



**User's Manual
Installation and Operation Guidelines
DL150 Pollable Remote Access Unit**

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DL150 Pollable Remote Access Unit Installation and Operation Guidelines

Manual Rev C
for Firmware Version 1.13

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Quick Start

What's Included

This chapter is a brief guide to help get your DL150 up and running quickly.

Hardware Needed

- Asentria Data-Link DL150
- Computer with DB9 RS-232 Serial port and terminal emulation software
- Ethernet Connection
- 15VDC power adaptor (Included if AC power option)
- DC power source (if DC power option)
- Female DB9 Null Modem serial cable (Included)
- PC running AlarmManager software -- may be obtained from <http://www.asentria.com/docsandsoftware/productManuals.aspx> or Asentria Technical Support (for SNMP trap receiving purposes)

Information Needed

- IP address to assign to the DL150
- Subnet mask
- Default router IP or gateway router IP address if on a WAN (Optional)
- IP address of the PC running Asentria AlarmManager (for SNMP trap receiving purposes)

Connecting

Cables and Power

1. Connect the serial cable to the serial port I/O2 of the DL150 and the other end into COM1 of a computer running a terminal emulator.
2. Connect the power supply to the unit (see Power Requirements section).
3. Connect an Ethernet cable, if available, into the RJ-45 jack labeled Ethernet.

Power Requirements

The DL150 is configured with one of two types of power connectors – AC or DC.

If configured for AC, the unit uses a barrel connector for connecting to the 15VDC power adapter shipped with the unit.

If configured for DC, the unit is configured with a 4-pin Molex connector for use with a DC power source. The unit is shipped with the cables and instructions for direct connection to a DC power source. The instructions are shown below, in case they are missing from the box.

» Note: This instruction sheet describes connection of the provided –48V wiring harness kit to the source power supply. This unit should be assembled and installed by a qualified technician who can ensure the power source is an isolated, SELV (Safety Extra Low Voltage) circuit. There are two versions of the harness using different wiring colors as shown below.

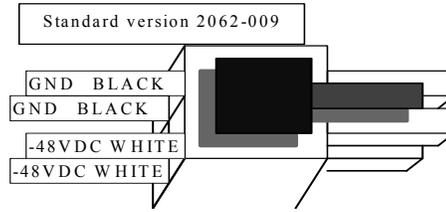
» Note: Because the DL150 is generally considered to be "permanently connected", safety standards require that an appropriate disconnect device shall be provided as part of the building installation. The -48VDC input should be protected by an external 2A Slow Blow Fuse conforming to CSA/UL 248-14, IEC 60127-4/2, at the power supply or within the building circuitry as appropriate. The input DC power current limiting fuse circuit is provided for by the end user, and is required for unit operation in compliance with safety agency approvals.

One example of a compliant fuse for the -48V input is a Littelfuse 239P series, 2 amp fuse with a 250 VDC minimum voltage rating and interrupt rating 10,000 amps at 125 VAC, 0.7 to 0.8 power factor and 100 amps at 125VAC, 0.7-0.8 power factor.

CONTENTS:

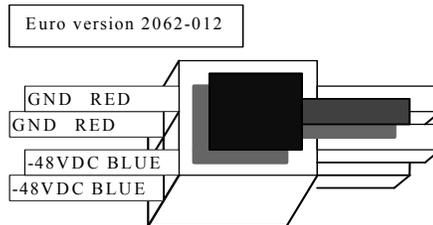
Please inventory the package contents and ensure you have the following items pertaining to the -48VDC Power Option:

1. A cable harness consisting of 2 black or red and 2 white or blue wires connected to a white nylon "molex" connector.
2. A bare white nylon housing.
3. 5 crimp-on contacts.



-48VDC CONNECTION:

The -48VDC power supply option has 4 input connections. This gives the user the ability to connect this unit to an auxiliary -48VDC power source. Note: The dark area on the diagram represents the latching mechanism on the housing.



DANGER! FIRE HAZARD!
DO NOT LEAVE AN UNCONNECTED WIRE EXPOSED!
DO NOT CONNECT THE UNIT TO ANY OTHER EQUIPMENT UNTIL YOU KNOW THE UNIT POWERS UP CORRECTLY!

Option A: Connect the supplied harness assembly to your -48VDC voltage source:

1. Ensure the unit is not connected to any peripheral equipment.
 >> **NOTE:** Peripheral Equipment connections may cause a short circuit of your -48V supply if the power connections are reversed! Do not connect peripheral equipment connections until you know the unit is operational by observing the front panel Power LED.
2. Strip the ends of the wires.
3. Using wire nuts (not supplied), connect the stripped wires to the power source. The black (red) wires connect to ground or the most Positive connection on the voltage source. The white (blue) wires connect to -48VDC or the most Negative connection on the voltage source.

Option B: Use the supplied kit to make a wire harness:

1. You will need a crimping tool that crimps standard Molex type 18-24 AWG Mini-Fit Terminals (Molex Part Number: 39-00-0060, Engineering Series 5556).
2. Crimp the supplied terminals to your cable connections.
3. Insert the crimped terminals into the supplied white nylon housing. Orient the housing so the latching mechanism is up and you are looking into the large end of the housing. See diagram above. Insert the 2 Ground or Most Positive leads into the upper and lower compartments on the left side of the connector, e.g. the same positions as the black wires on the supplied harness assembly. Insert the 2 -48VDC or Most Negative leads into the upper and lower compartments on the right side of the connector, e.g. the same positions as the white leads on the supplied harness assembly.
4. Connect the completed assembly into the power input receptacle at the rear of the unit.

Accessing the Command Line

1. Connect to I/O2 with a serial terminal emulation program at 19200 baud, 8N1.
2. Enter **STATUS** or **?** and press <Enter>. You will be presented with a status screen similar to the following.

```
Data-Link DL150 1.13 STD      Unit Serial #   : 546209999
Unit ID   : DL150-546209999
Date      : WED 06/06/07      % Full alarm   : OFF
Time      : 18:28:19          No Data Alarm 1: OFF
Memory    : 1024K             No Data Alarm 2: OFF
% Full    : 01%               Release mode    : LINE
Modem     : Yes               Duplex         : FULL
Network   : Yes               Password       : OFF
IP Add    : 192.168.100.43     Compress       : OFF
MAC Add   : 00:10:A3:01:2E:82
-----
          Port 1   Port 2   Port 3   Port 4
Baud Rate  9600   19200   19200   19200
Parity, etc. 8N1    8N1     8N1     8N1
File Records 00000000 00000000 00000000 00000000
File Bytes   00000000 00000000 00000000 00000000
File % Full  00%      00%     00%     00%
ASCII/Binary ASCII    ASCII    ASCII    ASCII
Handshake   NONE     NONE     NONE     NONE
File Wrap   OFF      OFF      OFF      OFF
Alarm Filter OFF      OFF      OFF      OFF
COMPLETE
>
```

When the status screen appears, the unit is successfully connected and ready for use.

Network Setup

Setup

1. Access the Setup menu by typing **SETUP** and pressing <Enter>.
2. Select the Network Settings branch.
3. In options A), B), and C) enter an IP address, subnet mask and--if necessary--a router address.
4. Press <Esc> to go back one level in the menu tree, or <Ctrl + C> to exit the setup menu and return to the command prompt.

Testing Network Connectivity

1. Verify that the network router is available to the unit by typing the command **PING IP_address**. Routers are always good candidates to test your pings on. The following screenshot is an example of a successful ping test.

```
ping 192.168.100.2
PING command running, press ESC to exit
Ping Reply Seq=1 time=56 ms
Ping Reply Seq=2 time=32 ms
Ping Reply Seq=3 time=24 ms
Ping Reply Seq=4 time=24 ms
Ping Reply Seq=5 time=24 ms
Ping Reply Seq=6 time=56 ms
Ping Reply Seq=7 time=36 ms
Ping Reply Seq=8 time=28 ms
Ping Reply Seq=9 time=28 ms
Ping Reply Seq=10 time=24 ms
COMPLETE
```

2. Press <Esc> to stop the ping testing. If <Esc> is not pressed, the unit will continue pinging attempts indefinitely.
3. If there is an error message or no response from the router, first check the network settings and connection, then consult your System Administrator or Asentria Technical Support.
4. Using a Telnet client, connect to the IP address assigned to the unit.

SNMP Trap Setup

If you will be using your DL150 to send SNMP traps, this section will help you ensure it is set up correctly.

Setup

1. Configure the network settings as described in the previous section.
2. Select the Network Settings then SNMP Settings sub-menu, then enter the IP address of one or two SNMP Managers in A) SNMP Manager 1 and/or B) SNMP Manager 2
3. Verify that C) SNMP Community name is correct for your network.
4. Press <Ctrl + C> to exit the Setup menu and return to the command line.
5. On the computer that will be receiving the SNMP traps, start AlarmManager or your preferred SNMP trap manager.

Testing SNMP Traps

1. Using a Telnet client, connect to the IP address assigned to the unit.
2. Enter the command **DOTRAP** from the DL150 command prompt.
3. Verify that the trap manager receives the test trap.
4. If there is an error message or no response from the router, first check the network settings and connection, then consult your System Administrator or Asentria Technical Support

What is a DL150

The Basics



Fig 1: Data-Link DL150

The DL150 is a remote site management device that provides four basic functions to facilitate management and monitoring of serial port devices, and environmental conditions. These functions are:

- Collect and forward text records, such as those used by call accounting and telemanagement applications.
- Remote access of connected serial devices
- Monitoring of serial data alarm conditions
- Monitoring of connected sensor devices (contact inputs, voltage inputs, relay outputs, temperature sensor)

Communication Methods

The DL150 has a diverse selection of communication methods available for different applications. The following methods can be used to either access the command processor or provide a pass-through connection to devices attached to the serial ports. All methods of connecting to the unit can be secured via password for protection of data and hardware.

- RS-232 serial
- Telnet
- Standard modem serial
- Security callback modem serial

Data Collection Methods

In addition to serial port data collection, the Data-Link DL150 offers the ability to collect call data records delivered via TCP/IP. The process of collecting data via TCP/IP is called IP Record Collection (IPRC). The DL150 supports nine different IPRC protocols:

- Generic Server
- Generic Client
- Avaya Definity Reliable Session Protocol (RSP)
- Alcatel OmniPCX
- Cisco Call Manager (version 4.0)
- Intecom Telari
- Nortel BCM
- Syslog
- NEC NEAX2400

Each of the above protocols are a subset of the DL150's IPRC functionality. Certain attributes of each mode are general to IPRC and not Alcatel or Avaya specific, e.g., the commands and certain configuration options regarding database files and alarms.

The DL150 can operate in any one of the above IPRC modes at a time. Data received via IPRC is redirected to any normal input file and can be monitored for no-data alarms and network connection status just like serial port data. Refer to the [IPRC](#) chapter for a further explanation of all IPRC protocols.

Data may be retrieved from or through the DL150 by any of the following methods:

- Serial or modem connection to command processor (using Line or Zmodem) or pass-through
- Inline Mode (data in I/O1, data out I/O2)
- Telnet to command processor or pass-through
- Telnet real-time sockets
- FTP push (automatic delivery to FTP server)
- FTP get (manual retrieval from FTP server)

Alarms generated or detected within the DL150 can be delivered through any of the following means:

- Alphanumeric pager
- Numeric pager
- Modem callout
- SNMP trap
- Email

Remote Access

The DL150 can provide an administrator transparent access to devices connected to the serial ports of the unit via pass-through connections or through the login menu in Telnet and modem connections. These can be accessed via the command processor or through Telnet ports. This sort of access can be used to configure, maintain, or manipulate devices that would normally have no remote access.

Serial Monitoring (Data Events)

The DL150 has the capability to monitor incoming data for user-defined strings and then report the event via several avenues. The DL150 allows for up to 100 different data events. Each data event contains independent actions, counters, and other unique settings.

Data events triggered within the DL150 can be logged to an Alarms Log. This file can be viewed through the Alarms Log section of the Setup menu, or through FTP.

Sensor Monitoring

The DL150 has the capability to monitor sensors connected to internal dry contacts, or to externally connected EventSensor modules. The DL150 supports 8 or 16 pairs of internal dry contacts (configured as contact inputs, voltage inputs, or relay outputs), one on-board temperature sensor, and from 1 to 16 external EventSensor modules. Each sensor event contains independent actions, counters, and other unique settings.

Event Notification

Actions generated or detected within the DL150 can be delivered through any of the following means:

- Modem callout
- Pager callout
- SNMP trap
- Email
- Relays
- OmniAlarms

Audit Log

The DL150 has the capability to log many types of administrative events, from DIP switch changes to login attempts. These Audit Log entries are stored in a file and can be viewed through the Audit Log section of the setup menu, via the **TYPE AUDIT** command, or through FTP.

Parts Identification

Features and Accessories

Standard Equipment

The base DL150 comes with the following standard on-board equipment:

- AC or DC Power Input
- Two DB9 Male DTE RS-232 serial I/O ports
- Internal battery backup*

In addition to the above components, the standard unit is shipped the following accessories:

- This product manual and Asentria Alarm Manager software on the Documentation and Software CD
- Two 6 foot female DB9 to female DB9 null modem serial cables
- Power supply adapter (for AC units), or wiring harness and Molex plug (for DC units)

Options

Each of the following components is optional and may be installed on a DL150:

- Internal 33.6k baud modem
- One 10/100Mb Ethernet interface
- Two or four additional serial ports (for a total of 4 or 6 serial ports)
- A variety of combinations of contact inputs, voltage inputs, and relay outputs
- On-board temperature sensor
- RJ45 EventSensor module connector port (ES Bus)

The DL150 may come with any of the following accessories as well, depending on the configuration or order:

- Ethernet and modem cables if either of those options is ordered.
- 19 inch rack mount ears

* Battery backup preserves clock operation when power is not present. Data records and settings are stored in non-volatile memory and therefore do not require backup.

Front Panel



Fig 2: Front panel

Buttons

Control

Reset - This button will perform a hard reset on the unit. To perform a reset, hold the button in until the unit beeps (about three seconds).

Next - Reserved for future use.

Enter - Reserved for future use.

LEDs

Ethernet

The Link LED lights whenever an Ethernet 10/100Base T network link connection is found.

The TX LED lights briefly whenever an Ethernet frame is being transmitted (and received, depending on the Ethernet chipset).

The Active LED lights whenever a network connection, such as ftp, Telnet, or pass-through, is active.

Modem

The Active LED lights solid whenever the modem is connected and blinks when the modem is dialing out.

Percentage Full

The DL150 has five LEDs to indicate file full status. A blinking percentage full LED indicates the database has less than the amount indicated by that LED, but more than the previous. A solid lit LED indicates the database percentage is at or over the value for that LED.

I/O n

Each RS-232 serial port has two LEDs associated with it (with the exception of I/O 2, which has three). RX n flickers red to indicate data traffic coming into the unit. This LED defaults to green whenever a cable is connected to the associated port. This LED is driven directly from the port, so it will remain illuminated, even if the unit is powered off.

TX n flickers red to indicate data traffic leaving the unit. This LED defaults to green whenever a cable is connected to the associated port. This LED does not remain illuminated when the unit is powered off.

The CTS2 LED for I/O 2 lights when a clear to send signal is received on I/O2. This should be used as an indicator of whether someone has an active connection to the command processor port (even if it is not in command processor mode).

Alarm

The Alarm LED lights solid red whenever the DL150 is in an alarm state due to a configured event being triggered. Acknowledging or clearing the event will turn off the Alarm LED.

Power

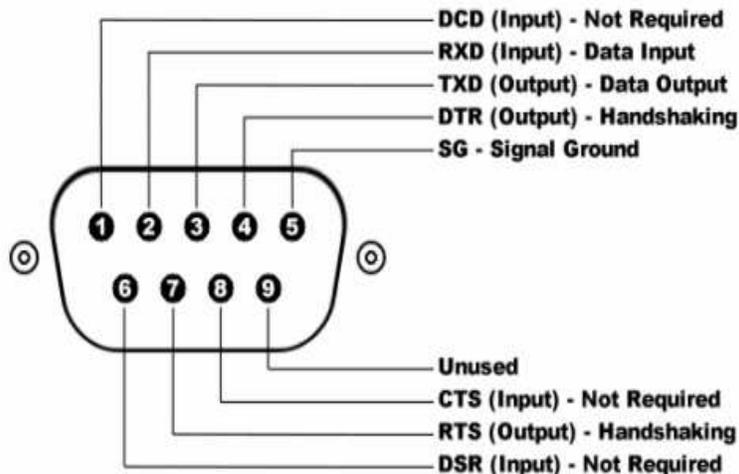
The Power LED has two operational states. Steady on with an occasional blink is a 'heartbeat' indicator of normal operation. The second state occurs during the boot sequence, where it will blink once every second until the boot sequence is complete and two beeps are heard.

Back Panel

Ports & Connectors

Serial Ports

The serial ports are configured as a DTE port using a male, DB9 connector. This configuration is similar to that used on the COM ports of an IBM-compatible PC. The following figure shows the pin configurations of these ports:



DL150 DB9 Pin Out

The two most important connections are the Receive Data line on pin 2 and the Signal Ground on pin 5. When receiving serial data, these are the only two connections that the DL150 needs. However, if either pass-through access to any connected serial devices or serial command line access is required, then the transmitted data signal line on pin 3 must be connected as well. Additionally, some equipment may require an RS-232 high signal on one or more of its signal lines in order to transmit or accept data. Consult the manual for any connected equipment as needed.

The DB9 female cable end which mates with the serial port connectors of the DL150 will often have a pair of screw-down cable locks. These cable locks should be used to assure a solid connection of the cable with the DL150 serial port connectors.

Default settings for the serial ports are 19200-baud, 8-bit word length, no parity, and one stop bit (19200, 8N1). Use either the internal setup menu or the external DIP switches to adjust these settings.

Internal Modem

If the optional dialup modem is installed, an RJ-11 (typical U.S. phone) connector is used. A POTS (analog) dialup phone line is inserted into this connector.

The modem installed within this unit is FCC certified. For further information, consult the [Internal Modem Guidelines](#) appendix or the serial number label on the bottom of the DL150.

Ethernet

The optional Ethernet 10/100Mb interface is standard RJ-45. This connector will connect the DL150 to an Ethernet hub or switch. Refer to the [Telnet/TCP Connections](#) section in the Features chapter for further information regarding a number of different types of Telnet connection options.

Internal Contacts

The optional 8 or 16 pairs of internal contacts share a common ground (the contact on the right when viewed from the back of the unit). Contacts can be configured in sets of 4: 4 contact inputs; 4 voltage inputs; or 4 relay outputs.

Temperature Sensor

The optional temperature sensor is a tab that protrudes slight from the left side of the back panel. It has an effective range of 0 to 60 degrees C, or 32 to 140 degrees F at +/- 1 degree C (1.8 degree F).

EventSensor Bus

The optional EventSensor Bus is an RJ45 connector located just to the left of the power jack, and labelled ES Bus. Do not connect your network Ethernet cable to this connector. Your DL150 will not be visible on the network, and worse, it could cause damage to the internal ES Bus circuitry.

DIP switches

The back of the DL150 is equipped with two banks of eight DIP switches each:



DIP switch Orientation

Please refer to the following for the functionality of each switch:

- Switches A1 through A3 and B1 through B3 configure baud rate for I/O 1 and I/O 2, respectively (see table below)
- Switches A4 through A6 and B4 through B6 configure word length, parity, and stop bits for I/O 1 and I/O 2, respectively (see table below)
- Switch A7 controls routing onto the network via the [IP Routing](#) menu.
- Switch A8 is reserved for future use
- Switches B7 and B8 determine the operating mode of I/O 2 (see table below for details)

The following table outlines the functionality of DIP switches B1 through B6 in switching the baud rate and port settings of I/O 2.

| Baud Rate | SW1 | SW2 | SW3 |
|------------------|------------|------------|------------|
| 9600 | OFF | OFF | OFF |
| 300 | OFF | OFF | ON |
| 600 | OFF | ON | OFF |
| 1200 | OFF | ON | ON |
| 2400 | ON | OFF | OFF |
| 4800 | ON | OFF | ON |
| 9600 | ON | ON | OFF |
| 19200 | ON | ON | ON |

| Word, Parity, Stop | SW4 | SW5 | SW6 |
|---------------------------|------------|------------|------------|
| 7N1 | OFF | OFF | OFF |
| 7E1 | OFF | OFF | ON |
| 7O1 | OFF | ON | OFF |
| 7N1 | OFF | ON | ON |
| 8N1 | ON | OFF | OFF |

| I/O 2 Mode | B7 | B8 |
|-------------------|-----------|-----------|
| Command Mode | OFF | OFF |
| Inline Mode | OFF | ON |
| Data Mode | ON | ON |

Getting Connected

Power Up Sequence

On startup, the DL150 goes through the following boot sequence:

- 1) The power LED flashes once each second for 15 seconds
- 2) Internal buzzer beeps twice (Console Port displays the Unit ID)
- 3) Active Modem and Ethernet (if installed) LEDs light for 5 seconds
- 4) Power LED will blink once every 5-6 seconds as a "heartbeat" while the DL150 is powered on.

The Status Screen

The DL150 status screen is this unit's one-stop informational source. Most of the information that a user would need to know about the unit is available through this display. This section outlines this data and highlights why it is useful.

```
Data-Link DL150 1.13 STD      Unit Serial # : 546209999
Unit ID : DL150-546209999
Date   : WED 06/06/07      % Full alarm : OFF
Time   : 18:28:19         No Data Alarm 1: OFF
Memory : 1024K            No Data Alarm 2: OFF
% Full : 01%              Release mode  : LINE
Modem  : Yes              Duplex       : FULL
Network : Yes             Password     : OFF
IP Add  : 192.168.100.43   Compress    : OFF
MAC Add : 00:10:A3:01:2E:82
```

```
-----
          Port 1   Port 2   Port 3   Port 4
Baud Rate   9600    19200   19200   19200
Parity, etc. 8N1     8N1     8N1     8N1
File Records 00000000 00000000 00000000 00000000
File Bytes   00000000 00000000 00000000 00000000
File % Full  00%      00%     00%     00%
ASCII/Binary ASCII    ASCII    ASCII    ASCII
Handshake    NONE     NONE     NONE     NONE
File Wrap    OFF      OFF      OFF      OFF
Alarm Filter  OFF      OFF      OFF      OFF
COMPLETE
>
```

The Status screen in the DL150 is dynamically created according to the configuration of each particular unit. Because of this, the above example may not be identical to another.

Data-Link DL150 indicates that this product is the Data-Link DL150, followed by **1.13 STD**, the currently loaded firmware version.

Unit ID is the identifier assigned to this DL150 by the end user.

Date and **Time** are the current date and time.

Modem indicates whether the optional internal modem is installed.

Memory indicates the amount of flash memory configured for storage of data.

% Full indicates the percent of the memory installed that is currently occupied by serial port data and alarm records.

Modem and **Network** each indicate whether or not that component is installed in the DL150, as indicated by YES or NONE.

If a network interface is installed, the **IP Add** and **MAC Add** display the appropriate values. The user configures the IP Address. The MAC address cannot be changed and is displayed for informational purposes.

Unit Serial # is the factory-assigned, unique serial number for this DL150.

% Full Alarm / No Data Alarm *n* indicates the current ON/OFF status of the % Full alarm, and No Data Alarms 1 and 2, respectively.

Release Mode indicates the current command processor data release method. This can be Line, CBB, or Xmodem.

Duplex controls the echo settings for the command processor. Full duplex causes the DL150 to echo all characters sent to the remote device. Half duplex turns off character echo.

Password indicates whether password protection is enabled for the current method being used to access the command processor. For example, if passwords are disabled for Local (serial) and Modem connections but enabled for Telnet/TCP, this item would indicate ON if connected to the DL100 via Telnet. It would register OFF if connected via Local (serial) or Modem.

Compress displays the status of the space compression used in Line mode polling. This setting has no bearing on Xmodem or CBB data release.

The **Baud Rate** and **Parity** settings table contains the baud, word length, parity, and stop bit settings for each installed serial port.

File Records shows the number of carriage return-delimited records stored within the file for each port.

File Bytes represents the amount of storage allocated for the above records.

File % Full is a rough percentage indicator of how much data is stored in a particular file.

ASCII/Binary displays the current setting of whether ASCII or binary data is being stored in a particular port's file.

Handshake indicates the current method of handshaking for each port.

File Wrap indicates whether file wrapping is enabled on a particular port. When enabled, a unit that is 100% full will overwrite the oldest buffered records with new ones.

Alarm Filter indicates whether an alarm monitor is active on a port.

Setup Menu

Overview

The Setup menu contains all of the configuration options available on the DL150. It is organized in a logical tree structure with all settings classified under the following groups:

» **Note:** Some menus may not be available, depending on your hardware configuration.

```
Data-Link DL150 - Main Setup Menu
A) Network Settings
B) Serial Settings
C) Modem Settings
D) User Profile Settings
E) Alarm/Filter Definitions
F) Action Definitions
G) General Settings
H) Alarm Log Settings
I) Audit Log Settings
```

Each section in this chapter will go over one of the above setup branches, outlining the options within.

Press <Esc> to go back one level in the menu tree, or <Ctrl + C> to exit any setup menu and return to the command prompt.

Since this product allows for multiple simultaneous command processors, two administrators could conceivably change the same option at the same time, but due to the multitasking nature of the DL150, the changes are processed in the order received.

The DL150 processes setup changes in real time. In other words, the unit begins to implement changes to its configuration as soon as they are entered. There is no need to exit the setup menu or reboot the unit to apply changes. The exception to this rule is IP-specific network settings. Changes to these settings are implemented only after all open Telnet command processors are closed.

Option Types

String entry

There are several different types of inputs employed within the setup menu. The most common is the text string type entry:

```
A) Unit ID [Data-Link]
```

When selected, this setting will provide a prompt requesting a new value. You may press <Enter> or <Esc> to abort the option entry or press <Space> and <Enter> to delete the current value and leave it blank. Some numerical or required settings will not allow an you to leave an option blank, so pay attention to the unit's response when attempting to delete a setting's value.

Toggle

The second most common option type is the toggle type option:

```
D) Confirmation Prompt [OFF]
```

When selected, this option will not prompt for a new value. It will simply cycle to the next available option in its list. This switch type is typically used for options with two or more choices. Most often it is in an ON/OFF form, but could be a series of options such as "NONE", "1", and "2".

Alarm actions

Alarm actions have their own unique method of entry. Refer to the Alarm Actions section later in this chapter for a detailed description of how alarm actions are configured.

Option list

The option list type is similar to the toggle type in that it has a list of options to choose from:

```
Data-Link DL150 - Serial Port 1 Baud Rate
A) 300
B) 600
C) 1200
D) 2400
E) 4800
F) 9600
G) 19200
```

After selecting an option, you are immediately returned to the previous menu. The new value will be displayed in the square brackets to the right of the setting name.

Main Setup Menu

```
Data-Link DL150 - Main Setup Menu
A) Network Settings
B) Serial Settings
C) Modem Settings
D) User Profile Settings
E) Alarm/Filter Definitions
F) Action Definitions
G) General Settings
H) Alarm Log Settings
I) Audit Log Settings
```

[Network Settings](#) contains settings for configuration of network settings, SNMP, FTP Push, Email, and more.

[Serial Settings](#) contains settings for configuration of each serial port.

[Modem Settings](#) contains settings for configuration of modem init settings and modem-specific security options.

[User Profile Settings](#) contains settings for configuration of user profiles and global security settings.

[Alarm/Filter Definitions](#) contains settings for configuration of data alarms and/or filters, sensor events, no-data alarms, scheduled events, IPRC alarms, serial handshaking alarms, and OmniAlarm configurations.

[Action Definitions](#) contains settings for configuration of modem and pager numbers, action schedule and reminder intervals.

[General Settings](#) contains settings for configuration of the Unit ID, date/time, and other general settings.

[Alarm Log Settings](#) contains settings for configuration and displaying of the Alarm Log.

[Audit Log Settings](#) contains settings for configuration and displaying of the Audit Log.

Network Settings

```

Data-Link DL150 - Network Settings
A) IP Address                [192.168.100.43]
B) Subnet Mask               [255.255.255.0]
C) Router Address            [192.168.100.2]
D) Telnet Duplex             [FULL]
E) Inactivity Timeout        [0]
F) IP Record Collection Settings [OFF]
G) SNMP Settings
H) FTP Settings
I) PPP Settings
J) E-mail Settings
K) Real-Time Socket Settings
L) SNMP Trap Capture Settings
M) IP Address Restrictions
  Note: Changes to IP Address, Subnet Mask, or Router
        Address will not take effect until any open
        Telnet command processor sessions are ended.

```

IP Address is the network address assigned to this Ethernet card.

Subnet Mask is the subnet mask for this IP address.

Router Address is the IP address of the default router or gateway.

Telnet Duplex controls the echo settings for Telnet. Full duplex causes the unit to echo all characters sent to the remote device. Half duplex turns off character echo.

Inactivity Timeout is the time (1 - 255 minutes) before a network connection with no activity will be terminated. A setting of 0 means an inactive connection will not be terminated.

[IP Record Collection Settings](#) displays the IP Record Collection Settings menu where an IPRC protocol can be selected and configured to collect data from various types of IP-enabled switches.

[SNMP Settings](#) displays the SNMP Settings menu where you can configure the SNMP community name, and the IP address used for PPP/Trap spoofing.

[FTP Settings](#) displays the FTP Settings menu, where you can configure automatic FTP pushes of buffered data.

[PPP Settings](#) displays the PPP configuration menu, where you can configure settings for PPP Dialout, PPP Hosting, and IP Routing.

[Email Settings](#) displays the Email settings menu, where you can configure the SMTP server address, email domain name, and authentication parameters.

[Real-Time Socket Settings](#) displays the Real-Time Socket settings menus where you can configure real-time socket settings for each file of buffered data.

[SNMP Trap Capture Settings](#) displays the SNMP Trap Capture Settings menu where you can toggle this feature ON/OFF, and select which file to store the traps in.

[IP Address Restrictions](#) displays the IP Address Restrictions menu, where you can limit Ethernet and PPP communications to or from specific IP addresses.

IP Record Collection Settings

```
Data-Link DL150 - IP Record Collection (IPRC) Setup
A) IP Record Collection           [OFF]
B) Store Collected Data In      [FILE1]
C) Data Alarm/Filter Enable     [OFF]
```

IP Record Collection selects and displays a configuration menu for each of the IPRC protocols that the DL150 supports.

Store Collected Data In sets the data file in which to store records received via IPRC.

Data Alarm/Filter Enable is an ON/OFF toggle to enable alarming or filtering of incoming data.

➤ **Note:** Refer to the [IPRC](#) chapter for a detailed explanation of IPRC.

SNMP Settings

```
Data-Link DL150 - SNMP Settings
A) SNMP Manager 1                [0.0.0.0]
B) SNMP Manager 2                [0.0.0.0]
C) SNMP Community                [public]
D) PPP/Trap IP Address Spoofing  [0.0.0.0]
```

SNMP Manager *n* is the IP address of the PC running SNMP management and/or SNMP trap receiving software.

SNMP Community sets the SNMP trap community name to use.

PPP/Trap IP Address Spoofing allows you to configure the IP address to be displayed in an SNMP trap sent over a PPP connection.

➤ **Note:** SNMP traps are *not* a guaranteed means of delivering notifications. Traps are a one-way network datagram and the device receiving traps does not acknowledge them. Therefore, if the trap does not reach its intended destination for whatever reason, the sending device has no way of recognizing this and resending the trap.

FTP Settings

```
Data-Link DL150 - FTP Settings
A) FTP AutoDelete for GETs       [OFF]
B) FTP Push Enable               [OFF]
C) FTP Server Address            [0.0.0.0]
D) Username                      [Default FTP Username]
E) Password                      [*****]
F) Account                       []
G) Directory                     []
H) Minutes Between Push Attempts [1440]
I) Select Files to Push
J) Remote File Names
K) Allow FTP User Bump by New User [OFF]
L) Encrypted FTP Setup           [OFF]
```

FTP AutoDelete for GETs is an ON/OFF toggle to enable deletion of records from the DL150 once they have been polled via FTP “get”.

FTP Push Enable is an ON/OFF toggle to enable automatic FTP pushes of buffered data.

FTP Server Address is the IP address of the FTP server to push to.

Username/Password defines the login credentials that are able to access the remote FTP server.

Account is a third login option used only on some FTP servers. Consult your network administrator to see if this is necessary.

Directory is the path used to transfer the file(s). The file(s) is transferred to the root login directory if this option is left blank.

Minutes Between Push Attempts can be set from 1 to 9999 minutes.

Select Files to Push displays the FTP File Selection menu where you can select which files are pushed by toggling ON or OFF.

```
Data-Link DL150 - FTP File Selection
A) Data File 1           [ON]
B) Data File 2           [ON]
C) Data File 3           [ON]
D) Data File 4           [ON]
E) Alarm File            [ON]
F) Audit Log             [OFF]
```

Remote File Names displays the FTP File Names menu where you can give each file a name other than the default name, and/or prepend a date, time, and unique sequence to the file name.

```
Data-Link DL150 - FTP File Names
A) Include Date in Filename [OFF]
B) Include Time in Filename [OFF]
C) Include Sequence #s in Filename [OFF]
D) Data File 1             [FILE1]
E) Data File 2             [FILE2]
F) Data File 3             [FILE3]
G) Data File 4             [FILE4]
H) Alarm File              [ALARMS]
```

Include Date/Time in Filename is an ON/OFF toggle to enable the addition of the file transfer date and/or time to the beginning of the name of each transferred file of data. This ensures that no two transfers will have the same file name.

Include Sequence #s in Filename is an ON/OFF toggle to enable the addition of a unique sequence number to the beginning of the name of each transferred file of data. This ensures that no two transfers will have the same file name.

Data File *n* / Alarm File are text-entry fields where the name each data file will have on the remote server (not including any date, time, or sequence numbers) can be configured.

Allow FTP User Bump by New User is an ON/OFF toggle that enables a new FTP connection to disconnect a current FTP connection and assume control of the DL150 command processor.

Encrypted FTP Setup displays a menu with an ON/OFF toggle option to enable encrypted FTP transfers of data, and a field to enter the Passphrase used with the Decryption Client. (Decryption Client program and instructions are available on the Documentation and Software CD, or from Asentria Technical Support.)

```
Data-Link DL150 - Encryption Settings
A) Encrypted Transfers Enabled [OFF]
B) Passphrase                  []
```

PPP Settings

```
Data-Link DL150 - PPP Settings
A) PPP Dialout Settings
B) PPP Hosting Settings
C) IP Routing
D) Route Test Settings
```

[PPP Dialout Settings](#) displays settings pertaining to making outbound PPP network connections.

[PPP Hosting Settings](#) displays settings for hosting a PPP connection.

[IP Routing](#) configures routing of IP packets between PPP connections and the LAN a DL150 is connected to.

[Route Test Settings](#) brings up the network monitoring/PPP backup connection settings. This menu allows you to configure up to three IP addresses to ping on a regular basis. If any of the IPs are down, the unit will fall back to a PPP dialout in order to maintain reliable network connectivity for sending SNMP traps.

PPP Dialout Settings

```
Data-Link DL150 - PPP Dialout Settings
A) PPP Dialout Enabled [OFF]
B) Telephone Number []
C) User Name []
D) Password [*****]
E) Idle Connection Disconnect (sec) [60]
F) Maximum Retries [3]
G) Carrier Detect Timeout (sec) [60]
H) Login Sequence Timeout (sec) [30]
I) Dialout Modem Init String []
J) IP Address to Suggest [0.0.0.0]
```

PPP Dialout Enabled is an ON/OFF toggle to enable PPP dialout.

Telephone Number is the number the unit is to dial into.

User Name/Password defines the login credentials that are used to log into the PPP host.

Idle Connection Disconnect (sec) sets the number of seconds to wait before disconnecting an idle connection.

Maximum Retries defines the maximum number of times to retry a failed connection.

Carrier Detect/Login Sequence Timeout (sec) configure standard login timeouts.

Dialout Modem Init String sets the modem initialization string used before dialing the PPP host, up to 48 characters in length.

IP Address to Suggest sets an IP address that the unit will attempt to acquire upon connecting to the PPP host.

PPP Hosting Settings

```
Data-Link DL150 - PPP Hosting Settings
A) PPP Hosting Enabled [OFF]
B) Idle Connection Disconnect (sec) [60]
C) Local (Device) IP Address [192.168.105.1]
D) Remote (Caller) IP Address [192.168.105.2]
```

PPP Hosting Enabled is an ON/OFF toggle to enable inbound PPP connection hosting.

Idle Connection Disconnect (sec) sets the number of seconds to wait before disconnecting an idle connection. A setting of 0 means the connection will never automatically expire.

Local (Device) IP Address defines the IP address of the DL150 for the PPP session.

Remote (Caller) IP Address defines the IP address of the calling device for the PPP session.

IP Routing

```
Data-Link DL150 - IP Routing
A) Route PPP to Ethernet          [OFF]
B) PPP to Ethernet NAT Enable    [ON]
C) Route Ethernet to PPP        [OFF]
D) Ethernet to PPP NAT Enable    [ON]
E) Automatically Dial PPP       [OFF]
F) Proxy ARP Enable              [OFF]
```

Each of the above options toggles settings for routing TCP/IP packets of specific types and origins to and from a device connected via PPP. Refer to the [IP Routing](#) section in the Features chapter for a detailed explanation of IP Routing.

» **Note:** Options A, C, F above will not toggle from OFF to ON unless Dip switch A7 is in the UP/ON position. A7 is used to control routing on the network.

Route Test Settings

```
Data-Link DL150 - Route Test Settings
A) Route Test Enable             [OFF]
B) Minutes Between Tests        [10]
C) IP Address 1                  [0.0.0.0]
D) IP Address 2                  [0.0.0.0]
E) IP Address 3                  [0.0.0.0]
```

Route Test Enable is an ON/OFF toggle to enable route testing.

Minutes Between Tests defines the number of minutes to wait between each round of testing.

IP Address *n* sets the IP addresses to ping for the test.

Email Settings

```
Data-Link DL150 - Email Settings
A) SMTP Server IP Address        [0.0.0.0]
B) Email Domain Name            [ASENTRIA.COM]
C) E-mail Address 1              []
D) E-mail Address 2              []
E) E-mail Address 3              []
F) E-mail Address 4              []
G) Authentication (LOGIN)       [OFF]
```

SMTP Server IP Address sets the IP address of the outbound mail server.

Email Domain Name defines the `@domain_name.net` to use when the DL150 sends Emails.

Email Address *n* sets the email address of the person(s) receiving email alerts.

Authentication (LOGIN) displays the settings pertaining to SMTP authentication. Some SMTP servers require an authentication to relay Emails. This section is used to configure the credentials required by your server, if necessary.

```
Data-Link DL150 - Email Authentication Settings
A) Authentication Enabled          [OFF]
B) Username                       []
C) Password                       [*****]
```

Authentication Enabled is an ON/OFF toggle to enable Email authentication.

Username/Password defines the login credentials.

A typical Email notification from an EventSensor might look like the following:

```
From: Asentria DL150 [mailto:Asentria_DL150@Asentria.com]
Sent: Wednesday, November 1, 2006 3:59 PM
To: support@Asentria.com
Subject: Event
```

```
11/01 03:59 :: Asentria DL150 :: Fridge_monitor (06010201) :: Temp :: High :: 44
Degrees
```

Real-Time Socket Settings

```
Data-Link DL150 - Real-Time Socket Setup
A) FILE1
B) FILE2
C) FILE3
D) FILE4
E) ALARMS

Enter your Selection: a

Data-Link DL150 - FILE1 Real-Time Data Socket Setup
A) Real-Time Socket Mode          [LISTEN]
B) Show Answer String on Connection [ON]
C) Require Xon to Start Data Flow  [OFF]
D) Idle Connection Close Timer     [0]
E) Close Socket When File Empty    [OFF]
F) Real-Time Socket Push IP Address [0.0.0.0]
G) Real-Time Socket Push Port Number [3000]
H) Real-Time Socket Push Retry Timer [5]
```

Real-Time Socket Mode can be toggled to Listen, Push, and Off. When set to Listen, this functions like traditional real-time sockets. When set to Push the unit tries to make a TCP connection to the IP address on the port number, as defined in those options below. As long as a connection exists the DL150 sends all data in the specified file on the connection as data become available.

Show Answer String on Connection enables or disables the prompt indicating successful connection to the Real-Time Socket (RTS) port.

Require Xon to Start Data Flow is an ON/OFF toggle to enable the Xon/Xoff data flow control requirement.

Idle Connection Close Timer sets the number of seconds to wait before disconnecting an idle connection.

Close Socket When File Empty is an ON/OFF toggle to set whether or not the DL150 will automatically terminate the RTS connection when the file for this port has been emptied.

Real-Time Socket Push IP Address sets the IP address of the server where the unit will push the data if the RTS Mode is set to Push.

Real-Time Socket Push Port Number sets the tcp-port number the RTS push should use.

Real-Time Socket Push Retry Timer sets the number of seconds to wait before retrying an RTS push that has previously failed.

SNMP Trap Capture Settings

```
Data-Link DL150 - SNMP Trap Capture Settings
A) SNMP Trap/Inform Capture Enable      [ON]
B) Store Collected Traps In            [FILE1]
```

SNMP Trap/Inform Capture Enable is an ON/OFF toggle to enable the capturing of SNMP traps and informs.

Store Collected Traps In sets the data file in which the collected traps are stored.

IP Address Restrictions

```
Data-Link DL150 - IP Address Restrictions
1. 255.255.255.255
2. 192.168.100.0
A) Add Item to Table
B) Delete an Item from Table
C) Delete All Items from Table
```

This menu is used to manipulate the IP restriction table. Refer to the [IP Address Restrictions](#) section in the Features chapter for a detailed explanation of IP Address Restrictions.

Serial Settings

```
Data-Link DL150 - Serial Settings
A) Serial Port 1 Settings
B) Serial Port 2 Settings
C) Serial Port 3 Settings
D) Serial Port 4 Settings
```

» Note: All serial ports can be set to function in either Data or TBOS mode, except for Port 2 which can also be set to function in one of five other modes: Command, Inline, External Modem, PPP Host, or PPP Client. Therefore the Port 2 serial settings menu has all the options of Port 1, plus a few others that Port 1 does not have. Those options that are exclusive to Port 2 will be indicated as such below – all others are applicable to all ports.

Port 2 modes Command, Inline, and Data can also be configured via DIP switches B7 and B8. Refer to the section about [Dip switches](#) in the “What is a DL150” chapter. The last change to the port mode, whether by DIP switch or Serial Settings menu change, is the one in effect.

Serial Port *n* Settings

```
Data-Link DL150 - Serial 2
A) Target Name                [I/O 2]
B) Baud Rate                  [19200]
C) Data Format                 [8N1]
D) Handshaking                [NONE]
E) Wrap Around                [OFF]
F) Record Stamping
G) Character Masking          [ON]
H) Data Alarm Enable          [OFF]
I) Store Data To              [2]
J) Store Alarms During Pass-Through [OFF]
K) Duplex                     [FULL]
L) Inactivity Timeout         [0]
M) Port Mode                  [COMMAND]
N) Inline Mode Handshaking    [DTR]
O) Strip Sent Pass-Through LFs [OFF]
P) Strip Received Pass-Through LFs [OFF]
Q) Disable Serial Setup via DIP Switch [OFF]
R) Multiline Record Settings  [OFF]
S) Data Type                  [ASCII]
```

Target Name is the name given to the device connected to the port. This target name is used in event notifications.

Baud Rate displays a selection menu for baud rates available for the port. These values range from 300 baud to 19200 baud.

Data Format toggles settings for word length, parity, and stop bit settings. The available options are: 8N1, 7E1, 7O1, 7N1, and 8O2.

Handshaking is a toggle item with the following options: None, Xon/Xoff, Both and DTR.

Wrap Around is an ON/OFF toggle to set whether the incoming data will wrap (overwrite) the oldest data in the file should it become full.

Record Stamping displays a menu that allows you to select whether a sequential record number, the date/time and/or the Unit ID are pre-pended to each incoming data string.

Character Masking is an ON/OFF toggle to enable the character mask. The character mask allows you to block most non-printing ASCII characters. Specifically, the following ASCII character values are blocked: 0, 1, 4-9, 11, 12, 14-31, and 128-255.

Data Alarm Enable is an ON/OFF toggle to enable data alarm monitoring for this port.

Store Data To displays a menu that allows you to toggle ON/OFF for each of the available files whether the data received on this port should be stored to them or not.

Store Alarms During Pass-Through is an ON/OFF toggle to determine whether data strings that meet data alarm criteria are stored in the Alarms File when a pass-through session is active on this port.

Duplex (Port 2 only) toggles between Full and Half. Full duplex causes the unit to echo all characters sent to the connected terminal when in Command mode. Half duplex turns off character echo.

Inactivity Timeout (Port 2 only) is the time (1 - 255 minutes) before a serial connection with no activity will be terminated. A setting of 0 means an inactive connection will not be terminated.

Port Mode defines the port function as follows:

Command (Port 2 only) permits serial access to the DL150 command processor.

Data configures the port to receive incoming data, and also allow for two-way communication (Bypass or serial pass-through) with the connected device.

Inline (Port 2 Only) creates a direct connection between Port 1 and Port 2 so that data coming in Port 1 is sent directly out Port 2, presumably to a PC or server running a call accounting application to collect the data. Should the cable from Port 2 to the PC become disconnected, or the PC be shut down, or the application terminated, the DL150 will automatically begin to save the incoming data to File1. When the connection to the PC is restored, or the application restarted, the DL150 will first dump all of the saved data followed by new incoming data.

TBOS configures the port so that the DL150 can continuously query and monitor a TBOS-enabled device and then make the data available via SNMP.

External Modem (Port 2 Only) configures Port 2 to function as a port to which an external modem can be connected. It's not advised to use an external modem if this DL150 has an internal modem installed. Use the internal modem whenever possible.

PPP Host (Port 2 Only) configures the unit to listen on Port 2 for a PPP connection (and on the modem, if regular PPP hosting is enabled). While the PPP connection is running or negotiating on Port 2 then the unit never attempts PPP dial out. If no client is connected to the unit via PPP on port 2 then the unit can do modem PPP dial out if necessary. PPP on port 2 doesn't enforce an idle timeout disconnect. Port 2 PPP running in host mode uses the existing Local IP and Caller IP settings currently used for PPP hosting via modem.

PPP Client (Port 2 Only) configures the unit to always attempt to maintain a PPP connection on Port 2. The unit never tries PPP dial out. When the unit needs to use PPP, it uses Port 2, even if circumstances prevent successful PPP on Port 2.

Inline Mode Handshaking (Port 2 only) toggles the handshaking method used during inline mode operation. Available options are XON/XOFF, DTR, Both, and None.

Strip Sent Pass-Through LFs is an ON/OFF toggle to enable the stripping of linefeeds on pass-through data *sent out* of the DL150.

Strip Received Pass-Through LFs is an ON/OFF toggle to enable the stripping of linefeeds on pass-through data *received* by the DL150.

Disable Serial Setup via DIP Switch is an ON/OFF toggle to disable DIP switch bank A for Port 1, or DIP switch bank B, for Port 2. See [DIP Switch](#) section in the "What Is A DL150" chapter for more information.

[Multiline Record Settings](#) displays the Multiline Record Settings menu.

Data Type toggles between ASCII and Binary to indicate the type of data being collected on this port.

Multiline Record Settings

```
Data-Link DL150 - Serial Port 1 Multiline Record Settings
A) Multiline Record Enable           [OFF]
B) Blank Line Count                  [0]
C) Complex Multiline Detection       [OFF]
```

The DL150 has the ability to monitor incoming serial data for multi-line records (individual records that are broken up with carriage returns). If the records are separated by a specific number of blank lines, this basic configuration menu will suffice. If a more complex delineation scheme is used, complex multiline detection will be of use.

Multiline Record Enable is an ON/OFF toggle to enable multiline record detection.

Blank Line Count defines the number of blank lines that must come between records.

Complex Multiline Detection displays settings for detecting more complex multiline records.

```
Data-Link DL150 - Serial Port 1 Complex Multiline Record Settings
A) Complex Multiline Record Enable           [OFF]
B) Start Field 1 Character Position          [0]
C) Start Field 1 Text                        []
D) Start Field 2 Character Position          [0]
E) Start Field 2 Text                        []
F) Collect Lines Before Start Record        [0]
G) End Detection                             [FORMULA]
H) Line Count                               [0]
I) End Field 1 Character Position            [0]
J) End Field 1 Text                          []
K) End Field 2 Character Position            [0]
L) End Field 2 Text                          []
```

Complex Multiline Record Enable is an ON/OFF toggle to enable advanced multiline detection.

Start Field *n* Character Position defines the character position used to define the beginning of the multiline field. This option is used with "Count" method record end detection.

Start Field *n* Text defines the text used to determine the beginning of the multiline field. This option is used with "Formula" method record end detection.

Collect Lines Before Start Record sets the number of blank lines that are between each record.

End Detection toggles between Formula, Count, and Blanks to set the method of detecting the end of each record.

Line Count is the number of lines to meter each record at. This option is used with "Blanks" method record end detection.

End Field *n* Text/Character Position is the counterpart to start the text or character position option. This option defines the end delimiter for multiline records.

Modem Settings

```
Data-Link DL150 - Modem Settings
A) Baud Rate                               [19200]
B) Data Format                              [8N1]
C) Duplex                                   [FULL]
D) Init String                              [ATM1]
E) TAP Init String                          [ATM0]
F) Inactivity Timeout                       [0]
G) Upon Modem Connect Go Directly To       [LOGIN]
H) Ext. Modem Setup String                  [ATQ1E0V0S0=1&C1&D2&K3]
I) Caller ID Security                       [OFF]
```

Baud Rate toggles settings for baud rates available for the modem. These values range from 1200 baud to 19200 baud.

Data Format toggles settings for word length, parity, and stop bit settings. The available options are: 8N1, 7E1, 7O1, and 7N1.

Duplex controls the echo settings for the modem command processor. Full duplex causes the DL150 to echo all characters sent to the connected terminal. Half duplex turns off character echo.

Init String is the user-defined modem initialization string. This string is sent to the modem before important factory modem initialization settings, so certain settings in this init string may be overridden.

TAP Init String is the user-defined modem initialization string used only when the modem is making an alphanumeric modem callout.

» **Note:** Make sure to enter 'AT' at the beginning of the modem initialization string with both the general Init String and the TAP Init String.

Inactivity Timeout sets the time (1 – 255 seconds) to wait before disconnecting an idle modem connection. A setting of 0 means the connection will never automatically expire.

Upon Modem Connect Go Directly To toggles through a list of actions to control what a user sees directly after connecting via modem. Choosing LOGIN will require the user to login with username and password, and will then take them to a command prompt. Choosing a serial port will redirect a modem user directly to that serial port upon connecting. In this pass-through mode, the command processor of the DL150 is transparent.

Ext. Modem Setup String is a text string entry field to define the modem setup string used with an external modem.

[Caller ID Security](#) displays a menu that allows you to enable and configure restrictions for up to 20 inbound callers to a specific list of phone numbers.

Caller ID Security

```
Data-Link DL150 Caller ID Security
A) Enable [OFF]
B) Caller ID 1 []
C) Caller ID 2 []
...
T) Caller ID 19 []
U) Caller ID 20 []
V) Add Number From Log List
```

» **Note:** Caller ID must be available on the phone line connected to the DL150 for this feature to work.

Enable is an ON/OFF toggle to enable caller ID restrictions. When enabled, the DL150 will only answer the modem if Caller ID indicates one of the allowed phone numbers is connecting.

Caller ID *n* allows you to add or change a specific phone number allowance. You are allowed to use simple wildcards in phone numbers: An asterisk (*) wildcard allows for any number of digits to appear to the right of that position. A question mark (?) matches any single digit. If no numbers are defined in this menu, all incoming calls are accepted.

Add Number From Log List displays a list of phone numbers that have recently dialed into the DL150 for addition to this list.

User Profile Settings

```
Data-Link DL150 - User Profile Settings Menu
A) User 1: User1/*****/COMMAND/FILE1
B) User 2: User2/*****/COMMAND/FILE1
C) User 3: User3/*****/PASSTHROUGH/FILE1
D) User 4: User4/*****/PASSTHROUGH/FILE2
E) User 5: User5/*****/PASSTHROUGH/FILE3
F) User 6: User6/*****/PASSTHROUGH/FILE4
G) User 7: User7/*****/PASSTHROUGH/FILE5
H) User 8: User8/*****/PASSTHROUGH/FILE6
I) User 9:
J) User 10:
K) User 11:
L) User 12:
M) Global Password/Security Settings
```

[User n](#) displays the configuration menu for each user profile.

[Global Password/Security Settings](#) displays a menu of global security options.

>> Note: Passwords are case sensitive and are masked in all menus for security reasons. If a user without permissions accesses the User Profile Settings menus, they will see all fields in this menu either masked or with no data in them. If they select an option, a message will be displayed that says: "You do not have permission to change this setting."

User Setup Menu

```
Data-Link DL150 - User Setup Menu
A) Enable This User Access          [ON]
B) User Name                        [User1]
C) Password                         [*****]
D) User Profile Expiration Date/Time []
E) Allow User Connection via        [LMTFR]
F) Upon Login then Go To           [COMMAND]
G) Set Access/Pass-through Pointer To [FILE1]
H) Pass-through Access Allowed To   [1234]
I) After PT, ESC Takes User To     [COMMAND]
J) PPP Connection                   [LOCAL]
K) Setup/Status Rights              [ADMIN1]
L) Allow File Release For           [1234AL]
M) Allow File Deletion For          [1234AL]
N) Additional Authentication Options
```

Enable This User Access is an ON/OFF toggle to enable access for this user profile.

User Name optionally sets a username.

Password sets the password for this profile.

User Profile Expiration Date/Time sets a date and time that this profile may be automatically disabled.

Allow User Connection via displays a menu allowing you to toggle ON or OFF access via Modem, Telnet, FTP, Local (Console Port), and Real-Time Socket.

Upon Login then Go To toggles the action this user will be directed to upon logging in, with the following options: Command, Passthrough, and Menu.

Set Access/Pass-through Pointer To is in effect if the Upon Login Go To action is set to Passthrough. This option toggles the serial port the user will be routed to.

Pass-through Allowed To is in effect if the Upon Login Go To action is set to Menu. This option displays a menu showing all serial ports and allows you to toggle ON/OFF for each as needed.

After PT, ESC Takes User To sets the action this user can perform when they exit out of a pass-through connection.

PPP Connection toggles between None, Local, and Routing. 'None' disables PPP access for the user. 'Local' allows PPP access, but denies all routing to whatever LAN the DL150 is connected to. 'Routing' enables Route Ethernet to PPP and Route PPP to Ethernet for the user, but only if those settings are enabled globally.

Setup/Status Rights defines the actions available to the user if they are given access to the command prompt. See the [User Rights Table](#) for more information on each access level.

Allow File Release/Deletion For displays a menu showing all data files, Alarms Log and Audit Log, and allows you to toggle ON/OFF for each as needed for this user. These options either allow or deny the user the ability to release and/or delete data from any of these files.

Additional Authentication Options displays extra-high security options.

```
Data-Link DL150 - Additional Authentication Options
A) Secure Authentication via Telnet      [OFF]
B) For Telnet, Send Password To         []
C) Secure Authentication via Modem      [OFF]
D) For Modem, Send Password To         []
E) Password Expires After               [30]
F) Secure Callback 1                    []
G) Secure Callback 2                    []
H) Secure Callback 3                    []
```

Secure Authentication via Telnet/Modem toggles between Off (regular), Challenge, and Send Password authentication modes.

Off (regular) authentication requires only the normal username/password authentication.

Challenge requires the user send their username/password and then they are prompted with a short challenge code. That code must be plugged into a program called Response Code Generator (RCG). This software can be found on your user manual CD. Contact Asentria for more information on how to use or obtain this application. RCG requires a shared secret as well as the challenge code generated by the DL150. The user must then respond with the proper hash generated by RCG in order to gain access.

Send Password will generate a single-use password and send it to the email address(es) specified by the next option. That password will only allow a login for the user whom it was generated for.

For Telnet/Modem, Send Password To sets the pager or Email address to send the single-use password to.

Password Expires After sets the time (1 to 180 minutes) before the single-use password expires.

Secure Callback *n* sets the modem callback numbers. If configured, the DL150 will disconnect any modem connections from this user and then attempt to dial into each of these numbers. If one of the numbers answers, the other end must respond with the login credentials of the user used to initiate the callback.

Global Password/Security Settings

```
Data-Link DL150 - Global Password/Security Settings Menu
A) Show Username/Password Prompt      [OFF]
B) Local Command Requires Password    [OFF]
C) Modem Callin Requires Password     [OFF]
D) TCP/IP Port 23 Requires Password    [ON]
E) TCP/IP Port 210x Requires Password  [OFF]
F) TCP/IP Port 220x Requires Password  [OFF]
G) Username and/or Password Required  [PASSWORD ONLY]
H) Shared Secret for Challenge/Response []
```

Global Password/Security Settings set parameters for passwords and security that are required for every user who attempts to log into the DL150.

Show Username/Password Prompt is an ON/OFF toggle to set whether a prompt for logging in is displayed.

Local Command Requires Password is an ON/OFF toggle to set whether a password for local command (Port 2) users is required.

Modem Callin Requires Password is an ON/OFF toggle to set whether a password for modem users is required.

TCP/IP Port 23 Requires Password is an ON/OFF toggle to set whether a password for Telnet (port 23) users is required.

TCP/IP Port 210x Requires Password is an ON/OFF toggle to set whether a password for passthrough (port 210x) users is required.

TCP/IP Port 220x Requires Password is an ON/OFF toggle to set whether a password for real-time socket (port 220x) users is required.

» **Note:** If any of the above options is set to OFF, users connecting via that method are automatically granted all access.

Username and/or Password Required toggles between requiring: Username/Password, Password/Username or Password only.

Shared Secret for Challenge/Response sets the shared secret used to generate challenge/response codes.

Alarm / Event Definitions

» **Note:** Refer to the [Data Alarms](#) section in the Features chapter for an example-driven approach to defining alarm definitions.

```
Data-Link DL150 - Alarm and Filter Definitions Menu
A) Class Table
B) Data Alarm/Filter Settings
C) EventSensor Device Settings
D) No-Data 1 Alarm Settings           [OFF]
E) No-Data 2 Alarm Settings           [OFF]
F) Percent Full Alarm Settings        [OFF]
G) Scheduled Event 1 Settings         [OFF]
H) Scheduled Event 2 Settings         [OFF]
I) IPRC Alarm Settings                [OFF]
J) Serial Handshaking Alarm Settings
K) TBOS Settings
L) Data Filter Action                 [REJECT]
M) Omnitronix Alarm Version           [1.1]
N) Omnitronix Alarm Transport         [MODEM]
O) Require Omnitronix Alarm ACKs      [OFF]
```

[Class Table](#) displays the menu for configuring event classification settings.

[Data Alarm/Filter Settings](#) displays the menus for configuring up to 100 serial data event monitors.

[EventSensor Device Settings](#) displays the menus for configuring internal and external sensors and modules that may be installed.

[No-Data *n* Alarm Settings](#) displays the menus for configuring alarms based on period of time when no-data is received on a specific serial port.

[Percent Full Alarm Settings](#) displays the menu for configuring alarms based on how full the call record database of the DL150 is.

[Scheduled Event *n* Settings](#) displays the menus for configuring alarm notifications for specific times and days of the week.

[IPRC Alarm Settings](#) displays the menu for configuring alarm notifications in the event of lost connectivity with an IP-enabled switch from which the DL150 is collecting call records.

[Serial Handshaking Alarm Settings](#) displays the menu for enabling serial handshaking alarms for specific ports.

TBOS Settings displays the menu for configuring the eight 8-character display IDs that comprise a TBOS port.

Data Filter Action toggles between Reject and Accept to indicate whether data filters are configured to reject or accept specific incoming data string(s).

OmniAlarm Version toggles between 1.0 and 1.1 to indicate which type of OmniAlarm notification will be displayed. Refer to the [OmniAlarms](#) section in the Features chapter for a detailed explanation of OmniAlarms.

OmniAlarm Transport toggles between Modem and TCP to indicate which method of notification will be used. Refer to the [OmniAlarms](#) section in the Features chapter for a detailed explanation of OmniAlarms.

Require OmniAlarm ACKs is an ON/OFF toggle to enable or disable forcing the unit to require an acknowledgment when first connecting, and after each OmniAlarm. If disabled, the DL150 will allow non-CRC mode where OmniAlarms are delivered without waiting for any indication that the messages were properly delivered. If enabled, CRC mode is required by the DL150. Refer to the [OmniAlarms](#) section for more information about CRC and non-CRC modes.

Class Table

```
Data-Link DL150 - Class Table
A) Class 1                [Info]
B) Class 2                [Minor]
C) Class 3                [Major]
D) Class 4                [Critical]
E) Class 5                []
...
K) Class 11               []
L) Class 12               []
```

Class *n* defines the event classification assignable to events detected by the DL150.

Info, Minor, Major, and Critical are the default class names assigned to the first four classes. These can be changed and others added as desired to meet your specific needs.

The class number and name are reported in OmniAlarms, and SNMP traps. It is a mechanism for you to provide varying severities for different alarms so that you can act on them upon receipt.

Data Alarm/Filter Settings

```
Data-Link DL150 - Data Alarm/Filter Settings
A) Alarm/Filter 1        []          [OFF] [ALARM]
B) Alarm/Filter 2        []          [OFF] [ALARM]
...
O) Alarm/Filter 15       []          [OFF] [ALARM]
P) Alarm/Filter 16       []          [OFF] [ALARM]
Q) Next Alarm/Filter Page
R) Setup Alarm/Filter Fields
S) Display Alarm Status
T) Exit Upon True Data Alarm    [OFF]
```

[Alarm/Filter *n*](#) displays the menu for configuring data alarms and filters.

Next Alarm/Filter Page displays the next group of 16 alarm/filters. After moving to the next group of 16 alarm/filters, a new option called **Previous Alarm/Filter Page** will appear in this menu. Use these two options to navigate between the groups of 16.

[Setup Alarm/Filter Fields](#) displays the Data Alarm Field Definition Table for configuring the fields used by data alarms and filters.

Display Alarm Status displays real time information on data event monitors you've configured.

Exit Upon True Data Alarm is an ON/OFF toggle to set whether the DL150 will stop processing more data event evaluations on a single record after it has found one match. This should be disabled if it is possible to have more than one event in a record.

Data Alarm/Filter *n*

```
Data-Link DL150 - Settings For Data Alarm/Filter 1
A) Alarm/Filter Enable           [OFF]
B) Alarm/Filter Mode             [ALARM]
C) Alarm/Filter Name            []
D) Alarm/Filter Equation         []
E) Threshold                     [1]
F) Auto-Clear when Threshold Reached [ON]
G) Alarm Counter Clear Interval  [12 HOURS]
H) Alarm Counter Reset Time     [00:00]
I) Actions                      []
J) Class                        [Info]
K) Data Alarm Trap Number       [503]
L) Clear This Alarm Counter Now
```

Alarm/Filter Enable is an ON/OFF toggle to enable this Alarm/Filter.

Alarm/Filter Mode toggles between ALARM and FILTER. When set to ALARM, an action will occur as determined by the settings in option I) Actions. When set to FILTER, the data will either be accepted and saved into File *n*, or it will be rejected and not saved, depending on whether the Data Filter Action option is set to Accept or Reject.

Alarm/Filter Name sets the name for this alarm/filter. This name is reported with the specified actions.

Alarm/Filter Equation sets the alarm/filter equation using the fields defined in the Setup Alarm/Filter Fields menu. Refer to the [Configuring Data Alarm Equations](#) section in the Features chapter for more information.

Threshold sets the number of times the alarm equation must be matched before an alarm action is triggered. If the counter is allowed to grow beyond the threshold, the unit will not trigger an action again until after the counter is reset.

Auto-Clear when Threshold Reached is an ON/OFF toggle that enables the DL150 to clear the alarm counter each time the threshold is met.

Alarm Counter Clear Interval toggles through several interval options at which the unit should clear the match counter for an individual alarm. Available options are: 2 hours, 4 hours, 6 hours, 8 hours, 12 hours, Daily, and Never. The first clear occurs at midnight.

Alarm Counter Reset Time sets the time at which the daily clear should take place if it is enabled in the Alarm Counter Clear Interval. This value is in 24-hour format.

Actions

Actions displays a list of actions from which the action(s) to be taken for this alarm are configured.

```
Enter a list of actions, in the format:
T<trap manager numbers: 1,2>
P<page numbers: 1,2,3,4>
M<callout numbers: 1,2,3,4>
D<dispatch numbers: 1,2,3,4>
O<OmniAlarm numbers: 1,2,3,4>
E<e-mail numbers: 1,2,3,4>
S<script numbers: 1,2,3,4,5,6,7,8>
F<FTP Push>
Enter Data Alarm Actions:
```

This option allows an admin to input the actions in any order. The unit automatically sorts out the input and places it in the appropriate sequence, as long as there is no invalid data.

On top of having the same basic rules as a string entry, the following input methods must be used:

- SNMP trap actions require "T" followed by the number(s) of the trap managers to be used, as they are defined in the Network Settings menu. Valid options are "1" and "2", as there are two different SNMP managers definable within the unit.
- Pager actions require "P" followed by the pager numbers. Valid options are "1", "2", "3", and "4".
- Modem callout actions require "M" followed by the modem callout numbers. Valid options are "1", "2", "3", and "4".
- OmniAlarm numbers are essentially modem callouts to a PC modem where a text message is delivered. See the section about OmniAlarms in the Features Chapter for more information. Entry requires an "O" followed by the modem callout numbers. Valid options are "1", "2", "3", and "4".
 - Email actions require "E" followed by the number(s) of the Email addresses to be used, as they are defined in the Network Settings menu. Valid options are "1", "2", "3", and "4".
 - Script actions require "S" followed by the number(s) of the script to be run, as defined in the Actions Definitions menu. Valid options are "1", "2", "3", "4", "5", "6", "7", and "8".
 - FTP Push action requires only "F" with no associated number. This action causes the DL150 to do an immediate FTP push as defined in the Network Settings/FTP Push Setup menu.

Here is an example action definition: "P3T12M2". The DL150 automatically sorts the input and stores the following translated string "T12P3M2".

Class is a text string field that allows you to define an optional "class" for this alarm. Class could be a severity label such as "Critical", "Major", "Minor", or "Info" for example. The class name is reported in OmniAlarms, and SNMP traps. It is a mechanism for you to provide varying severities for different alarms so that you can act on them upon receipt.

Data Alarm Trap Number sets the number to be sent with any SNMP traps for this event.

Clear This Alarm Counter Now when selected will automatically clear the counter for the selected data alarm, setting it back to 0. This happens as soon as this option is selected, so make sure you really want to clear the counter before selecting it.

Data Alarm Field Definition Table

```
Data-Link DL150 - Data Event Field Definition Table
      Start   Length   Line   Type      Name
A) Definition A      0       1       0   [Alpha]
B) Definition B      0       1       0   [Alpha]
. . .
P) Definition P      0       1       0   [Alpha]
```

Enter your Selection:

```
ata-Link DL150 - Data Event Field Definition
Data Field: A
A) Start Position           [0]
B) Field Length             [1]
C) Field Name               []
D) Field Line Number        [0]
E) Field Type               [Alpha]
Enter your Selection:
```

Start Position sets the number of the characters to begin a particular alarm field starting from position 1. If set to 0, the definition is disabled.

Field Length sets the length of this particular alarm field.

Field Name sets the name given for the alarm field. This name must be unique, is limited to 12 characters, and it must not contain any spaces. It can contain alphanumeric characters and the underscore, but it must start with a letter. These field names are case sensitive. If left blank, you can refer to the field by it's field letter (A,B, etc...).

Note: The DL150 does not perform error checking to ensure that no two fields have the same name. Please make sure your fields all have unique names to avoid conflicts.

Field Line Number sets the optional line number the field should be limited to in multiline records.

Field Type toggles between Alpha and Numeric. Use Alpha for most alphanumeric data alarming, but if needing to alarm on a range of numbers, used Numeric.

EventSensor Device Settings

The DL150 supports a wide variety of internal and external sensor devices and relays, including contact closures, temperature and humidity sensors, analog voltage sensors, and relays. For the purposes of clarity, all of these will be generally referred to as "EventSensors" (ES) unless a specific type of sensor or relay is being described.

The Sensor Events Menu is used to configure and control EventSensors. If you don't have any internal sensors or relays, or remote ES devices connected, this menu will be unpopulated. Because of the numerous ES configurations possible, menus shown in this section probably will not look exactly like the ones for your DL150. (The menu below shows a DL150 with on-board temperature sensor and 16 contact closures, and an Asentria ES-5 module with temperature and humidity sensors, and 8 contact closures.)

```
ata-Link DL150 - Sensor Events Menu
  Name          ID          Alive    Number    Configuration
A) On-board Sensors  -----  -        200       1-TS 16-CC
B) Test ES-5      090212E9  Y         1         1-TS 1-HS 8-CC
C) <none>
...
Q) <none>
R) Sensor Unresponsive Settings
```

The DL150 can support either 8 or 16 pairs of internal dry contacts, and can support a maximum of 16 external ES devices. Some larger EventSensors (CCU's) occupy more than one slot. For example, the ES-CCU32 requires two slots and the ES-CCU64 requires four.

[EventSensor Slots](#) (A thru Q) displays the settings menu for each ES.

[Sensor Unresponsive Settings](#) displays the Sensor Unresponsive Menu where you can configure the actions the DL150 takes if an ES becomes unresponsive.

EventSensor Slots

```
Data-Link DL150 - External Events Menu
Device Number: 1      Device ID: 090212E9
A) Device Name                               [Test ES-5]
B) Temperature Sensor
C) Humidity Sensor
D) Contact Closure 1                          []
E) Contact Closure 2                          []
F) Contact Closure 3                          []
G) Contact Closure 4                          []
H) Contact Closure 5                          []
I) Contact Closure 6                          []
J) Contact Closure 7                          []
K) Contact Closure 8                          []
L) Clear Settings for This EventSensor
```

The display for each ES will vary depending on configuration. For example, an ES could be either internal or external. EventSensors can be configured with varying combinations of the following I/O types. Refer to the [Event Sensor Configuration Setup](#) section in the Features chapter for more information.

- [Contact Closure](#)
- [Temperature sensor](#)
- [Humidity sensor](#)
- [Analog voltage sensor](#) (0-5VDC or 0-75VDC)
- [Relay output](#)

Contact Omnitronix for more information on obtaining these devices. See the EventSensor documentation for more information about configuring a specific ES device.

Sensor Unresponsive Settings

```
Data-Link DL150 - Sensor Unresponsive Menu
A) Sensor Unresponsive Timeout          [120]
B) Sensor Unresponsive Actions          []
C) Sensor Unresponsive Trap Number      [50]
D) Sensor Unresponsive Class            [Major]
```

Sensor Unresponsive Timeout sets the time (10 - 65535 seconds) to wait before declaring a non-communicative EventSensor unresponsive.

Sensor Unresponsive Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Sensor Unresponsive Trap Number sets the number to be sent with any SNMP traps for this event.

Sensor Unresponsive Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this sensor alarm.

No-Data *n* Alarm Settings

No Data Alarms can be configured on the DL150 to monitor data coming in via the serial ports, and take an alarm action if a certain period of time passes with no data.

```
Data-Link DL150 - No-Data Alarm 1 Settings
A) Alarm Enable                          [OFF]
B) Alarm Actions                          []
C) Alarm Message                          [No-Data Timeout 1]
D) Alarm Class                            [Info]
E) Trap Number                            [505]
F) Schedule 1 Begin Time                  [00:00]
G) Schedule 1 End Time                    [00:00]
H) Schedule 1 Duration (minutes)         [0]
I) Schedule 2 Begin Time                  [00:00]
J) Schedule 2 End Time                    [00:00]
K) Schedule 2 Duration (minutes)         [0]
L) Apply Alarm on Days                    [MTuWThF]
M) Enable Port 1                          [OFF]
N) Enable Port 2                          [OFF]
O) Add Exclusion                            []
P) Delete Exclusion                        []
```

No-Data *n* Alarm Settings allows you to configure two separate No Data Alarms, each of which can be configured for two different ranges of times with different time durations. The periods of time should be configured to match the

calling patterns of your business or organization. For example, if your normal business hours are M-F 8:00 to 5:00, you will want to set lower time durations during those hours than you would "after hours" when call volumes are lighter and the periods of time where there is "no data" might be longer.

Alarm Enable is an ON/OFF toggle to enable the No-Data monitor.

Alarm Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Alarm Message sets the text string to be delivered with this No-Data alarm.

Alarm Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this No-Data alarm.

Trap Number sets the number to be sent with any SNMP traps for this No-Data alarm.

Schedule *n* Begin Time/End Time sets the beginning and ending times (24 hour clock) for each of two ranges of time.

Schedule *n* Duration is the number of minutes the unit will wait without receiving data before alarming.

Apply Alarm on Days displays a menu where the seven days of the week are listed, and each can be toggled ON or OFF to designate whether this particular No-Data alarm is active on that day.

Enable Port *n* is an ON/OFF toggle to designate whether this particular No-Data alarm is active on that port.

Add Exclusion/Delete Exclusion allow you to add or delete specific dates when this No Data Alarm should "take the day off". For example Christmas is a day you might want to add here. Select Add Exclusion and type in **12/25**. To delete a date, you select Delete Exclusion and type in the date you want to remove. After an exclusion date is added it appears in the brackets at the bottom of the menu. 15 dates can be entered to be excluded.

Percent Full Alarm Settings

```
Data-Link DL150 - Percent Full Alarm Settings
A) Alarm Enable                [OFF]
B) Percent Full Threshold      [80]
C) Alarm Actions               [ ]
D) Alarm Message               [DB Exceeds Threshold]
E) Alarm Class                 [Info]
F) Trap Number                 [501]
```

Alarm Enable is an ON/OFF toggle to enable the Percent Full alarm.

Percent Full Threshold set the percent full level at which the alarm will be triggered.

Alarm Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Alarm Message sets the text string to be delivered with the Percentage Full alarm.

Alarm Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this percent full alarm.

Trap Number sets the number to be sent with any SNMP traps for this event.

Scheduled Event Settings

Scheduled Events allow you to schedule specific a specific date/time for an alarm action to occur. For example you might want the DL150 to send you an email every morning at 8:00 just so you know it is live on the network.

```
Data-Link DL150 - Scheduled Event 1 Setup
A) Enable Event                [ON]
B) Event Actions                []
C) Event Message               [Scheduled Event 1]
D) Event Class                 [Info]
E) Trap Number                 [506]
F) Event Time Sunday           [OFF]
G) Event Time Monday           [OFF]
H) Event Time Tuesday          [OFF]
I) Event Time Wednesday        [OFF]
J) Event Time Thursday         [OFF]
K) Event Time Friday           [OFF]
L) Event Time Saturday         [OFF]
M) Add Exclusion
N) Delete Exclusion
   []
   []
```

Scheduled Event *n* Setup allows you to configure two separate Scheduled Events, each of which can be configured for any one time on any day of the week. Each day's time can be scheduled independently from the others.

Enable Event is an ON/OFF toggle to enable the Scheduled Event monitor.

Event Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Event Message sets the text string to be delivered with this event's action.

Event Class sets the class for the event. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Trap Number sets the number to be sent with any SNMP traps for this event.

Event Time *day* sets the time (24 hour clock) each day at which the Scheduled Event action will occur.

Add Exclusion/Delete Exclusion allows you to add or delete specific dates when this Scheduled Event should "take the day off". For example Christmas is a day you might want to add here. Select Add Exclusion and type in **12/25**. To delete a date, you select Delete Exclusion and type in the date you want to remove. After an exclusion date is added it appears in the brackets at the bottom of the menu. 15 dates can be entered to be excluded.

IPRC Alarm Settings

An IPRC alarm allows the DL150 to monitor the IPRC connection and alert you if the connection is lost. This would be an indicator that the IP-enabled switch has failed, something has failed on the network connection between the DL150 and the switch, or a number of other reasons depending on the device.

```
Data-Link DL150 - IPRC Alarm Settings Menu
A) Connection Lost Alarm Enable [OFF]
B) Connection Lost Timeout      [60]
C) Connection Lost Alarm Actions []
D) Connection Lost Alarm Message [Connection Lost]
E) Alarm Class                  [Info]
F) Trap Number                  [508]
```

Connection Lost Alarm Enable is an ON/OFF toggle to enable the IPRC alarm.

Connection Lost Timeout is the number of seconds to wait before declaring the connection lost. The exact conditions for timeout vary according to the IPRC method.

Alcatel OmniPCX, this setting determines the number of seconds the client will wait before timing out. A timeout will occur if the client has not received any data (either ticket data or any protocol control data) from the switch in the amount of time set forth here. This timeout value can be set from 45 to 90 seconds.

Avaya Definity RSP, this event is triggered when either the socket or the session is down. With RSP, there is an application-layer connection called a Session that runs on top of the lower-layer socket. It is possible that the socket is established but the session is not. RSP will not run if the session is not established. This timeout can be set from 3 to 600 seconds.

Generic Server does not use any application layer protocols so the socket lost timeout is triggered only by the loss of the TCP connection. This timeout can be set from 3 to 600 seconds.

Connection Lost Alarm Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Connection Lost Alarm Message sets the text string to be delivered with this event's action.

Upon timeout, an Alcatel OmniPCX client disconnects and will attempt to reconnect in 10 seconds. The timeout value is restricted between 45 and 90 seconds. Once the alarm is activated, the alarm will not re-arm until a socket connection is re-established. Avaya RSP and Generic Server are passive TCP servers and cannot attempt to reconnect to the client. They must wait for the client to reestablish the connection.

Alarm Class sets the class for the event. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Trap Number sets the number to be sent with any SNMP traps for this event.

Serial Handshaking Alarm Settings

Serial Handshaking Alarms allows the DL150 to monitor each of its serial ports and alert you if the DTR signal from the connected devices drops low. This would be an indicator that the connected device has failed, the cable between the DL150 and the device has been disconnected, or a number of other reasons depending on the device. It can also alert you when the DTR signal goes high again.

```
Data-Link DL150 - Serial Handshaking Alarm Settings
A) I/O 1 Serial Handshaking Alarms      [OFF]
B) I/O 2 Serial Handshaking Alarms      [OFF]
C) I/O 3 Serial Handshaking Alarms      [OFF]
D) I/O 4 Serial Handshaking Alarms      [OFF]
```

[I/O *n* Serial Handshaking Alarms](#) displays a menu for configuring alarming on serial DTR handshaking conditions.

I/O n Serial Handshaking Alarms

```
Data-Link DL150 - I/O 1 Serial Handshaking Alarms
A) Serial Handshaking Low Alarm Enable [OFF]
B) Serial Handshaking Low Alarm Actions []
C) Serial Handshaking Low Alarm Message [CTS Low Alarm 1 Message]
D) Serial Handshaking Low Alarm Class [Info]
E) Serial Handshaking Low Trap Number [510]
F) Serial Handshaking High Alarm Enable [OFF]
G) Serial Handshaking High Alarm Actions[]
H) Serial Handshaking High Alarm Message[CTS High Alarm 1 Message]
I) Serial Handshaking High Alarm Class [Info]
J) Serial Handshaking High Trap Number [510]
```

Serial Handshaking Low/High Alarm Enable is an ON/OFF toggle to enable alarming on high or low handshaking levels.

Serial Handshaking Low/High Alarm Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Serial Handshaking Low/High Alarm Message is the message sent with any text-based action for this event.

Serial Handshaking Low/High Alarm Class sets the class for the event. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Serial Handshaking Low/High Trap Number sets the number to be sent with any SNMP traps for this event.

Action Definitions

This menu is where the modem and pager callout numbers that may be used for various alarms are configured.

```
Data-Link DL150 - Actions Definition Menu
A) Callout Attempts [5]
B) Callout Delay (seconds) [60]
C) Modem Callout Number 1 []
D) Modem Callout Number 2 []
E) Modem Callout Number 3 []
F) Modem Callout Number 4 []
G) Pager Number 1 []
H) Pager Number 2 []
I) Pager Number 3 []
J) Pager Number 4 []
K) Action Schedule [OFF]
L) Action Scripts
M) Reminder Interval (minutes) [10]
```

Callout Attempts sets the total number of times to attempt dispatch, malert or modem callouts if previous attempts fail.

Callout Delay sets the number of seconds (1 - 400) to wait between callout attempts. A setting of 0 means no repeat callouts will be attempted after the initial one.

Modem Callout Number *n* sets the phone number to call for each modem callout.

[Pager Number *n*](#) displays a menu to configure the pager to call for each pager callout.

[Action Schedule](#) displays the Action Schedule Settings Menu where actions can be limited to defined days and times.

[Action Scripts](#) displays a menu where up to 8 scripts can be defined

Reminder Interval sets the number of minutes (1 to 255) between alarm actions. A reminder will be activated if an EventSensor (CC, Temp, Humidity or Voltage Sensor) is still in alarm after a specified number of minutes. The DL150 will re-initiate all alarm actions when this timer has run out. A setting of 0 means no reminders will be attempted.

Pager Number *n*

```
Data-Link DL150 - Pager 1 Settings
A) Pager Type [NUMERIC]
B) Pager Callout Number []
C) Pager ID []
D) Numeric Message []
E) Post Callout Delay (seconds) [15]
F) Post ID Delay (seconds) [5]
```

Pager Type toggles between "Numeric" and "Alpha", selecting the type of pager to call.

Pager Callout Number sets the phone number for the pager.

Pager ID is used only with paging systems where many pagers share the same phone number. This is common with alphanumeric pagers.

Numeric Message is the series of digits (typically callback number) sent to a numeric pager.

Post Callout Delay is the number of seconds the unit will wait before sending the pager ID.

Post ID Delay is the number of seconds the unit will wait before sending any message data.

Action Schedule

```
Data-Link DL150 - Action Schedule Settings
A) Action Schedule Enable [OFF]
B) Begin Time [08:00]
C) End Time [17:00]
D) Weekdays Only [ON]
```

Actions Schedule Enable is an ON/OFF toggle to enable the action schedule.

Begin Time/End Time sets the beginning and ending times (24 hour clock) during which alarm actions can be taken.

Weekdays Only toggles whether actions are only performed Monday thru Friday.

Action Scripts

```
Data-Link DL150 - Action Scripts Menu
A) Script 1 []
B) Script 2 []
C) Script 3 []
D) Script 4 []
E) Script 5 []
F) Script 6 []
G) Script 7 []
H) Script 8 []
```

Script *n* sets a specific script action that can be taken when an alarm event occurs.

General Settings

```
Data-Link DL150 - General Settings
A) Unit ID [DL150-546209999]
B) Answer String [Data-Link]
C) Escape Key [27]
D) Confirm Before Deletion [OFF]
E) Release Compressed [OFF]
F) Autodelete After Polling [OFF]
G) Time Stamp Format [HH:MM]
H) Date Stamp Format [MM/DD]
I) Space After Date/Time Stamp [ON]
J) Change ETX to CR/LF [OFF]
K) Date/Time Setup
L) Legacy Settings
```

Unit ID sets the name assigned to this unit. This name is included with alarm messages (traps, Emails, etc.) and is displayed at the top of the Status screen. The name should be unique for clarity.

Answer String sets the string that is presented when a user connects to the unit via Telnet or modem.

Escape Key is the decimal ASCII character code of the key you must press three times to escape from pass-through or other transparent modes. Default is 27, the <ESC> key.

Confirm Before Deletion toggles a confirmation message asking, "Are you sure (y/n)?" when using the following commands: ZERO, DEFAULT, ZAP, COLDSTART, and FTEST.

Released Compressed is an ON/OFF toggle to enable release of data in a compressed or uncompressed format.

Autodelete After Polling is an ON/OFF toggle to enable the deletion of data from the call record database once it has been polled.

Time Stamp Format toggles through three options for how time stamps are formatted: HH:MM, HH:MM:SS, or Blank.

Date Stamp Format toggles through four options for how date stamps are formatted: MM/DD, MM/DD/YY, MM/DD/YYYY, or Blank.

Space After Date/Time Stamp is an ON/OFF toggle to set whether a space is appended to the end of the date/time stamp.

Change ETX to CR/LF is an ON/OFF toggle to set whether ETX characters in the incoming data should be converted to CR/LF characters.

[Date/Time Setup](#) displays the System Date/Time menu where you can manage the clock, daylight savings controls, and configure a networked time server.

[Legacy Settings](#) displays a menu for configuring legacy products that may be connected to the DL150.

Date/Time Settings

```
Data-Link DL150 - System Date/Time
A) Current Date [06/07/2007]
B) Current Time [15:46:21]
C) Adjust for Daylight Savings [ON]
D) GMT Difference (hours) [5]
E) GMT Difference Direction [BEHIND]
F) Enable Time Protocol [OFF]
G) Preferred Time Server []
```

Current Date sets the date. The unit automatically calculates the day of the week to display on the Status screen.

Current Time sets the time (24 hours clock).

Note: The date and time settings are maintained by means of an internal battery backup when power is removed from the DL150.

Adjust for Daylight Savings is an on/off toggle that allows automatic daylight savings time updating.

A brief explanation of daylight savings time (effective 2007): On the second Sunday in March, clocks are set ahead one hour at 2:00 a.m. local standard time, which becomes 3:00 a.m. local daylight time. On the first Sunday in November, clocks are set back one hour at 2:00 a.m. local daylight time, which becomes 1:00 a.m. local standard time.

GMT Difference (hours) sets the number of hours the current time zone is offset from GMT. Valid input ranges from 0 to 12.

GMT Difference Direction sets whether you are east (ahead) or west (behind) of GMT. For example, Pacific time (GMT-8) is behind and Tokyo time (GMT +9) is ahead.

Enable Time Protocol is an ON/OFF toggle to enable NIST time updating using the Time and Daytime Protocol.

Preferred Time Server sets the hostname or IP address of the time server to be used. The DL150 supports the Time, Daytime, and Network Time Protocol (NTP). If enabled and no time server address is configured, the DL150 uses the following servers by default:

- time.nist.gov - 192.43.244.18 - Boulder, CO
- time-b.nist.gov - 129.6.15.29 - Gaithersburg, MD

Legacy Settings

```
Data-Link DL150 - Legacy Settings
A) Wait for NEXT                [OFF]
B) Omit END DATA               [OFF]
C) Line Tag                     [OFF]
D) Release Mode                 [LINE]
E) CBB DLE Stuffing             [OFF]
F) CBB Retransmits              [5]
G) CBB Timeout                  [15]
```

Wait for NEXT is an ON/OFF toggle that causes the unit to wait for the NEXT command before sending data once the RL command has been issued.

Omit END DATA is an ON/OFF toggle that causes the unit to send or omit the string "END DATA" when a command processor poll is complete.

Line Tag is an ON/OFF toggle that adds or omits the serial number line tags on each line of stored data.

Release mode toggles the following modes of releasing stored data: Line, Xmodem, and CBB.

CBB DLE Stuffing/Retransmits/Timeout are specific configuration options for polling via Compressed Binary Block (CBB) mode. CBB is a release method included for compatibility and is not otherwise documented in this manual.

Alarm Log Settings

The Alarm Log is a record of all data and sensor alarms captured by the DL150.

```
Data-Link DL150 - Alarms Log Settings
A) List Alarms File
B) Clear Alarms File
C) Enable Alarms Log File           [ON]
D) Maximum File Size               [64]
E) Store Data Alarm Records        [ON]
F) Store Sensor Alarms             [ON]
```

List Alarms File displays the contents of the Alarms file, if any records exist.

Clear Alarms File purges the records within the Alarms file.

Enable Alarms Log File is an ON/OFF toggle to enable alarm logging.

Maximum File Size sets the maximum number of KB the Event file can reach before overwriting the oldest records. Available options are 0, 64, 128, 256, 512, and 1024.

Store Data Alarm Records is an ON/OFF toggle to enable storing data alarm records.

Store Sensor Alarms is an ON/OFF toggle to enable storing sensor alarm records.

Audit Log Settings

The Audit Log is a record of a variety of actions that occur within the DL150.

```
Data-Link DL150 - Audit Log Settings
A) List Audit Log File
B) Clear Audit Log File
C) Enable Audit Log File           [ON]
D) Maximum File Size               [64]
E) Store Reset Events              [ON]
F) Store Command Entry             [ON]
G) Store Relay Activity            [ON]
H) Store Alarm Actions Taken       [ON]
I) Store Password Failures         [ON]
J) Store Logins/Disconnects       [ON]
K) Store Serial Handshaking Alarms [ON]
L) Store Pass-through Activity     [ON]
M) Store Inactivity Timeouts      [ON]
N) Store Polling Activity          [ON]
O) Store DIP Switch Changes       [ON]
```

List Audit Log File displays the contents of the Audit Log file, if any records exist.

Clear Audit Log File purges the records within the Audit Log file.

Enable Audit Log File is an ON/OFF toggle to enable Audit logging.

Maximum File Size is the maximum number of KB the event log can reach before overwriting the oldest records. Available options are 0, 64, 128, 256, 512, and 1024.

The remaining options are ON/OFF toggles to enable logging of the specific action described.

Features and How To Use Them

Setting Keys

Setting Keys (SK) provide a flat file, human readable, means of setting and retrieving settings within the unit. Setting Keys are commonly used to clone settings across multiple units or in automated processes.

Setting Keys is abbreviated when used on the command line as **SK**. Following are commands when working with the Setting Keys File from the command line of the unit.

SK [KEY[=value]] allows for reading or setting a single Setting Key. If the value portion of the command is omitted, the T810 will report back the value stored in that key. If the value is given, it will be stored in the key.

SK GET [X|A [CUSTOM] [filter]] initiates a download of unit settings. This listing can be retrieved either by Xmodem or plain ASCII using the X and A attributes, respectively. If the transfer mode attribute is omitted, the unit will prompt for the download method. The CUSTOM tag may be used to retrieve only the settings that are not set to factory defaults. A filter may be applied to limit the keys output to just the branch specified. For example, to retrieve an ASCII listing of all EventSensor settings, use the command: **SK GET A event.sensor**

SK SET [X|A] puts the unit in bulk Settings Keys upload mode. Any of the settings retrieved by SK GET can be manipulated and uploaded with new values. The unit will process settings in any order or number; not all settings need to be uploaded each session. As with SK GET, both ASCII and Xmodem transfer methods may be used to upload settings to the unit. These transfer methods are indicated by using the X and A attributes, respectively. The S570 monitors for invalid Setting Keys and will notify you after the upload if any invalid data was received.

When using SK SET in ASCII mode, the data uploaded must end with a line consisting of the word "END" followed by a return.

SK HERE allows you to set or get individual keys interactively. Typing just the key name will cause the value to be displayed. Typing the key name plus a new value will set that key. The unit will keep prompting for a new key or key/value pair until you press <Esc> or <Enter>.

SK LOG displays a list of any errors generated during an SK Set.

Setting Keys can also be retrieved and loaded via FTP.

FTP> GET SKALL FILENAME.TXT retrieves all of the Setting Keys for the unit, similar to the **SK GET A** command described above.

FTP> GET SKCUSTOM FILENAME.TXT retrieves any settings that are not set to factory default, similar to the **SK GET A CUSTOM** command described above.

FTP> PUT FILENAME.TXT SKALL and **PUT FILENAME.TXT SKCUSTOM** load the settings in FILENAME.TXT onto the T850.

Upon successful completion of loading the settings FTP will respond with "226 - Transfer complete". If there is a problem in the Setting Keys file then FTP will respond with "226 - Transfer complete; errors in setting key file! Type Get SKLOG to view"

FTP> GET SKLOG retrieves the Setting Keys log as described above.

Telnet/TCP Connections

The DL150 provides support for Telnet/TCP connections via an Ethernet interface.

All Telnet connections are TCP connections but not all TCP connections are Telnet connections. A Telnet connection is made to the DL150 by using the Telnet protocol and by specifying a TCP port address. 'Telnet' refers to a TCP connection made on port address 23, which specifies that characters are supposed to be handled a certain way. The DL150 supports Telnet connections and also supports some custom assigned port numbers to facilitate certain connection features.

The following information assumes that you know how to run your computer to establish and use Telnet/TCP connections and only require the specific information relating to the DL150 features. Port numbers below include "x" where "x" is the corresponding DL150 file or port number. (ie; 2103 refers to the telnet passthrough connection made on serial port 3.)

- **Port Address 200x:** A connection to port 200x is just like a regular Telnet connection to port 23, except it sets the default file for retrieving data or the default port when the 'Bypass' command is given.
- **Port Address 210x :** A connection to port 210x routes you directly to the device connected to the corresponding serial (I/O) port. A banner message will be displayed indicating you are connected to that I/O port. To disconnect from this access mode press the <ESC> key twice. Refer to the Passthrough section in this chapter for more information.
- **Port Address 220x:** A connection to port 220x is referred to as a Real-Time Socket. These are sockets that are dedicated to exporting data from that file in the DL150. If there is any data already stored in a particular file, it will first be transferred out of the DL150 to the user or machine initiating the connection. After all the data currently in the file is transferred out, any data that is coming into the DL150 will be immediately transmitted out and across this connection. Refer to the [Real-Time Sockets](#) menu for information on how to configure these.

Data is retrieved from the Alarms File via Real-Time Sockets on port 2299.

IP Routing

Description

When you connect to the DL150 via PPP you can make the unit act as a router between you and devices on one of the unit's local networks. This allows you to communicate IP traffic between you and devices you wish to remotely access. IP routing can also route traffic that originates on the remote site's network to you. By *traffic* we mean ICMP, TCP, UDP.

Benefit

IP Routing allows you remote network access (as opposed to remote RS-232 access) to devices at the unit's site.

Configuration

IP Routing is configured with the following settings.

- `net.ppprouting.enable`
This setting controls whether the unit routes IP traffic from PPP to any Ethernet interface. On some products this setting is mechanically locked with a dipswitch for added security.
- `net.ethrouting.enable`
This setting controls whether the unit routes IP traffic from the specified routing interface to PPP.
- `net.ethrouting.nat.enable`
This setting controls whether the unit does NAT on routed frames egressing the unit on the PPP interface.
- `sec.user.ppptype`
This is a per-user setting which controls whether the user under which the PPP session was authenticated can actually route frames to one of the unit's local networks. It is for added security.

IP Address Restrictions

IP Address Restrictions are used to limit network access to the DL150. This function defines a list of IP addresses to which the unit may respond via Ethernet and PPP. The list is exclusive by default, so if you define a single IP address, that one is allowed access while all others are denied.

Wildcards are available to allow or deny access to larger groups of IP addresses. 0 and 255 serve as wildcards for access and no-access, respectively. For example, an IP restriction of 0.0.0.0 would allow all access to the DL150 where 255.255.255.255 would allow none. More practically, 192.168.55.0 would only allow traffic from IP addresses beginning with 192.168.55.

The DL150 evaluates the list of IP restrictions from top to bottom. When it finds an entry that specifically allows or disallows access to the Data-Link, it uses that entry and stops looking. For Example, examine the following list:

```
Data-Link DL150 - IP Address Restrictions
1. 192.168.100.20
2. 192.168.100.1
3. 0.0.0.0
4. 192.168.99.255
A) Add Item to Table
B) Delete an Item from Table
C) Delete All Items from Table
```

A computer with a 192.168.99 IP would be granted access to the DL150 despite #4 because #3 is processed first. If you wanted to allow everyone access except computers on subnet 192.168.99 you should switch number 3 and 4.

» Note: IP restrictions do not replace or override password protection; they simply provide an extra means of security by causing the DL150 to ignore all traffic from disallowed IP addresses.

If no IP restrictions are defined in this menu, all incoming connections are allowed.

Passthrough

Passthrough (also known as "Bypass") is a bi-directional communication link for either a modem or Telnet connection through the DL150 to a device attached to a serial port. Pass-through is useful for configuring or maintaining devices connected to the DL150 without having to be in the same physical location.

Passthrough to a serial port is available on TCP ports 210n where 'n' is the number of the serial port.

Passthrough to a serial port is available via modem using the **BYPASSn** command where 'n' is the number of the serial port.

To terminate a passthrough session, press the Escape Key three times.

Following is a table showing what passthrough sub-features/behaviors are applicable to the DL150 and a detailed description of each sub-feature below the table.

| Sub-feature | DL150 |
|--|---|
| Bypass command | Yes |
| Adjustable end sequence pause | Yes |
| End sequence for network passthrough | 3 escapes (via login menu) or 1 escape (via bypass command) |
| End sequence for modem passthrough | 1 escape (via bypass command) |
| Send break signal to serial port upon receiving an adjustable character on modem or network | No |
| Setting for DTR normally low except in passthrough | No |
| Joinable sessions | Yes |
| Buffered pass-through | Yes |

Bypass command

The command **BYPASSn**, where 'n' is the number of the serial port, is used on a modem passthrough connection.

Adjustable end sequence pause

This feature means you can control the minimum amount of time between entering escape characters that the unit will register as an authentic escape sequence. That is, you can set this to 1/4 second, meaning that in order to escape passthrough, you must enter the escape sequence with at least 1/4 second between each escape. The point is to make the unit disregard escape sequences that happen from the pass-through data itself, which is assumed to travel across the link without pauses between the escape characters. The `sys.pt.endpause` setting controls this.

Send break to serial port

When the unit detects the character configured in this sub-feature on an access method IO handle (that is, the end of the passthrough session that is not a serial port), it sends a break signal to the serial port, instead of passing the character through to the serial port. The `serial.break` setting controls this.

DTR normally low except in passthrough

For units with DTE serial ports, DTE is normally held high (this sub-feature disabled). When this is enabled (a per-port setting), DTR is held low except when passthrough is active (DTR asserted when pass-through starts and de-asserted when pass-through stops). The `serial.dtrlow` setting controls this.

Joinable sessions

Up to 3 pass-through sessions can be joined in that they all connect to the same serial port. Data arriving on the serial port gets passed through to all parties, and data arriving from any one party gets passed through to the connected serial port as well as the other parties.

Buffered pass-through

Buffered pass-through is where upon connecting to a passthrough session, the first thing the unit does is dump all data that has been buffered in that port's database file, instead of connecting to the port right away. Once all data from that file is output then unit connects you to the port. If no data has been buffered (or this feature is turned off) then the unit initially connects you to the port. The serial.bufferpt setting controls this.

By default the unit provides passthrough access to anyone and can be further defined in the [User Profile Settings](#) menus. Various settings control its behavior, as discussed above with each sub-feature.

Data Alarms

This section offers a brief tutorial on how to set up a functional data alarm that will send an SNMP trap when the word "test" is received over a data port. Full details on how to configure data alarm equations are available in the next section, [Configuring Data Alarm Equations](#).

Set Up a Data Alarm

1. From the command prompt, access the Setup menu. Select "Alarm/Event Definitions", "Data Alarm/Filter Settings", and then "Data Alarm Field Settings". The following menu allows a user to define up to 16 data alarm fields to be used when scanning for alarm data. Below is an abbreviated example of this menu:

```
Data-Link DL150 - Data Alarm Field Definition Table
```

| | Start | Length | Line | Type | Name |
|-----------------|-------|--------|------|---------|------|
| A) Definition A | 0 | 0 | 0 | [Alpha] | |
| B) Definition B | 0 | 0 | 0 | [Alpha] | |
| ... | | | | | |
| O) Definition O | 0 | 0 | 0 | [Alpha] | |
| P) Definition P | 0 | 0 | 0 | [Alpha] | |

2. Select field A. The menu in the following example will be displayed.

```
Data-Link DL150 - Data Alarm Field Definition
```

Data Field: A

| | |
|----------------------|---------|
| A) Start Position | [0] |
| B) Field Length | [0] |
| C) Field Name | [] |
| D) Field Line Number | [0] |
| E) Field Type | [Alpha] |

3. Select Start Position. When prompted to enter a new value, enter "1" and press <Enter>.
4. Select Field Length. When prompted to enter a new value, enter "4" and press <Enter>.
5. Select Field Name and enter "test_field", then press <Enter>.
6. Press <Enter> to return to the Field Definition Table. If configured properly, the data event field should appear in this menu.
7. Press <Enter> to return to the Data Alarm/Filter Settings menu. From here, select Alarm/Filter 1. The following menu will be displayed:

```
Data-Link DL150 - Settings For Data Alarm/Filter 1
```

| | |
|--------------------------------------|------------|
| A) Alarm/Filter Enable | [OFF] |
| B) Alarm/Filter Mode | [ALARM] |
| C) Alarm/Filter Name | [] |
| D) Alarm/Filter Equation | [] |
| E) Threshold | [1] |
| F) Auto-Clear when Threshold Reached | [ON] |
| G) Alarm Counter Clear Interval | [12 HOURS] |
| H) Alarm Counter Reset Time | [00:00] |
| I) Actions | [] |
| J) Class | [Info] |
| K) Data Alarm Trap Number | [503] |
| L) Clear This Alarm Counter Now | |

8. Press "A" to toggle Alarm/Filter Enable to ON.
9. Alarm/Filter Mode should be set to ALARM. If it is set to FILTER, press "B".
10. Select Alarm/Filter Name and enter "Test Event 1".
11. Select Alarm/Filter Equation and enter `test_field="test"`. This will cause an event to occur any time the word "test" is received.

12. Select Actions and enter "T1" to cause this data event to send a trap to SNMP manager #1, as configured below in the SNMP managers menu.

Other Setup

1. To configure the SNMP Manager function, return to the main Setup Menu, select "Network Settings", "SNMP Manager 1", and enter the IP address of the PC where you have a network manager or trap receiving application running. (This assumes of course that you have already assigned an IP address to the DL150, and configured the subnet mask and router address as necessary.)
2. Return to the main Setup Menu, select "Serial Settings", select "Serial Port 1 Settings" and toggle H) Data Alarm Enable" to ON.
3. Press <Ctrl> + C to return to the command processor.

Testing

Connect to the unit serially on I/O 1 and type the word **test** followed by <Enter>. This should trigger the above data event, and an SNMP trap should be sent to SNMP Manager #1. If this is not the case, double check the network and data event settings and then call Asentria Technical Support.

Note: There will be a 30 second delay in alarming if the terminal emulator being used does not send a LF with the CR. This may be circumvented by pressing <Ctrl + J> to generate a LF.

Configuring Data Alarm Equations

The equation is the heart of any data alarm. The following are a few examples of alarm equations:

- `alarm_code = "L31"`
- `ext >= "A 600" AND exit_code = "DN"`
- `(alarm_code > "1051" OR exit_code = "10w74x") AND switch = " 001.1.9*.**"`
- `@ = "CRITICAL"`

Here are a few tips to help you create your own data alarm equations:

- Multiple field references are acceptable, as long as both fields are the same length. For example, `d=c` is a valid equation if the fields that both 'd' and 'c' represent are two characters long
- Variable names are case sensitive
- Equation literals (the data contained within quotation marks) are case sensitive
- If any rule is violated in a equation, an alarm will not be generated, nor will an error be presented

>> Note: There may be times when two or more fields are necessary to analyze one piece of data. For example, if a time is represented in hh:mm format, some calculations may require two different fields. Other times, wildcards will do the job of masking out non-important characters just fine.

The data alarm equations used in the DL150 are standard Boolean-type operators. The following table outlines each of the supported operators and their function.

| Operator | Function |
|----------|---|
| > | Greater Than |
| < | Less Than |
| >= | Greater Than or Equal to |
| <= | Less Than or Equal to |
| ! or <> | Not Equal to |
| = | Equal to |
| * | Single character wildcard (matches any character or space) |
| () | Parenthesis used to combine operations |
| OR | Logical OR |
| AND | Logical AND |
| @ | Positional wildcard (used in place of a field name to match anywhere within an incoming record) |

OmniAlarms

OmniAlarms are a receipt-verified alert system delivered via modem or TCP on port 4000.

When an OmniAlarm is initiated, the box dials into the callout number specified by the action. Once connected, it sends a header and waits for a specific response. If the DL150 receives a specific response to the header, it delivers alarms in CRC mode; otherwise, alarms are delivered in non-CRC mode. In CRC mode, each OmniAlarm is transmitted with some extra control characters and a CRC, and the remote host is required to acknowledge each alarm in a certain format.

After all OmniAlarms have been delivered, the box waits for 20 seconds for any type of keystroke. If a keystroke is detected, the box will present a login menu.

OmniAlarm Protocol

Initial header

Note: Please see the Control Characters appendix for more information about special characters used within this section.

Upon dialing into the receiver, the DL150 will send a message similar to the following:

```
Data-Link DL150
Server Room B
OmniAlarm Notice ver. 1.00
(CR/LF) (ENQ)
```

The first line of the output is the DL150's answer string.

The second line is the DL150's unit ID.

The third line indicates the version of OmniAlarm.

The final line is the (ENQ) control code.

Non-CRC Mode

After sending the initial header, the DL150 pauses for 10 seconds to wait for an ACK from the receiver. Non-CRC mode requires the Require OmniAlarm ACKs is setting to be turned off. If the DL150 sees no response or the receiver replies with:

```
(ACK) 00 (ACK)
```

then non-CRC mode is assumed and the sender will transmit the alarms. The control characters (SOH), (SOT), and (ETX) are not transmitted in non-CRC mode.

CRC Mode

CRC mode exists to ensure that event notifications are delivered intact. OmniAlarms delivered in CRC mode have extra control characters and a 16-bit CRC included in each alarm to allow for error detection by the receiver. Additionally, CRC mode causes the DL150 to store and later retry each alarm until a proper acknowledgement is received from the receiver.

If Require OmniAlarm ACKs is enabled, the DL150 will require a positive CRC mode response or it will disconnect and retry the call. To enable CRC, the receiver must respond with the following after the header is received:

```
(ACK) 01 (ACK)
```

Once CRC mode is enabled, each alarm must be acknowledged by a message in the following format:

```
(ACK) XX (ACK)
```

XX represents the alarm ID to acknowledge. The ID can be found in the first line of each record sent by the DL150.

Alarm Transmission

After successfully initiating a session, alarms are delivered in the following format:

```
(SOH) ID=XX (SOT)
Date=06/01/04
Time=10:30:02
TargetPort=
TargetName=
AlarmType=Data Alarm
AlarmName=Test Alarm
Threshold=0
Severity=Critical
Text1=text record line
Text2=text record line
(ETX) XX
(CR/LF)
(CR/LF)
```

The alarm ID indicates the index number of each alarm delivered during a call. This number restarts at 1 for each new call.

The severity line represents the Class value defined for this alarm.

Up to twelve lines of Text n may be sent.

XX represents the 16-bit CRC if CRC mode is enabled. If not, this line will contain two spaces.

If additional alarms are queued to send in the same transmission, the above output is repeated, incrementing the ID with each alarm. When non-CRC alarm transmission is selected, alarms are sent with a 5 second delay between each. When all alarms and been transmitted, then DL150 sends the following:

```
(EOT)
(CR/LF)
(CR/LF)
```

At this point, the DL150 waits 20 seconds for the receiver to send any input, and then hangs up. If any commands are received, a command prompt is established and the connection will remain active.

Action Definition

OmniAlarm actions are designated by "O" in action definitions. The numbers correspond to callout numbers.

Example: O1 -or- O123

EventSensor™ Configuration Setup

The DL150 can be ordered with any of the following different internal I/O devices or can be connected to a number of external EventSensor™ devices as described in this section. The setup menus are the same regardless of whether the device is internal or external to the DL150.

Input

[Contact closure](#)

[Temperature](#)

[Humidity](#) (not available as an internal sensor)

[Voltage \(0-5VDC or 0-60VDC\)](#)

Output

[Relays](#)

```
Data-Link DL150 - External Events Menu
Device Number: 1      Device ID: 090212E9
A) Device Name                               [Test ES-5]
B) Temperature Sensor
C) Humidity Sensor
D) Contact Closure 1                          []
E) Contact Closure 2                          []
F) Contact Closure 3                          []
G) Contact Closure 4                          []
H) Contact Closure 5                          []
I) Contact Closure 6                          []
J) Contact Closure 7                          []
K) Contact Closure 8                          []
L) Clear Settings for This EventSensor
```

Above is a representative Events Menu showing an ES-5 EventSensor that features a temperature sensor, humidity sensor, and 8 contact closures. This will be used for the following descriptions of how to set up all three of those types of input. Descriptions of Voltage and Relays will follow that.

The line below the menu header indicates the **Device Number** and the **Device ID**. The Device Number is the position of this device in the listing of the previously described Sensor Events menu. Device ID is the serial number of the device.

[Temperature Sensor](#) displays the menu for configuring temperature sensor settings and associated alarm actions.

[Humidity Sensor](#) displays the menu for configuring humidity sensor settings and associated alarm actions.

[Contact Closure *n*](#) displays the menu for configuring each of the contact closure points.

Clear Settings for This EventSensor when selected will immediately clear all of the configured settings for this sensor and remove it from the Sensor Events menu. Return to the Sensor Events menu to assign it a new slot, if desired, and reconfigure it.

Temperature Sensor Setup

```
Data-Link DL150 - External Temperature Event
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) Temperature Sensor Enabled                [OFF]
B) Sensor Values Represented in              [FAHRENHEIT]
C) Temperature Deadband                      [3]
D) Very High Event Settings                  [100] [] [120] [Info]
E) High Event Settings                       [80] [] [120] [Info]
F) Return to Normal Settings                 [-] [] [120] [Info]
G) Low Event Settings                       [50] [] [120] [Info]
H) Very Low Event Settings                   [30] [] [120] [Info]
```

Temperature Sensor Enabled toggles ON/OFF to enable the temperature sensor.

Sensor Values Represented In toggles either FAHRENHEIT or CELSIUS for the desired temperature scale.

Temperature Deadband is the range, in degrees, on either side of a temperature setting that prevents the alarm from repeatedly going in and out of the "alarm state" as the actual temperature fluctuates above and below the temperature setting.

[Very High/High/Low/Very Low Event Settings](#) display a menu where the temperature at each level can be configured to alarm along with the action(s) to occur, trap number, and class. In the case of Very High or High levels, the alarm will occur as the temperature rises above the setting. In the case of Low or Very Low, the alarm will occur as the temperature drops below the setting.

[Return to Normal Settings](#) displays a menu where the actions to occur when the temperature returns to normal (drops below the High/Very High settings, or rises above the Low/Very Low settings) can be configured.

Very High/High/Low/Very Low Event Settings Setup

```
Data-Link DL150 - External Temperature Event Settings
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) Very High Event Temperature      [100]
B) Very High Event Actions           []
C) Very High Event Trap Number      [120]
D) Very High Event Class             [Info]
```

The menu for setting Very High Temperature settings is shown. Menus for High/Low/Very Low are identical.

Very High Event Temperature sets the temperature at which the Very High Event Actions will be triggered.

Very High Event Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Very High Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Temperature Events is 120, but any number in the alternate range of 1000 – 1199 can be used.

Very High Event Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Return to Normal Settings Setup

```
Data-Link DL150 - External Temperature Event Settings
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) Return to Normal Event Actions    []
B) Return to Normal Event Trap Number [120]
C) Return to Normal Class             [Info]
```

Return to Normal Event Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Return to Normal Event Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Temperature Events is 120, but any number in the alternate range of 1000 – 1199 can be used.

Return to Normal Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Humidity Sensor Setup

```
Data-Link DL150 - External Humidity Event
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) Humidity Sensor Enabled      [OFF]
B) Humidity Deadband            [3]
C) Very High Event Settings     [90] [] [130] [Info]
D) High Event Settings         [80] [] [130] [Info]
E) Return to Normal Settings   [-] [] [130] [Info]
F) Low Event Settings          [20] [] [130] [Info]
G) Very Low Event Settings     [10] [] [130] [Info]
```

Humidity Sensor Enabled toggles ON/OFF to enable the humidity sensor.

Humidity Deadband is the range on either side of a humidity setting that prevents the alarm from repeatedly going in and out off the "alarm state" as the actual humidity fluctuates above and below the humidity setting.

[Very High/High/Low/Very Low Event Settings](#) display a menu where the humidity at each level can be configured to alarm along with the action(s) to occur, trap number, and class. In the case of Very High or High levels, the alarm will occur as the humidity rises above the setting. In the case of Low or Very Low, the alarm will occur as the humidity drops below the setting.

[Return to Normal Settings](#) displays a menu where the actions to occur when the humidity returns to normal (drops below the High/Very High settings, or rises above the Low/Very Low settings) can be configured.

Very High/High/Low/Very Low Event Settings Setup

```
Data-Link DL150 - External Humidity Event Settings
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) High Event Humidity          [80]
B) High Event Actions          []
C) High Event Trap Number      [130]
D) High Event Class            [Info]
```

The menu for setting High Humidity settings is shown. Menus for Very High/Low/Very Low are identical.

High Event Humidity sets the humidity at which the High Event Actions will be triggered.

High Event Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

High Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Humidity Events is 130, but any number in the alternate range of 1000 – 1199 can be used.

High Event Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Return to Normal Settings Setup

```
Data-Link DL150 - External Humidity Event Settings
Device Number: 1      Device ID: 090212E9      Device Name: Test ES-5
A) Return to Normal Event Actions      []
B) Return to Normal Event Trap Number  [130]
C) Return to Normal Event Class        [Info]
```

Return to Normal Event Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Return to Normal Event Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Humidity Events is 130, but any number in the alternate range of 1000 – 1199 can be used.

Return to Normal Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Contact Closure Setup

```
Data-Link DL150 - External Contact Closure Event 1
Device Number: 1           Device ID: 090212E9       Device Name: Test ES-5
A) Sensor Name                []
B) Contact Closure Enabled    [OFF]
C) Event State                [CLOSED]
D) Threshold                  [2]
E) Event State Actions        []
F) Return to Normal Actions   []
G) Event State Class          [Info]
H) Return to Normal Class     [Info]
I) Event Trap Number          [110]
J) Return to Normal Trap Number [110]
K) Active Alarm Alias         []
L) Inactive Alarm Alias       []
```

Contact closures (CC) sense the state of a circuit. A weak voltage is applied to the source pin and if pulled to ground by a connection on the circuit, the sensor reports a "closed" state. If it remains high, the sensor reports an "open" state. All of the CCs share a common ground. The contact closures may be configured to alarm in either the open or closed state, depending on the needs of the attached devices.

Sensor Name is a text-entry field that allows you to name this contact closure.

Contact Closure Enabled toggles ON/OFF to enable this contact closure.

Event State toggles OPEN/CLOSED to set whether an event will be triggered when the contact closure circuit is opened or closed. The default state is open.

Threshold is the number of seconds (0-255) the sensor must remain in the event state before an actual event occurs.

Event State/Return to Normal Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Event State/Return to Normal Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Event/Return to Normal Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Contact Closure Events is 110, but any number in the alternate range of 1000 – 1199 can be used.

Active Alarm Alias is a special sensor name used when reporting active events for this sensor.

Inactive Alarm Alias is the same as Active Alarm Alias, but used with Return to Normal events.

Analog Voltage Sensor Setup

```
Data-Link DL150 - External Events Menu
Device Number: 4      Device ID: 20021828
A) Device Name                [Test ES-8]
B) Analog Input 1
C) Analog Input 2
D) Analog Input 3
E) Analog Input 4
F) Analog Input 5
G) Analog Input 6
H) Analog Input 7
I) Analog Input 8
J) Clear Settings for This EventSensor
```

The analog voltage sensors (either internal to the DL150, or an external ES-8 module) provide individual voltage sensing for ranges from 0-5VDC or 0-60VDC (depending on configuration ordered). These sensors can be used in various applications, from monitoring a power supply to verifying RS232 voltage levels.

Device Name is the option name given to the sensor. Default is [Internal] if the sensors are internal to the DL150, and blank if the sensor is a separate ES-8 module.

[Analog Input *n*](#) displays a menu where each analog voltage sensor can be configured.

Clear Settings for This EventSensor when selected will immediately clear all of the configured settings for this sensor and remove it from the Sensor Events menu (except for Internal Sensors). Return to the Sensor Events menu to assign it a new slot, if desired, and reconfigure it.

Analog Input *n*

```
Data-Link DL150 External Analog Input Event 1
Device Number: 4      Device ID: 20021828      Device Name: Test ES-
A) Analog Input Enabled      [OFF]
B) Input Polarity            [POSITIVE]
C) Deadband                  [30]
D) Very High Event Settings  [750]      []      [140] [Info]
E) High Event Settings       [750]      []      [140] [Info]
F) Return to Normal Settings [-]        []      [140] [Info]
G) Low Event Settings        [0]        []      [140] [Info]
H) Very Low Event Settings   [0]        []      [140] [Info]
I) Unit Conversion Settings  [Volts]
```

Analog Input Enabled toggles ON/OFF to enable this analog sensor.

Input Polarity toggles POSITIVE/NEGATIVE to set the input polarity.

Deadband is the range on either side of a voltage setting that prevents the alarm from repeatedly going in and out of the "alarm state" as the actual voltage fluctuates above and below the voltage setting.

[Very High/High/Low/Very Low Event Settings](#) displays a menu where the voltage at each level can be configured to alarm along with the action(s) to occur, trap number, and class. In the case of Very High or High levels, the alarm will occur as the humidity rises above the setting. In the case of Low or Very Low, the alarm will occur as the humidity drops below the setting.

[Return to Normal Settings](#) displays a menu where the optional action definition for alarms as they return to a normal state can be configured.

[Unit Conversion Settings](#) displays a menu where "real world" values can be configured

Very High/High/Low/Very Low Analog Input Event Settings

```
Data-Link DL150 External Analog Input Event Settings
Device Number: 4      Device ID: 20021828      Device Name: Test ES-8
A) Low Event Value           [0]
B) Low Event Actions         []
C) Low Event Trap Number     [140]
D) Low Event Class           [Info]
```

The menu for setting Very High Event Value settings is shown. Menus for High/Low/Very Low are identical.

Very High Event Value sets the voltage (in tenths) at which the Very High Event Actions will be triggered.

Very High Event Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Very High Event Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for Analog Events is 140, but any number in the alternate range of 1000 – 1199 can be used.

Very High Event Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Return to Normal Settings

```
Data-Link DL150 External Analog Input Event Settings
Device Number: 4      Device ID: 20021828      Device Name: Test ES-8
A) Return to Normal Event Actions []
B) Return to Normal Event Trap Number [140]
C) Return to Normal Event Class [Info]
```

Return to Normal Event Actions displays a list of actions from which the action(s) to be taken for this alarm are configured. This field will be empty [] if no actions have been configured. Refer to the [Actions](#) section in the Data Alarm/Filter *n* Settings section above for more information.

Return to Normal Event Trap Number sets the trap number which can be useful when using SNMP trap managers that employ a trap numbering system to help identify incoming traps. The default trap number for analog events is 140, but any number in the alternate range of 1000 – 1199 can be used.

Return to Normal Event Class sets the class for the alarm. When this option is selected, a list of the classes previously defined in the [Class Table](#) is displayed, from which you can select one to be assigned to this event.

Unit Conversion Settings

```
Data-Link DL150 - Analog Input Event Unit Conversion
Device Number: 4      Device ID: 20021828      Device Name: Test ES-8
A) Unit Name           [Volts]
B) Low Voltage Amount (tenths) [0]
C) Low Unit Amount (tenths) [0]
D) Low Unit Sign       [POSITIVE]
E) High Voltage Amount (tenths) [750]
F) High Unit Amount (tenths) [750]
G) High Unit Sign      [POSITIVE]
```

Relay Output Setup

```
Data-Link DL150 - External Events Menu
Device Number: 10      Device ID: 0B021358
A) Device Name          [Test ES-9]
B) Relay 1              []
C) Relay 2              []
D) Relay 3              []
E) Relay 4              []
F) Relay 5              []
G) Relay 6              []
H) Relay 7              []
I) Relay 8              []
J) Clear Settings for This EventSensor
```

The relay outputs (either internal to the DL150, or an external ES-9 module) provide electrical output that can open or close an external circuit. Typically this is used with devices that would not otherwise be able to interface with a host product, like audio alarms, LEDs, custom circuitry, and an almost limitless number of other applications.

Device Name is the option name given to the relay module. Default is [Internal] if the relays are internal to the DL150, and blank if the relay is a separate ES-9 module.

[Relay *n*](#) displays a menu where each relay output can be configured.

Clear Settings for This EventSensor when selected will immediately clear all of the configured settings for this relay and remove it from the Sensor Events menu (except for Internal Sensors). Return to the Sensor Events menu to assign it a new slot, if desired, and reconfigure it.

Relay *n*

```
Data-Link DL150 - External Relay Event 1
Device Number: 10      Device ID: 0B021358      Device Name: Test ES-9
A) Relay Name          []
B) Relay Active State  [CLOSED]
C) Relay Control Mode  [EVENT]
```

Relay Name is a text-entry field that allows you to name this relay.

Relay Active State toggles CLOSED/OPEN to set whether the relay will close or open when activated.

Relay Control Mode toggles EVENT/COMMAND to set the method in which the relay will be controlled. EVENT mode allows the relay to be used as an action during events. Refer to the next section on [Relays as Alarm Action](#) for information about how to configure this. COMMAND mode configures the relay to be triggered via command.

Relays as Alarm Action

Relays can be used to open or close part of a circuit of your design or part of another product. You can use relays within the DL150 or built into EventSensors to control these devices. Relays can be toggled based on sensor readings, data events, or even remotely by SNMP.

» Caution: Do not exceed maximum ratings for relays. DL150 relays are only designed to switch relatively low voltages and amps, and are not intended to switch AC powered devices. Only a certified electrician should work with and connect AC Voltage to the DL150. Improper use outside the guidelines of this manual could cause injury or death.

Max switched voltage: 60V
Max switched current: 1A
Max switched power: 30W

Remember Ohm's law: $W = V \times A$ (watts = volts x amps)
 $30W = 1A \times 30V$
 $30W = .5A \times 60V$

» Note: Be aware of the inrush (startup) current of the device you are connecting to the relays. A device drawing 1A while powered up can draw many times that upon power up. This is especially true with capacitive or inductive circuits.

Action Definition

Relay action definitions are somewhat more complicated than other alarm actions in that they must declare the action to perform, which sensor the relay is on, and which relay on that sensor to switch.

Relay actions are declared with the following syntax:

Raxxyy

a: The action to perform. Options are C (close), O (open), A (active), I (inactive). Active and Inactive states are determined by the relay's configuration.

xx: The EventSensor slot the relay is on. This value is a two-digit number starting with 01, corresponding to the slot (Number) the EventSensors are declared in the setup menu. Relays on internal sensors use an xx value of 00.

yy: Two-digit indicator of which relay to toggle.

Example: RC0207 -or- RA0103RI0104

Relay actions for a single event are limited to any combination of relays on a single EventSensor. One event cannot trigger relay actions on multiple EventSensors.

» Note: Unlike other action definitions, each relay definition must start with an R. Where other sensors may be defined as T23 (for SNMP trap managers 2 and 3), multiple relay actions must be defined in the following manner: RC0401RO0402.

IP Record Collection (IPRC)

Generic Server

Definition

Generic Server is plain text record collection that offers no handshaking or quality control above that of the TCP/IP protocols. Therefore, this method of record collection is not specific to Avaya Definity in that there is no application-layer protocol. Plain Text IPRC data is received on TCP port 5000 (user-adjustable).

Commands

| Command | Function |
|-------------|---|
| IPRC | Displays a status report of the active IPRC mode. |
| IPRC STATUS | |
| IPRC ? | |

Status Display

The IPRC command brings up a status report similar to the following report for Generic Server:

```
iprc
Record Collection Server
Status: Listening on port 5000
COMPLETE
```

This report simply indicates the status of the RCS. The TCP port is displayed for informational purposes only.

Generic Client

Definition

Generic Client IPRC is a TCP/IP client that runs on the DL150 and attempts connections to a specified host to download records. This connection is a clear text telnet protocol, typically over port 1752.

Commands

| Command | Function |
|-------------|---|
| IPRC | Displays a status report of the active IPRC mode. |
| IPRC STATUS | |
| IPRC ? | |

Status Display

The IPRC command brings up a status report similar to the following report:

```
Record Collection Client
Status: Waiting to open connection
Last error: None
```

Avaya Definity RSP

Definition

Reliable Session Protocol (RSP) is Avaya's solution to the problem of lost connections while transferring valuable call record data. This protocol is used on both the client (PBX) and server (Data-Link) sides to ensure that if the data connection breaks, no records are lost. This is accomplished by the devices repeatedly checking in with one another. If the connection is lost, an alarm sent out by the Data-Link (and the PBX if so configured), and the PBX will begin to buffer its own data until the connection is restored.

Commands

| Command | Function |
|-------------------------------|--|
| IPRC or IPRC STATUS or IPRC ? | Displays a status report of the active IPRC mode. |
| IPRC PORT n | Changes the TCP port on which to listen for RSP connections. |
| IPRC RESET | Manually disconnects the current session (if connected), closes the socket (if established), and reinitializes the server. |

Status Display

The IPRC command brings up a status report similar to the following report for RSP:

```
RSP Server
Status: Listening on port 9000
SAMs tx      : 0
ACKs tx      : 0
SDMs tx      : 0
SCMs rx      : 0
New data rx  : 0
Blocks rx    : 0
Dup. blocks rx : 0
```

IPRC Terms

The following terms are used in the status display accessed by the IPRC command for RSP:

| Term | Meaning |
|--|--|
| SAM (Session Accept Message) | A message transmitted by the Data-Link to acknowledge the client's Session Connect Message. |
| ACK (session Acknowledgement message) | A response transmitted by the Data-Link to acknowledge data blocks. |
| SDM (Session Disconnect Message) | A command sent from the DL150 to terminate the current session. This happens when the DL150 encounters an anomaly in the protocol or the user resets the server. |
| SCM (Session Connect Message) | A request transmitted from the client to establish a session with the DL150's IPRC server. |
| New Data Blocks | The number of non-duplicate bytes received by the server. Represents the number of blocks (including duplicates) received by the unit. |
| Dup. Blocks | The number of duplicate blocks received by the unit. If this number is high relative to the number of blocks received, either the SPDU Response Timer (ST2) on the switch needs to be increased or the Data-Link is full and needs to be polled. |

Alcatel OmniPCX 4400

Definition

The Data-Link DL150 supports the Alcatel OmniPCX 4400 ticket system of IPRC. This method involves receiving large data packets or tickets via TCP. These tickets contain many different data fields that may not be useful to a system administrator. The DL150 allows an administrator to use a configuration file that selects exactly which records to store in the CDR database.

Commands

| Command | Function |
|------------|---|
| SK SET X | Initiates a settings key file upload via Xmodem. |
| SK SET A | Initiates a settings key file upload via plaintext ASCII. |
| SK LOG | Displays results of uploading the settings key file. |
| IPRC START | Opens a connection to the PBX if not already open. This is required if the unit was unable to connect to the PBX at |

| | |
|--------------------------------------|---|
| IPRC STOP | boot because of improper settings. Places the client into an idle state. Closes any open connection. |
| IPRC or IPRC STATUS or IPRC ? | Displays a status report of the active IPRC mode. |
| IPRC FIELDS | Displays the list of compiled output fields. |
| IPRC DEBUG ON | Show the ticket data as it is parsed. |
| IPRC DEBUG OFF | Disables showing ticket data as it is parsed. |

Status Display

The following is an example status display for Alcatel OmniPCX IPRC:

```
Alcatel OmniPCX 4400 Real Time Client
Status: Idle
Last Error: No fields active (0/00:00:06 ago)
Seconds until next state: 0
Tickets processed: 00000000
```

The Configuration File

The ticket parsing functionality is configured via a configuration file. This configuration file is a list of setting keys, where a setting key is a "<setting> = <value>" statement. <setting> is a period-delimited string of keywords. These keys can name all of the setup variables of the product. These include the generic operational parameters of the box such as these below, as well as specialized parameters such as those for the OmniPCX:

```
net.ip=192.168.100.32
net.subnet=255.255.255.0
net.router=192.168.100.100
net.snmp[1]=192.168.100.36
net.snmp[2]=0.0.0.0
net.snmpcomm=public
```

The unit assembles output fields into records defined by their end-of-line characters. Using this method we can specify output fields using the specific ticket field numbers (1-48) or by character start position and length within the ticket structure. For example, if the user wants to create an output record which contains these fields:

Call Type, Start Date Time, End Date Time, Effective Call Duration (converted from seconds to HH:MM:SS format), Acting Extension Number, Trunk 1 and the user wants to specify the record using TICKET FIELD NUMBERS, the setup would look like this:

```
alcatel.ip=22.23.212.12
alcatel.port = 2533
alcatel.timeout = 30
alcatel.field[1]=10,2,L // Call Type
alcatel.field[2]=40,17,L // Start Date Time
alcatel.field[3]=12,17,L // End Date Time
alcatel.field[4]=38,10,L,STOHMS // Effective Call Duration
alcatel.field[5]=41,25,R // Acting Extension Number
alcatel.field[6]=16,5,5,L // Trunk Identity
alcatel.field[7]=9,30,L // Calling Number
alcatel.field[8]=2,30,L,OD0A // Called Number
```

In the above, the field definition arguments are:

<field>=<ticket field # , length of that field to take, justification[,end of line chars][,conversion]>

The OD0A terminator on field 8 tells the unit to store all assembled output fields up to and including that output field (in ascending order of field definition number) as 1 record. Note that the OD0A optional value places the end-of-line characters on the last field, but you could include the EOL characters at other fields also so as to make multiple records. If the final field definition does not have any EOL characters, then the unit stores whatever it has assembled so far as 1 record, appended with either:

1. the first EOL character set found in any other field definition starting with the first field, or
2. CRLF, if no other field definitions have EOL characters.

If we wanted to use explicit character position values, the setup would look like this:

```
alcatel.ip=22.23.212.12
alcatel.port = 2533
alcatel.timeout = 30
alcatel.field[1]=62,2,2,L // Call Type
alcatel.field[2]=382,17,17,L // Start Date Time
alcatel.field[3]=203,17,17,L // End Date Time
alcatel.field[4]=193,10,10,L,STOHMS // Effective Call Duration
alcatel.field[5]=46,30,20,R // Acting Extension Number
alcatel.field[6]=16,5,5,L // Trunk Identity
alcatel.field[7]=38,30,30,L // Calling Number
alcatel.field[8]=3,30,30,L,0D0A // Called Number
```

In the above, the field definition arguments are:

<field>=<start pos, how long the field is, length of that field to take, justification[,end of line chars][,conversion]>

Once a configuration file is uploaded to the unit, the Data-Link indicates that it is processing the data. It returns "COMPLETE" when all settings are processed. The unit gives no other progress or status feedback to the user while it is processing the file. Instead, it logs feedback to a file that the user can view after processing is complete. If there were any problems, the unit will display an error message after processing is complete.

To view the log, enter the "SK LOG" command. This will display which settings, if any, it failed to process because of bad value, key name, or syntax. Bear in mind, this upload process does not attempt to error check the output field definitions, it only stores them. Instead, the real time client verifies these field definitions when it is started. If the client is idle (you can tell the client's state by entering the "IPRC STATUS" command), you must start the client in order to tell it to compile the settings ("IPRC START" command).

Limits of field definitions

There is room for up to 3 EOL characters for each field definition. Null is an invalid EOL character. There are 2 available conversion options, if conversion is desired, for each field definition: STOHMS and MTOHMS. STOHMS assumes the input data from the ticket is a value represented in seconds, and it will convert this value to hh:mm:ss format in the output field. MTOHMS works like STOHMS except it assumes the value to be converted is in minutes. The maximum output field length is 300 characters. The maximum record length is 520 characters.

Aside from the up to 48 output fields, there are 6 other items to configure:

| Setting | Function |
|---------------------------------|---|
| alcatel.ip | IP address of PBX. |
| alcatel.port | TCP port of PBX real time interface. Default is 2533. |
| alcatel.timeout | Timeout (in seconds) used for waiting for packets and connection retries. Default is 30. |
| alcatel.delim | Output field delimiter. This is a 1-byte value, expressed as ASCII-HEX. If it is non-zero, then this byte is appended to each unterminated output field. For example, to separate each output field with a space, assign this key the value of "20". Default is "00". |
| net.iprc.mode = ALCATEL OMNIPCX | Selects the client as the active IPRC service. |
| Net.iprc.file | Selects the database file used for record storage. |

Standard Ticket Fields

There are 48 ticket fields to choose from when paring down which data you would like to keep from the incoming tickets. This section covers each of the fields, their location and size in the ticket, and the alignment of the data within the field.

When specifying an output field using TICKET FIELD NUMBERS, the unit uses this standard ticket format:

Note: Ticket structure is subject to change by Alcatel. You should refer to the latest Alcatel documentation if there is any problem or question.

| Field | Name | Offset | Size | Alignment |
|-------|--------------------|--------|------|-----------|
| 1 | TicketVersion | 0 | 5 | L |
| 2 | CalledNumber | 5 | 30 | L |
| 3 | ChargedNumber | 35 | 30 | L |
| 4 | ChargedUserName | 65 | 20 | L |
| 5 | ChargedCostCenter | 85 | 10 | L |
| 6 | ChargedCompany | 95 | 16 | L |
| 7 | ChargedPartyNode | 111 | 5 | R |
| 8 | Subaddress | 116 | 20 | L |
| 9 | CallingNumber | 136 | 30 | L |
| 10 | CallType | 166 | 2 | R |
| 11 | CostType | 168 | 1 | NA |
| 12 | EndDateTime | 169 | 17 | NA |
| 13 | ChargeUnits | 186 | 5 | R |
| 14 | CostInfo | 191 | 10 | R |
| 15 | Duration | 201 | 10 | R |
| 16 | TrunkIdentity | 211 | 5 | R |
| 17 | TrunkGroupIdentity | 216 | 5 | R |
| 18 | TrunkNode | 221 | 5 | R |
| 19 | PersonalOrBusiness | 226 | 1 | NA |
| 20 | AccessCode | 227 | 16 | L |
| 21 | SpecificChargeInfo | 243 | 7 | NA |
| 22 | BearerCapability | 250 | 1 | NA |
| 23 | HighLevelComp | 251 | 2 | R |
| 24 | DataVolume | 253 | 10 | R |
| 25 | UserToUserVolume | 263 | 5 | R |
| 26 | ExternalFacilities | 268 | 40 | NA |
| 27 | InternalFacilities | 308 | 40 | NA |
| 28 | CallReference | 348 | 10 | R |
| 29 | SegmentsRate1 | 358 | 10 | R |

The Real Time Client

The client is idle whenever there are no configured OmniPCX settings. After you upload a configuration file for the first time, type "IPRC START" to start the client. Then type "IPRC STATUS" or "IPRC ?" to check the current status. It will either indicate a working status (e.g., "Established - awaiting packet") or if something is wrong (e.g., unable to connect to the OmniPCX, or a certain output field definition doesn't make sense). All output field definitions must compile correctly in order for the unit to accept the configuration and attempt to connect to the OmniPCX.

Once the client has accepted a valid configuration, it will attempt to connect to the OmniPCX whenever the unit is reset. If the user manually stops the client with the IPRC STOP command, then the client will remain in the idle state until either the unit is reset or the user enters the IPRC START command.

If a new configuration is uploaded while the client is connected to the PBX, then it will:

1. Disconnect from the PBX if the configuration is invalid.
2. Stay connected to the PBX using the new configuration, if the configuration is valid and the PBX IP address or TCP port did not change.
3. Disconnect from the PBX and reconnect using the new configuration, if the configuration is valid and the PBX IP address or TCP port changed.

Cisco Call Manager

Definition

The Data-Link DL150 supports the Cisco CallManager software. This method involves querying the Cisco CallManager database using SQL commands. The database contains many different columns that may not be useful to a system administrator. The DL150 allows an administrator to use a configuration file that selects exactly which fields to retrieve from the Cisco CallManager database.

Commands

| Command | Function |
|-------------------------------------|---|
| SK SET X | Initiates a settings key file upload via Xmodem. |
| SK SET A | Initiates a settings key file upload via plaintext ASCII. |
| SK LOG | Displays results of uploading the settings key file. |
| IPRC START | Causes immediate connection to CallManager to retrieve any new records, followed by automatic connection at the interval specified by the connection interval setting. When the DL150 starts up in Cisco CallManager IPRC mode, and a non-zero connection interval is set, automatic connection is enabled. This command is only required if automatic connection was previously stopped using the IPRC STOP command, or the connection interval was changed from zero to a non-zero value. |
| IPRC STOP | Disables automatic connection to CallManager, and terminates any open connection. Automatic connection is re-enabled if the DL150 is restarted. |
| IPRC NOW [value] | Causes the DL150 to connect to CallManager immediately and retrieve any available new records. If value is specified, it will only retrieve that many records even if more are available. |
| IPRC DBINFO | Causes the DL150 to connect to CallManager immediately and retrieve and display the total number of records present, and the date/time stamp of the first and last records. |
| IPRC or IPRC STATUS or IPRC ? | Displays a status report of the active IPRC mode. |
| IPRC FIELDS | Displays the list of compiled output fields. |
| IPRC LOG | Shows any messages returned by the CallManager server during the last non-interactive connection attempt. This information can be useful for troubleshooting. |
| IPRC INTERACTIVE | Causes the DL150 to connect to CallManager, and then present an interface for entering SQL commands to be sent to CallManager. The results of any SQL commands are displayed on-screen, and are not stored in the DL150 database. Field settings do not apply in interactive mode. |

Status Display

The following is an example status display for Cisco CallManager IPRC:

```
Cisco CallManager IPRC Status
State: Waiting
Last result: Retrieved 5 records (connected 0/00:00:23 ago for 00:00:07)
Time until next connection: 00:09:36
Records processed: 00000730
```

Configuration File

The record retrieving functionality is configured via a configuration file. This configuration file is a list of setting keys, where a setting key is a "<setting> = <value>" statement. <setting> is a period-delimited string of keywords. These keys can name all of the setup variables of the product. These include the generic operational parameters of the box such as these below, as well as specialized parameters such as those for the Cisco CallManager:

```
net.ip=192.168.100.32
net.subnet=255.255.255.0
net.router=192.168.100.100
net.snmp[1]=192.168.100.36
net.snmp[2]=0.0.0.0
net.snmpcomm=public
```

The unit queries the CallManager database and, for each available record, retrieves the values (columns) specified in the field table. The retrieved values are assembled into records as defined in the field table. Using this method we can specify output fields using the specific database column numbers (shown in the tables below), or by specifying the exact name of the database column.

Values can be retrieved from two CallManager tables: CallDetailRecord (CDR), and CallDetailRecordDiagnostic (CMR). When CMR values are specified, values are retrieved only from CMR records that are related to CDR records included in the query. When specifying fields, each field name/number is prefixed by "cdr." or "cmr." depending on which table the field is coming from.

For example, if the user wants to create an output record which contains these fields: cdr.dateTimeDisconnect, cdr.originalCalledPartyNumber, cdr.finalCalledPartyNumber, cdr.dateTimeOrigination (converted to MM/DD/YYYY HH:MM:SS format), cdr.origIPAddr (converted to 4-dot notation), cdr.duration, cmr.jitter, and cmr.latency, and the user wants to specify the fields using COLUMN NUMBERS, the field setup would look like this:

```
iprc.field[1]=cdr.38,10,R // Date/time disconnect (integer format)
iprc.field[2]=cdr.26,25,R // Original called party number
iprc.field[3]=cdr.28,25,R // Final called party number
iprc.field[4]=cdr.5,17,R,NTOD // Date/time origination (date/time format)
iprc.field[5]=cdr.10,15,R,NTOIP // Orig IP address (4-dot notation)
iprc.field[6]=cdr.39,10,R // Duration
iprc.field[7]=cmr.13,10,R // Jitter
iprc.field[8]=cmr.14,10,R,OD0A // Latency
```

In the above, the field definition arguments are:

```
<field>=<column# , length of that value to take, justification[,end of line chars][,conversion]>
```

If the specified length is greater than the length of the returned value, then the returned value is padded with spaces and justified within the output field based on the justification specification. 'L' means the value is left-aligned, 'R' means the value is right-aligned, and 'N' means the output field retains the size of the returned value and is not padded with spaces.

The OD0A terminator on field 8 tells the unit to append CRLF to the end of that field. Note that in this example the OD0A optional value places the end-of-line characters on the last field, but you could include the EOL characters at other fields also so as to break the record into multiple lines. If the final field definition does not have any EOL characters specified, then the unit appends CRLF automatically.

If we wanted to use explicit column names (if, for example, a column is desired that is not in the COLUMN NUMBER table), the setup would look like this:

```
iprc.field[1]= cdr.dateTimeDisconnect,10,R // Date/time disconnect (integer
format)
iprc.field[2]= cdr.originalCalledPartyNumber,25,R // Original called party
number
iprc.field[3]= cdr.finalCalledPartyNumber,25,R // Final called party number
iprc.field[4]= cdr.dateTimeOrigination,17,R,NTOD // Date/time origination
(date/time format)
iprc.field[5]= cdr.origIPAddr,15,R // Orig IP address (4-dot notation)
iprc.field[6]= cdr.duration,10,R // Duration
iprc.field[7]= cmr.jitter,10,R // Jitter
iprc.field[8]= cmr.latency,10,R,OD0A // Latency
```

In the above, the field definition arguments are:

```
<field>=<column name, length of that field to take, justification[,end of line
chars][,conversion]>
```

Once a configuration file is uploaded to the unit, the Data-Link indicates that it is processing the data. It returns "COMPLETE" when all settings are processed. The unit gives no other progress or status feedback to the user while it is processing the file. Instead, it logs feedback to a file that the user can view after processing is complete. If there were any problems, the unit will display an error message after processing is complete.

To view the log, enter the "SK LOG" command. This will display which settings, if any, it failed to process because of bad value, key name, or syntax. Bear in mind that this upload process does not attempt to error check the output field definitions, it only stores them. Instead, the fields are verified when a connection attempt is made to the CallManager server.

Limits of field definitions

There is room for up to 3 EOL characters for each field definition. Null is an invalid EOL character. There are 2 available conversion options, if conversion is desired, for each field definition: NTOD and NTOIP. NTOD assumes the value is a coordinated universal time (UTC) value that represents the number of seconds since midnight (00:00:00) Jan. 1, 1970, and it will convert this value to "mo/dd/year hh:mm:ss" format in the output field. NTOIP assumes the value is a 32-bit representation of an IP address with the bytes reversed, so that the high-order byte contains the low-order IP address octet, and so on; the value is converted to a standard 4-dot IP address representation. The maximum output field length is 160 characters. The maximum total record length is 800 characters.

Aside from the up to 48 output fields, there are some other items to configure:

| Setting | Function |
|--------------------|---|
| iprc.mode | Selects the client as the active IPRC service. |
| iprc.file | Selects the database file used for record storage. |
| iprc.ccm.database | The name of the CallManager database containing call detail records. |
| iprc.ccm.username | The username for logging into the CallManager server. |
| iprc.ccm.password | The password for logging into the CallManager server. |
| iprc.ccm.interval | Determines how often the DL150 connects to the CallManager server to retrieve new records, in minutes. Setting this value to 0 effectively disables automatic connection. |
| iprc.ccm.delimiter | Output field delimiter. This is a 1-byte value, expressed as ASCII-HEX. If it is non-zero, then this byte is appended to each unterminated output field. For example, to separate each output field with a space, assign this key the value of "20". Default is "00". |
| iprc.ccm.startdate | The date and time, in "MM/DD/YYYY HH:MM:SS" format, that determines which records in the CallManager database are considered new records. By default, when CCM IPRC is enabled for the first time, the DL150 retrieves records that are time stamped on or after midnight the day before, according to the DL150 system clock. After each non-interactive connection to the CCM server, this setting is updated to reflect the last "new record" date/time. |

There are 67 columns to choose from in the CallManager database – 50 in the CDR table, and 17 in the CMR table. When specifying an output field using COLUMN NUMBERS, the unit uses these standard CallManager columns:

Note: The CallManager database structure is subject to change by Cisco. You should refer to the latest Cisco documentation if there is any problem or question.

CallDetailRecord Fields

| Field | Name | Max Length* | Data Type |
|-------|-------------------------------------|-------------|-----------|
| 1 | cdrRecordType | 10 | Number |
| 2 | globalCallID_callId | 10 | Number |
| 3 | globalCallID_callManagerId | 10 | Number |
| 4 | origLegCallIdentifier | 10 | Number |
| 5 | dateTimeOrigination | 10/19 | Number |
| 6 | origNodeId | 10 | Number |
| 7 | origSpan | 10 | Number |
| 8 | callingPartyNumber | 25 | Text |
| 9 | origIpPort | 10 | Number |
| 10 | origIpAddr | 10/15 | Number |
| 11 | originalCallingPartyNumberPartition | 50 | Text |
| 12 | origCause_location | 10 | Number |
| 13 | origCause_value | 10 | Number |

| | | | |
|----|------------------------------------|-------|--------|
| 14 | origMediaTransportAddress_IP | 10/15 | Number |
| 15 | origMediaTransportAddress_Port | 10 | Number |
| 16 | origMediaCap_payloadCapability | 10 | Number |
| 17 | origMediaCap_maxFramesPerPacket | 10 | Number |
| 18 | origMediaCap_g723BitRate | 10 | Number |
| 19 | lastRedirectDn | 25 | Text |
| 20 | lastRedirectDnPartition | 50 | Text |
| 21 | destLegIdentifier | 10 | Number |
| 22 | destNodeId | 10 | Number |
| 23 | destSpan | 10 | Number |
| 24 | destIpAddr | 10/15 | Number |
| 25 | destIpPort | 10 | Number |
| 26 | originalCalledPartyNumber | 25 | Text |
| 27 | originalCalledPartyNumberPartition | 50 | Text |
| 28 | finalCalledPartyNumber | 25 | Text |
| 29 | finalCalledPartyNumberPartition | 50 | Text |
| 30 | destCause_location | 10 | Number |
| 31 | destCause_value | 10 | Number |
| 32 | destMediaTransportAddress_IP | 10/15 | Number |
| 33 | destMediaTransportAddress_Port | 10 | Number |
| 34 | destMediaCap_payloadCapability | 10 | Number |
| 35 | destMediaCap_maxFramesPerPacket | 10 | Number |
| 36 | destMediaCap_g723BitRate | 10 | Number |
| 37 | dateTimeConnect | 10/19 | Number |
| 38 | dateTimeDisconnect | 10/19 | Number |
| 39 | duration | 10 | Number |
| 40 | origDeviceName | 129 | Text |
| 41 | destDeviceName | 129 | Text |
| 42 | origCallTerminationOnBehalfOf | 10 | Number |
| 43 | destCallTerminationOnBehalfOf | 10 | Number |
| 44 | origCalledPartyRedirectOnBehalfOf | 10 | Number |
| 45 | lastRedirectRedirectOnBehalfOf | 10 | Number |
| 46 | origCalledPartyRedirectReason | 10 | Number |
| 47 | lastRedirectRedirectReason | 10 | Number |
| 48 | joinOnBehalfOf | 10 | Number |
| 49 | destConversationId | 10 | Number |
| 50 | globalCallId_ClusterID | 50 | Text |

» **Note:** Max Length specifies the number of characters to represent the maximum possible value. Where two numbers are supplied, the second number specifies the number of characters after performing the usual conversion on that particular type of value.

CallDetailRecordDiagnostic Fields

| Field | Name | Max Length* | Data Type |
|-------|----------------------------|-------------|-----------|
| 1 | cdrRecordType | 10 | Number |
| 2 | globalCallID_callManagerId | 10 | Number |
| 3 | globalCallID_callId | 10 | Number |
| 4 | nodeId | 10 | Number |
| 5 | directoryNum | 50 | Text |
| 6 | callIdentifier | 10 | Number |
| 7 | dateTimeStamp | 10/19 | Number |
| 8 | numberPacketsSent | 10 | Number |
| 9 | numberOctetsSent | 10 | Number |
| 10 | numberPacketsReceived | 10 | Number |
| 11 | numberOctetsReceived | 10 | Number |
| 12 | numberPacketsLost | 10 | Number |
| 13 | jitter | 10 | Number |
| 14 | latency | 10 | Number |
| 15 | directoryNumPartition | 50 | Text |
| 16 | globalCallId_ClusterID | 50 | Text |
| 17 | deviceName | 129 | Text |

CallManager Operation

After the DL150 is reset, or Cisco CallManager IPRC mode is selected, the unit attempts to connect to the CallManager server using the settings provided. Once successfully connected, the unit will retrieve any new records and store them into the specified DL150 database file, and then disconnect from the CallManager. This operation is repeated at the interval specified in the settings, regardless of whether the previous connection attempt was successful. If a record retrieval session is in progress when the interval expires (that is, either automatic or via "IPRC NOW" command), the interval timer is reset and the next connection is deferred until the next interval expires.

The IPRC status command ("IPRC", "IPRC STATUS", or "IPRC ?") provides information about the current state, as well as the result of the last connection attempt. Additional information may be available via the "IPRC LOG" command.

When a connection is made to the CallManager server, the settings in effect at the beginning of that session are used; IPRC settings changes that are made during the session are ignored.

Intecom Telari

Definition

Intecom Telari is IPRC from EADS (f.k.a. Intecom) E and Telari switches. In this method of IP record collection, a TCP/IP client on the unit attempts connections and accepts CDR via the connection. This method of IPRC differs from Generic Client in that it employs a proprietary application-layer protocol to transmit records.

Commands

| Command | Function |
|--------------|---|
| IPRC | Displays a status report of the active IPRC mode. |
| IPRC STATUS | |
| IPRC ? | |
| IPRC Connect | Forces the client to connect from a state where it's waiting to connect. |
| IPRC Start | Causes immediate connection to the server to retrieve any new records and to resume regular checking. This command is only required if automatic connection was previously stopped using the IPRC STOP command. |
| IPRC Stop | Disables automatic connection and terminates any open connection. Automatic connection is re-enabled if the DL150 is restarted. |

Status Display

The IPRC command brings up a status report similar to the following report:

```
Record Collection Server
Status: Listening on port 2301
```

This report simply indicates the status of the RCS. The TCP port is displayed for informational purposes only since plain text IPRC does not allow the port number to be changed.

Command Reference

User Interface Commands

» **Note:** The HELP command can give helpful context sensitive information for most commands.

| Command | Summary | Syntax | Description |
|--------------------|---------------------------|----------------------------|---|
| BYE | Disconnect from unit | BYE | Disconnect a processor session. |
| EXIT | Exit command processor | EXIT | Ends the console session. |
| HELP | Show help menu | HELP [<i>command</i>] | Displays a list of commands or context sensitive help for a specific command. |
| PING | Ping IP address | PING <i>target_address</i> | Performs a standard network ping function on the specified IP address. |
| PROMPT | Toggle command prompt | PROMPT ON OFF | Enable or disable display of console command prompt. |
| RESTART | Restart unit | RESTART | Reset the system, same as pressing the physical reset button. |
| STATUS or ? | Display status screen | STATUS or ? | Display the status screen |

Setup Commands

| Command | Summary | Syntax | Description |
|----------------|------------------------|--|--|
| GET | Pseudo SNMP get | GET [<i>C=community</i>] <i>oid</i> | Display value of MIB object specified by the <i>oid</i> . |
| GETNEXT | Pseudo SNMP getnext | GETNEXT [<i>C=community</i>] <i>oid</i> | Display value of MIB object following the one specified by the <i>oid</i> . |
| GETX | Show last MIB object | GETX | Display value of the last MIB object that was displayed. |
| SK | Set/get key | SK [<i>KEY=value</i>] | Set or get a single key See Settings Keys for more information. |
| SK GET | Read keys | SK GET [<i>X A</i>] [<i>CUSTOM</i>] [<i>filter</i>] | SK GET initiates a download of Setup menu options. See Settings Keys for more information. |
| SK HERE | Manage individual keys | SK HERE | SK HERE allows you to set or get individual keys interactively. See Settings Keys for more information. |
| SK LOG | Show SK error log | SK LOG | SK LOG outputs a list of any errors generated during an SK set. See Settings Keys for more information. |
| SK SET | Set keys | SK SET [<i>X A</i>] | SK SET puts the unit in bulk settings key upload mode. See Settings Keys for more information. |
| SET | Pseudo SNMP set | SET [<i>c=community</i>] <i>oid</i> = <i>value</i> | Set MIB object specified by the <i>oid</i> to the specified <i>value</i> . |
| SETUP | Enter setup menu | SETUP | Opens the setup menu. |
| WALK | Pseudo SNMP walk | WALK | Display value of MIB object following the last one displayed by WALK or GETNEXT. |

System Commands

| Command | Summary | Syntax | Description |
|------------------|----------------------------|----------------------|--|
| BYPASS | Access serial ports | BYPASS [port_number] | Provide pass-through terminal access between the user and the input port. |
| COLDSTART | Cold boot unit | COLDSTART | Resets the same settings as the DEFAULT command and then reboots the unit. |
| DEFAULT | Restore factory defaults | DEFAULT | Resets all settings to factory default values, except does not change the following settings: <ul style="list-style-type: none">• IP address• Subnet mask• Router address• Serial port baud rate and data format• Data alarm fields• Data alarm settings• Action queue Does not affect record data |
| DOMAIL | Test emails | DOMAIL | Sends a test email to all defined email addresses. |
| DOPAGE | Test pagers | DOPAGE | Sends a test page to all defined pagers. |
| DOTRAP | Test traps | DOTRAP | Sends a test trap to all defined trap managers. |
| SZ | Get events file via Zmodem | SZ [ALARMS AUDIT] | Release the events or audit log file via Zmodem. |
| TYPE | Print events file contents | TYPE [EVENTS AUDIT] | Print the contents of the events or audit file. |
| VER | Print unit version | VER | Displays unit hardware and software versions as well as the product and version build. |

Appendices

User Rights Table

The following tables contain the rights available to each access level within the user profiles.

Command Permissions

| Command | None | View | Admin1 | Admin2 | Admin3 | Master |
|-----------|------|------|--------|--------|--------|--------|
| ADDLF | | | X | X | X | X |
| BYE | X | X | X | X | X | X |
| COLDSTART | | | | | | X |
| DEFAULT | | | | | | X |
| DELETE | | | X | X | X | X |
| DIR | | X | X | X | X | X |
| DOMAIL | | X | X | X | X | X |
| DOPAGE | | X | X | X | X | X |
| DOTRAP | | X | X | X | X | X |
| DSTEST | | X | X | X | X | X |
| ECHOMODEM | | | X | X | X | X |
| EXIT | X | X | X | X | X | X |
| FTP | | X | X | X | X | X |
| GET | | X | X | X | X | X |
| GETNEXT | | X | X | X | X | X |
| GETX | | X | X | X | X | X |
| HELP | X | X | X | X | X | X |
| MODEMTALK | | | | | | X |
| PING | | | X | X | X | X |
| PROMPT | | | X | X | X | X |
| RELOADALL | X | X | X | X | X | X |
| RESTART | | | X | X | X | X |
| RZ | | | X | X | X | X |
| SET | | | X | X | X | X |
| SETUP | | | X | X | X | X |
| SK | | X | X | X | X | X |
| SNMP | | X | X | X | X | X |
| STATUS, ? | | X | X | X | X | X |
| SUPPORT | | X | X | X | X | X |
| TESTTIME | | X | X | X | X | X |
| TYPE | | X | X | X | X | X |
| VER | | X | X | X | X | X |
| WALK | | X | X | X | X | X |

Setup Menu Permissions

| Settings | View | Admin1 | Admin2 | Admin3 | Master |
|----------------|------|--------|--------|--------|--------|
| Most settings | View | X | X | X | X |
| Authentication | | | | View | X |
| Passwords | | | | | X |
| Event log | View | View | View | X | X |
| Audit log | View | View | View | X | X |
| PPP dial | | View | View | View | X |
| username | | | | | |
| PPP dial | | | | | X |
| password | | | | | |
| Caller ID | | | | View | X |

Control Characters

Some of the following control characters may be used in various functions within the DL150, including CRC mode for OmniAlarms and the Escape Key.

| Char | Dec | Hex | Control Key | Control Action |
|-------------|------------|------------|--------------------|------------------------|
| NUL | 0 | 00 | ^@ | Null |
| SOH | 1 | 01 | ^A | Start of heading |
| STX | 2 | 02 | ^B | Start of text |
| ETX | 3 | 03 | ^C | End of text |
| EOT | 4 | 04 | ^D | End of transmission |
| ENQ | 5 | 05 | ^E | Enquiry |
| ACK | 6 | 06 | ^F | Acknowledge |
| BEL | 7 | 07 | ^G | Bell |
| BS | 8 | 08 | ^H | Backspace |
| HT | 9 | 09 | ^I | Horizontal tab |
| LF | 10 | 0A | ^J | Line feed |
| VT | 11 | 0B | ^K | Vertical tab |
| FF | 12 | 0C | ^L | Form feed |
| CR | 13 | 0D | ^M | Carriage return |
| SO | 14 | 0E | ^N | Shift Out |
| SI | 15 | 0F | ^O | Shift In |
| DLE | 16 | 10 | ^P | Data link escape |
| DC1 | 17 | 11 | ^Q | XON |
| DC2 | 18 | 12 | ^R | Device control 2 |
| DC3 | 19 | 13 | ^S | XOFF |
| DC4 | 20 | 14 | ^T | Device control 4 |
| NAK | 21 | 15 | ^U | Negative acknowledge |
| SYN | 22 | 16 | ^V | Synchronous idle |
| ETB | 23 | 17 | ^W | End transmission block |
| CAN | 24 | 17 | ^X | Cancel |
| EM | 25 | 19 | ^Y | End of medium |
| SUB | 26 | 1A | ^Z | Substitute |
| ESC | 27 | 1B | ^[| Escape |
| FS | 28 | 1C | ^\ | File separator |
| GS | 29 | 1D | ^] | Group Separator |
| RS | 30 | 1E | ^^ | Record Separator |
| US | 31 | 1F | ^_ | Unit Separator |

Internal Modem Guidelines

The internal modem supplied with this product complies with Part 68 of the FCC Rules and Regulations. The labeling on the modem provides the FCC Registration number and the Ringer Equivalence Number (REN) for the modem. This information is also listed below. You must provide, upon request, this information to your telephone company.

The REN is useful to determine the quantity of devices you may connect to a telephone line and still have all of these devices ring when the number is called. In most, but not all areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to a line, as determined by the REN, you should contact the local telephone company to determine the maximum REN for your calling area.

If the modem causes harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will notify you in advance. If advance notification is not possible, you will be notified as soon as possible.

Your telephone company may make changes in its facilities, equipment, operations or procedures that could affect proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with the modem, contact Asentria at (206) 344-8800 for information on obtaining service or repairs. The telephone company may ask you to disconnect the device from the network until the problem has been corrected or until you are sure that the device is not malfunctioning.

This device may not be used on coin service lines provided by the telephone company (this does not apply to private coin telephone applications which use standard lines). Connection to party lines is subject to state tariffs.

| Modem | FCC ID | REN |
|---------------------------|----------------------------|------------|
| 2400 Baud Modem | EUD-5U9-BRI4480 | 0.8B |
| 33.6K Baud Radicomm Modem | 406CHN-31735-PT-E REN 1.1B | 1.1B |
| 33.6K Baud OmniModem | 6KMUSA-34184-MME REN 0.9B | 0.9B |
| 33.6K Baud MultiModem | AU7-USA-46014-MD-E | 0.1B |

Canadian Department of Communications

NOTICE: The Canadian Department of Communications Label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protections that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Load Number (LN) assigned to each terminal device denotes the percentage of total load to be connected to a telephone loop, which is used by the device, to prevent overloading.

The termination of a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100. The load number of this unit is five.

This digital apparatus does not exceed the Class A limits for Radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

AVIS: - L'étiquette du ministère des Communications du Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. Dans certains cas, les fils intérieurs de l'entreprise utilisés pour un service individuel à ligne unique peuvent être prolongés au moyen d'un dispositif homologué de raccordement (cordon prolongateur téléphonique interne). L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l'on raccorde leur matériel à des jacks d'abonné, sauf dans les cas précis prévus par les tarifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien Canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause de mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement. - L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques, ou à un électricien, selon le cas.

L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut être constituée de n'importe quelle combinaison de dispositif, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100. L'indice de charge de cet produit est 5.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur : "Appareils Numériques", NMB-003 édictée par le ministre des Communications.

Warranty Information

Asentria Corporation hereby warrants that it will, as the buyers sole remedy, repair or replace, at its option, any part of the DL150 which proves to be defective by reason of improper materials or workmanship, without charge for parts or labor, for a period of 12 (twelve) months. This warranty period commences on the date of first retail purchase, and applies only to the original retail purchaser.

To obtain service under this warranty, you must obtain, by telephone, postal letter, or email, a return authorization number from Asentria Technical Support. This authorization number may be obtained by contacting Asentria Technical Support at the address and/or phone number below. The defective unit is to be returned to Asentria with shipping prepaid, and the return authorization number must be clearly marked on the outside of the package containing the defective unit.

The dealer's bill of sale or other satisfactory proof of the date of purchase may be required to be presented in order to obtain service under this warranty.

This warranty applies if your DL150 fails to function properly under normal use and within the manufacturer's specifications. This warranty does not apply if, in the opinion of Asentria Corporation, the unit has been damaged by misuse; neglect; or improper packing, shipping, modification, or servicing by other than Asentria or an authorized Asentria Service Center.

In no event shall Asentria Corporation be liable for any loss, inconvenience or damage, whether direct, incidental, consequential or otherwise, with respect to the DL150. Asentria Corporation's liability shall be limited to the purchase price of the DL150. No warranty of fitness for purpose, or of fitness of the DL150 for any particular application is provided. It is the responsibility of the user to determine fitness of the DL150 for any particular application or purpose.

This warranty gives you specific legal rights. These rights may vary from state to state, as some states do not allow limitations on liability.

You may request information on how to obtain service under this warranty by contacting Asentria Technical Support at the address and phone number below:

Asentria Technical Support
1200 North 96th St.
Seattle, WA 98103
(206) 344-8800
www.asentria.com