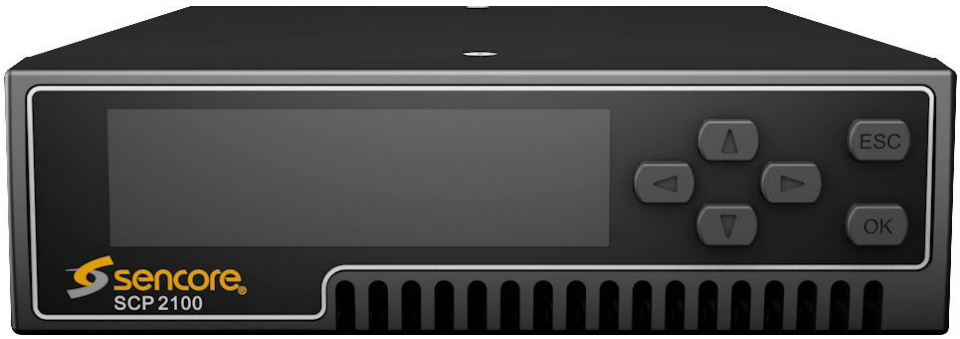
SCP 2100
Signal Collection Platform

User Manual



About Sencore

Sencore is an engineering leader in the development of high-quality signal transmission solutions for the broadcast, cable, satellite, IPTV, telecommunications, and professional audio/video markets. The company's world-class portfolio includes video delivery products, system monitoring and analysis solutions, and test and measurement equipment, all designed to support system interoperability and backed by best-in-class customer support. Sencore meets the rapidly changing needs of modern media by ensuring efficient delivery of high-quality video from the source to the home. For more information, visit www.sencore.com.

Revision History

Date	Version	Description	Author
06/07/2020	1.0	Initial Release (1.0.0 Software)	BCR

Safety Instructions

- Read and follow all instructions
- Keep this manual
- Heed all warnings
- Do not use this apparatus near water
- Clean only with dry cloth
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.
- To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
- The mains plug of the power supply cord shall remain readily operable.
- **Damage Requiring Service**: Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    - When the power-supply cord or plug is damaged.
    - If liquid has been spilled, or objects have fallen into the product.
    - If the product has been exposed to rain or water.
    - If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of the controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
    - If the product has been dropped or damaged in any way.
    - The product exhibits a distinct change in performance.
- **Replacement Parts**: When replacement parts are required, be sure the service technician uses replacement parts specified by Sencore, or parts having the same operating characteristics as the original parts. Unauthorized part substitutions made may result in fire, electric shock or other hazards.

SAFETY PRECAUTIONS

There is always a danger present when using electronic equipment.

Unexpected high voltages can be present at unusual locations in defective equipment and signal distribution systems. Become familiar with the equipment that you are working with and observe the following safety precautions.

- Every precaution has been taken in the design of your SCP 2100 to ensure that it is as safe as possible. However, safe operation depends on you the operator.
- Always be sure your equipment is in good working order. Ensure that all points of connection are secure to the chassis and that protective covers are in place and secured with fasteners.
- Never work alone when working in hazardous conditions. Always have another person close by in case of an accident.
- Always refer to the manual for safe operation. If you have a question about the application or operation call Sencore for assistance.
- WARNING – To reduce the risk of fire or electrical shock never allow your equipment to be exposed to water, rain or high moisture environments. If exposed to a liquid, remove power safely (at the breaker) and send your equipment to be serviced by a qualified technician.
- To reduce the risk of shock the SCP 2100 must be connected to a mains socket outlet with a protective earthing connection.
- For the SCP 2100 the mains plug is the main disconnect and should remain readily accessible and operable at all times.
  The SCP 2100 is equipped with an internal system battery. The SCP 2100 must be sent to Sencore service for replacement of this battery.
- To reduce the risk of shock and damage to equipment, it is recommended that the chassis grounding screw located on the rear of the SCP 2100 – be connected to the installation's rack, the vehicle's chassis, the battery's negative terminal, and/or earth ground.

CAUTION – Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

FCC Class A Information

The SCP 2100 has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

Shielded cables must be used with this unit to ensure compliance with the Class A FCC limits.

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

Package Contents

The following is a list of the items that are included along with the SCP 2100:

1. AC Power Cable
2. Quick Start Guide

If any of these items were omitted from the packaging of the SCP 2100 please call 1-800-SENCORE to obtain a replacement. Manuals for Sencore products can be downloaded at www.sencore.com

1) AC Power Cable

2) Quick Start Guide

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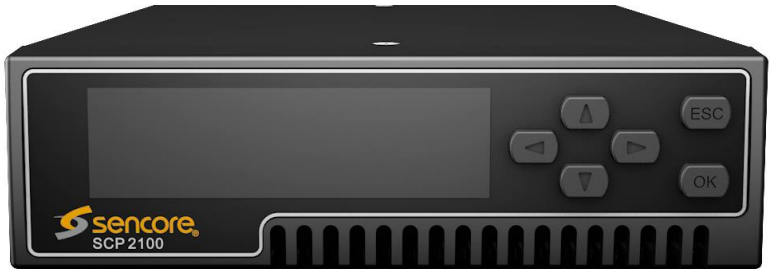


Introduction

This section includes the following topics:

1.1 Product Introduction

The SCP 2100 is a Signal Collection Platform used as a turnaround product capable of receiving a transport stream from the following interface types:

1) ASI
2) IP
3) RF – 8VSB (2101 Model)

The SCP 2100 can then convert these input types to IP or Zixi output. This unit is fully controllable through the web interface to perform tasks such as setup, monitoring, and troubleshooting

This manual describes how to install, configure, and operate the SCP 2100 Signal Collection Platform. This receiver is also backed by Sencore's best-in-class staff of ProCare support engineers.

1.2 Front Panel Overview

The SCP 2100's physical IP addresses can be controlled from the front panel using the LCD screen and buttons that are shown below. A description of using the front panel can found in Section 3.1.

Figure 1: SCP 2100 Front Panel

1. Input Indicator
2. Error Indicator
3. LCD Screen
4. Up, Down, Left and Right Buttons
5. OK and ESC (escape) Buttons

1.3 Rear Panel Overview

The SCP 2102 comes with all the hardware listed below. ASI and MPEG/IP are standard inputs for all models of SCP.

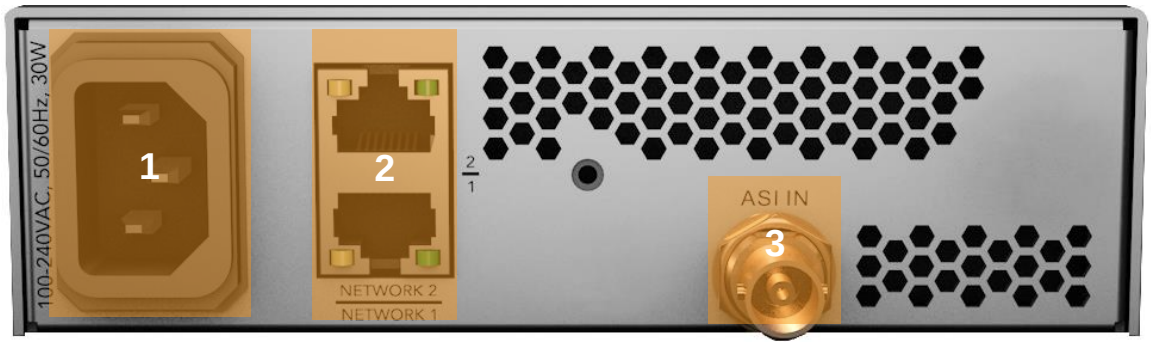


Figure 2: SCP 2102 Rear Panel

1. Power Supply
2. RJ45 Network 1 and Network 2 Ports
3. ASI In Connector

The SCP 2101 comes with all the ASI, RF and IP standard hardware listed below.

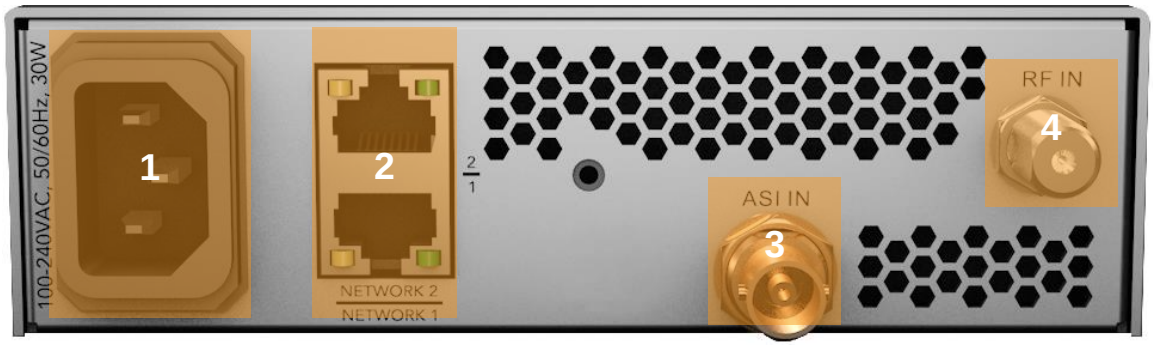


Figure 3: SCP 2101 Rear Panel

1. Power Supply
2. RJ45 Network 1 and Network 2 Ports
3. ASI Input Connector
4. RF Input Connector

1.4 Cooling

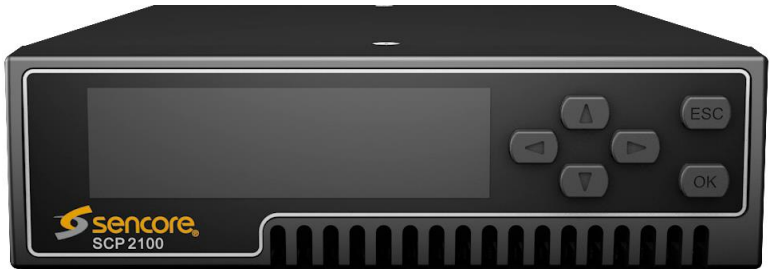
The SCP 2100 is cooled via forced induction through the front of the unit and exhausted through the vents in the rear and sides of the chassis. The SCP 2100 is equipped with a temperature controlled status indicator. If the temperature in the inside of the unit exceeds 50° C the red “Error” text will illuminate on the front panel and a description of the error will appear in the “Error List.”

1.5 Rack Information

The SCP 2100 is versatile and was designed to be deployed as a standalone device for easy installation into locations with limited space. With the optional SDI2X-MOUNT kit, three (3) SCP 2100 units can be deployed in a standard 19” rack and occupy slightly more than 1RU of rack space.

Figure 4: SCP 2100 Rack Mount Kit

Section 2 Installation



Introduction

This section includes the following topics:

2.1 Installation

The SCP 2100 unit can easily be deployed almost anyplace. The size is small enough that the unit can be placed on a desk, an equipment rack or a shelf on a test bench.

2.2 Power Connection

Using the proper power connections is vital to the safe operation of the SCP 2100. Only use the supplied 3-prong power connector or one with equal specifications. NEVER tamper with or remove the 3rd – prong grounding pin. This could cause damage to the SCP 2100, personnel, or property.

2.3 AC Power Connection

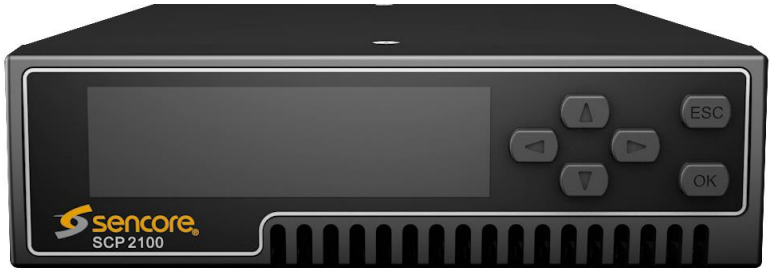
The SCP 2100 is intended for use on either 120V or 240V systems. The power supply will automatically detect the system it is connected to. To hook up the power use the following steps:

1. Locate the AC power cord that was included with the SCP 2100.
2. Plug the female end of the power cord (end with no prongs) into the back of the unit.
3. Locate a protected outlet to plug the male end of the power cable into.

2.4 Maintenance

The SCP 2100 is virtually a maintenance-free piece of equipment. There are no user serviceable parts on the inside of the unit

Section 3 Operating the Front Panel

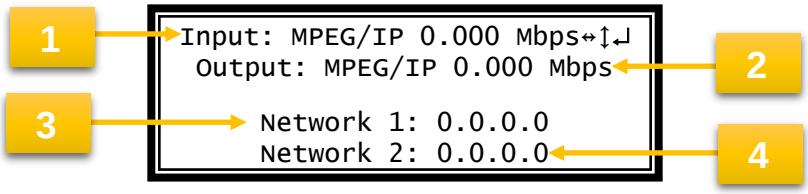


Introduction

This section includes the following topics:

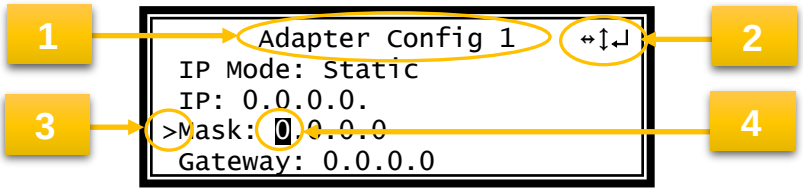
3.1 SCP 2100 Front Panel Overview

The SCP 2100 front panel allows configuration of the network interface settings, apply profiles, and viewing alarm status and unit information. The screen below is the idle screen of the SCP 2100. This idle screen shows the incoming bitrate of the active input and output and the management IP address of the unit.



1. Active input and bitrate of incoming stream
2. Output format and bitrate
3. IP address of “Network 1” interface
4. IP address of “Network 2” interface

The figure on the next page shows a typical screen on the front panel. Several important features have been circled and noted. These features are common to all screens and assist when navigating, viewing and editing unit information. The ESC button allows the user to return to the home screen, cancel settings and go back a menu. In order to edit a selected parameter the OK button must be pressed. Once a parameter has been changed the OK button must be pressed again before the change takes effect on the unit.



1. Screen title.
2. Icons indicate which control buttons are currently valid for entry.
3. Cursor shows which line is active.
4. When editing, active character or item is highlighted.

3.2 Network Setup via Front Panel

The SCP 2100 can be setup on a network connection to allow remote management and SNMP configuration. For these features to work, the network settings for the SCP 2100 must first be configured properly for the network it is connected to.

Configuring IP Mode (Static or DHCP)

To setup the SCP 2100 with a static IP address, use the following steps:

1. Press the OK button (twice if the front panel is in “Idle” mode).

```
Input: MPEG/IP 0.000 Mbps↔↕↵
 Output: MPEG/IP 0.000 Mbps

     Network 1: 0.0.0.0
     Network 2: 0.0.0.0
```

2. Use the ▲ and ▼ buttons to move the cursor to “Admin”, then press the OK button.

```
          Main Menu        ↔↕↵
>Admin
 Active Errors
 About System
```

3. Use the ▲ and ▼ buttons to move the cursor to “Unit Networking”, then press the OK button.

```
            Admin          ↔↕↵
>Unit Networking
 Profile
```

4. Use the ▲ and ▼ buttons to move the cursor to “Network 1 Configuration”, then press the OK button.

```
       Unit Networking     ↔↕↵
>Configure Networking
 Network 1 Configuration
 Network 2 Configuration
```

5. If unit is currently set to “DHCP”, it can be set to “Static” by pressing OK to navigate to the “Adapter Config 1” Menu.

```
    Press OK to configure ↔↕↵
 IP Address: 0.0.0.0
 Subnet Mask: 0.0.0.0
 Gateway: 0.0.0.0
 Mode: DHCP
```

6. Press the OK button to select “IP Mode”. Use the ▲ and ▼ buttons to highlight “Static”. Press the OK button to apply the changes.

```
       Adapter Config 1     ↔↕↵
>IP Mode: DHCP
```

7. Alternatively, if the unit is currently set to “Static”, it can be set to “DHCP” by using the ▲ and ▼ buttons to move the cursor to “IP Mode”. Press the OK button to enter “Adapter Config 1” menu.

8. Use the ▲ and ▼ buttons to change the selection to “DHCP”, then press the OK button to save the selection.

```
      Adapter Config 1     ↔↕↵
>IP Mode: Static
 IP: 0.0.0.0.
 Mask: 0.0.0.0.
 Gateway: 0.0.0.0
```

Configuring Static IP Address/Subnet Mask/Gateway

1. If it is not already selected, use the ▲ and ▼ buttons to move the cursor to “IP”, then press the OK button to select it.

```
      Adapter Config 1     ↔↕↵
 IP Mode: Static
>IP: 0.0.0.0
 Mask: 0.0.0.0
 Gateway: 0.0.0.0
```

2. Use the ◄ and ► buttons to select the column to edit and use the ▲ and ▼ buttons to change the IP, then press the OK button to save the selection.

```
      Adapter Config 1     ↔↕↵
 IP Mode: Static
 IP: 000.000.000.000
 Mask: 0.0.0.0
 Gateway: 0.0.0.0
```

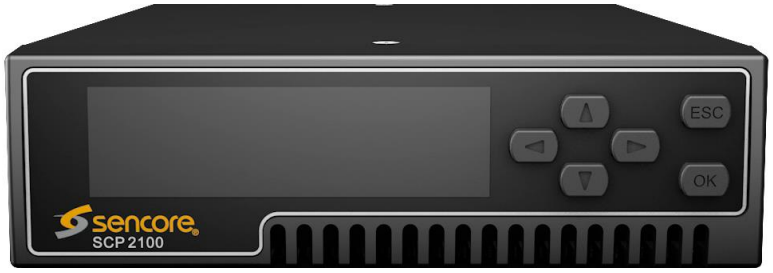
3. The cursor will now be on “Mask”.
4. Use the ◄ and ► buttons to select the column to edit and use the ▲ and ▼ buttons to change the Mask, then press the OK button to save the selection.

```
      Adapter Config 1     ↔↕↵
 IP Mode: Static
 IP: 192.168.1.100
 Mask: 0.0.0.0
 Gateway: 0.0.0.0
```

5. The cursor will now be on “Gateway”.
6. Use the ◄ and ► buttons to select the column to edit and use the ▲ and ▼ buttons to change the Gateway, then press the OK button to save the selection.

```
      Adapter Config 1     ↔↕↵
 IP Mode: Static
 IP: 192.168.1.100
 Mask: 255.255.255.0
 Gateway: 0.0.0.0
```

Section 4 Operating the Web Interface



Introduction

This section includes the following topics:

4.1 SCP 2100 Web Interface Overview

4.1.1 Logging into the SCP 2100 Web Interface

To access the SCP 2100 web interface use one of the following supported browsers and navigate to the unit's IP address:

- Internet Explorer 11 & above
- Microsoft Edge 42 & above
- Firefox 77 & above
- Google Chrome 83 & above

By default the admin user account is available with "mpeg101" as the password. After entering the password, press enter or click the login button to login to the web interface.

Default Credentials

User: admin

Password: mpeg101

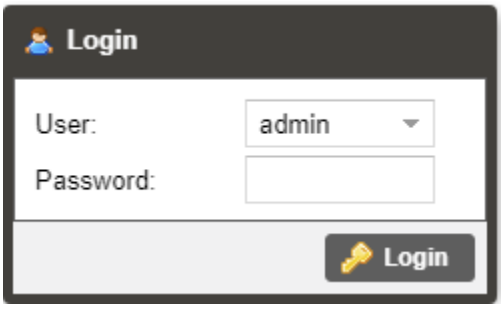


Figure 5 Login Prompt

4.2 Main Tab

The Main tab of the SCP 2100 web interface is used to configure the unit to route streams in and out of the unit. When configuring the SCP 2100, begin at the top of the main menu with the inputs and work down to the output.

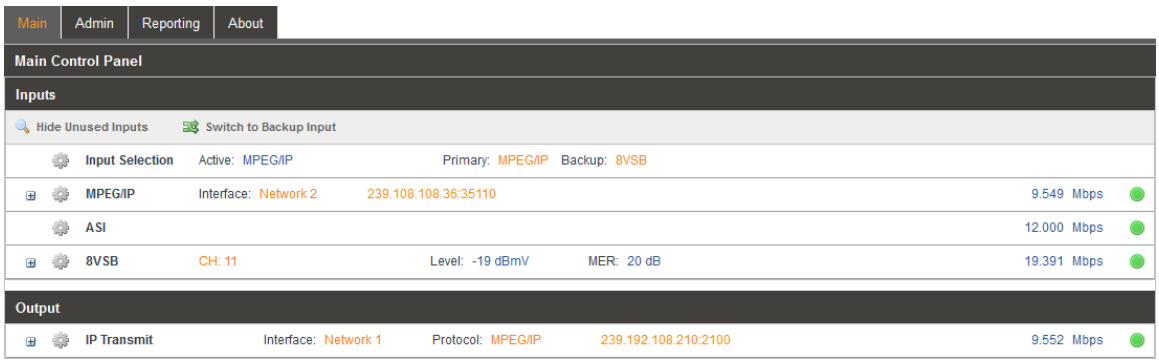


Figure 6: Main Panel Overview

4.2.1 Buttons and Status Indicators

The icon is shown where user configuration is available. Clicking this button will open menus where settings can be changed by the user.

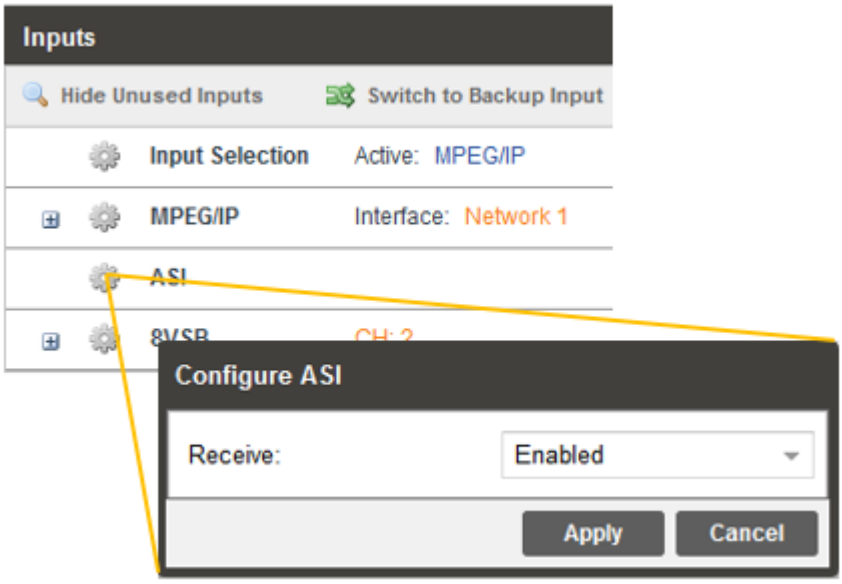


Figure 7: Configuration Menus

When the icon is shown, additional status information can be viewed. Clicking this button will expand the menu to display the additional status information. All text in status menus shown in **ORANGE** are statuses of user configurable settings.

Text shown in **BLUE** is not user configurable and is strictly a status or value. To collapse the status windows again click the icon.

Status in the SCP 2100 web interface is shown with LED status indicators:

Green LED		Status is good. No errors are present and function is operating normally.
Red LED		Status indicates function is affected by active error. To view the errors, navigate to Reporting tab to view Active Errors.
Grey LED		Status is inactive. Function is currently disabled or unavailable.

4.2.2 Configuring Active Inputs

This menu allows configuration of a primary and backup input. In case there is a TS sync loss on the primary input the SCP 2100 is capable of detecting the failed state and switching to a backup input in order to provide a continuous output. Which input is primary and backup, how the inputs switchover and restore and switchover timing is all user configurable. To force the SCP 2100 to switch between the Primary and Backup Inputs, click the Switch to Backup Input button.

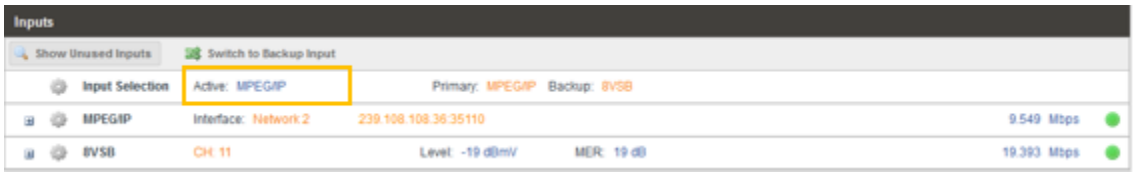


Figure 8: Active Input Indicator

The SCP 2100 web interface hides inactive inputs by default. Inputs that are not configured as the Primary Input or Backup Input can be shown and configured or hidden again by clicking the Show Unused Inputs and Show Unused Inputs icons.

To change the active input and failover settings click the icon next to Input Selection, and the following menu will be shown.

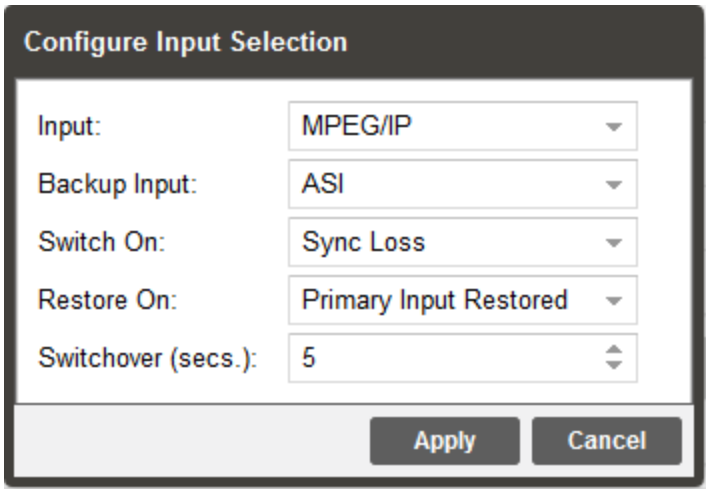


Figure 9: Input and Failover Configuration Menu

Setting	Range	Description
Primary Input	ASI, MPEG/IP, 8VSB or None (dependent upon unit configuration)	Used for both normal operation and input failover settings. During normal operation, this input will be the active input.
Backup Input	ASI, MPEG/IP, 8VSB or None (dependent upon unit configuration)	During failover operation this input will become the active input. The catalyst for the unit to switch to this input is configured in the following setting.
Switch On	Manual Only Sync Loss (dependent upon unit configuration)	*Manual Only*: the unit will not switch inputs automatically. The user must manually switch inputs. *Sync Loss*: the SCP 2100 will switch from the primary to the backup input if the primary stream loses synchronization for the duration of the Switchover Interval.
Restore On	Manual Only Primary Input Restored Backup Input Sync Loss (dependent upon unit configuration)	*Manual Only*: the unit will not restore to the primary input automatically. The user must manually switch inputs. *Primary Input Restored*: the SCP 2100 restores to primary when the Primary input regains transport stream synchronization. *Backup Input Sync Loss*: the unit will switch from backup to primary when the backup stream loses synchronization for the duration of the Switchover interval.

Switchover	1-20 seconds	The time in seconds which *Switch On* or *Restore On* value must remain in the configured state before the SCP 2100 switches between the Primary Input and Backup Input or vice versa.

4.2.3 Configuring ASI Input

This menu allows the user to either Enable or Disable the ASI Input on the SCP 2100.

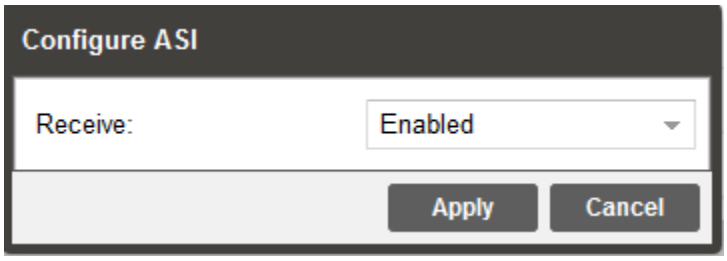


Figure 10 Options for ASI Input

4.2.4 Configuring MPEG/IP Input

This menu configures the MPEG/IP input for reception of unicast or multicast transport streams. The version of IGMP the SCP 2100 uses is automatically determined when it connects to the network. IGMP Filter Mode addresses can be entered for use when the unit is connected to an IGMPv3 network.

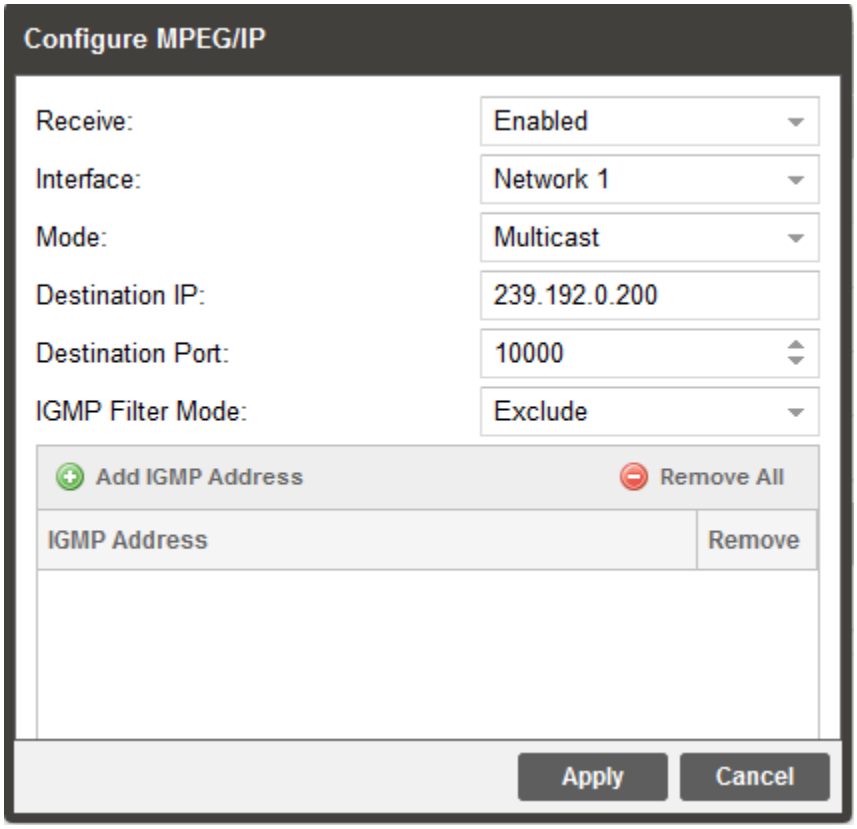


Figure 11: Options for MPEG/IP Input

Setting	Range	Description
Receive	Enabled Disabled	This setting allows the user to enable or disable these input stream settings.
Interface	Network 1 (eth0) Network 2 (eth1)	The physical connector on the MPEG/IP card that will be used to receive the input.
Mode	Multicast Unicast	*Multicast* setting allows the unit to receive multicast streams. Multicast streams originate from the IP range 224.0.0.0 – 239.255.255.255. *Unicast* allows the unit to receive unicast streams. Unicast streams originate directly from a source device.

Destination IP	224.0.0.0 – 239.255.255.255	This setting is only available when receiving a multicast stream. This is the address the unit will attempt to join.
Destination Port	0 - 65535	This is the UDP port the source device is sending to. This is the only setting required to receive a unicast stream but is also required for multicast.
IGMP Filter Mode	Exclude Include	Used on networks supporting IGMPv3. If this setting is set to *Exclude,* any streams originating from the user defined IP addresses will be included in the IGMP messages and the network will not forward these streams to the device. If this setting is set to *Include,* any streams originating from the user defined IP addresses will be included in the IGMP messages and the network will only forward these streams to the device.

To add an IP address to the IGMP filter list, click the Add IGMP Address button. Enter a valid IPV4 address and click OK. The filter list will show the newly entered address.

Figure 12: IGMP Filter List

To remove any IP from the filter list, click the icon in the corresponding row. All addresses can be removed from the IGMP filter list by clicking the Remove All button.

Click the icon by the MPEG/IP input to view information about the incoming IP stream. Clicking the icon will hide the IP statistics.

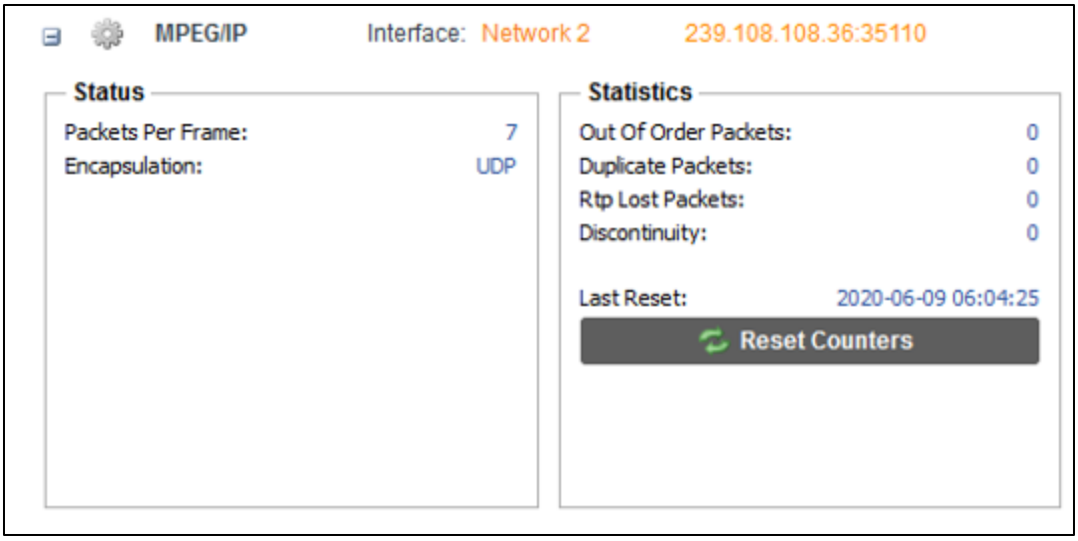


Figure 13: MPEG/IP Input Statistics Menu

The Reset Counters button is used to reset all the statistics for incoming IP packets and establish a new point of reference.

4.2.5 Configuring 8VSB Input

This menu configures the RF input for reception of 8VSB off air signals.

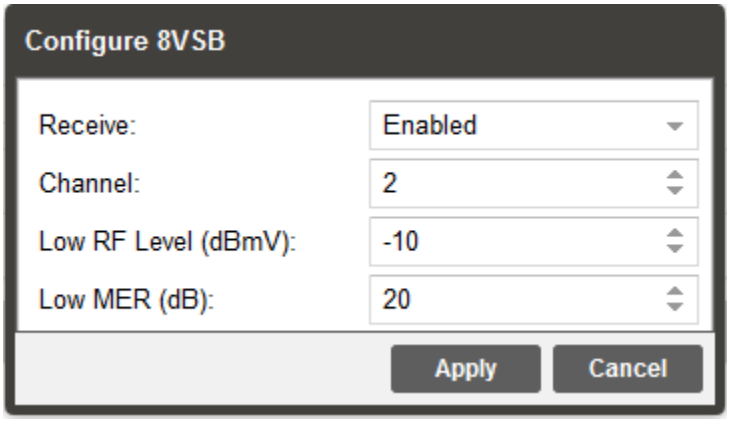


Figure 14 Options for 8VSB Input

Setting	Range	Description
Receive	Enabled Disabled	This setting allows the user to enable or disable reception.
Channel	Off Air: 2-69	This setting is for choosing the desired VHF or UHF channel to be received.

Low RF Level (dBmV)	-34 - +40	This is the Low RF Level threshold where the *Low Level* Alarm will be triggered. In dBmV
Low MER (dB)	0 - 40	This is the Low MER threshold where the *Low MER* Alarm will be triggered. In dB.

Click the ⊞ icon by the 8VSB input to view information about the incoming signal. Clicking the ⊟ icon will hide the 8VSB statistics. Information about the signal Level and MER will always be present.

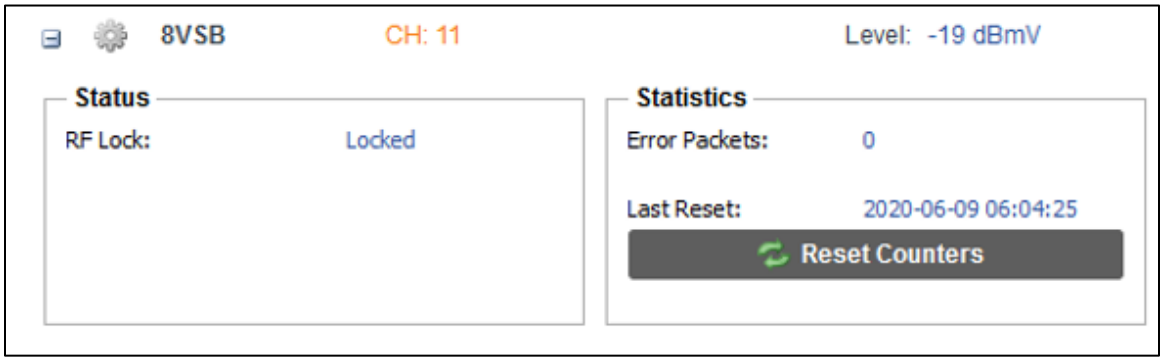


Figure 15: 8VSB Input Statistics

The Reset Counters button is used to reset all the counter for incoming error packets and establish a new point of reference.

4.2.6 Configuring IP Transmit

This menu allows the user to configure the IP transmit for the output of MPEG/IP unicast or multicast, as well as Zixi transport streams. The available options are dependent upon whether the “Transmit Type” is set for “MPEG/IP” or “Zixi”. The figure below shows the options available when the transmit type is set to MPEG/IP.

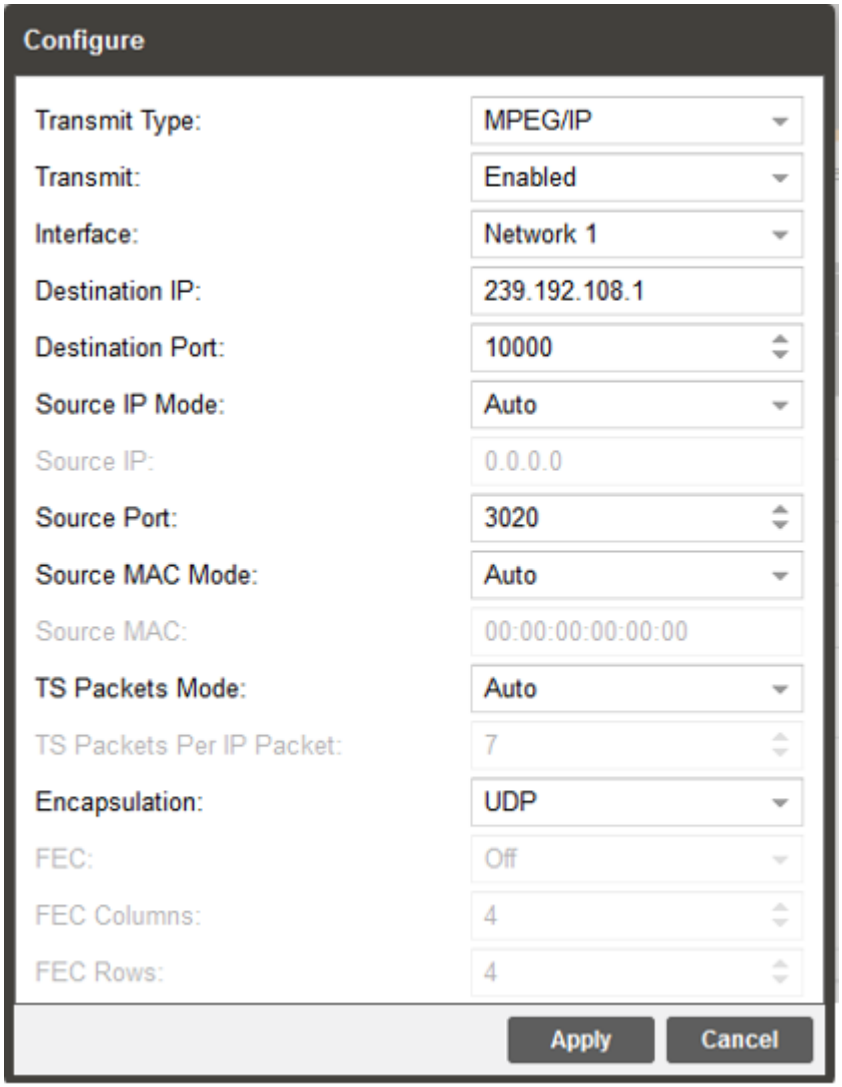


Figure 16: IP Transmit Options - MPEG/IP

Setting	Range	Description
Transmit	Enabled Disabled	Enable or disable the MPEG/IP transmit
Interface	Network 1 (eth0) Network 2 (eth1)	Defines which physical port to use for the MPEG/IP transmission.

Destination IP	Multicast - 224.0.0.0 - 239.255.255.255	When sending to a unicast address the destination IP address must match the receiving device's IP address. When sending a multicast the address must be sent within the multicast IP range.
Destination Port	0 - 65535	When sending to a unicast address, the destination port must match the receiving device's port. When sending a multicast, any port within the accepted range can be used, but it is good practice to always choose a port >1030 and an even number
Source Mode	Auto Manual	When set to *Auto*, the source IP address on the output stream will match the corresponding local interface. When set to *Manual*, a user entered address can be assigned to the output stream.
Source Port	0 - 65535	Defines the source IP port to be assigned to the output stream.
Source MAC Mode	Auto Manual	When set to *Auto*, the source MAC address of the output stream will match the corresponding local interface. When set to *Manual*, a user entered address can be assigned to the output stream.
TS Packets Mode	Auto Manual	In *Auto* mode, the source will define the number of TS packets per IP packet. In *Manual* mode, the user will define the number of TS packets per IP packet.
TS Packets Per IP Packet	1-7	The number of TS packets that are contained with a single IP packet. Default is 7. Lowering this value below default increases network overhead.
Encapsulation	UDP RTP	Sets the Encapsulation to UDP or RTP. When set to RTP, the FEC options become available.
FEC	Off Columns Columns/Rows	Sets the FEC Type or disables FEC.
FEC Columns	1-20 (Columns) 4-20 (Columns/Rows)	Defines the number of Columns used to construct the FEC Matrix. (Columns * Rows must be ≤ 100.)
FEC Rows	4-20	Defines the number of Rows used to construct the FEC Matrix. (Columns * Rows must be ≤ 100.)

Click the ⊞ icon by the MPEG/IP transmit to view information about the outbound signal. Clicking the ⊟ icon will hide the MPEG/IP statistics.

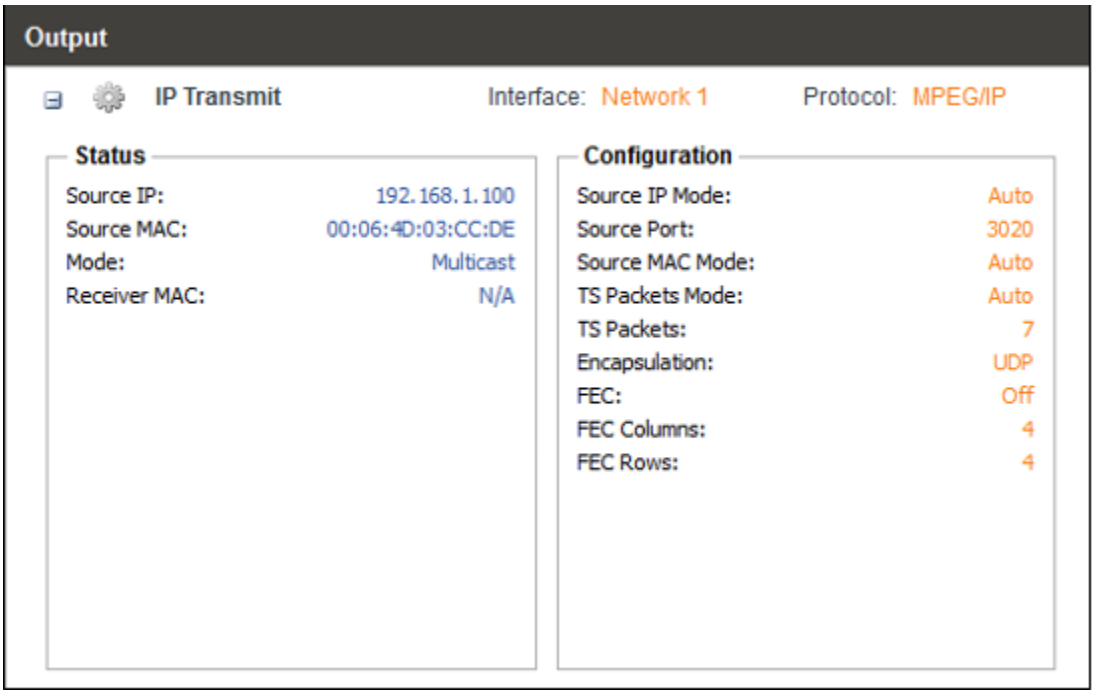


Figure 17: MPEG/IP Transmit Statistics

The figure below shows the options available when the transmit type is set to Zixi.

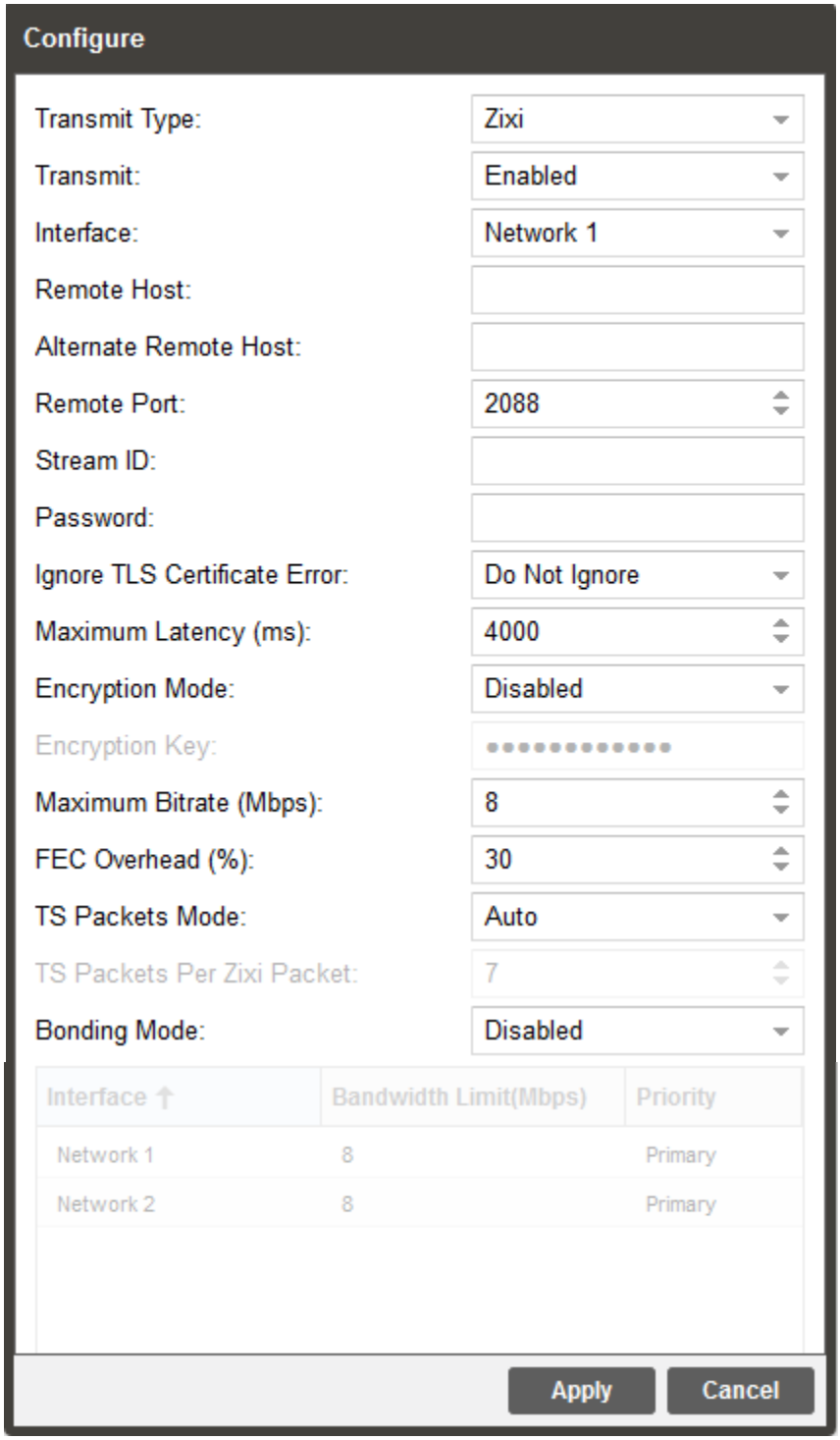


Figure 18: IP Transmit Options - Zixi

Setting	Range	Description
Transmit	Enabled Disabled	Enable or disable the Zixi transmit
Interface	Network 1 (eth0) Network 2 (eth1)	Defines which physical port to use for the Zixi transmission
Remote Host	xxx.xxx.xxx.xxx Valid Domain Name	Defines the host of the remote broadcast using an IP address or domain name
Alternate Remote Host	xxx.xxx.xxx.xxx Valid Domain Name	Defines the alternate host of the remote broadcast using an IP address or domain name
Stream ID	User Entry	Defines the Zixi stream ID for the transmitted stream
Password	User Entry	Provides the password to allow downstream devices to receive the Stream ID entered
Ignore TLS Certificate Error	Do Not Ignore Ignore	Defines whether to cease or continue processing if TLS Certificate Error is signaled
Maximum Latency (ms)	30 – 10000	Defines the maximum latency or buffer size in milliseconds. This should be set to a value higher than the actual latency on the path.
Encryption Mode	Disabled, AES-128, AES-192, AES-256, Automatic	Defines which encryption standard to use or if the SCP 2100 will automatically detect this.
Encryption Key	User Entry	Defines the encryption key.
Maximum Bitrate (Mbps)	0.001 – 2147.483	Defines the maximum IP bitrate of the Zixi transmission in Megabits per second. This should be set slightly higher than the input stream rate.
TS Packets Mode	Auto Manual	In *Auto* mode, the source will define the number of TS packets per Zixi packet. In *Manual* mode, the user will define the number of TS packets per Zixi packet.
TS Packets per Zixi Packet	1 – 7	User defined value for when *Manual* mode is enabled.
Bonding Mode	Disabled All interfaces One Interface Any Interface	Specifies which interfaces, if any, are to be set to bonding mode.
Interface Bonding Box	Available for One Interface Mode Any Interface Mode	Allows user to define parameters and details about the port(s) when bonding

Zixi transmissions can be configured to use multiple interfaces simultaneously (Port Bonding). By defining the maximum bitrate for that interface, the unit will only send up to that rate on that interface. A Primary and Backup interface may also be chosen if redundant links should be used.

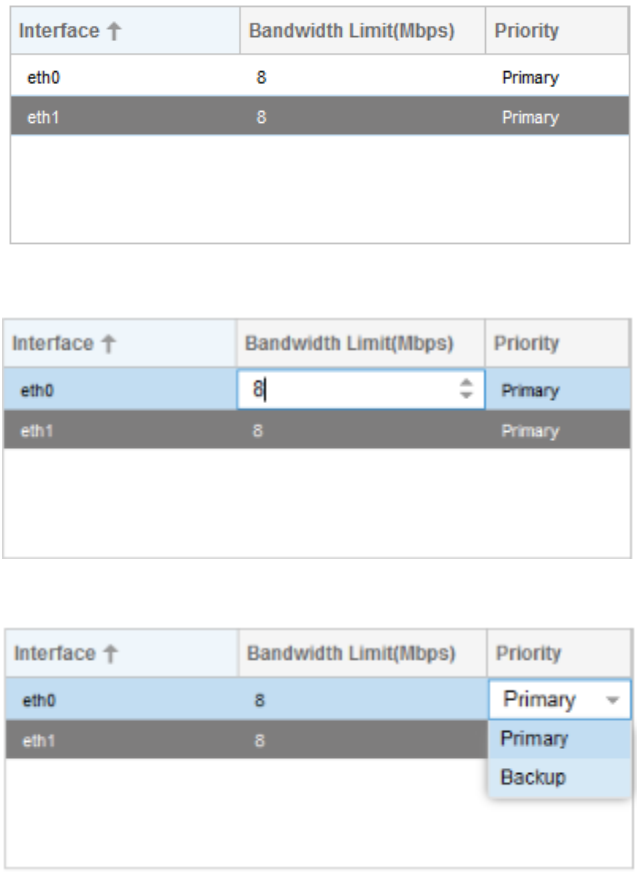
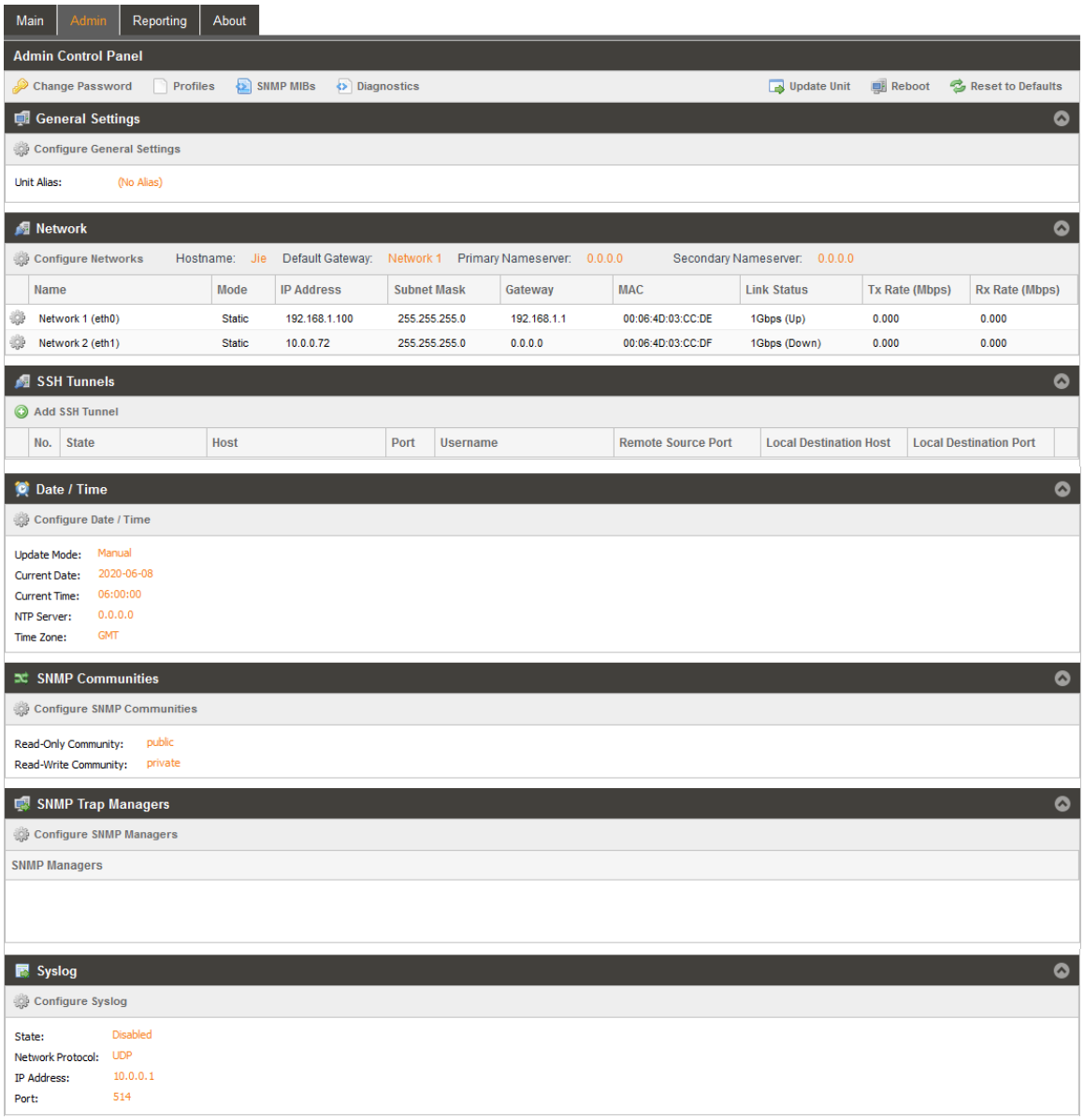


Figure 19: Interface Bonding Boxes

4.3 Admin Tab



To access the Admin Control Panel, click on the Admin tab. This menu allows the user to control many system aspects of the SCP 2100.

4.3.1 Changing Unit Password

The current admin password (mpeg101) on the SCP 2100 can be changed by clicking the Change Password button. A window will appear to enter the new password and re-enter the new password to confirm it.

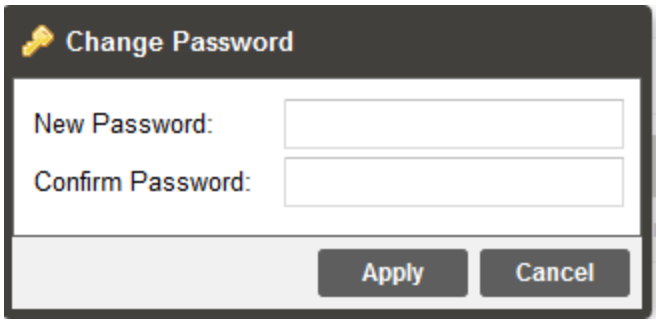


Figure 20 Password change dialog

4.3.2 Profiles

The SCP 2100 can save all configured settings to multiple profiles. Profiles can be saved locally, renamed, or saved to external storage to be used on other SCP 2100s with the same hardware, licensing, and software version. Profiles can be used to quickly and easily change the configuration of an SCP 2100 to suit different input and output requirements. Click the Profiles icon to display the Profile Manager.

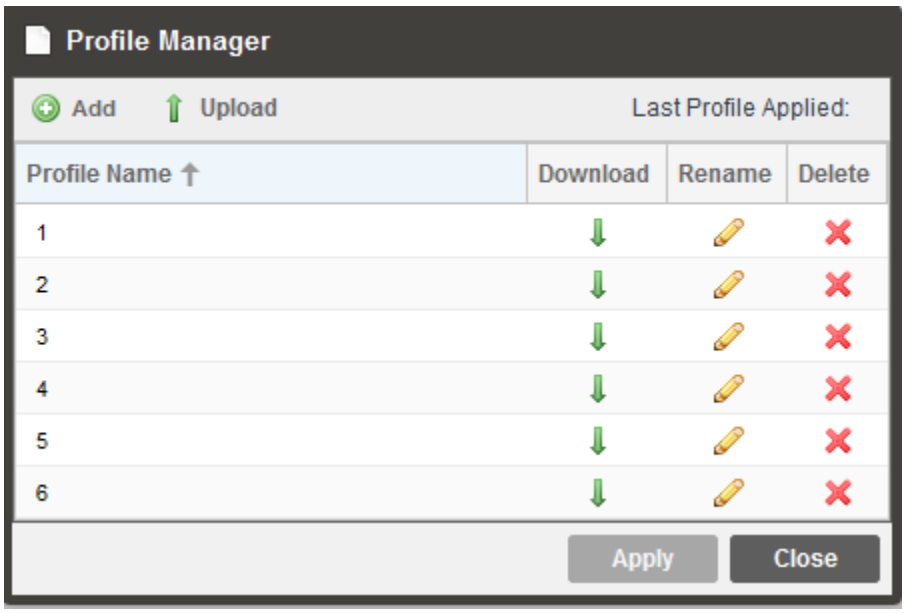


Figure 21 Profile Manager Dialog

Action	Button	Description
Add New Profile	Add	Adds a new profile from current settings.
Upload Profile	Upload	Browse the local computer to upload a profile to the SCP 2100.

Apply Profile	Apply	Select a profile from the drop-down menu and click this button. The SCP 2100 will apply all settings contained in the selected profile.
Rename Profile		Select a profile from the drop-down menu and click this button where the profile can then be renamed.
Delete Profile		Select a profile from the drop-down menu and click this button to delete the selected profile.
Download Profile		Select a profile from the drop-down menu and click this button To download the selected profile to the local computer.

4.3.3 General Settings

Clicking the Configure General Settings icon opens a menu to assign an alias to the SCP 2100. The alias appears in the upper right-hand corner of the web interface and can help clarify which SCP 2100 is being configured.

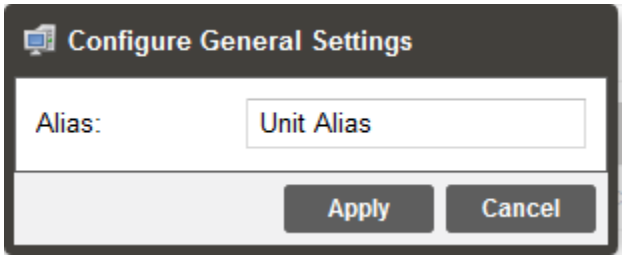


Figure 22: Alias Settings Menu

Figure 23: Web Interface (Applied Alias Circled)

4.3.4 Unit Network Configuration

The management port of the SCP 2100 can be configured from the web interface (as well as the front panel). To make changes to the management port, click the button under the Unit Network Configuration section. The hostname, default gateway and domain name servers can be configured on the SCP 2100 by clicking the Configure Networks button. IP address and web address entries are accepted as Nameserver addresses.

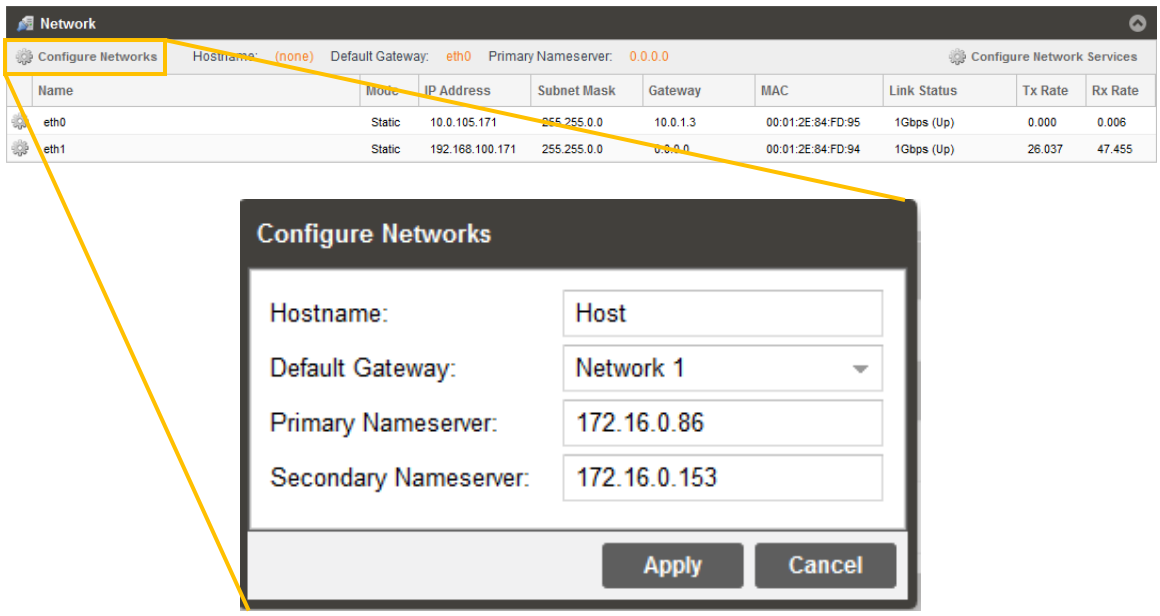


Figure 24: Network Configuration Menu

Clicking the icon by Network 1 (eth0) or Network 2 (eth1) allows for configuration of the IP and interface name of each physical RJ45 interface. Each of these menus are identical as the ports are interchangeable.

NOTE: Exercise extreme caution when performing changes to these menus as network communication can be lost with the SCP 2100.

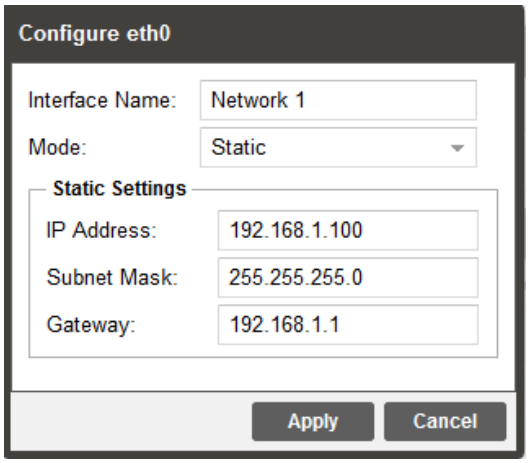


Figure 25: Port Configuration Menu

Setting	Range	Description
Interface Name	User Entry	A name to be associated with the interface; eth0 is named “Network 1” and eth1 is named “Network 2” by default.
Mode	DHCP Static	Setting to *DHCP* will allow the network to assign an IP address automatically to the SCP 2100 (if supported). Setting to *Static* allows the user to manually define all TCP/IP settings for the management port.
IP	Four decimal octets: XXX.XXX.XXX.XXX	This option is only available if Static Mode is set. This is the IP address assigned to the corresponding network interface.
Subnet Mask	255.0.0.0 – 255.255.255.254	This option is only available if Static Mode is set. This is the Subnet Mask assigned to the corresponding network interface.
Gateway	Four decimal octets: XXX.XXX.XXX.XXX	This option is only available if Static Mode is set. This is the Gateway address assigned to the corresponding network interface.

4.3.5 SSH Tunnels

The SCP 2100 can be remotely managed by using an SSH tunnel. In application where Zixi ZEN Master is being used, an SSH tunnel is established to provide remote access to the web GUI of the SCP 2100.

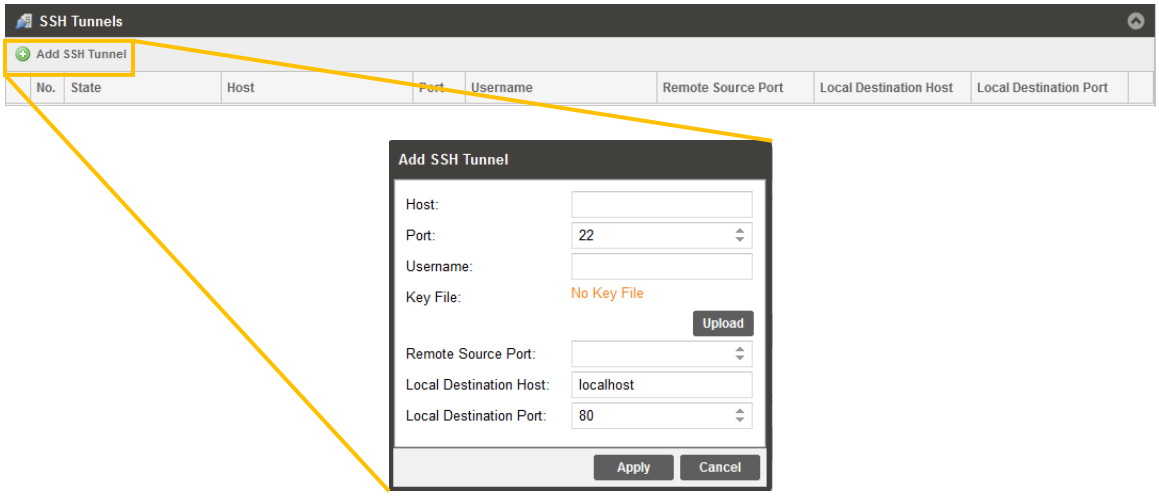


Figure 26: Adding SSH Tunnels

The SSH tunnel configuration window will allow the user to define the connection to Zixi ZEN Master by providing the required details in the Add SSH Tunnel window. Most of the values for these settings can be found in the ZEN Master configuration.

Setting	Range	Description
Host	IPv4 Address Valid Doman Name	The IP address or web link of the Zixi (ZEN Master) server
Port	0 – 65535	The IP port of the Zixi (ZEN Master) server
Username	User Entry	Account credential to log into Zixi (ZEN Master) server
Key File	N/A	Browse the local computer to select and upload a hashed key file used to open the secure connection to the Zixi (ZEN Master) server
Remote Source Port	0 – 65535	Remote port number the Zixi (ZEN Master) server is using for SSH communication
Local Destination Host	IPv4 Address Valid Domain Name	Address reporting to Zixi (ZEN Master) server. Localhost is the default.
Local Destination Port	0 – 65535	The port that is accessible to the Zixi (ZEN Master) server. Port 80 (SCP 2100 web client) is the default.

4.3.6 Configuring Date / Time

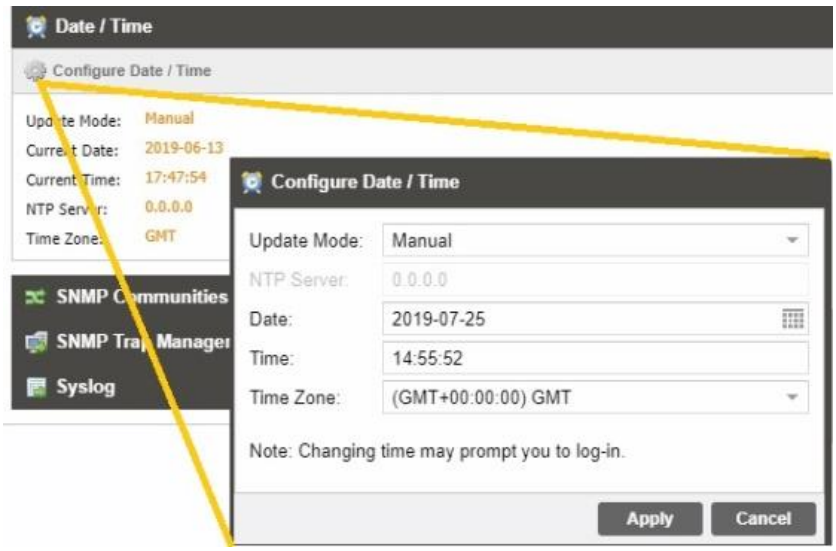


Figure 27: Date and Time Menu

The SCP 2100 can be set to synchronize with an NTP server or manually setting the date and time. Click the Configure Date / Time icon to begin. These values are used to timestamp entries in the Alarm and Event logs under the Reporting tab.

Setting	Range	Description
Update Mode	NTP Manual	Setting to *NTP* uses an NTP server to set and synchronize the date and time. *Manual* allows the user to define a date and time.
NTP Server	Four decimal octets: XXX.XXX.XXX.XXX Domain Name	This is the IP Address or Domain Name of the NTP Server. This setting is only available if Update Mode is set to NTP.
Date	YYYY/MM/DD	This setting is the manually defined date. A calendar widget can be used to select the data by clicking the button. This setting is only available if Update Mode is set to Manual.
Time	00:00:00 – 24:00:00	This setting is the manually defined time. The time is based on a 24 hour clock. This setting is only available if the Update Mode is set to Manual.
Time Zone	-12:00:00 ~ +13:00:00	Applies a time offset to the value obtained from the NTP server

4.3.7 Configuring SNMP

4.3.7.1 SNMP Communities

SNMP Communities define whether users have read-only or read-write SNMP rights. These two communities are given unique names. The default names for these communities are:

- Read – Only Community: public
- Read – Write Community: private

It is recommended to change the names of these communities to increase unit security. To modify the names of these communities click on the Configure SNMP Communities button.

Figure 28: SNMP Community Menu

4.3.7.2 SNMP Trap Managers

The SNMP trap managers are recipients of SNMP traps sent from the SCP 2100. The following menu allows the user to configure the recipient's IP address(es). To add or remove recipients of the SNMP traps click the Configure SNMP Managers button.

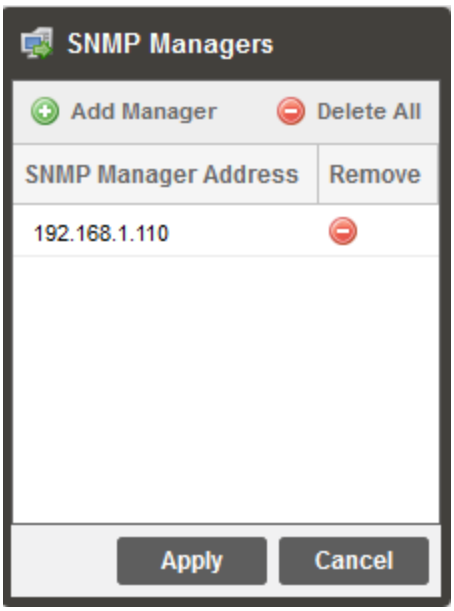
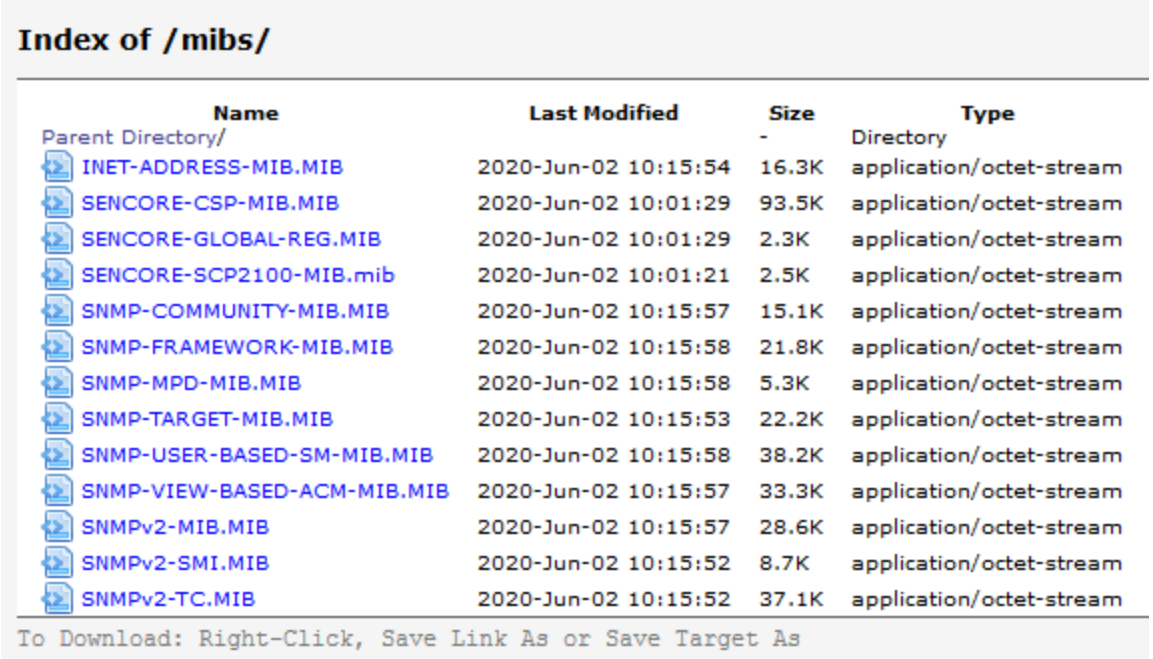


Figure 29: SNMP Trap Manager Menu

Action	Button	Description
Add Manager	Add Manager	Click this button to add the IP address of a new SNMP trap manager.
Delete All	Delete All	Click this button delete all SNMP trap manager IP addresses.
Delete Single Entry		Click to highlight a single SNMP trap manager IP address and then click this button to delete the entry.

4.3.7.3 Download SNMP MIB Files

The SCP 2100 stores the SNMP MIB files for the currently installed version of software on the unit. These files can be downloaded directly from the SCP 2100 by clicking on the SNMP MIBs button. This will open a new tab in the browser containing download links for each MIB as shown below.



Index of /mibs/

Name	Last Modified	Size	Type
Parent Directory/		-	Directory
INET-ADDRESS-MIB.MIB	2020-Jun-02 10:15:54	16.3K	application/octet-stream
SENCORE-CSP-MIB.MIB	2020-Jun-02 10:01:29	93.5K	application/octet-stream
SENCORE-GLOBAL-REG.MIB	2020-Jun-02 10:01:29	2.3K	application/octet-stream
SENCORE-SCP2100-MIB.mib	2020-Jun-02 10:01:21	2.5K	application/octet-stream
SNMP-COMMUNITY-MIB.MIB	2020-Jun-02 10:15:57	15.1K	application/octet-stream
SNMP-FRAMEWORK-MIB.MIB	2020-Jun-02 10:15:58	21.8K	application/octet-stream
SNMP-MPD-MIB.MIB	2020-Jun-02 10:15:58	5.3K	application/octet-stream
SNMP-TARGET-MIB.MIB	2020-Jun-02 10:15:53	22.2K	application/octet-stream
SNMP-USER-BASED-SM-MIB.MIB	2020-Jun-02 10:15:58	38.2K	application/octet-stream
SNMP-VIEW-BASED-ACM-MIB.MIB	2020-Jun-02 10:15:57	33.3K	application/octet-stream
SNMPv2-MIB.MIB	2020-Jun-02 10:15:57	28.6K	application/octet-stream
SNMPv2-SMI.MIB	2020-Jun-02 10:15:52	8.7K	application/octet-stream
SNMPv2-TC.MIB	2020-Jun-02 10:15:52	37.1K	application/octet-stream

To Download: Right-Click, Save Link As or Save Target As

Figure 30: MIBs Download Page

4.3.8 Syslog

The SCP 2100 can be configured to send error and event logs formatted in the syslog protocol to a user specified Syslog server. Clicking the Configure Syslog button will open a menu for a protocol, address and port to be specified as seen below.

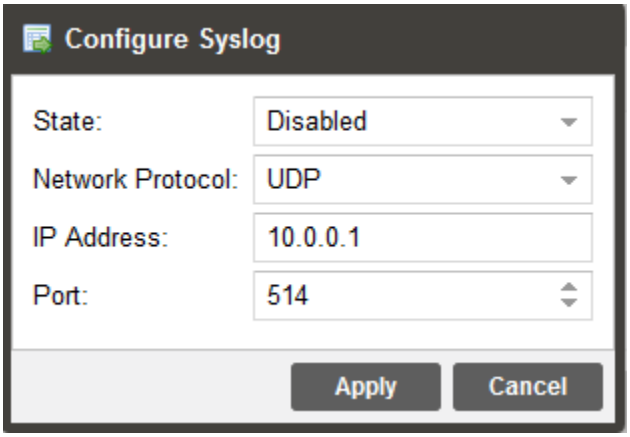


Figure 31: Syslog Configuration Menu

Action	Range	Description
State	Enabled Disabled	Enable or Disable sending messages to a Syslog server.
Network Protocol	UDP TCP	Select which network protocol used to transmit to the Syslog server
IP Address	Four decimal octets: XXX.XXX.XXX.XXX	IP of the Syslog server. 0.0.0.0 and 255.255.255.255 are not permitted
Port	0 – 65535	Destination port of the Syslog server

4.3.9 Updating the SCP 2100

4.3.9.1 Applying Software Updates

Updates to the SCP 2100 are performed through the web interface. Software update files can be obtained by contacting the Sencore ProCare department. Once the update file is downloaded, it then needs to be uploaded and applied to the unit. To upload software updates to the unit click on the Update Unit button. The current version and uploaded version are displayed in the Software Versions section. The SCP 2100 will reboot after a software update is complete.

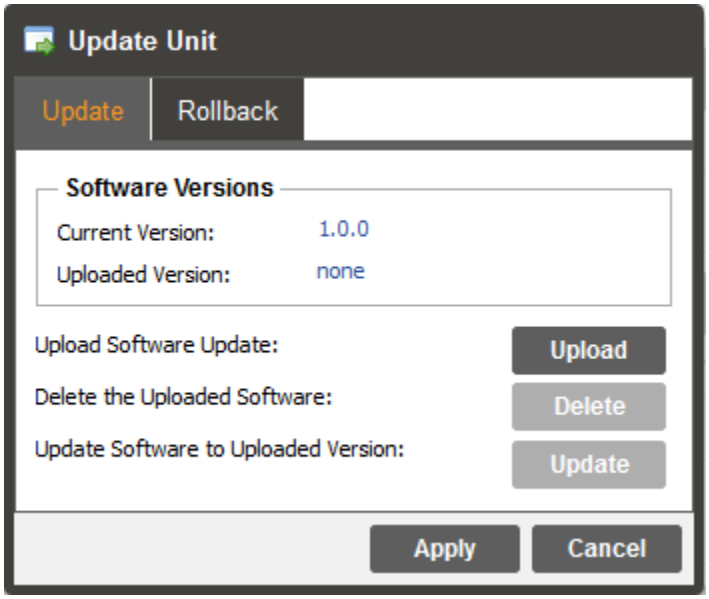


Figure 32: Unit Update Menu

Action	Button	Description
Upload Software Update	Upload	Click this button to browse to the update file. The file will then upload to the SCP 2100. When the upload is complete, the SCP 2100 will prompt to either apply the update or cancel
Delete the Uploaded Software	Delete	Click this button to delete a previously uploaded update file.
Update Software to Uploaded Version	Update	Click this button to start the update process.

4.3.9.2 Rollback Software Updates

The SCP 2100 is capable of reverting back to a previous version of software using the Rollback feature. The unit maintains two separate software images; one is the most current version of software with all current settings and the other is the previous version of software with all previous settings. To perform a rollback click the Update Unit button and then click the Rollback tab. The SCP 2100 will reboot after the rollback process is complete.

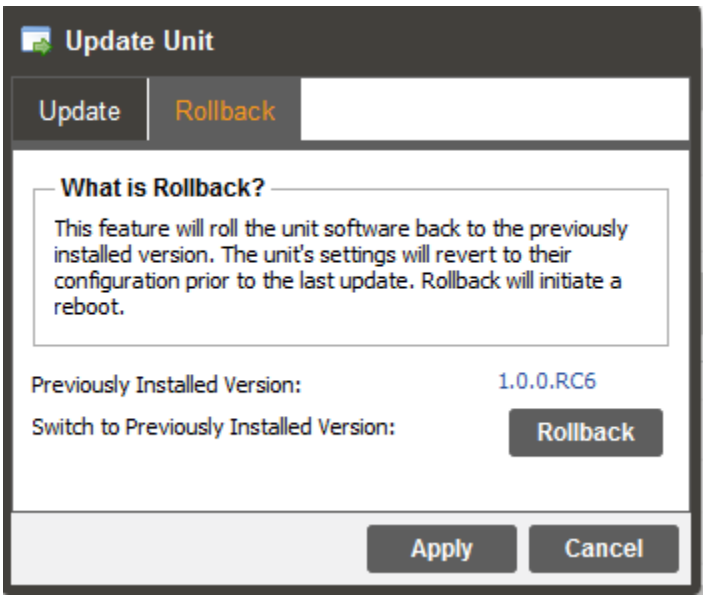


Figure 33: Rollback Menu

Action	Button	Description
Rollback Software	Rollback	Click this button to rollback to the previously installed software version.

4.3.10 Reboot Unit

The SCP 2100 can be rebooted from the web interface. In order to perform a reboot click the Reboot button. Once the reboot is complete the login screen will appear to log back into the unit.

4.3.11 Reset Defaults

The SCP 2100 settings can be reset to factory defaults. All settings will be returned to the factory defaults except the network management ports TCP/IP settings. All event logs will be cleared. To reset all settings to default click the Reset to Defaults button. The SCP 2100 will prompt the user to confirm the reset. The unit will reboot once the reset is confirmed.

4.4 Reporting Tab

The Reporting tab in the SCP 2100 contains logs for active alarms currently affecting the unit as well as an event log. The active alarms are updated periodically in order to reflect the real-time state of the unit. Once an error is cleared it will be cleared from the active alarms window. The event log can be used to view alarms and event history. Both the active alarms and event logs can be configured to hide or change the behavior of alarms and events.

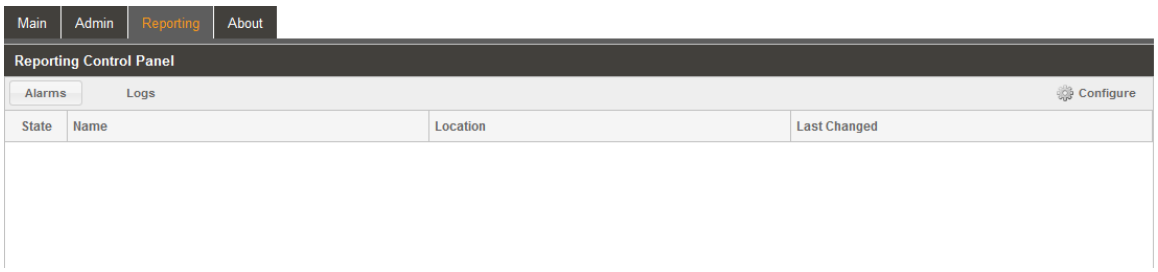


Figure 34: Reporting Tab

4.4.1 Active Alarms

Clicking on the Alarms button displays the Active Alarms menu. This list displays all the active alarms currently affecting the unit. There are four columns in the log that display different types of information.

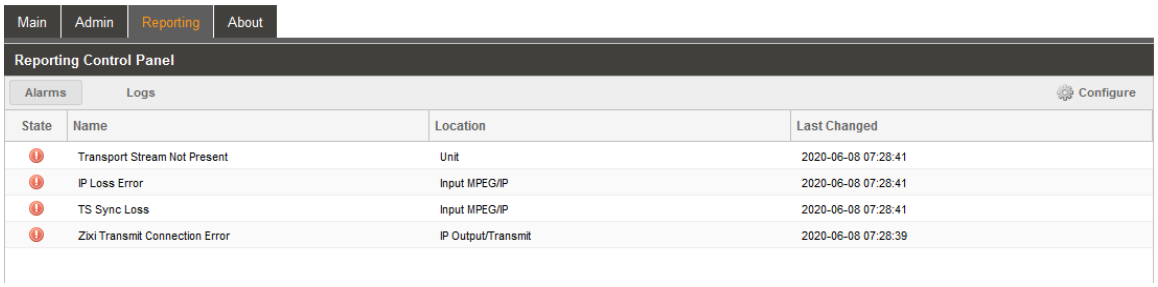


Figure 35: Active Alarms Tab

Title	Description
State	This column displays the nature of the alarm. The icon means the log entry is informational and is not an error. The icon means the log entry is an active alarm.
Name	This column displays the description of the error.
Location	This column displays the hardware or function that is experiencing the active error.
Last Changed	This column displays the date and time the error was raised. This date and time correlates with the Date and Time settings configured in Section 4.3.6.

4.4.2 Event Logs

Clicking on the Logs button displays the Event Log menu. This list displays all the events and alarms that have affected the unit since it was last booted. The SCP 2100 stores up to four days' worth of logs. The logs can be cleared manually by clicking the Clear button. The logs can be downloaded as a .csv file and saved to an external location by clicking the Download button. There are five columns in the log that display different types of information.

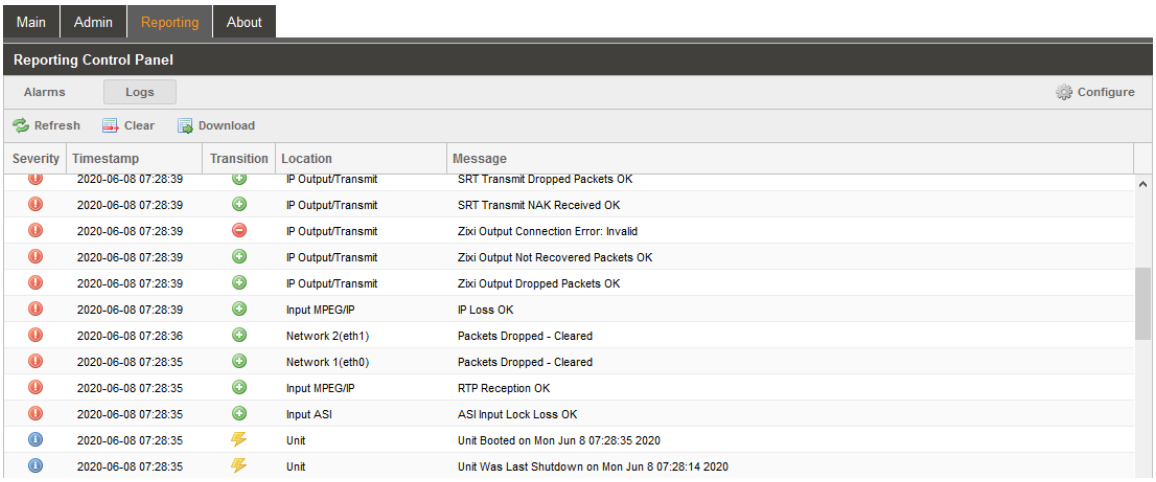


Figure 36: Event Logs Tab

Title	Description
Severity	This column displays the nature of the alarm. The icon means the log entry is informational and is not an error. The icon means the log entry is an active alarm.
Timestamp	This column displays the date and time the error was raised or cleared. This date and time correlates with the Date and Time settings configured in Section 4.3.6.
Transition	This column indicates the type of alarm transition that took place. When an error is raised the icon is displayed. When an error is cleared the icon is displayed. When an event takes place the icon is displayed.
Message	This column displays the description of the error or event.
Location	This column displays the hardware or function that experienced the alarm or event.

4.4.3 Configuring the Logs

The SCP 2100 allows the user to configure how alarms and events are shown and behave. Events and alarms can be hidden or set to send SNMP traps when active. In order to configure these options click the Configure button while in the Reporting tab, as seen in the Figure 37on the next page. The Conditions tab allows the user to configure the alarms reported by the SCP 2100. The Events tab allows the user to configure the events reported by the SCP 2100. Each column and its function are described below. A user configured time offset can also be applied to allow viewing the logs in a local time zone.

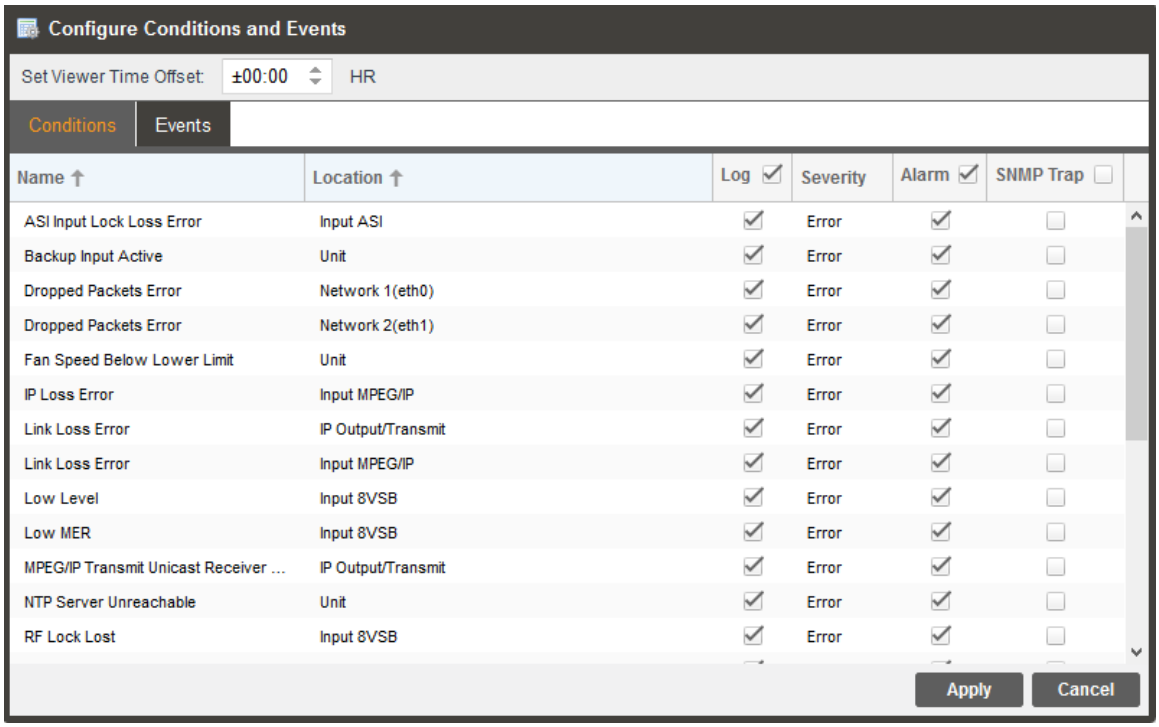


Figure 37: Conditions and Events Configuration Menu

Title	Description
Name	The name of the error or condition. This is informational data; no options can be set here.
Location	The hardware or function that the alarm or event applies to. This is informational data; no options can be set here.
Log	Checking the box in this column creates an entry in the event log in the case this error or event is raised. If this box is unchecked this error or event will be hidden and not logged if raised.
Severity	This column is only available in the Conditions tab. This option sets the severity of the error, to Info or Error. If Info is selected in the drop-down box the icon will be displayed in the event log. If Error is selected the icon will be displayed in the event log.
Alarm	This column is only available in the Conditions tab. This option enables or disables this alarm in the Active Alarms log. If checked the alarm will be displayed in the Active Alarms log when raised. If this box is unchecked this error will be hidden.
SNMP Trap	This column sets whether an SNMP Trap sent when this alarm is raised. If this box is checked an SNMP Trap is sent when this alarm is raised. If this box is unchecked an SNMP Trap is not sent.

4.5 About Panel

Under the About tab, there are no user definable parameters but there is information about software versions currently installed, how to contact Sencore, and third-party software information.

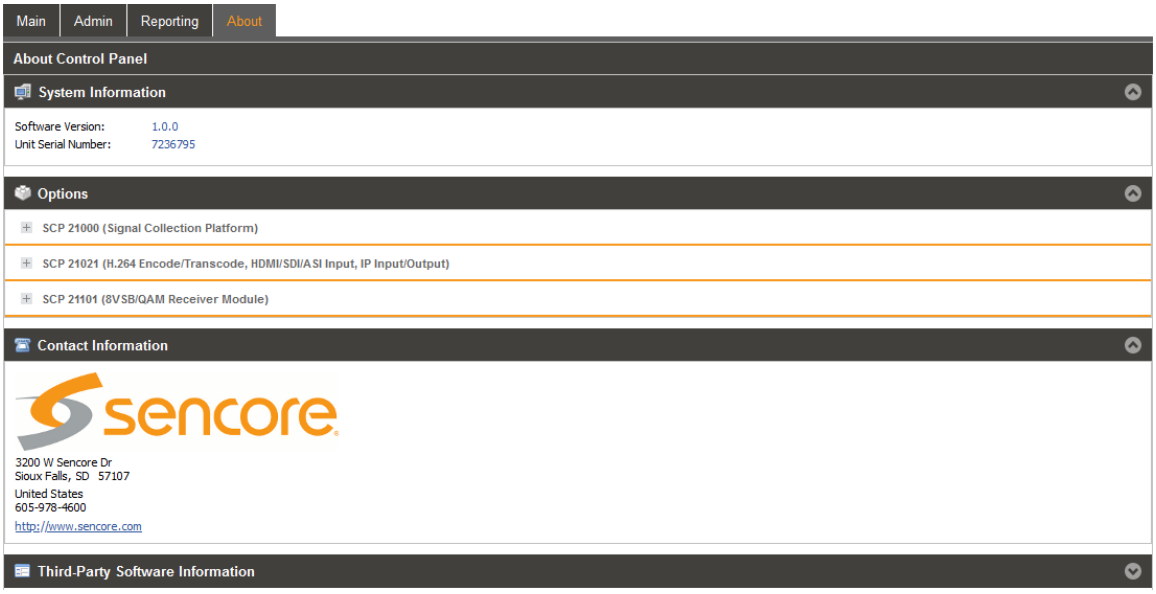
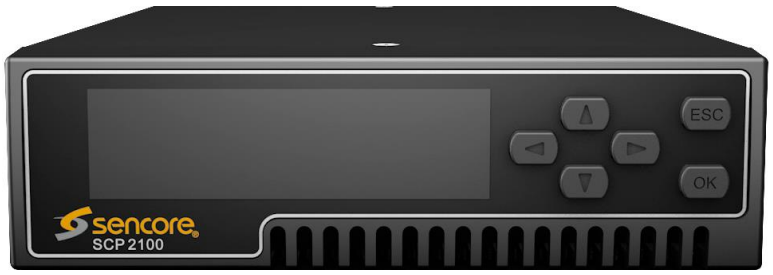


Figure 38: About Tab

Section 5 Appendices



Introduction

This section includes the following appendices:

Appendix A – Acronyms and Glossary

8VSB: Vestigial sideband modulation with 8 discrete amplitude levels.
ASI: Asynchronous Serial Interface
ATSC: Advanced Television Systems Committee
AV: Audio Video
Bit Rate: The rate at which the compressed bit stream is delivered from the channel to the input of a decoder.
BNC: British Naval Connector
BPS: Bits per second.
CAT6: Category 6 – Cable standard for gigabit Ethernet
DHCP: Dynamic Host Configuration Protocol
FEC: Forward Error Correction
HD: High Definition
I/O: Input/Output
IP: Internet Protocol
LED: Light Emitting Diode
MAC: Medium Access Control
MER: Modulation Error Ratio
MIB: Management Information Base
MPTS: Multiprogram Transport Stream
SCP 2100: Signal Collection Platform
NTP: Networking Time Protocol
QAM: Quadrature Amplitude Modulation
RF: Radio Frequency
RIST: Reliable Internet Stream Transport
RU: Rack Unit
SD: Standard Definition
SDI: Serial Digital Interface
SMPTE: Society of Motion Pictures and Television Engineers
SNMP: Simple Network Management Protocol
SPTS: Single Program Transport Stream
SRT: Secure Reliable Transport
TS: Transport Stream

Appendix B – Error and Event List

Error	Description
ASI Input Lock Loss Error	There is no input on the enabled ASI input
Backup Input Active	Primary input is currently in a failed condition and the SCP 2100 has failed over to the Backup input.
Dropped Packets Error	The system has detected an instance of packets being dropped
Fan Speed Below Lower Limit	Cooling fan in the SCP 2100 has failed.
IP Loss Error	No IP packets have been received by the configured network interface for 2 seconds
Link Loss Error	Physical IP link is not present on the network interface.
Low Level	8VSB/QAM RF Level is below the user settable threshold
Low MER	8VSB MER is below the user settable threshold
MPEG/IP Transmit Unicast Receiver Not Found	The SCP 2100 cannot discover the destination for the unicast IP stream within 10 seconds after the initial ARP is sent.
NTP Server Unreachable	The configured NTP server is inaccessible to the network interface
RF Lock Lost	Receiver carrier lock source is lost
RTP Reception Error	Uncorrectable out of order or duplicate packets are present in incoming IP stream.
TS Sync Loss	Transport stream sync for IP stream is not detected.
Temperature Error	The SCP 2100 has detected the internal temperature is 50 degrees Celsius or above.
Transport Stream Not Present	The SCP 2100 has detected that the transport stream from the active input is no longer present.
Zixi Transmit Connection Error	The Zixi transmit has received no acknowledge message from the receiving server.
Zixi Transmit Dropped Packets Error	The Zixi has dropped packets
Zixi Transmit Not Recovered Packets Error	The Zixi transmit has failed to recover packets that were dropped

Event	Description
Date/Time Changed	The date or time was manually changed by a user
NTP Updated	The SCP 2100 has a newly obtained time from the NTP server
Software Update Failed	The unit failed to upgrade software
Software Update Succeeded	A software upgrade was made to the unit
Unit Booted	The SCP 2100 server was booted
Unit Shutdown	The SCP 2100 server shut down (power cycle, reboot)

Appendix C – Specifications

SCP 2100 – Base Unit

Includes –	Display, keypad, embedded controller, chassis/case, power supply/line cord
System –	
Display Type:	LCD
Keypad:	Snap-dome Membrane
Configurations Allows:	Single Media Gateway
Rear Panel:	Fixed inputs and outputs
Remote Operation/Update Interface –	
Type:	Ethernet, 10/100/1000 Auto Negotiating
Rear Panels indicators:	Link (Green LED), Activity (Amber LED)
Connector:	RJ45
Front Panel Indicators –	
Error LED:	Red indicates error is occurring Off indicates no errors detected
Input LED:	Green indicates valid input is present Off indicates no valid input
Monitor and Control Interfaces –	
Web server GUI:	HTTP via web browsing for control & monitoring Web API full control and monitoring
Front Panel:	System monitoring; limited control
Operating Altitudes	0 to 10000 feet
AC Power –	
Operating Voltage:	100-240VAC
Max Power Draw:	35W
Frequency:	50/60Hz
Connector:	IEC 320 C14
Line Cord:	Detachable, 3-prong
Environmental Conditions –	
Operating Temperature:	32 °F to 122 °F (0 °C to 50 °C)
Cooling:	Software regulated fan
Storage Temperature:	-40 °F to 149 °F (-40 °C to 65 °C)
Relative Operating Humidity:	<95% (non-condensing)

ASI Input

General –	
Connector:	1x BNC, Female
Impedance:	75Ω
ASI Serial TS Input –	
Number of ASI Inputs:	1
Standard:	EN50083-9 (V2:3/98) DVB ASI
Maximum TS Rate:	160 Mb/s
Minimum TS Rate:	250 Kb/s
Packet Sizes	188 Bytes
Modes Supported:	Burst, Byte and Inverted
General –	
Connector:	1x BNC, Female
Impedance:	75Ω

IP Input/Output

General –

Connector:	2x 10/100/1000 auto negotiate Base-T RJ-45 Ethernet Ports
Receive –	
Input Format:	UDP, RTP and RTP with extension headers Multicast and Unicast CBR
Receiver Capability:	1 MPEG over IP transport stream
Multicast Filtering:	Filters based on IP address
Buffer size:	1 - 4000 KB, user configurable
Bitrate Range:	0.25 – 200 Mb/s
Packets/IP Frame:	1-7 MPEG Packets/IP Frame
IGMP Compatibility:	Version 2 and 3
Transmit –	
Output Format:	UDP and RTP
Bitrate Range:	0.25 – 50 Mb/s
Packets/IP Frame:	1-7 MPEG Packets/IP Frame
Number of Outputs:	1 – Unicast or Multicast

8VSB Input (SCP 2101)

General –	
Frequency Range:	50 MHz – 1000 MHz
Channel Plans:	Broadcast
Number of inputs:	1
Connector:	F-Type, Female
Impedance:	75 Ohms
Sensitivity:	-34dBmV to + 40dBmV (A74 Compliant)
Modulation:	8VSB
MER:	Range: 0dB to 40dB Accuracy: +/- 2dB Low Limit Flag: User Defined
RF Level:	Range: -34dBmV to +40dBmV Accuracy: +/- 5dBmV Low Limit Flag: User Defined
8VSB –	
Standard:	ATSC A/53E
Decoding Levels:	8
Nyquist Roll Off (Alpha):	11.5%

Appendix D – Open Source Software

The SCP 2100 includes:

Package	Version	License	Copyright
amibios_dmi	75dce7b	GPL Version 2, June 1991	Claudio Matsuoka
BusyBox	1.24.2	GPL Version 2, June 1991	Erik Anderson, et. al.
Dropbear	2016.74	MIT-like	2002-2015 Matt Johnston, et. al (see license)
e2fsprogs	1.43.4	GPL Version 2, June 1991	Theodore Ts'o
ethtool	4.13	GPL Version 2, June 1991	David Miller, et. al.
FamFamFam Silk Icons	013	Creative Commons Attribution 2.5	Mark James
FastDB	3.71	MIT-like	Konstantin Knizhnik
FCGI	2.4.6	FastCGI	Open Market, Inc
FFmpeg	3.4	LGPL Version 2.1, February 1999	Fabrice Bellard
gptfdisk	1.0.3	GPL Version 2, June 1991	Roderick W. Smith
grub	2.00	GPL Version3, 29 June 2007	1994-2011 Free Software Foundation, Inc.
Lighttpd	1.4.30	BSD	2004, Jan Kneschke
libpcap	1.8.1	BSD	1993, 1994, 1995, 1996 The Regents of the University of California.
Linux	5.3.5	GPL Version 2, June 1991	Linus Torvalds, et. Al.
Log4cpp	1.0	LGPL Version 2.1, Feb 1999	Bastiaan Bakker
Monit	5.1.1	GPL Version 3, 29 June 07	2010 Tildeslash Ltd.
Net-SNMP	5.7.1	BSD	1989, 1991, 1992 by Carnegie Mellon University, et. al. (see license)
NTP	4.2.4p7	NTP License	1992-2009 David L. Mills
OpenSSL	1.0.1c	BSD-Like	1998-2008 The OpenSSL Project, 1995-1998 Eric Young

PCRE	8.30	BSD	1997-2012 University of Cambridge, 2007-2008
POPT	1.16	MIT	1998 Red Hat Software
pureftpd	1.0.46	BSD	Frank Denis
qDecoder	12.0.4	BSD	2000-2012 Seungyoung Kim
Samba	4.7.0	GPL Version 3, 29 June 2007	Andrew Tridgell, et. al.
Spawn-FCGI	1.6.3	BSD	Jan Kneschke, Stefan Bahler
srt	1.3.2	MPLv2.0 License	2018 Haivision Systems Inc.
TCLAP	1.2.0	MIT	2003 Michael E Smoot
Tzdata	2017b	Public domain, BSD 3-clause	Arthur David Olson
Zlib	1.2.7	Zlib/libpno License	1995-2005 Jean-loup Gailly and Mark Adler

Appendix E – Warranty

Sencore One-Year Warranty

Sencore warrants this product against defects from any cause, except acts of God and abusive use, for a period of 1 (one) year from date of purchase. During this warranty period, Sencore will correct any covered defects without charge for parts, labor, or recalibration.

Appendix F – Support and Contact Information

Returning Products for Service or Calibration

The SCP 2100 is a delicate piece of equipment and needs to be serviced and repaired by Sencore. Periodically it is necessary to return a product for repair or calibration. In order to expedite this process please carefully read the instructions below.

RMA Number

Before any product can be returned for service or calibration, an RMA number must be obtained. In order to obtain an RMA number, use the following steps:

- Go to www.sencore.com/company/contact-us/
- Click on the “Service, Support & Training
- Click on “Return equipment for service”
- Fill out the required information and click “Submit”

A customer service representative will be in contact regarding the RMA number and instructions for shipment.

Sencore Inc.
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Sioux Falls, SD 57107 USA
www.sencore.com
1.605.978.4600