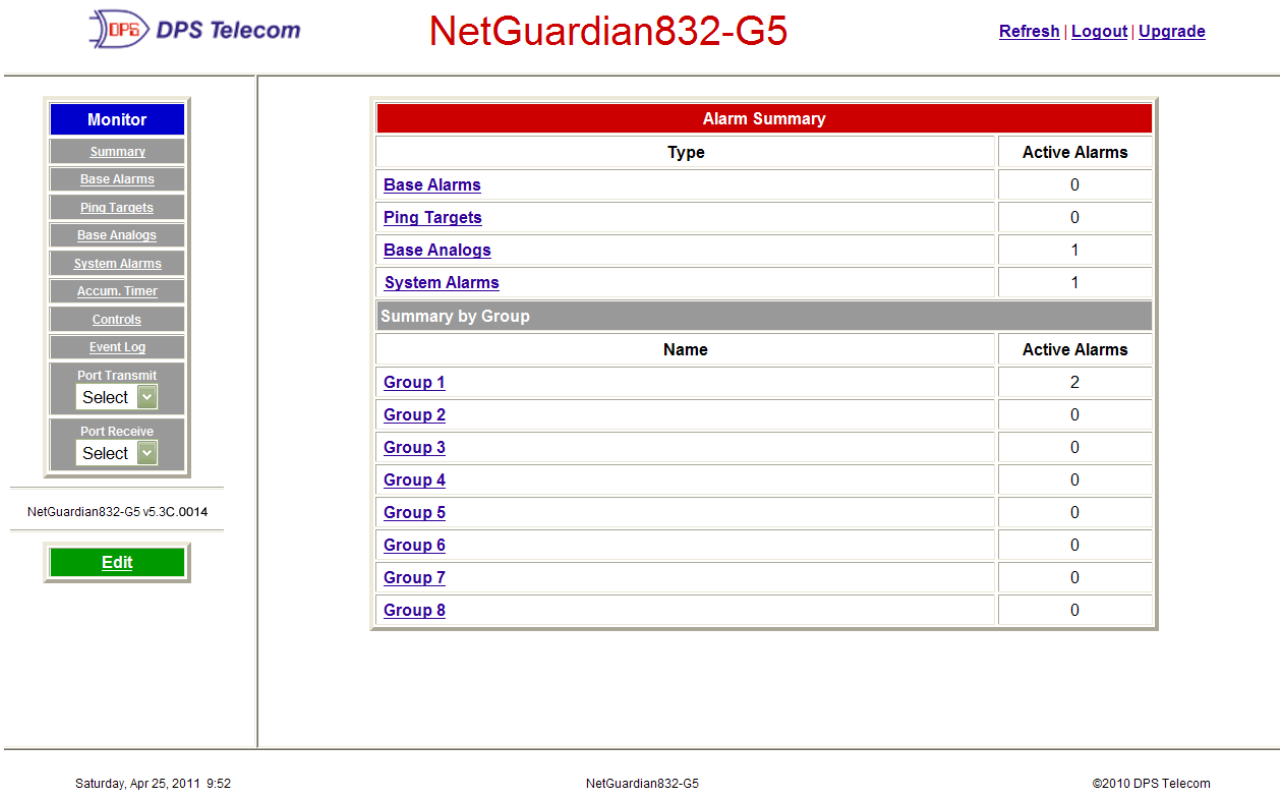
DPS Telecom
"Your Partners in Network Alarm Monitoring"

NetGuardian 832A/864A G5 Web Browser

USER MANUAL



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March 6, 2020 **D-UM-NETG5.12101** **Firmware Version v.5.6D**

Revision History

March 6, 2020	Minor Updates
December 11, 2019	Updated Entering System Settings Section
November 15, 2019	Added support for Air Flow Sensors
October 21, 2019	Updated Appendix A
March 5, 2019	Added support for static routes.
August 2, 2018	Added Analog Delta alarm
May 18, 2018	Added Enhanced Mode for "Filter IPA"
September 6, 2017	Added Trap Listening Port details to Setting up SNMP section
December 7, 2016	STMP Email Updates
May 20, 2016	Added Making Relays Exclusive
April 30, 2015	DSCP Screenshot Updates
January 26, 2015	System Alarms Display Map
October 17, 2014	Added advanced controls option and updated Derived Controls to include constant operator.
November 25, 2013	Added Configure DNP3
November 19, 2013	Added Configuring DSCP Devices and MonitoringDSCP Devices sections
October 21, 2013	Added DSCP to "Data Port Types"
July 25, 2013	Added Source Address to "SettingUp SNMPv1 or v2c" section
...	...
October 6, 2011	Added support for T1/E1 WAN Top Board

Notice

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1 Overview

Fig. 1.1. *NetGuardian 832A G5 monitors alarms, pings network elements, and reports via SNMP, pager, or email*

1.1 Introduction

The NetGuardian's Web Browser Interface lets you manage alarms and configure the unit through the Internet or your Intranet. You can quickly set up alarm point descriptions, view alarm status, issue controls, and configure paging information, and more. The NetGuardian supports Internet Explorer versions 4.0 and above and Netscape Navigator versions 4.7 and above.

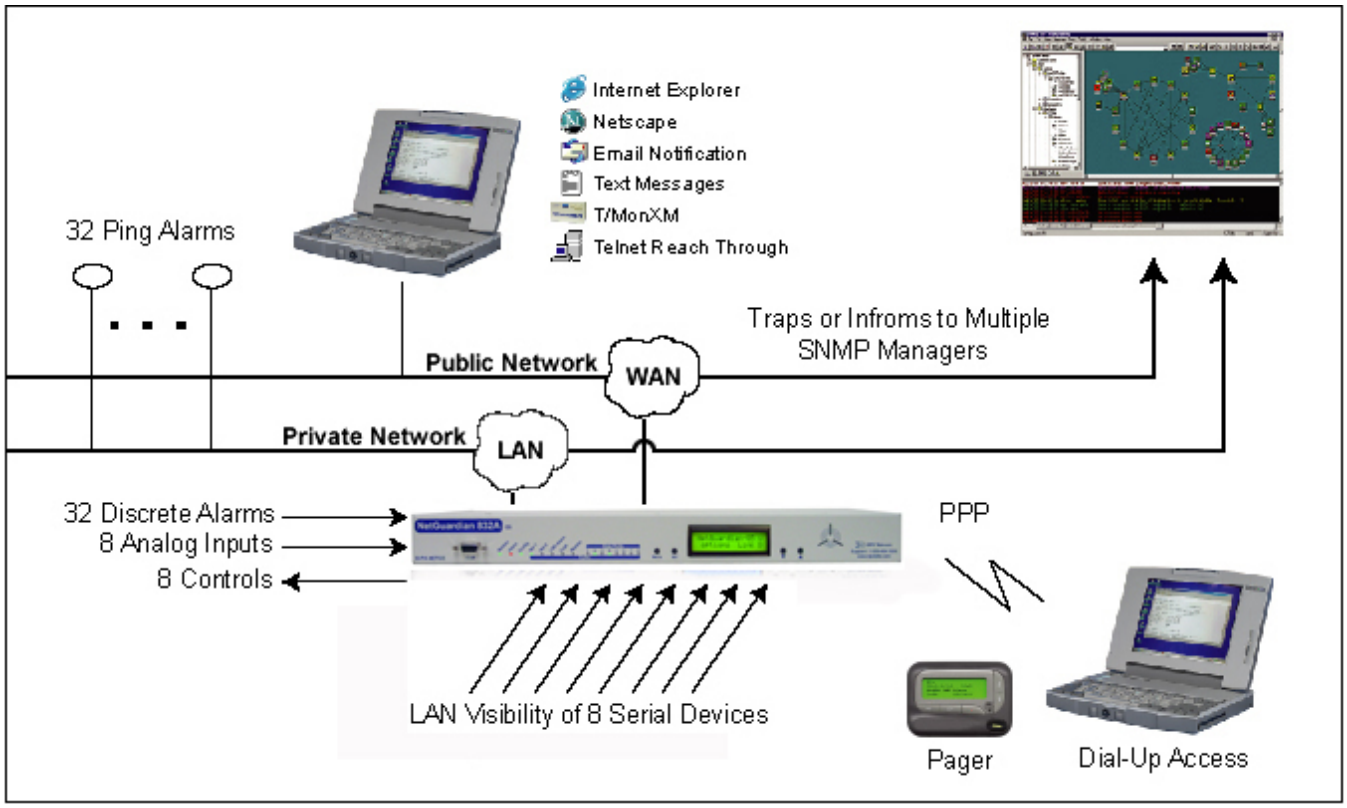


Fig. 1.2. *NetGuardian 832A G5 has the capacity to monitor IP aware devices' network presence and also interfaces discrete alarm points and controls at your network sites*

1.2 Potential Problems using Web Interface in a Secure Proxy Network

Using the Web Browser Interface for the NetGuardian in a secure proxy network can cause certain problems to occur. If you are logged on to the NetGuardian from within your network through a proxy, and another user from within your network tries to access the same NetGuardian, the second user will not need to login to the NetGuardian. Both users will essentially be logged in using the same IP address because of the masking done by the proxy server.

1.3 What's New in NetGuardian G5

The NetGuardian G5 series adds these new features:

SNMP v2c Support and Robust Message Delivery
NetGuardian G5 supports SNMP v2c, and the SNMP INFORM command, which permits robust delivery of alarm notification to your SNMP manager.

Alarm Point Grouping
Each NetGuardian Alarm point can be assigned to one of eight groups, which are identified with a user-defined label. Some of the ways you can use Alarm Point Grouping include:

Alarm Severity Levels:	Configure the NetGuardian to indicate assigned alarm security levels like Critical, Major, Minor and Status in a variable binding within the SNMP TRAP or INFORM message — so alarms can be sorted by severity even if your SNMP manager doesn't support severity levels.
Two Sets of Alarm Severity Levels:	With 8 alarm groups to work with, you can easily create two different sets of severity levels. For example, you could separate power alarms (rated from Critical to Status) from environmental alarms (also rated Critical to Status).
Custom Virtual Alarms:	Create virtual alarms based on easy formulas like All security alarms or Critical power alarms.
Flexible Custom Derived Controls:	NetGuardian G5 lets you create Derived Controls formulas based on Alarm Point Groups.
Granular Pager and Email Notification:	Selectively assign alarm points to specific pager and email notification recipients. The NetGuardian can be configured to send pager notifications only for Critical or Major alarms — or you can send power alarms to repair technicians and intrusion alarms to a security guard.

Global Support for Dual SNMP Managers
NetGuardian G5 supports sending all SNMP TRAP and INFORM notifications to **two** global SNMP managers. This makes it easier to configure a secondary SNMP manager and frees up your NetGuardian configuration for additional notification devices and more flexible alarm reporting. You can easily send an alarm to your primary SNMP manager at the NOC; to a secondary backup SNMP manager at another location; to the pager of the on-call technician; and the email in-box of the technician's supervisor.

Ping Devices with SNMPv1 GET
NetGuardian G5 allows the use of SNMPv1 GETs to verify connectivity to a device. This re-uses the ping target functionality and allows an option between ICMP ping and SNMP ping. The SNMP ping will be an SNMPv1 GET against common MIB variables; sysDescr, SysObjectID, or SysUpTime. No special OID entry is required.

Filter or Reset the NetGuardian Event Log
The NetGuardian Event Log has been enhanced to support new NetGuardian G5 features:
- You can filter Event Log entries by Alarm Point Group, to see only the alarms you want.
- You can reset the Event Log, to clear old alarms from the display.

- You can reset the Event Log by Alarm Point Group; for example, clear power alarms while retaining intruder alarms.

Alarm Sync Makes Turnup and Testing Easy
NetGuardian G5 also provides a new command to re-synchronize all alarms. This command clears all alarms, so that a new notification is sent for all standing alarms. You can easily test alarm connections during turnup without rebooting the NetGuardian unit.

2 Unit Configuration

2.1 Logging on to the NetGuardian

For Web Interface functionality, the unit must first be configured with some basic network information. If this step has not been done, refer to the NetGuardian User Manual for initial software configuration setup.

1. To connect to the NetGuardian from your Web browser, you must know its IP address or domain name if it has been registered with your internal DNS. Enter it in the address bar of your Web browser. It may be helpful to bookmark the logon page to simplify access.

2. After connecting to the NetGuardian's IP address, enter your password and click Submit, see Figure 2.1.
   Note: The factory default password is **dpstelecom.**

3. In the left frame there is **Monitor** menu button and an **Edit** menu button. Most of the software configuration will occur in the **Edit** menu. The following sections provide detailed information regarding these functions.

Hot Tip!

If the **Edit** menu does not appear in the left frame after logging on, it means that another station has already logged on as the primary user, or that you don't have the rights to modify parameters. The maximum number of users allowed to simultaneously access the NetGuardian via Web is four. The primary user is the only user with access to the editing features.

Exiting the Web interface without logging out prevents other users from accessing the Editing features, as well. Web sessions are tracked by IP Address and the session will time out after twelve minutes of inactivity, unless configured with a longer Web timeout duration. (See section "Setting System Timers" for more information.)

Fig. 2.1. *Enter your password to enter the NetGuardian Web Browser Interface*

2.2 Using RADIUS Authentication (Available as of Firmware v5.0I)

RADIUS (Remote Authentication Dial In User Service) is an industry-standard way to manage logins to many different types of equipment in one central location. The NetGuardian 832A / 864A G5 connects to your central RADIUS server. Every time a device receives a login attempt (usually a username & password), it requests an authentication from the RADIUS server. If the username & password combination is found in the server's database, an affirmative "access granted" reply is sent back to the unit device, allowing the user to connect.

Note: Radius is only available with the Firmware version 5.0 I or higher.

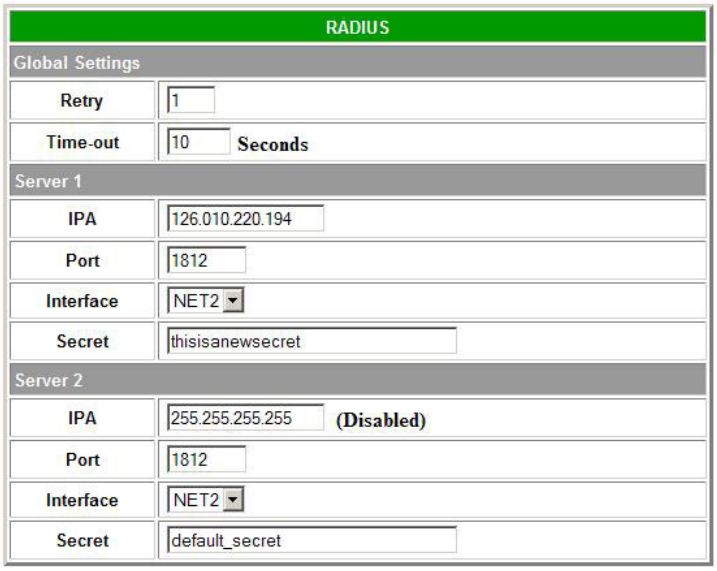


Fig. 2.1. *RADIUS configuration screen*

Fig. 2.2. *RADIUS server prompt for Username* ***and*** *Password.*

Global Settings	
Retry	Enter the number of times the RADIUS server should retry a logon attempt
Time-out	Enter in the number of seconds before a logon request is timed out
Servers 1 / 2	
IPA	Enter the IP address of the RADIUS server
Port	Port 1812 is an industry-standard port for using RADIUS
Interface	Use the drop-down menu to choose between NET1 and NET2
Secret	Enter the RADIUS secret in this field

After successfully entering the settings for the RADIUS server, the NetGuardian Web Browser will prompt users for both a Username and Password, which will be verified using the information and access rights stored in the RADIUS database.

RADIUS logons **are** case-sensitive. If the RADIUS server is unavailable or access is denied, the master password will work for craft port access only. Also, the "dictionary.dps" files (included on the Resource Disk) needs to be loaded on the RADIUS server for access-right definition. If RADIUS is enabled on the NetGuardian, the local authentication will not be valid.

2.3 Entering System Settings

Use the following steps to define your NetGuardian system information:

1. From the **Edit** menu choose **System**, see Figure 2.2.
2. Enter the designated user name for your NetGuardian.*
3. Enter the location or address of the NetGuardian.*
4. Set the contact by entering the telephone number or other contact information for the person or group responsible for this NetGuardian.
5. The **Features** field is used for entering feature codes for future upgrades. Do not change this code unless instructed by DPS Technical Support.
6. Click **Submit** to save your system information settings.

* If using email pager type refer to Section 2.5 for correct name and location field formatting.

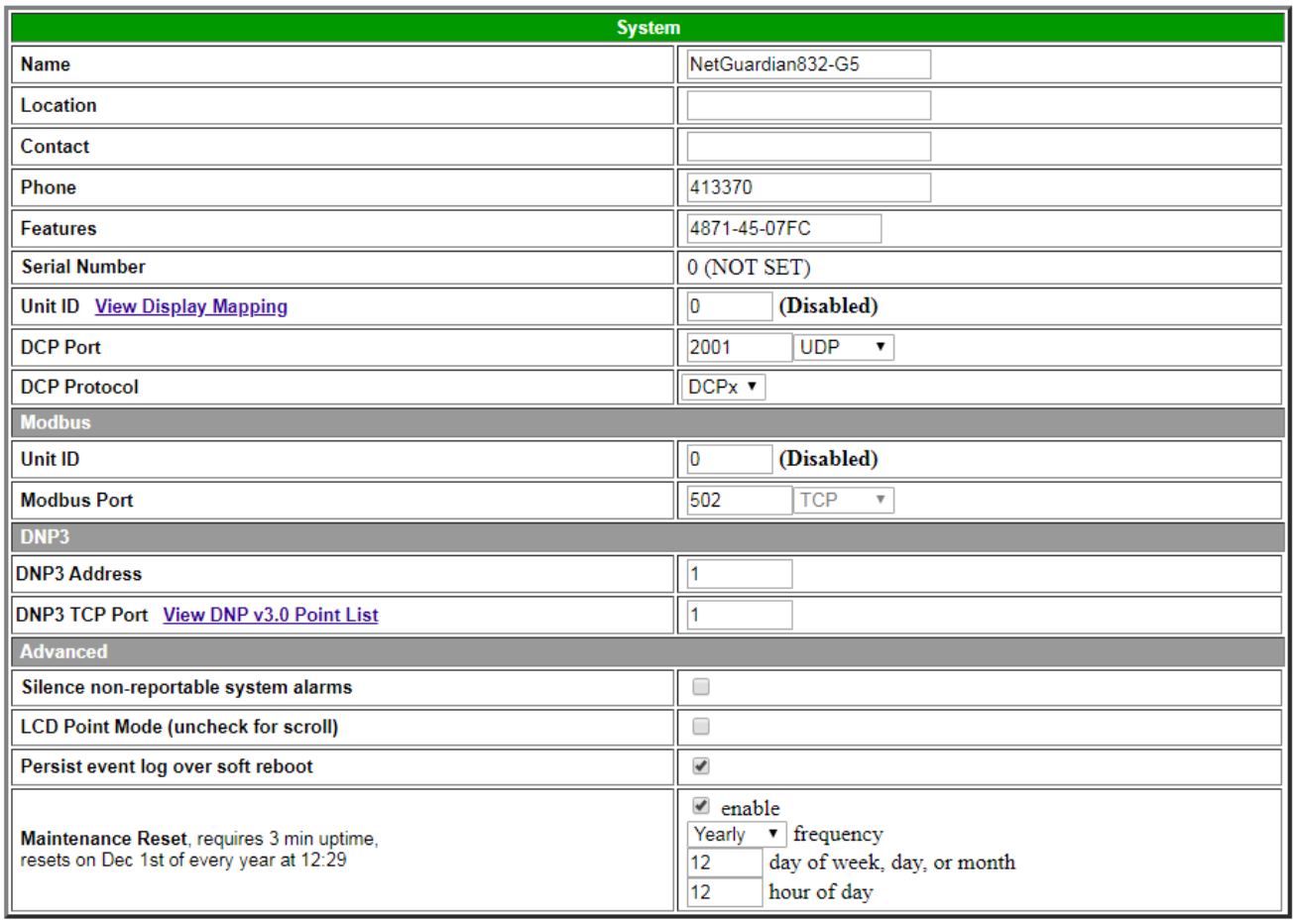


Fig. 3.2. *Configure the system information by selecting the System screen from the Edit menu*

Field	Description
Name	Used to set the Name@Location email address. **Note:** Name is the portion before the @ character.
Location	Used to set the Name@Location email address. **Note:** Location is the portion after the @ character, this is a host name or IP address.
Contact	Information for how to contact the person responsible for this NetGuardian.
Phone	Contact's telephone number.
Features	Used for entering feature codes for future upgrade features.
Unit ID	User definable ID number for this NetGuardian (DCP Address).

DCP Port	Enter the DCP Port for this NetGuardian. (1-8 serial otherwise UDP/IP Port) **Note**: DCPe added to the list of DCP protocols.
DCP Protocol	Choose between DCPx, DCPf, or DCPe.
Get History	Select the **Download** button to download the logs for all D-Wire sensors (Only available with the D-Wire top board hardware build option).
Erase History	Check this box to erase all logs for each D-Wire sensor. (Only available with the D-Wire top board hardware build option).
Modbus Unit ID	User definable ID number for the Modbus feature. Value can range from 1-255 (0 = Disabled)
Modbus Port	Modbus port for this NetGuardian.
Silence non-reportable system alarms	Check the box to silence alarms not applicable to your configuration. Example: This NetGuardian is not setup to send SNMP traps. Check this box to avoid receiving a failure notification for system alarm 13 (SNMP Trap not sent).
LCD Point Mode	Check this box to have the front panel LCD operate in "Point Mode". In this mode, only the points in alarm are displayed on the screen, instead of the full alarm descriptions. Point numbers for discrete alarms, analog threshold crossings, and latched relays will appear on the LCD. See hardware manual for details.
DNP Address	This is the DNP3 polling address of the NetGuardian. This value can range from 0 - 65519.
DNP TCP Port	This option allows you to select the port for DNP3 polling over LAN. Set to "0" to disable DNP3
Persist event log over soft reboot	Check to save the event log over a soft reboot.
Enable	If this is checked, the NetGuardian will reboot itself 29 minutes after the scheduled hour. At the top of the hour of the scheduled reset, the NetGuardian will show a warning on the web interface and display the countdown until the reset in minutes. System alarms will be saved across the reset. If “Persist event log over soft reboot” is checked, the event log will be saved across the reset as well.
Frequency	How often you would like the unit to perform a maintenance reset. You can select Yearly, Monthly, Weekly, and Daily.
Day of week, day, or month	Select on which weekday, day, or month to reset. This setting is relative to the frequency option. If Frequency is set to monthly, the NetGuardian will skip months on which the reset date is not valid for the month. For example, if the reset day is 31, it will not activate the reset in September or February. This field is not used when frequency is set to Daily.
Hour of day	Which hour of the day you would like the NetGuardian to perform the maintenance reset. The reset will be perform 29 minutes after the top of hour.

Table 3.A. *System fields*

2.4 Changing the Logon Password

The password can be configured from the **Edit** menu > **Logon** screen > **Master Password** section. The minimum password length is four characters; however, DPS recommends setting the minimum password length to at least five characters. You can also configure security logon profiles to individual access rights and security dial-back functions in the **Logon Profile** screen. (See section for dial-back and logon profile configuration information.)

The factory default password is **dpstelecom**. DPS Telecom strongly recommends that the default password be changed.

Use the following steps to change the logon password:

1. From the **Edit** menu select **Logon**.
2. Enter the minimum password length you wish to set.
3. Enter your new password in the **Password** and **Confirm Password** fields.
4. Click the **Submit Data** button.

Fig. 2.3. *Configure the password parameters from the Login screen*

2.4.1 Logon Profiles and Access Rights

Creating logon profiles allows you to grant personnel access to certain functions of the NetGuardian without allowing access to sensitive or secure areas of the database.

Use the following steps to create logon profiles:

1. From the **Edit** menu select **Logon**, then click on the **Available** link. (See Figure 2.3.)
2. Enter the user information in the appropriate fields. See Table 2.B for field and access privileges descriptions.
3. Click **Submit Data** to save the user profile.

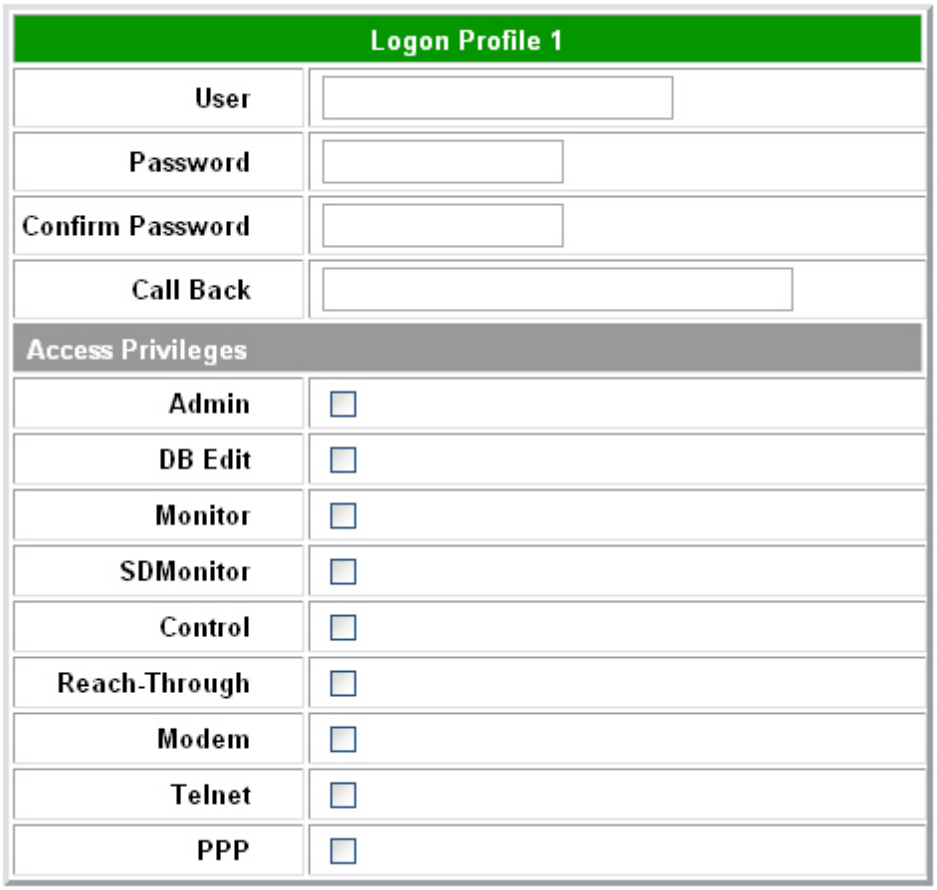


Fig. 2.4. *Configure access privileges for users in the Logon Profile screen*

If RADIUS is enabled on the NetGuardian, local authentication will not be valid.

Profile Field	Description
User	Enter a username or a user description. (18 characters maximum)
Password	Enter a unique user password. (4 character minimum) **Note:** This password will be used by the NetGuardian to determine whether or not to initiate the "Call-Back" function and also if any limited access applies.
Confirm Password	Re-enter the password.
Call Back	This is the phone number the NetGuardian uses to call back to the user's modem.
Access Privileges	
Admin	Enables the user to add/modify logon profiles and NetGuardian password information.
DB Edit	Enables the user to perform database edits in the NetGuardian.
Monitor	Enables the user to have Monitor access of the NetGuardian.
SDMonitor	Enables the user to view serial port buffers.
Control	Gives the user the ability to issue controls. This also automatically activates Monitor.
Reach-Through	Enables the user to achieve reach-through (Proxy) access.
Modem	Enables the user to call into the unit.
Telnet	Enables the user to have Telnet access to the unit.
PPP	Enables the user to access the PPP server with the user defined password.

Table 2.B. *Logon profile field descriptions*

2.4.2 Security Dial-Back

The Dial-Back feature serves as an additional level of security when accessing the NetGuardian from the modem. Once users are assigned a logon profile, along with a unique NetGuardian logon password, the unit can be set to initiate a dial-back when a valid logon password is entered. If a valid password is entered users will see **accepted, Disconnecting.** The NetGuardian will then hang up and dial back to the users modem using the number entered in the logon profile. When the NetGuardian dials back, the user will be logged on to whatever security access that user has been granted in their logon profile.

Hot Tip!

To enable dial-back security, at least one of the access privileges must be activated and a call back phone number must be defined. As long as the dial-back security mode is enabled, that will be the only method of external dial-up access to the unit.

2.5 Configuring Port Parameters

2.5.1 Ethernet Ports

To configure your NetGuardian's Ethernet Ports:

1. Click the **Ethernet** link from the **Edit** menu.
2. Enter the appropriate information for your ethernet port in the corresponding fields.
3. Click **Submit Data** to save your configuration settings.

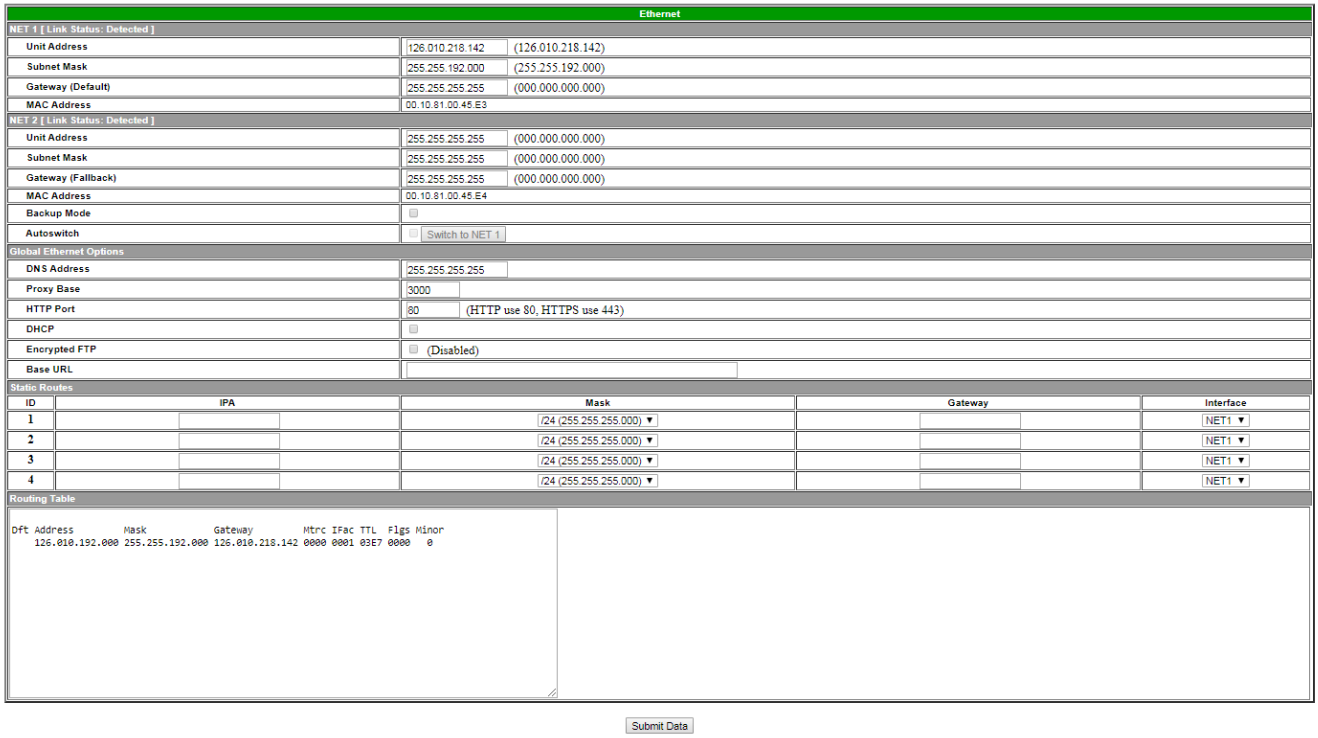


Fig. 2.5. *Ethernet port configuration is accomplished from the Edit menu > Ethernet screen*

To configure SSL/HTTPS, set the HTTP port to 443. Change the HTTP port from port 80 to 443.

Field	Description
Unit Address	IP address of the NetGuardian
Subnet Mask	A road sign to the NetGuardian telling it whether your packets should stay on your local network or be forwarded somewhere else on a wide area network.
Default Gateway	An important parameter if you are on a network that is connected to a wide area network. It tells the NetGuardian which machine is the gateway out of your local network. Set to 255.255.255.255 if not using .
DNS Address	IP address of the domain name server. Set to 255.255.255.255 if not using.
Proxy Base	Defines the NetGuardian TCP ports used by data ports 1-8. The Proxy Base identifies port 1. Data ports 2-8 receive the next 7 port numbers in ascending order. (i.e. TCP port 3000 through port 3007 at the IP address of the NetGuardian).
DHCP	Toggles the Dynamic Host Connection Protocol On or Off
Encrypted FTP	Toggles Encrypted FTP On or Off
Base URL	The Base URL is the destination website address or the alarm point description hyperlinks. See Section "Using the Base URL Field."
MAC Address	Hardware address of the NetGuardian (not editable, for reference only).
Backup Mode	Unit has 2 network connections attached, but uses only the primary LAN (Net1). When a LAN failure occurs, the unit makes the switch to the secondary LAN connection (Net 2) to maintain visibility.
Autoswitch	Used with Backup Mode. Unit will revert to the primary LAN connection when the uplink is re-established.
ID	The static route number. The NetGuardian G5 supports up to four.
IPA	IP addresses that match this field will be forwarded to the designated Gateway.
Mask	Subnet mask for IPA.
Gateway	This field determines which where packets matching the IPA field should be sent. Must be on the same LAN segment as the interface.
Interface	Interface to use to route packets matching IPA, Net1 or Net2.
Routing Table	This section shows where the NetGuardian G5 will send packets. Entries in this table are determined by the Net1, Net2, and Static Routes settings.

Table 2.C. *Fields in the Edit > Ethernet > NET1/NET2settings*

When using a domain name, for example for email notifications, the NetGuardian G5 will check the domain name IP address every 6 hours, or on a failed connection to the currently active domain name IP address. In the event of a domain name connection failure the NetGuardian will not attempt to update the domain name IP address more frequently than every 10 minutes. This will prevent unnecessary domain name resolution attempts in the event of a DNS failure.

2.5.1.1 Using the Base URL Field

The NetGuardian allows users to turn each alarm point description into a hyperlink. When utilized, the alarm description for each alarm point that appears in the monitor mode (for base alarms, ping targets, or system alarms) becomes a link that directs technicians/managers to specific Web pages or to other files viewable by a Web browser. This allows users to create easily accessible informational databases on how to handle specific alarm conditions or other instructions. The hyperlinked page or file will be displayed in the main window frame of the NetGuardian Web browser. Follow the directions below to create hyperlinks for alarm point descriptions.

1. From the **Edit** Menu select **Ports**. Scroll down to the **Base URL** field, see Figure 2.5.

2. Enter your base URL (e.g. **http://www.dpstelecom.com**). The NetGuardian creates the links from the alarm point descriptions based on the URL. Once the base URL is entered, the NetGuardian automatically attaches a unique suffix to each alarm point. For example, if the base URL is **http://www.dpstelecom.com** the link for the base alarm at point 1 would be **http://www.dpstele.com/base1.html**, Base Alarm Point 2 would be **http://www.dpstele.com/base2.html**, and so on.

3. To add a suffix other than html to the hyperlinks, insert the text **&pntID;** into the base URL. This allows the user to specify the extension. For example, if the base URL is **http://www.dpstele.com/&pntID;.pdf**, the link for the base alarm at point 1 would be **http://www.dpstele.com/base1.pdf/.**

Hot Tip! Any file type that is viewable in your Web browser (e.g. word document, PDF, txt, etc.) is a linkable file.

4. The same link structure applies to the Ping Alarms, System Alarms, and Analog Alarms fields. See Table 2.D for specific URL extension link information.

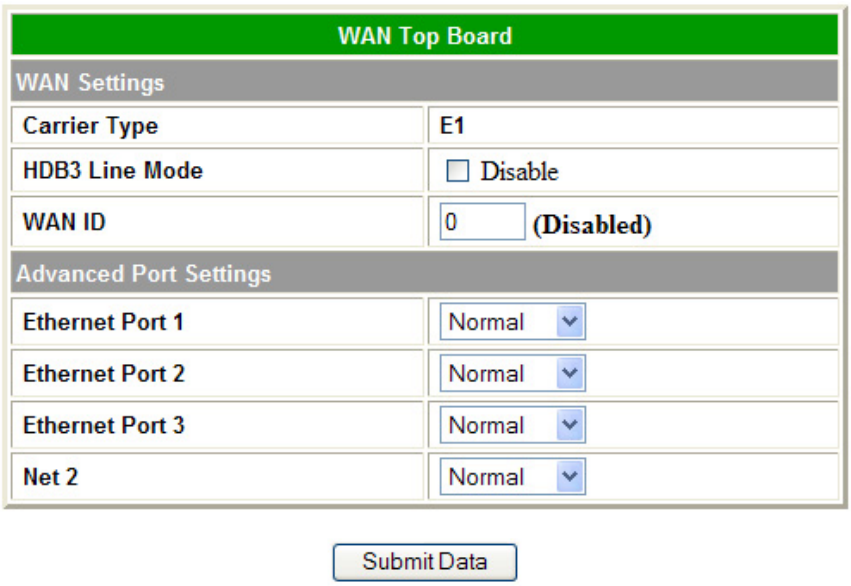
Alarm Page	Base URL web page link*
Base Alarms	Base1.html - Base32.html
Ping Alarms	Ping1.html - Ping32.html
System Alarms	System1.html - System64.html
Analog Alarms	Analog1.html - Analog8.html

Table 2.D. *Specific link extensions*

* Using the **&pntID;** code in the base URL enables you to link to any file type viewable in your Web browser.

2.5.1.2 T1/E1 WAN Configuration

If you ordered your NetGuardian with the optional T1 or E1 WAN port, you will find additional T1/E1 related configuration options in the **WAN Top Board** menu.



The WAN Top Board menu provides additional configuration options for your T1/E1 port and 4 port switch

Field	Description
WAN Settings	
Carrier Type	Indicates the type of port on your NetGuardian, T1 or E1. (Not configurable)
HDB3 Line Mode	Disables HDB3 mode. Disabling HDB3 Line Mode will disable the NetGuardian from communicating with other devices that are HDB3 enabled.
WAN ID	**If using the NetGuardian with a WAN MUX**, enter the ID number of the port on the WAN MUX to which you've connected the NetGuardian. This number must be unique from other NetGuardians connected to the same WAN MUX. **If using the NetGuardian without a WAN MUX**, set to 0 (disables WAN ID).
Advanced Port Settings	
Ethernet Port 1-3	Set to **Normal** to leave the port open, routing T1/E1 traffic. Set to **Shutdown** to disable the port.
Net 2	Shutting down the **Net 2** port disables access to the NetGuardian over Net 2 (configured from the **Ethernet** menu). While the T1/E1 port on your NetGuardian is tied internally to Net 2, disabling the Net 2 option will only prevent the user from accessing the unit over the Net 2 IP. The NetGuardian will still continue to convert and route T1/E1 traffic to LAN and vice versa.

Fields available in the WAN Top Board menu

2.5.2 Setting Up SNMPv1, v2c or v3

Use the following steps to define your NetGuardian system information:

1. From the **Edit** menu choose SNMP, see Figure 2.6.
2. Set **Source Address** to **Follow**, **Net 1**, or **Net 2**
3. Set **Read and Write Access** to **All**, **v1-Only**, or **v2c-Only**.
4. Define **Trap Listening Port** to enable reception of SNMP traps, usually 162.
5. Enter the community name for SNMP GET requests.
6. Enter the community name for SNMP SET requests.
7. Enter the community name for SNMP TRAPs.
8. Define the **IP** address of your trap managers. Set to 255.255.255.255 if not using.
9. Define the **UDP** port set by the SNMP managers to receive traps; usually 162.
10. Select the Format in which you want your traps to be sent to your managers.
11. Click **Submit** to save your system information settings.

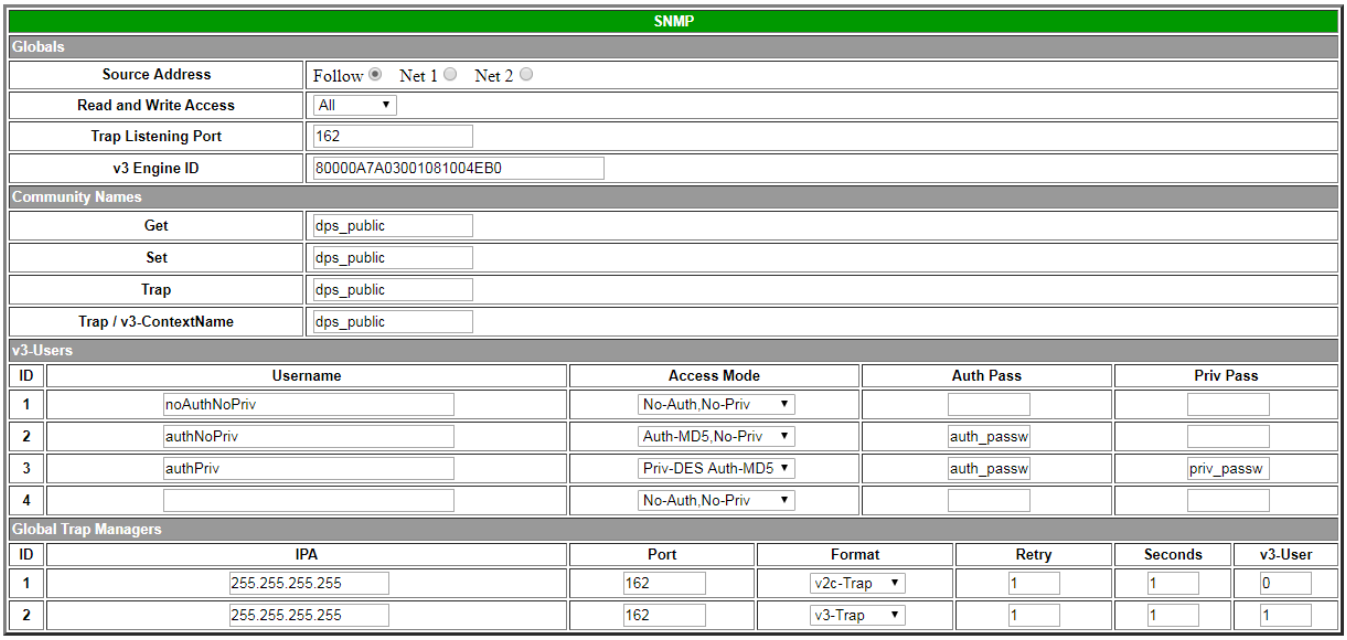


***Fig. 2.6** SNMP Menu*

Globals	
Source Address	Allows the user to configure the origination IP address of an SNMP trap. • **Follow-** SNMP trap will contain the IP address of the network interface where it originated. • **Net1-** SNMP trap will contain the IP address of the Net1 network interface. • **Net2-** SNMP trap will contain the IP address of the Net2 network interface.
Read and Write Access	This field defines how the NetGuardian unit may be accessed via SNMP. This can be set to the following: • **All**- Allows you to read or write using any version of SNMP (v1, v2c, v3) • **Disabled**- Restricts all access to unit via SNMP • **v1-Only**- Allows SNMPv1 access only • **v2c-Only**- Allows SNMPv2c access only • **v3-Only**- Allows SNMPv3 access only
Trap Listening Port	Specifies the port for the NetGuardian to monitor for incoming SNMP traps. DPS recommends using port 162.

v3 Engine ID	Specifies the v3 Engine ID for your NetGuardian device. DPS recommends using the default ID for the unit, which is automatically generated by the unit.The default ID is generated according to RFC3411 and is based on the unit's unique MAC address and DPS Telecom's SNMP enterprise number. **Note:** To have the unit generate a unique Engine ID, clear the **v3 Engine ID** field and press the **Submit** key.
SNMP Communities	
Get	Community name for SNMP requests.
Set	Community name for SNMP SET requests.
Trap / v3 Context Name	Community name for SNMP TRAP requests. In SNMP v3, defines the context name field of a v3-Trap. **Note:** Make sure that your community strings match those used by the SNMP manager. In v1 and v2c, community strings are security passwords; if the strings do not match, the SNMP manager will not accept Traps from the NetGuardian G5. Community strings are case sensitive.
v3-Users	
ID	The user number designated for a v3-user. The NetGuardian G5 supports up to four v3-User profiles.
Username	The name of the user for which an SNMPv3 management operation is performed.
Access Mode	This identifies the security modes available when SNMPv3 is utilitized. The modes are as follows: • **No-Auth, No-Priv-** This access mode does not require authentication and does not require encryption. This mode is the least secure and is comparable to v1 and v2c. • **Auth-MD5,No-Priv-** Provides authentication based on the MD5 algorithm and does not require encryption. • **Auth-SHA,No-Priv-** Provides authentication based on the SHA algorithm and does not require encryption. • **Priv Auth-MD5-** Provides authentication based on the MD5 algorithm and provides DES 56-bit encryption based on the CBC-DES standard. • **Priv Auth-SHA-** Provides authentication based on the SHA algorithm and provides DES 56-bit encryption based on the CBC-DES standard.
Auth Pass	This field contains the password used with either MD5 or SHA authentication algorithms.
Priv Pass	This field contains the password used with privatization encryption.
Global Trap Managers	
IPA	Defines the SNMP trap manager's IP address. Set to 255.255.255.255 if not using.
Port	The SNMP port is the UDP port set by the SNMP manager to receive traps, usually set to 162.
Format	Select between v1-Trap, v2c-Trap, v2c-Inform, or v3-Trap.
Retry	Number of times the NetGuardian G5 will resend SNMP v2c-Informs
Seconds	Time interval in seconds between attempts to resend SNMP v2c-Informs.

v3-Users	Association to the v3-User Table is made to specify the username, security mode, and passwords that should be used for sending a v3-Trap.

Table 2.E. *Fields in the Edit > SNMP settings*

Note: If you are using SNMPv3, any changes to the Engine ID or passwords will require a reboot. At bootup,you may experience a slight delay while the authorization and privatization keys update.

2.5.3 Filter IPA Config and Operation

The Filter IPA table allows you to increase the NetGuardian's network security by allowing or blocking packets from specified IP addresses. Addresses which appear in the table will be processed by the NetGuardian. Defined IP addresses associated with network cameras or the network time server are automatically processed and will not be filtered out by this feature. Broadcast packets of 255.255.255.255 and ARP requests for the NetGuardian IP address are also not filtered.

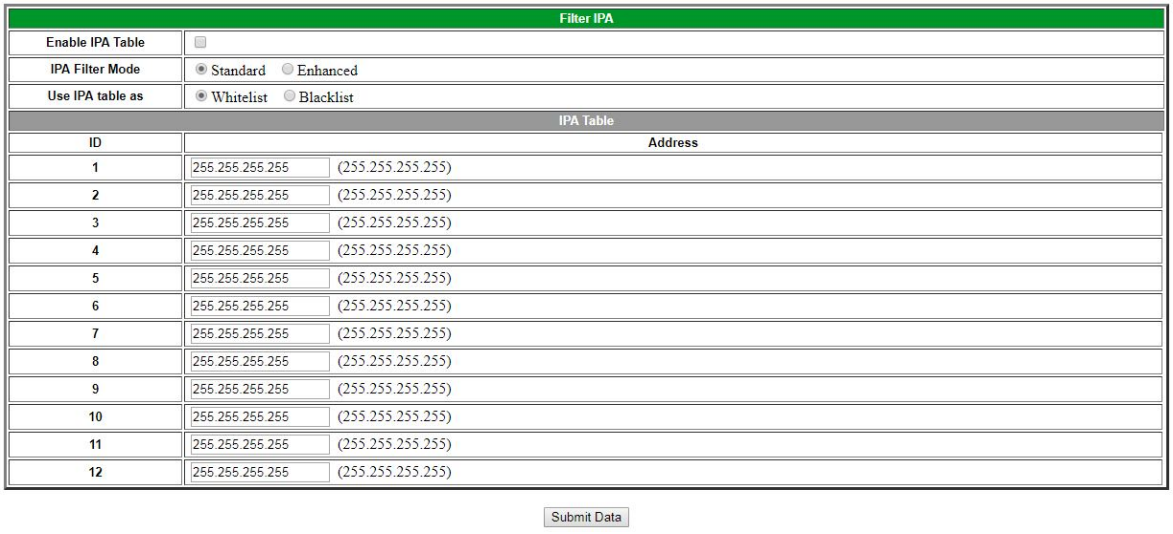
1. From the **Edit** menu select **Filter IPA**.
2. A warning prompt will appear, see Figure 2.7. Click **OK** to continue, or **Exit** to cancel.

Fig. 2.7. *Filter IPA warning prompt*

3. Once enabled only the IP addresses in the table will be allowed access to the NetGuardian.
4. Select to **Enable IPA Table.**
5. Choose an **IPA Filter Mode:** Standard or Enhanced. If you change the IPA Filter Mode, click the "Submit Data" button before continuing to display the correct menu for your chosen mode. Proceed to either the "Standard" or "Enhanced" section below for your chosen mode.

"Standard" IPA Filter Mode

The Standard IPA Filter Mode includes a basic whitelist/blacklist by IP address.



Configuring your IP whitelist/blacklist in "Standard" IPA Filter Mode

1. Choose "Whitelist" or "Blacklist" to decide whether ONLY the listed IP addresses can connect to the NetGuardian (Whitelist) or the listed IP addresses are blocked by the NetGuardian (Blacklist).
2. Enter up to 12 IP addresses.
3. Click "Submit Data" to save your Whitelist/Blacklist (be careful not to lock yourself out of the NetGuardian).

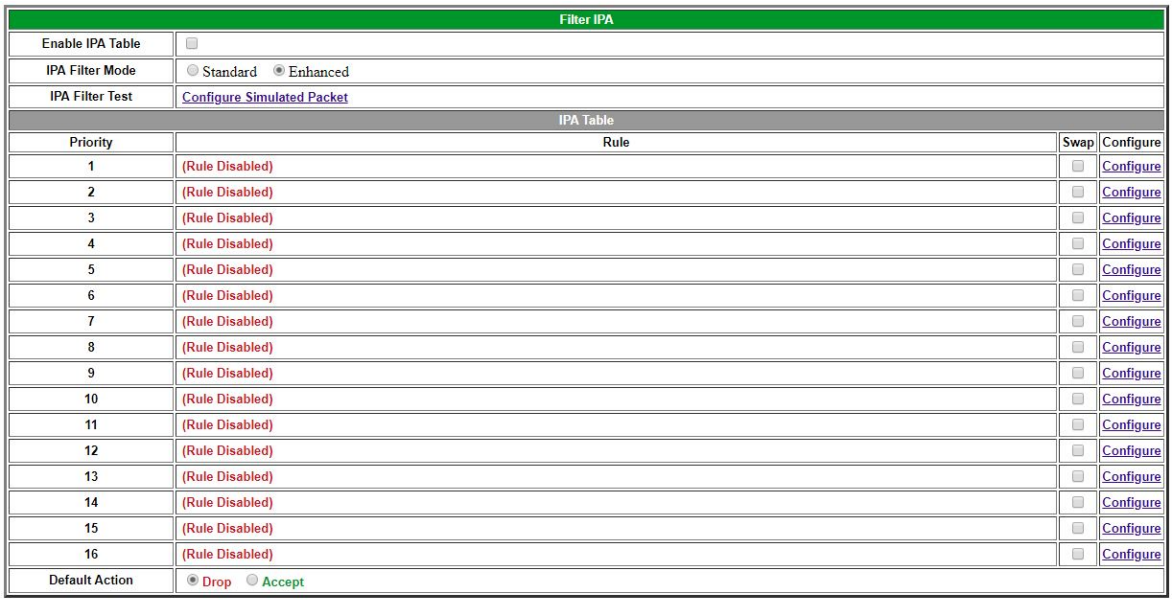
Hot Tip!

Entering a zero in any of the octet fields will declare that part of the octet to be a wildcard.

WARNING: "Filter IPA" is incompatible with networks that assign IP addresses. You may use the wildcard field to open an entire subnet.

"Enhanced" Mode

The Enhanced IPA Filter Mode is similar to a typical Linux firewall, where rules are applied sequentially based on IP, NIC, port, etc. to decide whether a packet should be accepted or rejected.

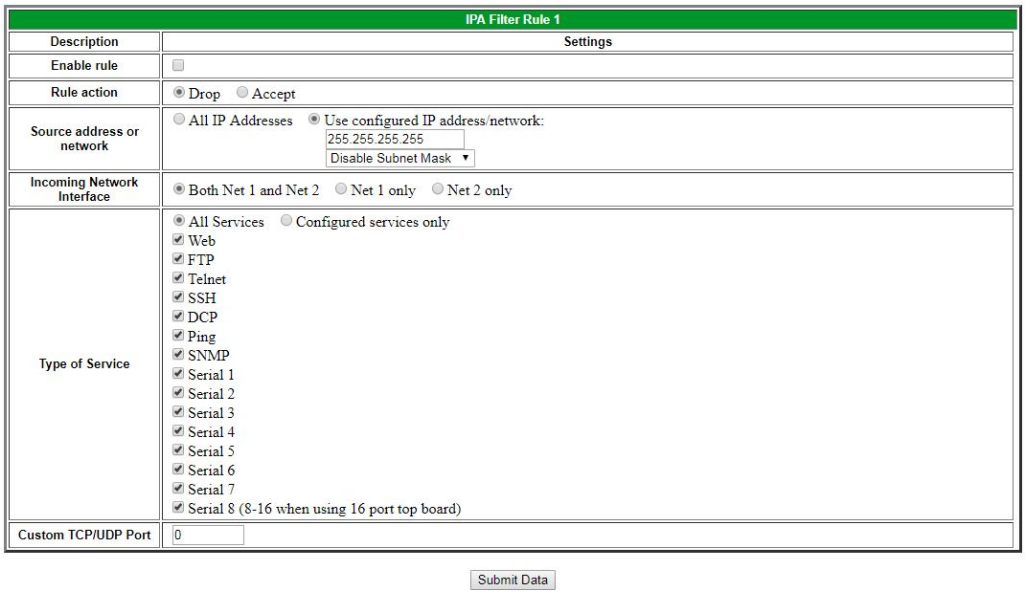


Filter IPA			
Enable IPA Table	☐		
IPA Filter Mode	○ Standard ◉ Enhanced		
IPA Filter Test	Configure Simulated Packet		
IPA Table			
Priority	Rule	Swap	Configure
1	(Rule Disabled)	☐	Configure
2	(Rule Disabled)	☐	Configure
3	(Rule Disabled)	☐	Configure
4	(Rule Disabled)	☐	Configure
5	(Rule Disabled)	☐	Configure
6	(Rule Disabled)	☐	Configure
7	(Rule Disabled)	☐	Configure
8	(Rule Disabled)	☐	Configure
9	(Rule Disabled)	☐	Configure
10	(Rule Disabled)	☐	Configure
11	(Rule Disabled)	☐	Configure
12	(Rule Disabled)	☐	Configure
13	(Rule Disabled)	☐	Configure
14	(Rule Disabled)	☐	Configure
15	(Rule Disabled)	☐	Configure
16	(Rule Disabled)	☐	Configure
Default Action	◉ Drop ○ Accept		

Submit Data

Configuring your IP filtering rules in "Enhanced IPA Filter Mode"

1. IPA Filter Test: The "Configure Simulated Packet" tool may be used to test your chosen firewall rules. You can choose an Interface (NIC), IP Address, TCP/UDP/ICMP, and Port. You should test only after configuring your firewall rules.
2. Click "Configure" to define a firewall rule (see the next screen shown below for details).
3. Check the "Swap" checkbox on 2 rules and click the "Submit Data" button to swap the position of those 2 rules in the list. Any "Swap" boxes checked beyond the first 2 are ignored.
4. The "Default Action" (Drop or Accept) is applied to any packet that fails to match any of the firewall rules.



Configuring a firewall rule

5. After clicking a "Configure" link, use the "IPA Filter Rule #" screen to set up one of your firewall rules:

Field	Description
Description	Enter a descriptive nickname for this rule.
Enable rule	Check the box to enable this rule. Rules not enabled will be skipped during evaluation.
Rule action	Choose whether traffic matching this rule will be dropped or accepted.
Source address or network	Choose which IP addresses (all or subnet or single address) will match this rule.
Incoming Network Interface	Choose whether this rule applies to one or the other or both of the NetGuardian's network interfaces (NICs).
Type of Service	Choose which services will match this rule.
Custom TCP/UDP Port	Choose which port matches this rule (0 = any port).

2.5.4 Changing Craft Port Communication Settings

Use the following steps to change the craft port communication settings:

1. From the **Edit** menu > **Ports** screen, scroll down to the **Craft** section, see figure below.
2. You can set the baud rate for the craft port to 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200. (Default Baud is 9600)
3. Under the **Wfmt** (word format) field, select the appropriate data bits, parity, and stop bits setting to match your terminal emulation software or device connected to the NetGuardian craft port. (Default designation is 8,N,1)
4. Click **Submit Data** to save the craft port settings.

Ports

Craft	
Baud	9600
WFmt	8,N,1
Modem	
Ring Count	1
Answer Init	
Dial Init	

Data Ports

				CR/LF Mode		Inc. Polling (sec)/ RTS Times			
ID	Description	Baud	WFmt	In	Out	Timeout/ Head	Delay/ Tail	Type	Pool
1		115200	8,N,1	Ignore	Ignore	0	0	MDR	N
2		115200	8,N,1	Ignore	Ignore	0	0	TCP	N
3		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
4		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
5		9600	8,N,1	Ignore	Ignore	0	0	H100	N
6		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
7		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
8		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
EXP		115200	8,N,1	Ignore	Ignore	0	0	OFF	N

Options	
GLD or BSU	0 **(Disabled)**

Submit Data

Fig. 2.9. *Configure the front panel craft port parameters from the Ports screen*

2.5.5 Configuring Modem Port Settings

Use the following steps to configure the modem port settings. Default for these fields is blank.

1. From the **Edit** menu > **Ports** screen, scroll to the **Modem** section, see Figure 2.10.
2. In the **Ring Count** field enter the number of rings before answering. (Default = 1)
3. The **Dial Init** and the **Answer Init** fields can be used if any other modem initialization settings need to be set. For example, the modem can be set to ignore the dial-tone by entering a character code in either the Answer Init (into the NetGuardian) or the Dial Init (out from the NetGuardian).
4. Click **Submit Data** to save your modem port settings.

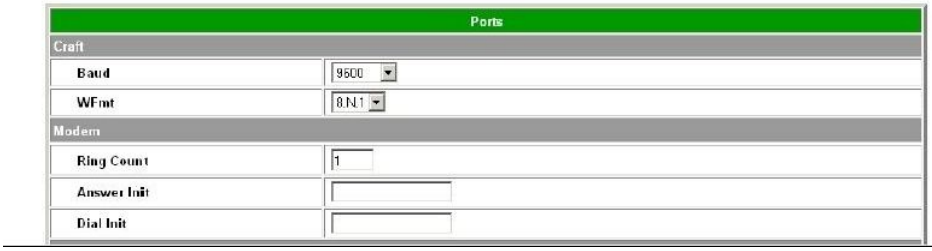


Fig. 2.10. *Change the modem settings from the Edit menu > Ports screen*

Command	Description	
A	Answer command	
Bn	Select communications standard	
D	Dial	
	P	Pulse dial
	T	Tone dial
	R	Connect as answering modem
	W	Wait for dial tone
	,	Pause for the duration of S8
	@	Wait for silence
	!	Switch hook flash
	;	Return to the command state
En	Command echo	
Hn	Switch hook control	
In	Modem identification	
Ln	Speaker volume	
Mn	Speaker activity	
On	Online	
Qn	Responses	
Sr?	Interrogate register	
Sr=n	Set register value	
Vn	Result codes	
Xn	Result code set	
Z	Reset	

Modem commands may vary. See your modem user manual for commands specific to your modem.

If you set the ring count to 0, the NetGuardian will still be able to dial out for notifications, but will NEVER answer an incoming call.

Table 2.F. *Standard modem commands (Hayes)*

2.5.6 Configuring Data Ports 1 - 9

Data port settings can be configured in the **Edit** menu > **Ports** screen.

Use the following steps to define your data port settings:

1. From the **Ports** window, scroll down to the **Data Ports** section, see Figure 2.11.
2. Under the options heading, enter in the appropriate number of GLDs (1-12) or NetGuardian Discrete Expansions (1-3) installed.* Entering zero disables these options. If connecting more than 3 GLDs, the baud rate must be set to 9600.
3. Enter a description for each port with a connected device. The communication settings for each port can be configured for baud rate, word format and to ignore or remove CR/LF (carriage return/line feed) characters in either the input or output data stream.
4. Advanced settings can also be configured when you select an appropriate data port type. See section 2.4.7.1 to select the appropriate data port type setting for your application.

*GLDs uses the expansion port and NetGuardian Expansions use port 7. See their respective user manuals for detailed configuration information.

Port 9 configuration is mapped to the expansion serial port on the back of the unit, typically a RS-485.

Hot Tip!

NGDdx is an abbreviation for "NetGuardian Expansion." Expansion units enable you to scale from 32 base alarms and 8 base relays to a maximum of 176 alarm and 32 relays.You can also have one NG480 (configured as a DX) hooked up as an expansion unit. The NG480 will give you an additional 80 alarms and 4 relays. You also have the option of adding the NetGuardian E16 DX, giving you 16 more alarm points and 16 more controls. Only one NewGuardian E16 DX may be used per NetGuardian G6, and it must be the last unit in the daisy-chain.

Note: You can have either 1 NG480 or 1 to 3 NGDdx units. You cannot have both at the same time.

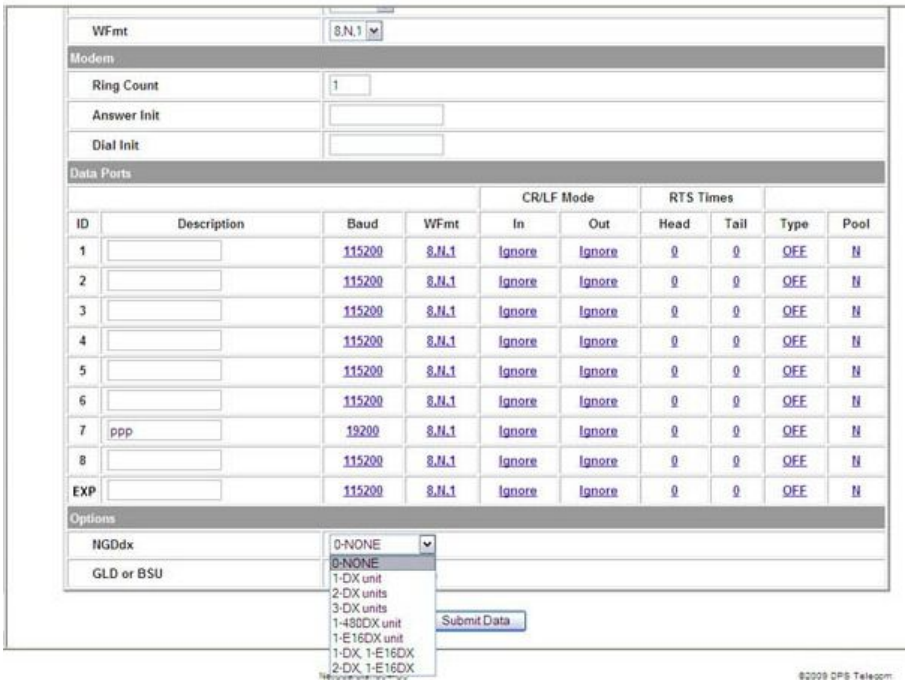


Fig. 2.11. *Configure the data port parameters from the Ports screen*

Hot Tip!

NGDdxk is the expansion type to choose when using a 216 G3 as an expansion. The 216 expansion provides an additional 16 alarms, 2 controls and 8 analogs. When the port is assigned with this type, base control 1 will be used to support the keying of a radio to transmit communication between the NetGuardian G5 and the 216 expansion. By selecting the number of 216 expansion units from the NGDdx options dropdown menu, the NetGuardian G5 will configure port 1 for polling this type of expansion. The NetGuardian G5 will poll the 216 expansion units on the DCP Poll Timer interval and will process asynchronous reporting of a COS alarm from the expansion units.

Note: You can have up to 8 216DX expansion units.

Ports

Craft	
Baud	9600
WFmt	8,N,1
Modem	
Ring Count	1
Answer Init	
Dial Init	

Data Ports

				CR/LF Mode		RTS Times			
ID	Description	Baud	WFmt	In	Out	Head	Tail	Type	Pool
1	NG216dx Net	1200	8,N,1	Ignore	Ignore	0	0	1200	N
2		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
3		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
4		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
5		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
6		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
7		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
8		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
EXP		115200	8,N,1	Ignore	Ignore	0	0	OFF	N

Options	
NGDdx	8-216DX unit
GLD or BSU	0 **(Disabled)**

Fig. 2.11. *Configure the data port parameters from the Ports screen*

2.5.6.1 Data Port Types

Each of the NetGuardian's 8 data ports can be configured with different functions:

TCP
Makes reach-through available at TCP ports (Telnet).

RTCP
Raw TCP (negates Telnet negotiation). The RTCP (Raw TCP Data Port) negates Telnet negotiation and will allow all characters (including [FF]) to pass straight through from IP to serial or serial to IP.

HTCP
High speed TCP port (only 1 HTCP port is available). An HTCP, or High-speed TCP data port, which operates in Telnet Raw mode, was left in place to allow for compatibility when importing NetGuardian G2 firmware to the NetGuardian G5. All data ports on the NetGuardian G5 are considered High Speed. If the device that is connected to the serial port of the NetGuardian, requires a raw TCP connection, then the port type to use is RTCP. Changing the port type to HTCP, is the same as setting it to TCP on the NetGuardian G5. Unlike RTCP ports, the user can only assign one port as HTCP.

PTCP
Permanent TCP (during a proxy connection, the connection will never time out).

SPS8
Serial Port Switch 8 (allows eight serial devices to be connected to single port).

UDP
Makes reach-through available at UDP ports (up to 4 UDP ports available).

CHAN
Creates logical bridge to odd/even partner. The odd/even partners are pairs of 1-2, 3-4, 5-6, and 7-8. This allows the NetGuardian to view communication traffic in either direction when inserted in the serial communication path between two devices. This is accomplished by going "in" to the NetGuardian with one device and "out" to the other device from the odd/even partner port. Data is passed directly from one port to its odd/even partner without being altered in any way. This ability greatly simplifies troubleshooting communication problems by isolating the non-communicating device.

When **CHAN** is selected, the NetGuardian automatically activates the odd/even partner as **CHAN**. Baud rates for the odd/even pairs can be set to any available rate except for any combination of 19200 and 38400 between the two ports. Use "SPO" filter debug to analyze protocol traffic in a terminal.

CRFT
Causes the data port to have the same functionality as the front panel craft port.

CAP
Allows the user to capture debug information. The debug information is stored in the receive queue of the NetGuardian (See section "Monitoring Data Port Activity" for more information). This is used primarily as a troubleshooting feature.

DX
For use if DX (expansion) is connected to this port.

DSCP
Port protocol used for wireless applications. Refer to DSCP Configuration.

ECU
For use if an ECU is connected to this port (see section "Building Access Controller").

NTCP
Nailed-up TCP. The NTCP establishes a permanent link that will remain up as long as the physical connection persists. If the unit or central switch resets, or the link goes down, the NTCP attempts to restore the link at user-specified intervals.

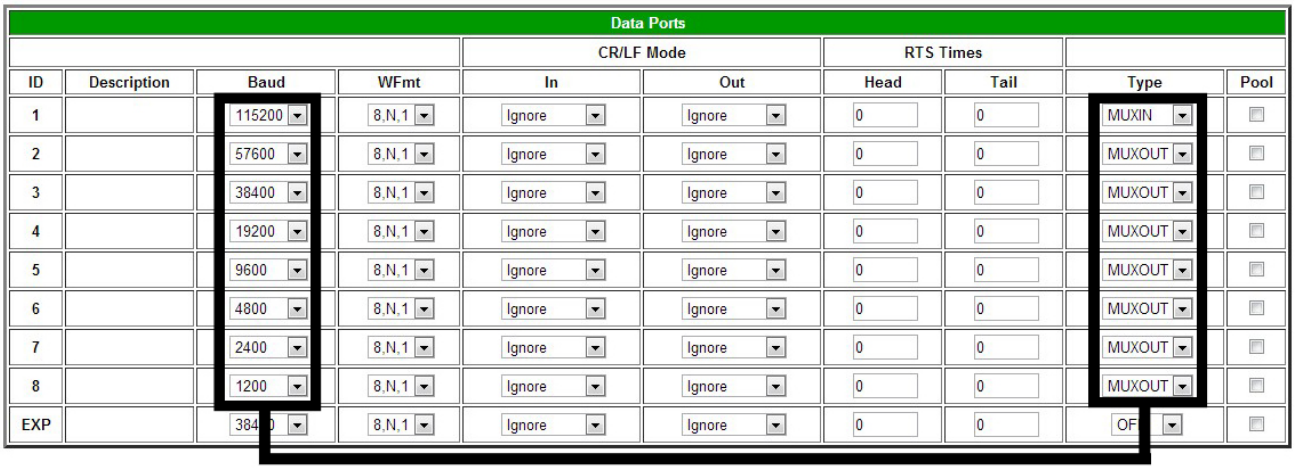
MUXIN
Multiplexer-In. For use in specifying the multiplexer-in port. All MUXOUT ports will go through this single MUXIN. There can be only one MUXIN configured at any time.

MUXOUT
Multiplexer-Out. Specifies a multiplexer output port. For any number of MUXOUT ports, there needs to be a single MUXIN. The NetGuardian G5 supports a maximum of 7 MUXOUT ports.

NGDXK
For use with 2126 G3 expansion on this port.

Hot Tip!

If using multiple MUXOUT ports, each MUXOUT needs to use a different **Baud** rate. No MUXOUT ports should have equal or greater **Baud** rates than the single MUXIN port. For an example, see the figure below.



2.5.6.2 Defining SPS8 Ports

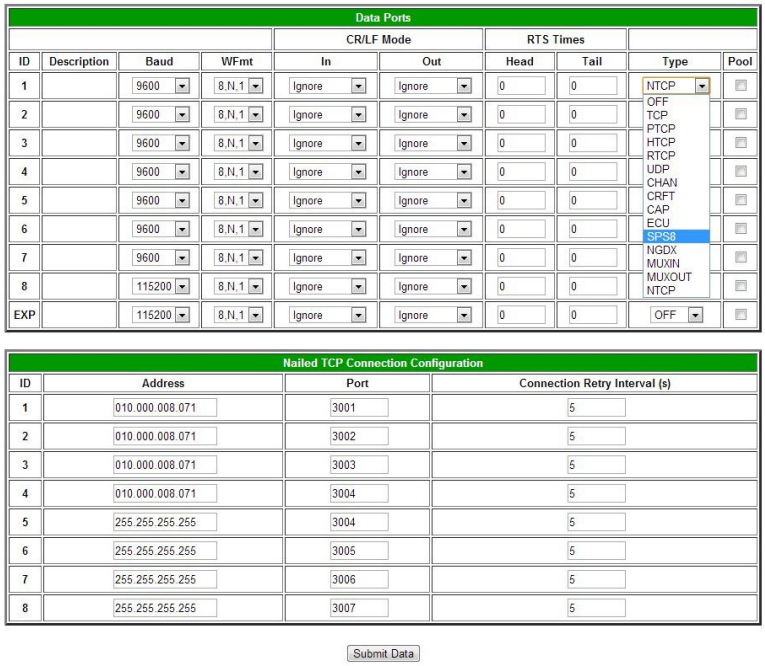


Fig. 2.12. *Select SPS8 port type from the Edit > Ports, Data Ports screen*

The SPS8 port type can be selected in the **Type** option when configuring data ports with NGEdit4 or the Web Browser Interface. However, you may only edit SPS8 port descriptions in NGEdit5. The Web Browser Interface will allow you to set SPS8 type, but not the port descriptions.

The Serial Port Switch 8 (SPS8) is an external device hub that allows the connection of up to eight serial port devices to a single NetGuardian data port. When an SPS8 port is selected, the NetGuardian will negotiate the connection for the user. To break the SPS8 connection and return to the normal NetGuardian interface, type @@@ and press Enter.

Hot Tip!

SPS8 ports do not support direct proxy. You must navigate via the TTY menu.

Use the following steps to select a SPS8 port:
1. From the **Edit** menu > **Ports** screen, scroll to the **Data Ports** section.
2. Enter a description and click on the **TCP** link, see Figure 2.11.
3. Under the **Type** column, click on the drop-down menu and select SPS8, see Figure 2.12.
4. Click **Submit Data** to save your configuration settings.

CAUTION: If you initialize the NVRAM, the NetGuardian will erase all SPS8 port descriptions.

Hot Tip!

If interfacing a T/Mon XM to SPS8 through a NetGuardian set port type to **TCP**.

2.5.6.3 Defining NTCP Ports

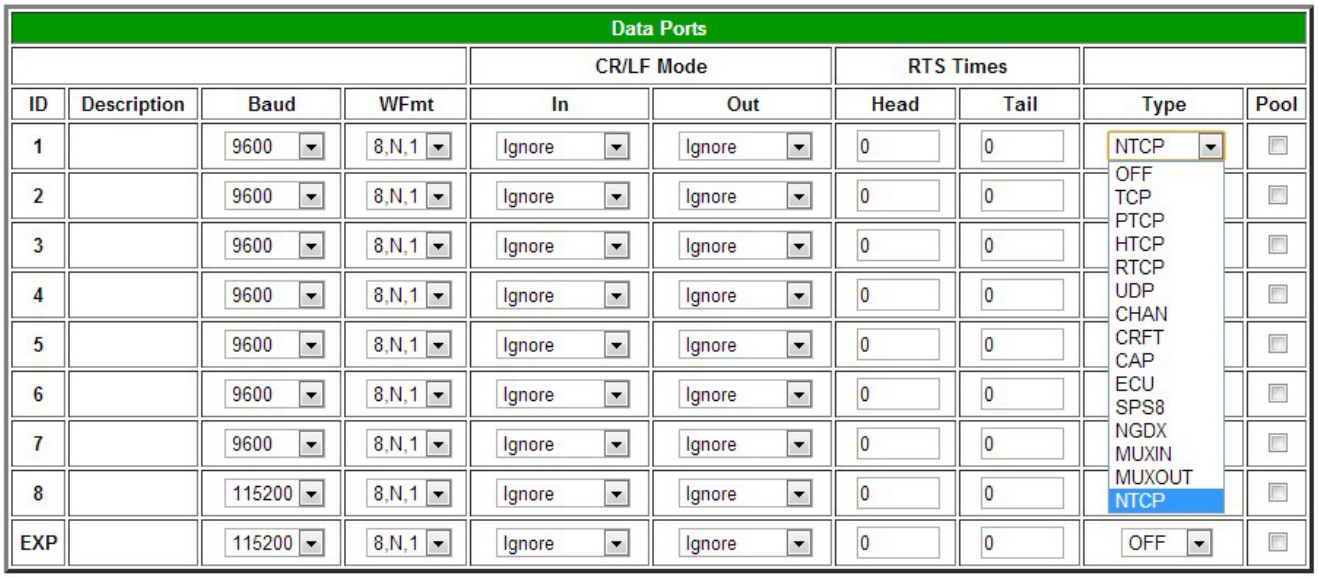


Fig. 2.13. *Select NTCP port type from the Edit > Ports, Data Ports screen*

The Nailed-up TCP (NTCP) is a Transmission Control Protocol. Rather than provide a listening port for other devices to link, NTCP establishes its own unique permanent connection.

Once you define a NetGuardian data port as NTCP, you can configure its options in the **Nailed TCP Connection Configuration** table located just below.

Note: Each of the Data Port IDs (1-8) correspond with the NTCP Configuration IDs (1-8). For example, if you select an NTCP port **Type** in ID #1 on the Data Port table, then you will need to configure your port in ID #1 on the NTCP Configuration table.

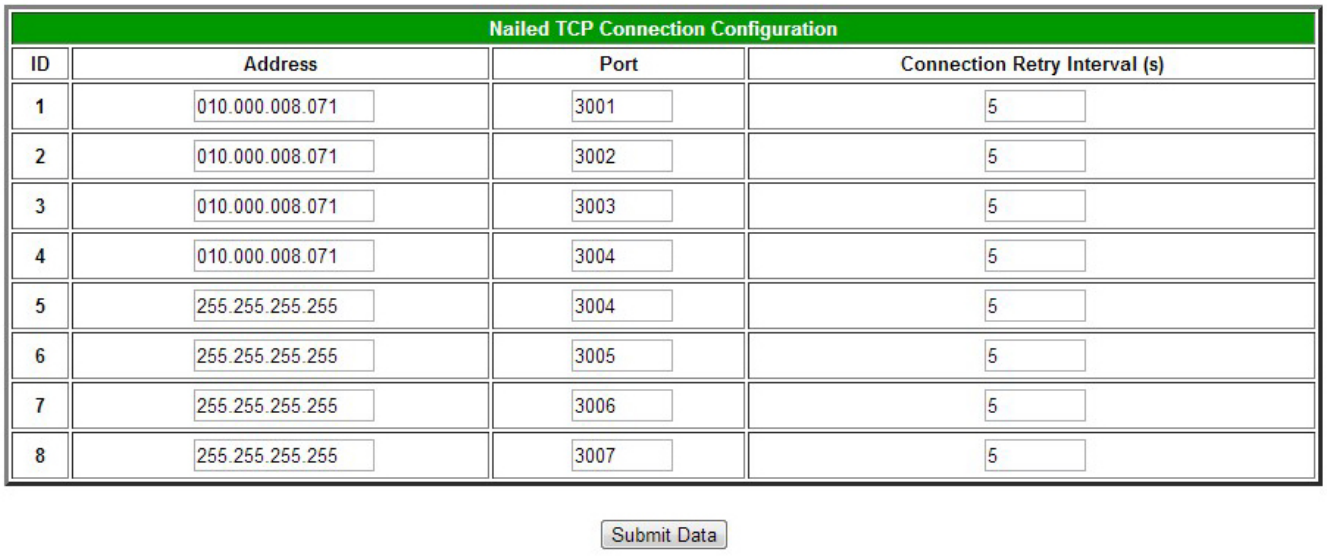


Fig. 2.14. *Configure NTCP ports immediately below the Data Ports screen*

Field	Description
Address	The IP address of the device you want to connect to.
Port	The TCP port of the device you want to connect to.
Connection Retry Interval (s)	Specifies the time interval between attempts to reestablish connection. This field is set at 5 seconds by default.

2.5.6.4 Direct and Indirect Proxy Connections

The NetGuardian supports two proxy connections, direct and indirect. In a direct proxy connection, the user enters an IP address and port number to Telnet directly to a TCP serial port. In an indirect connection, the user navigates the TTY menu to select a proxy port. Since the TTY interface is password protected, indirect connections are preferred. Some users prefer to disable direct proxy for all connections in order to enforce the password security provided by the TTY interface.

One way to disable proxy connections is to set the proxy port to an uncommon value. This restricts the access of other users, but it is more convenient and secure to set the data ports to **off** in the **Type** field. When set to **off**, the port is no longer associated with a TCP socket, which effectively disables the port from direct access.

Use the following steps to select proxy connections:

1. From the **Edit** menu > **Ports** screen, scroll down to the **Data Ports** section.
2. Enter a description and click on the **TCP** link, see Figure 2.11 above.
3. Under the **Type** column click on the drop-down menu and select the appropriate proxy connection, see Figure 2.13.
4. Click the **Submit Data** button to save your configuration settings.

2.6 Setting Up Notification Methods

The **Edit** menu > **Pagers** screen allows you to configure several alarm notification methods in addition to pagers. Each notification method is defined as a pager type in this screen. To define a pager as the primary or secondary notification of alarm conditions, select the pager in the appropriate alarm point provisioning screens. Refer to Section 2.9, "Configuring Base Discrete Alarms," and Section 2.9, "Setting System Alarm Notifications," for more information.

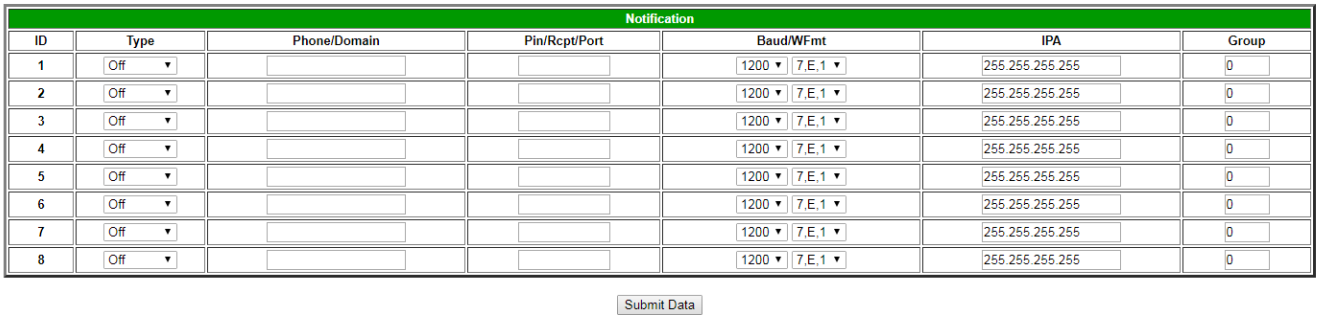


Fig. 2.16. *Multiple notification methods and group assignments are configured from the Notification screen*

Pager Format	Description
Alphanumeric Paging	Format recognizes numbers, letters, and symbols. Can receive information including alarm point addresses, alarm descriptions, time of alarms, and alarm state a.k.a TAP.
Numeric Paging	Format recognizes numbers only. Message is reported in the following order: [IP] *[Display] [Address]*[State]. See ***Fig. 2.17*** for example.
Text Paging	Can receive information including alarm point addresses, alarm descriptions, time of alarms, and alarm state. May be accessed using a terminal.
T/Mon Paging	The T/Mon may receive alarm information from the NetGuardian via dial-up and display alarm information, alarm description, and threshold status. (Only activates if DCP Poller is inactive)
TCP (ASCII) Paging	Alarm status notification via multiple TCP or HTCP ports. Connection from a higher level master must be established for alarm notification.
Email/SMTP Paging	Provides alarm notification via email, with a description similar to the Alphanumeric pager.
SNMPv1 Paging	May send alarm status to multiple SNMP managers, including the SNMP manager that alarms are reporting to. The SNMP trap format is v1.
SNMPv3 Paging	May send alarm status to multiple SNMP managers, including the SNMP manager that alarms are reporting to. The SNMP trap format is v3.
Num17 Paging	Provides alarm notification in a manner similar to that of the Numeric pager. However, Num17 eliminates the (*) symbol from the page. Message is reported in the following order: [IP][Display][Address][State]. When read on the pager it appears as follows: 192.168.1.100 99.01.01.01
Echo	Allows an alarm point on the NetGuardian G5 to operate a control on another SNMP-enabled, DPS Telecom RTU.

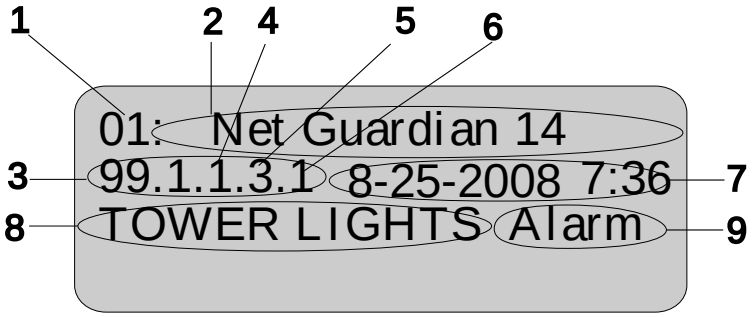
Table 2.G. *Notification formats*

Many cellular carriers offer a TAP gateway to SMS. Check with your carrier to see if you can use a dial-up connection to send SMS messages to your phone. This creates an out-of-band path in the case of a network failure.

2.6.1 Alpha Numeric Pager Setup

The alpha numeric pager can receive text messages including alarm descriptions, time of occurrence, and point addresses.

Use the following steps to configure the alpha numeric pager settings:
1. From the **Edit** menu > **Notification** screen, select an ID number to use. See Table 2.G for pager descriptions.
   Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.
2. Under the **Type** column, select type **Alpha** from the drop-down menu, see Figure 2.16.
3. Enter the phone number of the Alpha numeric pager under the **Phone/Domain** heading.
4. Enter a personal identification number under the **PIN/Rcpt/Port** heading.
5. Set the pager data rate (i.e. 300, 1200, 2400 or 9600). The default baud is 1200.
6. Select a pager word format (Data Bits, Parity, Stop Bits). The default setting is 7,Even,1.



1. Number of pages
2. Unit name
3. Port # and Address
   (Applicable to T/Mon and IAM only)
4. Display number
5. Alarm point number
6. Alarm status: 1=alarm, 0=clear
7. Date and Time NetGuardian sent page
8. Alarm point description
9. Alarm status

Fig. 2.17. *Alpha numeric pager description*

2.6.2 SNPP Notification Setup

The alpha numeric pager can receive text messages including alarm descriptions, time of occurrence, and point addresses from SNPP service.

Use the following steps to configure the alpha numeric pager settings:
1. From the **Edit** menu > **Notification** screen, select an ID number to use. See Table 2.G for pager descriptions.
   Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.
2. Under the **Type** column, select type **SNPP** from the drop-down menu, see Figure 2.16.
3. Use the **Phone** field if a login username and password are required. They must be separated by a colon and be no longer than 29 characters combined. Otherwire, leave this field blank.
4. Enter the numeric pager number under the **PIN/Rcpt/Port** heading.
5. Under the IPA field, enter the static IPA of the SNPP server. Port automatically defaults to 444.

2.6.3 Numeric Pager Setup

The numeric pager can receive point addresses of alarms.

Use the following steps to configure the numeric pager settings:
1. From the **Edit** menu > **Notification** screen, select an ID number to use, see Figure 2.16.

Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.

2. Under the **Type** column select **Numeric** from the drop-down menu, see Figure 2.16.
3. Enter the phone number of the numeric pager under the **Phone/Domain** heading, followed by 7 commas (e.g. **555-1212,,,,,,,**). Placing a comma after the phone number initiates a two second pause (per comma). This allows enough time for the pager to answer before the NetGuardian sends the alarm information.

The Baud/Wfmt and IPA fields are not used from numeric pager types.

2.6.4 Text Paging Setup

Text pages can receive information including the point addresses of alarms, the alarm description, time of the alarm, and state (alarm or clear). The text pages may be viewed using a terminal such as HyperTerminal.

Use the following steps to configure the text paging settings:

1. From the **Edit** menu > **Notification** screen, select an ID number to use, refer to Figure 2.16.
   Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.
2. Under the **Type** column select **Text** from the drop-down menu, see Figure 2.16.
3. Enter the phone number of the text paging device under the **Phone/Domain** heading.
4. Set the pager data rate (i.e. 300, 1200, 2400 or 9600). The default baud is 1,200.
5. Select a pager word format (e.g Data bits: 7 or 8, Parity: none (N), even (E) or odd (O), and Stop Bits: 1). The default setting is 7, Even,1.

To set up text paging from T/Mon see the T/Mon user manual.

2.6.5 Email Notification Setup

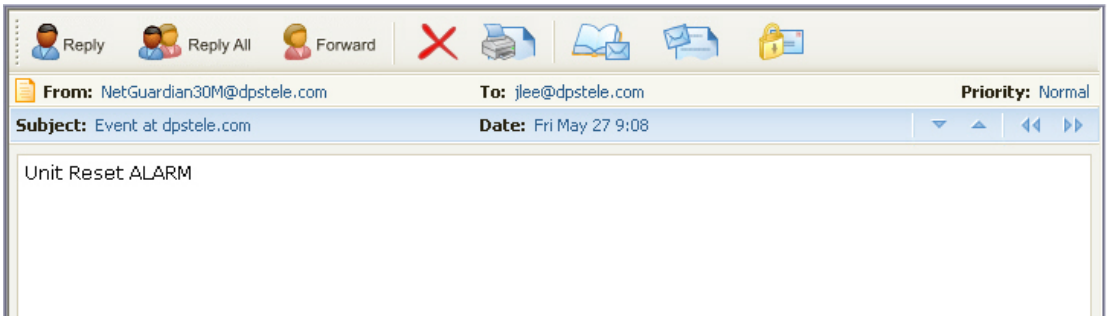


Fig. 2.18. *Email notification from the NetGuardian*

The email pager provides alarm notification via email, with a description similar to that of the alpha-numeric pager.

Use the following steps to configure the email notification settings:

1. From the **Edit** menu > **Notification** screen, select an ID number to use, see to Figure 2.16.
   Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.

2. Under the **Type** column, select Email from the drop-down menu, see Figure 2.16.

3. Enter the domain name of the email address under the **Phone/Domain** heading. This is the portion of an email address after the @ symbol in **name@domain.com**.
   Note: There cannot be any spaces in the domain name.

4. Enter the email recipient's user name under the **PIN/Rcpt/Port** heading. This is the portion of an email address before the @ symbol in the **name@domain.com.**
   Note: There cannot be any spaces in the recipient's user name

5. Enter the IP address of the SMTP mail server in the **IPA** field.

6. Click **Submit Data** to save your email notification settings.

7. Click on the **System** link. If you have not done so, set up the "from" address sent in email messages sent from the NetGuardian by entering the appropriate information in the **Name** and **Location** fields. The email notification from the NetGuardian will appear as follows: **name@location**.

Hot Tip!

Most email programs can be set to perform a certain action if a message is received from a specified address, such as moving the message to a special Alarms folder. Use the address entered in the **Systems** screen for such purposes.

8. Click **Submit Data** to save your new system information settings.

The "from" email address is for identification purposes. It is not necessarily a real email address that can be replied to unless one is entered.

2.6.5.1 SMTP POP3 Authentication Support

This section contains steps to configure your NetGuardian for SMTP and POP3 Authentication support.

Unauthenticated Emails:
The configuration setup will not change. To send unauthenticated email notifications:
1. In the **Phone/Domain** field type the domain (the portion of the email address after the @ symbol) of the email address that will receive notifications.
2. In the **Pin/Rcpt** field type the name (the portion of the email address before the @ symbol) on the email address that will receive notifications..
3. Click **Submit Data** to save the configuration settings.

The "from" location is specified by the system info name and location strings, which also do not change. To configure the address email notifications will be sent from**:**
1. Click on the **Edit** menu > **System** link.
2. In the **Name** field type the name of the address that will send notifications.
3. In the **Location** field type the domain off the address that will send notifications.
4. Click **Submit Data** to save the new system information settings.

Authenticated POP3 Emails:
To send authenticated POP3 email notifications:
1. In the **Pin/Rcpt** field enter the password for the email account notifications will be sent to.
2. In the **Phone/Domain** field, input the address email will be sent to, in the format

"user@yourdomain.com" for POP before SMTP authentication.
3. Click **Submit Data** to save your changes.
4. Click on the **Edit** menu > **System** link.
5. In the **Name** field type the name of the address you want to receive notifications from the NetGuardian (the part of the email address coming before the @ symbol - **user**@yourdomain.com).
6. In the **Location** field type the domain of the address you want to receive notifications from the NetGuardian (this is the part of the address coming after the @ symbol - user@**yourdomain.com**).
7. Click **Submit Data** to save the new system information settings.

Authenticated SMTP Emails:
To send authenticated SMTP email notifications:
1. In the **Pin/Rcpt** field enter the password for the email acount that notifications willl be sent to.
2. In the **Phone/Domain** field, input the address email will be sent to, in the format "user:yourdomain.com" (Note the ':' in place of '@').
3. Click **Submit Data** too save your changes.
4. Click on the **Edit** menu > **System link**.
5. In the **Name** field, type the name of the address that you want to receive notifications from the NetGuardian (the part of the email address coming before the @ symbol - from@fromdomain.com).
6. In the **Location** field type the domain of the address you want to receive notifications from the NetGuardian (this is the part of the address coming after the @ symbol - from@from**domain.com**).

2.6.6 SNMPv1 Notification Setup

The SNMPv1 notification feature allows you to view alarm status from multiple SNMP managers in addition to the global managers, which are setup from the SNMP menu.

Use the following steps to configure the SNMP notification settings:
1. From the **Edit** menu > **Notification** screen select an ID number to use, refer to Figure 2.16.
   Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.
2. Under the **Type** column, select **SNMPv1** from the drop-down menu, see Figure 2.16.
3. Set the SNMP port under the **PIN/Rcpt/Port** heading, usually 162.
4. Enter the IP address of the SNMP manager in the **IPA** field.

2.6.7 SNMPv3 Notification Setup

The SNMPv3 notification feature allows you to view alarm status from multiple SNMP managers in addition to the global managers, which are setup from the SNMP menu.

Use the following steps to configure the SNMP notification settings:
1. From the **Edit** menu > **Notification** screen select an ID number to use, refer to Figure 2.16.
   Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.
2. Under the **Type** column, select **SNMPv3** from the drop-down menu, see Figure 2.16.
3. Enter a v3-User ID under the v3-User heading. The values can range from 0-4. These values refer to the **v3-Users** table in the SNMP page. The v3-User association is used to specify username, security mode, and passwords that should be used for sending a v3-Trap.
4. Set the SNMP port under the **PIN/Rcpt/Port** heading, usually 162.
5.. Enter the IP address of the SNMP manager in the **IPA** field.

2.6.8 TCP Paging Setup

<MSG_BEG 00001>
VID : DPS Telecom
FID : NetGuardian SNMP v5.0B.3206
SITE: Yale Office
PNT : 99.01.01.01
DESC: RECTIFIER 1
STAT: CLEAR
DATE: 01/01/2001
TIME: 12:17:02
<MSG_END 00001>

Fig. 2.19. *Example TCP message*

Heading	Description
MSG_BEG MSG_END	Sequential message number used to group the message and detect missing messages (e.g. 00001, 00002, etc...).
VID	Vendor ID
FID	NetGuardian Firmware ID.
SITE	NetGuardian system name.
PNT	Point ID (port.address.display.point). See Appendix A for display mapping.
DESC	Description set forth in the Alarm parameters.
STAT	Status of the alarm (Clear or Alarm).
DATE	Date the alarm occurred.
TIME	Time the alarm occurred.

Table 2.H. *TCP alarm message field descriptions*

The NetGuardian offers alarm status notification via multiple TCP ports. When an alarm condition occurs, an alarm condition formatted according to Figure 2.17 will be sent to the specified TCP points for use by a higher level master. This connection must be established by the master. Any applicable alarm activity occurring prior to an established connection will be discarded.

Use the following steps to configure the TCP paging settings:

1. From the **Edit** menu> **Notification** screen, select an ID number to use, see Figure 2.16.
   Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.
2. Under the **Type** column, select **TCP** from the drop-down menu, see Figure 2.16.
3. In the **Pin/Rcpt/Port** field enter the NetGuardian TCP port number where alarm messages will be sent (from 1 to 65,536). Multiple ports can be defined by defining multiple pager IDs as TCP pagers and then entering the desired ports.
4. The TCP message can be viewed by a Telnet session by connecting to the NetGuardian's IP address and the TCP port entered in this screen. For example, Telnet to **126.10.220.199 5000** if port 5000 is selected and 126.10.220.199 is the unit's IP address. See Figure 2.19 for an example message and Table 2.H for TCP message format information.

2.6.9 Num17 Pager Setup

The Num17 Pager can receive point addresses of alarms. It is quite similar to the Numeric Paging format in the way it receives and reports alarms. However, on certain pager systems the symbol * will cause a freeze or other undesirable situations. Num17 eliminates the * symbol from the pages it receives and reports alarms as a 17-digit series of numbers.

Use the following steps to configure Num17 Pager settings:

1. From the **Edit** menu > **Notification** screen select an ID number to use, refer to Figure 2.16.
   Note: Pager IDs are used in the alarm provisioning screen to designate the primary and secondary person/device being paged when an alarm condition occurs or clears.

2. Under the **Type** column select **Num17** from the drop-down menu, see Figure 2.16.

3. Enter the phone number of the numeric pager under the Phone heading, followed by commas (for example **555-1212,,,,,,,**). Placing a comma after the phone number initiates a two second pause per comma. This allows enough time for the pager to answer before the NetGuardian sends the alarm information. The **Baud/Wfmt** and **IPA** fields are not used from Num17 pager types.

4. Click **Submit Data** to save the configuration settings.

2.6.10 Echo Notification Setup

As of firmware 5.0K and above. An Echo notification type enables an alarm point on the NetGuardian G5 to operate a control on another SNMP remote from DPS.

1. From the **Notification** devices tab, choose **Echo** as the notification **Type**.
2. Enter the Community Set Name in the **Phone/Domain** field.
3. Enter the Relay Point Reference in the **Pin/Pcpt/Port** field. This is entered as:[Port].[Address].[Display].[Relay Point] **NOTE**: The Port will always be 99, and the address is always 1. Therefore, your entries will always begin with 99.1.
4. The **Baud/WFmt** and **Group** fields will not be used.
5. Under **IPA**, enter in the IP address of the SNMP-enabled, DPS remote you are setting up to operate its relay.

NOTE: If more than one point is mapped to Echo notification, the OR'ed logic is applied.

2.7 Defining Point Groups

Each NetGuardian Alarm point can be assigned to one of eight groups, which are identified with a user-defined label. Once the point groups are defined, the Point Group IDs can be used to group base and system alarms, see section "Configuring Base Discrete Alarms."

Use the following steps to define alarm messages for alarm point groups:

1. To define the point groups, select **Point Group** from the **Edit** menu.
2. Then enter the appropriate descriptions in the **Description**, **When Set** and **When Clear** fields for each point group.
3. Click **Submit Data** to save the point group settings.

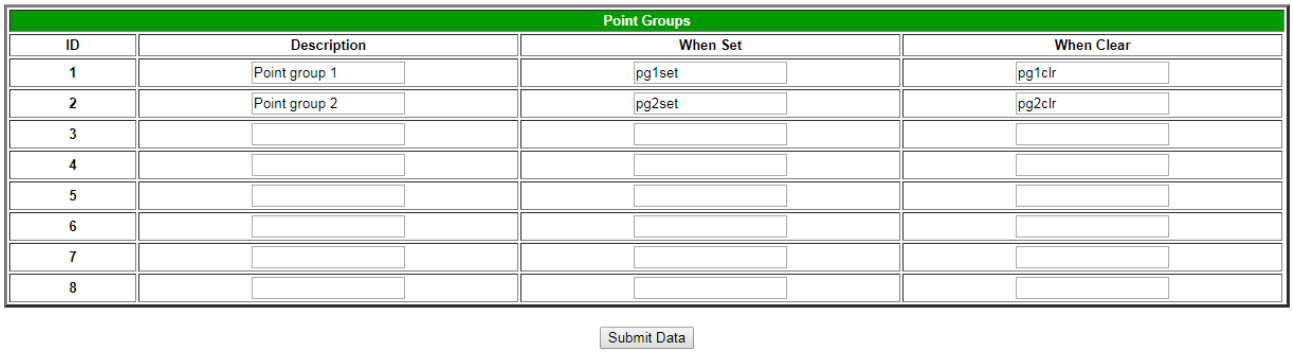


Fig. 2.20. *Define the Alarm and Clear messages for up to eight different point groups*

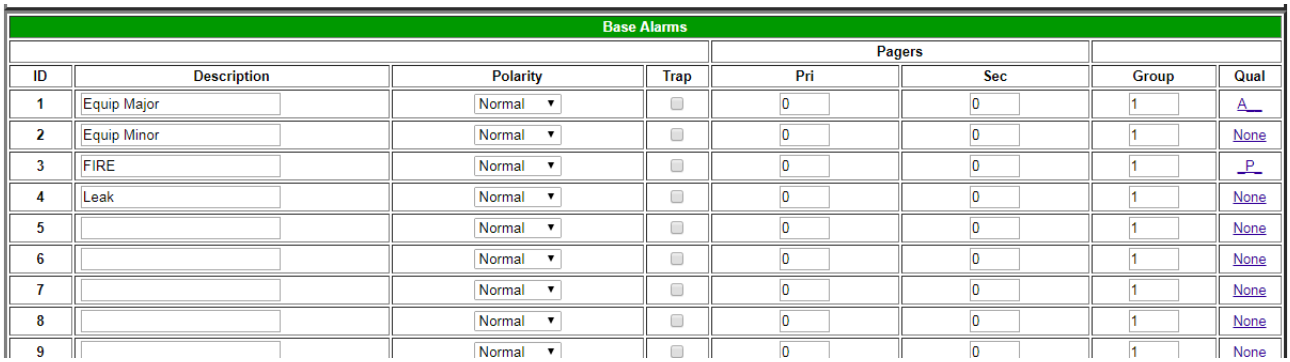
2.8 Configuring Base Discrete Alarms

All of the NetGuardian's 32 discrete alarms are configured from the **Edit** menu > **Base Alarms** screen. Descriptions of the alarm point, polarity (normal or reversed), whether to use an SNMP Trap or not, and the primary and secondary pager used to report the alarm, and group assignments, are configured in this screen.

Use the following steps to configure base discrete alarm settings:

1. From the **Edit** menu select the **Base Alarms** link, see Figure 2.21.
2. Enter a description for each discrete input alarm being used in the **Description** field.
3. Under the **Polarity** column, you can choose to reverse the polarity or leave it normal. If you select **Normal**, a contact closure is an alarm. If the Reverse option is selected, the alarm is clear when closed.
4. Select the **Trap** check box to send an SNMP trap for that alarm point in the event of an alarm condition. Leave the box blank if you do not wish the NetGuardian to send an SNMP trap.
5. Set the primary and secondary pagers with a pager ID from your defined pager list. (See Section "Setting up Notification Methods" for more information.) The NetGuardian will notify both the primary and the secondary notification device when point status changes (both alarm and clear).
6. Under the **Group** column enter the appropriate point group ID, see section "Defining Point Groups."
7. Under the **Qual** column click the **None** link to configure an event qualification time setting for the alarm point. The **Event Qual** screen will appear, refer to section 2.8, "Event Qualification Timers" for more information.
8. Click **Submit Data** to save base alarm configuration settings.

The pager device can be an ASCII terminal, T/Mon element manager, email, or multiple SNMP managers as well as an alpha or numeric pager.



Base Alarms

				Pagers			
ID	Description	Polarity	Trap	Pri	Sec	Group	Qual
1	Equip Major	Normal	☐	0	0	1	A__
2	Equip Minor	Normal	☐	0	0	1	None
3	FIRE	Normal	☐	0	0	1	_P_
4	Leak	Normal	☐	0	0	1	None
5		Normal	☐	0	0	1	None
6		Normal	☐	0	0	1	None
7		Normal	☐	0	0	1	None
8		Normal	☐	0	0	1	None
9		Normal	☐	0	0	1	None

Fig. 2.21. *Configure the 32 discrete alarms from the Base Alarms screen*

2.9 Event Qualification Timers

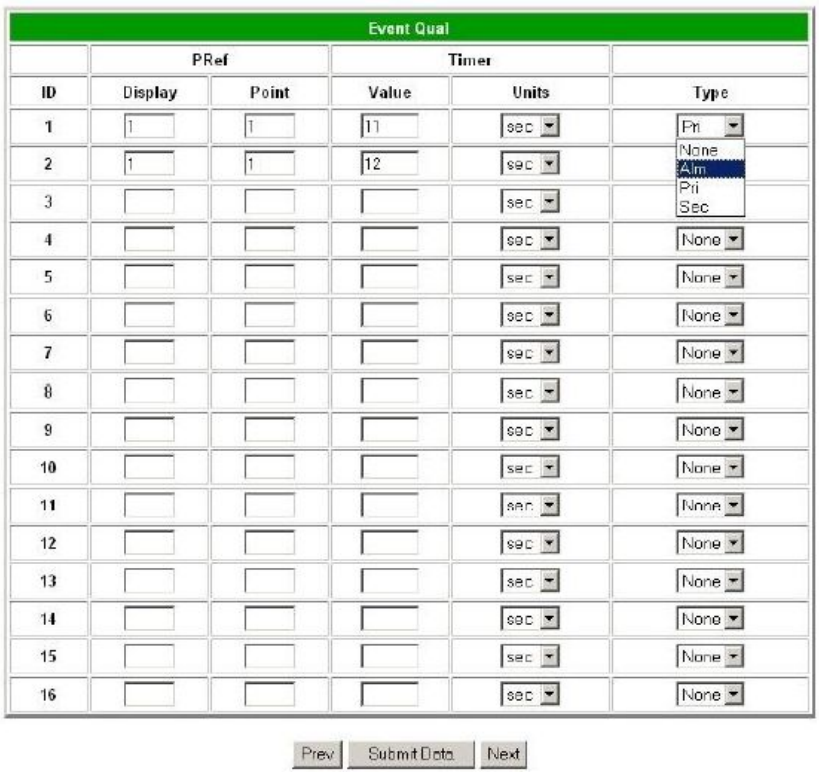


Fig. 2.22. *Edit the Even Qualification Timer settings from the Edit > Even Qual screen*

Use the following steps to configure your Event Qual timer settings:

1. From the **Edit** menu select from the **Event Qual** drop down menu.
2. The standard NetGuardian units can have up to 128 Event Quals, which are grouped into sections of sixteen.
3. Enter the display and point number for the point you wish to qualify in the appropriate ID row. **Note:** the ID will correspond to Event Qualification. A list of displays and points can be found in Appendix B.
5. In the **Value** field enter the appropriate amount of time (1 - 127).
6. Under the **Units** column, click on the drop-down menu and select the appropriate unit (min, sec, hour).
7. Under the **Type** column click on the drop-down menu and select the appropriate event type (Alm = alarm, Pri = primary, Sec = secondary).

Hot Tip!

To delete the entry, set the **Type** to None.

8. When you are done making changes, scroll to the bottom of the page and click **Submit Data**.

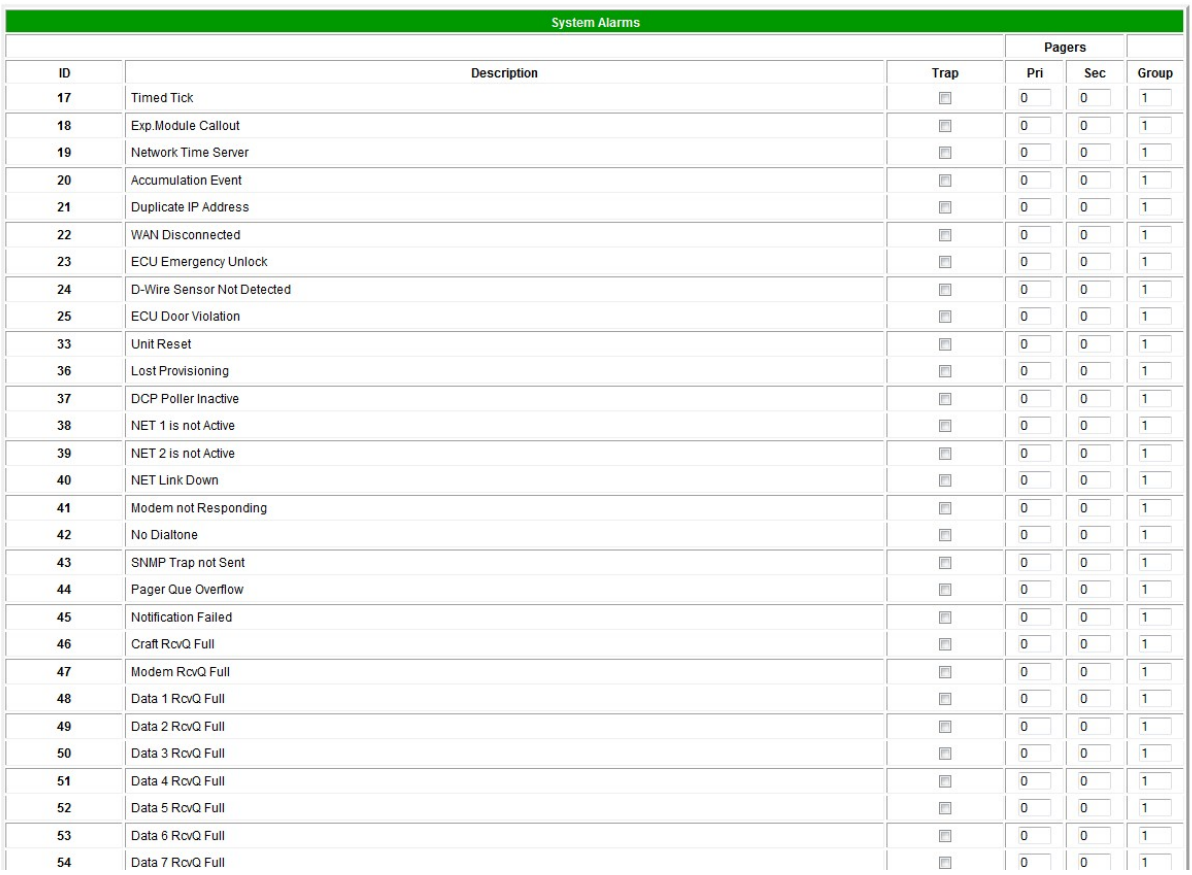
CAUTION: Set conditions are qualified, clears are not.

Please note that the alarm qualification event becomes relay momentary time if display and point reference a control (non-expansion control). Controls are mapped to Display 11, Points 1-8, see Reference Information Table A1 and A2 for display descriptions, see Reference Information for Display Mapping Table.

Also, you must set the Type field first, before attempting to edit other data for each ID. To setup Event Qualification Timers, follow the instructions below:

1. Choose the Event Qual tab from the menu selections
2. Enter the ID of the Event qual you would like to modify, 3. Then input the Type, Display, Point, Value and Timer units for each ID. Where Display is 1 - 16, Point is the qualifying alarm point. The Timer value can be set in units of seconds, minutes or hour units. The Type options are Alarm, Primary Pager, Secondary Pager, or None. Please note, if you select None from the Type menu, your entry will be deleted.
3. Click the Save button.

2.10 Setting System Alarm Notifications



System Alarms

			Pagers		
ID	Description	Trap	Pri	Sec	Group
17	Timed Tick	☐	0	0	1
18	Exp.Module Callout	☐	0	0	1
19	Network Time Server	☐	0	0	1
20	Accumulation Event	☐	0	0	1
21	Duplicate IP Address	☐	0	0	1
22	WAN Disconnected	☐	0	0	1
23	ECU Emergency Unlock	☐	0	0	1
24	D-Wire Sensor Not Detected	☐	0	0	1
25	ECU Door Violation	☐	0	0	1
33	Unit Reset	☐	0	0	1
36	Lost Provisioning	☐	0	0	1
37	DCP Poller Inactive	☐	0	0	1
38	NET 1 is not Active	☐	0	0	1
39	NET 2 is not Active	☐	0	0	1
40	NET Link Down	☐	0	0	1
41	Modem not Responding	☐	0	0	1
42	No Dialtone	☐	0	0	1
43	SNMP Trap not Sent	☐	0	0	1
44	Pager Que Overflow	☐	0	0	1
45	Notification Failed	☐	0	0	1
46	Craft RcvQ Full	☐	0	0	1
47	Modem RcvQ Full	☐	0	0	1
48	Data 1 RcvQ Full	☐	0	0	1
49	Data 2 RcvQ Full	☐	0	0	1
50	Data 3 RcvQ Full	☐	0	0	1
51	Data 4 RcvQ Full	☐	0	0	1
52	Data 5 RcvQ Full	☐	0	0	1
53	Data 6 RcvQ Full	☐	0	0	1
54	Data 7 RcvQ Full	☐	0	0	1

Fig. 2.23. *SNMP Traps and primary or secondary pager devices can be selected for each system alarm*

The **System Alarms** screen allows you to individually set the notification method for each system alarm. See Appendix A for system alarm point descriptions.

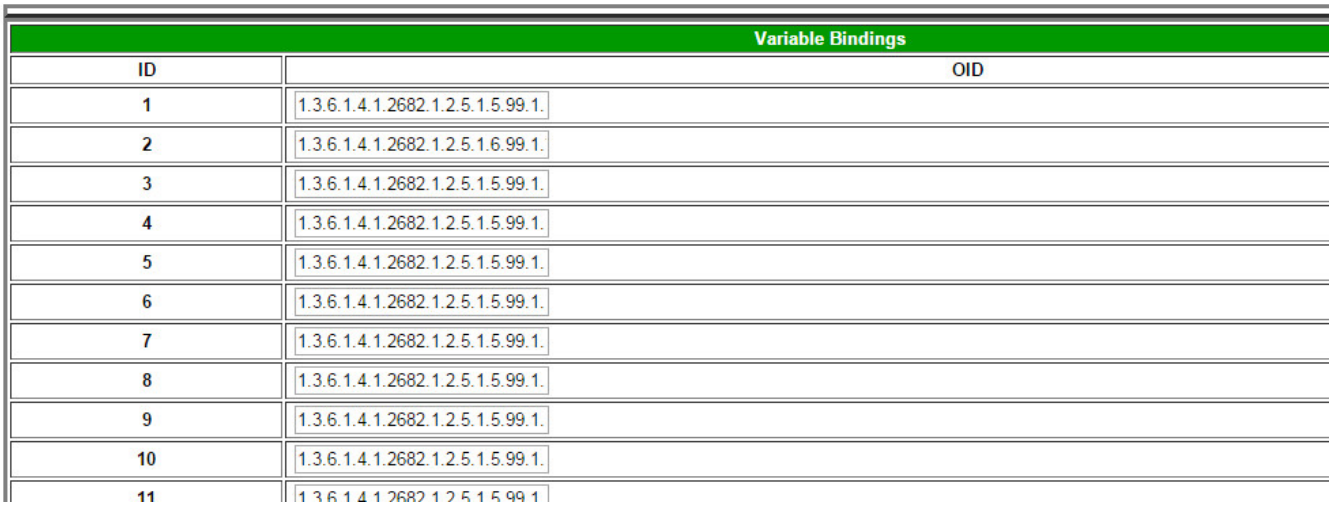
Use the following steps to configure your system alarm notification settings:

1. From the **Edit** menu select the **System Alarms** link, see Figure 2.23.
2. Check the **Trap** box to send an SNMP trap for that alarm point. Selecting the box will set that point to send a SNMP trap, leaving the box blank will set that point to not send an SNMP trap.
3. Set the primary and secondary pagers with a pager ID from your defined pager list. (See Section "Setting up Notification Methods" for more information.)
   Note: The NetGuardian will notify both the primary and the secondary notification device when point status changes (both alarm and clear).
4. Under the **Group** column enter the appropriate point group ID, see section "Defining Point Groups."
5. Click **Submit Data** to save the configuration settings.

Note: If any configured ECU has a door violation, then the alarm will sound.

2.11 Variable Bindings

Note: Variable bindings are used when setting up SNMP alarms.

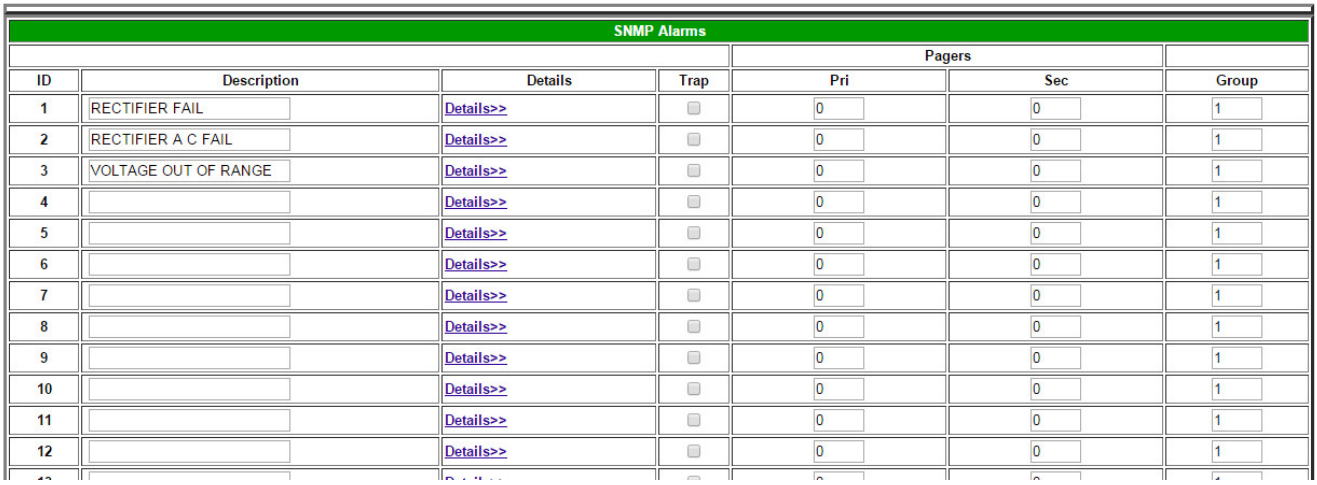


Variable Bindings	
ID	OID
1	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
2	1.3.6.1.4.1.2682.1.2.5.1.6.99.1.
3	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
4	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
5	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
6	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
7	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
8	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
9	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
10	1.3.6.1.4.1.2682.1.2.5.1.5.99.1.
11	1.3.6.1.4.1.2682.1.2.5.1.5.99.1

The Edit > Variable Bindings menu

Variable Bindings	
Id	Identification number for the variable binding.
OID	OID of the variable binding. **Note**: Using a ***** in this field is like a "wild card" - any value is accepted.

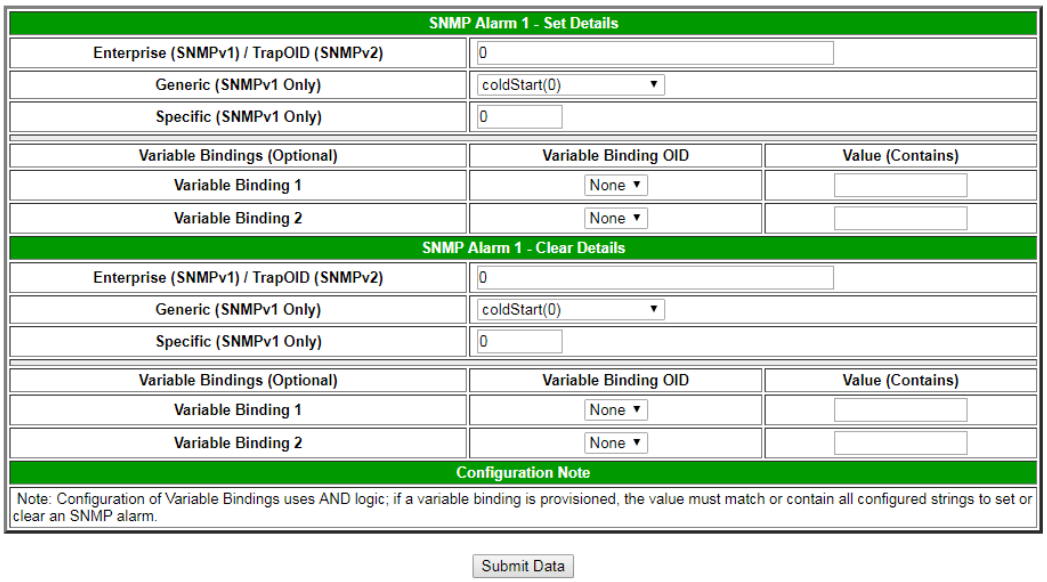
2.12 SNMP Alarms



SNMP Alarms

				Pagers		
ID	Description	Details	Trap	Pri	Sec	Group
1	RECTIFIER FAIL	Details>>		0	0	1
2	RECTIFIER A C FAIL	Details>>		0	0	1
3	VOLTAGE OUT OF RANGE	Details>>		0	0	1
4		Details>>		0	0	1
5		Details>>		0	0	1
6		Details>>		0	0	1
7		Details>>		0	0	1
8		Details>>		0	0	1
9		Details>>		0	0	1
10		Details>>		0	0	1
11		Details>>		0	0	1
12		Details>>		0	0	1

The Edit > SNMP Alarms menu



SNMP Alarm 1 - Set Details

Enterprise (SNMPv1) / TrapOID (SNMPv2)	0	
Generic (SNMPv1 Only)	coldStart(0)	
Specific (SNMPv1 Only)	0	
Variable Bindings (Optional)	**Variable Binding OID**	**Value (Contains)**
Variable Binding 1	None	
Variable Binding 2	None	

SNMP Alarm 1 - Clear Details

Enterprise (SNMPv1) / TrapOID (SNMPv2)	0	
Generic (SNMPv1 Only)	coldStart(0)	
Specific (SNMPv1 Only)	0	
Variable Bindings (Optional)	**Variable Binding OID**	**Value (Contains)**
Variable Binding 1	None	
Variable Binding 2	None	

Configuration Note

Note: Configuration of Variable Bindings uses AND logic; if a variable binding is provisioned, the value must match or contain all configured strings to set or clear an SNMP alarm.

Submit Data

Edit > SNMP Alarms > Details

SNMP Alarms Settings	
ID	SNMP Alarm ID number.
Description	User-definable description for the SNMP alarm.
Notification Devices	Check which notification device(s), 1 through 8, will send alarm notifications in response to this SNMP alarm.
Advanced SNMP Alarms Settings (Details>>)	
Enterprise/OID	Enterprise OID for SNMPv1 or Trap OID for SNMPv2c.
Generic	Generic Trap number for **SNMP v1 only.**
Specific	Specific Trap number for **SNMPv1 only.**
Variable Binding OID	If defined, additional OID (from equipment connected to control relay) to uniquely identify the SNMP trap.
Value (Contains)	Value of the variable binding. Must be integer or string (when searching for a specific string, the string must be contained within the received trap variable binding value). **Note**: Using a ***** in this field is like a "wild card" - any value is accepted.

2.13 Configure the Accumulation Timer

Fig. 2.24. *Define the Accumulation Timer settings to send an Accumulation Event alarm*

Field	Description
Display and Point Reference	Indicates which alarm point is to be monitored
Point Description	The user-defined description of the monitored alarm point.
Point Status	The current status of the monitored point.
Event Threshold	The amount of time allowed to accumulate before the "Accumulation Event" system alarm is set. Maximum is 45 days.
Accumulated Time	The total time the monitored point has been in ALARM state.
Accumulated Since	Indicates the last time the accumulation timer was reset.
Reset Accumulation Timer	Placing a check mark here will reset the timer when the user presses the Submit button.

Table 2.I. *Fields in the Accumulation Timer screen*

The NetGuardian's **Accumulation Timer** keeps a running total of the amount of time a point is in an alarm state to send an Accumulation Event system alarm once the total time exceeds a defined threshold. Refer to Table 2.I for field descriptions.

Use the following steps to configure the accumulation timer settings:

1. Go to the **Edit** menu and select the Accum. Timer link, see Figure 2.24.
2. In the **Display Reference** field enter the corresponding display number to be monitored.
3. In the **Point Reference** field enter the corresponding alarm point to be monitored.
4. In the **Event Threshold** row enter the appropriate running total days, hours and minutes a point is in a alarm state in order to send an accumulation event system alarm.
5. Click **Submit Data** to save the configuration settings.

Hot Tip!

Only check the **Reset Accumulation Timer** box if you wish to reset the timer.

The **Point Description, Point Status, Accumulated Time, and Accumulated Since** fields are not configurable. These fields will show the corresponding data of the point you configure for the accumulation timer after you have hit the **Submit Data** button.

2.14 Configuring Ping Targets

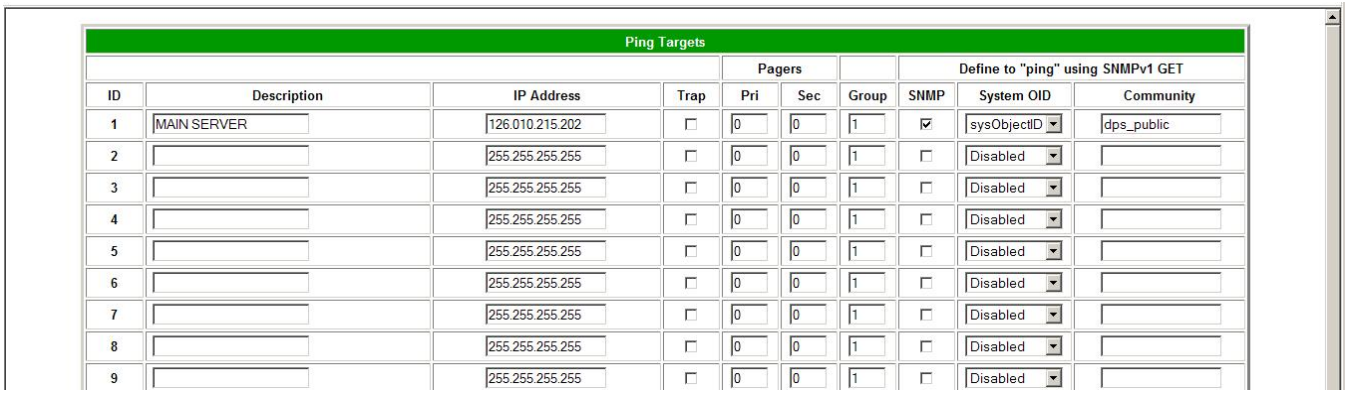


Fig. 2.25. *Configure the ping target parameters from the Ping Info screen*

Each of the 32 ping targets can be provisioned with a description, an IP address, primary and secondary notification devices, and an option to verify connection using SNMPv1 GET. The NetGuardian G5 will issue a call to the primary notification device followed by a call to the secondary notification device in the event a ping alarm occurs.*

Use the following steps to configure the ping targets:

1. From the **Edit** menu select **Ping Targets**, see Figure 2.25.
2. In the **Description** field, enter a description of the device to be pinged.
3. In the **IP Address** field enter the IP address of the device to be pinged.
4. Under the **Trap** column check the box to designate that an SNMP trap will be sent when an alarm condition exists. Leaving the box blank designates that an SNMP trap will not be sent when an alarm condition exists.
5. Set the primary and secondary pagers with a pager ID from your defined pager list. (See Section "Setting up Notification Methods" for more information.)
   Note: The NetGuardian G5 will notify both the primary and the secondary notification device when point status changes (both alarm and clear).
6. Under the **Group** column enter the appropriate point group ID, see section "Defining Point Groups."
7. Under the **SNMP** column check the box to enable pinging of the device using SNMPv1 GETs instead of traditional ICMP. If the box is not checked, the device will be pinged using traditional ICMP.**
8. Select the OID to retrieve with the SNMP GET. The following is a list of available MIB variables in the **System OID** field:**
   sysDescr, OID .1.3.6.1.2.1.1.1.0
   sysObjectID, OID .1.3.6.1.2.1.1.2.0
   SysUpTime, OID .1.3.6.1.2.1.1.3.0
9. In the **Community** field enter the community string for the SNMP GET request.The community string must match the community string configured in the target device.**
10. Click **Submit Data** to save the configuration settings.

*See Section 'Setting System Timers' to set ping response and fail times.

** **Note:** The following field options are only available with firmware version 5.1 D or higher.

2.15 Analog Sensors

Each of the NetGuardian G5's analog channels must be individually configured to monitor data. The ADCs (analog to digital converters) support a range of –94 to 94 VDC. There are four alarm trip points (thresholds) in ascending order: major under, minor under, minor over, and major over. The thresholds must be set from **Under** to **Over** in either ascending or descending voltage (or current) order. For example, –10, –5, 5 and 10 VDC corresponding respectively to major under, minor under, minor over and major over is a valid configuration.

To change any one analog alarm to measure current instead, a dip switch setting must be changed. Refer to the NetGuardian hardware user manual for details on jumper locations and positions. The jumper inserts a 250 ohm shunt resistor across the input to convert the sensors current output to volts. Use ohms law to find the voltage drop across the 250 ohm shunt resistor (multiply the current by the resistance 250 ohms). Please refer to the operation manual for your sensor to determine any other conversion factors. This will allow you to correctly set the thresholds for **over** and **under** conditions.

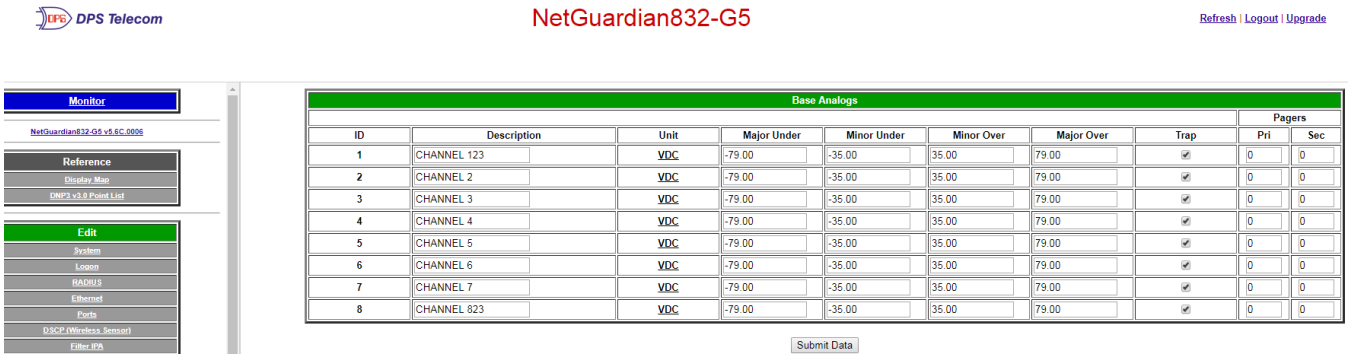


Fig. 2.26. *Analog sensors can be viewed and changed from the Edit > Base Analogs screen*

Setting Up Your Alarm:

1. From the **Edit** menu click on the **Base Analogs** link.
2. In the **Description** field enter a description for each analog channel being utilized.
3. Check the **Trap** box if you would like to receive an SNMP trapped when a threshold is crossed for this channel.
4. Enter the ID of the **Pri**mary and **Sec**ondary pagers/notifications that will receive alarms from this sensor (0 to disable). Edit these notifications in the **Edit** > **Notifications** menu.

Scaling Your Reading:

The analog alarms are set to measure voltage by default and the thresholds are reported as "native units." For example, if you were using a sensor with a measurable temperature range between 32° and 131° Fahrenheit (0° to 55° Celsius) and an output range between 1 and 5 VDC, you would configure your analog channel such that 1 volt represents 32° Fahrenheit and 5 volts represents 131° Fahrenheit.

1. Under the **Unit** column, click on the abbreviated units link (e.g VDC, RH, F, etc.) to convert the reference units and the native units for that analog channel, see Figure 2.26.
2. Set **Reference 1** (VDC) to the minimum output (in volts DC) of the analog device being configured.
3. In the box to the right of **VDC,** enter an abbreviation for the native units being measured (e.g. RH for relative humidity, F for ° Fahrenheit, etc.).
4. In the box below the abbreviated native unit, enter the reading that corresponds to the minimum voltage output entered in the previous step.
5. Set **Reference 2** (VDC) to the maximum output (in volts DC) of the analog device being configured.
6. In the box to the right of **VDC,** enter an abbreviation for the native units being measured (e.g. RH for

relative humidity, F for ° Fahrenheit, etc.).

7. In the box below the abbreviated native unit, enter the reading that corresponds to the maximum voltage output entered in the previous step.

(Optional) In this menu, you can also enter the Point Group ID designated for each alarm level (MjU = Major Under, MnU = Minor Under, MjO = Major Over, MnO = Minor Under), see section "Defining Point Groups."

(Optional) Setting the **Polarity** to Reversed is equivalent to remotely swapping the low and high voltage wires for this analog channel. This is not recommended under most circumstances.

8. Click the **Submit Data** button to save the configuration settings.
9. Once your references for scaling have been saved, set the alarm thresholds in **Edit** > **Base Analogs**.

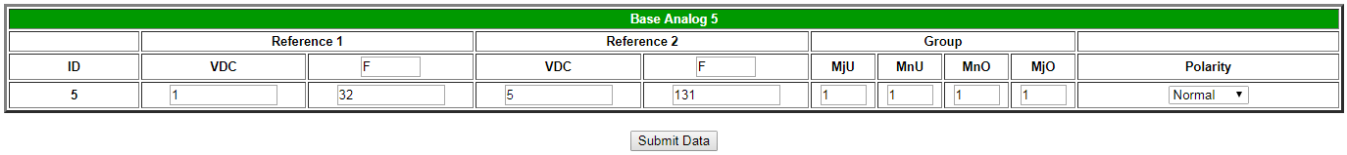


Fig. 2.27. *Reference 1 and reference 2 correspond to the minimum and maximum output values of your analog device*

2.15.1 Integrated Temperature and Battery Sensor (Optional)

The optional integrated temperature, battery, or air flow sensor allows the user to monitor surrounding temperature, the unit's current draw, as well as the air flow. This is only available if the NetGuardian was purchased with this option. If you are using the temperature, battery, or air flow sensor, you must dedicate an analog port to each one (see user manual for connection information).

Note: Ambient room temperature will be cooler than the NetGuardian integrated temperature.

Temperature Sensor

1. In the **Description** field enter a description in the analog channel you are using for the integrated temperature sensor. (4 for internal and 8 for external)
2. Under the **Unit** column, click on the abbreviated units link (e.g VDC, RH, F, etc.) to convert the reference units and the native units for that analog channel, see Figure 2.26.
3. In **Reference 1** enter **iF** (integrated Fahrenheit) in the box to the right of **VDC**. For external sensors with part number D-PK-SENSR-12037, use **eF** in the box next to VDC. This enables the NetGuardian's pre-configured temperature settings. Repeat this step for **Reference 2.**
4. Set your desired thresholds.

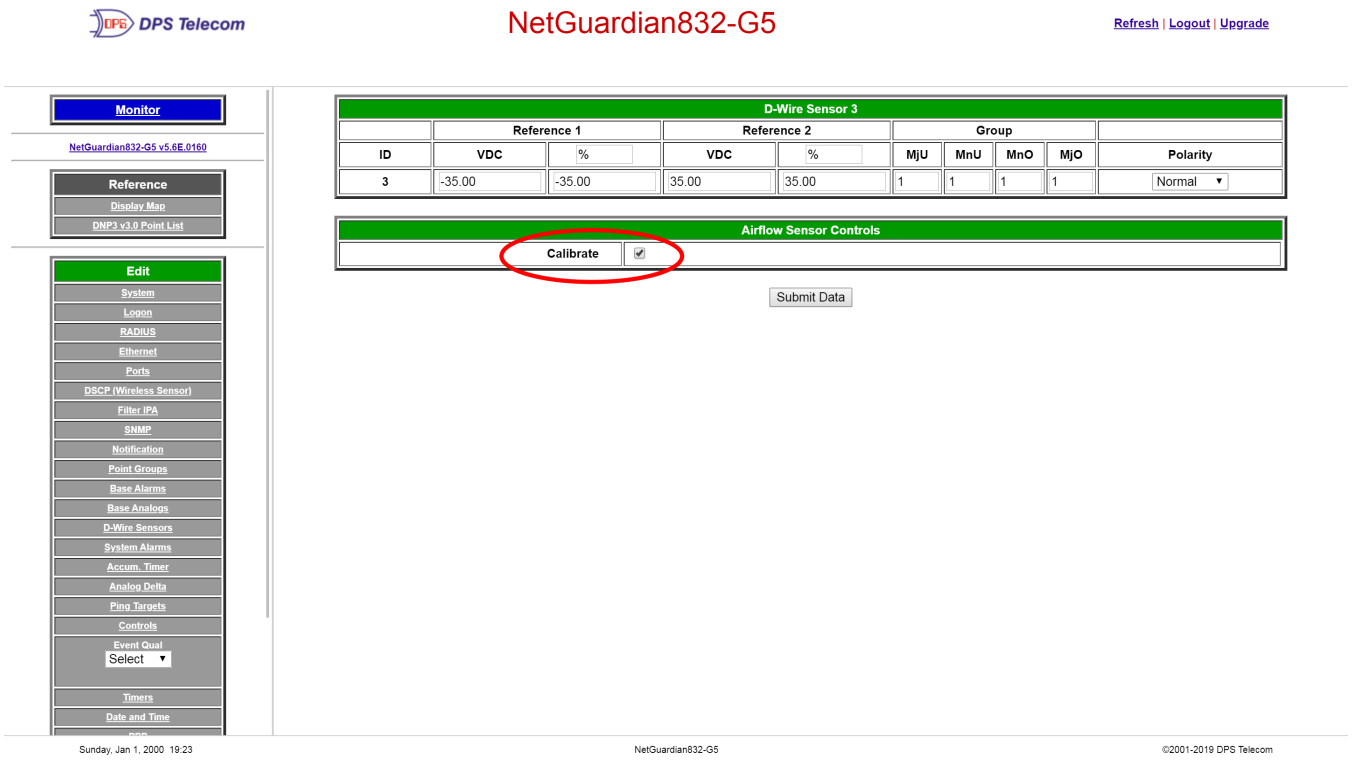
Battery Sensor

1. In the **Description** field enter a description in the analog channel you are using for the integrated current sensor. (5 for Battery A and 6 forBattery B)
2. Set your desired thresholds. Be sure to set your thresholds in reference to your NetGuardian's power input (e.g. –24 VDC, –48 VDC, or wide range).

Air Flow Sensor

1. The Air Flow sensor can be calibrated.
   Under the D-Wire Sensors menu of the "Edit" page, in the "Unit" column, click the unit of the desired analog to calibrate.

In **Reference 1** enter **%** (integrated percent) in the box to the right of **VDC.**
Look for calibration check box (only visible for air flow sensor) - this is a control, not a configuration.



2. Supply maximum possible air flow while calibrating.

You can view the calibration progress in the D-Wire Sensors Monitor page.

D-Wire Sensors

ID	ROMID	Description	Reading	Units	MjU	MnU	MnO	MjO
1	28DBA9A20B00008D	ON BOARD TEMPERATURE	81.04	VDC			x	x
2	28DF17040600000C	D-WIRE TEMPERATURE	73.79	VDC			x	
3	31E7930F001002B6	D-WIRE AIR FLOW	0.00	30% cal				
4			0.00	VDC				
5			0.00	VDC				
6			0.00	VDC				
7			0.00	VDC				
8			0.00	VDC				
9			0.00	VDC				
10			0.00	VDC				
11			0.00	VDC				
12			0.00	VDC				
13			0.00	VDC				
14			0.00	VDC				
15			0.00	VDC				
16			0.00	VDC				

The first part of the calibration should display the qual percentage, followed by the calibration percentage.
Once calibration finishes, same air flow should result in 100%.

2.15.2 D-Wire Sensors (Optional)

D-Wire Sensors 1-8

										Pagers	
ID	ROMID	Description	Unit	Major Under	Minor Under	Minor Over	Major Over	Trap	Freq.	Pri	Sec
1	207D2D0C0000003B	1	%	-78.9842	-34.9841	84.9905	89.9905	☑	15	0	0
2	288ED1080300008C	2	iF	-79.0000	-35.0000	50.0000	70.0000	☑	15	0	0
3		3	%	-78.9969	-34.9968	84.9969	89.9969	☑	15	0	0
4		4	%	-78.9969	-34.9968	84.9969	89.9969	☑	15	0	0
5		5	%	-78.9969	-34.9968	84.9969	89.9969	☑	15	0	0
6		6	%	-78.9969	-34.9968	84.9969	89.9969	☑	15	0	0
7		7	%	-78.9969	-34.9968	84.9969	89.9969	☑	15	0	0
8		8	%	-78.9969	-34.9968	84.9969	89.9969	☑	15	0	0

Submit Data

Fig. 2.28. D-Wire Sensors menu

If this NetGuardian G5 has support for D-Wire sensors, a link will appear in the **Edit** menu sidebar. The interface will resemble the **Edit** > **Base Analogs** menu, but with two new columns: **ROMID** and **Freq.** Any detected or configured sensor will automatically fill out a ROMID cell. The color of each cell will signify its configuration status: If the ROMID cell is yellow, the sensor is detected but is not yet configured. If the cell is red, then the sensor is configured but has not been detected, and the "D-Wire Sensor Not Detected" System Alarm will set. The "Unit" field will automatically be configured upon submission, no changes should be made to this field for D-Wire sensors. The **Freq.** column determines how often (in minutes) the unit logs each sensor to a .csv file.

Note: The page must be submitted in order to configure the detected **ROMID(**s). It may take up to one minute for a newly attached sensor to register in the **Edit** or **Monitor** interface.

2.15.3 Analog Polarity Override

iF : integrated temperature sensor in fahrenheit or iC for celsius
oV+ : override polarity VDC to positive
oV- : override polarity VDC to negative

If you have a positive powered NetGuardian, you may want to use this feature if you are using the internal battery sensor. The Web Browser Interface will override **oV+** and **oV-** tags and show VDC. So you won't have to view an uncommon looking tag while in monitor mode.

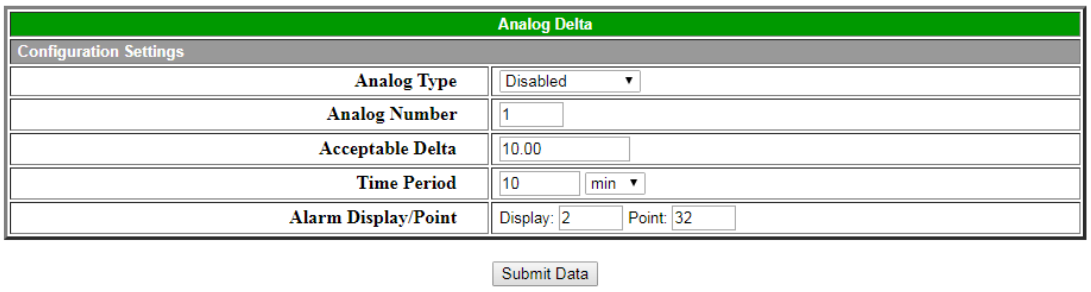
Analog Accuracy:
+/- 1% of analog range.

Analog Step Sizes	
Input Voltage Range	**Resolution (Step Size)**
0-5 V	.0015 V
5-14 V	.0038 V
14-30 V	.0081 V
30-70 V	.0182 V
70-90 V	.0231 V

Table 2.J. *Analog step sizes*

2.15.4 Analog Delta

Sometimes, simply checking the alarm threshold values of your analog sensors is not enough. The Analog Delta feature allows you to define a discrete alarm to be triggered when your analog value changes too quickly, even if it does not reach an alarm threshold. For example, if temperature or pressure begins rapidly changing, which can cause damage to sensitive equipment.

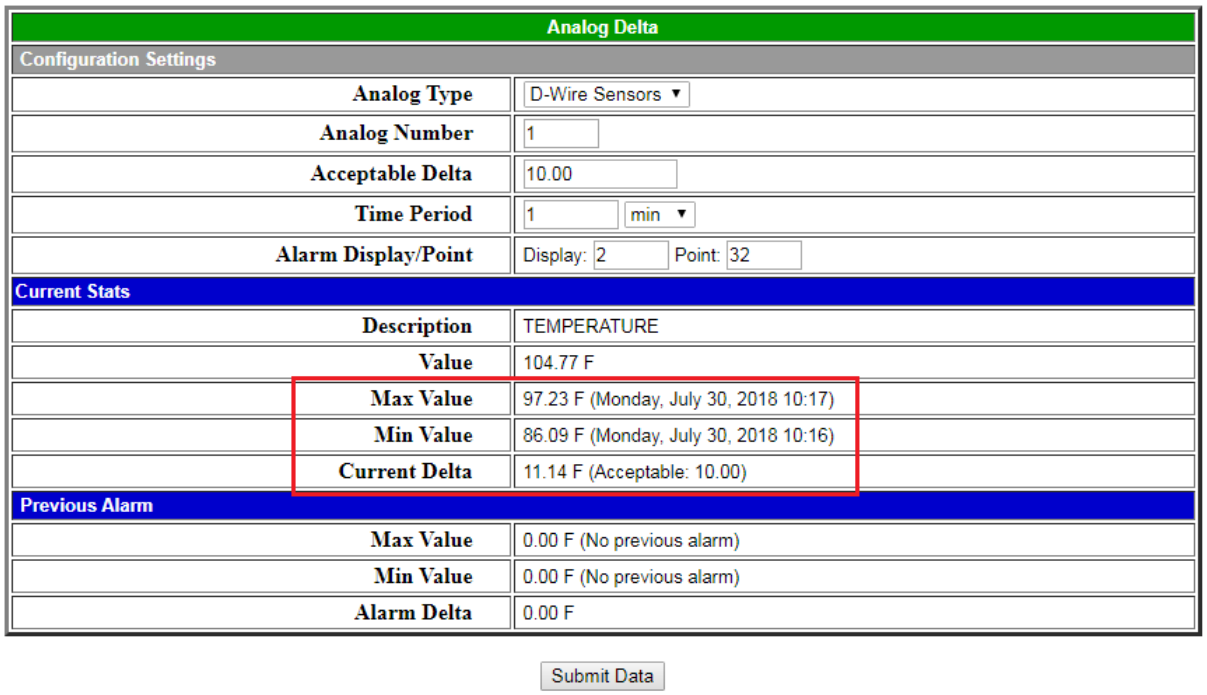


In the **Edit** > **Analog Delta** menu, you can define a time period and maximum acceptable delta that will let your NetGuardian know how quickly a value is allowed to change, and how often to check for a change.

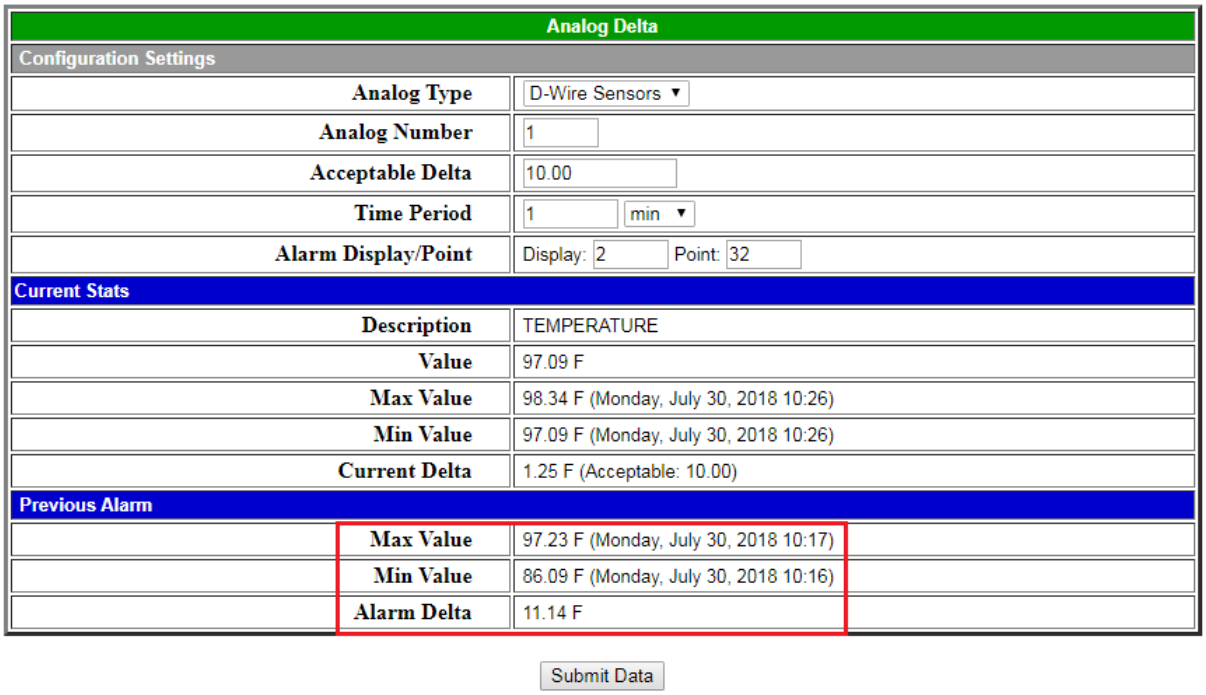
Field	Description
Analog Type	What kind of analog sensor is being monitored (Base, expansion, D-wire).
Analog Number	Which analog channel of the above type is being monitored. **Ex.** "Base Analogs" and "1" would correspond to the first base analog in **Edit** > **Base Analogs**. "D-Wire Sensors" and "4" would

	correspond to the fourth D-wire sensor field in **Edit** > **D-Wire Sensors** (which may not be the fourth node in the daisy chain, if any previous node uses more than one field).
Acceptable Delta	The maximum amount that the analog reading can change within the given time period, in either direction, before the Analog Delta alarm is triggered. **Note:** The difference measured is computed from the scaled reading of the analog channel, not the raw voltage difference. See "Analog Sensors" for more info on linear scaling using Reference 1 and Reference 2.
Time Period	How often the NetGuardian checks the analog value for a change.
Alarm Display/Point	Which discrete point on the Display Map that the Analog Delta alarm will use. (Defaults to Display 2 Point 32, or the last Ping Target field.) **Note:** This alarm should **only** be mapped to Displays 1 and 2, which correspond to **Base Alarms** and **Ping Targets**, respectively. If your NetGuardian is an 832A instead of a 864A, Display 1 Points 33-64 will be unavailable. **Do not** map the Analog Delta alarm to a ping target or discrete alarm that is already in use.

Once the Analog Delta alarm is set to a valid configuration, the **Current Stats** and **Previous Alarm** monitoring menus will appear underneath, in blue. Current Stats will show the most recent delta calculation, and Previous Alarm will show the most recent delta that was large enough to trigger the alarm.



A delta is calculated that exceeds the defined maximum.



The information from that delta is stored under the Previous Alarm header.

2.16 Configuring the Control Relays

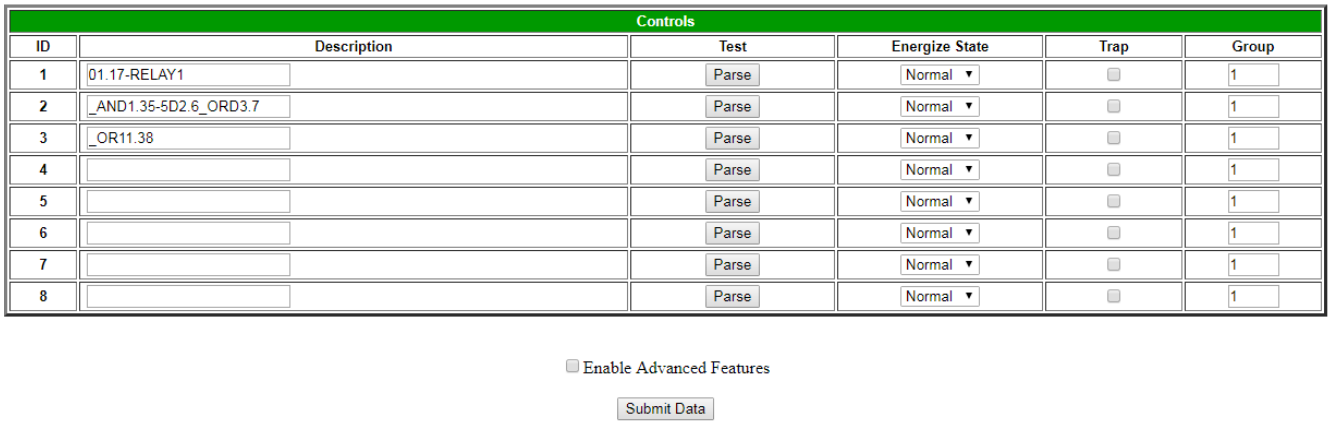


Fig. 2.29. *Configure controls in the Edit menu > Controls screen*

The Relays of the NetGuardian G5 can be identified and configured using the **Edit** menu > **Controls** screen. A description can be entered for each of the relays. You can also designate whether or not to send SNMP Traps when a relay is actuated. Relays are normally open (N/O) by default. A circuit board jumper can be changed for each control to make it normally closed (N/C). Refer to the NetGuardian user manual for PCB settings and jumper positions.

1. From the **Edit** menu, select the **Controls** link, see figure above.
2. In the **Description** field enter a description for each control/relay being used.
3. Set the **Energize State** to either **Normal** or **Inverted**. Selecting **Normal** sets the relay's normal electrical state to **De-energized**. Selecting **Inverted** sets the relay's normal electrical state to **Energized**.
4. Check the **Trap** box to send an SNMP trap for that alarm point. Selecting the box will set that point to send a SNMP trap, leaving the box blank will set that point to not send an SNMP trap.
5. Under the **Group** column enter the appropriate point group ID, see section "Defining Point Groups."
6. Click **Submit Data** to save the configuration settings.

Hot Tip!

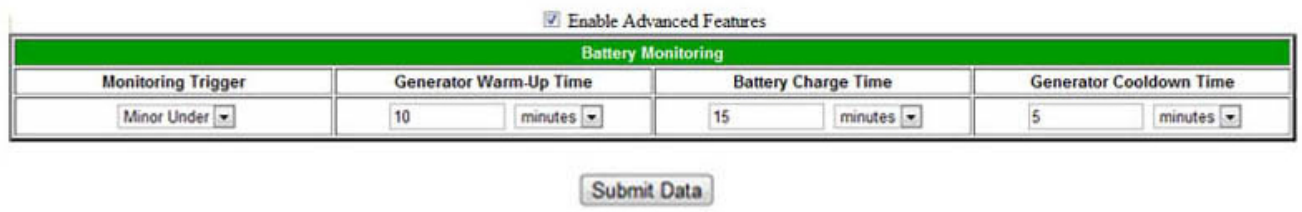
The Energize State is different than the normal state of the physical contact closure position of each relay, which is determined by circuit board jumpers. This gives you the added benefit of being able to monitor the wire. In the event of a power failure, the relay would de-energize back to it's normal physical contact closure set by the circuit board jumper for that relay. Check your jumper settings and relay connections before setting to Normal or Inverted. Refer to the NetGuardian manual for jumper settings and relay connection options.

4. Check the **Trap** box designate an SNMP trap when a control point operates.
5. Click **Submit Data** to save the configuration settings.

2.16.1 Advanced Controls Build Option

When encountering the Edit Controls interface with the Advanced Controls build option, you'll see an additional checkbox below the main window titled 'Enable Advanced Features'. These advanced features control the timing for a generator and are used to charge the batteries. To configure advanced controls settings, select this checkbox.

NOTE: Selecting the 'Enable Advanced Features' checkbox will occupy control relay slots #1 and #2.



Edit Controls > Enable Advanced Features

Monitoring Trigger	This selects which severity level will cause Control #1 to latch and start the generator. The Battery Monitoring feature monitors analog channels 5 and/or 6 (Battery A and B).
Generator Warm-Up Time	Determines how long the generator will run before Control #2 latches, initiating the battery charging. Can be configured in seconds, minutes or hours, within a range of 1 - 120.
Battery Charge Time	Determines how long the batteries will charge until Control #2 releases. Can be configured in seconds, minutes or hours, within a range of 1 - 120.
Generator Cooldown Time	Determines how long the generator will cooldown until Control #1 releases. Can be configured in seconds, minutes or hours, within a range of 1 - 120.

Once you have configured your settings, press the 'Submit Data' button. In order for the changes to take effect, you will need to reboot your NetGuardian 832/864 G5 device.

2.16.2 Activating Relays from an Alarm Point's Change of Status

The NetGuardian allows the user to echo an alarm point state to activate a relay. Any of the NetGuardian's discrete alarms, system alarms, ping alarms, or analog alarms may be echoed to activate a relay in the event that alarm is triggered. However, a relay set to echo an alarm point cannot be manually activated. To allow the relay to be manually activated while still maintaining its echoed status, the relay point must be set to **ORed**.

2.16.2.1 Echoing alarm points to relays

In the **Description** field (see Figure 2.29) enter the display, alarm point, a dash (-), and the description of the alarm you wish to echo. For example, if echoing discrete alarm 8, enter **01.08**-your alarm description. (The display and alarm point are formatted as **DD.PP**, where DD = the display number and PP = the point number or **GX** where **X** is the group number) See Appendix A for a complete list of display and point numbers.

2.16.2.2 Oring echoed alarm points

In the **Description** field enter the display, alarm point, an under bar (_), and the description of the alarm you wish to set to ORed. For example, if ORing discrete alarm 8, enter **01.08**_your alarm description. The display and alarm point are formatted as **DD.PP**, where DD = the display number and PP = the point number or **GX** where **X** is the group number) See Appendix A for a complete list of display and point numbers.

2.16.2.3 Making Control Relays exclusive from each other

In the **Description** field, enter the token _XMOM followed by any number. For example: **_XMOM2.** The **_XMOM** token will put the control into **Exclusive Momentary** mode. This mode will cause the control to only accept momentary or release commands via SNMP or DCP, and the control will not be allowed to latch if a control with the same numerical tag is currently latched. If you want to add a description, simply add a space after the tag and type your description. The space denotes the end of the tag and the beginning of the description.

2.16.3 Derived Control Relays and Virtual Alarming

Control relays and virtual alarms can be created from derived formulas using the following operations:
_OR : Set the current operation to OR.
_AN : Set the current operation to AND.
_NO : Set the current operation to NOT
_XR : Set the current operation to XOR.
D : Tag to change the active display number.
G : Tag to change the active group number.
C# : Used as a constant where # is either a 1 or a 0.
. : Used like a comma to delimit numbers.
- : Used to specify a range of points.
S : Used like an open parentheses.
F : Used to end or close parentheses (All open parentheses must have a matching close parentheses).

Spaces included here are for readability purposes only.

Hot Tip!

- Precedence of the operations are always left to right unless using **S and F** for parentheses.
- All number references can either be one or two digits.

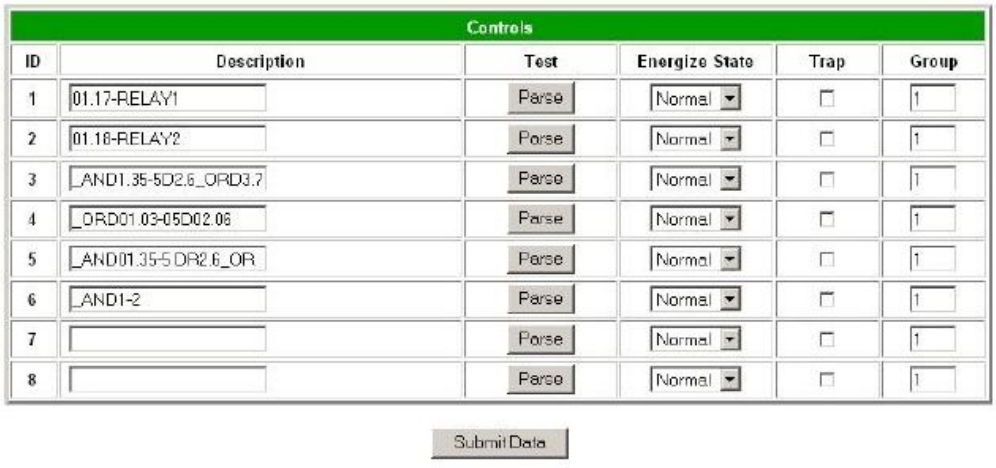


Fig. 2.30. *Derived control relays*

_**OR D1.3-5** is logically equivalent to (1.3 || 1.4 || 1.5)
_**AN D 1.3-5 D2.6 _OR D3.7** is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6) || 3.7)
_**OR D01.03-05 D02.06 _AN D02.07 D03.10.-12** is logically equivalent to ((1.3 || 1.4 || 1.5 || 2.6)&& (2.7 && 3.10 && 3.12))
_**AN D1.3-5D2.6_OR.7D3.10.12** is logically equivalent to ((1.3 && 1.4 && 1.5 && 2.6) || 2.7 || 3.10 || 3.12))
_**AN D1-2** : Control will parse
_**OR G1** will latch if any alarm in group 1 is active
_**OR S_AND1.1-2FS_AND1.3-4F** is logically equivalent to (1.1 && 1.2) || (1.3 && 1.4)
_**OR C1 D1.1** is logically equivalent to (1 || 1.1)

2.16.4 Relay Operating Modes

A trap is sent on a relay COS for normal or echoed controls when the send trap option is selected. A trap is also sent when an oRed relay is manually controlled. A trap will not be sent for an ORed relay latched or released due to an alarm echo.

Each relay can be mapped to one alarm point. Any system, base, or expansion point can be used. Multiple alarm points cannot be mapped to the same control.

The operation of a control is determined by the first six characters of the control description. The format **DD.PP** is used to specify the display and point number of the alarm to be mapped to the control.

2.16.4.1 Echoed Mode

An echoed control reflects the state of the alarm for which it is assigned. The user is blocked from using manual control commands, like **opr** and **rls**.

Description format **DD.PP**- where **DD** = Display #, and **PP** = Point #. Example: **01.08-My Control** : Echoes the state of the alarm at display 1, point 8 to the relay, see Figure 2.30.

2.16.4.2 ORed Mode

An ORed control is active if the alarm for which it is assigned is active or if the control has been manually activated. The user will see the relay mode displayed in red text.


This will not work with Boolean equations.

Description format **DD.PP**_ where **DD** = Display #, and **PP** = Point #. Example: **01.08_My Control** : ORs the state of the alarm at display1, point 8 to the relay, see Figure 2.30.

2.16.4.3 Normal Mode

Relay energized state is similar to alarm point polarity. A normal control is latched when the relay state is **opr**, and open when the relay state is rls. Conversely, an inverted control is latched when the relay state is rls, and open when the relay state is **opr**.

In normal mode, the description does not follow formatting for echoed or ORed modes. Example: **My Control** : Normal relay operation, see Figure 2.30.

2.16.5 Override Default Relay Momentary Time Using Event Qualification

Fig. 2.31. *Using Event Qualification to override default relay momentary time*

Use the following steps to override default relay momentary time, using the NetGuardian's Event Qualification feature:

1. From the **Edit** menu click on the **Event Qual** drop-down menu and select the appropriate group.
2. In the **Display** text box, type 11.
3. In the **Point** text box, type the number of the relay you would like to change.
4. In the **Value** box, type the amount of time. You may not select more than 127 units.
5. In the **Units** box, select the appropriate units (seconds, minutes, or hours).
6. In the **Type** box, select **Alm**.
7. Click **Submit Data** to save the changes.

2.17 Setting System Timers

Timers		
	Value	Units
Cycle (1-120)	60	sec
Wait (1-12)	8	sec
Fail (1-120)	5	min
Sound (0-120)	6	sec
Channel (0-120)	2	min
Craft (0-120)	0	min
DCP (0-120)	30	sec
Tmd Tick (0-60)	0	min
PPP Connection (0-120)	1	min
PPP Idle (0-120)	1	min
NTP Sync (0-120)	60	min
Proxy (0-120)	20	min
Web Timeout (0-120)	10	min
Web Refresh (5-120)	60	sec
LCD Delay (1-60)	2	sec
LCD Scroll (100-1000)	600	msec

Submit Data

Fig. 2.32. *When a target fails to respond to a ping within the fail time period, a fault is declared*

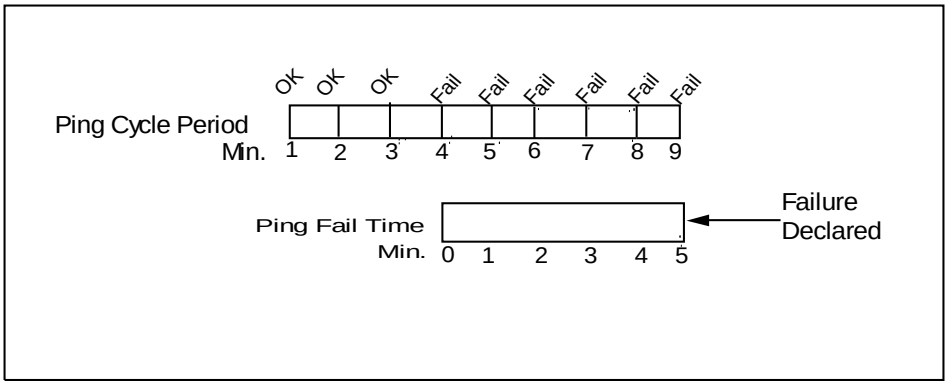


Fig. 2.33. *Default timer settings*

The NetGuardian's System Timers allow you to control the rate of your pinging activity, time of speaker sounding, inactivity time for data ports, and discrete alarm detect time. Ping timer settings allow you to balance network traffic against alarm response times. Although you can change the values from their default settings, it is recommended that you use either the default settings or plan your settings so that there is no conflict among the timers. Specifically, the FAIL time should be set to several times the CYCLE time to allow multiple PINGs before a FAIL is declared. Likewise, the CYCLE time should be set to several times the wait time.

Hot Tip!

The smaller the CYCLE number, the sooner you will find out about failures;

however, you will increase traffic on your LAN.

1. From the **Edit** menu select **System Timers.**
2. Set the **Cycle** time. This determines how often the NetGuardian will go through its list of ping targets and attempts to reach them with an ICMP ping. Set the value between zero and 120 and set the units to either seconds or minutes. Default is 60 seconds.
3. Set the **Wait** time. The NetGuardian waits after sending a ping request before it determines that the target is unreachable. Set the value between zero and 12 and set the units to either seconds or minutes. Default is 8 seconds.
4. Set the **Fail** time. This determines the period of time over which, if a unit has not responded, it is considered failed. Set the value between zero and 120 and set the units to either seconds or minutes. Default is 5 minutes.
5. Set the **Sound** time. This determines how long the NetGuardian's speaker will sound when an alarm occurs or clears. The alarm condition will still be present after the speaker shuts off. The sound timer only affects the duration of the audible alarm annunciation. Set the value between zero and 120 and set the units to either seconds or minutes.
6. Set the **Channel** time. This determines the period of time over which, if there is no activity on the data ports designated as channel ports, it is considered failed. Set the value between zero and 120 and set the units to either seconds or minutes. Alarm activity is indicated in Display 11, Point 62. (See Appendix A, "Display Mapping.")
7. Set the **Craft** time. This determines the period of time over which, if the device connected through a port designated as a **craft** port doesn't reset the timer, an alarm will be triggered. Set between 0 and 120 (min or sec). Alarm activity is indicated in Display 11, Point 63. (See Appendix A, "Display Mapping.")
8. **DCP Poll Delay** is the interval between polling of the expansion unit(s) by the NetGuardian G5. Calid time interval is between 1 second and 24 hours.
9. Set the **DCP timeout**. Set between 0–120 (sec or min). This determines the period of time over which, if the NetGuardian does not receive a DCP poll, to trigger an alarm. Once the alarm is triggered, then dial back-up may be enabled if a T/Mon pager profile is configured.
10. Set the **Timed Tick** between 0–60 minutes. This is a "keep alive or heartbeat" function that can be used by Masters who don't perform integrity checks. For example, if you entered 30, the NetGuardian would notify you every 30 minutes. See section "Setting Up Notification Methods" for paging information.
11. Set the **PPP Connection** and **PPP Idle** times. Once PPP starts, the connection timer will determine how long PPP stays active. When this timer expires, the PPP Idle timer will determine how long the NetGuardian attempts to reestablish a wired LAN connection before returning to PPP mode. Set between 0-120 minutes for both functions.
12. Set the **NTP** Sync. Set between 0–120 (sec or min).
13. The timer settings are accurate to ± one tick. This means that if a timer is set to one minute, it may actually respond anywhere from zero to two minutes. If your target time is one minute, then set the timer to 60 seconds so that it will respond anywhere from 59-61 seconds.
14. Set the **Web Edit Timeout** time between 5–120 minutes. This determines the period of time a Web edit page may be active without any activity. A logon is required if a Web edit timeout occurs. The default Web edit time is 10 mins.

    Note: The time units are preset to minutes by default and cannot be changed.
15. Set the **Web Monitor Refresh** time between 5–120 seconds. This timer enables the user to specify how long the NetGuardian should wait before auto-refreshing a Monitor page to the Web browser.

The default Web monitor refresh time is 60 seconds.

Note: The time units are preset to seconds by default and cannot be changed.

16. Set the **LCD Delay** time between 1–60 seconds. This timer is used when you have set the LCD to "Point Mode." This time is how long you want the alarm to be displayed on the front panel LCD screen. The default is 2 seconds.
17. Set the **LCD Scroll** speed between 100 to 1000 milliseconds. This timer is used to configure how much time passes for the LCD to continue scrolling. The default is 600 milliseconds.

2.18 Setting the System Date and Time

Fig. 2.34. *The current date and time can be entered from the Date and Time screen or from an SNMP manager*

The date is entered in the mm/dd/yyyy format and the time is entered in the hh:mm:ss format.

Hot Tip!

The date and time can also be set from an SNMP manager.

Use the following steps to manually set the system's time and date:

1. From the **Edit** menu, select **Date and Time**, see Figure 2.34.
2. Enter the appropriate date, the day of the week, and time.
3. Click **Submit Data** to save the data and time settings.

The date and time will need resetting following a power failure or reboot unless your NetGuardian is equipped with the real-time clock option or network time is enabled. (See the section 2.15.1 for instructions on setting the network time configuration.)

2.18.1 Network Time Protocol Support

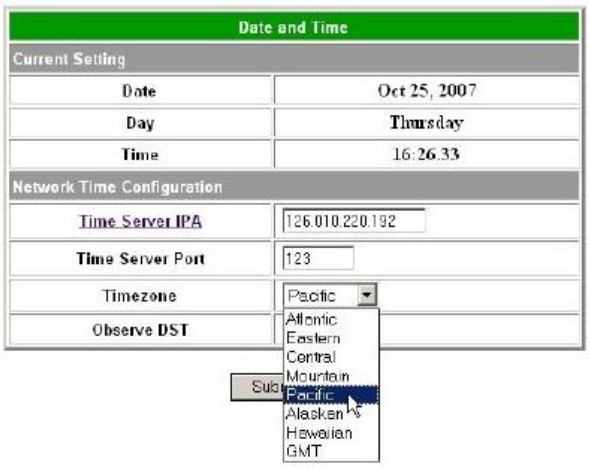


Fig. 2.35. *Configure the Network Time Protocol feature in the Date and Time screen*

1. From the **Edit** menu select **Date and Time.**
2. Click on the **Time Zone** drop-down menu and select the appropriate time zone.
3. Put a check next to **Observe DST** if you are in an area that observes daylight saving.
4. You may also change the server IP Address that the NetGuardian syncs with by entering a the appropriate IP address in the **Time Server IPA** field.
5. If you do not want your NetGuardian to sync with an NTP server, simply set the Time Server IPA to **255.255.255.255**.
   Note: If Time Server IPA is set to 255.255.255.255, you will be able to manually adjust the date and time.
6. Click **Submit Data** to save the date and time settings.

2.19 Configuring DSCP Devices

Note:

If configuring the Wireless Propane Sensor please reference the *How to configure on the NetGuardian G5 Web Interface* section in the "Wireless Propane Monitoring" user manual.
If configuring the Wireless Extender for Propane Sensor please reference the *How to configure on the NetGuardian G5 Web Interface* section in the "Wireless Extender for Propane Sensor" user manual.

Ports

Craft

Baud	9600
WFmt	8,N,1

Modem

Ring Count	1
Answer Init	
Dial Init	

Data Ports

				CR/LF Mode		RTS Times			
ID	Description	Baud	WFmt	In	Out	Head	Tail	Type	Pool
1	Propane Tank	9600	8,N,1	Ignore	Ignore	0	0	DSCP	N
2		115200	8,N,1	Ignore	Ignore	0	0	OFF	N
3		115200	8,N,1	Ignore	Ignore	0	0	OFF	N

Configure your Serial/Data Ports through the Edit > Ports screen

Use the following steps to configure your DSCP device settings:
1. From the Edit > Ports menu, select the 'DSCP' type for the serial port the DSCP device is connected to.
2. From the Edit > DSCP menu, input a value for the Update Frequency (the rate the sensor will report data back to the host NetGuardian unit).
3. Select the type of DSCP device.
4. Click 'Submit Data' to save your settings.
5. Reboot the NetGuardian.
6.Once the NetGuardian comes back online, give it a few moments to initialize the wireless radio. You will then press and hold the sync button on the wireless transmitter until you see the LED become lit. Once this is done, the NetGuardian and Wireless Transmitter will become synchronized. If you refresh the DSCP page, you should now see an address value in the "Module Address" fields.
7.Now configure the Analog Channels: See next page for examples of specific values.

DSCP (Wireless Sensor)

Module Configuration

Module Address High	00000000
Module Address Low	00000000 Reset High & Low Addresses
Update Frequency (6-720)	24 hours
Type	Disabled

Fuel Level Change Detection

Read Frequency	0 hours (0 to disable)
Level Threshold	2 %

Generator Running Detection

Gen. Running Frequency	1 hours
Generator Point Reference	Display: 0 Point: 0 (0, 0 to disable)

Analog Configuration

								Pagers	
ID	Description	Unit	Major Under	Minor Under	Minor Over	Major Over	Trap	Pri	Sec
1	PROPANE	%	30.0000	40.0000	80.0000	90.0000	☑	0	0
2	BATTERY	VDC	3.0000	3.3000	4.0000	4.0000	☑	0	0

Configure your external DSCP devices through the Edit > DSCP screen

Advanced Configuration and Details:

Module Configuration	
Module Address High	4-byte identification address that is automatically acquired when the DSCP device is sync'd with the NetGuardian.
Module Address Low	4-byte identification address that is automatically acquired when the DSCP device is sync'd with the NetGuardian.
Reset High & Low Addresses	Resets the Module Address High and Module Address Low.
Update Frequency	The rate that the DSCP device will collect information from the sensor.
Type	The specific type of DSCP device (Propane Monitor, Track Monitor, etc...).
Fuel Level Change Detection (Battery Propane Sensor Only)*	
Read Frequency	The DSCP device will read the propane level at this frequency and will remember the last read value. Input '0' to disable this feature.
Level Threshold	If the propane level reading differs by the Level Threshold value from the previous reading, then the most recently read value will immediately be sent to the NetGuardian once.
Generator Running Detection (Battery Propane Sensor Only)*	
Gen. Running Frequency	When the specified alarm point (from Generator Point Reference) is set, the timer value for Generator Running Frequency will override the timer value for Update Frequency (under Module Configuration). This takes effect after the next update.
Generator Point Reference	Specify the Display and Point attached to Gen. Running Frequency. Input '0' to disable this feature.

***Note:** Generator Run and Level Detection features are designed to detect changes faster while maximizing
battery life. They are entirely optional to use.

Refer to the **Analog Parameters** section for detailed instructions on analog channel configuration.

2.20 Configuring PPP Modes

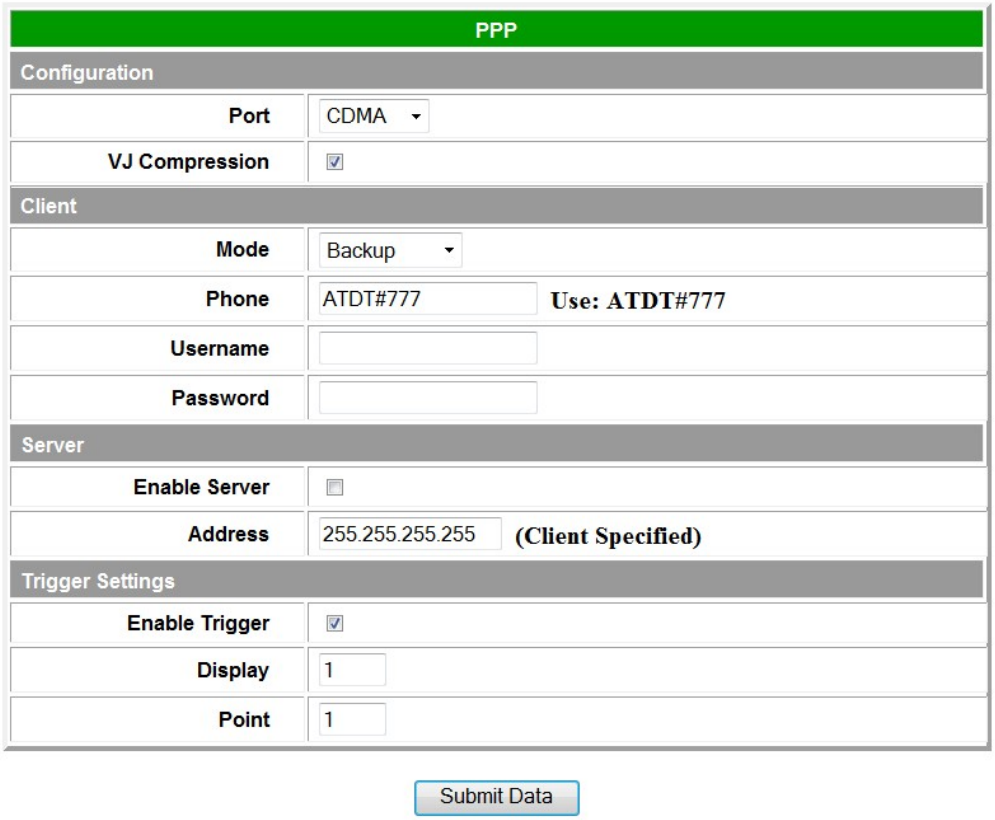


Fig. 2.36. *Configure the PPP port settings in the Edit menu > PPP screen*

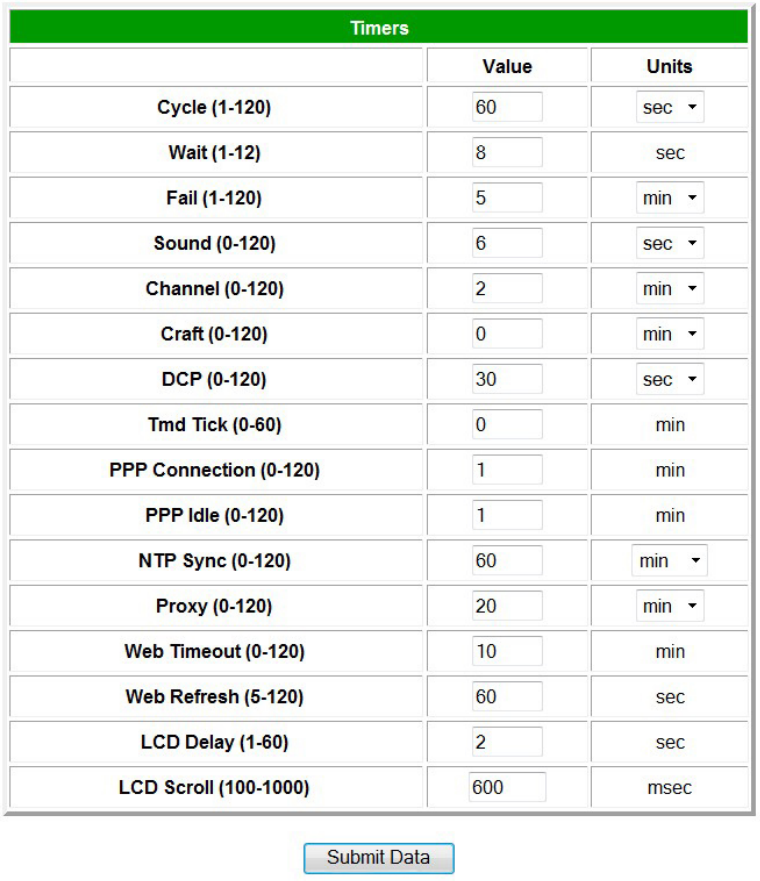
Configuration	Description
Port	Configure a port (CDMA, GPRS, Dial-Up, Serial, etc.)
VJ Compression	Enable VJ Compression.
Client	
Mode	Choose the client mode (Backup, etc.)
Phone	Enter your client's phone number. If you are using cellular PPP, select either CDMA or GPRS in the port menu and Submit Data. The NetGuardian will then tell you what **Phone** value to enter via the **"Use:"** text.
Username	Enter the client's Username.
Password	Enter the client's Password.
Server	
Enable Server	Enable the NetGuardian as a PPP server.
Address	The client specified Server Address.
Trigger Settings	
Enable Trigger	Enable Trigger mode. Allows PPP to be activated by alarms, such as ping targets.
Display	Enter the trigger display (Ping targets are on Display 2).
Point	Enter the trigger point (Ping targets are on Points 1-16).

2.20.1 Cellular

Normally, the NetGuardian uses a wire LAN connection to monitor a specific alarm configured by the user (typically a ping target). At the moment a ping target fails - with Trigger Mode enabled and configured (via the Edit > PPP menu) - the NetGuardian will disable wired LAN and activate Cellular PPP. Once a Cellular connection is established, an Email Notification containing the unit's Cellular IP address will be sent to inform the user(s) of a network lost event.

After a user-specified duration of time (configured via **PPP Connection** in the Edit>Timers menu), the NetGuardian will disable Cellular PPP and switch back to wired LAN to attempt to reestablish wired connection. If the ping target continues to fail or the wired connection cannot be established within a user-specified duration (**PPP Idle** in Edit>Timers), then the unit will return to Cellular PPP mode and resend the email notification.

This cycle will continue until a wired LAN connection is re-established.



Configure the PPP Connection and PPP Idle in the Edit > Timers menu

2.20.2 Dial Up

If LAN fails or isn't available, you can keep in touch with your remote equipment by using the NetGuardian as a PPP Server via dial-up. Use the following steps to access the NetGuardian with dialup:

1. Select **PPP** from the **Edit** menu.

2. In the **Server** section check the **Enable Server** (also known as Hosting Mode) box.

3. Set the IP address that is given to the guest dialing in. (This must be a valid and available IP address for the subnet on the LAN you will be connecting to, the same one the NetGuardian is connected to.)

4. Click **Submit Data** to save your PPP settings.

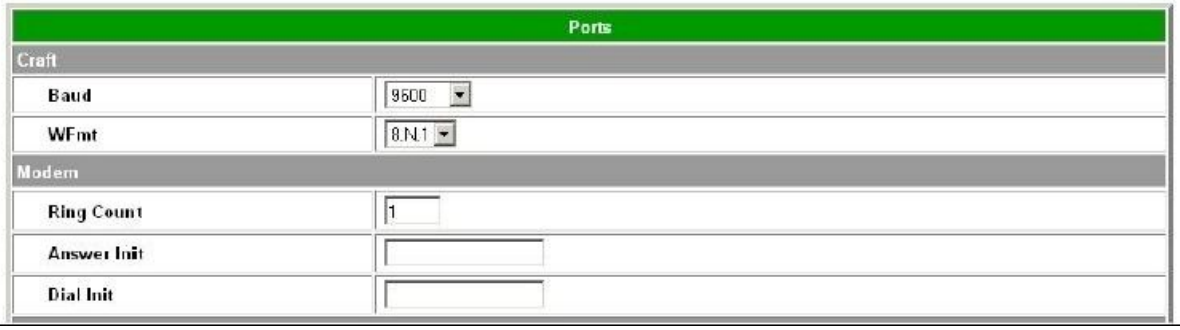


Fig. 2.37. *Edit the Modem settings for the PPP server in the Edit menu > Ports screen > Modem section*

5. Select **Ports** from the **Edit** menu.

6. Scroll down to the **Modem** section. In the **Ring Count** field enter a ring count greater than zero, see Figure 2.37.

7. In Answer Init String field type **&Q6**.

8. Click **Submit Data** to save your Modem changes.

Fig. 2.38. *Select PPP and Telnet access privileges in the Edit menu > Logon > Logon Profiles screen*

9. Select **Logon** in the **Edit** menu.

Hot Tip! There can be up to 16 different user names and each one must have its own password.

10. Click the **Available** link or the user you want to have PPP and Telnet access privileges.

11. Under the **Access Privileges** section check the **PPP** and **Telnet** boxes.

12. Click **Submit Data** to save the configuration settings.

13. Select **Reboot** in **Edit** menu to reboot the NetGuardian. (See section "Rebooting the NetGuardian.")

You also need to configure your remote terminal modem in order to access your NetGuardian by following these steps:

Windows 98 users: Set baud rate to **9600.**

Windows 2000, XP users: In **Modem Configuration General** tab uncheck **Enable modem error control** and **Enable compression.**

Mac OSX users: Use standard dial-in.

2.21 Building Access Controller

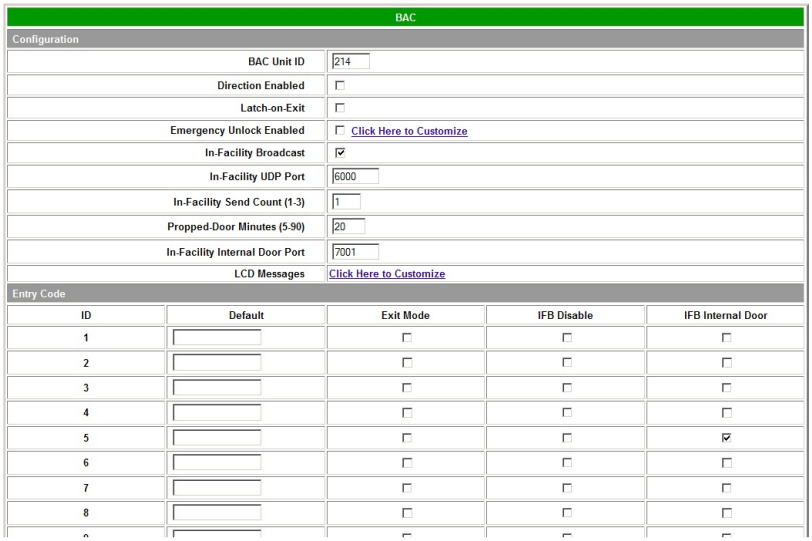


Fig. 2.39 *Configure building access from the BAC Option*

The Building Access Controller (BAC) option is only available if the BAC is installed on the NetGuardian (See the BAC 32 User Manual for more information).

The BAC can function in a number of different operational modes. However, for basic functionality, the user only has to enter the **BAC Unit ID.** The BAC Unit ID is the BAC's DCP address. It must match the expansion address databased in T/Mon.

Field	Description (Configuration)	Dependencies
BAC Unit ID	The BAC's DCP Address. The BAC Unit ID must match the expansion address databased in T/Mon. This field is essential to BAC Operation.	
Direction Enabled	Check to enable both entry and exit logging at a site. For keypad users, **Direction** will require users to enter a 1 to enter or 4 to exit immediately following their password. For example, if the password is 4541600, and direction is enabled, users need to type in 45416001# to enter, or 45416004# to exit.	☑ **ECU in Dual Proxy Mode**
Latch on exit	Allows users to unlock doors from the "inside" proxy reader/ keypad when Direction is enabled.	☑ **Direction Enabled**
Emergency Unlock	Enabling this mode will unlock all doors if the defined gas and fire alarm occur. Both alarms have to be active in order for the NetGuardian to issue the unlock command. Doors are re-locked only after the gas alarm has cleared.	**ECU G3 V3.0D or above**
In Facility Broadcast	Disables door violations upon a successful building access login for a period of sixty minutes (configurable via the BACTL web interface), allowing the user to unlock multiple doors with a single access request. For more information see your Building Access 32 manual.	
In-Facility UDP Port	The port used for In-Facility Broadcasts	☑ **In-Facility Broadcast**
In-Facility Send Count	The number of times, 1-3, the NetGuardian will send the In-Facility Broadcast	☑ **In-Facility Broadcast**
In-Facility	For in facility broadcasts, this option creates a port to accept	☑ **In-Facility**

Internal Door Port	user profiles from a BACTL unit.	**Broadcast**
Propped-Door Minutes	Allows door to be held open without an alarm from 5-90 minutes. A beep indication will be given by the ECU during the last two enabled minutes if the door is still open to show the command is about to expire.	**ECU G3 V3.0D or above**

Field descriptions for options available in the BAC

Field	Description (Entry Code)	Dependencies
Default	Locally databased passcodes, primarily used for turn-up and testing. Once you've databased the NetGuardian in T/Mon, T/Mon will push its central BAC database to the NetGuardian, overriding any locally databased passcodes. Pascodes can be up to 14 digits in length.	
Exit Mode	Allows users to end an In-Facility Broadcast by proxy reader/keypad. Check the box for each ECU **ID** you wish to set for Exit Mode. Doors operating in Exit Mode cannot be used to process Entry Requests.	☑ **In-Facility Broadcast** ☑ **Direction Enabled**
IFB Disable	If "In-Facility Broadcast" is enabled and a scan occurs on port 1, then the broadcast is prevented.	☑ **In-Facility Broadcast**
IFB Internal Door	When checked, the ECU will only allow profiles that are designated for the first floor.	☑ **In-Facility Broadcast**

Field descriptions for options available in the BAC

2.21.1 Entry/Exit Logging

You can enable entry and exit logging for your Building Access Controller by checking the box marked Direction Enabled.
For Keypad Users:
Direction will require users to enter a 1 to enter or 4 to exit immediately following their password. For example, if the password is 4541600, and direction is enabled, users need to type in 45416001# to enter, or 45416004# to exit.

For Dual-Proxy Users:
Direction Enabled must be checked.

Latch on exit:
If you have checked Direction Enabled, and would like to be able to unlock doors from access requests on the "inside" proxy reader/keypad, check the Latch on exit box. Note: Latch on exit can only be enabled if you've enabled direction.

2.21.2 In-Facility Broadcast

In-Facility Broadcast is a mode **for NetGuardians operating in conjunction with BAC 32** units primarily used in high-density operations where it is not feasible to have electronic access control on all doors. With In-Facility Broadcast enabled, a successful access request disables door violations for a period of sixty minutes, allowing the user to unlock multiple doors with a single access request.

To enable In-Facility Broadcasts, you must:
- Check the In-Facility Broadcast box
- Set the **In-Facility UDP Port** used for the broadcast

- Set the **In-Facility Send Count** between 1 and 3, determining how many times the NetGuardian will attempt to send the broadcast.

For more information about the In-Facility Broadcast mode, **see your Building Access 32 manual.**

2.21.2.1 Exit Mode

Exit Mode allows users operating in In-Facility Broadcast mode to signal to the BAC that they are leaving a facility, and that they would like to re-enable door violations, preventing others from taking advantage of the time remaining on an in-facility broadcast to gain access to otherwise restricted areas.

To enable Exit Mode:

- Check the box associated with the **ID** of the Entry Control Unit(s) for which you wish to enable Exit Mode. Users will end the In-Facility Broadcast with a successful login (keypad or proxy) at a door/ ECU with Exit Mode enabled.
- Make sure **Direction Enabled is unchecked**

Note: Doors with Exit Mode enabled **cannot process entry requests.**

For more information about In-Facility Broadcast mode, see your **Building Access Controller 32** user manual.

2.22 Camera Settings

The NetGuardian SiteCam provides users with live streaming video of their remote sites. The direct pan-and-tilt features allows users to visually check the status of their sites from the convenience of their desktop.

Use the following steps to configure your camera settings:

1. From the **Edit** menu select **Camera**, see Figure 2.40.
2. Refer to Table 2.K and enter the appropriate information in the **Name**, **Description**, **IP Address**, and **MAC Address** fields.
   Note: See Section "Monitoring Camera Activity" for camera viewing options.
3. Click Submit Data to save your camera configuration settings.

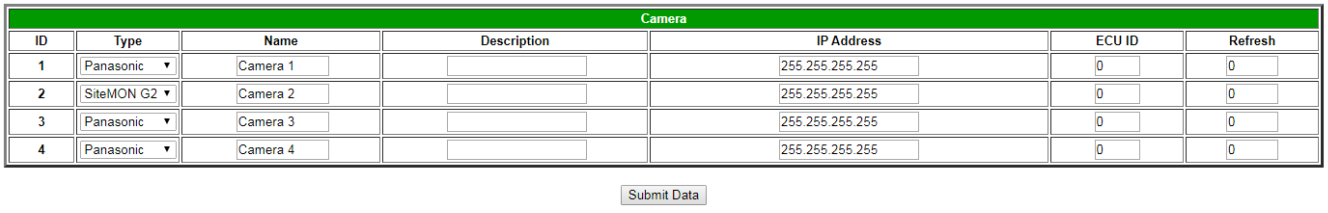


Fig. 2.40. *View live streaming video of your remote sites via Web browser*

Camera Field	Description
Name	Enter the name of the camera.
Description	Enter a description of the camera.
IP Address	Enter the IP Address of the camera (not the NetGuardian). The NetGuardian will provision this in the camera. The unit will also send the NetGuardian subnet and gateway information.
MAC Address	Enter the hardware address of the camera (not the NetGuardian).
Refresh	Enter the refresh time. This determines the amount of time (in seconds) that elapses before the image will be updated. Entering 0 will cause uninterrupted, live streaming video (bandwidth rated at 146 kB per second).

Table 2.K. *Camera field descriptions*

Camera Internet Settings
In order to perform the pan-and-tilt functions of the camera, your Web browser must be set to check for newer versions of stored pages at every visit to the page.

The directions for checking for newer versions of stored pages may vary depending on what version of Windows you are running. The instructions below are relevant to Internet Explorer 5.5 and 6.0 only.

1. With the Web browser open (Internet Explorer version 5.5 or later), click on **Tools** and select **Internet Options** from the drop-down menu.
2. Click on the **Settings** button under the **Temporary Internet files** heading.
3. Click on the **Every visit to the page** button and click Ok.

2.23 Alarm Sync

Clicking on the Alarm Sync link from the Edit menu will re-synchronize all of the NetGuardian alarms. This command clears all alarms, so that a new notification is sent for all standing alarms. You can easily test alarm connections during turnup without rebooting the NetGuardian unit. A warning prompt will appear, click **Ok** to continue or **Cancel** to exit without resynchronizing your alarms, see Figure 2.41.

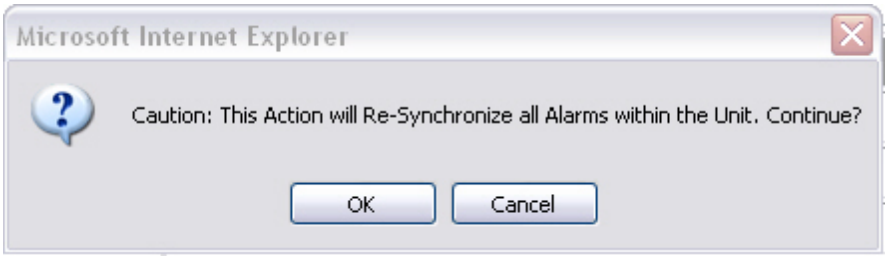


Fig. 2.41. *Click Ok to re-synchronize the NetGuardian alarms or Cancel to exit*

2.24 Saving Changes or Resetting Factory Defaults

Your NetGuardian G5 comes equipped with Non Volatile RAM (NVRAM), which enables the retention of data in the event of power loss. This section allows you to write and initialize the NVRAM.

Some changes require a reboot of the NetGuardian to take effect, see Section "Rebooting the

NetGuardian."

1. From the **Edit** menu select **NVRAM**, see Figure 2.42.
2. Select **Write** to cause the current data in RAM to be written to NVRAM and then verified.
3. Select **Initialize** to reload factory defaults into NVRAM.

DO NOT SELECT THIS OPTION UNLESS YOU WANT TO RE-ENTER ALL OF YOUR CONFIGURATION INFORMATION AGAIN.

4. Select **Purge BAC** to delete the Building Access Controller profile database downloaded from T/Mon XM.

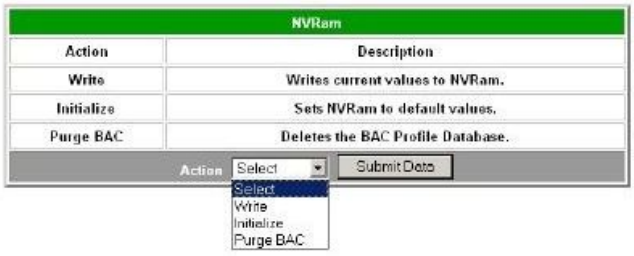


Fig. 2.42. *NVRAM enables the NetGuardian to retain data even through a power loss*

2.25 Rebooting the NetGuardian

Click on the **Reboot** link from the **Edit** menu to reboot the NetGuardian after writing all changes to NVRAM. Any changes to port settings require a reboot to take effect. The window footer will display the text **Reboot Needed** if a reboot is necessary to initiate changes.

3 Monitoring Your NetGuardian

The Web browser allows you to do full-system monitoring for your NetGuardian, which includes all alarms, ping information, relays, analogs and system status. To connect to the NetGuardian from your Web browser, you must know it's IP address or domain name if it has been registered with your internal DNS. Enter it in the address bar of your Web browser (it may be helpful to bookmark the logon page to simplify access). After connecting to the NetGuardian's IP address, enter your password and click **Submit** (factory default password is **dpstelecom**).

If the **Edit** menu does not appear in the left frame after logging on, it means that another station has already logged on as the primary user or you do not have access.

3.1 Alarm Summary Window

Alarm Summary	
Type	Active Alarms
Base Alarms	0
Ping Targets	0
Base Analogs	0
System Alarms	0
SNMP Alarms	0
Summary by Group	
Name	Active Alarms
Group 1	0
Group 2	0
Group 3	0
Group 4	0
Group 5	0
Group 6	0
Group 7	0
Group 8	0

Fig. 3.1. *The Alarm Summary display can be accessed by selecting either the Monitor or the Summary link*

Clicking on the **Monitor** or **Summary** buttons shows the **Alarm Summary** display. The **Summary** screen gives you a quick indication of any alarms that have been triggered in the NetGuardian's base alarms, ping targets, analogs, system alarms, and any NetGuardian discrete expansions.

3.2 Monitoring Base Alarms

Base Alarms		
Point	Description	State
1	BACK DOOR	Clear
2	TOWER LIGHT	Clear
3	FIRE	Clear
4	LEAK	Alarm
5		Clear
6		Clear
7		Clear
8		Clear
9		Clear
10		Clear
11		Clear
12		Clear

Fig. 3.2. *View the status of the Base Alarms from the Monitor > Base Alarms screen*

This selection provides the status of the system's base alarms by indicating if an alarm has been triggered. Under the **State** column, the description defined in **Edit** menu > **Point Groups** will appear in red if an alarm has been activated. The description defined in **Edit** menu > **Point Groups** will be displayed in green when the alarm condition is not present.

3.3 Monitoring Ping Targets

Ping Targets can be viewed by going to **Monitor** > **Ping Targets**. Here you can view the state (either **Clear** or **Alarm**) for each of your configured Ping Targets. Up to 32 ping targets may be configured.

Ping Targets		
Point	Description	State
1	ETHERNET SWITCH 1	Clear
2	ETHERNET SWITCH 2	Clear
3	ETHERNET SWITCH 3	Clear
4	ROUTER 1	Clear
5	MODEM	Clear
6		Clear

View the status of Ping Targets from the Monitor > Ping Targets menu.

This selection provides the status of the system's ping targets by indicating if an alarm has been triggered. Under the **State** column, the description defined in **Edit** menu > **Point Groups** will appear in red if an alarm has been activated. The description defined in **Edit** menu > **Point Groups** will be displayed in green when the alarm condition is not present.

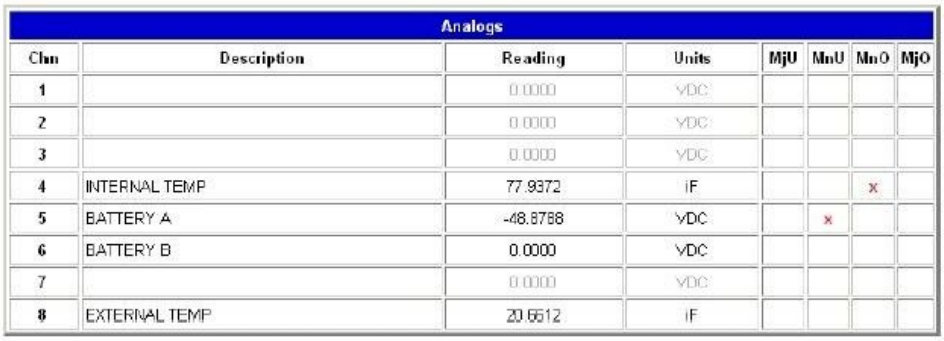
3.4 Monitoring SNMP Alarms

This selection provides the status of the SNMP alarms by indicating if an alarm has been triggered. Under the **State** column, the status will appear in red if an alarm has been activated. The status will be displayed in green when the alarm condition is not present.

SNMP Alarms		
Point	Description	State
1	RECTIFIER FAIL	Clear
2	RECTIFIER A C FAIL	Clear
3	VOLTAGE OUT OF RANGE	Clear
4		Clear

The Monitor > SNMP Alarms menu

3.5 Monitoring Analogs



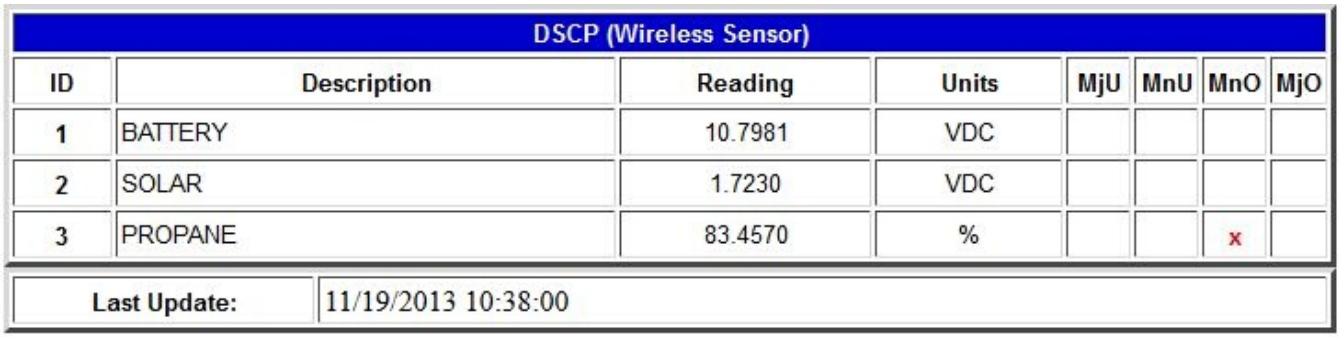
Analogs							
Chn	Description	Reading	Units	MjU	MnU	MnO	MjO
1		0.0000	VDC				
2		0.0000	VDC				
3		0.0000	VDC				
4	INTERNAL TEMP	77.9372	iF			x	
5	BATTERY A	-48.8788	VDC		x		
6	BATTERY B	0.0000	VDC				
7		0.0000	VDC				
8	EXTERNAL TEMP	20.6512	iF				

Fig. 3.4. *View the status of the Analogs from the Monitor > Analogs screen*

This selection provides the status of the system's analogs by indicating if an alarm has been triggered. The **Monitor** menu > **Analogs** screen provides a description of each analog channel, the current reading, the units being read, and alarm conditions (major under, minor under, major over, minor over) according to your analog settings.

Note: With the D-Wire top board build option, D-Wire Sensors 1-8 and 9-16 links will appear under the Analogs link. These pages add the ROMID columns to the original analog tables. If a sensor is not detected, its ROMID font will appear red.

3.6 Monitoring DSCP Devices

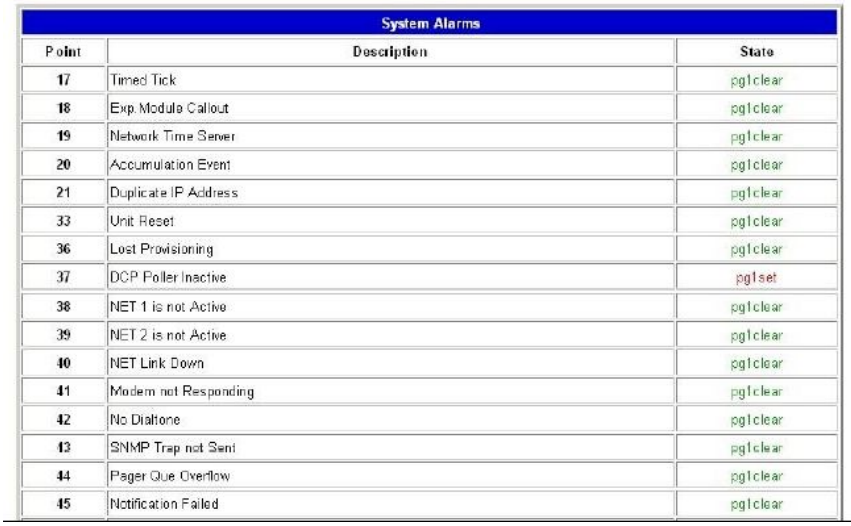


DSCP (Wireless Sensor)							
ID	Description	Reading	Units	MjU	MnU	MnO	MjO
1	BATTERY	10.7981	VDC				
2	SOLAR	1.7230	VDC				
3	PROPANE	83.4570	%			x	
Last Update:	11/19/2013 10:38:00						

Fig 3.5 *. View the status of the DSCP Analogs from the Monitor > DSCP screen*

The Monitor > DSCP screen provides a description of each DSCP device alarm point state and each DSCP device analog channel, the current reading, the units being read, and alarm conditions (major under, minor under, major over, and minor over) according to your analog settings. "Last Update" shows the date and time that the sensor readings were last refreshed.

3.7 Monitoring System Alarms



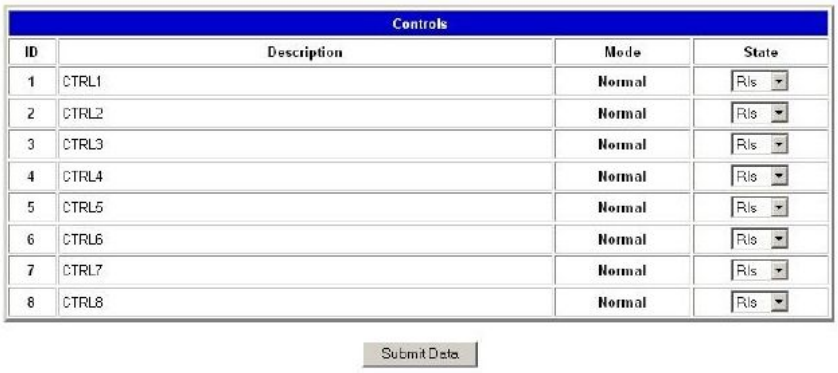
System Alarms

Point	Description	State
17	Timed Tick	pg1clear
18	Exp Module Callout	pg1clear
19	Network Time Server	pg1clear
20	Accumulation Event	pg1clear
21	Duplicate IP Address	pg1clear
33	Unit Reset	pg1clear
36	Lost Provisioning	pg1clear
37	DCP Poller Inactive	pg1set
38	NET 1 is not Active	pg1clear
39	NET 2 is not Active	pg1clear
40	NET Link Down	pg1clear
41	Modem not Responding	pg1clear
42	No Dialtone	pg1clear
43	SNMP Trap not Sent	pg1clear
44	Pager Que Overflow	pg1clear
45	Notification Failed	pg1clear

Fig.3.6. *View the status of the System Alarms from the Monitor > System Alarms screen*

This selection provides the status of the system alarms by indicating if an alarm has been triggered. Under the **State** column, the description defined in **Edit** menu > **Point Groups** will appear in red if an alarm has been activated. The description defined in **Edit** menu > **Point Groups** will be displayed in green when the alarm condition is not present. *(Refer to Appendix A for system alarm trap numbers.)*

3.8 Operating Controls



Controls

ID	Description	Mode	State
1	CTRL1	Normal	Rls
2	CTRL2	Normal	Rls
3	CTRL3	Normal	Rls
4	CTRL4	Normal	Rls
5	CTRL5	Normal	Rls
6	CTRL6	Normal	Rls
7	CTRL7	Normal	Rls
8	CTRL8	Normal	Rls

Submit Data

Fig. 3.7. *Issue controls from the Monitor > Controls screen*

Use the following rules to operate controls:

1. Select **Controls** from the **Monitor** menu.
2. Under the **State** field, choose a command (Opr - operate, Rls - release, or Mom - momentary).
3. Click **Submit Data** to issue the control.

The control relay's normal state - open or closed - is determined by a PCB jumper. Operating a control thus changes the normal state of the relay (energizes it) until it is released (de-energized). The momentary command energizes the relay for approximately one second before it is released again. Use the event qualifiers to extend the momentary period.

3.9 Event Logging

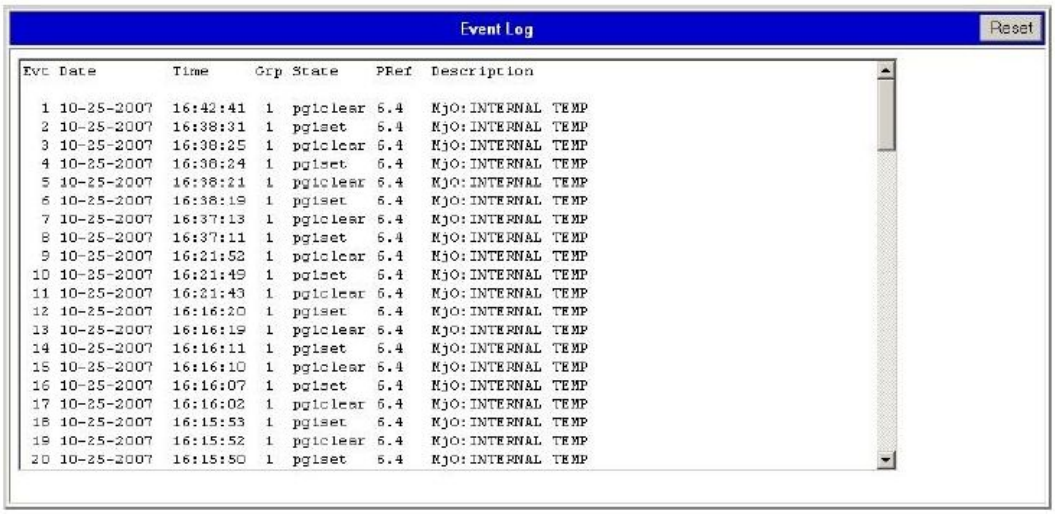


Fig. 3.8. *Monitor the last 100 events recorded by the NetGuardian in the Event Log window*

Event Log Field	Description
Evt	Event number (1-100)
Date	Date the event occurred*
Time	Time the event occurred*
St	State of the event (A=alarm, C=clear)
Pref	Point reference. See Appendix A for display descriptions.
Description	User defined description of the event as entered in the alarm point and relay description fields

Table 3.8.1 *Event Logging window field descriptions*

The NetGuardian Event Log has been enhanced to support new NetGuardian G5 features:

- You can filter Event Log entries by Alarm Point Group, to see only the alarms you want.
- You can reset the Event Log, to clear old alarms from the display.
- You can reset the Event Log by Alarm Point Group; for example, clear power alarms while retaining intruder alarms.
  Note: To manage Event Logs by group, select **Summary** from the left menu then select the **Group** you wish to manage. From here you can view events unique to each group or reset the alarm events within that group.

Click on the **Monitor** menu > **Event Log** link to view the event log. The NetGuardian's Event Log allows the NetGuardian to post and monitor up to 100 events including power up, base and system alarms, ping alarms, analog alarms, and controls. Posted events for the various alarms include both alarm and clear status. See Table 3.A for Event Alarm field descriptions. All information in the event log will be erased upon reboot or a power failure.

* DCPx versions of the NetGuardian automatically timestamp events before sending them to the event logs. The time is based on the real-time clock (if installed). If there is no real-time clock installed, the time is based on the NetGuardian's software clock (requires resetting after power failure or power cycle).

3.10 Monitoring Data Port Activity

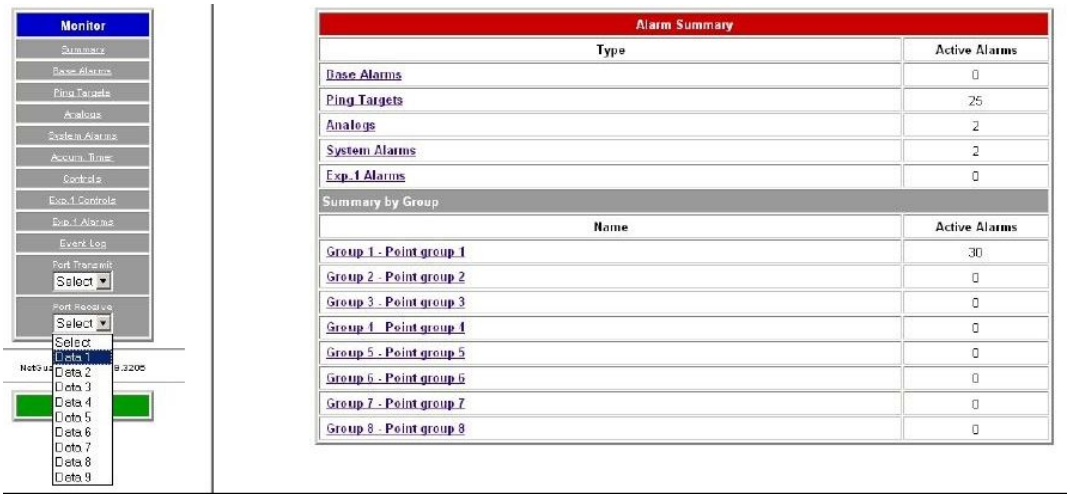


Fig. 3.9. *To view the data being received by the connected equipment, select the data port number from the Monitor menu > Port Receive drop-down menu*

The **Port Transmit** and **Port Receive** screens provide live status information for the eight data ports by displaying transmit or receive activity in ASCII for the selected port. See Appendix C, "ASCII Conversion" for specific ASCII symbol conversion.

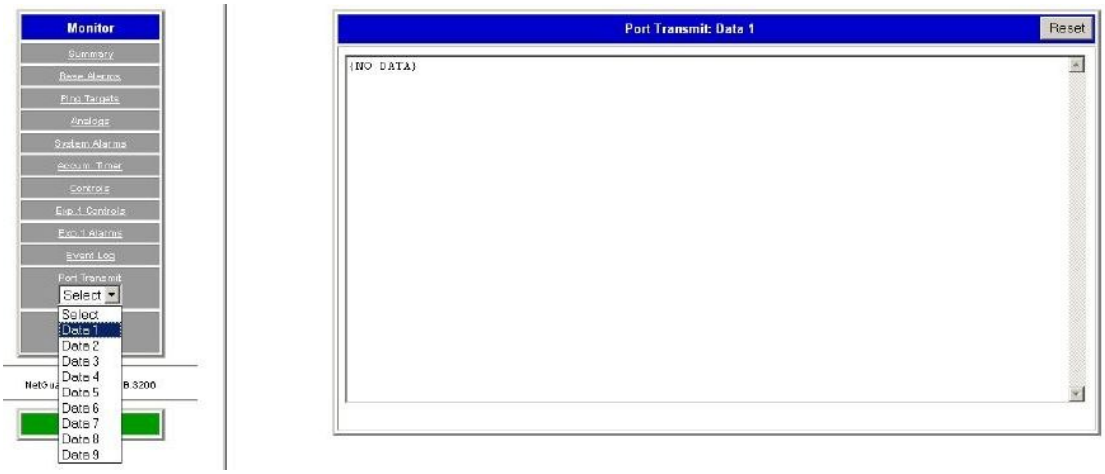


Fig. 3.9.1 *To view the data being transmitted to the connected equipment, select the data port number from the Monitor menu > Port Transmit drop-down menu*

Hot Tip!

Use the NetGuardian's CHAN feature to analyze bi-directional communication between two device in real time, see section "Data Port Types."

3.11 Monitoring Switch Status

Switch Status				
Ethernet Ports				
Port	Link Status	Speed	Receive Pkts	Transmit Pkts
1	Active	100MFULL	4967	879
2	Down	--	0	0
3	Down	--	0	0
4	Active	10MHALF	40	4128
Net2	Active	100MFULL	839	4913
SFP Fiber Ports				
Port	Link Status	Speed	Receive Pkts	Transmit Pkts
1	Down	--	0	0
2	Active	1000MFULL	0	4075

Fig. 3.10 *The Monitor > Switch Status Menu.*

If you ordered your NetGuardian G5 with the optional Fiber top board, you will see the Switch Status option in the Monitor Menu. From here, you'll keep tabs on Link Status, Speed, and Packets from both the 10/100/1000 Base Switch and SFP Fiber ports.

3.12 Monitoring Camera Activity

Fig. 3.10. *Monitor live streaming video via the NetGuardian's Web browser*

Select the **Site Camera** drop-down menu from the **Monitor** menu to view activity from the site camera. Bandwidth usage in live streaming mode is rated at 146 kB per second.

The NetGuardian only sends the camera data when a user is monitoring the image.

3.12.1 Pan-and-tilt Camera Controls

Control left-right and up-down viewing options via the **Pan/Tilt** options. Clicking on the image will make that the new center point.

In order to have pan-and-tilt controls, your Internet settings must be set to check for newer versions of stored pages every visit to the page, see section "Camera Internet Settings."

The preset number controls allow you to tilt to the four corners of the screen (1-4). To alter the screen size click on the **Program** link . To adjust the brightness, click on the **–** to darken the image screen or **+** to brighten it. Click on **STD** to return to the default settings.

Fig. 3.11. *Use the arrow buttons to use the pan-and-tilt features of the NetGuardian SiteCAM*

3.12.2 Monitoring Multiple Cameras

Fig. 3.12 View up to 4 multiple cameras.

You can monitor multiple cameras at one time by clicking the **Multiple** link. To view individual screens you may select the site camera under the **Monitor** menu > **Camera** drop-down menu or click on the title of the screen you wish to view individually. To configure your multiple camera settings, click on the Setup-Multiple link, see Figure 3.13.

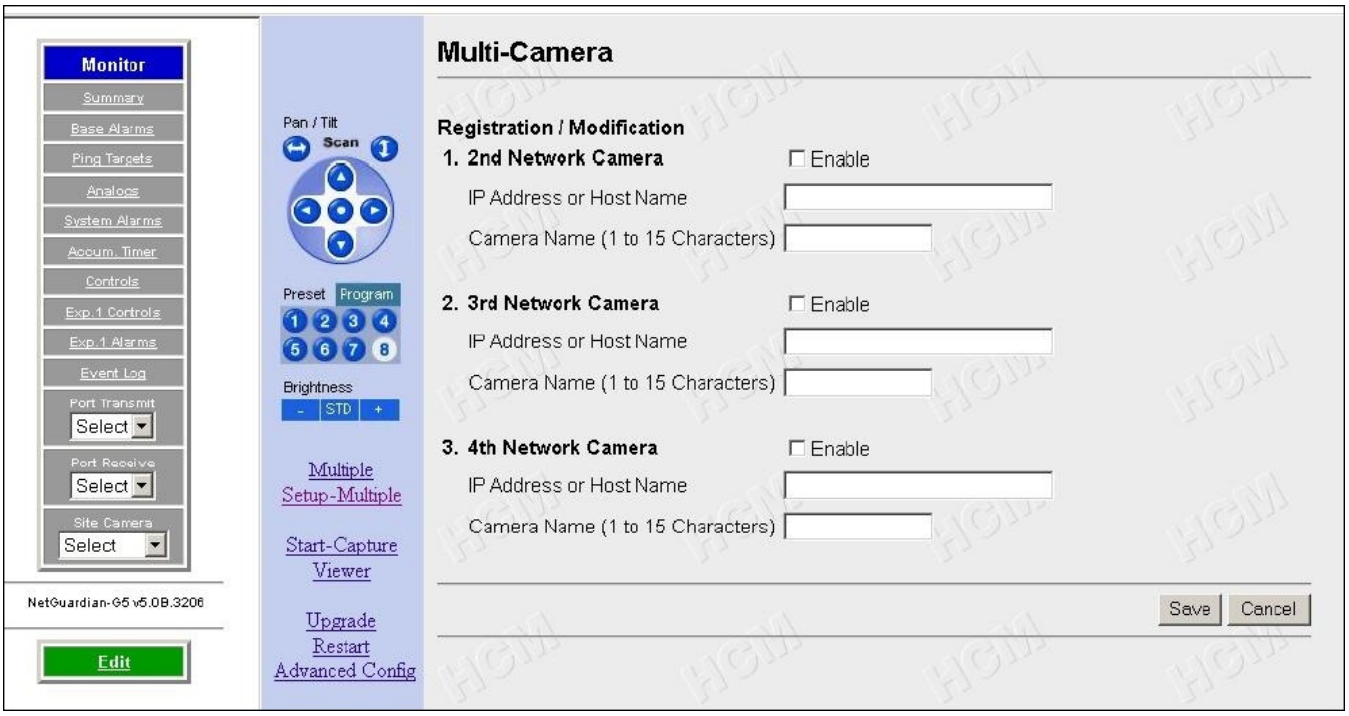


Fig. 3.13 *Enter the IP Address or Host Name of each camera, and title your camera*

Before you can setup multiple camera views, you will need to set up your camera for "live streaming." See your camera user manual to configure your camera for live streaming. You may only use up to 15 alphanumeric characters to name your camera. Once you have finished click the **Save** button.

4 Appendixes

4.1 Appendix A — Display Mapping

Port	Address	Display	Points	Description	Set	Clear
99	1	1	1-32	Discrete Alarms 1-32	8001-8032	9001-9032
99	1	1	33-64	Discrete Alarms 33-64 (864A) Unused (832A)	8033-8064	9033-9064
99	1	2	1-32	Ping Table	8065-8096	9065-9096
99	1	3	1-32	Analog Channel 1**	8129-8133	9129-9133
99	1	4	1-32	Analog Channel 2**	8193-8197	9193-9197
99	1	5	1-32	Analog Channel 3**	8257-8261	9257-9261
99	1	6	1-32	Analog Channel 4**	8321-8325	9321-9325
99	1	7	1-32	Analog Channel 5**	8385-8389	9385-9389
99	1	8	1-32	Analog Channel 6**	8449-	9449-9453

					8453	
99	1	9	1-32	Analog Channel 7**	8513-8517	9513-9517
99	1	10	1-32	Analog Channel 8**	8577-8581	9577-9581
99	1	11	1-32	Relays/System Alarms (See table below)	8641-8676	9641-9676
99	1	12	1-16	NGDx 1 Alm 1-16	6001-6064	7001-7064
99	1	12	17-18	NDX 1 Ctl 1-2	6001-6064	7001-7064
99	1	12	33-48	NGDx 2 Alm 1-16	6001-6064	7001-7064
99	1	12	49-50	NDGx 2 Ctl 1-2	6001-6064	7001-7064
99	1	13	1-16	NDGx 3 Alm 1-16	6065-6128	7065-7128
99	1	13	17-18	NDX 3 Ctl 1-2	6065-6128	7065-7128
99	1	13	33-48	NDGx 4 Alm 1-16	6065-6128	7065-7128
99	1	13	49-50	NDX 4 Ctl 1-2	6065-6128	7065-7128
99	1	14	1-16	NGDx 5 Alm 1-16	6129-6192	7129-7192
99	1	14	17-18	NDX 5 Ctl 1-2	6129-6192	7129-7192
99	1	14	33-48	NGDx 6 Alm 1-16	6129-6192	7129-7192
99	1	14	49-50	NDX 6 Ctl 1-2	6129-6192	7129-7192
99	1	15	1-16	NGDx 7 Alm 1-16	6193-6256	7193-7256
99	1	15	17-18	NDX 7 Ctl 1-2	6193-6256	7193-7256
99	1	15	33-48	NGDx 8 Alm 1-16	6193-6256	7193-7256
99	1	15	49-50	NDX 8 Ctl 1-2	6193-6256	7193-7256
99	1	16	1-64	Undefined	6257-6320	7257-7320
99	1	17	1-64	Undefined	6321-6384	7321-7384
99	1	18	1-32	NGDx 1 Alg 1	6385-6448	7385-7448
99	1	18	33-64	NGDx 2 Alg 1	6385-6448	7385-7448

99	1	19	1-32	NGDx 3 Alg 1	6449-6512	7449-7512
99	1	19	33-64	NGDx 4 Alg 1	6449-6512	7449-7512
99	1	20	1-32	NGDx 5 Alg 1	6513-6576	7513-7576
99	1	20	33-64	NGDx 6 Alg 1	6513-6576	7513-7576
99	1	21	1-32	NGDx 7 Alg 1	6577-6640	7577-7640
99	1	21	33-64	NGDx 8 Alg 1	6577-6640	7577-7640
99	1	22	1-32	NGDx 1 Alg 2	6641-6704	7641-7704
99	1	22	33-64	NGDx 2 Alg 2	6641-6704	7641-7704
99	1	23	1-32	NGDx 3 Alg 2	6705-6768	7705-7768
99	1	23	33-64	NGDx 4 Alg 2	6705-6768	7705-7768
99	1	24	1-32	NGDx 5 Alg 2	6769-6832	7769-7832
99	1	24	33-64	NGDx 6 Alg 2	6769-6832	7769-7832
99	1	25	1-32	NGDx 7 Alg 2	6833-6896	7833-7896
99	1	25	33-64	NGDx 8 Alg 2	6833-6896	7833-7896
99	1	26	1-32	NGDx 1 Alg 3	6897-6960	7897-7960
99	1	26	33-64	NGDx 2 Alg 3	6897-6960	7897-7960
99	1	27	1-32	NGDx 3 Alg 3	6961-7024	7961-8024
99	1	27	33-64	NGDx 4 Alg 3	6961-7024	7961-8024
99	1	28	1-32	NGDx 5 Alg 3	7025-7088	8025-8088
99	1	28	33-64	NGDx 6 Alg 3	7025-7088	8025-8088
99	1	29	1-32	NGDx 7 Alg 3	7089-7152	8089-8152
99	1	29	33-64	NGDx 8 Alg 3	7089-7152	8089-8152

Table A.1. *Display descriptions and SNMP Trap numbers for the NetGuardian*

* The TRAP number ranges shown correspond to the point range of each display. For example, the SNMP Trap "Set" number for alarm 1 (in Display 1) is 8001, "Set" for alarm 2 is 8002, "Set" for alarm 3

is 8003, etc.

** The TRAP number descriptions for the Analog channels (1-8) are in the following order: minor under, minor over, major under, and major over. For example, for Analog channel 1, the "Set" number for minor under is 8129, minor over is 8130, major under is 8131, and major over is 8132.

Port	Address	Display	Description	Set	Clear
99	1	1	Discrete Alarms 1-32	8001-8032	9001-9032
99	1	2	Ping Table	8065-8096	9065-9096
99	1	3	Analog Channel 1**	8129-8133	9129-9133
99	1	4	Analog Channel 2**	8193-8197	9193-9197
99	1	5	Analog Channel 3**	8257-8261	9257-9261
99	1	6	Analog Channel 4**	8321-8325	9321-9325
99	1	7	Analog Channel 5**	8385-8389	9385-9389
99	1	8	Analog Channel 6**	8449-8453	9449-9453
99	1	9	Analog Channel 7**	8513-8517	9513-9517
99	1	10	Analog Channel 8**	8577-8581	9577-9581
99	1	11	Relays/System Alarms (See table below)	8641-8676	9641-9676
99	1	12	NetGuardian Expansion 1 Alarms 1-48	6001-6064	7001-7064
99	1	12	NetGuardian 480 (as DX) Alarms 1-64	6001-6064	7001-7064
99	1	13	NetGuardian Expansion 1 Relays 1-8 or NetGuardian 480 (as DX) Relays 1-4	6065-6072	7065-7072
99	1	13	NetGuardian 480 (as DX) Alarms 65-80	6081-6096	7081-7096
99	1	14	NetGuardian Expansion 2 Alarms 1-48	6129-6177	7129-7177
99	1	15	NetGuardian Expansion 2 Relays 1-8	6193-6200	7193-7200
99	1	16	NetGuardian Expansion 3 Alarms 1-48 /SNMP Alarms 1-16 ***	6257-6305	7257-7305
99	1	17	NetGuardian Expansion 3 Relays 1-8	6321-6328	7321-7328

Table A.1. *Display descriptions and SNMP Trap numbers for the NetGuardian*
Note: If D-Wire top is present, sensors 1 - 16 replace Expansion 2 and Expansion 3 analog channels.

* The TRAP number ranges shown correspond to the point range of each display. For example, the SNMP Trap "Set" number for alarm 1 (in Display 1) is 8001, "Set" for alarm 2 is 8002, "Set" for alarm 3 is 8003, etc.

** The TRAP number descriptions for the Analog channels (1-8) are in the following order: minor under, minor over, major under, and major over. For example, for Analog channel 1, the "Set" number for minor under is 8129, minor over is 8130, major under is 8131, and major over is 8132.

***SNMP Alarms: Present only if feature is enabled in feature code.

SNMP Trap #s			
Points	**Description**	**Set**	**Clear**
1-16	Relays 1-16	8641-8656	9641-9656
17	Timed Tick	8657	9657
18	Exp. Module Callout	8658	9658
19	Network Time Server	8659	9659
20	Accumulation Event	8660	9660
21	Duplicate IP Address	8661	9661
22	T1/E1 Error	8662	9662
23	ECU Emergency Unlock	8663	9663
24	D-Wire Sensor Not Detected	8664	9664
25	ECU Door Violation	8665	9665
26	Maintenance Mode	8666	9666
27	DSCP Timeout	8667	9667
28	Wireless Sensor Power Fault	8668	9668
29	Wireless Sensor Power Low	8669	9669
30	Wireless Sensor Update	8670	9670
32	Modbus Poll Inactive	8672	9672
33	Unit Reset	8673	9673
34	PPP Backup Mode	8674	9674
35	Server Restore	8675	9675
36	Lost Provisioning	8676	9676
37	DCP Poller Inactive	8677	9677
38	NET1 not active	8678	9678
39	NET2 not active	8679	9679
40	NET Link Down	8680	9680
41	Modem not responding	8681	9681
42	No Dial Tone	8682	9682
43	SNMP Trap not Sent	8683	9683
44	Pager Que Overflow	8684	9684
45	Notification failed	8685	9685
46	Craft RcvQ full	8686	9686
47	Modem RcvQ full	8687	9687
48	Data 1 RcvQ full	8688	9688
49	Data 2 RcvQ full	8689	9689
50	Data 3 RcvQ full	8690	9690
51	Data 4 RcvQ full	8691	9691
52	Data 5 RcvQ full	8692	9692
53	Data 6 RcvQ full	8693	9693
54	Data 7 RcvQ full	8694	9694
55	Data 8 RcvQ full	8695	9695
56	NetGuardian DX 1 fail	8696	9696

57	NetGuardian DX 2 fail	8697	9697
58	NetGuardian DX 3 fail	8698	9698
59	GLD/BSU 1 fail	8699	9699
60	GLD/BSU 2 fail	8700	9700
61	GLD/BSU 3+ fail	8701	9701
62	Chan. Port Timeout	8702	9702
63	Craft Timeout	8703	9703
64	Event Que Full	8704	9704

Table A.2 *Display 11 System Alarms point descriptions*

4.1.1 System Alarms Display Map

See Table A.3 for detailed descriptions of the NetGuardian's system alarms.

Display	Points	Alarm Point	Description	Solution
11	1-16	Control Relays	Reserved by system for control relays.	Reserved by system for control relays.
	17	Timed Tick	Toggles state at constant rate as configured by the Timed Tick timer variable. Useful in testing integrity of SNMP trap alarm reporting.	To turn the feature off, set the Timed Tick timer to 0.
	18	Exp. Module Callout	Alarm is triggered whenever an alarm point from an Entry Control Unit (ECU) is collected. A notification event may be associated with the alarm to force a call out or trap.	Disable Building Access Control (BAC) by setting the BAC Unit ID to 0. If Building Access is being used, then investigate the ECU alarm source or don't associate notification with the alarm event.
	19	Network Time Server	Communication with Network Time Server has failed.	Try pinging the Network Time Server's IP Address as it is configured. If the ping test is successful, then check the port setting and verify the port is not being blocked on your network.
	20	Accumulation Event	An alarm has been standing for the time configured under Accum. Timer. The Accumulation timer enables you to monitor how long an alarm has been standing despite system reboots. Only the user may reset the accumulated time, a reboot will not.	To turn off the feature, under Accum.Timer, set the display and point reference to 0.
	21	Duplicate IP Address	The unit has detected another node with the same IP Address.	Unplug the LAN cable and contact your network administrator. Your network and the unit will most likely behave incorrectly. After assigning

				a correct IP Address, reboot the unit to clear the System alarm.
	22	T1/E1 Error	WAN connection not detected. Loss of signal, or loss of frame.	Check the back of the unit and confirm WAN cable is connected and WAN LED is solid green.
	23	ECU Emergency Unlock	Set when both user-defined fire and gas alarms occur.	Will clear when fire and gas alarms clear. Feature can also be disabled if "Emergency Unlock Enabled" is unchecked from the web or NGEdit G5 interfaces.
	24	D-Wire Sensor Not Detected	A configured D-Wire Sensor is not detected.	Check G5 D-Wire port and D-Wire Sensor and confirm cable is plugged in. Also make sure that configured ROM ID's match the D-Wire Sensors plugged in.
	25	ECU Door Violation	Door sensor has detected unauthorized entry.	Verify integrity of door sensor. This alarm is to alert of unauthorized access.
	26	Maintenance Mode	Maintenance mode is currently active for the server shutdown feature	Maintenance mode will timeout according t othe amount specified by the user in teh NGEdit "Server Shutdown" tab.
	27	DSCP Timeout	The unit has not received a signal from the DSCP Poller after a certain period of time.	Check configuration of DSCP Poller. Check battery power. Make sure signal is not physically obstructed.
	28	Wireless Sensor Power Fault	Power to DSCP unit is shorting or cannot provide enough current causing a fault with the sensor power.	Check sensor wiring for any faulty connections or shortened cables.
	29	Wireless Sensor Power Low	DSCP unit is not providing enough power to the sensors.	Check sensor wiring for any faulty connections or shortened cables.
	30	Wireless Sensor Update	This unit has received a sensor reading update from a wireless device.	This alarm is normal and is used to log wireless activity.
	32	Modbus Poll Inactive	The unit has not seen a poll from the master for the time specified by the setting.	Timeout is set to 90 seconds. If device has not seen a poll for 90 seconds, alarm will activate.
	33	Power Up	The unit has just come-online. The set alarm condition is followed immediately by a clear alarm condition.	Seeing this alarm is normal if the unit is powering up.
	34	PPP Backup Mode	The unit's Backup PPP mode is currently in use.	PPP Backup mode comes on when the ethernet link goes down. Check the ethernet for connectivity.
	35	Server Restore	Manual Server Shutdown/Restore process is in progress.	Server shutdown is active when Manual Shutdown/Restore is in progress.Wait for shutdown/

				restore process to finish.
	36	Lost Provisioning	The internal NVRAM may be damaged. The unit is using default configuration settings.	Use Web or latest version of NGEditG5 to configure unit. Power cycle to see if alarm goes away. May require RMA.
Display	**Points**	**Alarm Point**	**Description**	**Solution**
11	37	DCP Poller Inactive	The unit has not seen a poll from the Master for the time specified by the DCP Timer setting.	If DCP responder is not being used, then set the DCP Unit ID to 0. Otherwise, try increasing the DCP timer setting under timers, or check how long it takes to cycle through the current polling chain on the Master system.
	38	NET1 not active	The Net1 LAN port is down.	Check LAN cable. Ping to and from the unit. (If not using Net1 or Net2, set IP, Subnet and Gateway to 255's)
	39	NET2 not active	The Net2 LAN port is down.	
	40	LNK Alarm	No network connection detected	
	41	Modem not responding	An error has been detected during modem initialization. The modem did not respond to the initialization string.	Remove configured modem initialization string, then power cycle the unit. If alarm persists, try resetting the Modem port from the TTY interface, or contact DPS for possible RMA.
	42	No Dial Tone	During dial-out attempt, the unit did not detect a dial tone.	Check the integrity of the phone line and cable.
	43	SNMP Trap not Sent	SNMP trap address is not defined and an SNMP trap event occurred.	Define the IP Address where you would like to send SNMP trap events, or configure the event not to trap.
	44	Pager Queue Overflow	Over 250 events are currently queued in the pager queued and are still trying to report.	Check for failed notification events that may be filling up the pager queue. There may be a configuration or communication problem with the notification events.
	45	Notification failed	A notification event, like a page or email, was unsuccessful.	Use RPT filter debug to help diagnose notification problems.
	46	Craft RcvQ full	The Craft port received more data than it was able to process.	Disconnect whatever device is connected to the craft serial port. This alarm should not occur.
	47	Modem RcvQ full	The modem port received more data than it was able to process.	Check what is connecting to the NetGuardian. This alarm should not occur.
	48	Serial 1 RcvQ full	Serial port 1 (or appropriate serial port number) receiver filled with 8 K of data (4 K if BAC active).	Check proxy connection. The serial port data may not be getting collected as expected.
	49	Serial 2 RcvQ full		

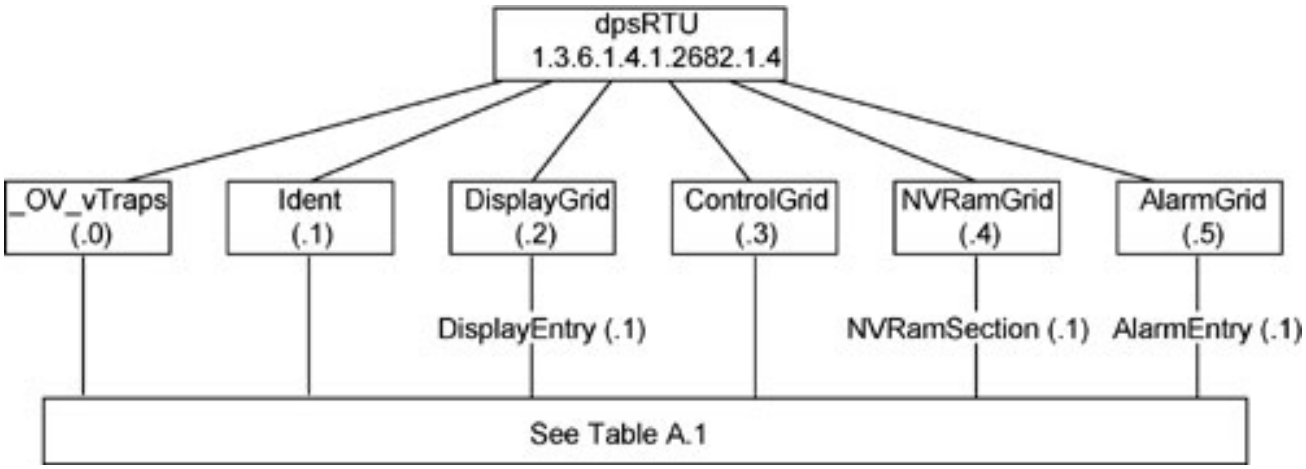
	50	Serial 3 RcvQ full		
	51	Serial 4 RcvQ full		
	52	Serial 5 RcvQ full		
	53	Serial 6 RcvQ full		
	54	Serial 7 RcvQ full		
	55	Serial 8 RcvQ full		
Display	**Points**	**Alarm Point**	**Description**	**Solution**
11	56	NetGuardian DX 1 fail	NGDdx 1 Fail (Expansion shelf 1 communication link failure)	Under Ports > Options, verify the number of configured NGDdx units. Use EXP filter debug and port LEDs to help diagnose the problem. Verify the DIP addressing on the back of the NGDdx unit.
	57	NetGuardian DX 2 fail	NGDdx 2 Fail (Expansion shelf 2 communication link failure)	
	58	NetGuardian DX 3 fail	NGDdx 3 Fail (Expansion shelf 3 communication link failure)	
	59	GLD 1 fail	GLD address 1 is failed.	Connect just GLD unit 1 and attempt to poll. Verify GLD is connected to data port 8 and the hardware is RS485, not RS232.
	60	GLD 2 fail	GLD address 2 is failed.	Verify the GLD unit addressing, and test GLD units individually on the GLD communication bus.
	61	GLD 3+ fail	One or more GLD units addressed 3 through 12 may be failed.	Reduce the number of connected GLD units to determine which unit may be causing the link to fail.
	62	Chan. Port Timeout	Chan. Port has not forwarded any traffic in the time specified by the Channel Timeout Timer. The channel feature forwards data between two ports so the NG may be used to analyze serial traffic using CHAN filter debug.	Change the data port type to OFF, or set the Channel Timer to a different setting.
	63	Craft Timeout	The Craft Timeout Timer has not been reset in the specified time. This feature is designed so other machines may keep the TTY link active. If the TTY interface becomes unavailable to the machine, then the Craft Timeout alarm is set.	Change the Craft Timeout Timer to 0 to disable the feature.

	64	Event Que Full	The Event Que is filled with more than 500 uncollected events.	Enable DCP timestamp polling on the master so events are collected, or reboot the system to clear the alarm.

Table A.3 *System Alarms Descriptions*

4.2 Appendix B — SNMP Manager Functions

The SNMP Manager allows the user to view alarm status, set date/time, issue controls, and perform a resync. The display and tables below outline the MIB object identifiers. Table B.1 begins with dpsRTU; however, the MIB object identifier tree has several levels above it. The full English name is as follows: root.iso.org.dod.internet.private.enterprises.dps-Inc.dpsAlarmControl.dpsRTU. Therefore, dpsRTU's full object identifier is 1.3.6.1.4.1.2682.1.4. Each level beyond dpsRTU adds another object identifying number. For example, the object identifier of the Display portion of the Control Grid is 1.3.6.1.4.1.2682.1.4.3.3 because the object identifier of dpsRTU is 1.3.6.1.4.1.2682.1.4 + the Control Grid (.3) + the Display (.3).



Tbl. B1 (O.)_OV_Traps points
_OV_vTraps (1.3.6.1.4.1.2682.1.4.0)
PointSet (.20)
PointClr (.21)
SumPSet (.101)
SumPClr (.102)
ComFailed (.103)
ComRestored (.014)
P0001Set (.10001) through P0064Set (.10064)
P0001Clr (.20001) through P0064Clr (.20064)

Tbl. B2 (.1) Identity points
Ident (1.3.6.1.4.1.2682.1.4.1)
Manufacturer (.1)
Model (.2)
Firmware Version (.3)
DateTime (.4)
ResyncReq (.5)*
* Must be set to "1" to perform the resync request which will resend TRAPs for any standing alarm.

Tbl. B3 (.2) DisplayGrid points
DisplayEntry (1.3.6.1.4.1.2682.1.4.2.1)
Port (.1)
Address (.2)
Display (.3)
DispDesc (.4)*
PntMap (.5)*

Tbl. B3 (.3) ControlGrid points
ControlGrid (1.3.6.1.4.1.2682.1.4.3)
Port (.1)
Address (.2)
Display (.3)
Point (.4)
Action (.5)

Tbl. B5 (.5) AlarmEntry points
AlarmEntry (1.3.6.4.1.2682.1.4.5.1)
Aport (.1)
AAddress (.2)
ADisplay (.3)
APoint (.4)
APntDesc (.5)*
AState (.6)
* For specific alarm points, see Table B6

	Description	Port	Address	Display	Points
Disp	Discrete Alarms	99	1	1	1-32

	Undefined**	99	1	1	33-64
Disp 2	Ping Targets	99	1	2	1-32
	Undefined**	99	1	2	33-64
Disp 3	Analog 1	99	1	3	1-4
	Undefined**	99	1	3	5-64
Disp 4	Analog 2	99	1	4	1-4
	Undefined**	99	1	4	5-64
Disp 5	Analog 3	99	1	5	1-4
	Undefined**	99	1	5	5-64
Disp 6	Analog 4	99	1	6	1-4
	Undefined**	99	1	6	5-64
Disp 7	Analog 5	99	1	7	1-4
	Undefined**	99	1	7	5-64
Disp 8	Analog 6	99	1	8	1-4
	Undefined**	99	1	8	5-64
Disp 9	Analog 7	99	1	9	1-4
	Undefined**	99	1	9	5-64
Disp 10	Analog 8	99	1	10	1-4
	Undefined**	99	1	10	5-64
Disp 11	Relays 1-8	99	1	11	1-8
	Relays 9-16	99	1	11	9-16
	Timed Tick	99	1	11	17
	Exp. Module Callout	99	1	11	18
	Network Time Server	99	1	11	19
	Accumulation Event	99	1	11	20
	Duplicate IP Address	99	1	11	21
	WAN Disconnected	99	1	11	22
	ECU EmergencyUnlock	99	1	11	23
	D-Wire Sensor Not Detected	99	1	11	24
	Undefined	99	1	11	25-26
	DSCP Timeout	99	1	11	27
	Wireless Sensor Power Fault	99	1	11	28
	Wireless Sensor Power Low	99	1	11	29
	Undefined**	99	1	11	30-32
	Unit Reset	99	1	11	33
	Undefined**	99	1	11	34-35
	Lost	99	1	11	36
	DCP poll inactive	99	1	11	37
	NET 1 not active	99	1	11	38

	NET 2 not active	99	1	11	39
	NET link down	99	1	11	40
	Modem not	99	1	11	41
	No dial-tone	99	1	11	42
	SNMP trap not	99	1	11	43
	Pager Que	99	1	11	44
	Notification	99	1	11	45
	Craft RCVQ full	99	1	11	46
	Modem RCVQ	99	1	11	47
	Data 1-8 RCVQ	99	1	11	48-55
	NGDdx 1-3 fail	99	1	11	56-58
	GLD/BSU 1-3 fail	99	1	11	59-61
	CHAN timeout	99	1	11	62
	CRFT timeout	99	1	11	63

Table B.6. *Alarm Point Descriptions*

* "No data" indicates that the alarm point is defined but there is no description entered.
** "Undefined" indicates that the alarm point is not used.

4.3 Appendix C — SNMP Granular Trap Packets

Tables C.1 and C.2 provide a list of the information contained in the SNMP Trap packets sent by the NetGuardian.

SNMP Trap managers can use one of two methods to get alarm information:
1. Granular traps (not necessary to define point descriptions for the NetGuardian)

OR

2. The SNMP manager reads the description from the Trap.

UDP Header	Description
1238	Source port
162	Destination port
303	Length
0xBAB0	Checksum

Table C.1. *UDP Headers and descriptions*

SNMP Header	Description
0	Version
Public	Request
Trap	Request
1.3.6.1.4.1.2682.1.4	Enterprise
126.10.230.181	Agent address
Enterprise Specific	Generic Trap
8001	Specific Trap
617077	Time stamp
1.3.7.1.2.1.1.1.0	Object
NetGuardian 216 v1.0K	Value
1.3.6.1.2.1.1.6.0	Object
1-800-622-3314	Value
1.3.6.1.4.1.2682.1.4.4.1.0	Object
01-02-1995 05:08:27.760	Value
1.3.6.1.4.1.2682.1.4.5.1.1.99.1.1.1	Object
99	Value
1.3.6.1.4.1.2682.1.4.5.1.2.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.3.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.4.99.1.1.1	Object
1	Value
1.3.6.1.4.1.2682.1.4.5.1.5.99.1.1.1	Object
Rectifier Failure	Value
1.3.6.1.4.1.2682.1.4.5.1.6.99.1.1.1	Object
Alarm	Value

Table C.2. *SNMP Headers and descriptions*

4.4 Appendix D — ASCII Conversion

The information contained in Table D.1 is a list of ASCII symbols and their meanings. Refer to the bulleted list below to interpret the ASCII data transmitted or received through the data ports. Port transmit and receive activity can be viewed from the Web Browser Interface.

- Printable ASCII characters will appear as ASCII.
- Non-printable ASCII characters will appear as labels surrounded by { } brackets (e.g. **{NUL}**).
- Non-ASCII characters will appear as hexadecimal surrounded by [ ] brackets (e.g. **[IF]**).
- A received BREAK will appear as <BRK>.

Abbreviation	Description	Abbreviation	Description
NUL	Null	DLE	Data Link Escape
SOH	Start of Heading	DC	Device Control
STX	Start of Text	NAK	Negative Acknowledge
ETX	End of Text	SYN	Synchronous Idle
EOT	End of Transmission	ETB	End of Transmission Block
ENQ	Enquiry	CAN	Cancel
ACK	Acknowledge	EM	End of Medium
BEL	Bell	SUB	Substitute
BS	Backspace	ESC	Escape
HT	Horizontal Tabulation	FS	File Separator
LF	Line Feed	GS	Group Separator
VT	Vertical Tabulation	RS	Record Separator
FF	Form Feed	US	Unit Separator
CR	Carriage Return	SP	Space (blank)
SO	Shift Out	DEL	Delete
SI	Shift In	BRK	Break Received

Table D.1. *ASCII symbols*

4.5 Appendix E - RADIUS Dictionday File (Available on Resource Disk)

```
# -*- text -*-
#
# dictionary.dps
#
#       DPS Telecom, Inc
#       For assistance or support, please contact support@dpstele.com
#                       v1.0 Released - 1/23/09 (CBH/DPS)

VENDOR          DPS                     2682

#
# Standard attribute for NetGuardian RTU.
# All values are integer with 1 = True, 0 = False.
# If attribure does not exist in Access-Accept packet, default value will be 0.
#
BEGIN-VENDOR    DPS

ATTRIBUTE   dps-admin                   1       integer
ATTRIBUTE   dps-edit                            2       integer
ATTRIBUTE   dps-monitor                 3       integer
ATTRIBUTE   dps-SD-monitor                      4       integer
#To allow monitor of data port buffer/activity
ATTRIBUTE   dps-reach-through           5       integer
#To allow proxy to serial ports via TTY interface
ATTRIBUTE   dps-telnet                  6       integer
#To allow telnet in and out of NetGuardian
ATTRIBUTE   dps-control                 7       integer
#To allow manipulation of dry contact relay outputs
ATTRIBUTE   dps-modem                   8       integer
#To allow dial in and out of NetGuardian
ATTRIBUTE   dps-ppp                             9       integer
#To allow this user PPP (inbound) access to the NetGuardian

END-VENDOR      DPS
```

4.6 Appendix F - DNP3 Configuration / Interoperability Guide

DNP V3.0 Device Profile

The following table provides a "Device Profile Document" in the standard format defined in the DNP 3.0 Subset Definitions Document. While it is referred to in the DNP 3.0 Subset Definitions as a "Document," it is in fact a table, and only a component of a total interoperability guide.

<table>
<tr><td colspan="2">DNP V3.0
DEVICE PROFILE DOCUMENT
(Also see the DNP 3.0 Implementation Table in Section 4.6.2)</td></tr>
<tr><td colspan="2">Vendor Name: DPS Telecom Inc.</td></tr>
<tr><td colspan="2">Device Name: NetGuardian 832A/864A G5</td></tr>
<tr><td>Highest DNP Level Supported:

For Requests: Level 3

For Responses: Level 3</td><td>Device Function:

o Master

xSlave</td></tr>
<tr><td colspan="2">Notable objects, functions, and/or qualifiers supported in addition to the Highest DNP Levels Supported (the complete list is described in the attached table):

The read function code for Object 50 (Time and Date), variation 1, is supported.</td></tr>
<tr><td>Maximum Data Link Frame Size (octets):

Transmitted: 292
Received: 292</td><td>Maximum Application Fragment Size (octets):

Transmitted: 512
Received: 512</td></tr>
<tr><td>Maximum Data Link Re-tries:

o None
x Fixed (3)</td><td>Maximum Application Layer Re-tries:

x None
o Configurable</td></tr>
<tr><td colspan="2">Requires Data Link Layer Re-tries:

Fixed (3)
o Always
o Sometimes</td></tr>
</table>

Requires Application Layer Confirmation:

- **o** Never
- **o** Always
- **o** When reporting Event Data (Slave devices only)
- **x When sending multi-fragment responses (Slave devices only)**
- **o** Sometimes

DNP V3.0
DEVICE PROFILE DOCUMENT
(Also see the DNP 3.0 Implementation Table in Section 4.6.2)

Timeouts while waiting for:

Data Link Confirmation:	**Fixed at 2s**
Complete Appl. Fragment:	**None**
Application Confirm:	**Fixed at 10s**
Complete Appl. Response:	**None**
Other:	**Transmission Delay, 0**

Sends/Executes Control Operations:

WRITE Binary Outputs: **Never**
SELECT/OPERATE: **Never**
DIRECT OPERATE: **Always**
DIRECT OPERATE - NO ACK: **Always**

Count > 1: **Never**
Pulse On: **Never**
Pulse Off: **Never**
Latch On: **Always**
Latch Off: **Always**

Queue: **Never**
Clear Queue: **Never**

Reports Binary Input Change Events when no specific variation requested:

- **x Never**
- **o** Only time-tagged
- **o** Only non-time-tagged

Reports time-tagged Binary Input Change Events when no specific variation requested:

- **x Never**
- **o** Binary Input Change With Time
- **o** Binary Input Change with Relative Time

Sends Unsolicited Responses **x Never** **o** Only certain objects **o** Sometimes (attach explanation) **o** ENABLE/DISABLE UNSOLICITED Function codes supported	Sends Static Data in Unsolicited Responses: **x Never** **o** When Device Restarts **o** When Status Flags Change
Default Counter Object/Variation: **x No Counters Reported** **o** Default Object	Counters Roll Over at: **x No Counters Reported** **o** Configurable (attach explanation) **o** 16 Bits **o** 32 Bits **o** Other Value: ____ **o** Point-by-point list attached

DNP V3.0 **DEVICE PROFILE DOCUMENT** (Also see the DNP 3.0 Implementation Table in Section 4.6.2)
Sends Multi-Fragment Responses: **No** Yes
Sequential File Transfer Support: **No** Append File Mode: **No** Custom Status Code Strings: **No** Permissions Field: **No** File Events Assigned to Class: **No** File Events Send Immediately: **No** Multiple Blocks in a Fragment: **No** Max Number of Files Open: **0**

DNP V3.0 Implementation Table

The following table identifies which object variations, function codes, and qualifiers the NetGuardian 832A/864A G5 DNP3 supports in both request messages and in response messages. For static (non-change-event) objects, request send with qualifiers 00, 01, 06, 07, or 08 will be responded with qualifiers 00 or 01.

OBJECT			**REQUEST** (Library will parse)		**RESPONSE** (Library will respond with)	
Object Number	**Variation Number**	**Description**	**Function Codes (dec)**	**Qualifiers Codes (hex)**	**Function Codes (dec)**	**Qualifiers Codes (hex)**

1	1	Binary Input	1 (read)	00, 01 (start-stop) 06 (no range, or all)	129 (response)	00, 01 (start-stop)
10	2	Binary Output Status	1 (read)	00, 01 (start-stop) 06 (no range, or all)	129 (response)	00, 01 (start-stop)
12	1	Control Relay Output Block	5 (direct op) 6 (dir. op, noack)	17, 28 (index)	129 (response)	echo of request
30	3	32-Bit Analog Input Without Flag	1 (read)	00, 01 (start-stop) 06 (no range, or all)	129 (response)	00, 01 (start-stop)
50	1	Time and Date	1 (read)	07 (limited qty = 1)	129 (response)	07 (limited qty = 1)
			2 (write)	07 (limited qty = 1)		
60	1	Class 0 Data	1 (read)	06 (no range, or all)		
60	2	Class 1 Data	1 (read)	06 (no range, or all)		
60	3	Class 2 Data	1 (read)	06 (no range, or all)		
60	4	Class 3 Data	1 (read)	06 (no range, or all)		

DNP V3.0 Point List

The tables below identify all the default data points provided by the NetGuardian 832A/864A G5 DNP3.

Binary Input Points

Binary Input Points Static Variation: Obj 01 Var 01 - Binary Input w/o status Request function codes supported: 1 (read)		
Point Index	**Description**	**Class**
0-63	Discrete Alarms 1 - 64	1
64-95	Ping Targets	1
96-127	Unused	1
128	Timed Tick	1
129	Exp. Module Callout	1
130	Network Time Server	1
131	Accumulation Event	1
132	Duplicate IP Address	1
133	WAN Disconnected	1
134	ECU Emergency Unlock	1
135	D-Wire sensor not detected	1
136	ECU Door Violation	1
137	Maintenance Mode	1
138	DSCP timeout	1
139	Wireless Sensor Power Fault	1
140	Wireless Sensor Power Low	1
141	Unused	1
142	Unused	1
143	Unused	1
144	Unit Reset	1
145	PPP Backup Mode	1
146	Unused	1
147	Lost Provisioning	1
148	DCP Poller Inactive	1

149	NET1 not active	1
150	NET2 not active	1
151	NET Link Down	1
152	Modem not responding	1
153	No Dial Tone	1
154	SNMP Trap not Sent	1
155	Pager Queue Overflow	1
156	Notification failed	1
157	Craft receive queue full	1
158	Modem receive queue full	1
159	Data 1 receive queue full	1
160	Data 2 receive queue full	1
161	Data 3 receive queue full	1
162	Data 4 receive queue full	1
163	Data 5 receive queue full	1
164	Data 6 receive queue full	1
165	Data 7 receive queue full	1
166	Data 8 receive queue full	1
167	NetGuardian DX 1 fail	1
168	NetGuardian DX 2 fail	1
169	NetGuardian DX 3 fail	1
170	GLD/BSU 1 fail	1
171	GLD/BSU 2 fail	1
172	GLD/BSU 3+ fail	1
173	Chan. Port Timeout	1
174	Craft Timeout	1
175	Event queue full	1
176-239	DX 1 Discrete Alarms 1 - 64	1
240-303	DX 2 Discrete Alarms 1 - 64	1
304-367	DX 3 Discrete Alarms 1 - 64	1

Binary Output Status Points and Control Relay Output Blocks

The following table lists both the Binary Output Status Points (Object 10) and the Control relay Output Blocks (Object 12).

Binary Output Status Points Static Variation: Obj 10 Var 02 - Binary Output Status Control Variation: Obj 12 Var 01 - Control Relay Output Block Request function codes supported: 5 (direct operate), 6 (direct operate, no ack) Supported relay output: Latch on, Latch off.		
Point ID	**Description**	**Class**
0	Control 1	2
1	Control 2	2
2	Control 3	2
3	Control 4	2
4	Control 5	2
5	Control 6	2
6	Control 7	2
7	Control 8	2
8	DX 1 Control 1	2
9	DX 1 Control 2	2
10	DX 1 Control 3	2
11	DX 1 Control 4	2
12	DX 1 Control 5	2
13	DX 1 Control 6	2
14	DX 1 Control 7	2
15	DX 1 Control 8	2
16	DX 2 Control 1	2
17	DX 2 Control 2	2
18	DX 2 Control 3	2
19	DX 2 Control 4	2
20	DX 2 Control 5	2
21	DX 2 Control 6	2
22	DX 2 Control 7	2

23	DX 2 Control 8	2
24	DX 3 Control 1	2
25	DX 3 Control 2	2
26	DX 3 Control 3	2
27	DX 3 Control 4	2
28	DX 3 Control 5	2
29	DX 3 Control 6	2
30	DX 3 Control 7	2
31	DX 3 Control 8	2

Analog Inputs

The following table lists Analog Inputs (Object 30). It is important to note that Analog Inputs, Analog Output Control Blocks, and Analog Output Statuses are transmitted through DNP as singed numbers.

Analog Inputs Static Variation: Obj 30 Var 03 - 32-Bit analog w/o flag Request function codes supported: 1 (read)			
Point ID	**Description**	**Default Unit**	**Class**
0	Analog Channel 1	Voltage (VDC)	3
1	Analog Channel 2	Voltage (VDC)	3
2	Analog Channel 3	Voltage (VDC)	3
3	Analog Channel 4	Voltage (VDC)	3
4	Analog Channel 5	Voltage (VDC)	3
5	Analog Channel 6	Voltage (VDC)	3
6	Analog Channel 7	Voltage (VDC)	3
7	Analog Channel 8	Voltage (VDC)	3
8	DX 1 Analog Channel 1	Voltage (VDC)	3
9	DX 1 Analog Channel 2	Voltage (VDC)	3
10	DX 1 Analog Channel 3	Voltage (VDC)	3
11	DX 1 Analog Channel 4	Voltage (VDC)	3
12	DX 1 Analog Channel 5	Voltage (VDC)	3
13	DX 1 Analog Channel 6	Voltage (VDC)	3
14	DX 1 Analog Channel 7	Voltage (VDC)	3
15	DX 1 Analog Channel 8	Voltage (VDC)	3
16	DX 2 Analog Channel 1	Voltage (VDC)	3

17	DX 2 Analog Channel 2	Voltage (VDC)	3
18	DX 2 Analog Channel 3	Voltage (VDC)	3
19	DX 2 Analog Channel 4	Voltage (VDC)	3
20	DX 2 Analog Channel 5	Voltage (VDC)	3
21	DX 2 Analog Channel 6	Voltage (VDC)	3
22	DX 2 Analog Channel 7	Voltage (VDC)	3
23	DX 2 Analog Channel 8	Voltage (VDC)	3
24	DX 3 Analog Channel 1	Voltage (VDC)	3
25	DX 3 Analog Channel 2	Voltage (VDC)	3
26	DX 3 Analog Channel 3	Voltage (VDC)	3
27	DX 3 Analog Channel 4	Voltage (VDC)	3
28	DX 3 Analog Channel 5	Voltage (VDC)	3
29	DX 3 Analog Channel 6	Voltage (VDC)	3
30	DX 3 Analog Channel 7	Voltage (VDC)	3
31	DX 3 Analog Channel 8	Voltage (VDC)	3

4.7 Appendix G - Modbus Registers

Function Code	Action
1	Coil Status (Reads the current status of Relays)
2	Input Status (Reads the current status of Discrete Alarms)
3	Holding Register (Returns the raw value and control of Analogs)
4	Input Register (Returns the raw value and control of Analogs)
5	Write Single Coil (Changes the state of the Relays)

Function Code	Register	Description
1	0-7	Relay 1-8

Function Code	Register	Description
2	0-31	Discrete Alarm 1-32 **(NetGuardian 832A)**
2	0-63	Discrete Alarm 1-64 **(NetGuardian 864A)**

Function Code	Register	Description	Scaling	Bits
3	0	Analog 1 Value	*	16
3	1	Analog 1 Scaling Range	*	1/16-3/16

Function Code	Register	Description	Scaling	Bits
3	1	Analog 1 Sign	*	7/16
3	2	Analog 2 Value	*	16
3	3	Analog 2 Scaling Range	*	1/16-3/16
3	3	Analog 2 Sign	*	7/16
3	4	Analog 3 Value	*	16
3	5	Analog 3 Scaling Range	*	1/16-3/16
3	5	Analog 3 Sign	*	7/16
3	6	Analog 4 Value	*	16
3	7	Analog 4 Scaling Range	*	1/16-3/16
3	7	Analog 4 Sign	*	7/16
3	8	Analog 5 Value	*	16
3	9	Analog 5 Scaling Range	*	1/16-3/16
3	9	Analog Sign	*	7/16
3	10	Analog 6 Value	*	16
3	11	Analog 6 Scaling Range	*	1/16-3/16
3	11	Analog 6 Sign	*	7/16
3	12	Analog 7 Value	*	16
3	13	Analog 7 Scaling Range	*	1/16-3/16
3	13	Analog 7 Sign	*	7/16
3	14	Analog 8 Value	*	16
3	15	Analog 8 Scaling Range	*	1/16-3/16
3	15	Analog 8 Sign	*	7/16

*** See Scaling Range Table Below**

Function Code	Register	Description	Scaling	Bits
4	0	Analog 1 Value	*	16
4	1	Analog 1 Scaling Range	*	1/16-3/16
4	1	Analog 1 Sign	*	7/16
4	2	Analog 2 Value	*	16
4	3	Analog 2 Scaling Range	*	1/16-3/16
4	3	Analog 2 Sign	*	7/16
4	4	Analog 3 Value	*	16
4	5	Analog 3 Scaling Range	*	1/16-3/16
4	5	Analog 3 Sign	*	7/16
4	6	Analog 4 Value	*	16
4	7	Analog 4 Scaling Range	*	1/16-3/16
4	7	Analog 4 Sign	*	7/16
4	8	Analog 5 Value	*	16
4	9	Analog 5 Scaling Range	*	1/16-3/16

Function Code	Register	Description	Scaling	Bits
4	9	Analog 5 Sign	*	7/16
4	10	Analog 6 Value	*	16
4	11	Analog 6 Scaling Range	*	1/16-3/16
4	11	Analog 6 Sign	*	7/16
4	12	Analog 7 Value	*	16
4	13	Analog 7 Scaling Range	*	1/16-3/16
4	13	Analog 7 Sign	*	7/16
4	14	Analog 8 Value	*	16
4	15	Analog 8 Scaling Range	*	1/16-3/16
4	15	Analog 8 Sign	*	7/16

*** See Scaling Range Table Below**

Function Code	Register	Description
5	0-7	Relay 1-8

Function Code	Register	Description
2	1200-1215	NetGuardian E16 DX Expansion 1 Alarm 1-16
1	1300-1315	NetGuardian E16 DX Expansion 1 Relay 1-16
2	1400-1415	NetGuardian E16 DX Expansion 2 Alarm 1-16
1	1500-1515	NetGuardian E16 DX Expansion 2 Relay 1-16
2	1600-1615	NetGuardian E16 DX Expansion 3 Alarm 1-16
1	1700-1715	NetGuardian E16 DX Expansion 3 Relay 1-16

Function Code	Register	Description
5	1300-1315	NetGuardian E16 DX Expansion 1 Relay 1-16
5	1500-1515	NetGuardian E16 DX Expansion 2 Relay 1-16
5	1700-1715	NetGuardian E16 DX Expansion 3 Relay 1-16

Function Code	Register	Description
2	1200-1263	NetGuardian 480 (as DX) Alarm 1-64
2	1316-1331	NetGuardian 480 (as DX) Alarm 65-80
1	1300-1303	NetGuardian 480 (as DX) Relay 1-4

Function Code	Register	Description
5	0-7	NetGuardian 480 (as DX) Relay 1-

Function Code	Register	Description
		4

Function Code	Register	Description
2	1200-1247	NetGuardian DX48 Expansion 1 Alarm 1-48
1	1300-1307	NetGuardian DX48 Expansion 1 Relay 1-8
2	1400-1447	NetGuardian DX48 Expansion 2 Alarm 1-48
1	1500-1507	NetGuardian DX48 Expansion 2 Relay 1-8
2	1600-1647	NetGuardian DX48 Expansion 3 Alarm 1-48
1	1700-1707	NetGuardian DX48 Expansion 3 Relay 1-8

Function Code	Register	Description
5	1300-1315	NetGuardian DX48 Expansion 1 Relay 1-8
5	1500-1515	NetGuardian DX48 Expansion 2 Relay 1-8
5	1700-1715	NetGuardian DX48 Expansion 3 Relay 1-8

Function Code	Register	Description
2	1200-1231	NetGuardian 832A (as DX) Expansion 1 Alarm 1-32
1	1300-1307	NetGuardian 832A (as DX) Expansion 1 Relay 1-8
2	1400-1431	NetGuardian 832A (as DX) Expansion 2 Alarm 1-32
1	1500-1507	NetGuardian 832A (as DX) Expansion 1 Relay 1-8
2	1600-1631	NetGuardian 832A (as DX) Expansion 3 Alarm 1-32
1	1700-1707	NetGuardian 832A (as DX) Expansion 1 Relay 1-8

Function Code	Register	Description
2	1200-1263	NetGuardian 864A (as DX) Expansion 1 Alarm 1-64
1	1300-1307	NetGuardian 864A (as DX) Expansion 1 Relay 1-8
2	1400-1463	NetGuardian 864A (as DX) Expansion 2 Alarm 1-64
1	1500-1507	NetGuardian 864A (as DX) Expansion 1 Relay 1-8
2	1600-1663	NetGuardian 864A (as DX) Expansion 3 Alarm 1-64
1	1700-1707	NetGuardian 864A (as DX)

Function Code	Register	Description
		Expansion 1 Relay 1-8

Function Code	Register	Description
5	1300-1307	NetGuardian 832/864(as DX) Expansion 1 Relay 1-8
5	1500-1507	NetGuardian 832/864(as DX) Expansion 2 Relay 1-8
5	1700-1707	NetGuardian 832/864(as DX) Expansion 3 Relay 1-8

Function Code	Register	Description	Scaling	Bits
3	100	NetGuardian (832/864 as DX) Expansion 1 Analog 1 Value	*	16
3	101	NetGuardian (832/864 as DX) Expansion 1 Analog 1 Scaling	*	1/16-3/16
3	101	NetGuardian (832/864 as DX) Expansion 1 Analog 1 Sign	*	7/16
3	102	NetGuardian (832/864 as DX) Expansion 1 Analog 2 Value	*	16
3	103	NetGuardian (832/864 as DX) Expansion 1 Analog 2 Scaling	*	1/16-3/16
3	103	NetGuardian (832/864 as DX) Expansion 1 Analog 2 Sign	*	7/16
3	104	NetGuardian (832/864 as DX) Expansion 1 Analog 3 Value	*	16
3	105	NetGuardian (832/864 as DX) Expansion 1 Analog 3 Scaling	*	1/16-3/16
3	105	NetGuardian (832/864 as DX) Expansion 1 Analog 3 Sign	*	7/16
3	106	NetGuardian (832/864 as DX) Expansion 1 Analog 4 Value	*	16

Function Code	Register	Description	Scaling	Bits
3	107	NetGuardian (832/864 as DX) Expansion 1 Analog 4 Scaling	*	1/16-3/16
3	107	NetGuardian (832/864 as DX) Expansion 1 Analog 4 Sign	*	7/16
3	108	NetGuardian (832/864 as DX) Expansion 1 Analog 5 Value	*	16
3	109	NetGuardian (832/864 as DX) Expansion 1 Analog 5 Scaling	*	1/16-3/16
3	109	NetGuardian (832/864 as DX) Expansion 1 Analog 5 Sign	*	7/16
3	110	NetGuardian (832/864 as DX) Expansion 1 Analog 6 Value	*	16
3	111	NetGuardian (832/864 as DX) Expansion 1 Analog 6 Scaling	*	1/16-3/16
3	111	NetGuardian (832/864 as DX) Expansion 1 Analog 6 Sign	*	7/16
3	112	NetGuardian (832/864 as DX) Expansion 1 Analog 7 Value	*	16
3	113	NetGuardian (832/864 as DX) Expansion 1 Analog 7 Scaling	*	1/16-3/16
3	113	NetGuardian (832/864 as DX) Expansion 1 Analog 7 Sign	*	7/16
3	114	NetGuardian (832/864 as DX) Expansion 1 Analog 8 Value	*	16
3	115	NetGuardian (832/864 as DX) Expansion 1 Analog 8 Scaling	*	1/16-3/16

Function Code	Register	Description	Scaling	Bits
3	115	NetGuardian (832/864 as DX) Expansion 1 Analog 8 Sign	*	7/16

*** See Scaling Range Table Below**

Function Code	Register	Description	Scaling	Bits
3	200	NetGuardian (832/864 as DX) Expansion 2 Analog 1 Value	*	16
3	201	NetGuardian (832/864 as DX) Expansion 2 Analog 1 Scaling	*	1/16-3/16
3	201	NetGuardian (832/864 as DX) Expansion 2 Analog 1 Sign	*	7/16
3	202	NetGuardian (832/864 as DX) Expansion 2 Analog 2 Value	*	16
3	203	NetGuardian (832/864 as DX) Expansion 2 Analog 2 Scaling	*	1/16-3/16
3	203	NetGuardian (832/864 as DX) Expansion 2 Analog 2 Sign	*	7/16
3	204	NetGuardian (832/864 as DX) Expansion 2 Analog 3 Value	*	16
3	205	NetGuardian (832/864 as DX) Expansion 2 Analog 3 Scaling	*	1/16-3/16
3	205	NetGuardian (832/864 as DX) Expansion 2 Analog 3 Sign	*	7/16
3	206	NetGuardian (832/864 as DX) Expansion 2 Analog 4 Value	*	16
3	207	NetGuardian (832/864 as DX) Expansion 2 Analog 4 Scaling	*	1/16-3/16

Function Code	Register	Description	Scaling	Bits
3	207	NetGuardian (832/864 as DX) Expansion 2 Analog 4 Sign	*	7/16
3	208	NetGuardian (832/864 as DX) Expansion 2 Analog 5 Value	*	16
3	209	NetGuardian (832/864 as DX) Expansion 2 Analog 5 Scaling	*	1/16-3/16
3	209	NetGuardian (832/864 as DX) Expansion 2 Analog 5 Sign	*	7/16
3	210	NetGuardian (832/864 as DX) Expansion 2 Analog 6 Value	*	16
3	211	NetGuardian (832/864 as DX) Expansion 2 Analog 6 Scaling	*	1/16-3/16
3	211	NetGuardian (832/864 as DX) Expansion 2 Analog 6 Sign	*	7/16
3	212	NetGuardian (832/864 as DX) Expansion 2 Analog 7 Value	*	16
3	213	NetGuardian (832/864 as DX) Expansion 2 Analog 7 Scaling	*	1/16-3/16
3	213	NetGuardian (832/864 as DX) Expansion 2 Analog 7 Sign	*	7/16
3	214	NetGuardian (832/864 as DX) Expansion 2 Analog 8 Value	*	16
3	215	NetGuardian (832/864 as DX) Expansion 2 Analog 8 Scaling	*	1/16-3/16
3	215	NetGuardian (832/864 as DX) Expansion 2 Analog 8 Sign	*	7/16

*** See Scaling Range Table Below**

Function Code	Register	Description	Scaling	Bits
3	300	NetGuardian (832/864 as DX) Expansion 3 Analog 1 Value	*	16
3	301	NetGuardian (832/864 as DX) Expansion 3 Analog 1 Scaling	*	1/16-3/16
3	301	NetGuardian (832/864 as DX) Expansion 3 Analog 1 Sign	*	7/16
3	302	NetGuardian (832/864 as DX) Expansion 3 Analog 2 Value	*	16
3	303	NetGuardian (832/864 as DX) Expansion 3 Analog 2 Scaling	*	1/16-3/16
3	303	NetGuardian (832/864 as DX) Expansion 3 Analog 2 Sign	*	7/16
3	304	NetGuardian (832/864 as DX) Expansion 3 Analog 3 Value	*	16
3	305	NetGuardian (832/864 as DX) Expansion 3 Analog 3 Scaling	*	1/16-3/16
3	305	NetGuardian (832/864 as DX) Expansion 3 Analog 3 Sign	*	7/16
3	306	NetGuardian (832/864 as DX) Expansion 3 Analog 4 Value	*	16
3	307	NetGuardian (832/864 as DX) Expansion 3 Analog 4 Scaling	*	1/16-3/16
3	307	NetGuardian (832/864 as DX) Expansion 3 Analog 4 Sign	*	7/16
3	308	NetGuardian (832/864 as DX)	*	16

Function Code	Register	Description	Scaling	Bits
		Expansion 3 Analog 5 Value		
3	309	NetGuardian (832/864 as DX) Expansion 3 Analog 5 Scaling	*	1/16-3/16
3	309	NetGuardian (832/864 as DX) Expansion 3 Analog 5 Sign	*	7/16
3	310	NetGuardian (832/864 as DX) Expansion 3 Analog 6 Value	*	16
3	311	NetGuardian (832/864 as DX) Expansion 3 Analog 6 Scaling	*	1/16-3/16
3	311	NetGuardian (832/864 as DX) Expansion 3 Analog 6 Sign	*	7/16
3	312	NetGuardian (832/864 as DX) Expansion 3 Analog 7 Value	*	16
3	313	NetGuardian (832/864 as DX) Expansion 3 Analog 7 Scaling	*	1/16-3/16
3	313	NetGuardian (832/864 as DX) Expansion 3 Analog 7 Sign	*	7/16
3	314	NetGuardian (832/864 as DX) Expansion 3 Analog 8 Value	*	16
3	315	NetGuardian (832/864 as DX) Expansion 3 Analog 8 Scaling	*	1/16-3/16
3	315	NetGuardian (832/864 as DX) Expansion 3 Analog 8 Sign	*	7/16

*** See Scaling Range Table Below**

Function Code	Register	Description	Scaling	Bits
4	100	NetGuardian (832/864 as DX)	*	16

Function Code	Register	Description	Scaling	Bits
		Expansion 1 Analog 1 Value		
4	101	NetGuardian (832/864 as DX) Expansion 1 Analog 1 Scaling	*	1/16-3/16
4	101	NetGuardian (832/864 as DX) Expansion 1 Analog 1 Sign	*	7/16
4	102	NetGuardian (832/864 as DX) Expansion 1 Analog 2 Value	*	16
4	103	NetGuardian (832/864 as DX) Expansion 1 Analog 2 Scaling	*	1/16-3/16
4	103	NetGuardian (832/864 as DX) Expansion 1 Analog 2 Scaling	*	7/16
4	104	NetGuardian (832/864 as DX) Expansion 1 Analog 3 Value	*	16
4	105	NetGuardian (832/864 as DX) Expansion 1 Analog 3 Scaling	*	1/16-3/16
4	105	NetGuardian (832/864 as DX) Expansion 1 Analog 3 Scaling	*	7/16
4	106	NetGuardian (832/864 as DX) Expansion 1 Analog 4 Value	*	16
4	107	NetGuardian (832/864 as DX) Expansion 1 Analog 4 Scaling	*	1/16-3/16
4	107	NetGuardian (832/864 as DX) Expansion 1 Analog 4 Scaling	*	7/16
4	108	NetGuardian (832/864 as DX) Expansion 1 Analog 5 Value	*	16
4	109	NetGuardian (832/864 as DX)	*	1/16-3/16

Function Code	Register	Description	Scaling	Bits
		Expansion 1 Analog 5 Scaling		
4	109	NetGuardian (832/864 as DX) Expansion 1 Analog 5 Scaling	*	7/16
4	110	NetGuardian (832/864 as DX) Expansion 1 Analog 6 Value	*	16
4	111	NetGuardian (832/864 as DX) Expansion 1 Analog 6 Scaling	*	1/16-3/16
4	111	NetGuardian (832/864 as DX) Expansion 1 Analog 6 Scaling	*	7/16
4	112	NetGuardian (832/864 as DX) Expansion 1 Analog 7 Value	*	16
4	113	NetGuardian (832/864 as DX) Expansion 1 Analog 7 Scaling	*	1/16-3/16
4	113	NetGuardian (832/864 as DX) Expansion 1 Analog 7 Scaling	*	7/16
4	114	NetGuardian (832/864 as DX) Expansion 1 Analog 8 Value	*	16
4	115	NetGuardian (832/864 as DX) Expansion 1 Analog 8 Scaling	*	1/16-3/16
4	115	NetGuardian (832/864 as DX) Expansion 1 Analog 8 Scaling	*	7/16

*** See Scaling Range Table Below**

Function Code	Register	Description	Scaling	Bits
4	200	NetGuardian (832/864 as DX) Expansion 2 Analog 1 Value	*	16
4	201	NetGuardian (832/864 as DX)	*	1/16-3/16

Function Code	Register	Description	Scaling	Bits
		Expansion 2 Analog 1 Scaling		
4	201	NetGuardian (832/864 as DX) Expansion 2 Analog 1 Sign	*	7/16
4	202	NetGuardian (832/864 as DX) Expansion 2 Analog 2 Value	*	16
4	203	NetGuardian (832/864 as DX) Expansion 2 Analog 2 Scaling	*	1/16-3/16
4	203	NetGuardian (832/864 as DX) Expansion 2 Analog 2 Sign	*	7/16
4	204	NetGuardian (832/864 as DX) Expansion 2 Analog 3 Value	*	16
4	205	NetGuardian (832/864 as DX) Expansion 2 Analog 3 Scaling	*	1/16-3/16
4	205	NetGuardian (832/864 as DX) Expansion 2 Analog 3 Sign	*	7/16
4	206	NetGuardian (832/864 as DX) Expansion 2 Analog 4 Value	*	16
4	207	NetGuardian (832/864 as DX) Expansion 2 Analog 4 Scaling	*	1/16-3/16
4	207	NetGuardian (832/864 as DX) Expansion 2 Analog 4 Sign	*	7/16
4	208	NetGuardian (832/864 as DX) Expansion 2 Analog 5 Value	*	16
4	209	NetGuardian (832/864 as DX) Expansion 2 Analog 5 Scaling	*	1/16-3/16
4	209	NetGuardian (832/864 as DX)	*	7/16

Function Code	Register	Description	Scaling	Bits
		Expansion 2 Analog 5 Sign		
4	210	NetGuardian (832/864 as DX) Expansion 2 Analog 6 Value	*	16
4	211	NetGuardian (832/864 as DX) Expansion 2 Analog 6 Scaling	*	1/16-3/16
4	211	NetGuardian (832/864 as DX) Expansion 2 Analog 6 Sign	*	7/16
4	212	NetGuardian (832/864 as DX) Expansion 2 Analog 7 Value	*	16
4	213	NetGuardian (832/864 as DX) Expansion 2 Analog 7 Scaling	*	1/16-3/16
4	213	NetGuardian (832/864 as DX) Expansion 2 Analog 7 Sign	*	7/16
4	214	NetGuardian (832/864 as DX) Expansion 2 Analog 8 Value	*	16
4	215	NetGuardian (832/864 as DX) Expansion 2 Analog 8 Scaling	*	1/16-3/16
4	215	NetGuardian (832/864 as DX) Expansion 2 Analog 8 Sign	*	7/16

*** See Scaling Range Table Below**

Function Code	Register	Description	Scaling	Bits
4	300	NetGuardian (832/864 as DX) Expansion 3 Analog 1 Value	*	16
4	301	NetGuardian (832/864 as DX) Expansion 3 Analog 1 Scaling	*	1/16-3/16
4	301	NetGuardian (832/864 as DX)	*	7/16

Function Code	Register	Description	Scaling	Bits
		Expansion 3 Analog 1 Sign		
4	302	NetGuardian (832/864 as DX) Expansion 3 Analog 2 Value	*	16
4	303	NetGuardian (832/864 as DX) Expansion 3 Analog 2 Scaling	*	1/16-3/16
4	303	NetGuardian (832/864 as DX) Expansion 3 Analog 2 Sign	*	7/16
4	304	NetGuardian (832/864 as DX) Expansion 3 Analog 3 Value	*	16
4	305	NetGuardian (832/864 as DX) Expansion 3 Analog 3 Scaling	*	1/16-3/16
4	305	NetGuardian (832/864 as DX) Expansion 3 Analog 3 Sign	*	7/16
4	306	NetGuardian (832/864 as DX) Expansion 3 Analog 4 Value	*	16
4	307	NetGuardian (832/864 as DX) Expansion 3 Analog 4 Scaling	*	1/16-3/16
4	307	NetGuardian (832/864 as DX) Expansion 3 Analog 4 Sign	*	7/16
4	308	NetGuardian (832/864 as DX) Expansion 3 Analog 5 Value	*	16
4	309	NetGuardian (832/864 as DX) Expansion 3 Analog 5 Scaling	*	1/16-3/16
4	309	NetGuardian (832/864 as DX) Expansion 3 Analog 5 Sign	*	7/16
4	310	NetGuardian (832/864 as DX)	*	16

Function Code	Register	Description	Scaling	Bits
		Expansion 3 Analog 6 Value		
4	311	NetGuardian (832/864 as DX) Expansion 3 Analog 6 Scaling	*	1/16-3/16
4	311	NetGuardian (832/864 as DX) Expansion 3 Analog 6 Sign	*	7/16
4	312	NetGuardian (832/864 as DX) Expansion 3 Analog 7 Value	*	16
4	313	NetGuardian (832/864 as DX) Expansion 3 Analog 7 Scaling	*	1/16-3/16
4	313	NetGuardian (832/864 as DX) Expansion 3 Analog 7 Sign	*	7/16
4	314	NetGuardian (832/864 as DX) Expansion 3 Analog 8 Value	*	16
4	315	NetGuardian (832/864 as DX) Expansion 3 Analog 8 Scaling	*	1/16-3/16
4	315	NetGuardian (832/864 as DX) Expansion 3 Analog 8 Sign	*	7/16

*** See Scaling Range Table Below**

Scaling Range Table	
Scaling Range	Scaling Value*
0	0.001522821
1	0.003863678
2	0.008098398
3	0.01819765
4	0.02306719

*Get correct Scaling Value by using corresponding Scaling Range

Example 1:

Modbus Response:

Analog 1 Value: [08][72] = 2162

Analog 1 Scaling Range: 2 = 0.008098398

Analog 1 Sign = 0

Scaled Value:
2162 * 0.008098398 = 17.5087
(if Analog Sign = 1 then multiply by -1)
Scaled Value = 17.5087

Example 2:
Modbus Response:
Analog 1 Value: [0A][47] = 2631
Analog 1 Scaling Range: 3 = 0.01819765
Analog 1 Sign = 1

Scaled Value:
2631 * 0.01819765 = 47.8780
(if Analog Sign = 1 then multiply by -1)
Scaled Value = 47.8780 * -1
Scaled Value = -47.8780

5 Frequently Asked Questions

Here are answers to some common questions from NetGuardian users. The latest FAQs can be found on the NetGuardian support web page, **http://www.dpstelecom.com.**

If you have a question about the NetGuardian, please call us at **(559) 454-1600** or e-mail us at **support@dpstele.com**

5.1 General FAQs

Q. How do I Telnet to the NetGuardian?
A. You must use **Port 2002** to connect to the NetGuardian. Configure your Telnet client to connect using TCP/IP (**not** Telnet, or any other port options). For connection information, enter the IP address of the NetGuardian and Port 2002. For example, to connect to the NetGuardian using the standard Windows Telnet client, click Start, click Run, and type Telnet <NetGuardian IP address> 2002.

Q. How can I back up the current configuration of my NetGuardian?
A. There are two ways. NGEdit can read the configuration of your NetGuardian and save the configuration to your PC's hard disk or a flash drive. With NGEdit you can also make changes to the configuration file and write the changed configuration to the NetGuardian's NVRAM. The other way is to use File Transfer Protocol (FTP). You can use FTP to read configuration files from or write files to the NetGuardian's NVRAM, but you can't use FTP to edit configuration files.

Q. Can I use my NetGuardian as a proxy server to access TTY interfaces on my third-party serial equipment?
A. You can use Data Ports 1–8, located on the back of the NetGuardian, to connect to serial devices, as long as your devices support RS-232. To make a proxy connection, you must define the correct TCP port for each serial port. To define TCP ports, you must first connect directly to the NetGuardian through its IP address. Once you have connected to the NetGuardian, you can define the TCP ports through the NetGuardian's TTY or Web Browser Interface configuration interfaces.

Q. What do the terms alarm point, display, port, and address mean?
A. These terms define the exact location of a network alarm, from the most specific (an individual

alarm point) to the most general (an entire monitored device). An alarm point is a number representing an actual contact closure that is activated when an alarm condition occurs. For example, an alarm point might represent a low oil sensor in a generator or a open/closed sensor in a door. A display is a logical group of 64 alarm points. A port is traditionally the actual physical serial port through which the monitoring device collects data. The address is a number representing the monitored device. The terms port and address have been extended to refer to logical, or virtual, ports and addresses. For example, the NetGuardian reports internal alarms on Port 99, address 1.

Q. What characteristics of an alarm point can I configure through software? For instance, can I configure Point 4 to sense an active-low (normally closed) signal, or Point 5 to sense a level or edge?

A. The NetGuardian alarm points are level sensed and can be software-configured to generate an alarm on either a high (normally open) or low (normally closed) level.

Q. When I connect to the NetGuardian through the craft port on the front panel it either doesn't work right or it doesn't work at all. What's going on?

A. Make sure your using the right COM port settings. The standard settings for the craft port are 9600 baud, 8 bits, no parity, and 1 stop bit. Flow control **must** be set to **none**. Flow control normally defaults to hardware in most terminal programs, and this will not work correctly with the NetGuardian.

Q. I just changed the port settings for one of my data ports, but the changes did not seem to take effect even after I wrote the NVRAM.

A. In order for data port and craft port changes (including changes to the baud rate and word format) to take effect, the NetGuardian must be rebooted. Whenever you make changes, remember to write them to the NetGuardian's NVRAM so they will be saved when the unit is rebooted.

Q. How do I get my NetGuardian on the network?

A. Before the NetGuardian will work on your LAN, the unit address (IP address), the subnet mask, and the default gateway must be set. A sample configuration could look like this:

unit address: 192.168.1.100
subnet mask: 255.255.255.0
Default Gateway: 192.168.1.1

Always remember to save your changes by writing to the NVRAM. Any modifications of the NetGuardian's IP configuration will also require a reboot.

Q. Does the PPP allow upload of new firmware over PPP?

A. The NetGuardian supports all PPP upload capabilities with the exception of firmware.

Q. I'm using HyperTerminal to connect to the NetGuardian through the craft port, but the unit won't accept input when I get to the first level menu.

A. Make sure you turn off all handshaking in HyperTerminal.

Q. I can't change the craft port baud rate.

A. Once you select a higher baud rate, you must set your terminal emulation to that new baud rate and enter the DPSCFG and press Enter escape sequence. The craft port interprets a break key as an override to 9600 baud. At slower baud rates, normal keys can appear as a break.

Q. The LAN line LED is green on my NetGuardian, but I can't poll it from my T/MonXM master.

A. Some routers will not forward to an IP address until the MAC address has been registered with the router. You need to enter the IP address of your T/MonXM system or your gateway in the ping table.

5.2 SNMP FAQs

Q. Which version of SNMP is supported by the SNMP agent on the NetGuardian?

A. SNMP v1, v2C, and v3 on the NetGuardian G5 series.

Q. How do I configure the NetGuardian to send traps to an SNMP manager? Is there a separate MIB for the NetGuardian? How many SNMP managers can the agent send traps to? And how do I set the IP address of the SNMP manager and the community string to be used when sending traps?

A. The NetGuardian begins sending traps as soon as the SNMP managers are defined. The NetGuardian MIB is included on the NetGuardian Resource CD. The MIB should be compiled on your SNMP manager. (Note: MIB versions may change in the future.) The unit supports a main SNMP manager, which is configured by entering its IP address in the trap address field of Ethernet Port Setup. You can also configure up to eight secondary SNMP managers, which is configured by selecting the secondary SNMP managers as pager recipients. Community strings are configured globally for all SNMP managers. To configure the community strings, choose System from the Edit menu, and enter appropriate values in the Get, Set, and Trap fields.

Q. Does the NetGuardian support MIB-2 and/or any other standard MIBs?

A. The NetGuardian supports the bulk of MIB-2.

Q. Does the NetGuardian SNMP agent support both NetGuardian and T/MonXM variables?

A. The NetGuardian SNMP agent manages an embedded MIB that supports only the NetGuardian's RTU variables. The T/MonXM variables are included in the distributed MIB only to provide SNMP managers with a single MIB for all DPS Telecom products.

Q. How many traps are triggered when a single point is set or cleared? The MIB defines traps like major alarm set/cleared, RTU point set, and a lot of granular traps, which could imply that more than one trap is sent when a change of state occurs on one point.

A. Generally, a single change of state generates a single trap, but there are two exception to this rule. Exception 1: the first alarm in an all clear condition generates an additional summary point set trap. Exception 2: the final clear alarm that triggers an all clear condition generates an additional summary point clear trap.

Q. What does point map mean?

A. A point map is a single MIB leaf that presents the current status of a 64-alarm-point display in an ASCII-readable form, where a "."represents a clear and an "x" represents an alarm.

Q. The NetGuardian manual talks about eight control relay outputs. How do I control these from my SNMP manager?

A. The control relays are operated by issuing the appropriate set commands, which are contained in the DPS Telecom MIB. For more information about the set commands, see Reference Information, Display Mapping, in any of the NetGuardian software configuration guides.

Q. How can I associate descriptive information with a point for the RTU granular traps?

A. The NetGuardian alarm point descriptions are individually defined using the Web Browser Interface, TTY, or NGEdit configuration interfaces.

Q. My SNMP traps aren't getting through. What should I try?

A. Try these three steps:

1. Make sure that the trap address (IP address of the SNMP manager) is defined. (If you changed the trap address, make sure you saved the change to NVRAM and rebooted.)

2. Make sure all alarm points are configured to send SNMP traps.
3. Make sure the NetGuardian and the SNMP manager are both on the network. Use the NetGuardian's ping command to ping the SNMP manager.

5.3 Pager FAQs

Q. Why won't my alpha pager work?

A. To configure the NetGuardian to send alarm notifications to an alpha pager, enter the **data** phone number for your pager in the Phone Number field. This phone number should connect to your pager services modem. Then enter the PIN for your pager in the PIN/Rcpt/Port field. You don't need to enter anything in any of the other fields. If you still don't receive pages, try setting the Dial Modem Init string to ATS37=9. This will limit the NetGuardian's connection speed.

Q. Numeric pages don't come in or are cut off in the middle of the message. What's wrong?

A. You need to set a delay between the time the NetGuardian dials your pager number and the time the NetGuardian begins sending the page message. You can set the delay in the Pager Number field, where you enter your pager number. First enter the pager number, then enter some commas directly after the number. Each comma represents a two-second delay. So, for example, if you wanted an eight-second delay, you would enter 555-1212,,,, in the Pager Number field.

Q. What do I need to do to set up email notifications?

A. You need to assign the NetGuardian an email address and list the addresses of email recipients. Let's explain some terminology. An email address consists of two parts, the user name (everything before the @ sign) and the domain (everything after the @ sign). To assign the NetGuardian an email address, choose System from the Edit menu. Enter the NetGuardian's user name in the Name field (it can't include any spaces) and the domain in the Location field. For example, if the system configuration reads:

Name: netguardian
Location: proactive.com

Then email notifications from the NetGuardian will be sent from the address netguardian@proactive.com.

The next step is to list the email recipients. Choose Pagers from the Edit menu. For each email recipient, enter his or her email domain in the Phone/Domain field and his or her user name in the PIN/Rcpt/Port field. You must also enter the IP address of an SNMP server in the IPA field.

6 Technical Support

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