Summit

User Manual

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PREFACE

This document describes the installation, configuration and operation of TASC Systems' Summit hardware and its optional expansion modules.

Hardware and software described in this document are subject to ongoing development and improvement. Consequently there may be minor discrepancies between the information in this document and the performance and design of the hardware and software.

The Summit is designed for flexibility of use and installation and is therefore highly configurable and should only be installed by an appropriately trained technician.

The user should ascertain that this product is suitable for the intended application. TASC Systems Inc. accepts no responsibility, liability, for misuse, or damage resulting from the inappropriate use of the product described herein.

Before connecting any equipment to any TASC product, the user is advised to read this document in its entirety. Application of voltages in excess of the built-in protection could seriously damage the Summit and/or equipment it is connected to.

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LIST OF FIGURES

RELATED DOCUMENTS

siteVIEW APEX User Manual (050-015-0110)

siteVIEW APEX SNMP Manager (050-015-0111)

REVISION HISTORY

Revision	Date	Changes
R00	3 December 2015	Original document.
R01	1 February 2016	Updated Specifications.
R02	1 March 2016	Added IP configurations details.
R03	21 July 2016	New network settings, software upgrade and NXDN applications.
R04	27 October 2016	Formulas, analog input screen enhancements, network name servers, analog traps.
R05	19 January 2017	Change username/password, factory reset.
R06	26 May 2017	Powered analog sensor diagram, input power range, output driver examples.
R07	31 July 2017	Added support for Directional Power Device with VSWR.
R08	5 September 2017	Added alarming for Directional Power Device with VSWR.

1.0 PRODUCT OVERVIEW

1.1 System Elements

Field Hardware – Summit

- A device which is connected to the equipment to be monitored; this can include a wide variety of industry standard analog and digital sensors, or outputs from equipment
- Configured using a web interface - Crest
- Acts as an SNMP agent

Distributed SNMP Network Manager Software – Apex

- Windows-based software that monitors SNMP events from the field hardware
- Provides a user-friendly graphical environment to view the status of the field hardware
- Offers configurable alarm conditions which can be configured as real-time alerts
- Allows the field hardware to be polled for status information (SNMP future)
- Includes native support for all TASC remote monitoring systems

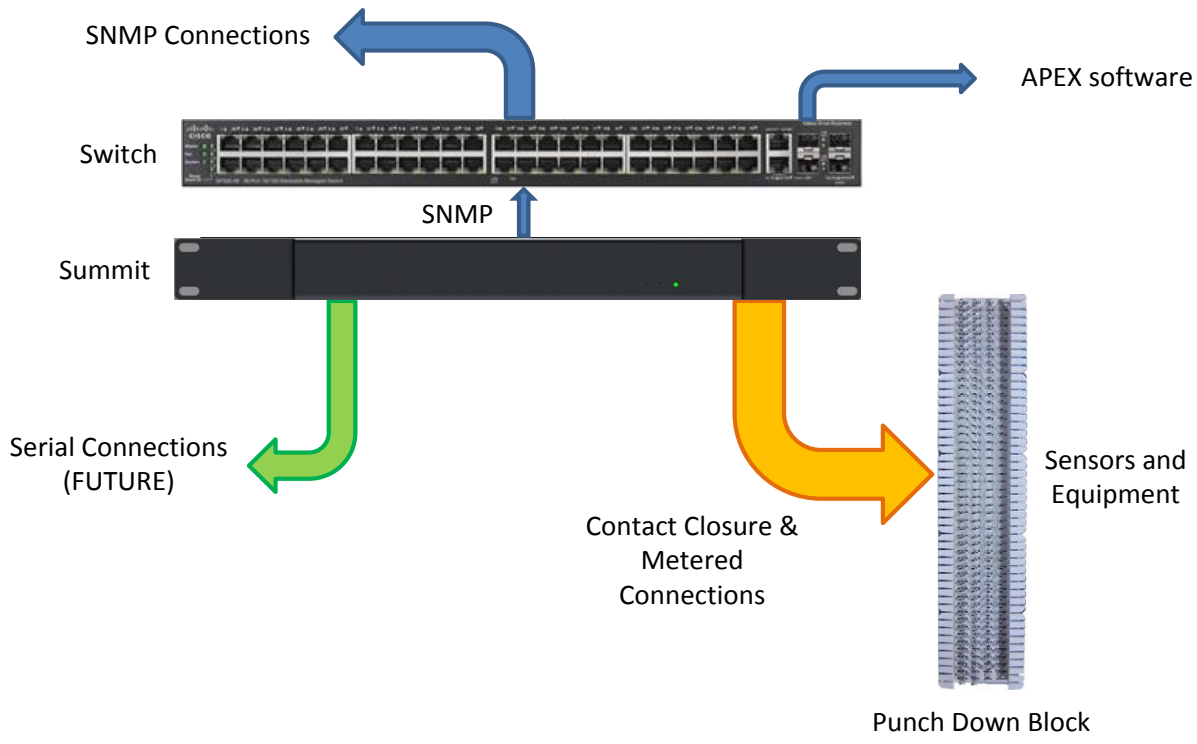


Figure 1 – Summit System

1.2 Summit Front and Rear Views

The Summit is available in 19” rack 1U, DIN rail mount, wall mount and NEMA enclosures.

Figure 2 – Summit 19” Rack 1U Front View

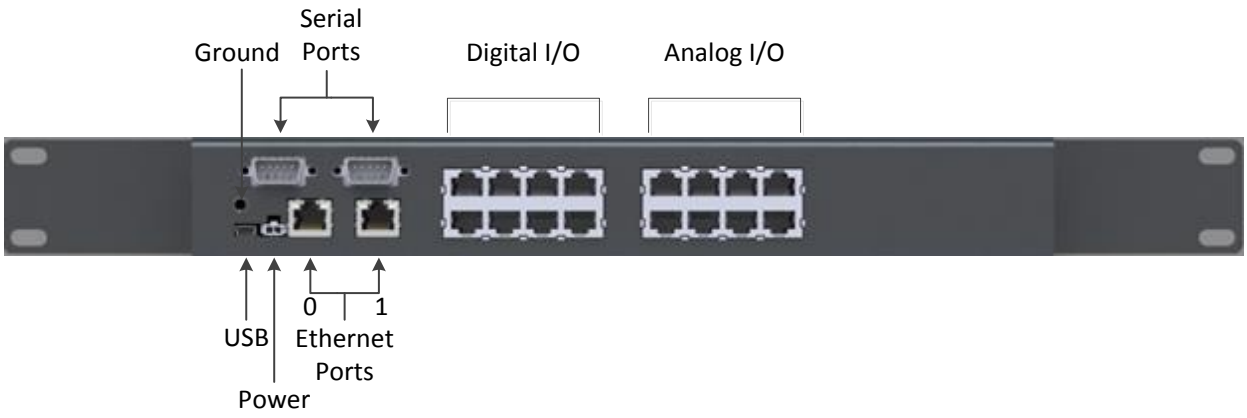


Figure 3 – Summit 19” Rack 1U Rear View

1.3 Power

- +8 to +48 VDC (12 VDC is ideal)
- Connected to 2-pin female Molex connector
- 2 foot ribbon cable included

1.4 LED

Tri-color: red, green, blue

LED Operation	Meaning
Green (solid)	Initial power-up, before system boot-up (typically for less than 5 seconds). Crest is starting during boot (follows green/blue, typically 5 – 10 seconds).
Light Blue (solid)	Initial power-up from EMMC memory, before system boot-up (follows green solid, typically for less than 3 seconds).
Red (solid)	Initial power-up from SD card, before system boot-up (follows green solid, typically for less than 3 seconds). Serious system error (greater than 3 seconds) • Detected software failure/crash • Detected hardware failure
Green/Blue (alternating)	Operating system is starting up (following initial power-up, typically 5 – 10 seconds).
Blue (solid)	Normal operation (about 1 minute after power up).
Yellow (solid)	Crest user interface Identify button pressed (for 3 seconds, alternating five times, ending with blue solid). Warning (greater than 3 seconds) • Detected software error which warrants operator attention

Table 1 – Front LED Behaviour

1.5 USB

Mini-B connector

WARNING – Do not use to the USB connection to power the Summit.

1.6 Ethernet

- Two RJ45 ports
- Ethernet 0 factory set to 192.168.168.1
- Ethernet 1 future use, not available

1.7 Digital Connections

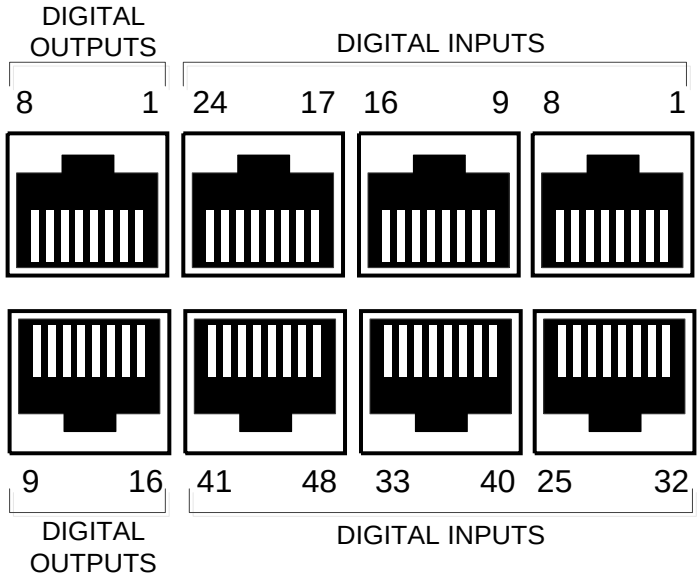


Figure 4 – Summit Digital Pinout

- RJ45 receptacles
- 48 digital inputs
- 16 digital outputs
- Each input or output must be accompanied by a ground connection, connected to the lug on the chassis

1.7.1 Digital Inputs

The Summit has 48 diode isolated digital input channels that are capable of accepting voltages up to +60 VDC. Any voltage on an input below +2.0 VDC is considered to be logically low (Closed). Any voltage on an input above +2.1 VDC is considered to be logically high (Open). When an input is not terminated or it is left floating, then the input to the module is logically high. Factory settings for all digital inputs are Normally Open (NO). Many types of devices, as shown below, may drive the digital inputs.

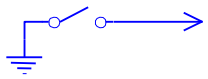
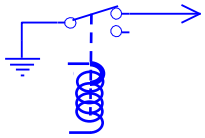
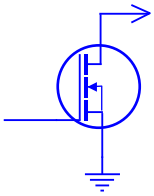
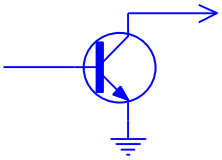
Switch Contact	Relay Contact	MOSFET Switch	Transistor Switch
			

Table 2 – Input Driver Examples

1.7.2 Digital Outputs

The Summit has 16 output channels, each channel is protected against short circuit. In case of over load, the affected channel switches off. There are temperature sensors available for each channel to protect the device in case of over temperature. The device is supplied by two power supply lines. The power transistors are built by N-channel vertical power MOSFETs. Each output can sink 250 mA. Factory settings for all digital outputs are Normally Open (NO).

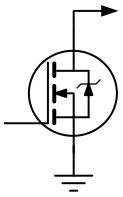
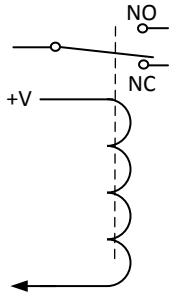
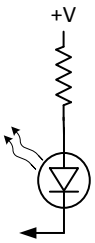
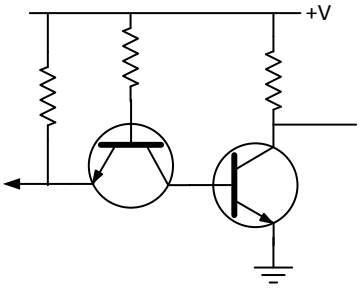
Digital Output	Devices		
	Relay Contact	LED	TTL
			
ON (3.3 VDC)	OFF	OFF	ON
OFF (0 VDC)	ON	ON	OFF

Table 3 – Output Driver Examples

1.8 Analog Connections

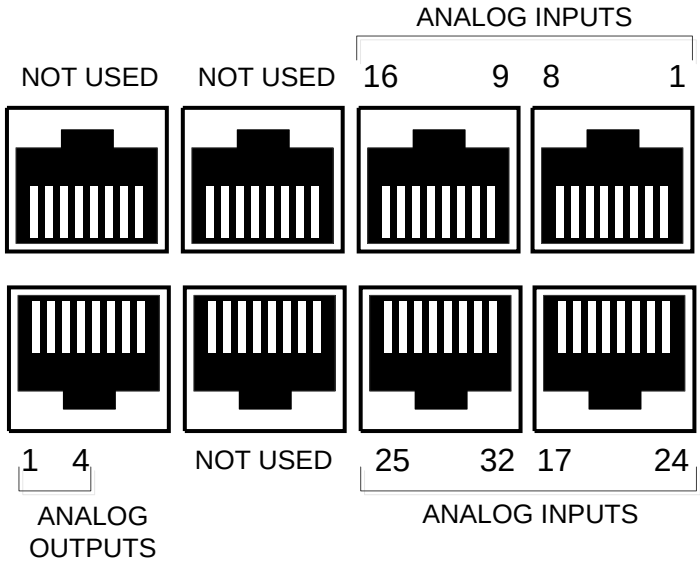


Figure 5 – Summit Analog Pinout

- RJ45 receptacles
- 32 analog inputs (0 – 25 VDC)
- 4 analog outputs (0 – 20 VDC, 25 mA maximum)
- Each input or output must be accompanied by a ground connection, connected to the lug on the chassis

1.9 Serial Ports

- Two ports (D-Sub 9-pin male)
- Future – can be used to access serial device after installation of appropriate driver

1.10 Reset Button

- Electronic reset
- Blue LED will light after approximately 1 minute, to indicate Crest web application is ready

1.11 Factory Settings Reset Button

- Will reset the IP configuration to the factory default (address 192.168.168.1 and subnet 255.255.255.0), and the username to admin and password to tasc
- Hold for approximately three seconds, then release while LED is flashing yellow

2.0 INSTALLATION AND SETUP

WARNING – The Summit and connected sensors/equipment must be properly grounded to function properly, and to avoid damage to the Summit.

WARNING - Always remove power from the Summit before connecting any cables from the Summit to the punch block, or from a sensor (or equipment) to the punch block. Failure to do so may cause damage to the Summit, or connected sensor or equipment.

2.1 Summit into Rack

1. Remove the two screws from one end of the Summit, and install the rack ear using these two screws, and two screws from the bag that is included in the box.

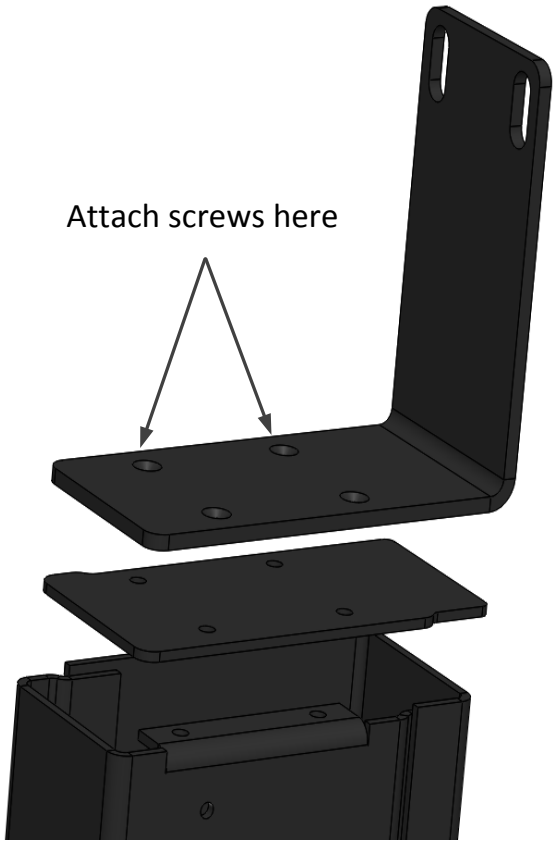


Figure 6 – Rack Ear Installation

2. Remove the two screws from the opposite end of the Summit, and install the other rack ear using these two screws and the remaining two screws included in the box.

3. Mount the Summit to the rack.

4. Connect a wire (minimum 12 AWG) from the ground lug on the Summit to common (or frame) ground.

Figure 7 – Summit Ground

5. Connect the supplied power cable to a +8 to +48 VDC power supply and the Molex end to the Summit.

2.2 Network Configuration

In order to access the Summit over a network, the IP address will need to be configured for your network.

1. After the Summit has been powered on, wait until the Summit front LED is solid blue to indicate that the Crest application is fully loaded (approximately one minute after power up, see 1.4 LED section for full description of LEDs).

2. Connect a cable directly between the computer and the eth0 port of the Summit.

3. Ethernet 0 is initially configured with address 192.168.168.1 and subnet mask 255.255.255.0. To access the Summit, the connected computer must have an IP address in the same subnet (e.g. 192.168.168.5).

   If the preceding steps were performed properly, you should be able to open a Command Prompt window on the computer, and ping 192.168.168.1 successfully (“Reply from” messages appear).

4. The web interface used to view the status of, and configure a Summit, is called Crest. It can be accessed from a web browser. Google Chrome is recommended.

   Launch Google Chrome on a computer that is on the same network as the Summit, enter the IP address of the Summit into the Address field, and press Enter.

Figure 8 – Enter IP Address in Google Chrome

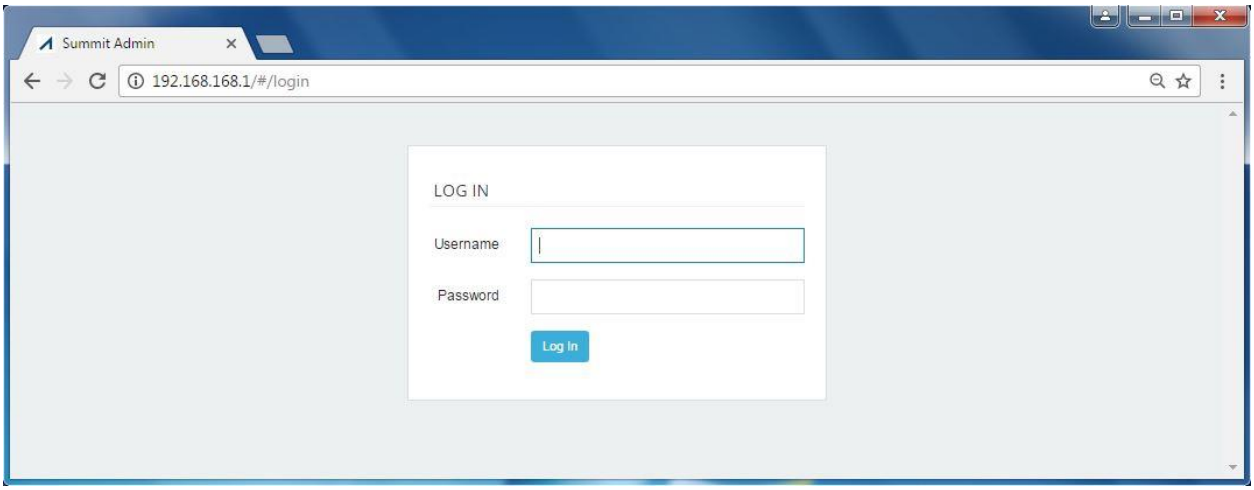


Figure 9 – Crest LOG IN Screen

5. Enter the Username and Password and then press the Log In button, to log in to the Crest interface.

   Username: **admin**
   Password: **tasc**

6. Navigate to the Network Settings screen by pressing the Manage button.

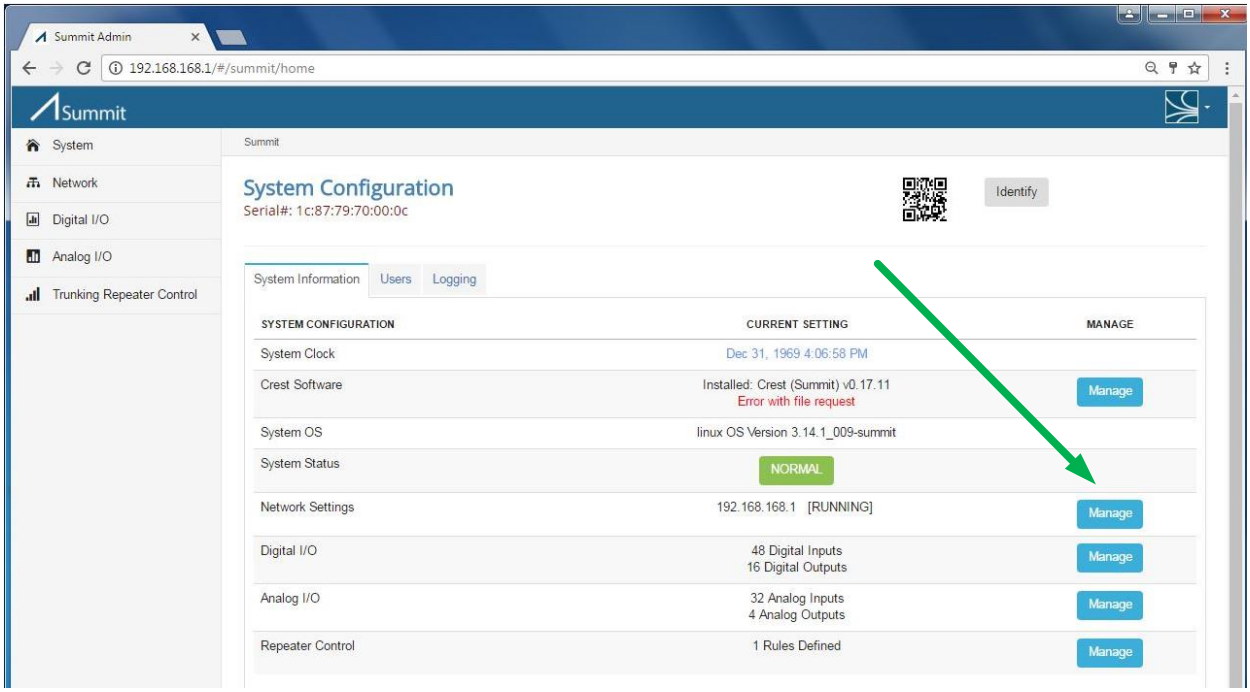


Figure 10 – Main Screen to Network Settings Navigation

7. Press the Configure button to configure the IP address.

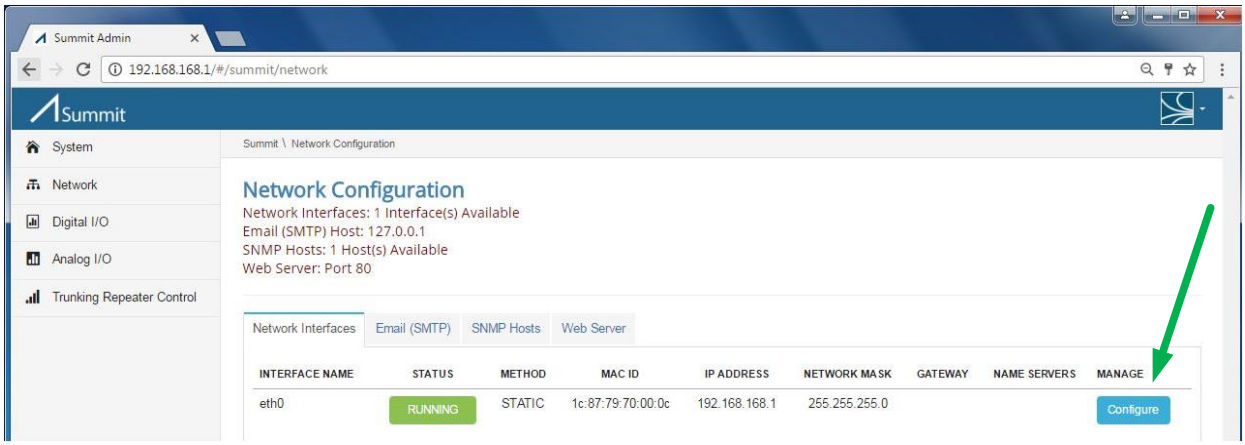


Figure 11 – Network Configuration – Configure IP

8. Choose the appropriate method (STATIC or DHCP). If STATIC, also define the IP Address, and Subnet Mask (Gateway and Name Servers are optional, but will be required to perform software updates).

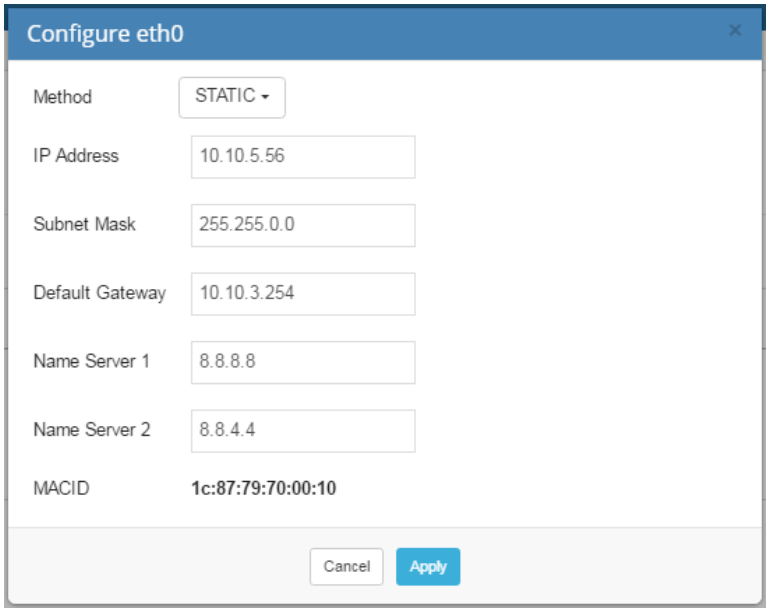


Figure 12 – Ethernet 0 - IP Configuration Screen

9. Reboot the Summit by pressing the Reset button (left front button) for the IP change to take effect. Wait approximately 1 minute after reboot for Summit to start up.

10. Change your computer IP address to an address on the same subnet as the new Summit IP address.

11. From the Command Prompt, enter ping and the new Summit IP address, to verify that the Summit is reachable over the network. There should be indication of replies ("Reply from" messages).

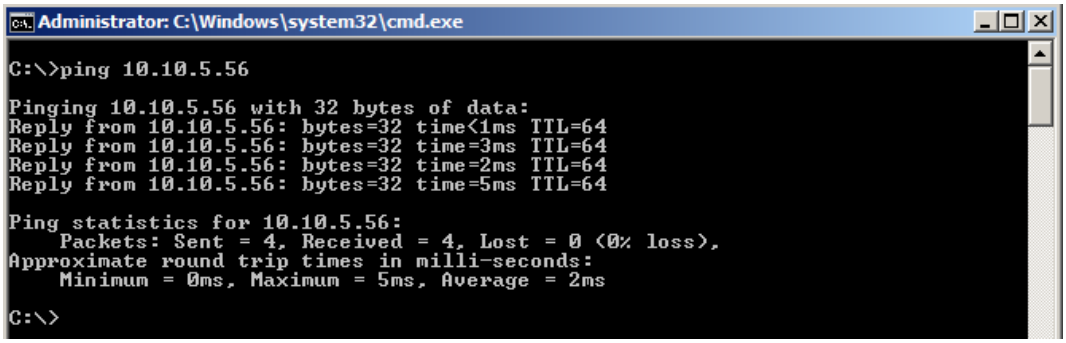


Figure 13 – Test Connection with Ping

2.3 Sensor Wiring to Punch Block

The RJ45 receptacles for I/O allows for easily wiring sensors to a punch block. Each sensor will require a signal ground wired to the chassis.

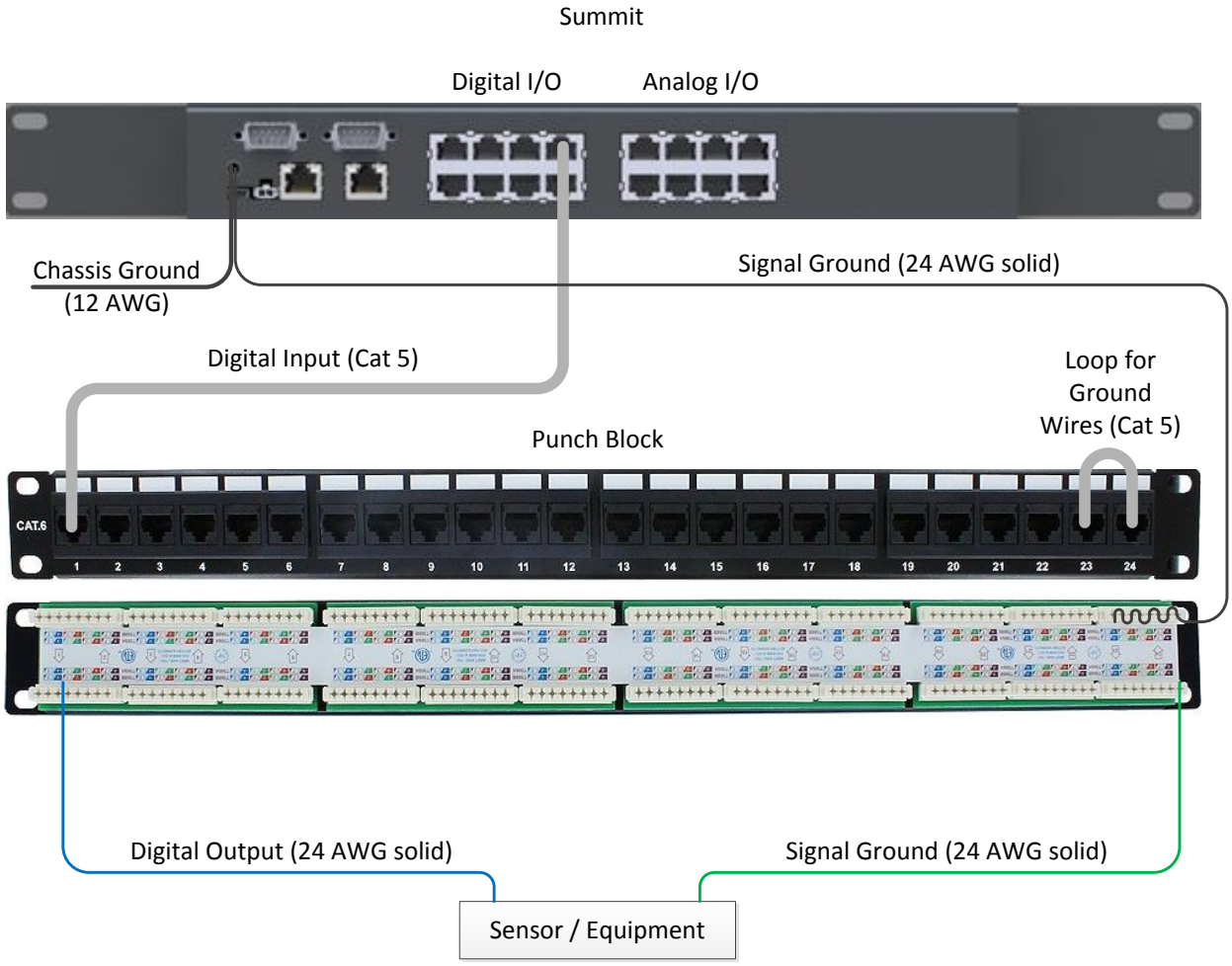


Figure 14 – Wiring Example of a Digital Input

Some analog sensors require a power source. A power supply wire can be connected to the punch block, and used for multiple sensors.

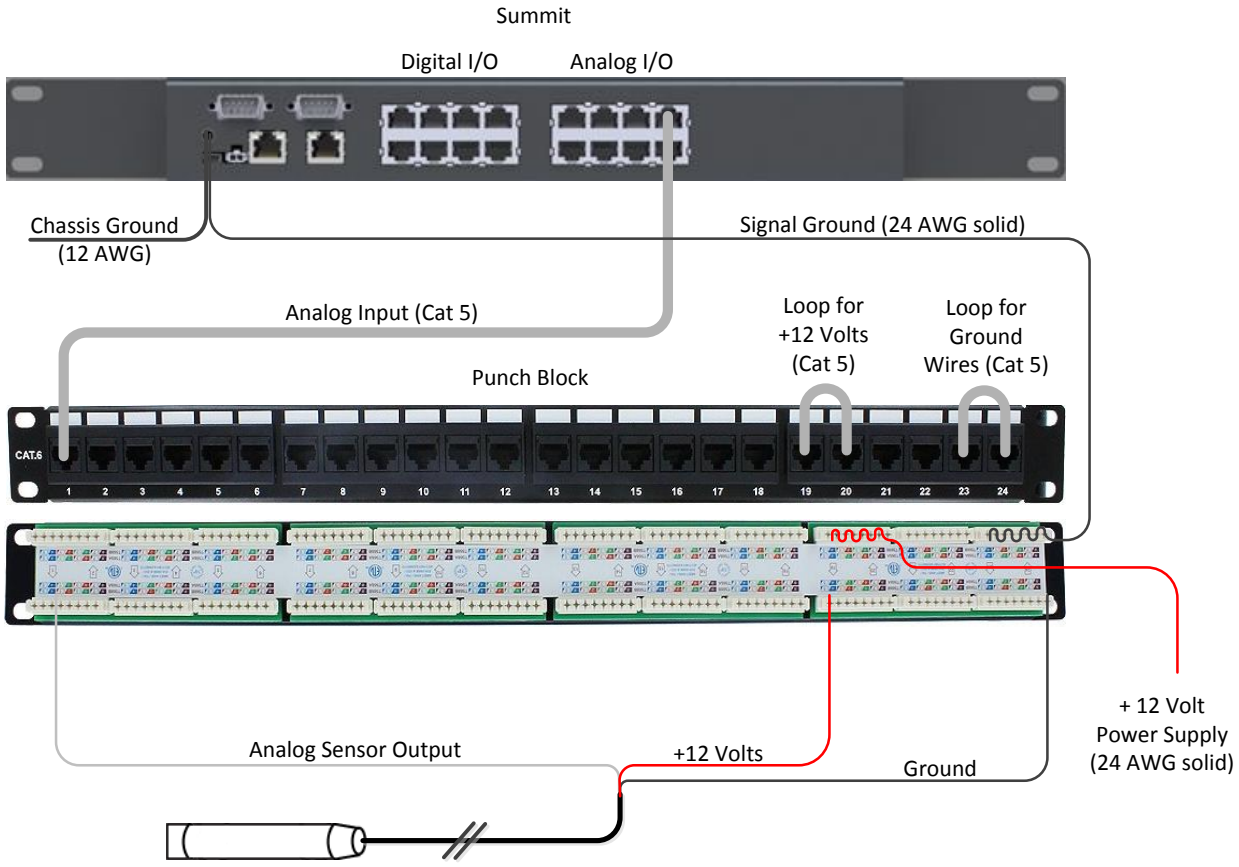


Figure 15 – Wiring Example of a Powered Analog Input Sensor

Note that sensor (or equipment) wires of the same type (e.g. Digital Input, Digital Output, Analog Input, Analog Output) will need to be grouped together in sets of eight (four for Analog Output) at the punch block.

1. Mount the punch block to the rack.

2. Group the sensor positive wires into sets of the same type (e.g. Digital Input, Digital Output, Analog Input, Analog Output).

3. Punch the positive sensor wire to the desired punch block space.

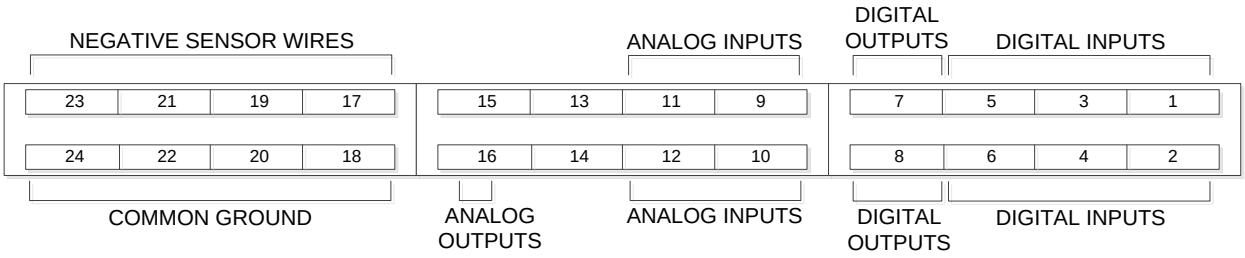


Figure 16 – Punch Block Wiring Example

4. Connect the negative sensor wires to a punch block space allocated for ground wires (in groupings of eight).

5. Loop a common ground wire through a series of punches (see Figure 14 Wiring Example of a Digital Input for an example) equal to the number of blocks that will be used for negative sensor wires.

6. Connect a RJ45 cable from each negative sensor wire block to a common ground block (see Figure 14 Wiring Example of a Digital Input for an example).

2.4 Punch Block Wiring to Summit

Connect the RJ45 cables for connected sensors (or equipment) from the punch block to the Summit (shielded RJ45 cables are recommended)

WARNING - Check carefully that you are connecting the punch block cable for the correct type of I/O to the back of the Summit (i.e. Digital Input to Digital Input, Analog Output to Analog Output). Failure to do so may cause damage to the Summit, or connected sensors or equipment.

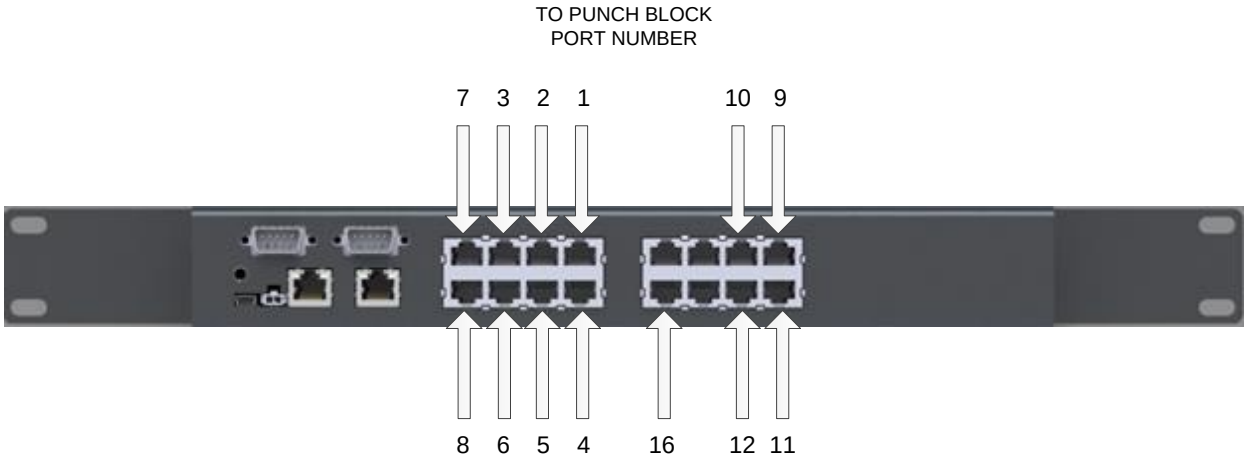


Figure 17 – Summit to Punch Block Wiring Example

2.5 Configure SNMP Host

The web interface used to view the status of, and configure a Summit, is called Crest. It can be accessed from a web browser. Google Chrome is recommended.

1. Wait until the Summit front LED is solid blue to indicate that the Crest application is fully loaded (approximately one minute after power up, see 1.4 LED section for full description of LEDs).

2. Launch Google Chrome on a computer that is on the same network as the Summit, enter the IP address of the Summit into the Address field, and press Enter.

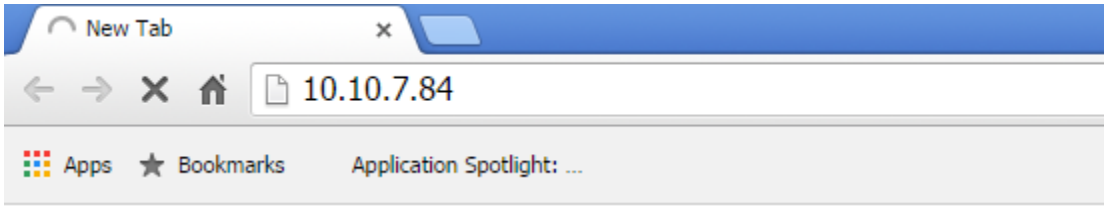


Figure 18 – Enter IP Address in Google Chrome

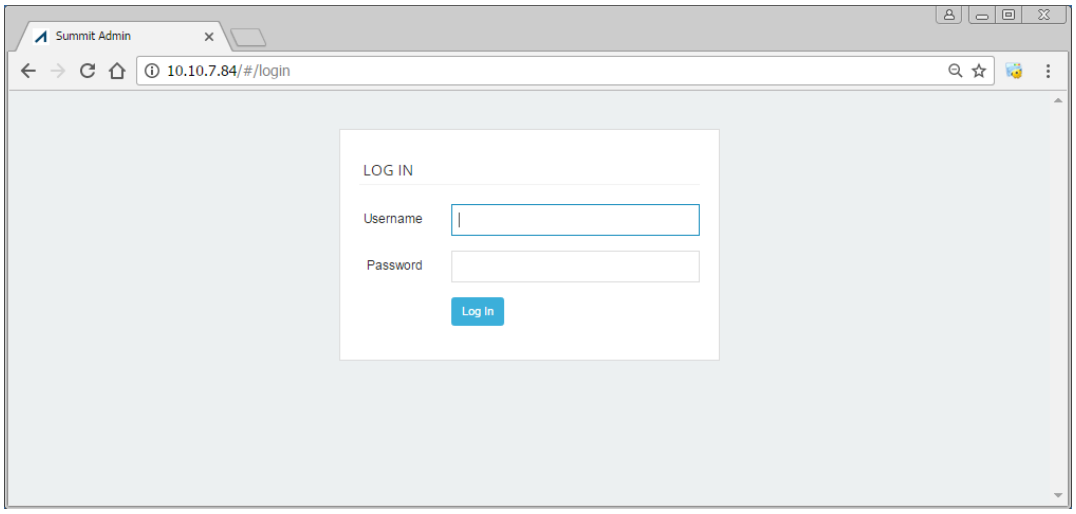


Figure 19 – Crest LOGIN Screen

3. Enter the Username and Password and then press the Log In button, to log in to the Crest interface.

   Username: **admin**
   Password: **tasc**

4. Navigate to the Network Settings screen by pressing the Manage button.

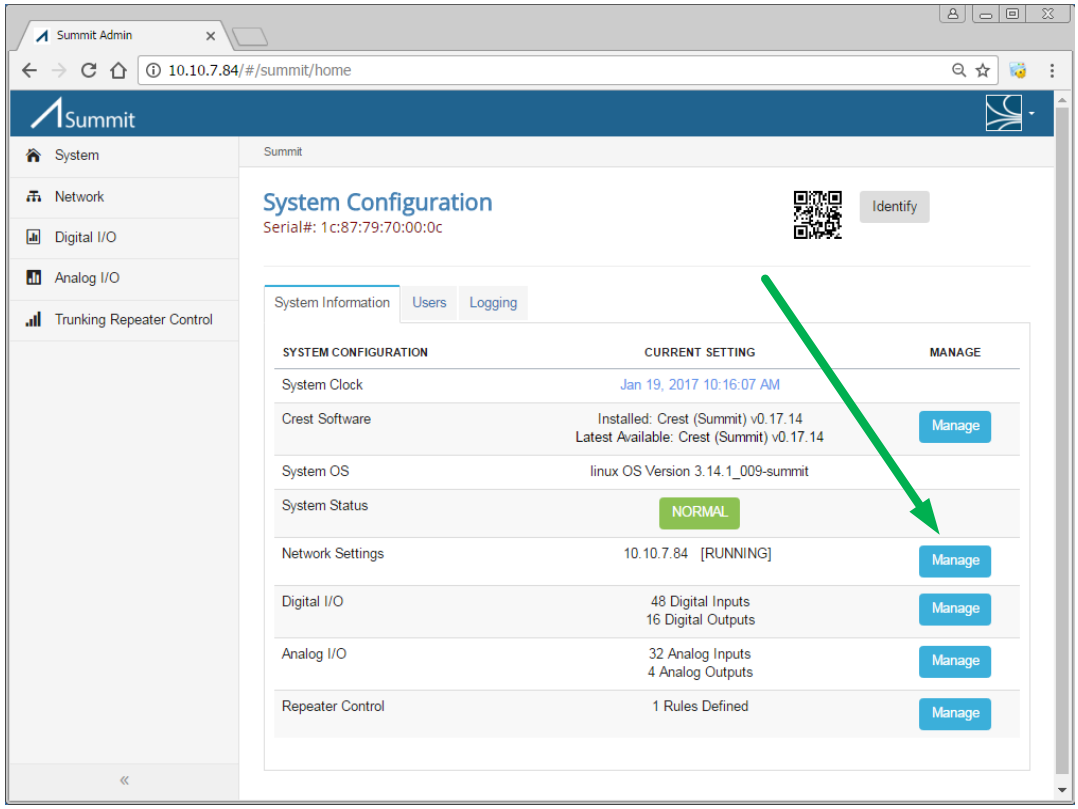


Figure 20 – Main Screen to Network Settings Navigation

5. Select the SNMP Hosts tab to show the configured SNMP Hosts.

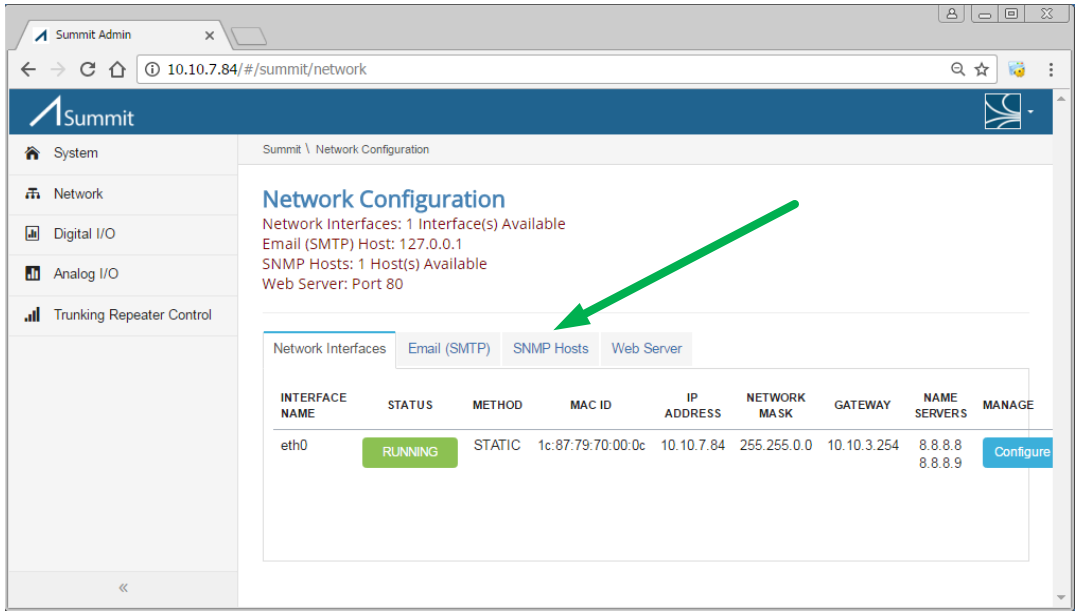


Figure 21 – SNMP Hosts Tab

6. Press the "+ Add SNMP Host" button to add the IP address of the computer that will run the Apex software (or other Network Management System).

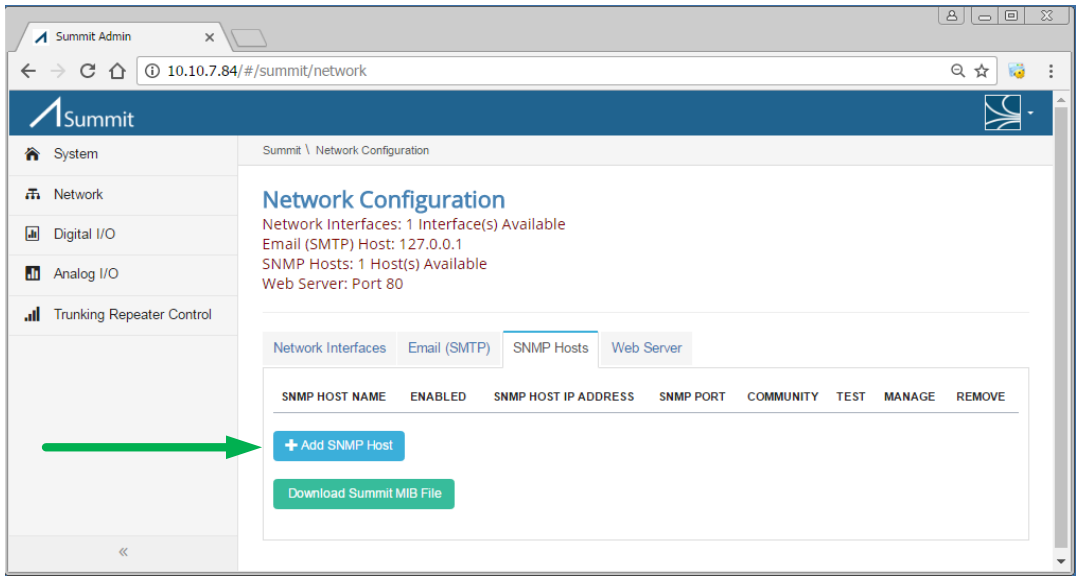


Figure 22 – Network Configuration

7. Enter a name for the host computer and the IP address of the computer and then press the Apply button.

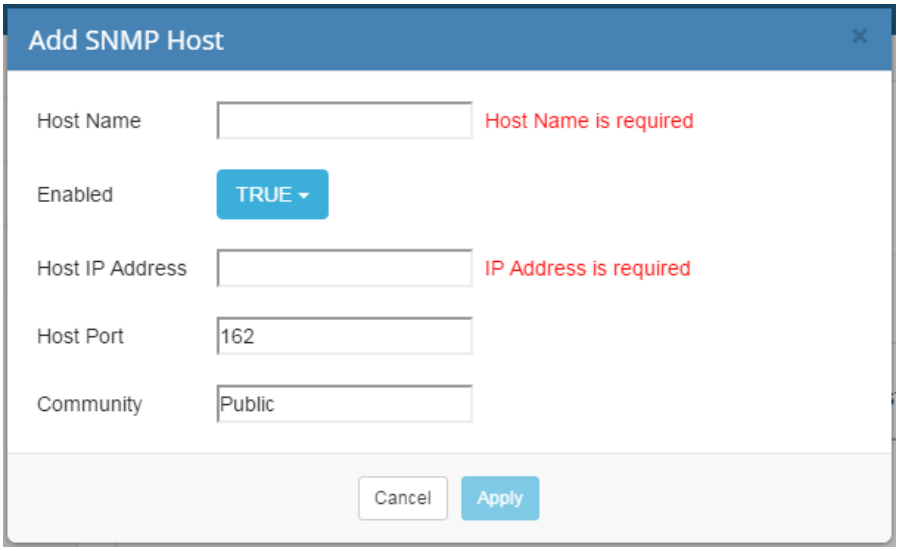


Figure 23 – Add SNMP Host

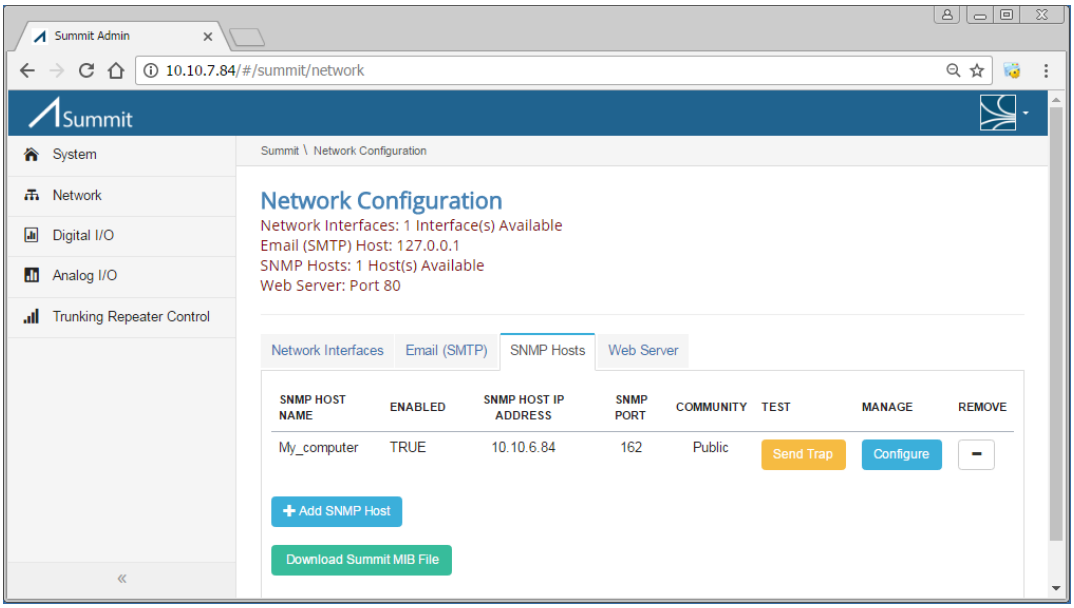


Figure 24 – SNMP Host List

8. Press the Send Trap button to send a test trap to the host computer. For more information about how Summit traps interact with Apex, see the 4. SYSTEM INTEGRATION - APEX section.

3.0 CREST OVERVIEW

This section has information the Crest interface. The web interface used to view the status of, and configure a Summit, is called Crest. It can be accessed from a web browser. Google Chrome is recommended.

3.1 Login

The Summit front LED will be solid blue, when the Crest web application is fully loaded (approximately one minute after power up, see 1.4 LED section for full description of LEDs). To access the web-based utility, launch Google Chrome on the computer, and enter the IP address of the Summit, into the Address field, and press Enter. The default web server port is 80.

Enter the Username and Password and then press the Log In button, to log in to the Crest interface (see Figure 9 – Crest LOG IN Screen).

Username: **admin**
Password: **tasc**

3.2 Navigation

The column menu displayed at the left side of the screen allows navigation to the each of the screens.

ICON	Screen
	System Configuration
	Network Configuration
	Digital I/O Configuration
	Analog I/O Configuration
	Kenwood Repeater Control
	Serial Port Configuration

Table 4 – Column Menu Icons

>> and << are used to show and hide the text associated with the column menu icons. These symbols are located at the bottom of the column.

3.3 System Configuration

The first screen that appears after logging in, is System Configuration. This can also be accessed by pressing Summit from the left side menu.

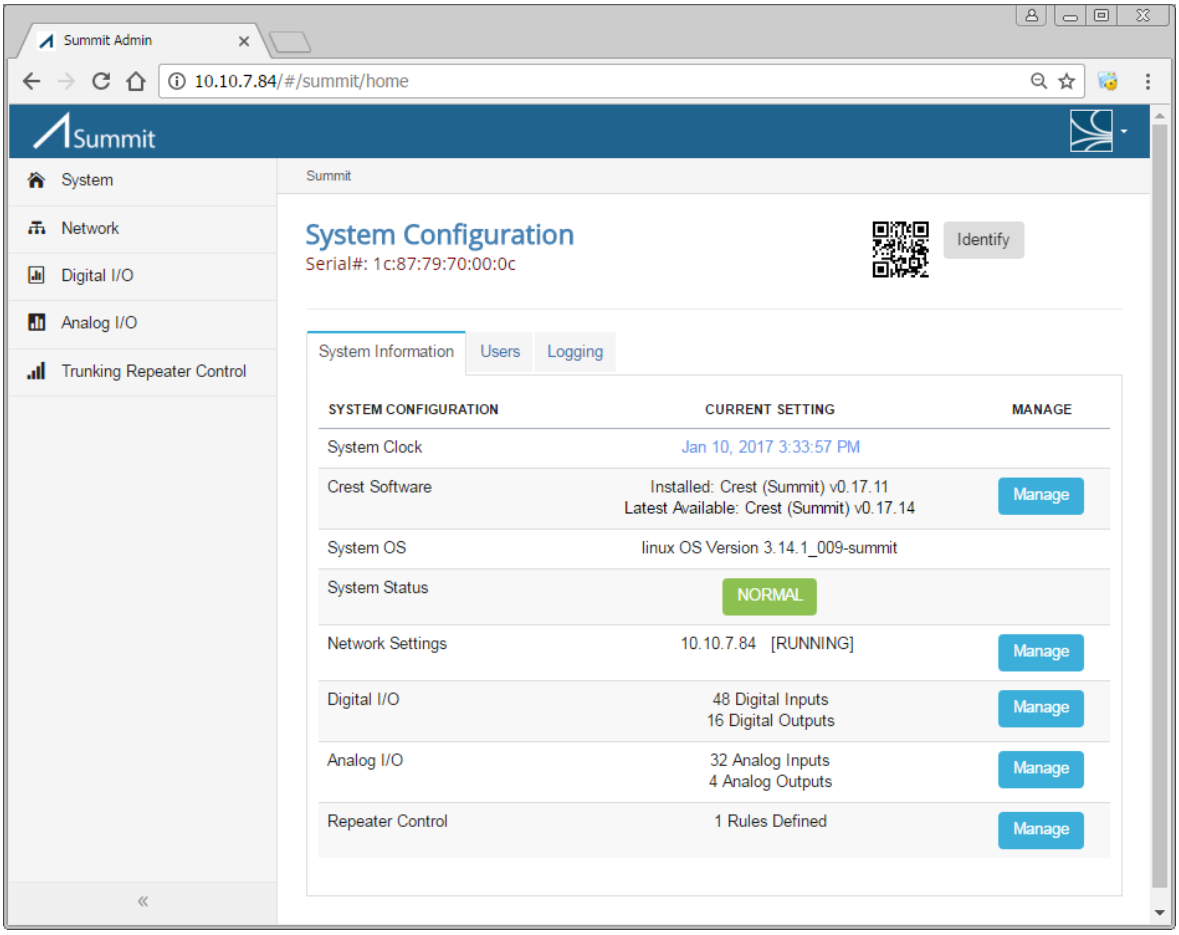


Figure 25 – Crest Main Screen (System Configuration – System Information Tab)

The default tab shows System Information. A description of the information displayed and the actions of the buttons is displayed in the following table:

Screen Item	Description
QR code	When scanned, will display the serial number on the Summit.
Identify button	When pressed, the Identify button makes the front LED yellow five times.
System Clock	Shows the network date and time.
Installed Software	Shows the current Summit application version.
System Status	Shows the status.
Network Settings	Shows the connected Ethernet addresses.
Digital I/O	Shows the available digital inputs and outputs.
Analog I/O	Shows the available analog inputs and outputs.
Manage button	Navigate to the associated detail screen, or configuration window (for Crest Software).

Table 5 – System Configuration – System Information Screen Items

Select the Users tab to make changes to the login credentials.

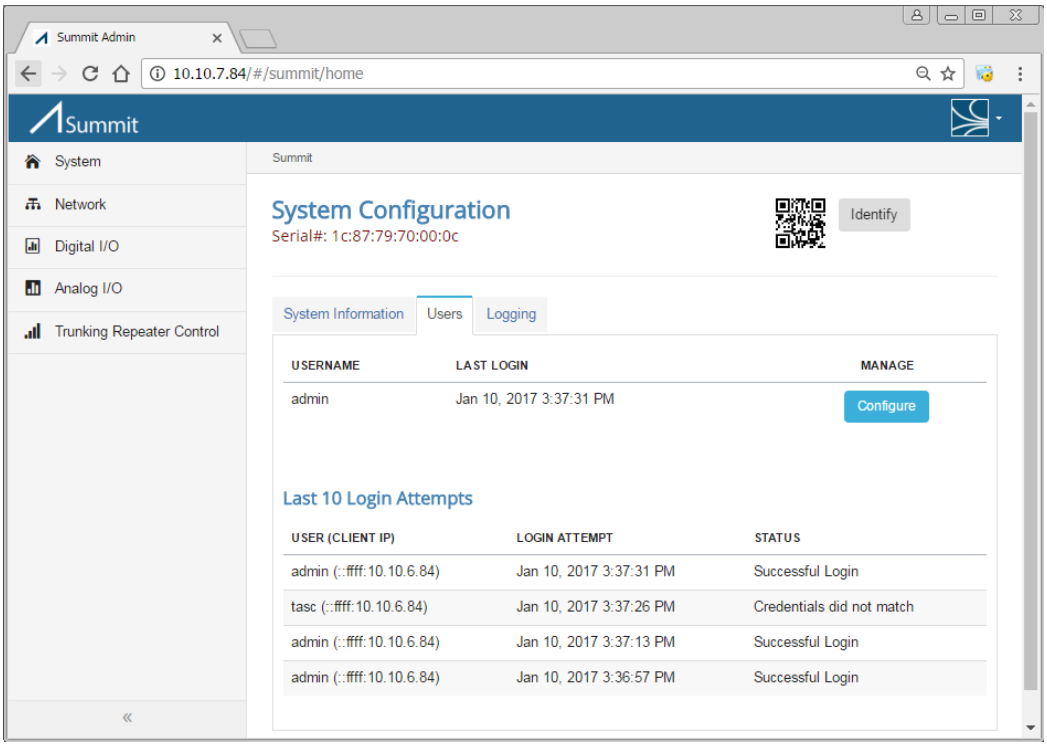


Figure 26 – System Configuration – Users Tab

A description of the information displayed and the actions of the buttons is displayed in the following table:

Screen Item	Description
QR code	When scanned, will display the serial number on the Summit.
Identify button	When pressed, the Identify button makes the front LED yellow five times.
Configure button	Opens interface with Username and Password, and allows changes to be made.
USERNAME	Current username for logging into Crest.
LAST LOGIN	Timestamp for last login into Crest.
USER (CLIENT IP)	Username and IP address of recent login attempts.
LOGIN ATTEMPT	Timestamp for recent login attempt.
STATUS	Description of success or failure of recent login attempt.

Table 6 – System Configuration – Users Tab Screen Items

Select the Logging tab to view the log files, and to configure the level of information is being written to the log files.

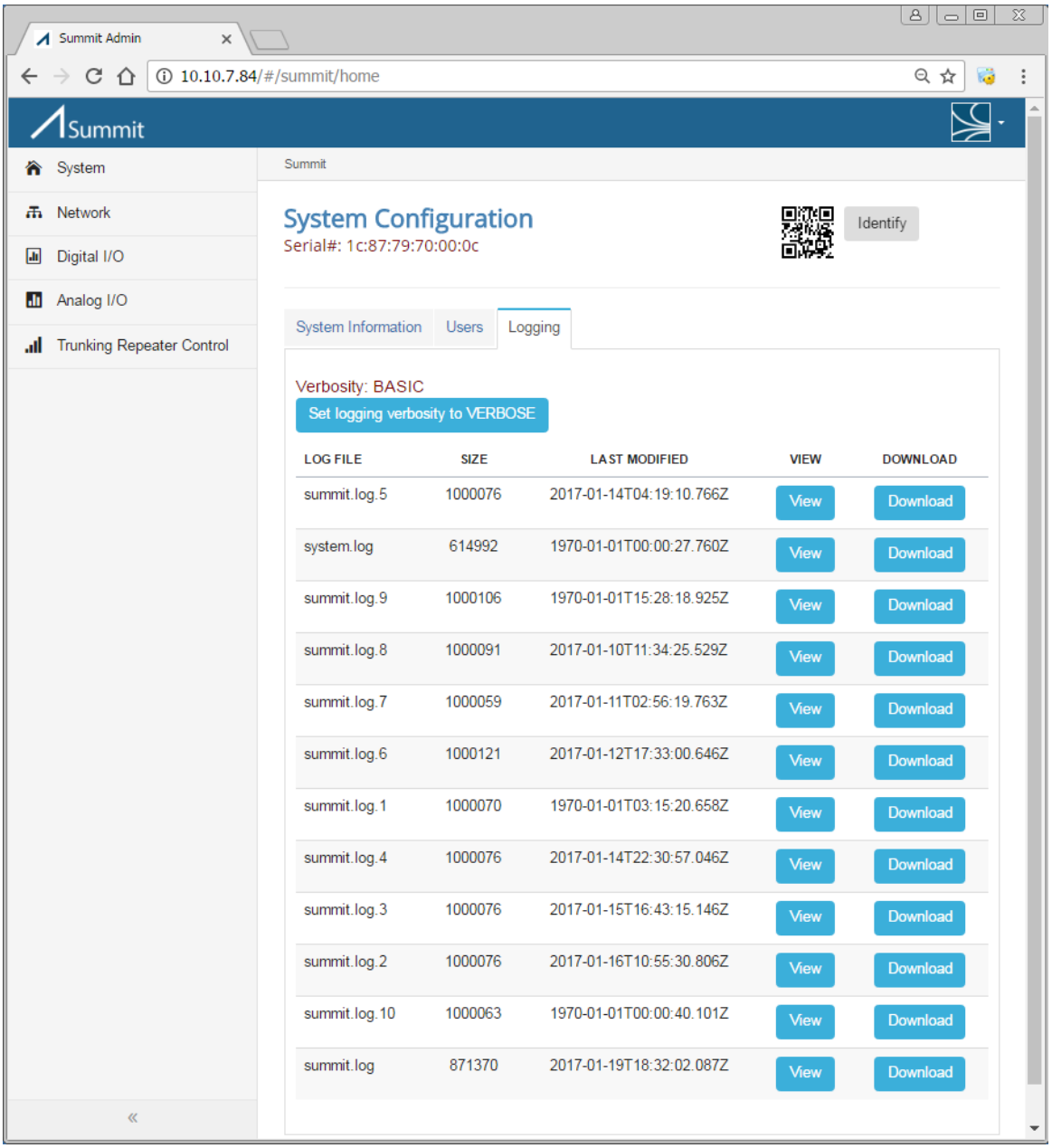


Figure 27 – System Configuration – Logging Tab

A description of the information displayed and the button actions, for the Logging tab, is displayed in the following table:

Screen Item	Description
QR code	When scanned, will display the serial number of the Summit.
Identify button	The Identify button makes the front LED briefly yellow, when pressed.
Set logging verbosity to BASIC button	Change what is being written to the log file to only basic log messages.
Set logging verbosity to VERBOSE button	Change what is being written to the log file to include extra log messages, which can be used for debugging purposes.
LOG FILE - summit.log	The log file with information about operations performed by Crest user interface.
LOG FILE - system.log	The log file with Summit startup and OS messages.
LOG FILE - summit.log.x (where x is 1 – 10)	Log files created when summit.log reaches 1 MB. Ten are kept. summit.log becomes summit.log.1, summit.log.1 becomes summit.log.2, and so on.
SIZE	The log file size in bytes. Maximum is approximately 1 MB.
LAST MODIFIED	Timestamp of last log file modification.
View button	View the log file in a window. This allows for copy and paste to other applications.
Download button	Copy the log file from the Summit to your Windows computer.

Table 7 – System Configuration – Logging Tab Screen Items

3.4 Network Configuration

The following screen shows the status and configuration settings of the Ethernet port.

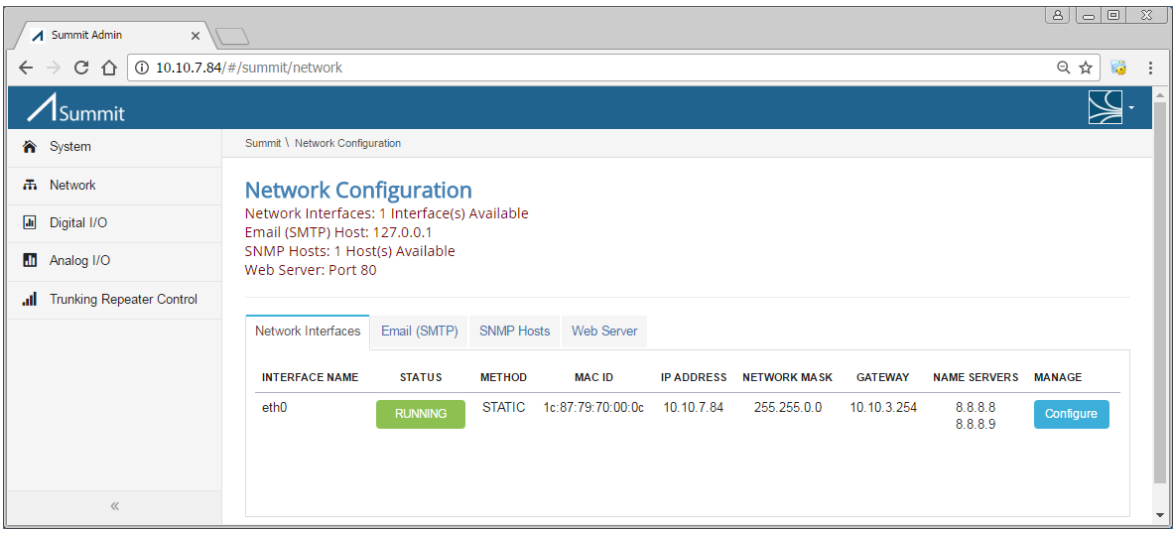


Figure 28 – Crest Network Configuration – Network Interfaces Tab

A description of the information displayed and the button actions, for the Network Interfaces tab, is displayed in the following table:

Screen Item	Description
INTERFACE NAME	List of Ethernet interfaces. Ethernet port 0, eth0, is supported. Ethernet port 1, eth1, will be supported in future.
STATUS	Current status of the interface. • RUNNING – connected and working • UNPLUGGED – not connected and working • DOWN – not working
MAC ID	MAC address of the interface.
IP ADDRESS	IPv4 address of the interface. The factory setting is 192.168.168.1.
NETWORK MASK	Subnet mask of the interface. The factory setting is 255.255.0.0.
GATEWAY	Default gateway IP address for the interface.
NAME SERVERS	Name server IP addresses for the interface. Public name servers may be used, if needed.
Configure button	Change the configuration settings for the Ethernet interface.

Table 8 – Network Configuration – Network Interfaces Screen Items

Select the Email (SMTP) tab to configure the email server and addresses for threshold crossing notifications.

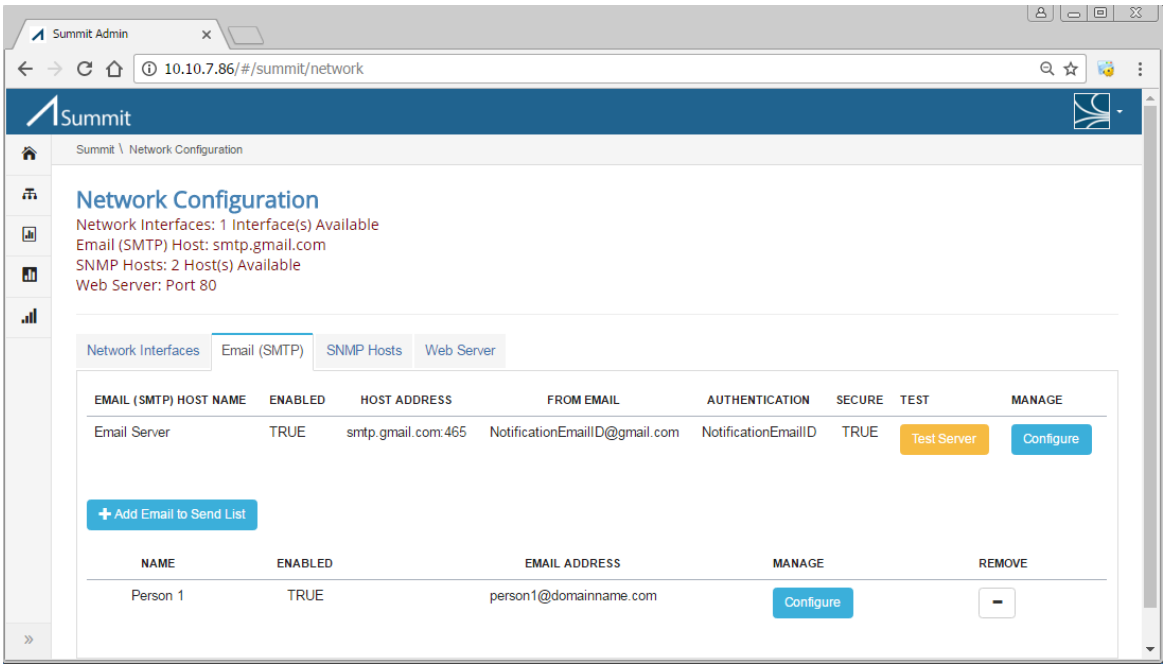


Figure 29 – Crest Network Configuration – Email (SMTP) Tab

A description of the information displayed and the button actions, for the Email (SMTP) tab, is displayed in the following table:

Screen Item	Description
EMAIL (SMTP) HOST NAME	User friendly name to identify this email server.
ENABLED (Host section)	TRUE to use this server for sending emails, FALSE to disable emails.
HOST ADDRESS	IP address or domain name of the email server.
FROM EMAIL	From email address to be used for the emails (usually the same as the authentication user id).
AUTHENTICATION	User id and password to be used for authentication by the server. Password is not displayed, but can be changed by pressing Configure button.
SECURE	Use a Secure Sockets Layer to establish a link to the mail server. TRUE for secure, FALSE for not secure.

Test Server button	Send a test email to the from email. If unsuccessful, a red exclamation icon appears, if successful, a green check icon appears. Error details can be found in the Summit log files.
Configure button (Host section)	Change the configuration settings for the EMAIL HOST.
NAME	User friendly name to identify this email entry.
ENABLED (Send List section)	TRUE to send emails to this user, FALSE to disable sending emails to this user.
EMAIL ADDRESS	Email address to receive emails for threshold crossings.
Configure button (Send List section)	Change the configuration settings for an entry in the Send List.
- button	Remove this entry in the Send List.

Table 9 – Network Configuration – Email (SMTP) Screen Items

Select the SNMP Hosts tab, to view or add SNMP managers to be notified by the Summit web server.

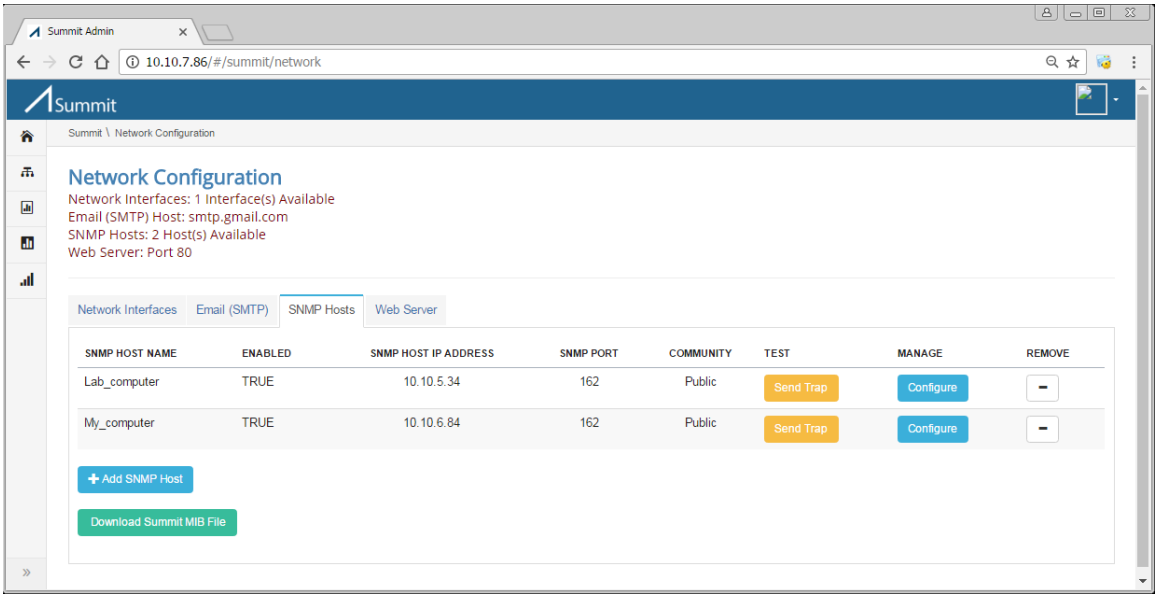


Figure 30 – Crest Network Configuration – SNMP Hosts Tab

A description of the information displayed and the button actions, for the SNMP Hosts tab, is displayed in the following table:

Screen Item	Description
SNMP HOST NAME	Name identifier for SNMP network manager to receive traps from the Summit device.
ENABLED	TRUE to send traps, FALSE to disable sending of traps. Default is TRUE.
SNMP HOST IP ADDRESS	IP address of SNMP network manager computer.
SNMP PORT	Listening port on SNMP network manager computer. Default is 162.
COMMUNITY	Name of the community to send traps to. Default is Public.
Send Trap button	Send a test trap to the SNMP network manager computer.
Configure button	Change the configuration settings for the SNMP host.
- button	Remove this SNMP host.
+ Add SNMP Host button	Add a new SNMP host to receive traps.
Download Summit MIB File button	Allows the user to save the TASC-SUMMIT.MIB file to the computer. It can then be imported into a network management system.

Table 10 – Network Configuration – SNMP Host Screen Items

Select the Web Server tab, to view or change the IP port used by the Summit web server.

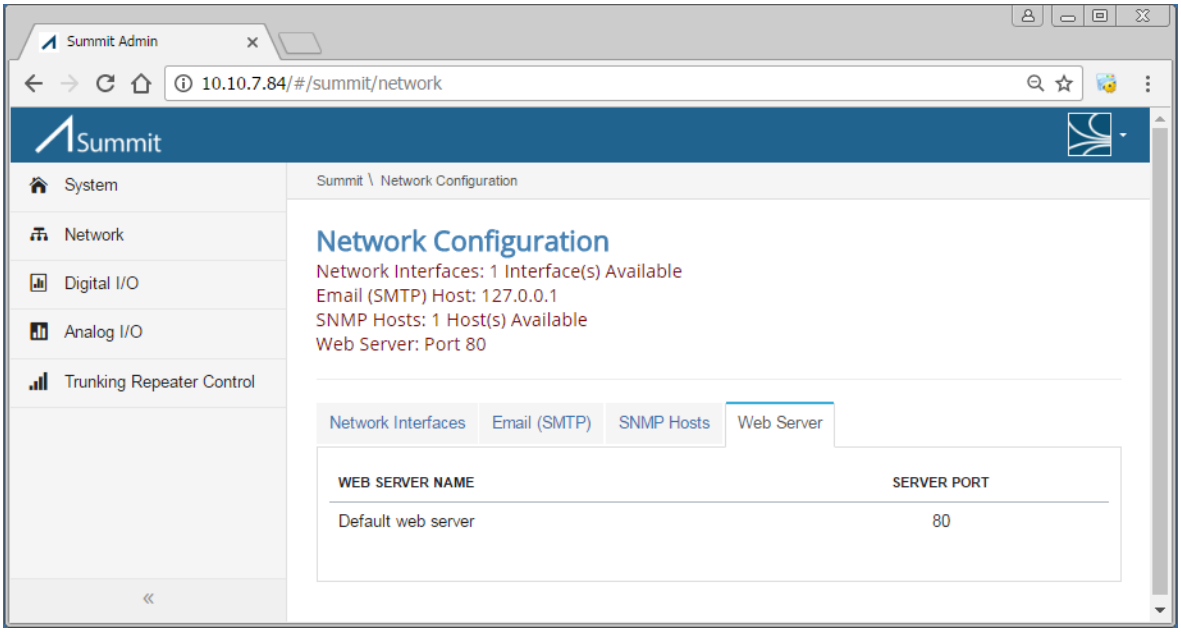


Figure 31 – Crest Network Configuration – Web Server Tab

A description of the information displayed and the button actions, for the Web Server tab, is displayed in the following table:

Screen Item	Description
WEB SERVER NAME	The computer name of the Summit device.
SERVER PORT	IP port that is being used by the web server.

Table 11 – Network Configuration – Web Server Screen Items

3.5 Digital I/O Configuration

Digital Input state changes are shown on the screen as they occur (ignoring the hold time). The SNMP event will only be sent if the Digital Input remains the same value for the length of the hold time.

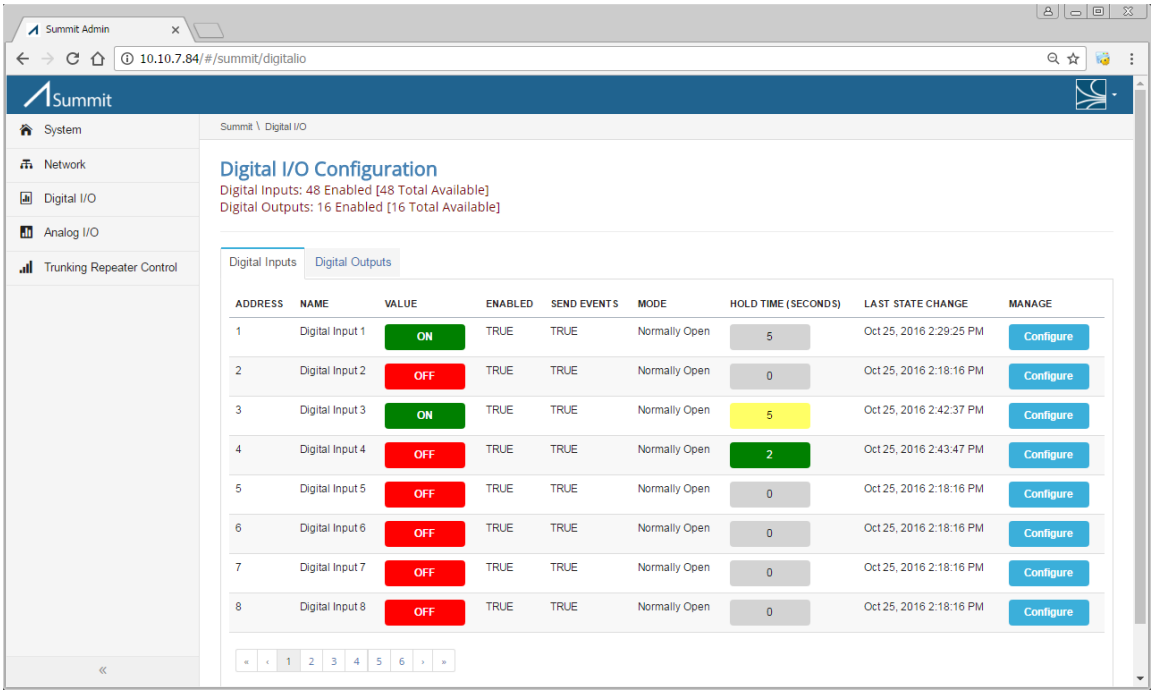


Figure 32 – Crest Digital I/O Configuration – Digital Inputs Tab

A description of the information displayed and the button actions, for the Digital Inputs tab, is displayed in the following table:

Screen Item	Description
ADDRESS	Address number which corresponds to the Summit physical RJ45 connection for the Digital Input.
NAME	Configurable name of the Digital Input, which defaults to Digital Input x (where x is the input address).
VALUE	Current state of the Digital Input: ON or OFF. State change is displayed as it occurs, regardless of HOLD TIME.
ENABLED	Values are actively read for the Digital Input (TRUE), or not actively read (FALSE).
SEND EVENTS	SNMP and Email (SMTP) events will be sent when the Digital Input changes state (TRUE), or not sent (FALSE).
MODE	The OFF (normal) state of the input signal: Normally Closed for low level input, or Normally Open for high level input.
HOLD TME	Optional hold timer setting (0 – 5 seconds). When the Digital Input value has been present for the specified hold time, an event will be triggered, and the LAST STATE CHANGE time will be updated. The background colour represents the state of the hold timer. 5 Hold time is set to five seconds, and timer is not currently counting (inactive). 5 Hold time is set to five seconds, and the timer is counting after the threshold change. 5 Hold time is set to five seconds, and the timer has reached five seconds after a threshold change.
LAST STATE CHANGE	The time that the Digital Input value changed state (OFF to ON, or ON to OFF), and remained in the state in excess of the HOLD TIME.
Configure button	Change the configuration settings for the Digital Input.

Table 12 – Digital I/O – Digital Inputs Screen Items

Select the Digital Outputs tab, to view or configure the Digital Outputs.

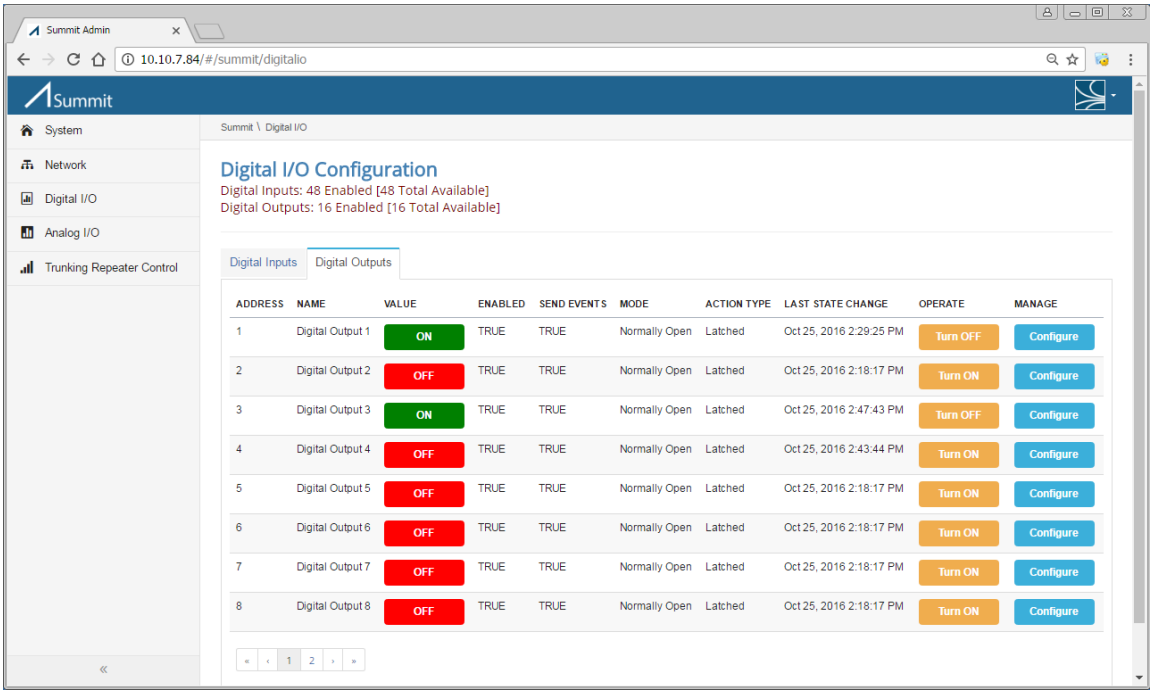


Figure 33 – Digital I/O Configuration – Digital Outputs Tab

A description of the information displayed and the button actions, for the Digital Outputs tab, is displayed in the following table:

Screen Item	Description
ADDRESS	Address number which corresponds to the Summit physical RJ45 connection for the Digital output.
NAME	Configurable name of the Digital Output, which defaults to Digital Input x (where x is the input address).
VALUE	Current state of the Digital Output: ON or OFF. State change is displayed as it occurs.
ENABLED	Values are actively read for the Digital Output (TRUE), or not actively read (FALSE).
SEND EVENTS	SNMP and Email (SMTP) events will be sent when the Digital Output changes state (TRUE), or not sent (FALSE).
MODE	The physical OFF (rest) state of the Digital Output. Normally Closed for low level output, or Normally Open for open circuit. The OFF state will be used when the Summit powers up. The output is an open drain MOSFET, and is designed to pull down an external circuit, such as a relay, load resistor or other device.

ACTION TYPE	LATCH is currently the only option. The output signal remains at the value until the next value change.
LAST STATE CHANGED	The time that the Digital Output value changed state (OFF to ON, or ON to OFF).
Turn ON	Change the Digital Output value from OFF to ON.
Turn OFF	Change the Digital Output value from ON to OFF.
Configure button	Change the configuration settings for the Digital Output.

Table 13 – Digital I/O – Digital Outputs Screen Items

3.6 *Analog I/O Configuration*

Analog Inputs, Outputs and Formulas are configured in this area of Crest.

The Analog Inputs tab is the default tab that is displayed. The Analog inputs can be viewed or configured from this tab.

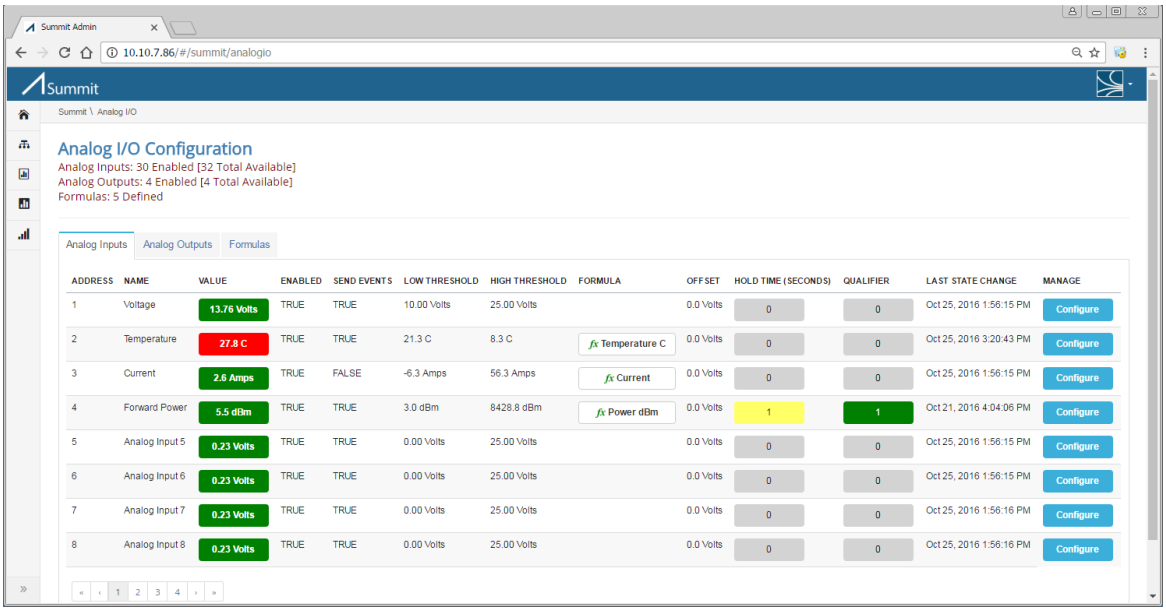


Figure 34 – Analog I/O Configuration – Analog Inputs Tab

Changes to Analog Input values are reported by Crest, as determined by the following table:

Digital Input Qualifier Exists	Digital Input Qualifier ON	Hold Time Exists	Hold Time Exceeded	Value Change in Crest	Threshold Crossed	Value Colour Change, Email, Trap Event
No	–	No	–	Yes	No	No
					Yes	Yes
No	–	Yes	No	Yes	No	No
					Yes	No
No	–	Yes	Yes	Yes	No	No
					Yes	Yes
Yes	Yes	No	–	Yes*	No	No
					Yes	Yes
Yes	Yes	Yes	No	Yes*	No	No
					Yes	No
Yes	Yes	Yes	Yes	Yes*	No	No
					Yes	Yes

*Only while qualifier is ON.

Table 14 – Analog Input value changes reporting

The VALUE background colour changes depending whether the value is inside or outside the configured thresholds. The HOLD TIME background colour changes depending on the state of the hold timer.

A description of the information displayed and the button actions, for the Analog Inputs tab, is shown in the following table:

Screen Item	Description
ADDRESS	Address number which corresponds to the Summit physical RJ45 connection for the Analog Input.
NAME	Configurable name of the Analog Input, which defaults to Analog Input x (where x is the input address).
VALUE	Current value of Analog Input adjusted by the OFFSET in Volts, displayed regardless of thresholds, and hold time. The background colour represents the current state of the measured adjusted value.

	Measured adjusted value is in range. Measured adjusted value is less than LOW THRESHOLD or greater than HIGH THRESHOLD. See Table 14 – Analog Input value changes reporting, for more information about when the VALUE changes.
ENABLED	Values are actively read for the Analog Input (TRUE), or not actively read (FALSE).
SEND EVENTS	SNMP and Email (SMTP) events will be sent when the Analog Input crosses a threshold boundary as per Table 14 – Analog Input value changes reporting (TRUE), or not sent (FALSE).
LOW THRESHOLD	Used to trigger an event when the Analog Input value, adjusted by the OFFSET, drops below this value and the hold time is exceeded. Crest accepts two decimal places for entry.
HIGH THRESHOLD	Used to trigger an event when the Analog Input value, adjusted by the OFFSET, goes above this value and the hold time is exceeded. Crest accepts two decimal places for entry.
FORMULA	Optional formula that was selected (using Configure button), to represent the analog input voltage value in more meaningful units. The formula is represented with a button, which can be used to disable/enable the formula.  Formula 1 is enabled.  Formula 1 is disabled. The formulas are configured from the Formulas tab.
OFFSET	Value in Volts to use as an adjustment to the measured Analog Input value. Range is – 0.5 to +0.5 Volts.
HOLD TIME	Optional hold timer setting (0 – 5 seconds). Used to prevent multiple threshold crossings, when the measured value hovers around a threshold. The 0 second default value is the processing speed of Analog Input values, which is approximately 500 milliseconds. The voltage must remain beyond the threshold for a period in excess of the hold time, before an event is triggered. Conversely, if the value starts beyond a threshold, the value must be in normal range for a period in excess of the hold time, before an event is triggered. The background colour represents the state of the hold timer.

	 Hold time is set to five seconds, and timer is not currently counting (inactive).  Hold time is set to five seconds, and the timer is counting after the threshold change.  Hold time is set to five seconds, and the timer has reached five seconds after a threshold change.
QUALIFIER	Optional Digital Input that "gates" this Analog Input. The qualified Analog Input is not reported as an event, unless the "gating" Digital Input is active. Possible values are 1 – 48. The background colour represents the state of the qualifier. Digital Input 1 qualifier is Off.  Digital Input 1 qualifier's hold time has expired, and is On.
LAST STATE CHANGE	The time that the Analog Input value crossed a threshold boundary as per Table 14 – Analog Input value changes reporting.
Configure button	Change the configuration settings for the Analog Input.

Table 15 – Analog I/O – Analog Inputs Screen Items

Select the Analog Outputs tab, to view or configure the Analog Outputs.

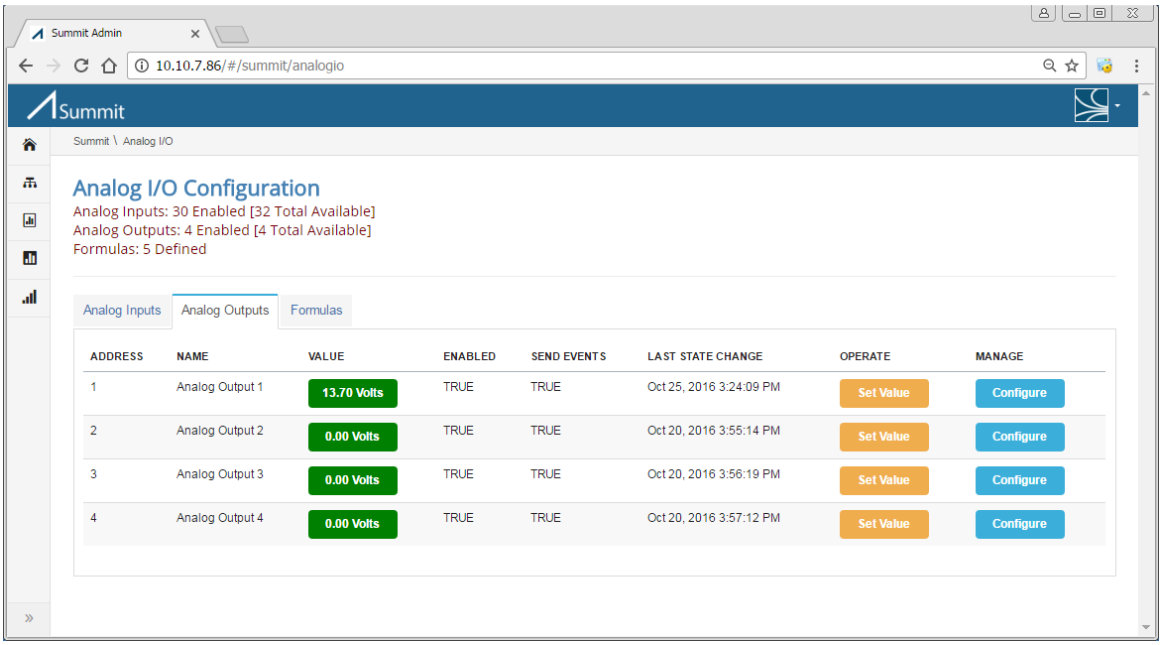


Figure 35 – Analog I/O Configuration – Analog Outputs Tab

Screen Item	Description
ADDRESS	Address number which corresponds to the Summit physical RJ45 connection for the Analog Input.
NAME	Configurable name of the Analog Output, which defaults to Analog Output x (where x is the input address).
VALUE	Current state of the Analog Output. State change is displayed as it occurs.
ENABLED	Values are actively read for the Analog Output (TRUE), or not actively read (FALSE).
SEND EVENTS	SNMP and Email (SMTP) events will be sent when the Analog Output is set to a new value (TRUE), or not sent (FALSE).
RANGE	Maximum output value in Volts, 20. This cannot be changed.
LAST STATE CHANGE	The time that the Analog Output value last changed.
Set Value button	Change the Analog Output value. The value will be set to 0 Volts when the Summit powers up.
Configure button	Change the configuration settings for the Analog Output.

Table 16 – Analog I/O – Analog Outputs Screen Items

Select the Formulas tab to view and configure formulas. Formulas are entered so that an Analog Input voltage can be represented in more meaningful units.

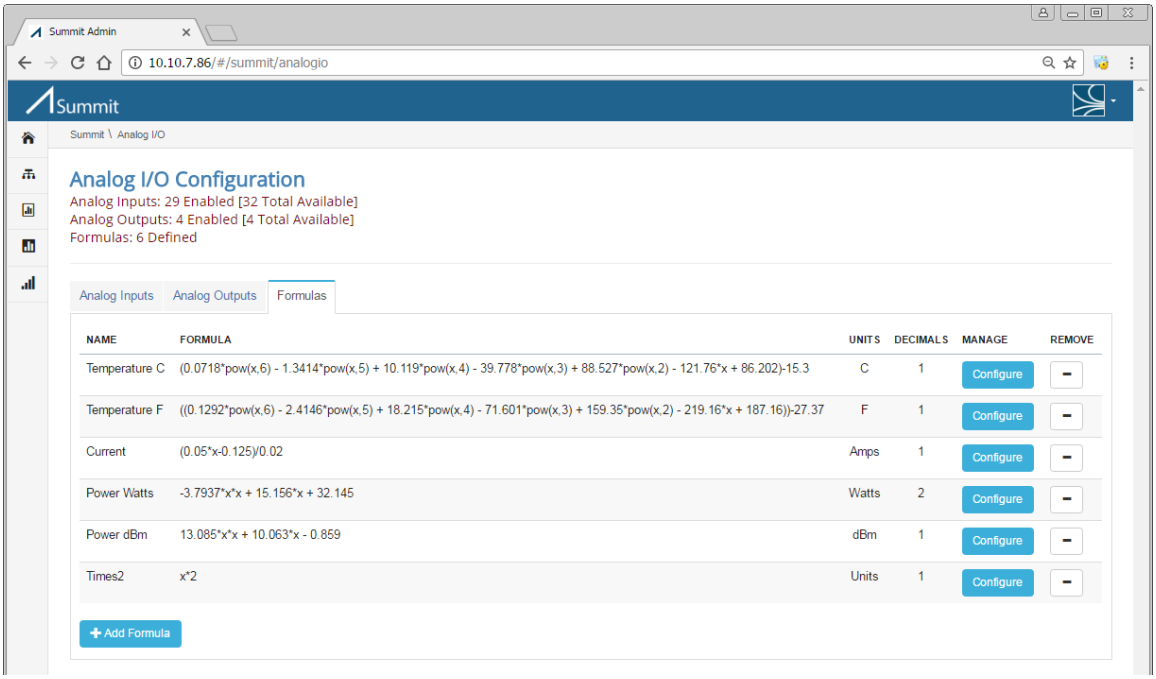


Figure 36 – Analog I/O Configuration – Formulas Tab

Screen Item	Description
NAME	Configurable name of the formula.
FORMULA	Formula to convert an analog input voltage to another value using an equation which has a lower case x variable for input voltage. Note that upper case X or alternate letters will not work. See Table 18 – Formula Expression Characters, Functions, and Operators for information about what can be entered into a formula. The formula will be selectable from the Analog Inputs tab (Configure button).
UNITS	Units to be displayed along with the formula result.
DECIMALS	Decimal places (1 or 2) to be used when displaying the formula result.
Configure button	Change the configuration settings for the formula.
- button	Remove formula.

Table 17 – Analog I/O – Formulas Screen Items

The functions and operators that can be used to create an analog input formula are listed in the following table:

Character, Function, or Operator	Description
x	Variable for analog input voltage
( )	Open and closed brackets
fac(x)	Factorial
pow(x,N)	Exponent (where N is an integer exponent)
sqrt(x)	Square Root
*****	Multiply
/	Divide
+	Add
-	Subtract
log(x)	Natural Log
log10(x)	Log base 10
sin(x)	Sine (x is in radians)
cos(x)	Cosine (x is in radians)
tan(x)	Tangent (x is in radians)
abs(x)	Absolute value

Table 18 – Formula Expression Characters, Function, and Operators

3.7 Serial I/O Configuration

WARNING – Only devices from the TASC Systems devices library should be connected to the Summit serial ports. If in doubt, check with TASC Systems before connecting a device.

The Serial Port Configuration screen allows you to manage the serial ports which will have devices connected.

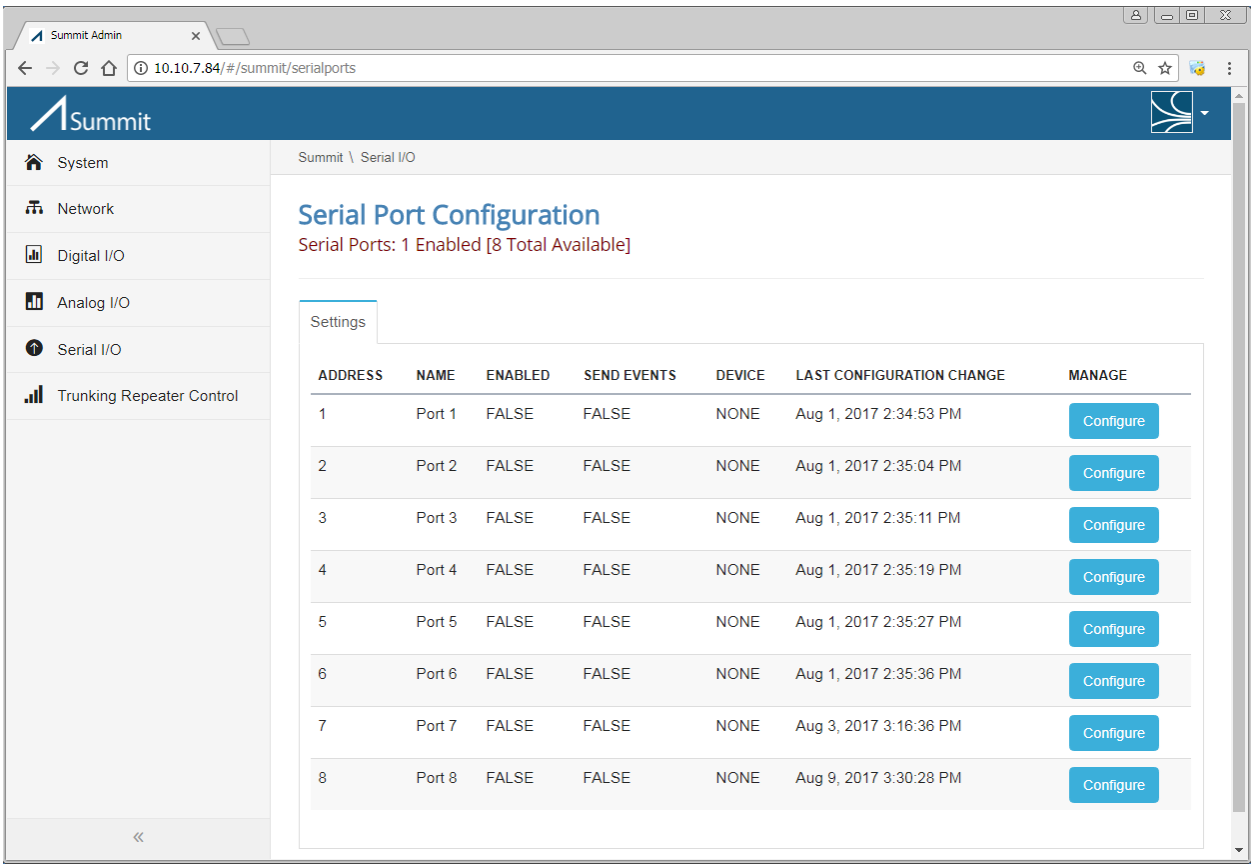


Figure 37 – Serial Ports

A description of the information displayed and the button actions, for the Serial Port Configuration screen, is displayed in the following table:

Screen Item	Description
ADDRESS	Serial port address.
NAME	Configurable name for the port.
ENABLED	Values are actively read for the port (TRUE), or not actively read (FALSE).
SEND EVENTS	SNMP and Email (SMTP) events will be sent when the Analog Output is set to a new value (TRUE), or not sent (FALSE).
DEVICE	Configurable device group selected for this port.
LAST CONFIGURATION CHANGE	The time that the configuration was last changed.
Configure button	Change the device selected for this port.

Table 19 – Serial Port Configuration Screen Items

When the Configure button is pressed, the following interface appears:

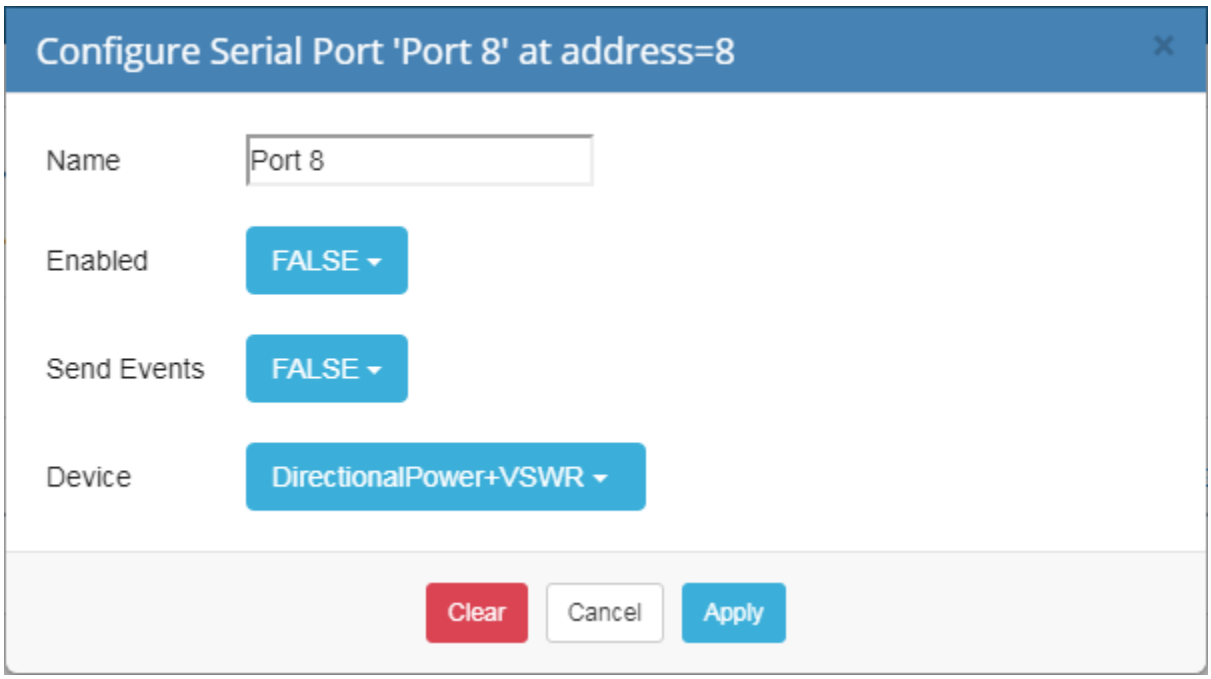


Figure 38 – Crest Configure Serial Port Interface

Screen Item	Description
Name	Configurable name for the serial port.
Enabled	Determines whether values are actively updated for the port, or not.
Send Events	Determines whether SNMP and email (SMTP) events will be sent when configured thresholds are crossed.
Device	A list of devices available.
Clear button	Clear all settings for this particular serial port.

Table 20 – Crest Configure Port Interface Items

After the Summit has been configured for a device, that port will be added as a new tab. A device-specific configuration screen will appear, when the tab is selected. For further information about configuring a device, see the Appendix of this manual.

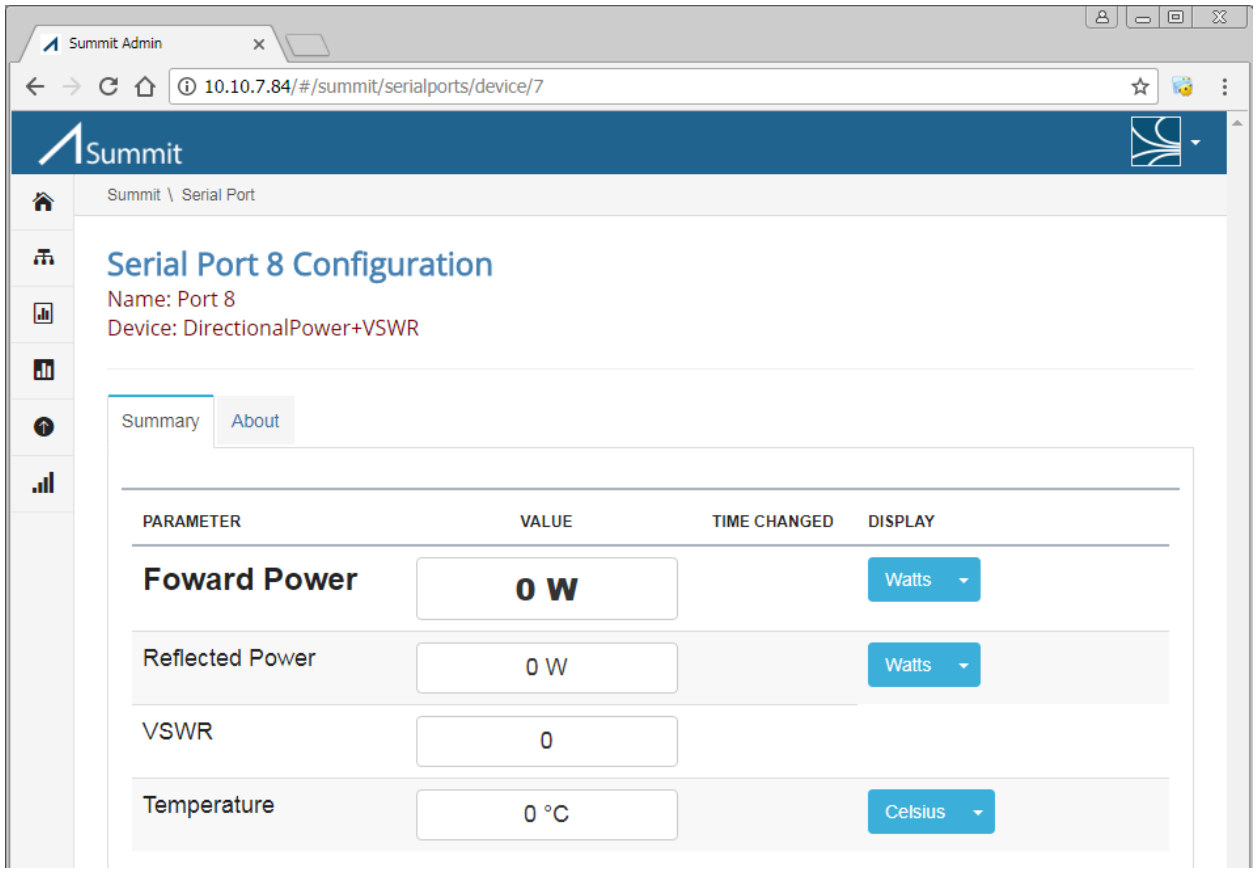


Figure 39 – Crest Serial Port 8 – Summary Tab Example

4.0 SYSTEM INTEGRATION - APEX

Apex software allows for viewing of multiple Summit devices through one user interface. Alarms and notifications can be configured for Summit devices, using the Apex software.

The Summit device is an SNMP agent that complies with SNMPv2, and communicates with the Apex software by sending SNMP events (traps).

SNMP events are sent out by the Summit SNMP agent when:

- A Digital Input changes state, and the hold time duration is exceeded
- A Digital Output changes state
- A non-qualified Analog Input crosses a threshold value, and the hold time duration is exceeded
- A qualified Analog Input crosses a threshold value while its associated Digital Input qualifier is On, and the hold time duration is exceeded
- An Analog Output value is changed
- Send Trap is pressed from the Crest Network Configuration screen

Each of these events triggers a single trap, without repetition. Note that an unreliable network may lead to trap loss, because an SNMP agent sends UDP packets with no guarantee of delivery.

Each I/O point is identified with a unique OID. SNMP events for a Summit device can be enabled or disabled using the Crest user interface.

Trap definitions and examples of Summit SNMP events, and a monitoring example can be found in the Appendix.

5.0 CREST SOFTWARE UPDATES

Updates to the Crest software can be downloaded and installed from a TASC server. Crest Software version 0.13.1 or above is required to take advantage of this feature.

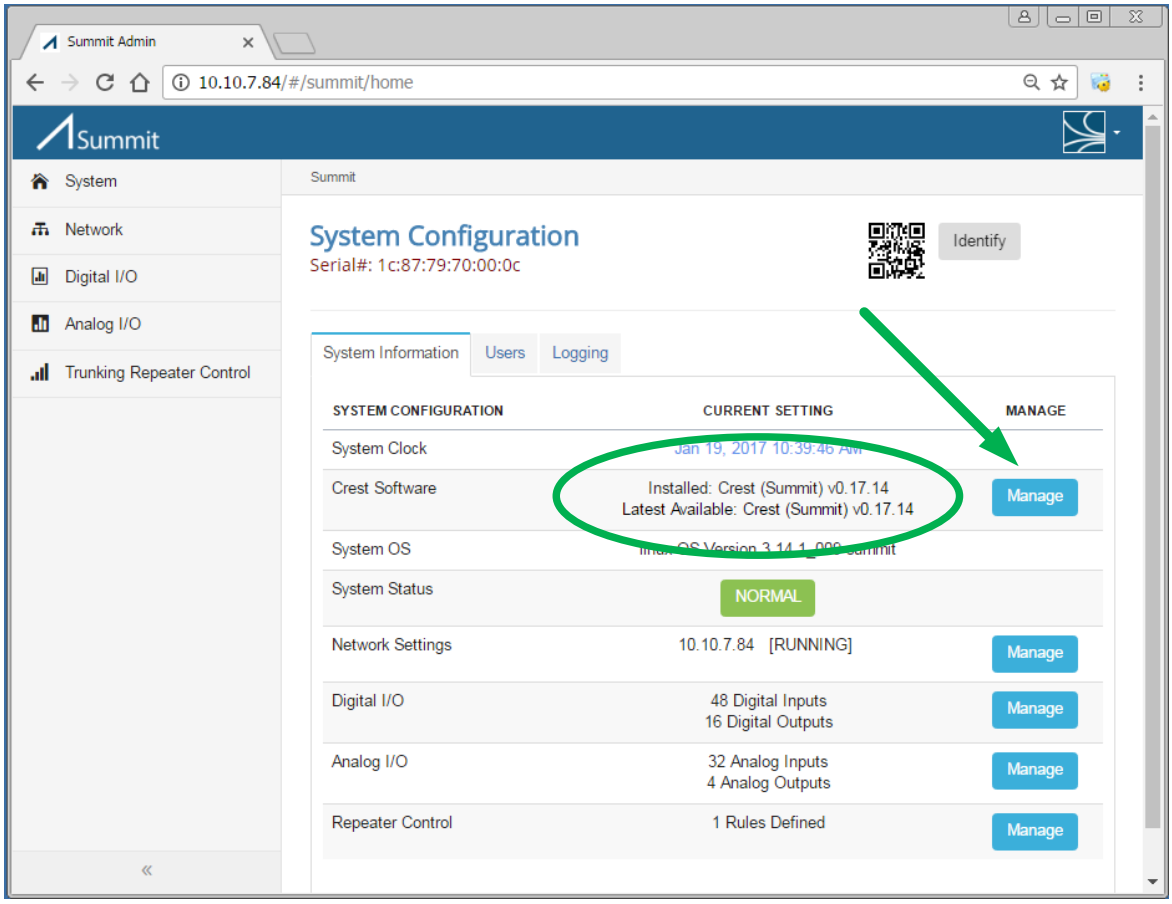


Figure 40 – System Configuration - Manage Software

WARNING – A software upgrade requires a restart of the Summit, and should only be performed when there direct access to the Summit.

WARNING - A software upgrade should only be performed over a high-bandwidth IP connection.

5.1 Internet Access

In order to receive software updates, the Summit needs access to the Internet. This requires a gateway, and domain name server. If a DHCP IP address is being used, these will usually be set up automatically. If a static address is being used, the gateway and name servers are set up from the Network Configuration screen.

See section 3.4 Network Configuration for further information about the Crest network settings.

5.2 Installation

The latest version can be installed by accepting the default selection, and pressing Continue.

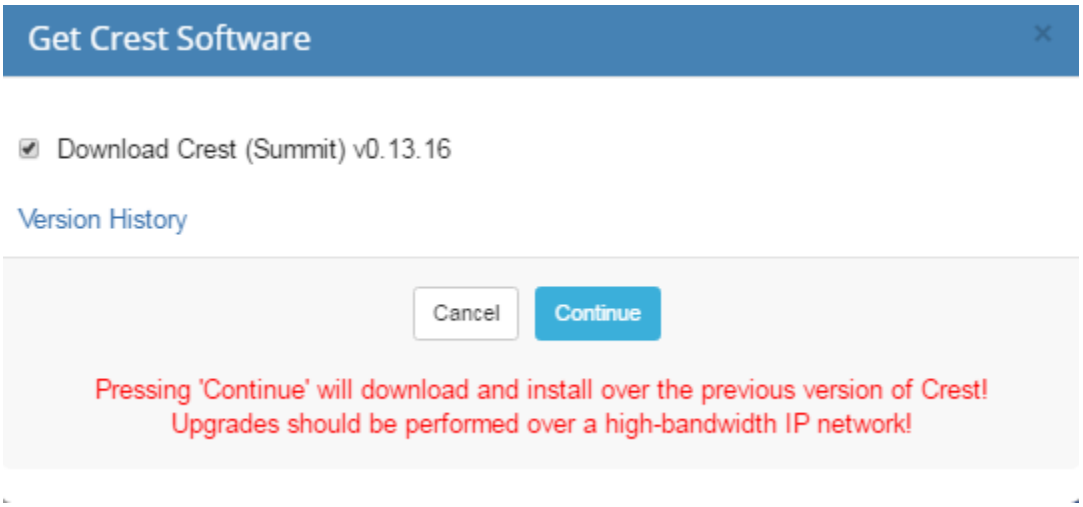


Figure 41 – Get Crest Software screen with default selection

A description of changes made in each version can be viewed by pressing the Version History link.

In some cases (like upgrading many Summits on the same network), it may be advantageous to copy the tar file to a location on your network. The network URL can be entered, by unchecking Download Crest (Summit) vX.X.X. Select the Apply button, after entering the network URL.

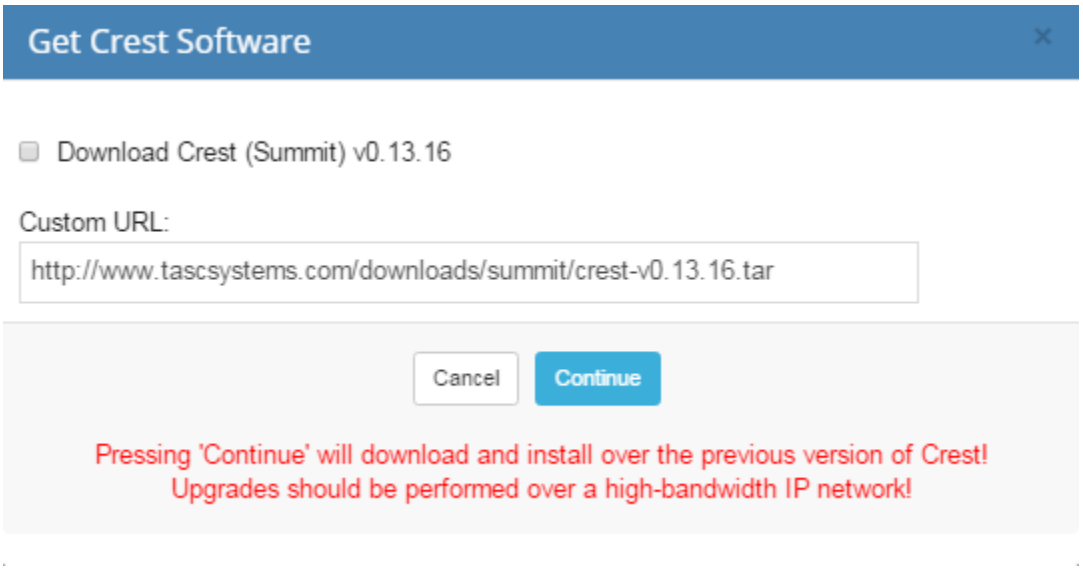


Figure 42 – Get Crest Software screen with Custom URL

When the upgrade has been started, a dashed circle graphic will appear. After the file has been copied to the Summit, and extracted, a check mark will appear. This should process should take about one minute. After the check mark appears, the Summit must be rebooted for the changes to take effect.

If the check mark does not appear, the Summit may not have Internet access. Pressing the Version History link and viewing the list will verify the Internet access.

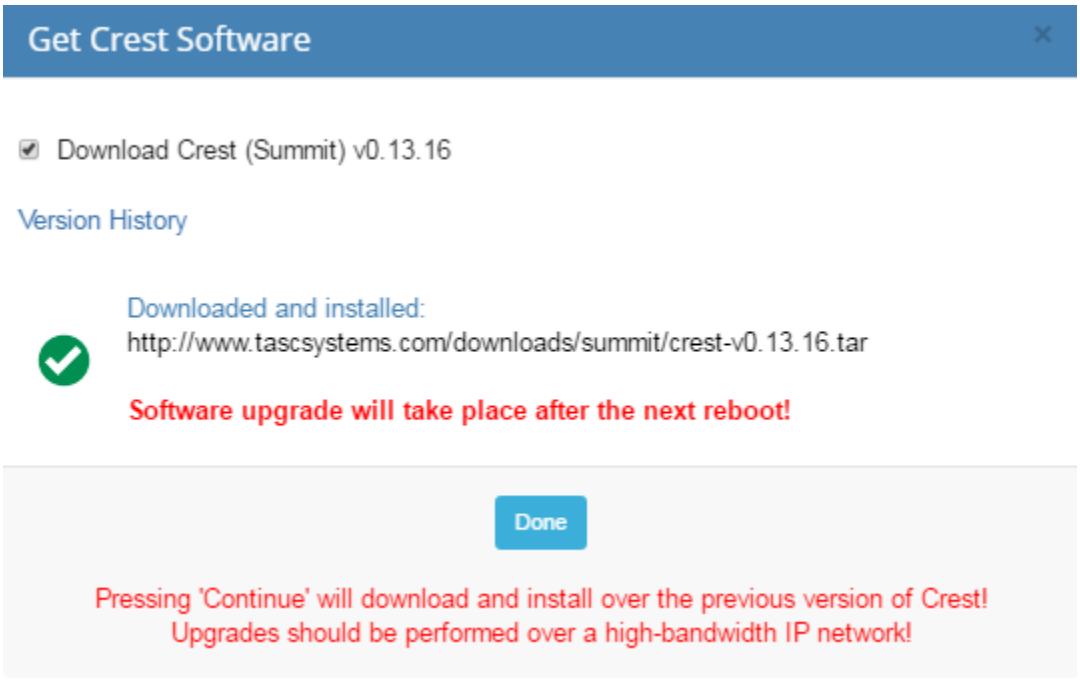


Figure 43 – Crest Software upgrade finished

6.0 APPENDICES

6.1 Specifications

Hardware Specifications	
Power	
Range	+8 to +48 VDC. PoE (power over Ethernet) - FUTURE
Current Consumption	350 mA maximum (+12 VDC supply)
Operating Temperature	-40° to 65° C
Digital I/O	
Inputs	Support for contact closure, switches, open collector, or voltage inputs.
Default /Max (per Summit)	48 channels /192 channels
Input Range	0 to 60 VDC
Filters	Hold time
Outputs	Open drain outputs, 350 mA per channel
Default /Max (per Summit)	16 channels /36 channels
Output Range	Up to 50 VDC
Analog I/O	
Inputs	Multiple thresholds can be defined
Default /Maximum (per Summit)	32 channels /128 channels
Input Range	0 to 25 VDC, or 4 to 20 mA (24-bit resolution)
Filters	Hold time, threshold, qualifiers
Outputs	
Default /Maximum (per Summit)	4 channels /16 channels
Output Range	0 to 20 VDC, or 4 to 20 mA (16-bit resolution)
Serial Ports	2 ports (default configuration) - expandable to 8 ports per Summit, 4 ports configurable (RS232, RS422, RS485)
Ethernet	2 Ports, 10/100/1000 Base-T Fast Ethernet
Visual Indicators	Front panel: multi-colour LED, Rear panel: Ethernet status
Enclosure Options	19” Rack 1U - 1.75 inch (DIN-Rail Mount, Wall Mount, NEMA Enclosure options)

Table 21 – Hardware Specifications

6.2 *Summit SNMP Traps*

The following OIDs are represented within the TASC-SUMMIT.MIB file.

6.2.1 Digital Input SNMP Trap

OID	Syntax	Description
11902.3		Summit related MIB information
11902.3.1		Digital Inputs – sent upon change Populated with x=1 to d (default d=48)
11902.3.1.x.0.1 **(where x is address)**	DateAndTime	Time stamp of occurrence
11902.3.1.x.0.2	Integer	Address of I/O point
11902.3.1.x.0.3	Octet String	Name of I/O point
11902.3.1.x.0.4	Octet String	Value – “ON” or “OFF”
11902.3.1.x.0.5	Enum: Integer	Status – 1 (ON) or 0 (OFF)
11902.3.1.x.0.6	Enum: Integer	Mode – 1 (NC) or 0 (NO), where NC is normally closed and NO is normally open.
11902.3.1.x.0.7	Enum: Integer	Hold Time
11902.3.1.1000.1000.0.1000		Trap for digital inputs, includes above OIDS

Table 22 – Digital Input OIDs and Trap Definition

6.2.2 Digital Output SNMP Trap

OID	Syntax	Description
11902.3		Summit related MIB information
11902.3.2		Digital Outputs – sent upon change Populated with x=1 to d (default d=16)
11902.3.2.x.0.1 **(where x is address)**	DateAndTime	Time stamp of occurrence
11902.3.2.x.0.2	Integer	Address of I/O point
11902.3.2.x.0.3	Octet String	Name of I/O point
11902.3.2.x.0.4	Octet String	Value – “ON” or “OFF”
11902.3.2.x.0.5	Enum: Integer	Status – 1 (ON) or 0 (OFF)
11902.3.2.x.0.6	Enum: Integer	Mode – 1 (NC) or 0 (NO), where NC is normally closed and NO is normally open.
11902.3.2. 1000.1000.0.1000		Trap for digital outputs, includes above OIDS

Table 23 – Digital Output OIDs and Trap Definition

6.2.3 Analog Input SNMP Trap

OID	Syntax	Description
11902.3		Summit related MIB information
11902.3.3		Analog Inputs – sent upon threshold cross Populated with x=1 to d (default d=32)
11902.3.3.x.0.1 **(where x is address)**	DateAndTime	Time stamp of occurrence
11902.3.3.x.0.2	Integer	Address of I/O point
11902.3.3.x.0.3	Octet String	Name of I/O point
11902.3.3.x.0.4	Octet String	Value (decimal – e.g., “2.15”)
11902.3.3.x.0.5	Enum: Integer	Threshold State - 0 (In Range), 1 (Below), 2 (Above)
11902.3.3.x.0.6	Octet String	Low Threshold (decimal)
11902.3.3.x.0.7	Octet String	High Threshold (decimal)
11902.3.3.x.0.8	Enum: Integer	Hold Time
11902.3.3.x.0.9	Enum: Integer	Offset (100mV)
11902.3.3.x.0.10	Enum: Integer	Qualifier
11902.3.3.x.0.11	Enum: Integer	Formula Defined – 0 (False), 1 (True)
11902.3.3.x.0.12	Enum: Integer	Formula Enabled – 0 (False), 1 (True)
11902.3.3.x.0.13	Octet String	Formula Value (decimal)
11902.3.3.x.0.14	Octet String	Formula Units
11902.3.3.x.0.15	Octet String	Formula
11902.3.3. 1000.1000.0.1000		Trap for analog inputs, includes above OIDS

Table 24 – Analog Input OIDs and Trap Definition

6.2.4 Analog Output SNMP Trap

OID	Syntax	Description
11902.3		Summit related MIB information
11902.3.4		Analog Outputs – sent upon change Populated with x=1 to d (default d=4)
11902.3.4.x.0.1 **(where x is address)**	DateAndTime	Time stamp of occurrence
11902.3.4.x.0.2	Integer	Address of I/O point
11902.3.4.x.0.3	Octet String	Name of I/O point
11902.3.4.x.0.4	Octet String	Value (decimal – e.g., “2.15”)
11902.3.4. 1000.1000.0.1000		Trap for digital outputs, includes above OIDS

Table 25 – Analog Output OIDs and Trap Definition

6.2.5 Summit Trap Examples

An example of each type of trap is shown below.

```
Message Type: Dart.Snmp.Trap2Message
Time Received: 12/2/2015 4:15:44 PM
SNMP Version: Two
Origin IP Address: 10.10.7.84
Destination IP Address: 10.10.6.84
Timestamp: 12/2/2015 4:15:44 PM
Community: Public
Id: 22118
Variable IIDs and Values:
   1.3.6.1.4.1.11902.3.1.5.0.1: Thu Jan 01 1970 01:27:46 GMT+0000
   1.3.6.1.4.1.11902.3.1.5.0.2: 5
   1.3.6.1.4.1.11902.3.1.5.0.3: Digital Input 5
   1.3.6.1.4.1.11902.3.1.5.0.4: ON
   1.3.6.1.4.1.11902.3.1.5.0.5: 1
   1.3.6.1.4.1.11902.3.1.5.0.6: 0
   1.3.6.1.4.1.11902.3.1.5.0.7: 0
Description:
OID: 1.3.6.1.4.1.11902.3.1.1000.1000.0.1004
SysUpTime: 514915
```

Figure 44 – Digital Input 5 Changed to ON

```
Message Type: Dart.Snmp.Trap2Message
Time Received: 12/2/2015 4:17:16 PM
SNMP Version: Two
Origin IP Address: 10.10.7.84
Destination IP Address: 10.10.6.84
Timestamp: 12/2/2015 4:17:16 PM
Community: Public
Id: 3676127
Variable IIDs and Values:
   1.3.6.1.4.1.11902.3.2.2.0.1: Thu Jan 01 1970 01:29:19 GMT+0000
   1.3.6.1.4.1.11902.3.2.2.0.2: 2
   1.3.6.1.4.1.11902.3.2.2.0.3: Digital Output 2
   1.3.6.1.4.1.11902.3.2.2.0.4: OFF
   1.3.6.1.4.1.11902.3.2.2.0.5: 0
   1.3.6.1.4.1.11902.3.2.2.0.6: 0
Description:
OID: 1.3.6.1.4.1.11902.3.2.1000.1000.0.1001
SysUpTime: 524159
```

Figure 45 – Turn Off Digital Output 2

```
Message Type: Dart.Snmp.Trap2Message
Time Received: 9/30/2016 11:00:04 AM
SNMP Version: Two
Origin IP Address: 10.10.7.86
Destination IP Address: 10.10.6.84
Timestamp: 9/30/2016 11:00:04 AM
Community: Public
Id: 1860523
Variable IIDs and Values:
   1.3.6.1.4.1.11902.3.3.3.0.1: Fri Sep 30 2016 18:00:03 GMT+0000
   1.3.6.1.4.1.11902.3.3.3.0.2: 3
   1.3.6.1.4.1.11902.3.3.3.0.3: Current
   1.3.6.1.4.1.11902.3.3.3.0.4: 3.52
   1.3.6.1.4.1.11902.3.3.3.0.5: 2
   1.3.6.1.4.1.11902.3.3.3.0.6: 0.00
   1.3.6.1.4.1.11902.3.3.3.0.7: 3.00
   1.3.6.1.4.1.11902.3.3.3.0.8: 5
   1.3.6.1.4.1.11902.3.3.3.0.9: 0
   1.3.6.1.4.1.11902.3.3.3.0.10: 0
   1.3.6.1.4.1.11902.3.3.3.0.11: 1
   1.3.6.1.4.1.11902.3.3.3.0.12: 1
   1.3.6.1.4.1.11902.3.3.3.0.13: 2.6
   1.3.6.1.4.1.11902.3.3.3.0.14: Amps
   1.3.6.1.4.1.11902.3.3.3.0.15: (0.05*x-0.125)/0.02
Description:
OID: 1.3.6.1.4.1.11902.3.3.1000.1000.0.1002
SysUpTime: 636172
```

Figure 46 – Analog Input 3 Above High Threshold

```
Message Type: Dart.Snmp.Trap2Message
Time Received: 12/2/2015 4:20:48 PM
SNMP Version: Two
Origin IP Address: 10.10.7.84
Destination IP Address: 10.10.6.84
Timestamp: 12/2/2015 4:20:48 PM
Community: Public
Id: 5574716
Variable IIDs and Values:
   1.3.6.1.4.1.11902.3.4.3.0.1: Thu Jan 01 1970 01:32:51 GMT+0000
   1.3.6.1.4.1.11902.3.4.3.0.2: 3
   1.3.6.1.4.1.11902.3.4.3.0.3: Analog Output 3
   1.3.6.1.4.1.11902.3.4.3.0.4: 12.00
Description:
OID: 1.3.6.1.4.1.11902.3.4.1000.1000.0.1002
SysUpTime: 545327
```

Figure 47 – Analog Output 3 Set to 12 Volts

6.2.6 Forward Power Alarm Monitoring Example

The goal is to monitor a transmission failure, where the measured forward power is less than 3 dBm using an RF power sensor.

Summit Connections

Digital Input 1	Push to Talk (PTT) for the channel.
Analog Input 4	RF power sensor monitoring a radio channel.

Steps

1. Determine the formula for the RF power sensor. This can be determined from the manual, or measuring the sensor DC voltages at varied power levels, plotting the data in MS Excel, and then adding a trend line to the plot.

   For this example, the formula is:
   Power (dBm) = 13.085 x^2 + 10.063 x – 0.859 (where x is the output DC voltage)

2. Enter the formula into the Summit. This is done from Analog I/O Configuration, at the Formulas tab.

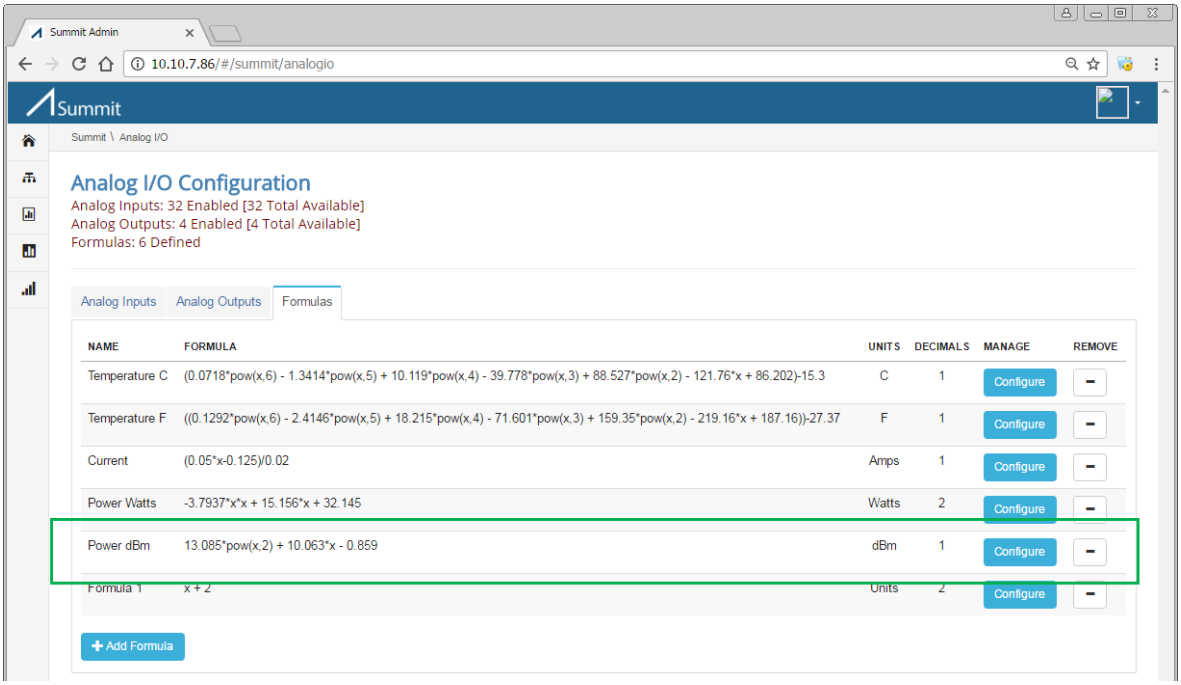


Figure 48 – Forward Power Formula

3. Configure the analog input using the Crest interface. For this example, the RF power sensor is connected to Analog Input 4.
   a) Enter Forward Power, as the Name of the Analog Input.
   b) Select Power dBm as the Formula.
   c) Enter a Low Threshold value in Volts, and then press Evaluate button to see the Formula Low Threshold. Adjust the value until the Formula Low Threshold is 3 dBm.

d) Set the Input Qualifier to 1, which represents Digital Input 1.

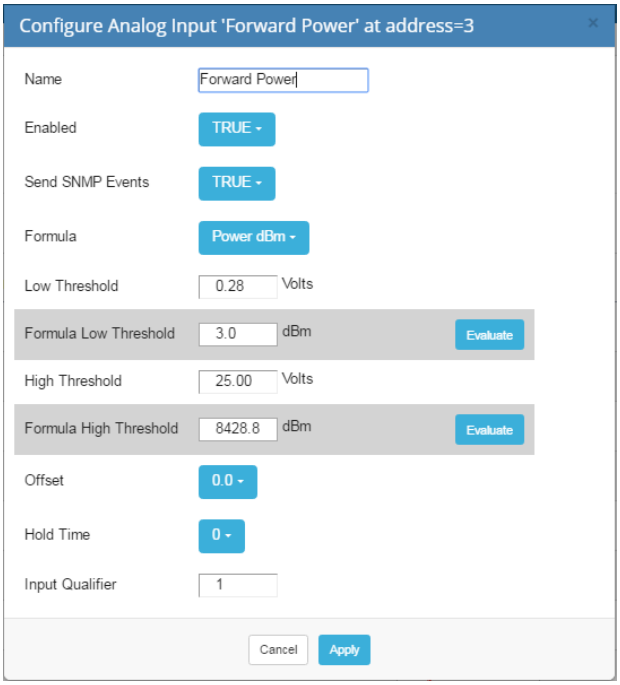


Figure 49 – Summit Analog Input 4 Configuration Example

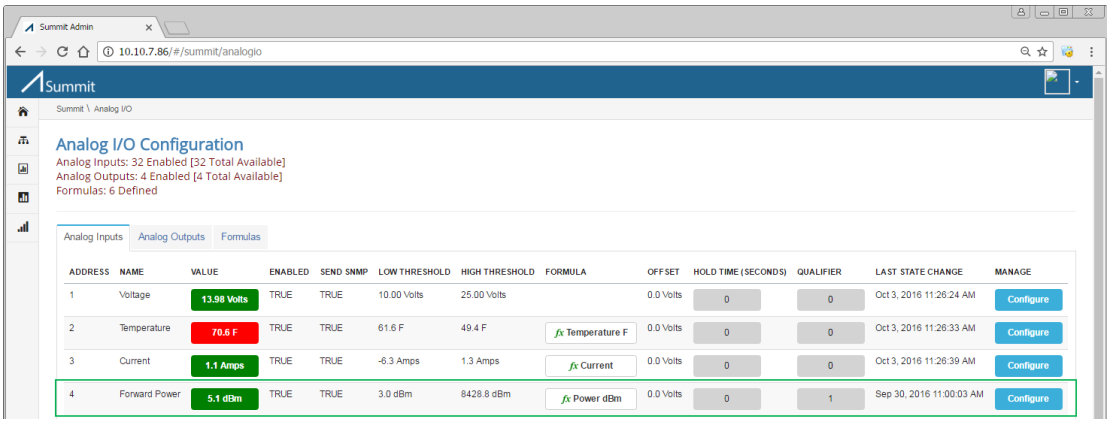


Figure 50 – Summit Analog Input 4 Configured for Example

4. Create an alarm in the TASC Apex software.

   The SNMP OID 1.3.6.1.4.11902.3.3.4.0.5 analogInput04ThresholdState of 1 represents an Analog Input 4 voltage value below the low threshold (0 indicates in range, and 2 indicates above high threshold).

   a) Select the Summit node from the sites tree.
   b) Select Edit, Alarm Configuration from the menu.

c) Press the New button to add an alarm.
d) Select I/O point analogInput04ThresholdState, Condition Is Equal to 1, and enter a message in the Alarm Details.

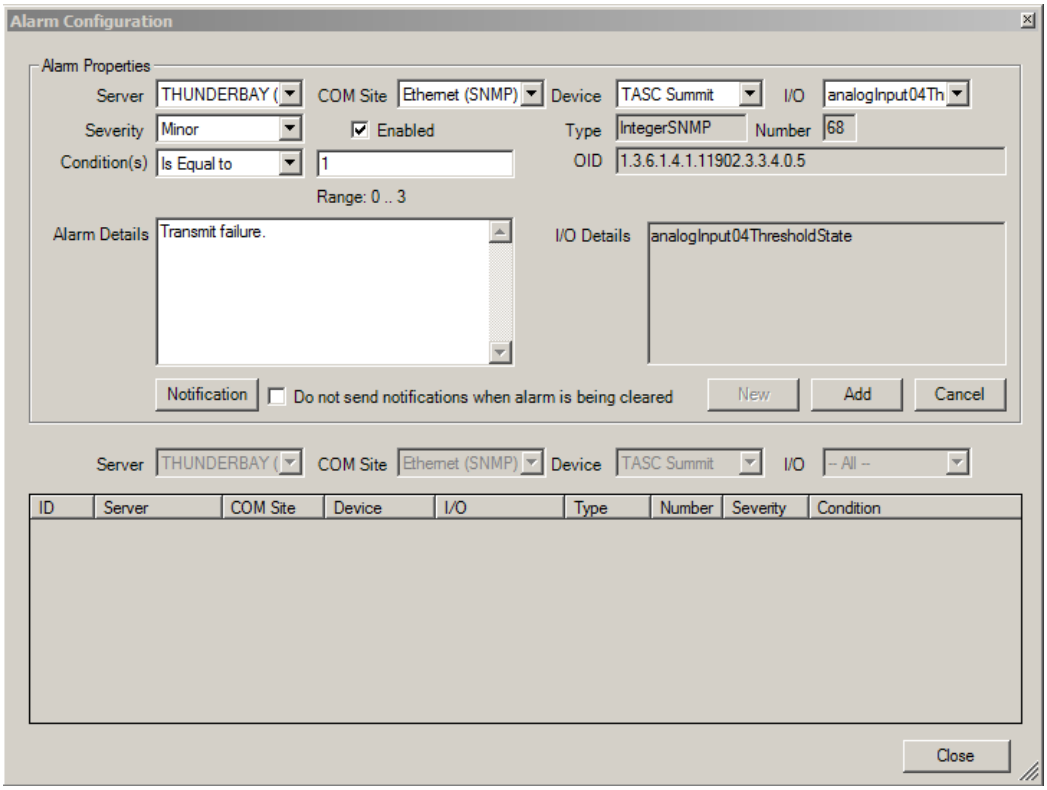


Figure 51 - Apex Alarm Configured for Example

e) Press the Add button.

5. Transmit using the radio.

   When transmit power is above 3 dBm, the Apex analogInput04ThresholdState will be 0. Traps for Analog Input 4 (Forward Power) will be sent out by the Summit only when the state changes from in range to below low threshold, or from below low threshold to in range (while the qualifier, PTT, is on).

The following screens demonstrate what will be displayed when the transmit power goes from in range, to below 10 Watts.

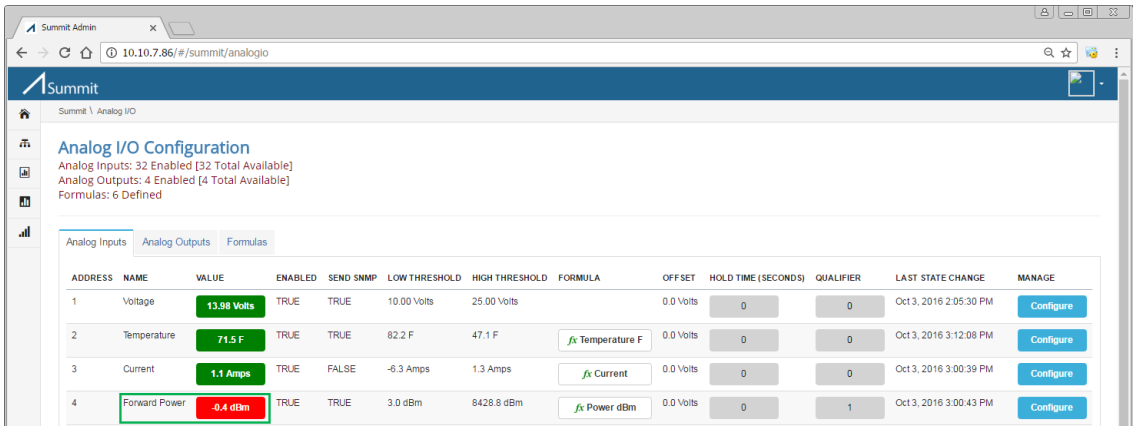


Figure 52 – Crest – Forward Power Below Low Threshold Indicator

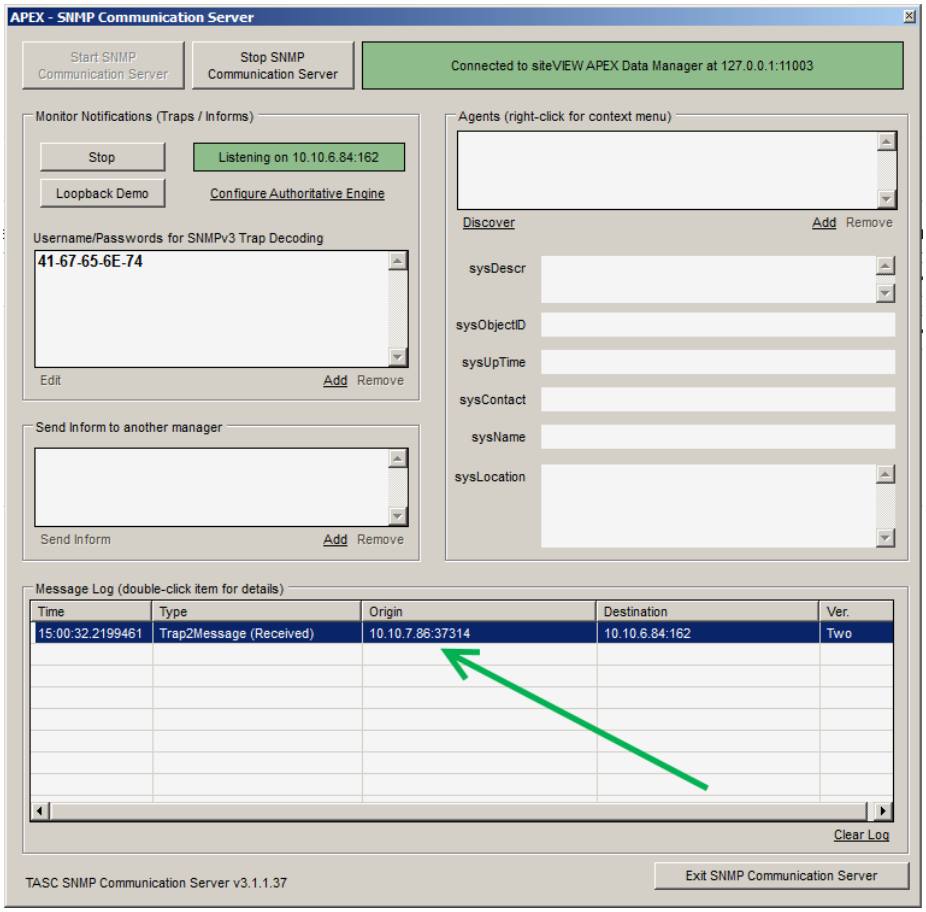


Figure 53 – Apex Communication Server Receives Trap

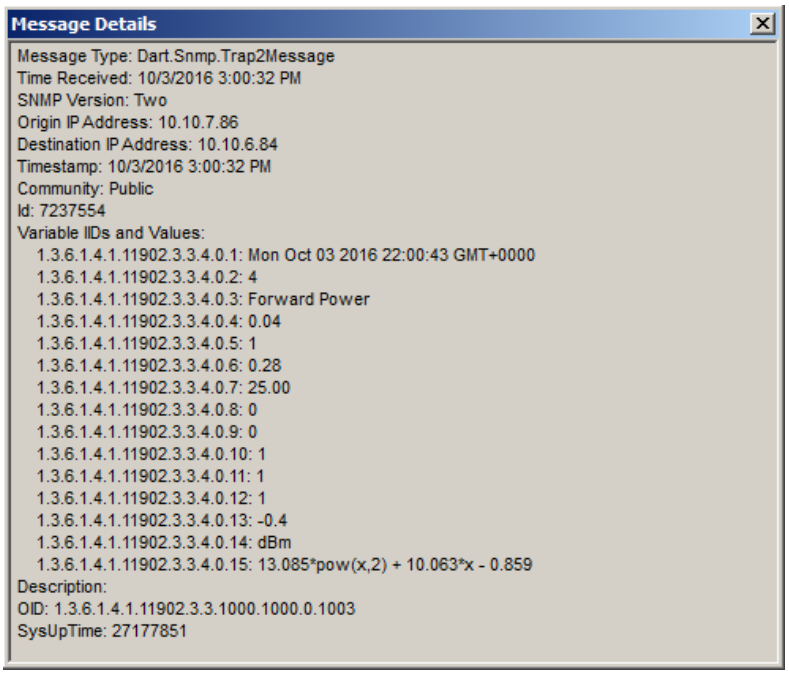


Figure 54 – Details of Forward Power Low Threshold Trap

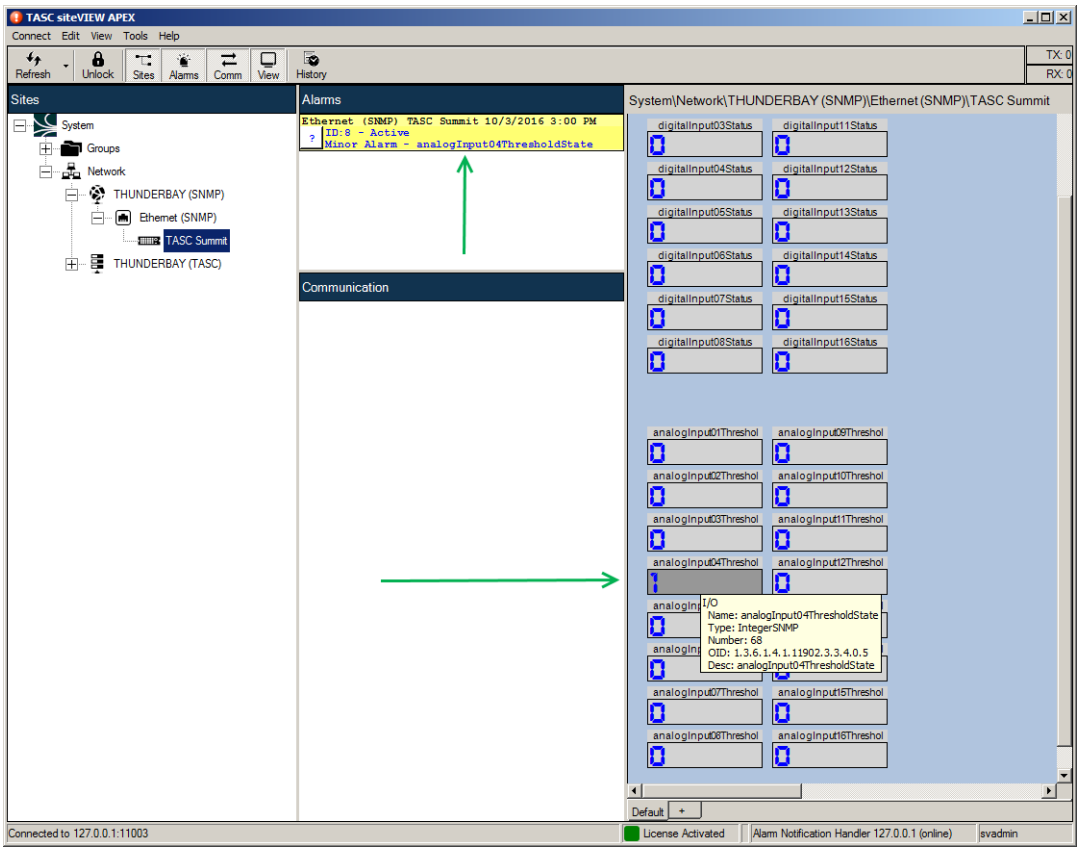


Figure 55 – Apex Shows Alarm for Analog Input 4 Threshold State

6.3 Troubleshooting

The table, below, offers tips for some of the issues that may be encountered. Further assistance can be obtained by calling 604-455-2000 or toll free 1-855-237-8235, or by email to technicalsupport@tascsystems.com.

Issue	Suggestions
Summit LEDs are not lit	• Ensure that +8 to +48 VDC power is supplied to the Summit. • Re-seat the power cable connector to the Summit.
Summit LED is not solid blue (ready)	• Restart the Summit by pressing the left button (Reset) on the front of the Summit, and wait two minutes for restart to complete.
Unable access the Summit using Crest user interface	• Google Chrome should be used as the Web browser for Crest. • Ensure that the correct IP address was used, and that the computer is on the same subnet as the Summit. See *3.1 Network Configuration*. • Ensure that the correct port was used (default is 80). See port configuration under Network, Web Server. • From the computer Command Prompt, try to ping the IP address of the Summit to ensure it is accessible from the computer.
Date stamps in Crest user interface are not accurate	• The Summit does not have a battery. If the Summit is not connected to a network with a Network Time Protocol server (used as an external time source), the date and time stamps shown in the Crest interface will not be correct. • Setting network gateway, and name server will provide date.
Apex is not showing Summit I/O activity	• Ensure that I/O point has ENABLED = TRUE and SEND SNMP = TRUE at the appropriate I/O Configuration screen. • Ensure that the IP address of the Apex computer has been added as a host under Network Configuration, SNMP Hosts tab. • Ensure that the Apex – SNMP Communication Server is running on the Apex computer and is listening on the computer IPv4 address. • Apex is currently not able to report activity for Analog Outputs. This will be added in a future enhancement.
Ethernet port 1 is not working	• Do not connect a cable to this RJ45 port. Ethernet 1 (eth1) will be enabled in a future enhancement.

Summit I/O not working as expected	• The I/O can be tested by using a RJ45 cable as a loopback. • For a Digital test, install a cable between a Digital Input and a Digital Output (e.g. Digital Input 1-8 connected to Digital Output 1-8). • For an Analog test, install a cable between an Analog Input and a Analog Output (e.g. Analog Input 1-8 connected to Analog Output 1-8).
Crest Software Manage button is not displayed at System Configuration screen	• Error with file request – indicates that the Summit does not have Internet access (see *5.1 Internet Access*). • To check your network firewall settings, paste the Custom URL path into a Windows browser (e.g. http://www.tascsystems.com/downloads/summit/crest-v0.13.1.tar), and make sure the tar file is accessible.

Table 26 – Troubleshooting Suggestions

6.4 NXDN Applications

6.4.1 Kenwood Repeater Control

Kenwood trunked radios have, as a network option, an IP link to each of the trunked sites for wide area roaming and calling capabilities. When a repeater site experiences poor IP connectivity, the group of radios that are registered on the site can become stranded and may be unable to talk to the rest of the trunking system. They may remain registered on the site with poor connectivity, even though there are other sites available to register on. This scenario may occur until the connectivity is re-established, or the repeater is shut down, to allow the site to register on another site. Shutting down the repeater can be done automatically using a Summit.

The status of the network is determined by having the Crest software (Summit) continuously ping a known node (like the host router for the link network). The Summit can be configured to shut down the radio upon detection of failed pings. Conversely, once connectivity is restored to an acceptable level, the Summit will automatically enable the repeater, so that radios can register on it.

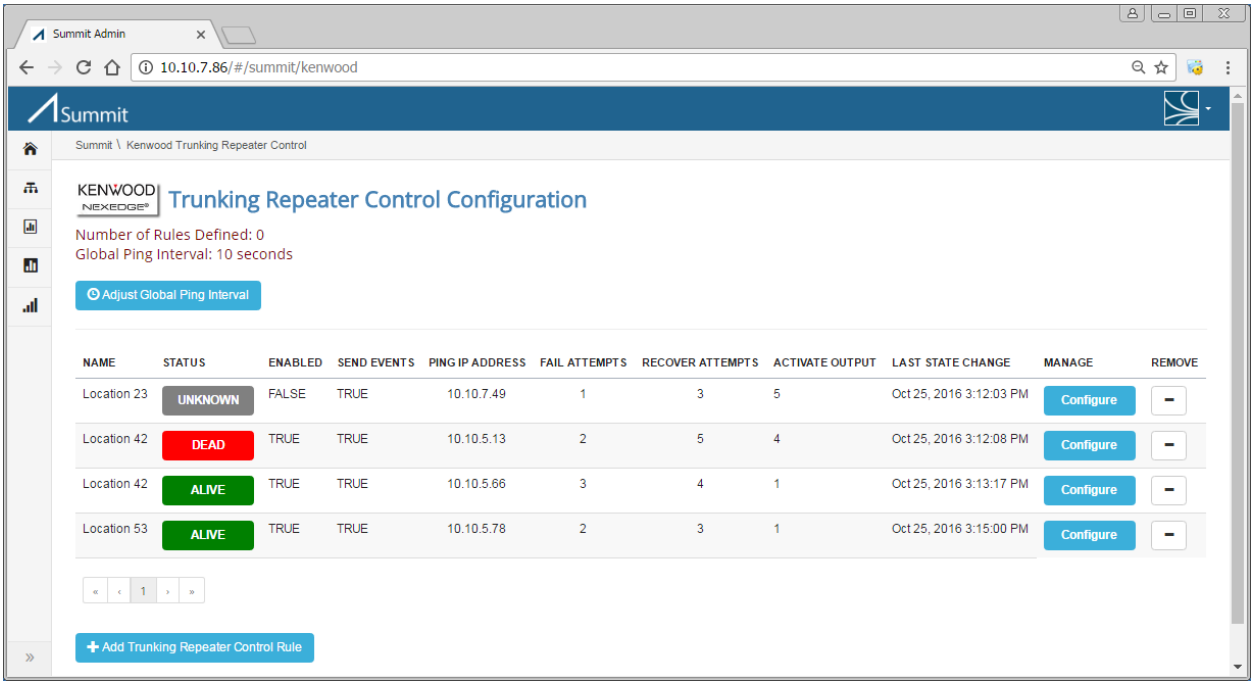


Figure 56 – Kenwood Repeater Control Configuration Screen

The Kenwood Repeater Control Configuration screen allows the user to add one or more rules for system control by selecting the + Add Repeater Control Rule button.

A description of the information displayed and the button actions, for the Analog Inputs tab, is displayed in the following table:

Screen Item	Description
Add Repeater Control Rule button	Allows adding of a rule.
Adjust Global Ping Interval button	For configuration of the time between ping attempts, in seconds.
NAME	Name of rule.
STATUS	UNKNOWN - when rule is disabled. ALIVE - can be pinged, according to rule settings. DEAD - cannot be pinged, according to rule settings.
ENABLED	TRUE to enable this rule, FALSE to disable this rule.
SEND EVENTS	FUTURE - TRUE to send event (SNMP and Email) when a rule state changes, FALSE to not send traps. Currently, an event will be sent for the Digital Output change.
PING IP ADDRESS	IP Address which is pinged to determine IP network health.
FAIL ATTEMPTS	Number of pings which must fail before a “disable control” event is launched, and the status is changed to DEAD.
RECOVER ATTEMPTS	Number of pings which must succeed before an “enable control” event is launched, and the status is changed to ALIVE.
ACTIVATE OUTPUT	Digital output signal on the Summit which is used to disable/enable the Kenwood repeater.
LAST STATE CHANGE	Timestamp of last rule modification, or status change.
Configure button	Change the configuration settings of the various fields in the rule.
- button	Delete the rule on this line.

Table 27 – Kenwood Repeater Control Screen Items

6.5 TASC Directional Power Device with VSWR Configuration

Caution

- Can cause electrical shock or equipment damage, disconnect the Summit power supply before connecting the wiring.
- Power down the radio before installing the TASC Directional Power Device with VSWR.
- This device must be connected to Port 7 or Port 8 on the Summit.
- Connect the device to the Summit before configuring the port and device in the Crest interface.
- Clear the Summit port configuration in the Crest interface before disconnecting the device from the Summit port.

Wiring

The Summit model must have a Port 7 and Port 8, in order to connect to a TASC Directional Power Device with VSWR. These ports are configured for RS-485 half duplex. If you do not have these ports, and require a connection to a TASC Directional Power Device with VSWR, contact TASC Systems, for more information.

The TASC Directional Power Device with VSWR is connected, using an 800-120-0142 TASC RS-485 Cable, from either Data port on the device, to Port 7 or Port 8 on the Summit. The second Data port on every TASC Directional Power Device with VSWR should have a terminator installed.

At this time, one TASC Directional Power Device with VSWR can be connected to a Summit port.

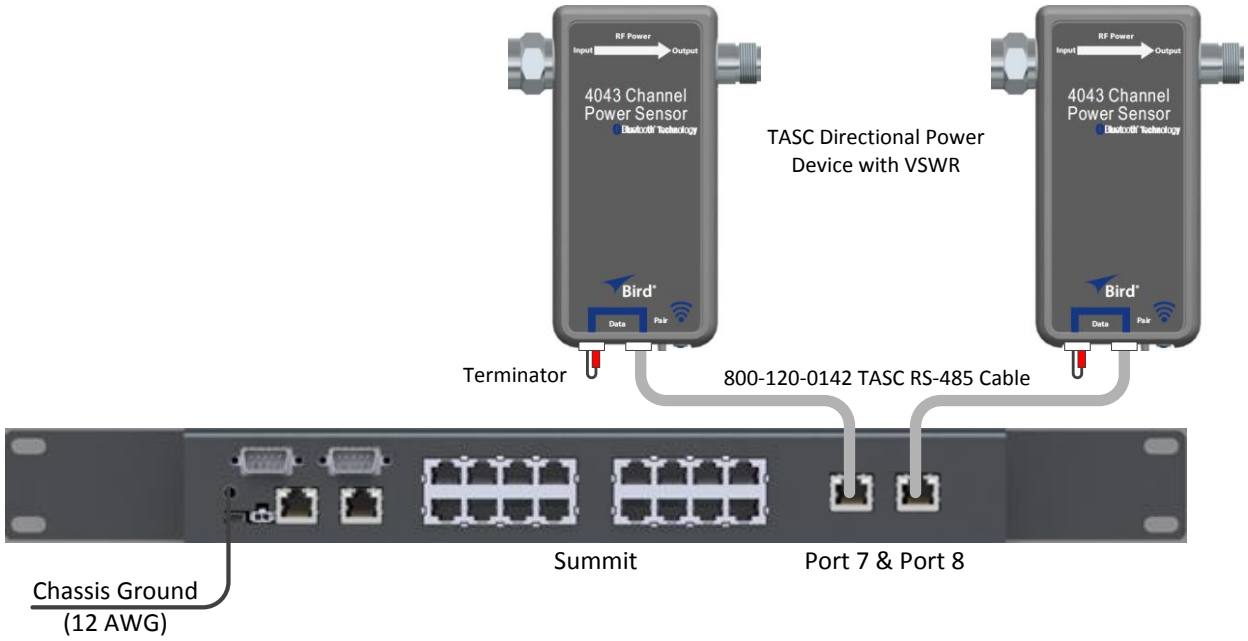


Figure 57 – Direction Power Device with VSWR Connected to Summit

Crest Configuration

The Crest interface is used to configure the Summit Port 7 or Port 8 for the Directional Power Device with VSWR. See 3.7 Serial I/O Configuration for information about adding and enabling a serial port in Crest.

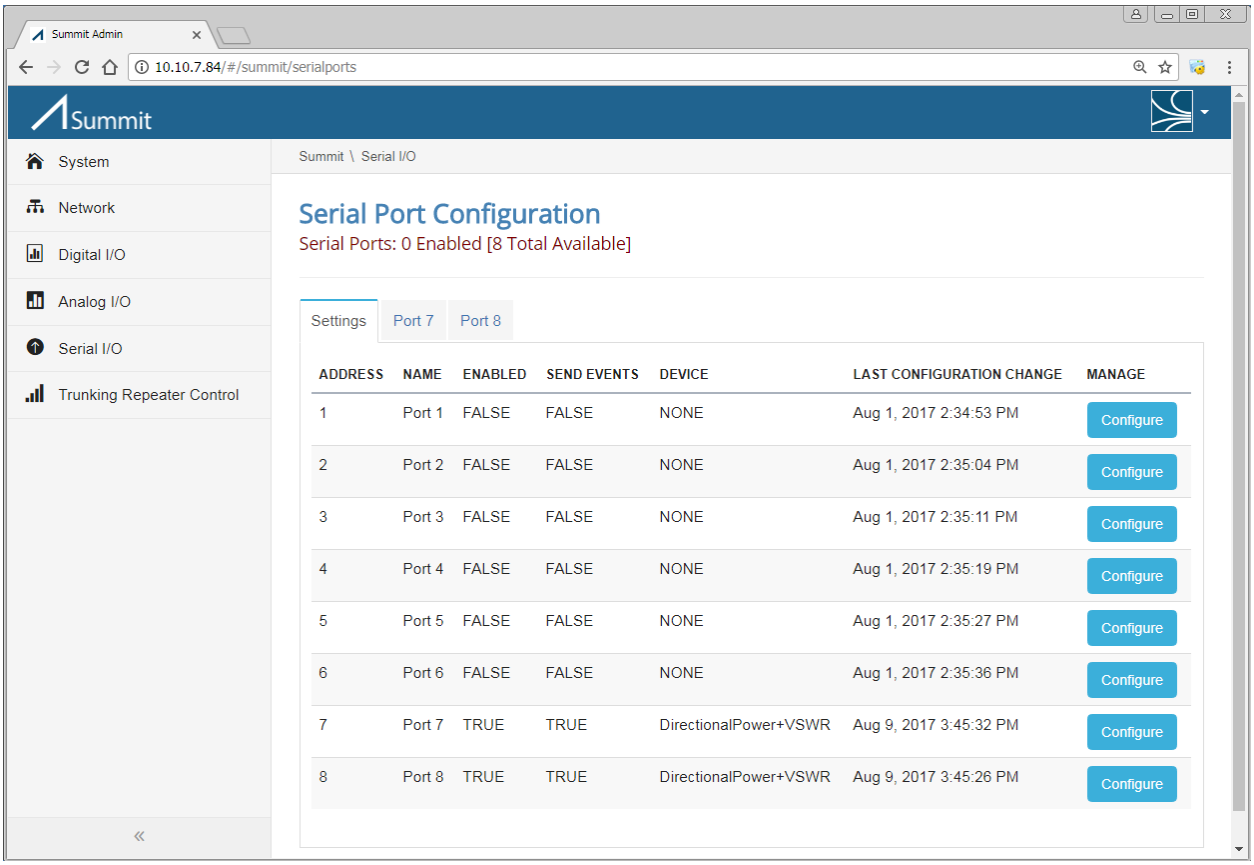


Figure 58 – Serial Port Configuration Screen

When the Summit is powered on with the TASC Directional Power Device with VSWR connected, the device status LED will initially flash blue and then turn solid green.

From the Serial Port Configuration Screen, select the port tab for the serial port that was configured, to view the device Summary screen. After the TASC Directional Power Device with VSWR has been powered on for 45 seconds, values will be read from the device. Data will be displayed instantaneously while the device is connected, from that point on.

The address of the sensor must be 255 to be able to communicate with the Crest software. If there is no communication (values are not changing at the Parameters tab, and the Device Information tab does not show the SERIAL #), try pressing the Reset Device button on the Device Information tab.

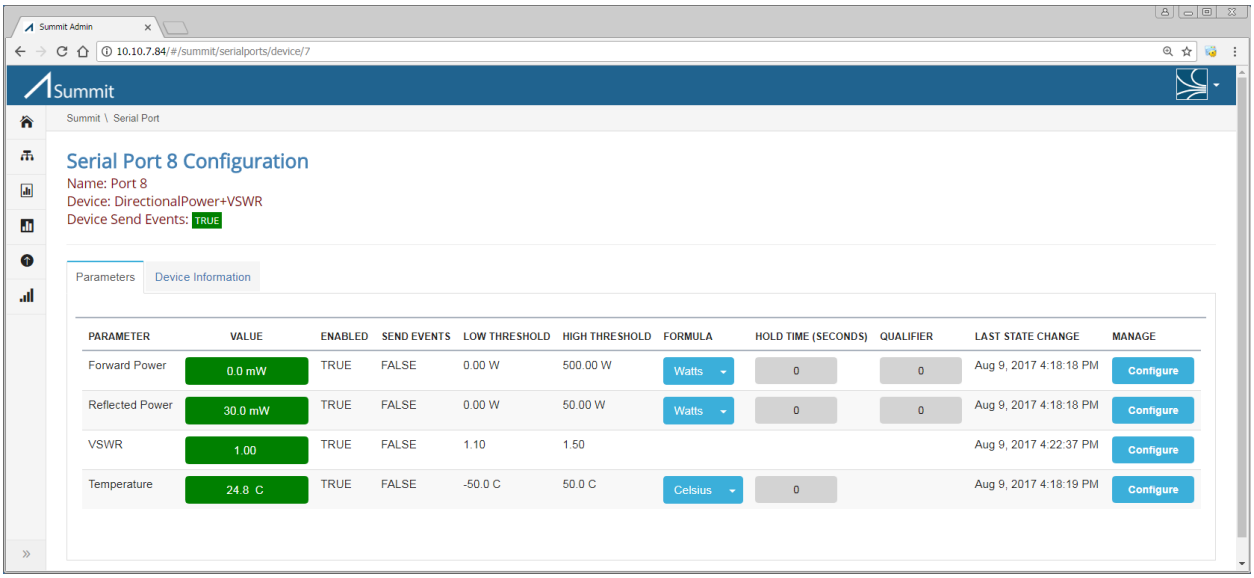
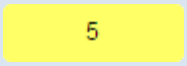


Figure 59 – Crest Directional Power Device with VSWR - Parameters Tab

A description of the information displayed and the button actions, for the Non-directional Power Device screen, is displayed in the following table:

Screen Item	Description
Device Send Events	Indicates whether SEND EVENTS was enabled at the Serial Port Configuration screen, for this particular port. Values are: TRUE and FALSE.
PARAMETER	Parameters readings available from the device, updated every 1 – 3 seconds.
VALUE	Value of the associated parameter in the selected unit, displayed regardless of thresholds, and hold time. The background colour represents the current state of the measured adjusted value. Measured value is in range. Measured value is less than LOW THRESHOLD. Measured value is greater than HIGH THRESHOLD. See Table 14 – Analog Input value changes reporting, for more information about when the VALUE changes

ENABLED	Values are actively read for the Parameter (TRUE), or not actively read (FALSE).
SEND EVENTS	SNMP and Email (SMTP) events will be sent when the Parameter crosses a threshold boundary as per Table 14 – Analog Input value changes reporting (TRUE), or not sent (FALSE).
LOW THRESHOLD	Used to trigger an event when the Parameter value drops below this value and the hold time is exceeded. Crest accepts two decimal places for entry.
HIGH THRESHOLD	Used to trigger an event when the Analog Input value, adjusted by the OFFSET, goes above this value and the hold time is exceeded. Crest accepts two decimal places for entry.
FORMULA	Selected units for display of the value. Configurable from drop-down menus.
HOLD TIME	Optional hold timer setting (0 – 5 seconds). Used to prevent multiple threshold crossings, when the measured value hovers around a threshold. The 0 second default value is the processing speed of Parameter values (approximately two seconds). The voltage must remain beyond the threshold for a period in excess of the hold time, before an event is triggered. Conversely, if the value starts beyond a threshold, the value must be in normal range for a period in excess of the hold time, before an event is triggered. The background colour represents the state of the hold timer.  Hold time is set to five seconds, and timer is not currently counting (inactive).  Hold time is set to five seconds, and the timer is counting after the threshold change.  Hold time is set to five seconds, and the timer has reached five seconds after a threshold change.
QUALIFIER	Optional Digital Input that “gates” this device Parameter. The qualified Parameter is not reported as an event, unless the “gating” Digital Input is active. Possible values are 1 – 48. The background colour represents the state of the qualifier. Digital Input 1 qualifier is Off.

	1 Digital Input 1 qualifier's hold time has expired, and is On.
LAST STATE CHANGE	The time that the Parameter value crossed a threshold boundary as per Table 14 – Analog Input value changes reporting.
Configure button	Change the configuration settings for the Parameter.

Table 28 – TASC Directional Power Device with VSWR – Summary Tab

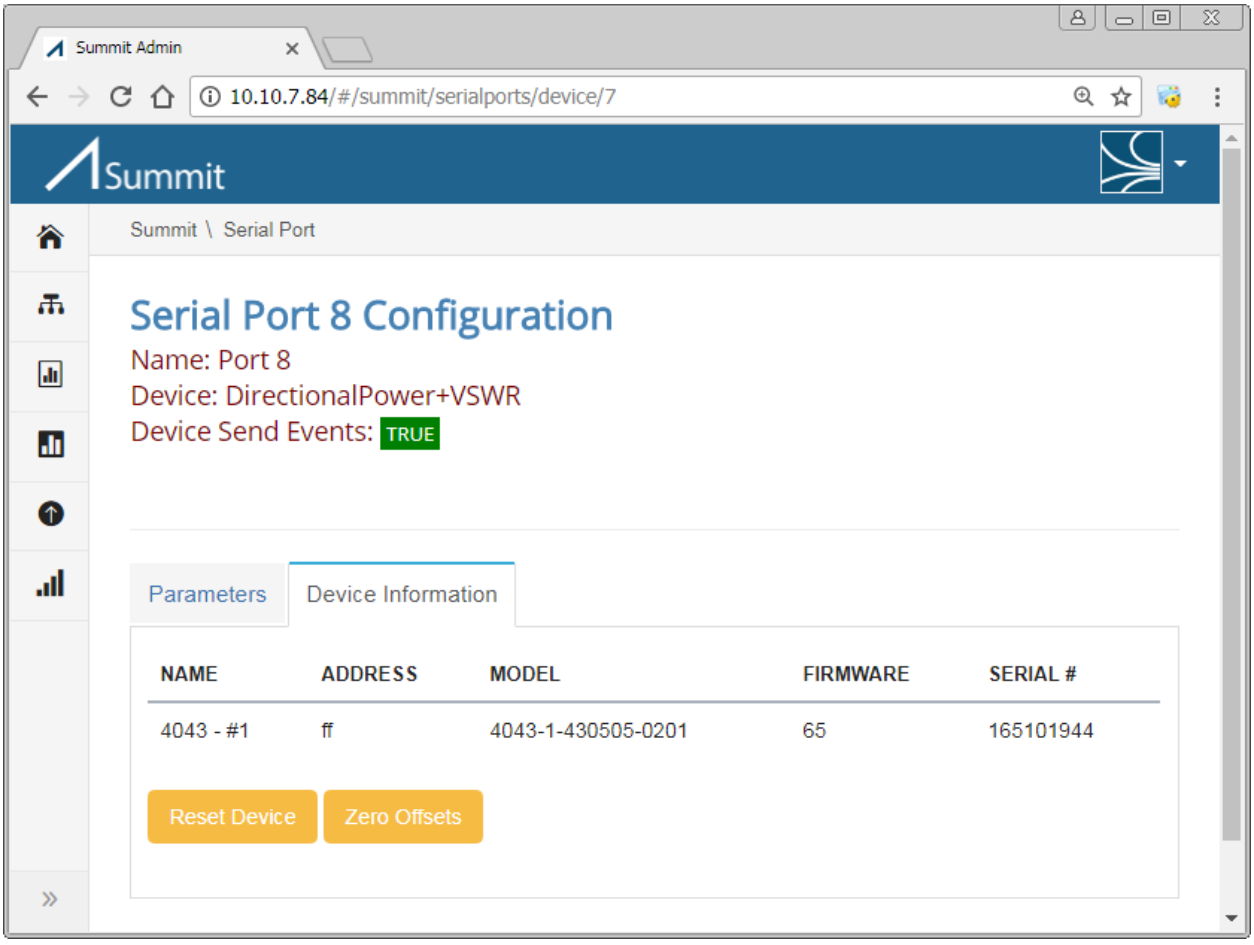


Figure 60 – Crest Directional Power Device with VSWR – About Tab

Screen Item	Description
Device Send Events	Indicates whether SEND EVENTS was enabled at the Serial Port Configuration screen, for this particular port. Values are: TRUE and FALSE.
NAME	4043. Not configurable at this time.
ADDRESS	ff, which represents 255 in hexadecimal. The address must be ff, in order to communicate with the Crest software.
MODEL	Device model read from the device.
FIRMWARE	Firmware version read from the device.
SERIAL #	Serial number read from the device.
Reset Device button	Resets the address of the device to 255 (ff). The device must be connected in order to reset the address.
Zero Offsets button	Zero the device. This button should be pressed when there is no power present.

Table 29 – TASC Directional Power Device with VSWR – About Tab