - ,3** Assign Alarm Filter #2 to Selected Port

**Corresponding Menu Function:** Serial PBX and PBX IP Port Configuration Menus, Item 15.

## **^B66 Enable / Disable Time / Date Stamp**

**(Administrator Mode Only)** Enables the time/date stamp option for the Serial PBX Port and/or the PBX IP Port. The time/date stamp will be inserted at the beginning of each record, prior to storage in NetLink II's memory. This command uses the following format:

**^B66 [ ,port ] < ,action > [Enter]**

Where:

- ,port** Input Port: If this argument is omitted, ^B66 will enable or disable the time/date stamp for the Serial PBX Port. Offers the following options:
- ,A** Serial PBX Port **(Default)**
  - ,I** PBX IP Port
- ,action** Enable / Disable: Offers the following options:
- ,1** Disable Time/Date Stamp **(Default)**
  - ,2** Enable Time/Date Stamp
  - ,3** Enable Long Format Time/Date Stamp

**Corresponding Menu Function:** Serial PBX and PBX IP Port Configuration Menus, Item 11.

## **^B67 Set Auto Delete Option**

---

**(Administrator Mode Only)** When data is released to the polling device, the Auto Delete option can automatically erase data from NetLink II memory after reception is acknowledged. Note that this command will only effect the port that invoked the command.

### **Command Options:**

**^B67,1**     Disable Auto Delete Option **(Default)**

**^B67,2**     Enable Auto Delete Option

**Note:** Before enabling the Auto Delete Option, please refer to the cautions listed in Section 14.5 of this User's Guide.

**Corresponding Menu Function:** Console, Modem and Network Port Configuration Menus, Item 26.

## **^B68 Set Command Echo**

---

Enables / Disables the command echo function. When enabled, commands sent to the NetLink II will be echoed back to the polling device. Note that this command will only effect the port that invokes the command.

### **Command Options:**

**^B68,1**     Disable Command Echo

**^B68,2**     Enable Command Echo **(Default)**

**Corresponding Menu Function:** Console, Modem, and Network Port Configuration Menus, Item 11.



## **^B70 Enable/Disable Immediate Callout and 80% Full Alarm**

**(Administrator Mode Only)** Enables and configures the Immediate Callout and 80% Full Alarm. When Immediate Callout is enabled, NetLink II will dial a user-defined Callout Number, approximately 5 seconds after a disconnect or loss of carrier. Note that the Immediate Callout feature must be enabled prior to each use.

When the 80% Full Alarm is enabled, NetLink II can perform any of the standard Alarm Actions when internal memory becomes 80% full. For more information, please refer to Section 11.

### **Command Options:**

<b>^B70</b>	Disable Immediate Callout and 80% Full Alarm
<b>^B70, I, 1, 1</b>	Enable Immediate Callout
<b>^B70, I, 1, 2</b>	Disable Immediate Callout
<b>^B70, I, 2, n</b>	Define Immediate Callout Number (Where <b>n</b> = Desired Immediate Callout Number.)
<b>^B70, I, 2, [Space]</b>	Clear Immediate Callout Number.
<b>^B70, %, 1, 1</b>	Enable 80% Full Alarm.
<b>^B70, %, 1, 2</b>	Disable 80% Full Alarm.
<b>^B70, %, 2, x</b>	Define notification action; Where <b>x</b> is the desired action and <b>1</b> = None, <b>2</b> = Callout, <b>3</b> = Alphanumeric Page, <b>4</b> = Numeric Page, <b>5</b> = SNMP Trap, <b>6</b> = Output Contact Action, and <b>7</b> = Console Action.
<b>^B70, %, 3, n</b>	Define number for 80% Full Callout or Page (Where <b>n</b> is the desired phone number.)
<b>^B70, %, 3, [Space]</b>	Clear 80% Full callout number.
<b>^B70, %, 4, PagerID</b>	Define Pager ID Number 1 for 80% Full Alarm.
<b>^B70, %, 4, [Space]</b>	Clear Pager ID Number 1.
<b>^B70, %, 5, PagerID</b>	Define Pager ID Number 2 for 80% Full Alarm.
<b>^B70, %, 5, [Space]</b>	Clear Pager ID Number 2.
<b>^B70, %, 6, PagerID</b>	Define Pager ID Number 3 for 80% Full Alarm.
<b>^B70, %, 6, [Space]</b>	Clear Pager ID Number 3.
<b>^B70, %, 7, message</b>	Define 80% Full Alarm Message. This message can be sent when the alarm generates a Callout, Alphanumeric Page, SNMP Trap or Console Action.
<b>^B70, %, 7, [Space]</b>	Clear 80% Full Alarm Message.
<b>^B70, %, 8, 1</b>	Enable Auto Execute Function for 80% Full Alarm.
<b>^B70, %, 8, 2</b>	Disable Auto Execute Function for 80% Full Alarm.
<b>^B70, %, 9, cmds</b>	Define the Auto Execute Command String for this alarm. Where <b>cmds</b> is a series of ^Bxx commands, with each command separated by a backslash character followed by a forward slash (\/).
<b>^B70, %, 9, [Space]</b>	Clear Auto Execute Command String.

**Corresponding Menu Function:** Immediate Callout; Modem Port Configuration Menu, Item 34. 80% Full Alarm; Alarm Configuration Menu, Item 5.

## **^B72 Display Time, Day, Date**

---

Displays clock and calendar settings. Type ^B72 and press [Enter].

## **^B74 Save / Recall Parameters**

---

**(Administrator Mode Only)** Saves user-defined NetLink II parameters, or restores previously defined parameters from flash memory. For more information, please refer to Section 14.1.

### **Command Options:**

- ^B74** Save Current Parameters to Flash Memory
- ^B74,1** Save Current Parameters to Flash Memory
- ^B74,2** Recall Parameters from Flash Memory
- ,y** (Optional Argument) Suppress "Sure?" prompt

**Corresponding Menu Function:** Main Menu, Item 7.

## **^B75 Enable / Disable "Sure?" Prompt**

---

**(Administrator Mode Only)** When certain commands are invoked, the "Sure?" prompt is displayed to allow the user to verify that the command should be executed. When enabled, a prompt will be displayed for ^B25 (Clear Partition), ^B39 (Clear All Records), ^B50 (Reset Options to Defaults), ^B74 (Save / Recall Parameters), ^B76 (Release Remote Partition), and others. Note that this command will only effect the port that invoked the command.

### **Command Options:**

- ^B75,1** Disable "Sure?" Prompt
- ^B75,2** Enable "Sure?" Prompt **(Default)**

**Corresponding Menu Function:** Console, Modem and Network Port Configuration Menus, Item 13.

---

**^B76 Release Remote Partition**

---

(Administrator Mode Only) Releases the current memory partition for the specified port.

**Command Options:**

- ^B76** Release Console Port Partition
- ^B76,c** Release Console Port Partition
- ^B76,m** Release Modem Port Partition
- ^B76,T1** Release Partition for Telnet Port #1
- ^B76,T2** Release Partition for Telnet Port #2
- ^B76,T3** Release Partition for Telnet Port #3
- ,y** (Optional Argument) Suppress "Sure?" Prompt

**Corresponding Menu Function:** Buffer Functions Menu, Item 8.

---

**^B77 Define Modem Initialization Message**

---

(Administrator Mode Only) Defines NetLink II's modem initialization command string (AT Command String). The default string is "ATE0M0Q1&C1&D2S0=1". To redefine the initialization string, type **^B77,init [Enter]**, where "init" is the desired command string.

**Corresponding Menu Function:** Modem Port Configuration Menu, Item 6.

---

**^B78 Display Modem Message**

---

Displays the Modem Reset Message (AT Command String), Initialization String, and Hang-Up String. Type **^B78** and press **[Enter]**.

**Corresponding Menu Function:** Status Displays, item 22

---

**^B79 Display User Directory**

---

(Administrator Mode Only) Displays the User Directory, which summarizes current settings for user-defined accounts. To define user accounts, please proceed as described in Section 5.3.1.

**Corresponding Menu Function:** Status Displays, Item 4.

### **^B83 Display Alarm Clue Summary**

---

Displays a table which shows Clue Names, Threshold Counts, Match Counts, and Alarm Status, sorted by input port and Alarm Filter matched. To display Alarm Clue counter status, type **^B83** and press **[Enter]**. Command **^B83** uses the following format:

**^B83[ ,port] [ ,filter] [Enter]**

Where:

- ,port**     **Input Port:** If this argument is omitted, **^B83** will display the alarm clue summary for the Serial PBX Port. Offers the following options:
- ,A**        Clue Summary for Serial PBX Port (**Default**)
  - ,I**        Clue Summary for PBX IP Port
- ,filter**   **Alarm Filter:** Specifies the desired Alarm Filter. If this argument is omitted, **^B83** will display the Clue Summary for Alarm Filter 1. Offers the following options:
- ,1**        Clue Summary for Alarm Filter 1 (**Default**)
  - ,2**        Clue Summary for Alarm Filter 2

**Corresponding Menu Function:** Status Displays, items 41, 42, 51 and 52.

### **^B84 Clear Alarm Condition**

---

Clears the Alarm Condition and cancels Alarm Actions, without resetting the Alarm Clue Counters or turning off the ALM LED.

#### **Command Options:**

- ^B84**        Clear Alarm Condition
- ^B84 ,y**    Suppress "Sure?" Prompt, Clear Alarm Condition.

**Corresponding Menu Function:** System Functions, item 3.

### **^B86 Reset Alarm Clue Counters**

---

Resets counters for specified Alarm Clue to zero. To clear an alarm condition, please use command **^B84**.

#### **Command Options:**

- ^B86 , "clue"**    Reset Counter for **clue** only.
- ^B86 , \*,A1**      Reset All Counters for Alarm Filter 1.
- ^B86 , \*,A2**      Reset All Counters for Alarm Filter 2.
- ^B86 , \***         Reset all counters for Alarm Filters 1 and 2.

**Note:** If both Alarm Filters include a clue with the same name, command **^B86** must specify the desired alarm filter.

**Corresponding Menu Function:** System Functions, item 4

## **^B89 Test Alpha Pager**

To test an alphanumeric pager, type **^B89,1 [Enter]**, and then exit command mode. After approximately two minutes, the pager should receive the "Pager Test" message. In order for this command to function, the Pager Phone Number and Pager ID Number must first be defined via the Pager Test Submenu.

**Corresponding Menu Function:** System Diagnostics Menu, Item 3.

## **^B90 Reset Modem Port / Define Modem Port Communication Parameters**

**(Administrator Mode Only)** This command can be used to reset NetLink II's internal modem or redefine modem communication parameters.

**Reset Modem:** To reset the modem, use the following format:

**^B90**        Reset Modem

**^B90,Y**     Reset Modem, Suppress "Sure?" Prompt.

**Configure Modem Port:** To define modem communication parameters, use the following format:

**^B90,baud,parity,data,stop [Enter]**

Where:

<b>baud</b>	<b>Baud Rate:</b> Any standard rate from 300 bps to 115.2 Kbps. It is only necessary to enter the first two characters of the baud rate. If an asterisk is entered in this field, the port will be set to the default modem port baud rate (57.6 Kbps).
<b>parity</b>	<b>Parity Bits:</b> None ( <b>n</b> ), Odd ( <b>o</b> ), or Even ( <b>e</b> )
<b>data</b>	Data Bits: 7 or 8
<b>stop</b>	Stop Bits: 1 or 2

**Corresponding Menu Function:** Reset: Modem Port Configuration Menu, Item 7; Define: Modem Port Configuration Menu.

## **^B91 Console Port Communication Parameters**

---

**(Administrator Mode Only)** Defines the baud rate, parity, data bits, and stop bits for the Console Port. This command uses the following format:

**^B91,baud,parity,data,stop [Enter]**

Where:

<b>baud</b>	<b>Baud Rate:</b> Any standard rate from 300 bps to 115.2 Kbps. Note that it is only necessary to enter the first two characters of the baud rate. If an asterisk is entered in this field, the port will be set at the default rate specified by set-up switches 1, 2, and 3.
<b>parity</b>	<b>Parity Bits:</b> None ( <b>n</b> ), Odd ( <b>o</b> ), or Even ( <b>e</b> )
<b>data</b>	<b>Data Bits:</b> 7 or 8
<b>stop</b>	<b>Stop Bits:</b> 1 or 2

**Corresponding Menu Function:** Console Port Configuration Menu.

## **^B92 Serial PBX Port Communication Parameters**

---

**(Administrator Mode Only)** Defines the baud rate, parity, data bits, and stop bits for the Serial PBX Port. This command uses the following format:

**^B92,baud,parity,data,stop [Enter]**

Where:

<b>baud</b>	<b>Baud Rate:</b> Any standard rate from 300 bps to 115.2 Kbps. Note that it is only necessary to enter the first two characters of the baud rate. If an asterisk is entered in this field, the port will be set to the default rate specified by Set-Up switches 4 and 5.
<b>parity</b>	<b>Parity Bits:</b> None ( <b>n</b> ), Odd ( <b>o</b> ), or Even ( <b>e</b> )
<b>data</b>	<b>Data Bits:</b> 7 or 8
<b>stop</b>	<b>Stop Bits:</b> 1 or 2

**Corresponding Menu Function:** Serial PBX Port Configuration Menu.

## **^B94 Enter Monitor Mode**

**(Administrator Mode Only)** Allows direct communication via the Serial PBX Input Port, PBX IP Port, Console Port or Modem Port. In Monitor Mode, data can be received directly from the PBX in order to check reception. Commands can also be sent directly to the PBX. To exit Monitor Mode, type **^B30** and press **[Enter]**.

### **Command Options:**

- ^B94 ,A** Monitor Serial PBX Port.
- ^B94 ,I** Monitor PBX IP Port.
- ^B94 ,C** Monitor Console Port.
- ^B94 ,M** Monitor Modem Port.

**Corresponding Menu Function:** System Functions, Item 2.

## **^B95 Display Program Version**

Displays the version number of the NetLink II Firmware. Type **^B95** and press **[Enter]**.

## **^B97 Define / Display Network Parameters**

**(Administrator Mode Only)** Displays and/or Defines network parameters, including the IP Address, Subnet Mask, and Gateway Address.

### **Command Options:**

- ^B97** Display Network Parameters
- ^B97 , 1 , IPADDR** Define IP Address; Where **IPADDR** is the desired IP Address.
- ^B97 , 1 , [Space]** Clear IP Address
- ^B97 , 2 , SUBNET** Define Subnet Mask Address; Where **SUBNET** is the desired address.
- ^B97 , 2 , [Space]** Clear Subnet Mask
- ^B97 , 3 , GATEWAY** Define Gateway Address; where **GATEWAY** is the desired address.
- ^B97 , 3 , [Space]** Clear Gateway Address
- ^B97 , 4 , SNMP1** Define SNMP Manager #1; where **SNMP1** is the desired SNMP Manager.
- ^B97 , 4 , [Space]** Clear SNMP Manager #1.
- ^B97 , 5 , SNMP2** Define SNMP Manager #2; where **SNMP2** is the desired SNMP Manager.
- ^B97 , 5 , [Space]** Clear SNMP Manager #2.
- ^B97 , 6 , SNMPC** Define SNMP Community; where **SNMPC** is the desired SNMP Community.
- ^B97 , 6 , [Space]** Clear SNMP Community.

**Corresponding Menu Function:** Display Parameters; Status Displays, item 23. Define Parameters; Network Port Configuration, Item 35.

## **^B98    Reset Network Port**

---

**(Administrator Mode Only)** Reinitializes the Network Port. Type **^B98 [Enter]**. If the "Sure" option is enabled, a prompt will be displayed before this command is completed. Type **Y** to proceed or **N** to abort, and then press **[Enter]**.

### **Command Options:**

- ^B98**        Display "Sure" Prompt (If Enabled), Reset Network Port
- ^B98 , Y**    Suppress "Sure" Prompt, Reset Network Port

## **^B99    Save Current Parameters**

---

**(Administrator Mode Only)** Saves currently defined NetLink II parameters to an ASCII text file on your polling device. In the event of corruption or erasure, the file with the saved parameters can be uploaded to the unit in order to restore the previous configuration.

Note that when this command is invoked, the command echo must be disabled at your command port. If the command echo is *not* disabled, the initial ^B99 command will be included in the saved parameters file, and will cause problems when the file is later uploaded to the NetLink II unit.

There are two ways to suppress the command echo; via the Port Configuration Menu, or by entering the ^A character in place of the ^B character. When the ^A character is substituted for the ^B character (e.g. ^A99), the command echo will be temporarily suppressed, regardless of the current command echo setting.

Please refer to Section 14.2.2 for more information.

**Corresponding Menu Function:** System Functions, Item 5.



# A. Specifications

---

**Storage Capacity:** Using dual compression, approximate storage capacity is as follows. Capacity may vary with different PBX formats.

Memory Size	Approximate Call Record Capacity
4 MB	80,000 to 125,000
8 MB	160,000 to 250,000
16 MB	320,000 to 500,000
32 MB	640,000 to 1,000,000

**Operating System & Parameters:** Field Upgradable Flash Memory

**Data Storage:** Non-Volatile SRAM

**Network Interface:** One 100Base-T Ethernet Interface

**Protocols Supported:** FTP, SFTP, RSP, PPP, ASCII

**Serial PBX Input Port:** RS-232, DTE, DB-9M, All standard baud rates from 300 bps to 115.2 Kbps.

**Console Port:** RS-232, DTE, DB-9M, All standard baud rates from 300 bps to 115.2 Kbps.

**Internal Modem:** One dial-up Modem (56K bps)

**LED Indicators:** ON, RDY, ALM, >0%, >25, >50, >75, FULL, RI, DCD, CP, PBX

**Power:** Universal Power Supply, 115/230 VAC, 50/60 Hz, 12 watts, Auto-sensing voltage.

**Battery:** Lithium cartridge, field replaceable, one year shelf life.

**Operating Temperature Range:** 50°F to 104°F (10°C to 40°C).

**Humidity:** 20% to 80% Relative Humidity

**Size:** 1.75" x 19.00" x 6.00" (H x W x D) (One Rack Unit)

**Weight:** 7.4 lbs. total shipping weight.

**Agency Approvals (AC Version Only):** UL, FCC

## B. Description of System Interfaces

### B.1. Serial PBX Input Port (DB9 Male; DTE)

Pin	Signal
1	Not Connected
2	Receive Data (In)
3	Transmit Data (Out)
4	DTR (Data Terminal Ready) (Out) (Held High)
5	Signal Ground
6	Not Connected
7	RTS (Request to Send) (Out)
8	CTS (Clear to Send) (In) (May Be Left Open)
9	Not Connected

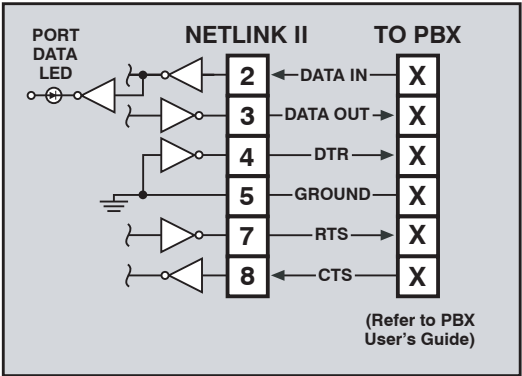


Figure B.1: Serial PBX Input Port Interface

## B.2. Console Port (DB-9 Male; DTE)

Pin	Signal
1	Not Connected
2	Receive Data (In)
3	Transmit Data (Out)
4	DTR (Data Terminal Ready) (Out)
5	Signal Ground
6	Not Connected
7	RTS (Request to Send) (Out)
8	Clear to Send (In)
9	Not Connected

Connect to the PC Com Port using the 9-pin "NULL" or "Crossover" cable supplied with the unit.

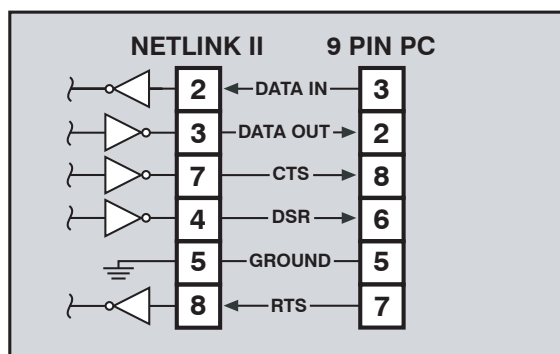


Figure B.2: NetLink II Console Port to 9-Pin PC

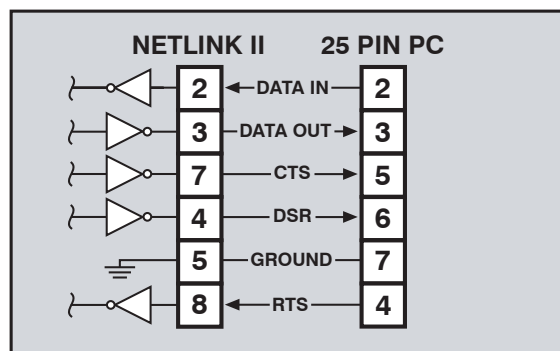


Figure B.3: NetLink II Console Port to 25-Pin PC

## **C. Administrator Functions and User Functions**

---

In order to restrict access to sensitive commands, NetLink II offers two separate operating modes; Administrator Mode and User Mode.

Administrator Mode allows access to all command functions, including those used to setup and configure the NetLink II unit. User Mode allows limited access to command functions; users are able to invoke commands to review status and read data, but are not allowed to change system parameters.

### **C.1. Security Mode at Start Up**

---

NetLink II will display a login prompt each time you attempt to access command mode. The login name and password entered at this prompt determine whether you will be allowed to invoke Administrator Mode command functions, or if you will be limited to User Mode commands. Login names and passwords are defined via a user account, as described in Section 5.3.1.

In the default state, NetLink II provides one user account that permits access to Administrator Mode (login/password = "SUPER"), and one account that only permits access to User Mode (login/password = "SMR"). Note however, that you can also delete these two default accounts and define new accounts via the User Directory function as needed.

### **C.2. Dialback Security**

---

The Dialback Security feature provides an additional level of protection for modem access to command mode functions. When this feature is configured and enabled, NetLink II will display a password prompt when contacted via modem. If the caller enters a valid password, NetLink II will hang up, and then dial the user-defined dialback number for the password entered.

If desired, the Dialback Security feature can also be configured to re-display the password prompt, and require the login information to be re-entered when the user's modem answers the dialback call. For more information, please refer to Section 5.4.4.1.

### C.3. Administrator Mode and User Mode Functions

The table below summarizes the functions that are available in each of the two security modes.

Menu Function	Admin. Mode	User Mode
1. Status Displays	Yes	Yes
2. Buffer Functions	Yes	User Mode allows access to all Buffer Functions except item 8, "Release Remote Partition." All other functions are allowed
3. System Functions	Yes	User Mode only allows access to the following options: 3. Clear Alarm Condition 4. Clear Alarm Clue Counters All other System Functions menu items are restricted to Administrator mode.
4. System Diagnostics	Yes	Yes
5. ^Bxx Command Help	Yes	Yes
6. Recall Parameters	Yes	No
7. Save Parameters	Yes	No
8. Exit Command Mode	Yes	Yes
21. Default Parameters	Yes	No
22. Port Configuration	Yes	No
23. System Parameters	Yes	No
24. Scheduled Actions	Yes	No
25. Alarm Configuration	Yes	No
26. Data Filter Configuration	Yes	No

## D. Alarm Clue Definition Tips

This Section describes techniques that can be used to avoid common problems that are often encountered when defining Alarm Clues.

To effectively detect Toll Fraud, Alarm Clues must produce an accurate count of calls that match the characteristics of a suspect phone call. Careful planning will allow you to create clues that count suspect calls, and ignore calls you don't need.

### D.1. Headers, Banners, and Other "Non-Data"

When you examine data produced by the PBX, you will often discover that in addition to call records, the PBX also creates records that do not contain call data. In order to avoid counting this "non-data", clues must be carefully defined to exclude headers and other items.

In the example below, several call records are shown along with a header. The PBX might generate this header after every 100 calls to identify the record fields. This is helpful when defining the format, but can also be a nuisance when counting calls.

TIME	EXT	DUR	NO. DIALED	COST
09:15	074	01:25	19495869950	00.35
09:17	112	00:45	18008547226	00.00
09:18	085	00:20	8531212	00.10
09:20	124	02:25	19495839514	00.55
09:18	091	00:25	411	00.10

#### D.1.1. The Comparative Operators

When the comparative operators (>, <, >=, and <=) are used, care must be taken to limit the scope of the comparison.

When NetLink II compares information in a call record with values indicated in the clue definition, it performs an "ASCII comparison". All ASCII characters are compared, not just numbers. Each ASCII character, (including letters and symbols) has a numerical value. Letters of the alphabet have a higher value than numbers, and symbols have a lower value.

Although call records may always have a numerical value in a specific field, "non-data" such as headers and summaries, might have letters or symbols in that field. When creating an Alarm Clue that includes the comparative operators, NetLink II must be prevented from counting symbols and alphabetic characters as numerical values.

For example, if the variable "B" represents call duration and you wish to check for calls lasting longer than 15 minutes, the definition would include the phrase "B>15:00". Unfortunately, this would also count headers that have alphabetic text in the call duration field.

If your Alarm Clues are also counting non-data, the techniques described in the following sections can be used to obtain a more reliable count.

#### D.1.1.1. Limit Comparisons

When comparative operators are used, values can be defined as a range between two numbers, rather than an open ended range. In other words, if a "Greater Than" operator is used, it can be matched with a "Less Than" operator in order to limit the scope of the comparison.

**Example:** Define a clue that counts calls placed after 5:00 PM (17:00). Assume that the variable "A" represents the time the call was placed. The most direct way to define match parameters is as follows:

**A>17:00**

However, when the clue is defined this way, headers and summaries with alphabetic characters in the "A" field will also appear in the count. To prevent the clue from counting "non-data", the "A" variable can be defined as a range as shown below:

**A>17:00\*A<99:99**

This definition would prevent the clue from including "non-data" records that have alphabetic characters in the "A" field, since alphabetic characters would have a value higher than 99:99.

#### D.1.1.2. Exclude Non-Data Characteristics

Another way to eliminate non-data from the count is to define the clue in a manner that excludes the characteristics of headers and call accounting summaries.

If you examine the data generated by the PBX, there is usually a factor which differentiates non-data from call records. In some cases, call records will always begin with a specific character, and non-data will omit this character. In other cases, non-data will have a specific text item in a field, where call records will have a numerical value. Once you have determined a factor that differentiates between non-data and call records, it is relatively simple to define clues that exclude the non-data.

**Example:** Define a clue that counts calls lasting three minutes or longer. Assume the variable "B" represents the call duration. The most direct way to define this clue is as follows:

**B>=03:00**

However, when the clue is defined this way, headers and summaries with alphabetic characters in the "B" field would also appear in the count.

In order to exclude undesired records, assume you have determined that call records always begin with the character "|" (vertical bar). In order to use this knowledge in the clue definition, you would first re-define the format to include the variable "L" to represent the first character in the record, and then re-define match parameters as follows:

**B>=03 : 00\*L=|**

This definition would exclude headers and summaries by only counting records that begin with the "|" (vertical bar) character.

### **D.1.2. Exact Match with PBX Call Record Format**

Both the Alarm Filter Format and the Alarm Clue definition must exactly match the data storage format used by the PBX.

When your PBX stores data items such as the number dialed or time values, the punctuation and exact characters used will differ from the formats shown in the examples.

Prior to defining the Alarm Filter Format and Alarm Clues, it is recommended to carefully examine a number of records. Check each data item to determine the exact format used by the PBX. Later, when the Alarm Filter Format and Alarm Clues are defined, your definition must reflect the format used by the PBX.

## **D.2. Programming Support**

---

If you have difficulty defining formats or clues, you can call the service department at Western Telematic, Inc. at (949) 586-9950 or 1 (800) 854-7226, between 8:00 am and 5:00 am, Pacific Time. Any NetLink II unit configured to allow remote access can be contacted via modem and programmed by WTI service personnel.

Before calling, make certain your NetLink II unit has been allowed to store a substantial number of call records, representative of the type produced by the PBX. Please be prepared to give a description of the clues you need to define.



---

## E. SSH Application Notes

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The NetLink II has been tested with a wide variety of SSH server applications, including BitVise WinSSH, F-Secure Server, GlobalScape and the OpenSSH server. This section describes the procedure for setting up the NetLink II to work with a BitVise WinSSH server.

### E.1. Windows XP - Assign a User Name

---

Use the Windows XP Control Panel to assign a User Name which will be used for the WINSSHD server application and the NetLink II Push option:

1. Access Windows XP Control Panel. From the Control Panel, select "Administrative Tools."
2. From Administrative Tools, select "Computer Management" and then select "Local Users". From Local User's, select "Users".
3. At the Users menu, right click on "New User", then create a User Name and save it.
4. Highlight the new User Name, then right click and select "Set Password."
5. Assign a password to the New User name, then save and exit from the Control Panel.

**Note:** When configuring the new user, select the option that allows user access without the need to re-enter the password.

### E.2. Create the User Name in the WINSSHD Application

---

Use the WINSSHD Application to add the User Name that was created in Section E.1 above.

1. Access the WINSSHD control panel and select "Setting", then select "Edit & View Setting."
2. From the Edit & View Setting menu, select "Account" and then select "Add User."
3. Use the "Add User" menu to create a new User Name. Enter the User Name that was created in Section E.1 above, and then select "OK."
4. After adding the new User Name, select "Save" and close the Control Panel.

### **E.3. Generate Netlink client keys**

---

1. From the Netlink II Main Menu, access the Port Configuration Menu (Option 22,) and then select "Push" (Option 31.) Use the Push File Configuration menu to select the following parameters:
  - Server IP Address (Item 1.)
  - UserName (Item 2.) When the User Name is assigned, the NetLink II will begin to create the SSH public keys.
  - File Name (Item 3.)
  - Directory (Item 4) - If Needed.
2. Use Option 32 in the Push File Configuration menu to select and enable the Push Option.
3. Select Option 22 (SFTP Client Keys) in the Push File Configuration menu. From the SFTP Client Keys menu, select Option 1 to download the RSA Client Key and save it to an ASCII file (i.e., "Download to Disk.")
4. Return to the SFTP Client Keys Menu (Push File Configuration menu, Option 22) and select Option 2 to download the DSA Client Key and save it to an ASCII file (i.e., "Download to Disk.")
5. Press [Esc] to return to the Push File Configuration Menu.

**Note:** Verify that the download application has not inserted any carriage returns or line feeds into the saved file. If carriage returns or line feeds have been inserted, edit the file to remove them.

### **E.4. Import the Client Keys Into the WINSSHD Application**

---

1. Access the WinSSHD Control Panel and select settings.
2. Select "Edit/View Setting."
3. Under "Setting and Access Control", select "Account."
4. Highlight the User Name Account assigned to the NetLink II.
5. Select "Edit."
6. From the "Edit Account" screen, select the 2 Keys Option
7. Select "Import Keys." Direct the path to the location where the saved files with the NetLink II client keys reside.
8. Exit the Keys Account.

9. Exit from the "Editing Account " screen and click "OK".
10. Save and close the "Access Control Accounts" screen.

After you have finished importing the client keys into the WinSSHD application, access the NetLink II command mode and return to the Push File Configuration menu (From the main menu, select Option 22 "Port Configuration" and then select Option 31 "Push".) From the Push File Configuration menu, select Option 42 "Test Push" to run a test that can be used to determine if the Push feature has been correctly configured.

For more information on other SFTP applications, please refer to our website at <http://www.wti.com/guides/guidarch.htm> or check one or more of the links listed below:

- **BitVise SSH Server:** <http://www.bitvise.com/winsshd.html>
- **F-Secure SSH Server:** <http://www.wrq.com/products/reflection/ssh/>
- **GlobalScape:** [http://www.cuteftp.com/products/ftp\\_servers.asp](http://www.cuteftp.com/products/ftp_servers.asp)
- **Linux SSH Server:** <http://www.openssh.com/>

## **E. Customer Service**

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Customer Service hours are from 8:00 am to 5:00 PM, Pacific Time, Monday through Friday. When calling, please be prepared to give provide the serial number of the unit, as well as a description of the problem. If the unit should need to be returned for factory repair, it must be accompanied by a Return Authorization Number issued by WTI Customer Service.

**WTI Customer Service**

5 Sterling  
Irvine, California 92618-2517

**Local Phone:** (949) 586-9950

**Toll Free Service Line:** 1-888-280-7227

**Service Fax:** (949) 457-8138

**E-mail:** [service@wti.com](mailto:service@wti.com)

## F. ^ Bxx Command Summary

Cmd.	Description / Options
<b>^B00</b>	<b>Set/Reset Memory Partition</b> ^B00[,type][[,source] or ^B00,R Where: [,type] <b>Data Type:</b> Offers the following options: ,A1      Include Records that Match Alarm Filter 1 (or) ,A      Include Records that Match Alarm Filter 1 ,A2      Include Records that Match Alarm Filter 2 ,ALM      Include All Alarm Records from both Filters ,STD      Include Non-Alarm (Standard) Records (or) ,D      Include Non-Alarm (Standard) Records [,source] <b>Source Port:</b> Offers the following options: ,PA      Include Records Received via Serial PBX Port ,PI      Include Records Received via PBX IP Port ,R <b>Release Current Partition:</b> This argument cannot be combined with the [,type] or [,source] arguments.
<b>^B01</b>	<b>Enter Data Read Mode</b> ^B01[,type][[,source]][[@n][,n] Where: [,type] <b>Data Type:</b> Offers the following options: ,A1      Release Records for Alarm Filter 1 Only (or) ,A      Release Records for Alarm Filter 1 Only ,A2      Release Records for Alarm Filter 2 Only ,ALM      Release All Alarm Records from both Filters ,STD      Release Non-Alarm Records Only (or) ,D      Release Non-Alarm Records Only ,"clue"      Release Alarm Records for "clue" Only [,source] <b>Source Port:</b> Offers the following options: ,PA      Release records received via Serial PBX Port ,PI      Release records received via PBX IP Port [@n] <b>Offset:</b> Release records starting with the "nth" record. [,n] <b>Count:</b> Release records in groups of "n".
<b>^B02</b>	<b>Send Next Data</b>
<b>^B03</b>	<b>Display Site ID</b>
<b>^B04</b>	<b>Define Site ID</b> ^B04,site_id Where "site_id" is the desired Site I.D. Message (Up to 32 Characters)
<b>^B05</b>	<b>Define End-of-Record Character</b> ^B05[,port]<,char> Where: [,port] <b>Input Port:</b> Offers the following options: ,A      Serial PBX Port ,I      PBX IP Port <,char> <b>EOR Character:</b> If a space character is entered, the EOR character for the target port will be cleared.

<b>Cmd.</b>	<b>Description / Options</b>
<b>^B06</b>	<b>Re-send Last Data</b>
<b>^B08</b>	<b>Display Current Alarm Record</b>
<b>^B09</b>	<b>Exit Command Mode (Disconnect / Hang Up)</b>
<b>^B11</b>	<b>Set Real-Time Clock/Calendar</b> ^B11,hh:mm,MM\DD\YY Where: hh          Is the Hour (00 to 23) mm          Is the Minute (00 to 59) MM          Is the Month (01 to 12) DD          Is the Date (01 to 31) YY          Is the Year (00 to 99)
<b>^B13</b>	<b>Display Site ID Message / Alarm Message</b>
<b>^B16</b>	<b>Display System Status</b>
<b>^B17</b>	<b>Display PBX Inactivity Alarm Parameters</b> ^B17,1      Display Parameters for Alarm 1 ^B17,2      Display Parameters for Alarm 2
<b>^B18</b>	<b>Display Reason for Action</b>
<b>^B19</b>	<b>Display Action Schedule</b> ^B19,1      Display Parameters for Schedule 1 ^B19,2      Display Parameters for Schedule 2
<b>^B20</b>	<b>Display Partition Record Count</b>
<b>^B21</b>	<b>Display Remaining Space</b>
<b>^B22</b>	<b>Display Memory Capacity / PBX Port Communication Parameters</b>
<b>^B24</b>	<b>Display DIP Switch Settings</b>
<b>^B25</b>	<b>Erase Partition Data</b> ^B25        Erase Partition Data ^B25,Y      Suppress "Sure" Prompt, Erase Partition Data
<b>^B26</b>	<b>Display Separator Line</b>
<b>^B27</b>	<b>Enter Test Message Mode</b>
<b>^B28</b>	<b>Enter Echo Test Mode</b>
<b>^B29</b>	<b>Enter Pass-Through Mode</b> ^B29,A      Pass-Through to Serial PBX Port ^B29,I      Pass-Through to PBX IP Port ^B29,C      Pass-Through to Console Port ^B29,M      Pass-Through to Modem Port
<b>^B30</b>	<b>Exit, Return to Command Mode</b>
<b>^B39</b>	<b>Erase All Data</b> ^B39        Clear All Records, Leave Alarm Clue Counters Intact ^B39,Y      Suppress "Sure" Prompt, Clear All Records, Leave Alarm Clue Counters Intact ^B39,2      Clear All Records, and Reset Alarm Clue Counters to Zero ^B39,2,Y    Suppress "Sure" Prompt, Clear All Records, <i>and</i> Reset Alarm Clue Counters to Zero

Cmd.	Description / Options	
<b>^B50</b>	<b>Default Parameters</b>	
	^B50,1	Reboot, Do Not Default Parameters
	^B50,2	Reboot and Default All Parameters (Except Network Parameters)
	^B50,3	Reboot and Default All Parameters (Except SSH Keys)
	^B50,4	Reboot and Default All Parameters
	^B50,5	Default All Parameters (Except Network Parameters), Do Not Reboot
	^B50,6	Default All Parameters (Except SSH Keys), Do Not Reboot
	^B50,7	Default All Parameters, Do Not Reboot
	,Y	(Optional) Suppress Confirmation Prompt. Can be combined with any other ^B50 command option (e.g., ^B50,2,Y)
<b>^B51</b>	<b>Store Alarm Data</b>	
	^B51[,port]<,file>	
	Where:	
	[,port]	<b>Input Port:</b> Offers the following options:
	,A	Serial PBX Port
	,I	PBX IP Port
	<,file>	<b>Storage Location:</b> Offers the following options:
	,1	Store Alarm Data from this Port in Alarm File
	,2	Store Alarm Data from this Port in Standard File
	,3	Store Alarm Data from this Port in Both Alarm File and Standard File
<b>^B52</b>	<b>Release / Hold End Data Message</b>	
	^B52,1	Release End Data Message
	^B52,2	Hold End Data Message
<b>^B53</b>	<b>Set Compression Mode</b>	
	^B53,1	Release Data in Compressed Format
	^B53,2	Release Data in Decompressed Format
<b>^B54</b>	<b>Release Data on ^B01</b>	
	^B54,1	Release First Group without ^B02
	^B54,2	Wait for Command ^B02
<b>^B55</b>	<b>Strip Non-Printable Codes</b>	
	^B55[,port]<,action>	
	Where:	
	[,port]	<b>Input Port:</b> If this argument is omitted, the command will be applied to the Serial PBX Port by default. Options:
	,A	Serial PBX Port
	,I	PBX IP Port
	<,action>	<b>Store / Strip Codes:</b> Offers the Following Options:
	,1	Store Non-Printable Codes
	,2	Strip Non-Printable Codes

Cmd.	Description / Options
<b>^B56</b>	<b>Select Data Filters</b> ^B56[,port]<,filter>  Where: [,port] <b>Input Port:</b> If this argument is omitted, the command will be applied to the Serial PBX Port by default. Options: ,A      Serial PBX Port ,I      PBX IP Port  <,filter> <b>Data Filter:</b> Offers the Following Options: ,1      Disable Data Filter at Selected Port ,2      Assign Data Filter #1 to Selected Port ,3      Assign Data Filter #2 to Selected Port
<b>^B57</b>	<b>Enable / Disable XON / XOFF Function</b> ^B57[,port]<,action>  Where: [,port] <b>Input Port:</b> If this argument is omitted, the command will be applied to the Serial PBX Port by default. Options: ,A      Serial PBX Port ,I      PBX IP Port  <,action> <b>Enable / Disable Action:</b> Offers the Following Options: ,1      Enable XON/XOFF at Selected Port ,2      Disable XON/XOFF at Selected Port
<b>^B59</b>	<b>Line ID Option</b> ^B59,1      Disable Line ID Option ^B59,2      Enable Line ID Option
<b>^B60</b>	<b>Define Console / Modem Port Bits and Parity</b> ^B60[,port]<,set>  Where: [,port] <b>Port:</b> When this argument is omitted, the command will be applied to the Console Port by default. Options: ,C      Set Bits/Parity for Console Port ,M      Set Bits/Parity for Modem Port  <,set> <b>Bits / Parity Setting:</b> Offers the Following Options: ,1      Set Selected Port to 7 Bits, Even Parity ,2      Set Selected Port to 7 Bits, Odd Parity ,3      Set Selected Port to 8 Bits, No Parity ,4      Set Selected Port to 7 Bits, No Parity
<b>^B61</b>	<b>Define PBX Port Bits and Parity</b> ^B61,1      Set PBX Port to 7 Bits, Even Parity ^B61,2      Set PBX Port to 7 Bits, Odd Parity ^B61,3      Set PBX Port to 8 Bits, No Parity ^B61,4      Set PBX Port to 7 Bits, No Parity
<b>^B62</b>	<b>Select Output Mode</b> ^B62,1      Release Data in ASCII Format ^B62,2      Release Data in ASCII Format ^B62,4      Release Data in Xmodem Format ^B62,5      Release Data in Zmodem Format
<b>^B64</b>	<b>Enable / Disable Wrap Around Mode</b> ^B64,1      Disable Wrap Around Mode ^B64,2      Enable Wrap Around Mode



Cmd.	Description / Options
<b>^B65</b>	<b>Select Alarm Filters</b> ^B65[,port]<,filter> Where: [,port] <b>Input Port:</b> If this argument is omitted, the command will be applied to the Serial PBX Port by default. Options: ,A          Serial PBX Port ,I          PBX IP Port <,filter> <b>Alarm Filter:</b> Offers the Following Options: ,1          Disable Alarm Filter at Selected Port ,2          Assign Alarm Filter #1 to Selected Port ,3          Assign Alarm Filter #2 to Selected Port
<b>^B66</b>	<b>Enable / Disable Time/Date Stamp</b> ^B66[,port]<,action> Where: [,port] <b>Input Port:</b> If this argument is omitted, the command will be applied to the Serial PBX Port by default. Options: ,A          Serial PBX Port ,I          PBX IP Port <,action> <b>Enable / Disable Time/Date Stamp:</b> Offers the Following: ,1          Disables Time/Date Stamp at Selected Port ,2          Enables Time/Date Stamp at Selected Port ,3          Enable Long Format Time/Date Stamp at Port
<b>^B67</b>	<b>Set Auto Delete Option</b> ^B67,1      Disable Auto Delete Option ^B67,2      Enable Auto Delete Option
<b>^B68</b>	<b>Set Command Echo</b> ^B68,1      Disable Command Echo ^B68,2      Enable Command Echo

Cmd.	Description / Options	
^B70	<b>Enable / Disable Immediate Callout and 80% Full Alarm</b>	
	^B70	Disable Immediate Callout and 80% Full Alarm
	^B70,I	Enable Immediate Callout
	^B70,I,1	Enable Immediate Callout
	^B70,I,1,1	Enable Immediate Callout
	^B70,I,1,2	Disable Immediate Callout
	^B70,I,2,n	Define Immediate Callout Number (where n = Immediate Callout Number)
	^B70,I,2,[Space]	Clear Immediate Callout Number
	^B70,%	Enable 80% Full Alarm
	^B70,%,1	Enable 80% Full Alarm
	^B70,%,1,1	Enable 80% Full Alarm
	^B70,%,1,2	Disable 80% Full Alarm
	^B70,%,2,x	Define Alarm Action, where x is the desired action and 1 = None, 2 = Callout, 3 = Alpha Page, 4 = Numeric Page, 5 = SNMP Trap, 6 = Output Contact Action, 7 = Console Action
	^B70,%,3,n	Define number for 80% Full callout or page (where n is the desired phone number)
	^B70,%,3,[Space]	Clear 80% Full Callout Number
	^B70,%,4,PagerID	Define Pager ID Number 1 for 80% Full Alarm
	^B70,%,4,[Space]	Clear Pager ID Number 1
	^B70,%,5,PagerID	Define Pager ID Number 2 for 80% Full Alarm
	^B70,%,5,[Space]	Clear Pager ID Number 2
	^B70,%,6,PagerID	Define Pager ID Number 3 for 80% Full Alarm
	^B70,%,6,[Space]	Clear Pager ID Number 3
	^B70,%,7,message	Define 80% Full Alarm Message
	^B70,%,7,[Space]	Clear 80% Full Alarm Message
	^B70,%,8,1	Enable Auto Execute Function for 80% Full Alarm
	^B70,%,8,2	Disable Auto Execute Function for 80% Full Alarm
	^B70,%,9,cmds	Define Auto Execute Command String for 80% Full Alarm
	^B70,%,9,[Space]	Clear 80% Full Auto Execute String
<b>^B72 Display Time, Day, Date</b>		
^B74	<b>Save / Recall Parameters</b>	
	^B74	Save Current Parameters to Flash Memory
	^B74,1	Save Current Parameters to Flash Memory
	^B74,2	Recall Parameters from Flash Memory
^B75	,Y	(Optional Argument) Suppress "Sure?" Prompt
	<b>Enable / Disable "Sure?" Prompt</b>	
	^B75,1	Disable "Sure?" Prompt
^B76	^B75,2	Enable "Sure?" Prompt
	<b>Release Remote Partition</b>	
	^B76	Release Console Port Partition
	^B76,c	Release Console Port Partition
	^B76,m	Release Modem Port Partition
	^B76,T1	Release Partition for Telnet Port #1
	^B76,T2	Release Partition for Telnet Port #2
	^B76,T3	Release Partition for Telnet Port #3
	,Y	(Optional Argument) Suppress "Sure?" Prompt

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Printed in the United States of America.

March 2006  
P/N 13646 Rev. A





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