RLH Industries, Inc.

iMux Modular Multiplexer System

Software Manual

MD-044 2025-0124

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1. Introduction

Product Description

The iMux is a powerful fiber optic modular multiplexer capable of providing up to 16 channels of T1, RS232, 4 wire data/600 Ohm audio and analog phone FXO/FXS services, plus four built-in Gigabit Ethernet ports, over a single fiber. Each of these services are supplied by our communication modules, each module will transport up to 4 channels of the specified service and may be installed in any combination. Spares or add-on modules may be ordered separately and are field installable.

Gigabit SFPs are used for the back-haul fiber transport of the communication services. Each iMux will take up to 2 SFPs for redundancy. The SFPs are hot swappable and automatically fail over in case of a failure in the primary fiber path.

The iMux may be managed through SNMP, web Interface, craft port or menu keys on the front panel. It also has an external alarm port for alarm monitoring, as well as 4 programmable alarm contacts. The system provides local/ remote loopback functions that are ideal for network testing and maintenance.

Standard Features

Multiplexes up to 16 voice and data channels plus Gigabit Ethernet over a single fiber
Up to 4 modules (each with 4 channels) may be used in any combination to mix and match services
Convenient front LED status indicators
T1, RS232, POTS, & 4 Wire Data service modules
4 built-in Gigabit Ethernet ports
Aggregated Ethernet throughput are up to 800 Mbps
Supports VLAN/QOS and port rate control
SFP's are hot swappable & provide 1+1 redundancy
Ethernet Ports can be configured to be Isolated Channels or Shared.
Supports SNMP , HTTP / FTP / TFTP remote software upgradeable
Supports TELNET function to configure and monitor local and remote devices through TCP/IP network
The POTS modules support phone extensions as well as ring down.
Redundant 48VDC or AC/DC powering options

2. Configuration with a Web Browser

Establishing Connection to Device

RLH iMux may be configured and managed via an intuitive, web-based graphical user interface or GUI. The Web GUI may be accessed by any updated common web browser such as Microsoft Internet Explorer, Google Chrome, or Mozilla Fire Fox.

Default Settings

In most cases you will need to assign a temporary static IP to your workstation to initially access the switch web access page. The assigned temporary address should be within the same subnet as the default IP address.

Example Workstation Address:

- IP: 192.168.0.50
- Subnet: 255.255.255.0

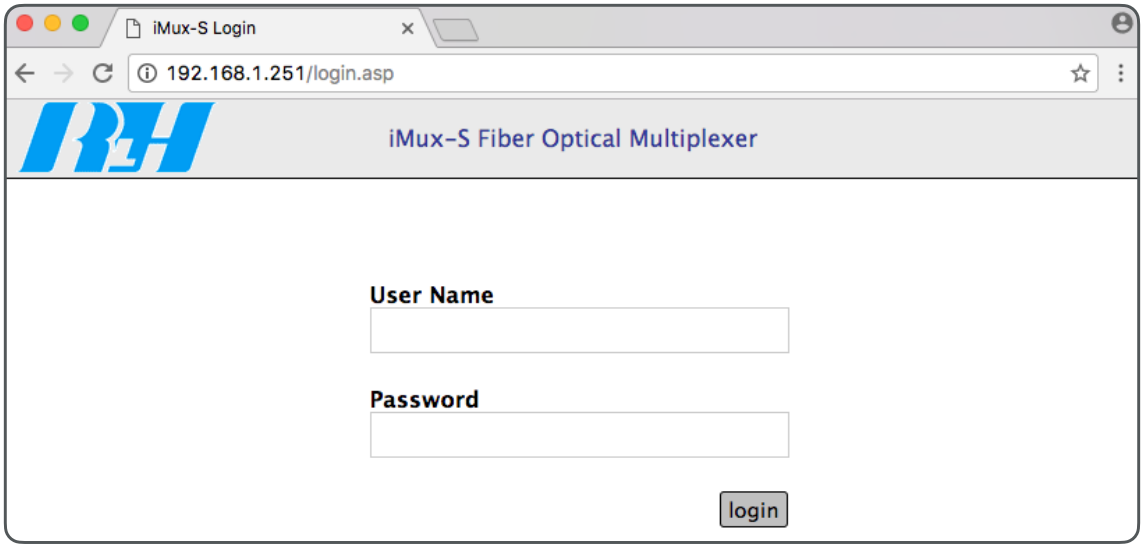
Now access the device via: http://192.168.0.1

```
IP Address: 192.168.0.1
Subnet: 255.255.255.0
```

Default IP Address

```
Username: admin
Password: 1234
```

Default Username/Password

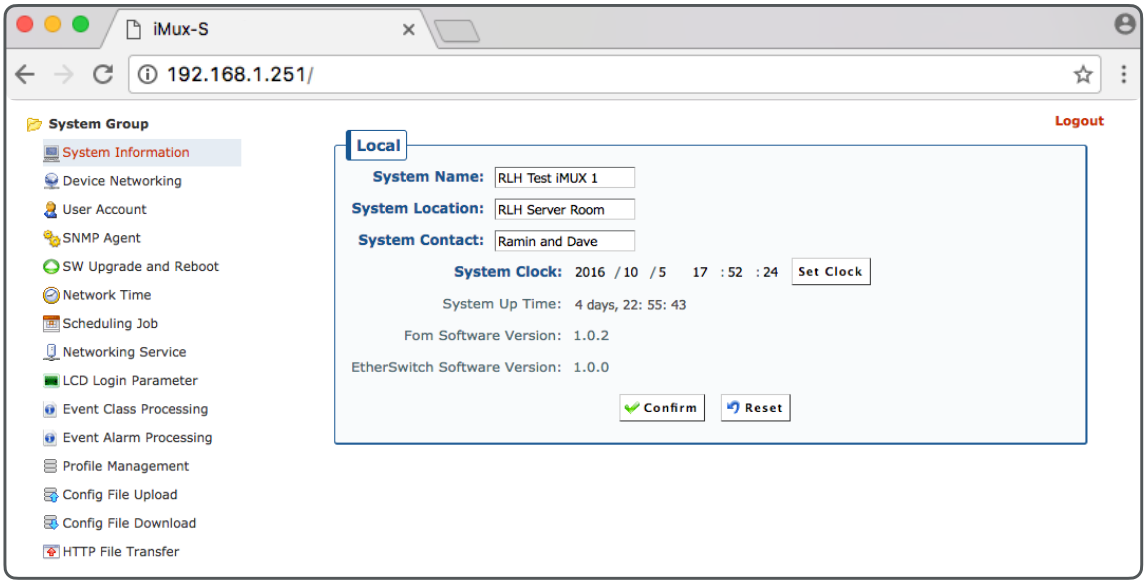


Login Web Interface Screen

System Group

The System Group section is where a majority of device management and configuration procedures take place.

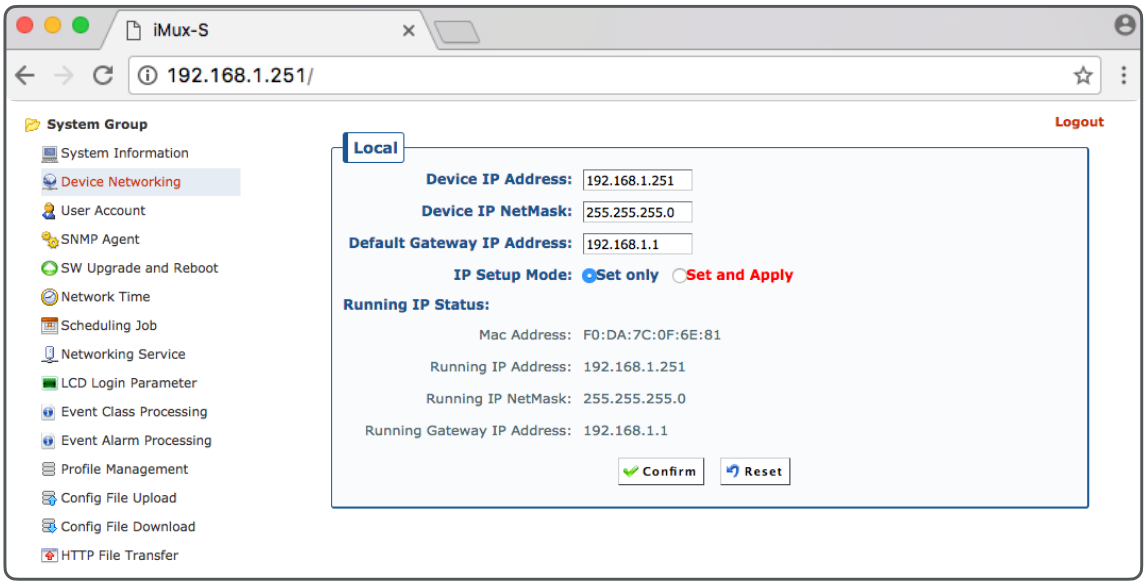
System Information



System Information Web Interface

Settings	Description
System Name	Enter the desired hostname of the device.
System Location	Enter the geographic location information of the device.
System Contact	Enter the name and/or contact information of the designated manager.
System Clock	Displays the current Date + Time configuration of the device. Displayed in as: Year /Month /Day HH : MM :SS
System Up Time	The amount of time that has passed since the last device boot.
Fom Software Version	Currently loaded multiplexer system software version.
EtherSwitch Software Version	Currently loaded Ethernet Switch software version.
Confirm	Apply Settings.
Reset	Remove unconfirmed settings.
Confirm Local + Remote	Apply settings to both the local and remote iMux units.

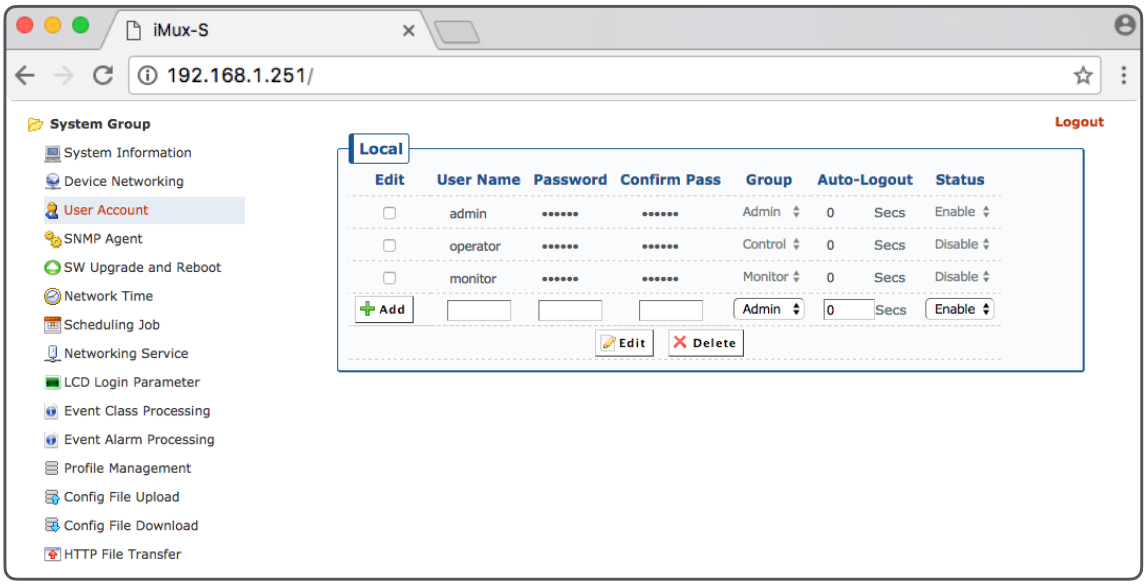
Device Networking



Device Networking Web Interface

Settings		Description
Device IP Address		Desired IP Address of the device.
Device IP NetMask		Desired Ethernet Subnet Mask of the device.
Default Gateway IP Address		IP Address of the network's Default Gateway.
IP Setup Mode	**Set Only**	Sets the IP values entered without saving or applying the new configuration.
		NOTE: After confirming, the device configuration must be saved in the Profile Management section to save changes.
		NOTE: Reboot device to apply the new IP configuration.
	Set and Apply	Sets and applies the IP values entered without saving the new configuration to the running profile.
		NOTE: After confirming, the configuration must be saved on the Profile Management page to the applicable running profile.
IP Running Status		Displays the different device addresses.
	MAC Address	Displays the Media Access Control (MAC) Address of the device.
	IP Address	Displays the current working IP address of the device.
	IP NetMask	Displays the current configured IP Network Subnet Mask.
	Gateway IP Address	Displays the current configured IP address of the network's default gateway.

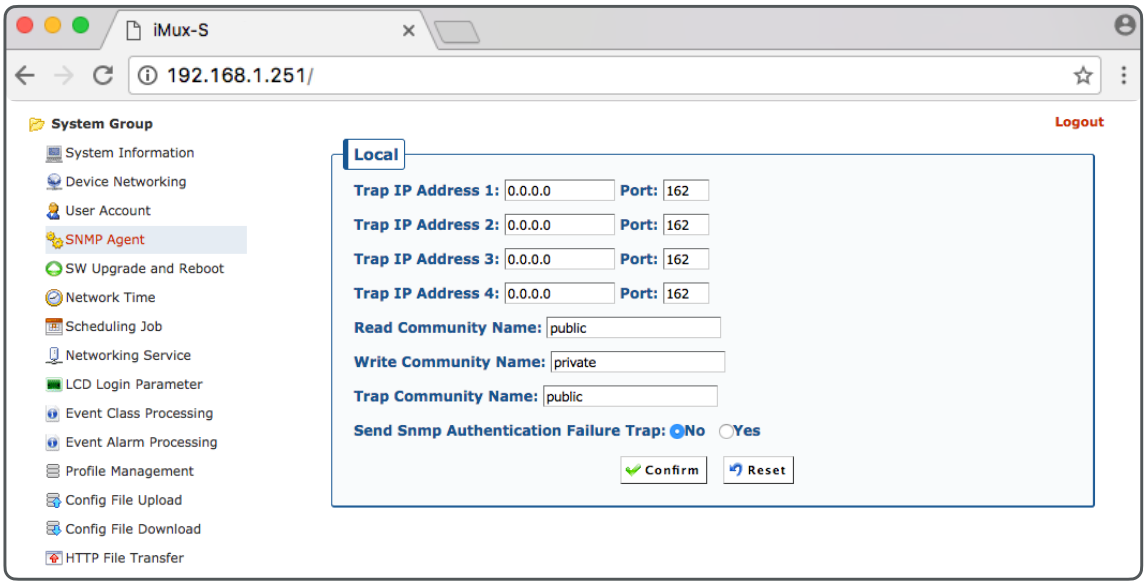
User Account



User Account Web Interface

Settings		Description
Edit		Account selection box to left of the user account being modified.
		Note: usernames may not be altered after the accounts are created.
	Add	Complete the new user account information and click the button to create.
	Edit	Button to modify the user account(s) that are selected in the edit column.
	Delete	Button to remove the user account(s) that are selected in the edit column.
User Name		Create a Username using 1-8 characters. (letters, numbers, and symbols)
Password		Create a Password using 1-8 characters. (letters, numbers, and symbols)
Confirm Password		Verify password by typing in the same password as in the Password field.
Group		Required to determine the level of access the user is granted to the system.
	Admin	Access to all levels and areas of the system are granted.
	Control	Administer all areas of the system outside of the System Group sub menu.
	Monitor	Users will only be able to monitor the status of the system.
Auto-Logout		Specifies the amount of time, in seconds, that will pass before the user is automatically logged out of the system and will be forced to log in again.
Status	**Enable**	Enable the user account and allow the user to log in.
	Disable	Disable the user account and prevent the user from logging in to the system.
		Note: Message sent to user to check username and password information.

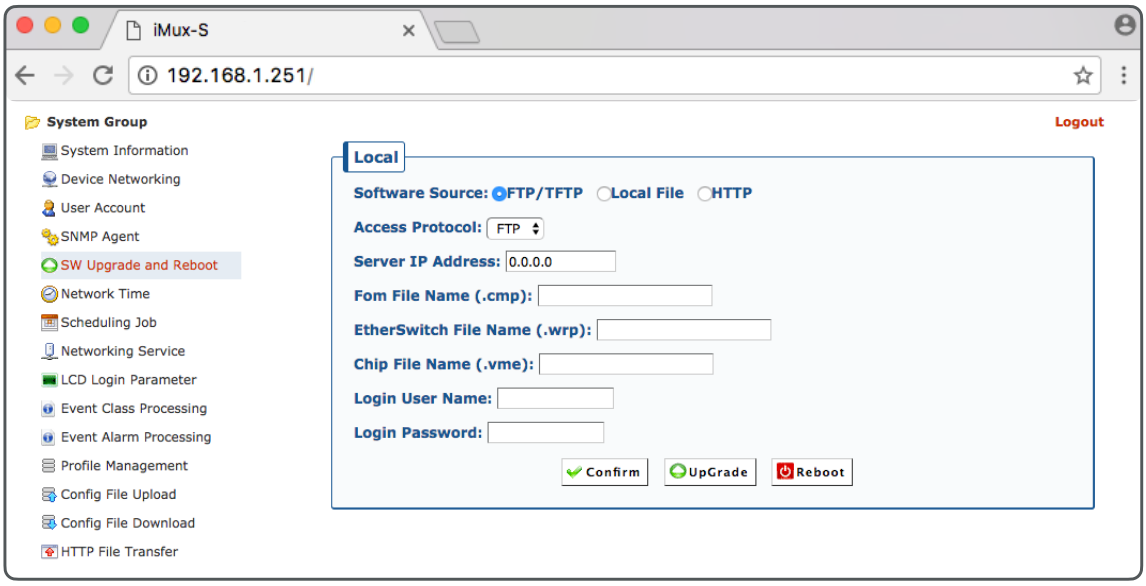
SNMP Agent



SNMP Agent Web Interface

Settings		Description
Trap IP Address	**1~4**	Enter the IPv4 Address of the SNMP trap into the designated field.
	Port	Enter the Port number of the SNMP trap in the designated field.
Read Community Name		Enter the desired SNMP Read Community Name of the device.
Write Community Name		Enter the desired SNMP Write Community Name of the device.
Trap Community Name		Enter the desired SNMP Trap Community Name of the device.
Send SNMP Authentication Failure Trap		Determines whether the device will transmit SNMP authentication traps.
	Yes	SNMP trap will be transmitted on SNMP authentication failure.
	No	SNMP trap will not be transmitted on SNMP authentication failure.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

SW Upgrade and Reboot



SW Upgrade and Reboot Web Interface

Software Source - FTP/TFTP

Settings	Description
FTP/TFTP	Access upgrade files from a configured FTP or TFTP server on the network.
Access Protocol	Select the desired file transfer protocol from the drop down menu.
Server IP Address	Enter the IP Address of the file server to access the upgrade files.
Image File Name (.cmp)	Name must be exactly as it is saved on the file server, case sensitive.
EtherSwitch File Name (.wrp)	Name must be exactly as it is saved on the file server, case sensitive.
Chip File Name (.vme)	Name must be exactly as it is saved on the file server, case sensitive.
Login User Name	Enter the username of the account that will be used to access the file server.
Login Password	Enter the password of the account that will be used to access the file server.
Confirm	Checks validity of the entered information prior to initiation of upgrade.
Upgrade	Initiates the upgrade operation on the respective device once its been confirmed.
Reboot	Initiates the reboot with the upgraded files to the respective device.
Confirm Local + Remote	Checks validity of the entered information for both devices simultaneously prior to initiation of upgrade.

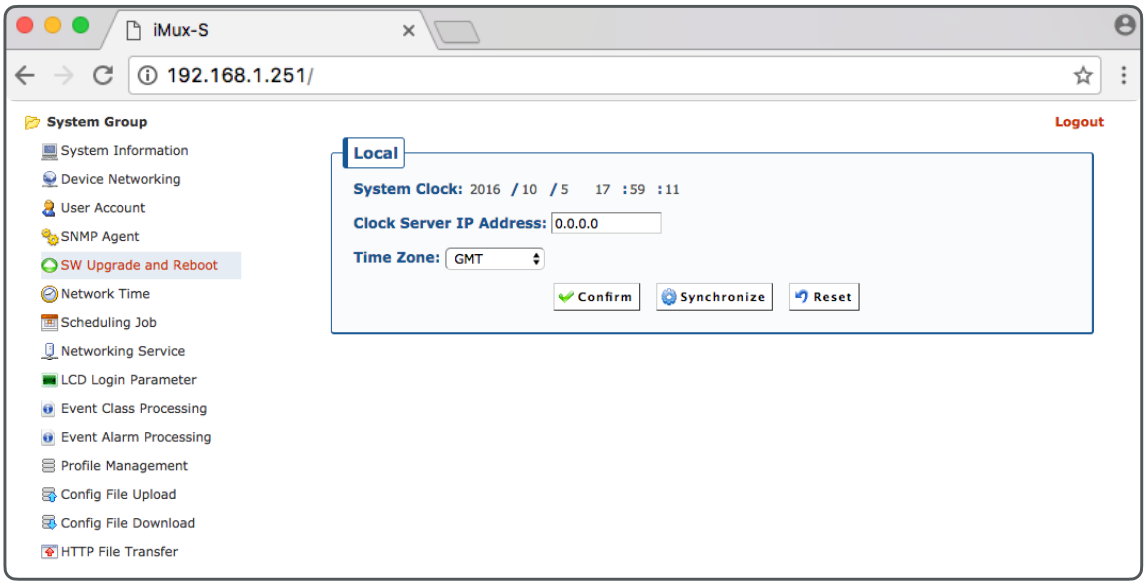
Software Source - Local File

Settings	Description
Local File	Access local files to upload stored in local device storage.
Confirm	Checks validity of the entered information prior to initiation of upgrade.
Upgrade	Initiates the upgrade operation on the respective device once its been confirmed.
Reboot	Initiates the reboot with the upgraded files to the respective device.
Confirm Local + Remote	Checks validity of the entered information for both devices simultaneously prior to initiation of upgrade.

Software Source - HTTP

Settings	Description
HTTP	Upload a configuration file from your workstation via HTTP.
Image File	Click Choose File to select the desired upgrade file from the workstation storage.
Confirm	Checks validity of the entered information prior to initiation of upgrade.
Upgrade	Initiates the upgrade operation on the respective device once its been confirmed.
Reboot	Initiates the reboot with the upgraded files to the respective device.
Confirm	Checks validity of the entered information before starting the upgrade.

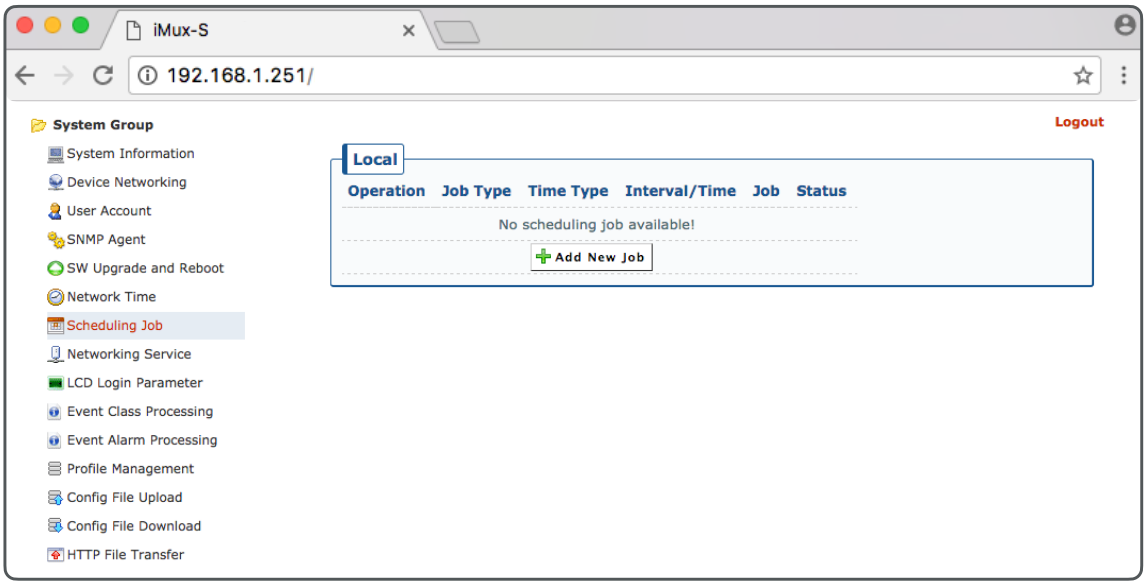
Network Time



Network Time Web Interface

Settings	Description
System Clock	Displays the current Date + Time configuration of the device.
	Year / Month / Day, HH : MM : SS
Clock Server IP Address	Enter the IPv4 address of the NTP server on the network (local or internet) that will provide the current time and date.
Time Zone	Select the desired time zone from the drop down menu.
Confirm	Checks validity of the new settings prior to synchronizing the devices.
Synchronize	Click to open the synchronization dialogue box.
	Operation target menu options include local, remote, or local + remote.
Reset	Reverts any unconfirmed changes to the settings back to their unaltered state.
Confirm Local + Remote	Checks validity of the entered information for both devices simultaneously prior to synchronization.

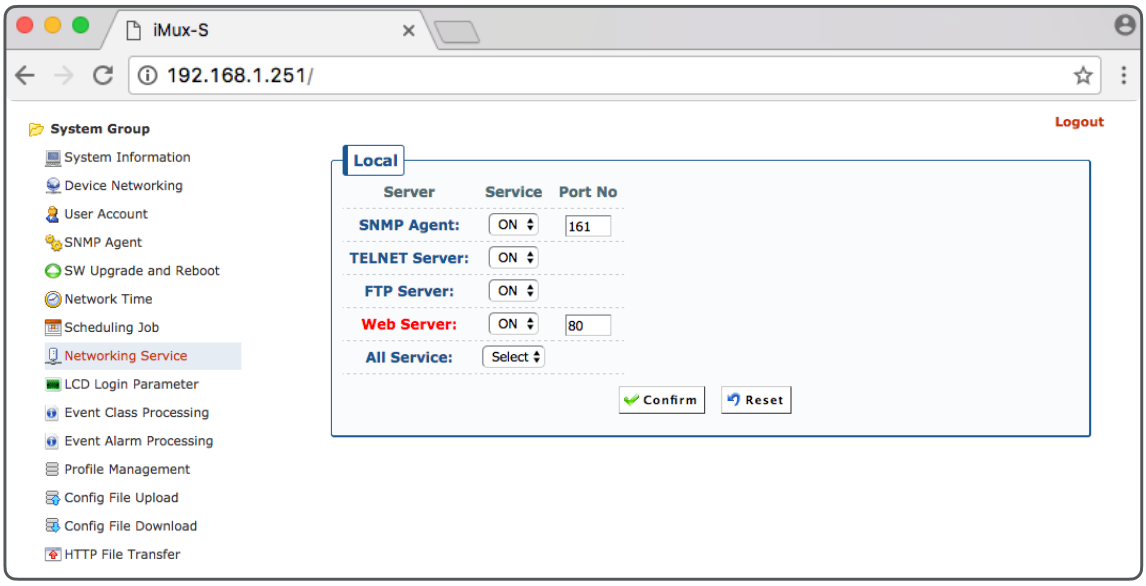
Scheduling Job



Scheduling Job Web Interface

Settings		Description
Operation		Lists the existing scheduling job operations. Edit of delete them by clicking on the corresponding button to the left.
Job Type		There are 3 types of jobs available
	Periodic	The job is performed repeatedly over the time interval that is designated.
	One Shot	A single instance of the job is performed after the designated time interval.
	Booting	The job is carried out on system boot.
Time Type		There are 2 Time Types available.
	Interval	The time interval may be a whole number of minutes from 1 to 3000.
	Day	A daily designated time that is executed on a 24 hour time interval.
Interval/Time		Displays the configured time interval or daily run time of the scheduled job.
Job		Schedule any of the following job types: Send Schedule Trap, Time Sync Trap, Software Upgrade, Network Time Sync, System Reboot, Config Upload, Config Download, or Do Nothing.
Status		Displays the running status of the scheduled job.
	Completed	Denotes a job that has occurred and is not scheduled to occur again in the future.
	Waiting	Denotes a job that is scheduled to run in the future.
Add New Job		Click the button to open the Add New Scheduling sub window.

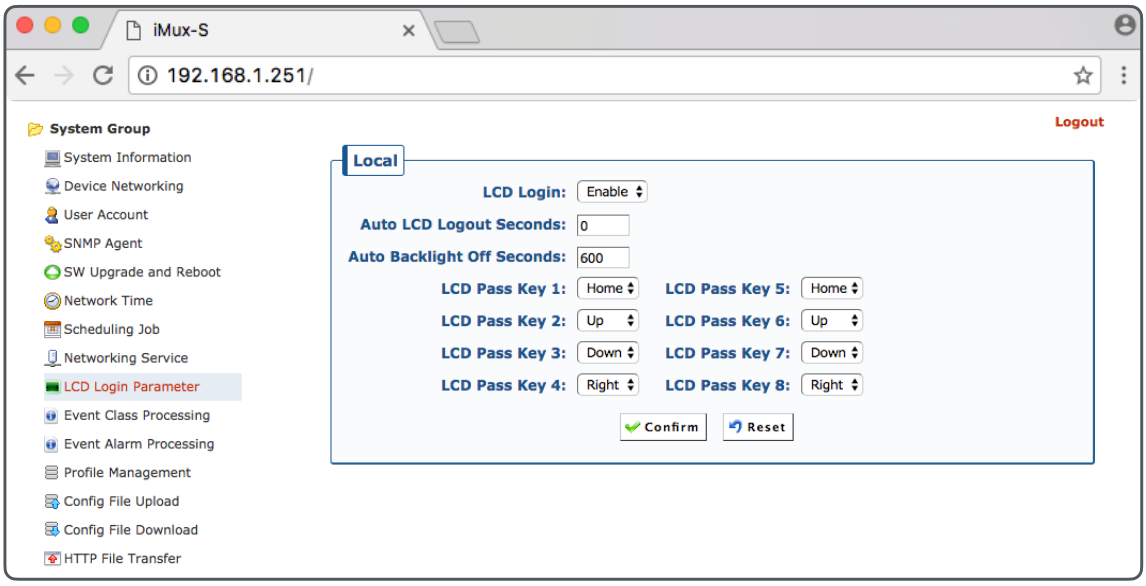
Network Service



Network Service Web Interface

Settings		Description
SNMP Agent	**ON**	Enable Device SNMP Agent.
	OFF	Disable Device SNMP Agent.
	Port No	Enter the desired IP port through which the SNMP Agent will be available. *Entered value must be between 1 and 65535.*
Telnet Server	**ON**	Enable Device Telnet.
	OFF	Disable Device Telnet.
FTP Server	**ON**	Enable Device FTP.
	OFF	Disable Device FTP.
Web Server	**ON**	Enable Device Web Server.
	OFF	Disable Device Web Server.
	Port No	Enter the desired IP port that the iMux Web Server will be available. *Entered port value must be between 1 and 65535.*
All Service	**Select**	Default setting. Enable or disable all services by selecting ON or OFF.
	ON	Enable ALL network services listed above.
	OFF	Enable ALL network services listed above.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

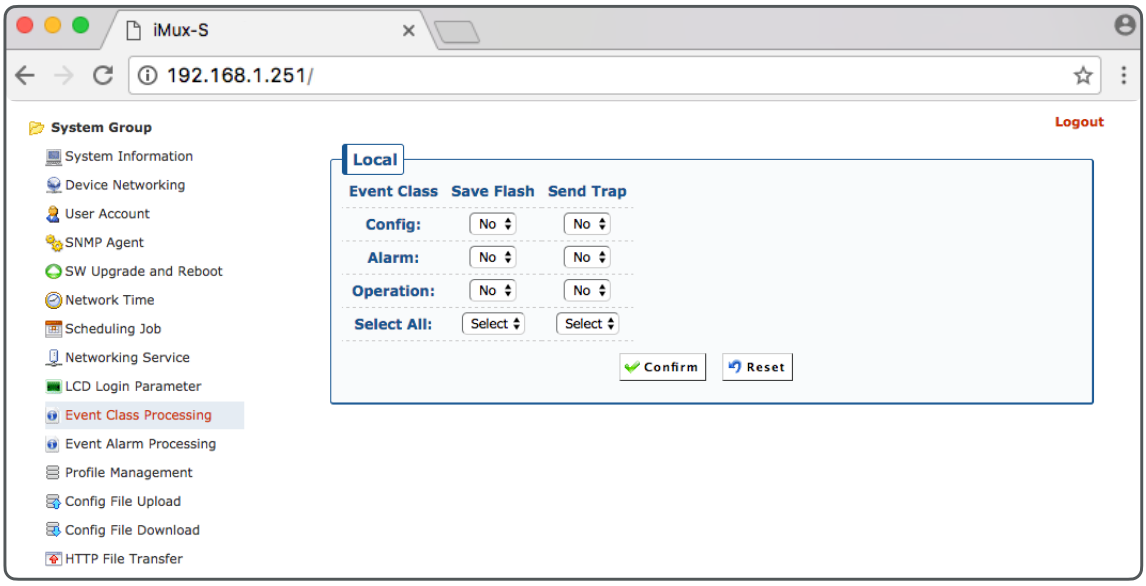
LCD Login Parameters



LCD Login Parameters Web Interface

Settings		Description
LCD Login		LCD Panel can be used to login the device.
	Disable	Disables login via the LCD Panel.
	Enable	Enables login via the LCD Panel.
Auto LCD Log Out Seconds		Enter the number of minutes of inactivity that will elapse before the logged in user is automatically logged out.
Auto Backlight Off Seconds		Enter the number of minutes of inactivity that will elapse before the LCD backlight turns off.
LCD Pass Keys 1~8		The LCD panel password consists of 8 button presses using the Home, Up, Down, and Right keys.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

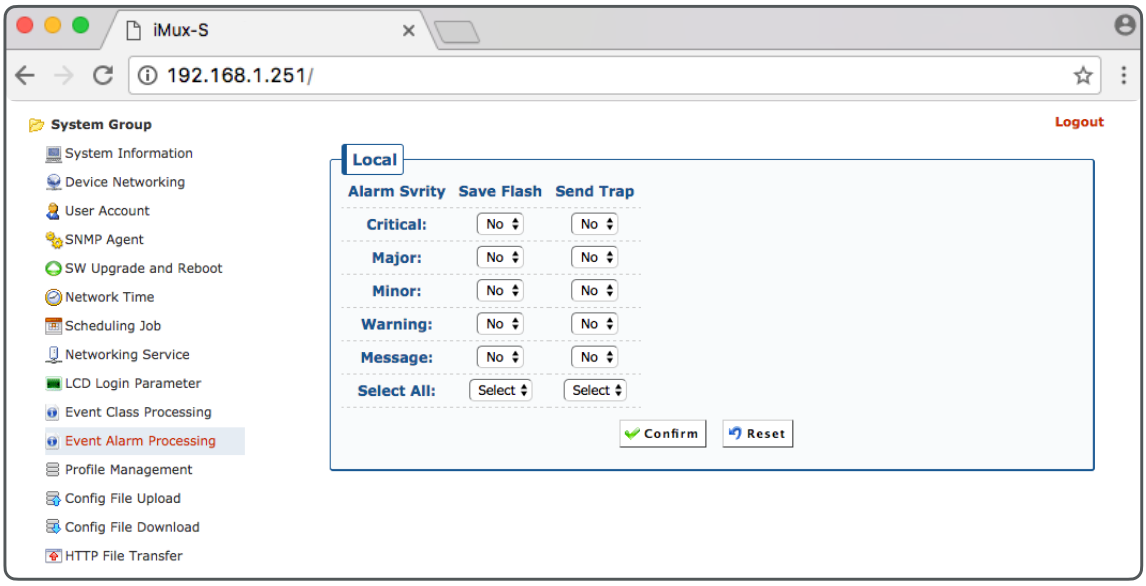
Event Class Processing



Event Class Processing Web Interface

Settings	Description
Event Class	Indicates the class of event that is being considered for logging.
	Use the respective dropdown menu to determine the instances for each.
Save Flash	Determines the instances to be saved to device flash storage.
Send Trap	Determines the instances that will trigger SNMP Traps to be sent.
Config	Includes any configuration changes events that are made to the system.
Alarm	System alarm events.
Operation	System operational events that are not listed as alarm events.
Select All	Set all above mentioned Event Classes simultaneously.
Confirm	Apply Settings.
Reset	Remove unconfirmed settings.
Confirm Local + Remote	Apply settings to both the local and remote iMux units.

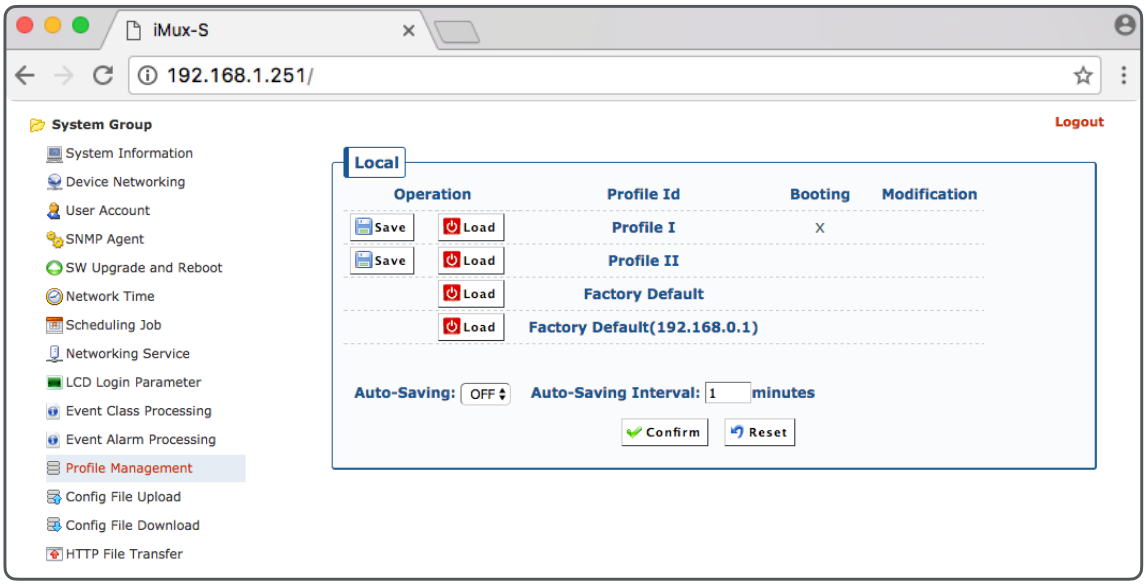
Event Alarm Processing



Event Alarm Processing Web Interface

Settings		Description
Alarm Svrity		Alarm Severity describes the degree or severity of the system notice.
		Use the respective dropdown menu to determine the instances for each.
	Save Flash	Determines if the event will be saved to flash memory on the device.
	Send Trap	Determines if the event will result in the transmission of an SNMP trap.
Critical		Critical Alarm Class is the most serious system message classification available.
Major		Major Alarm Class is the next level down from Critical.
Minor		Minor Alarm Class is the next level down from Major.
Warning		Warning Alarm Class is the next level down from Minor.
Message		Message Alarm Class is the next level down from Warning and is also the lowest system alert level classification.
Select All		Each respective drop down menu is used to configure the Yes/No setting for all alarm classes in the Save Flash or Send Trap Columns.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

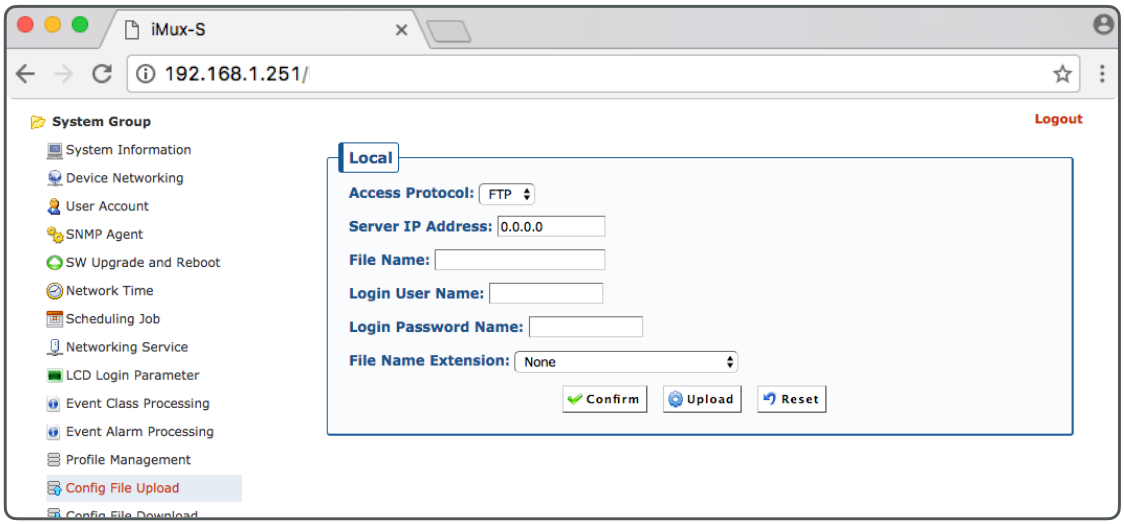
Profile Management



Profile Management Web Interface

Settings		Description
Operation		Save or Load system configurations to/from the Profile ID locations.
	Save	Saves the current system configuration to the respective Profile ID.
	Load	Loads the stored system configuration from the respective Profile ID.
Profile ID		The locations in the system memory that the configuration can be saved.
Profile I Save/Load		The first system configuration storage location.
Profile II Save/Load		The second system configuration storage location.
Factory Default Load Only		The first of two factory default configuration storage location.
Factory Default (192.168.0.1) Load Only		The second of two factory default configuration storage location has an IP address.
Booting		Identifies the profile or configuration image file that was booted and applied on the last system startup.
Modifications		Identifies that changes have been made to the respective configuration profile that have not been saved yet.
Auto Saving		Enable to auto-save the system configuration over the defined time interval.
Auto Saving Interval		The time interval in minutes between Auto-Save operations being carried out.
	Minutes	A value of 1 - 999 is accepted.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.

Configuration File Upload



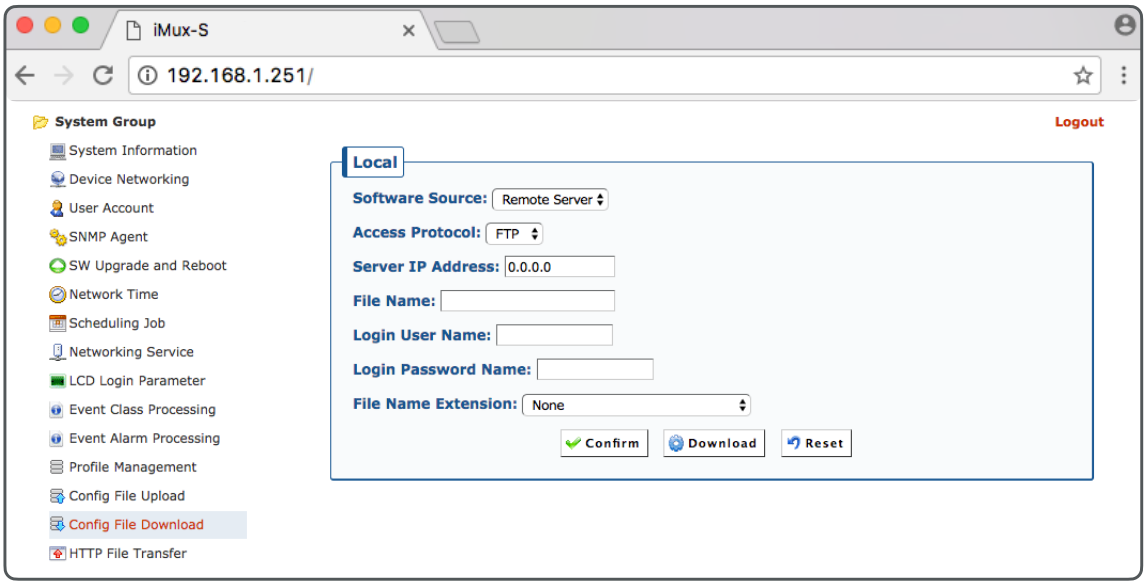
Configuration File Upload Web Interface

Settings		Description
Access Protocol		Select the protocol to upload the configuration file.
	TFTP	Trivial File Transfer Protocol.
	FTP	File Transfer Protocol.
Server IP Address		Enter the IPv4 address of the FTP/TFTP Server the file will be uploaded.
File Name		Enter the desired filename of the uploaded configuration file.
Login User Name		Enter the username of the account used to log in to the FTP/TFTP Server.
Login Password Name		Enter the password of the account used to log in to the FTP/TFTP Server.
File Name Extension		Select the system attribute (if any) to be used as a file extension for the uploaded config file. The list is in the following table below.
Confirm		Apply Settings.
Upload		File configuration procedure using the information entered.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

File Name Extension Options

Settings	Description
None	No file extension is added to the configuration file name.
System Name	Hostname of the device will be used.
Device IP	IPv4 address of the device will be used.
Site	Site attribute of the device will be used.
System Name + Device IP	Hostname and IPv4 address of the device will be used.
System Name + Site	Hostname and site attribute of the device will be used.
Device IP + Site	IPv4 address and site attribute of the device will be used.
System Name + Device IP + Site	Hostname, IPv4 address, and site attribute of the device will be used.

Configuration File Download



Configuration File Download Web Interface

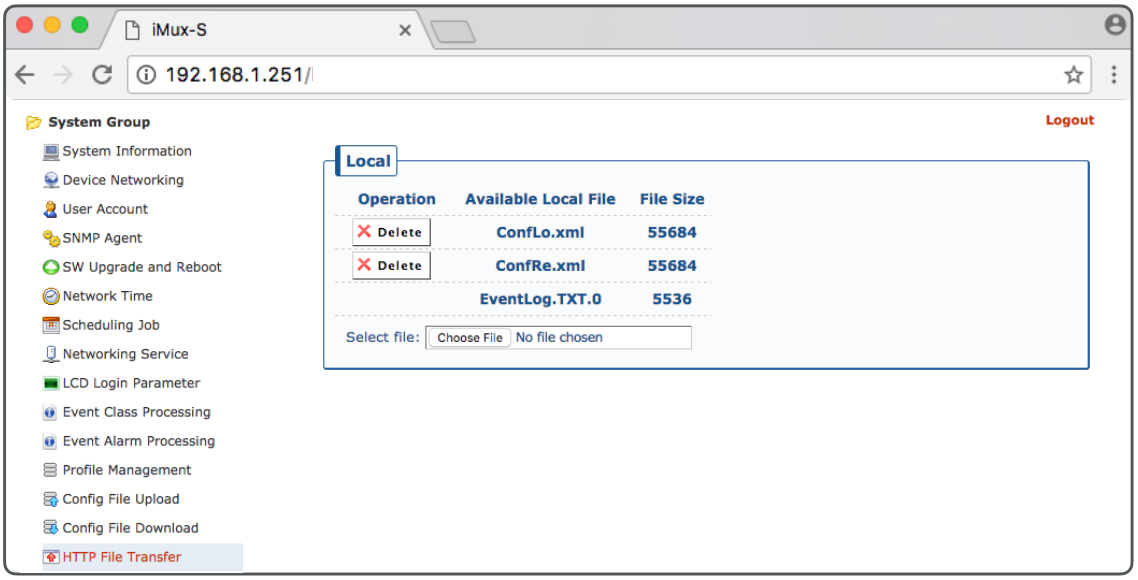
Settings	Description
Software Source	Use the drop down menu to download file via FTP/TFTP or from a local file.
Remote Server	Displays the FTP/TFTP download parameter dialogue boxes.
Local File	Displays a list of available local files for selection.
Access Protocol	Select either protocol to be used when uploading the configuration file.
TFTP	Sets the Trivial File Transfer Protocol when uploading the configuration file.
FTP	Sets the File Transfer Protocol when uploading the configuration file.
Server IP Address	Enter the IPv4 address of the FTP/TFTP Server to upload the file to.
File Name	Enter the desired filename of the uploaded configuration file.
Login User Name	Enter the username of the account used to log in to the FTP/TFTP Server.
Login Password	Enter the password of the account used to log in to the FTP/TFTP Server.
File Name Extension	Select what system attribute (if any) will be used as a file extension for the uploaded configuration file. The list is in the table on the following page.
Confirm	Apply Settings.
Download	File configuration procedure using the information entered.
Reset	Remove unconfirmed settings.
Confirm Local + Remote	Apply settings to both the local and remote iMux units.

NOTE: The File Name Extension Option list can be found on the following page.

File Name Extension Options

Settings	Description
None	No file extension is added to the configuration file name.
System Name	Hostname of the device will be used.
Device IP	IPv4 address of the device will be used.
Site	Site attribute of the device will be used.
System Name + Device IP	Hostname and IPv4 address of the device will be used.
System Name + Site	Hostname and site attribute of the device will be used.
Device IP + Site	IPv4 address and site attribute of the device will be used.
System Name + Device IP + Site	Hostname, IPv4 address, and site attribute of the device will be used.

HTTP File Transfer



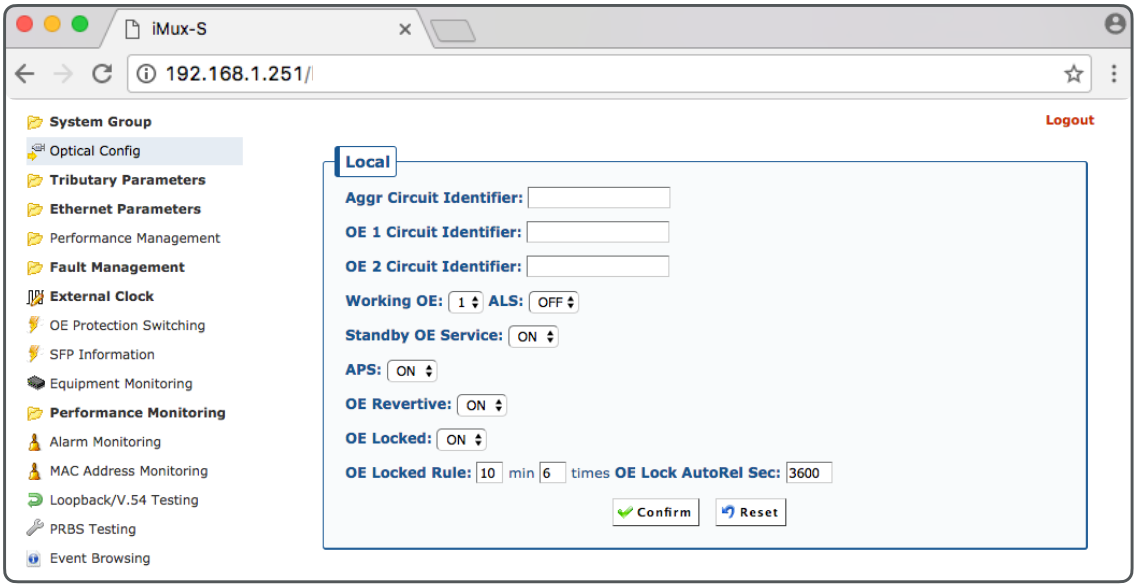
HTTP File Transfer Web Interface

Settings		Description
Operation		Add or delete files to the device memory.
	Delete	Delete the respective file from the device memory.
Available Local File		The file names of the available files are listed in this column.
File Size		Displays the file size. (In Bytes)
Select File		Dialog box used to select a file to upload.
	Choose File	Select a file from the local PC workstation in use.

Optical Configuration

The iMux system optical network device parameters and redundancy configuration may be managed from the Optical Configuration section.

Optical Configuration Settings



Optical Configuration Settings Web Interface

Settings		Description
Aggr Circuit Identifier		Name and identify the optical circuits of the connected iMux devices.
OE 1 Circuit Identifier		Enter the desired name of the Primary Optical Circuit.
OE 2 Circuit Identifier		Enter the desired name of the Secondary / Redundant Optical Circuit.
Working OE		Allows the administrator to designate the primary working optical circuit.
	ALS	Automatic Laser Shutdown, system will automatically terminate all light transmission when a fiber break is detected by either system.
		NOTE: Both sides of the fiber interface must have ALS enabled, ON.
		NOTE: Prevents dangerous light levels from being emitted from broken fibers when they are unintentionally severed.
Standby OE Service		Enables the system to automatically switch over to the alternate optical circuit in the event communications become impossible on the primary circuit.
APS		Enables Automatic Protection Switching.

NOTE: Optical Configuration settings are continued on the following page.

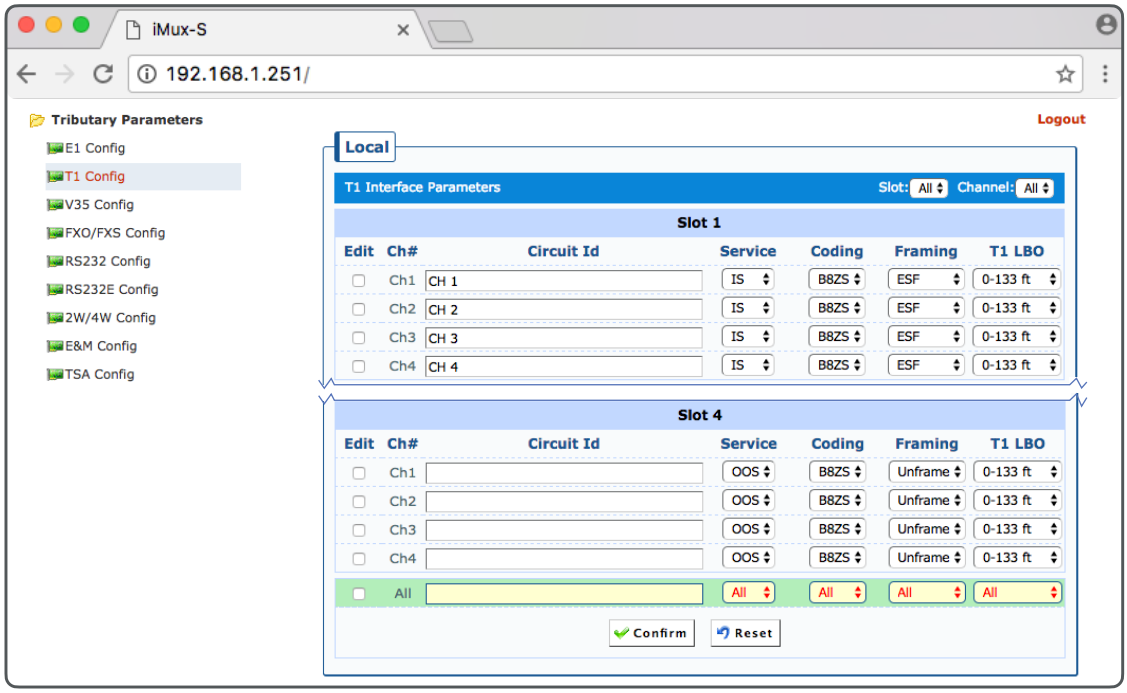
Optical Configuration Settings Continued...

Settings		Description
OE Revertive		Dictates the system behavior after restoring the primary optical circuit function.
	ON	System will revert to the primary optical circuit when connection is restored.
	OFF	Administrator must login to manually switch to the primary optical circuit.
OE Locked		Enable lock rule threshold by selecting ON and set the rule below.
OE Locked Rule		Sets frequency threshold of communication failure events detected on the primary fiber circuit before the secondary optical path locks until the primary path reliability improves.
	Min	Optical circuit error threshold count time interval. Specified in minutes.
	Times	Defines the threshold for the frequency of communication errors on the given optical circuit for the above defined time interval.
OE Locked AutoRel Sec		Defines the time interval, in seconds, that the OE lock remains engaged.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

Tributary Parameters

Tributary refers to the 4 slots in the rear of the iMux-S where the different types of communications modules may be installed and utilized. The Tributary Parameters section allows administrators to enable and configure the communications modules installed in the tributary slots.

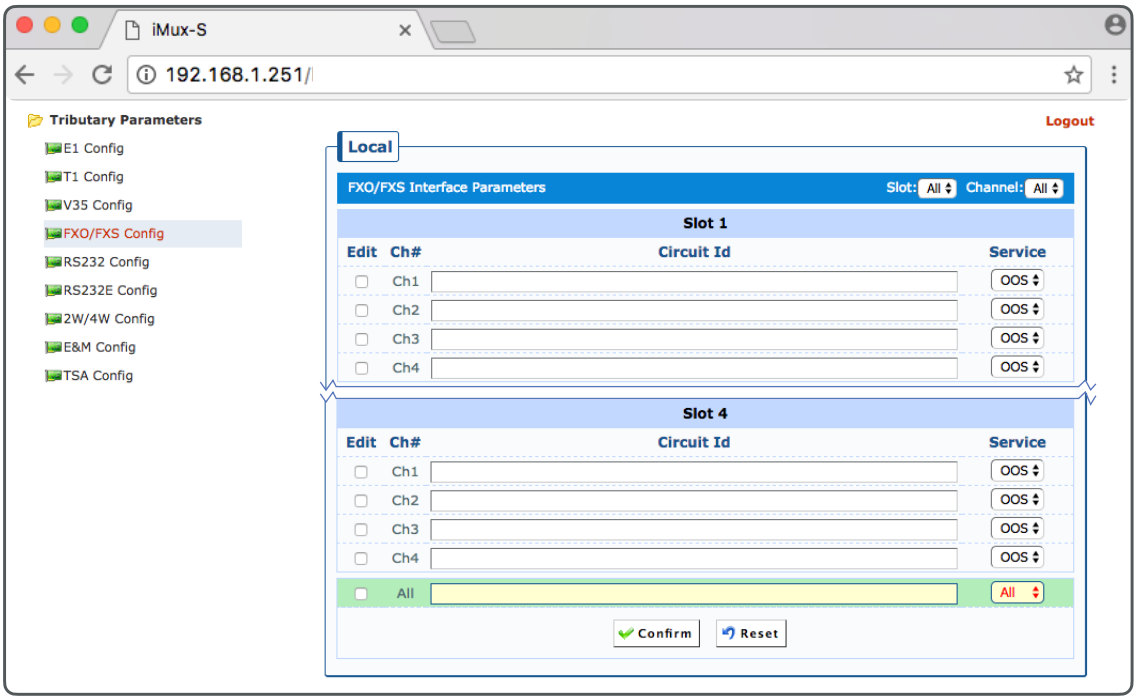
T1 Configuration



T1 Configuration Web Interface

Settings		Description
T1 Interface Parameters		Configure T1 service module circuits to the respective tributary slot.
	Slot	Identifies slot module is located in (1-4).
	Channel	Identifies the interfaces position in the Module.
Slot 1~4	**Edit**	Must be selected when editing parameters on the interface.
	All	When selected all channels in the slot will be updated.
	Ch#	Identifies the channel being updated.
	Circuit ID	Naming space to include circuit details or description.
	Service	IS - In Service - Indicates the channel is active.
		OOS - Out of service - Indicates the channel is disabled.
	Coding	AMI or B8ZS.
	Framing	ESF, SF, Unframed.
	T1 LBO	Adjusts the gain based on the length of copper present. 0-133 ft, 133-266 ft, 266-399ft, 399-533ft, 533-655ft
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

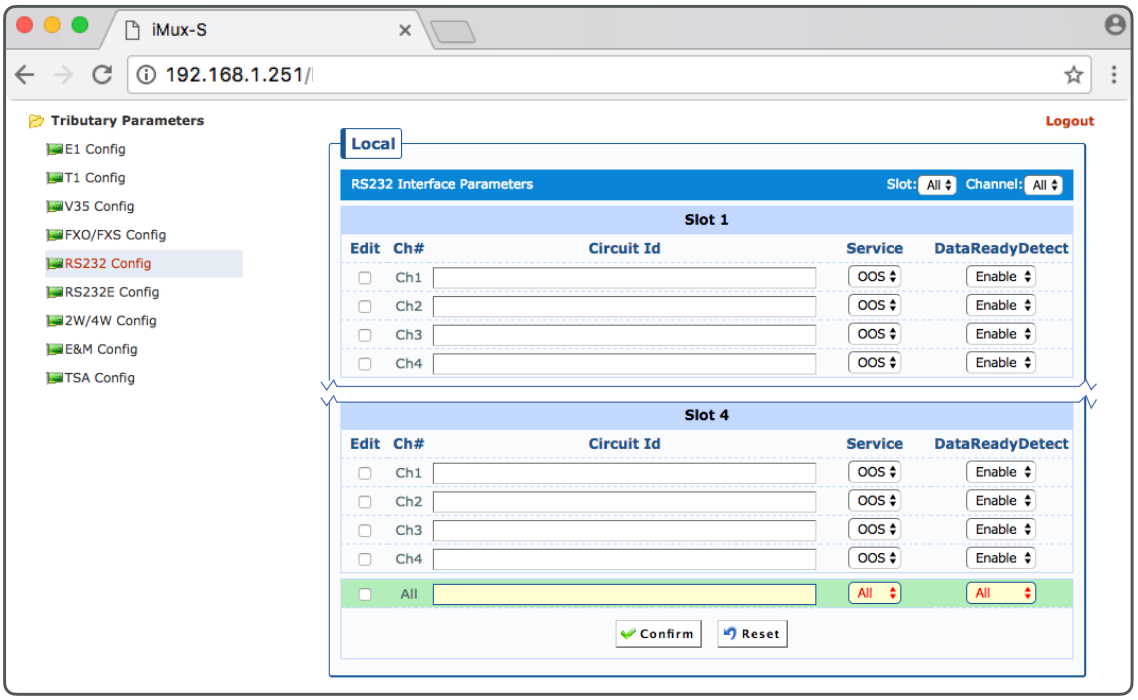
FXO/FXS Configuration



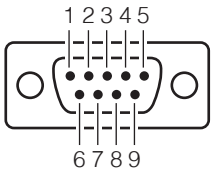
POTS (FXO/FXS) Configuration Web Interface

Settings		Description
FXO/FXS Interface Parameters		Configure POTS service module circuits to the respective tributary slot.
	Slot	Identifies slot module is located in (1-4).
	Channel	Identifies the interfaces position in the Module.
Slot 1~4	**Edit**	Must be selected when editing parameters on the interface.
	All	When selected all channels in the slot will be updated.
	Ch#	Identifies the channel being updated.
	Circuit ID	Naming space to include circuit details or description.
	Service	IS - In Service - Indicates the channel is active.
		OOS - Out of service - Indicates the channel is disabled.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

RS-232 Configuration



RS-232 Configuration Web Interface

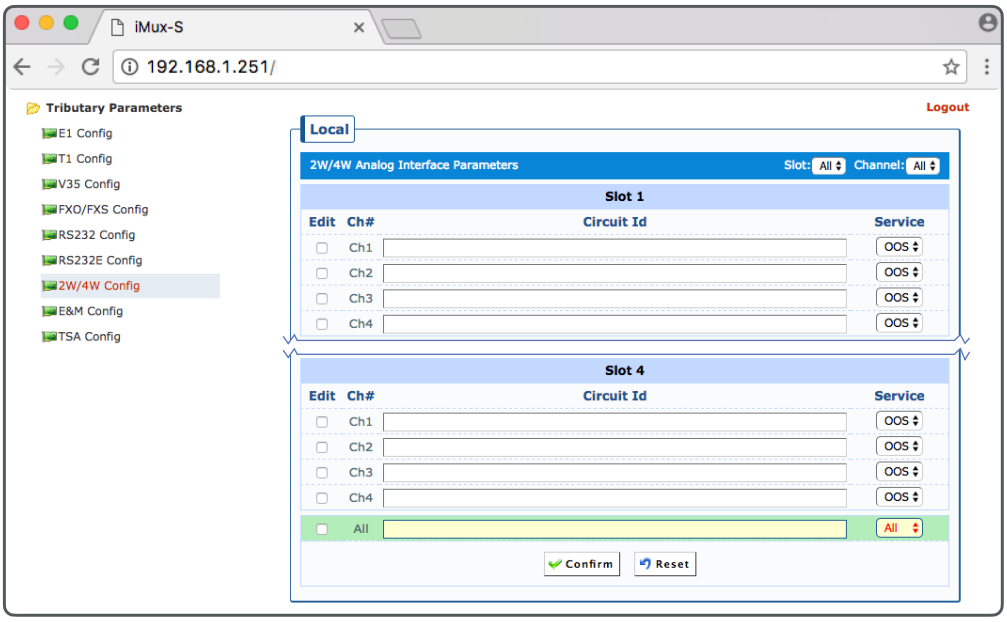


PIN #	1	2	3	4	5	6	7	8	9
Signal	DCD	RXD	TXD	DTR	GND	DSR	RTS	CTS	NA

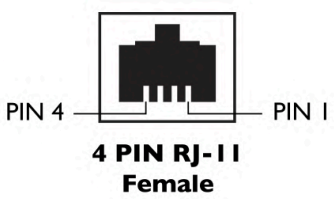
Sync/DCE (DB-9 Male) Pin Detail

Settings		Description
RS-232 Interface Parameters		Enable or disable RS-232 service module circuits in the respective tributary slot.
	Slot	Identifies the slot module is located in (1-4).
	Channel	Identifies the position of the interface in the module.
Slot 1~4	**Edit**	Must be selected when editing parameters on the selected interface.
	All	Configuration updates will apply to all channels/circuits.
	Ch#	Identifies the channel being updated.
	Circuit ID	Naming space to include circuit details or description.
	Service	IS - In Service - Indicates the channel is enabled.
		OOS - Out of service - Indicates the channel is disabled.
	DataReadyDetect	Enable or disable the following pins: DCD, DTR, DSR, RTS, CTS.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

2W/4W Configuration



2W / 4W Analog Data Configuration Web Interface



Analog Channel	Pin	Description
Input	1	Tip
	4	Ring
Output	2	Tip
	3	Ring

2W/4W Interface Pin Detail

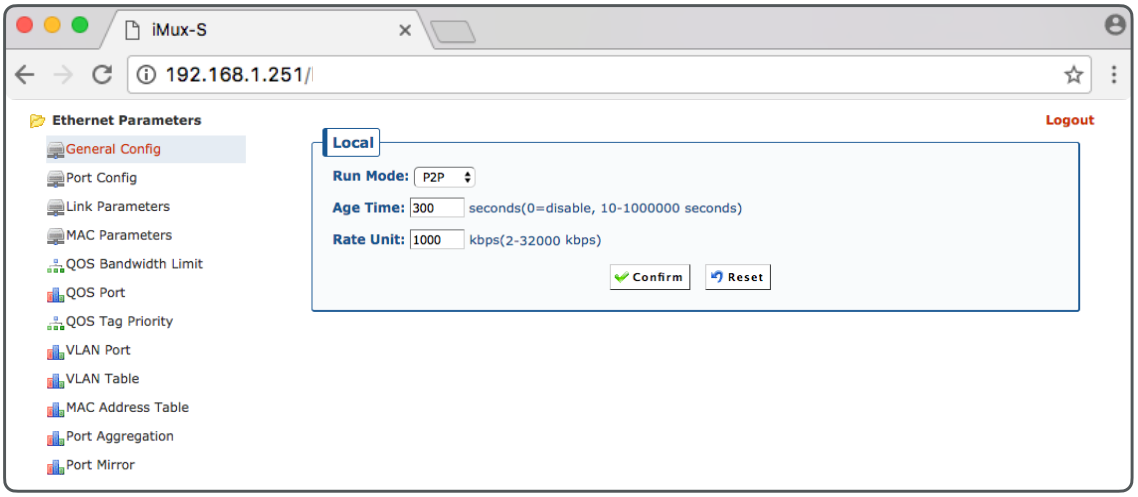
Note: This 2W/4W module interface only supports unidirectional 2W analog data transmission. 2W data signals transmit over Pins 1/4, with the signals received on Pins 2/3 of the opposing module.

Settings		Description
2W/4W Analog Interface Parameters		Configure 2W/4W Analog module circuits to the respective tributary slot.
	Slot	Identifies the modules located in slots (1-4).
	Channel	Identifies the interfaces position in the Module.
Slot 1~4	**Edit**	Must be selected when editing parameters on the interface.
	All	Select to update all channels in the slot.
	Ch#	Identifies the channel being updated.
	Circuit ID	Naming space to include circuit details or description.
	Service	IS - In Service - Indicates the channel is active.
		OOS - Out of service - Indicates the channel is disabled.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

Ethernet Parameters

The configuration of the iMux Ethernet network ports are controlled and managed in this section.

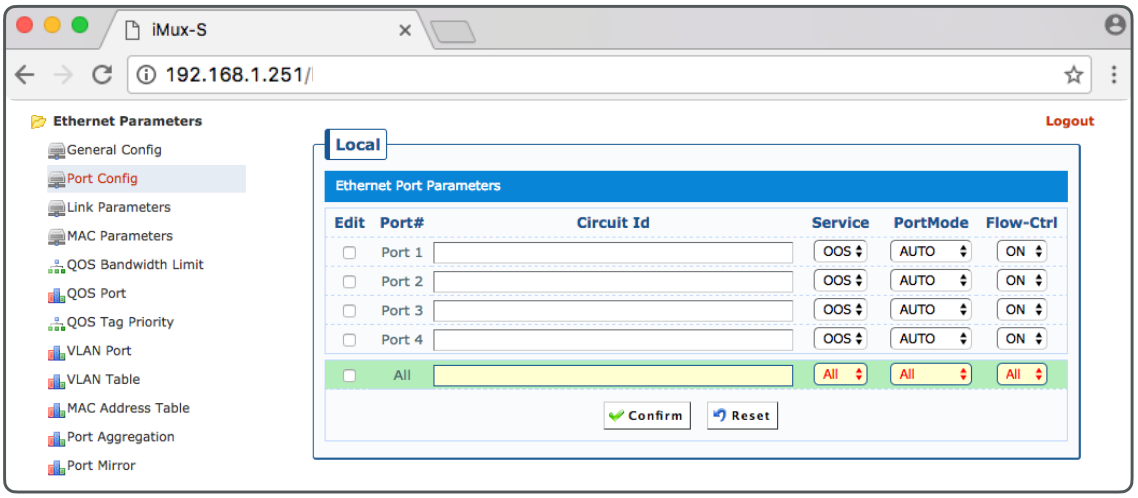
General Configuration



General Ethernet Configuration Web Interface

Settings		Description
Run Mode		Configure the Ethernet ports as either P2P or Switch.
	P2P	The Ethernet port is connected ONLY to the corresponding Ethernet Port on the Remote system. The VLAN configuration is disregarded.
	Switch	The Ethernet port is connected and acting as a managed switch, VLAN, Rate Limiting, and QoS Configuration will apply.
Age Time		Specifies the aging time of the auto-learned MAC Addresses (Default value is 300 seconds, 0 seconds disables auto-learning).
Rate Unit		Specifies the rate unit to be used for bandwidth shaping and policing.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

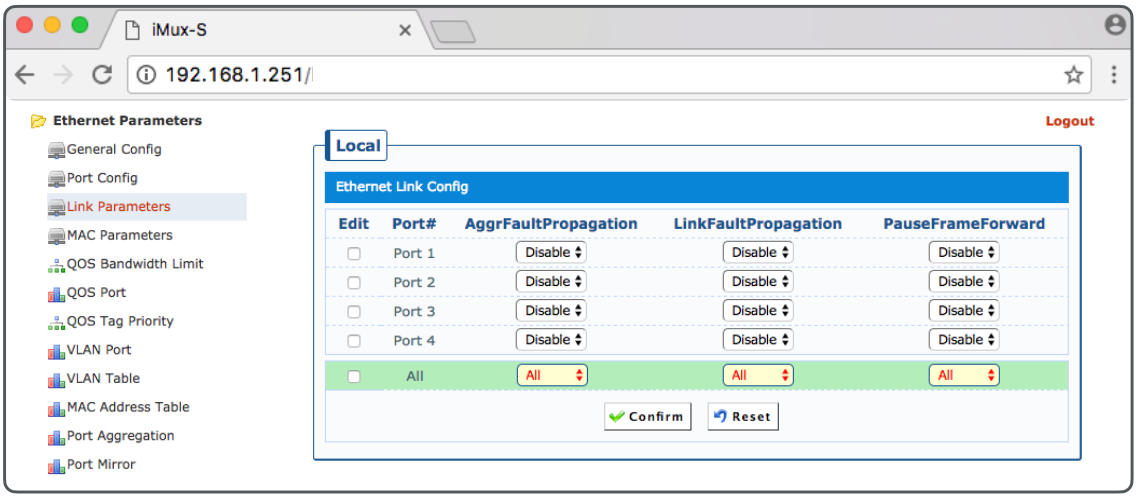
Port Configuration



Ethernet Port Configuration Web Interface

Settings		Description
Ethernet Port Parameters		Allows management of the Ethernet ports.
Edit		Must be selected when editing parameters on the interface.
	All	Select to update all channels in the slot.
Port# 1~4		Ethernet port identification.
Circuit Id		Name or describe the connected device.
Service		IS - In Service - Indicates the channel is active.
		OOS - Out of service - Indicates the channel is disabled.
PortMode		Select the speed and duplex mode desired for each port.
	Auto	Automatically detect speed and duplex.
	10HDX	10 Mbps and half duplex.
	10FDX	10 Mbps and Full Duplex.
	100HDX	100 Mbps and Half Duplex.
	100FDX	100 Mbps and Full Duplex.
	1000FDX	1000 Mbps and Full Duplex.
Flow-Ctrl		Disable or Enable Flow Control.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.

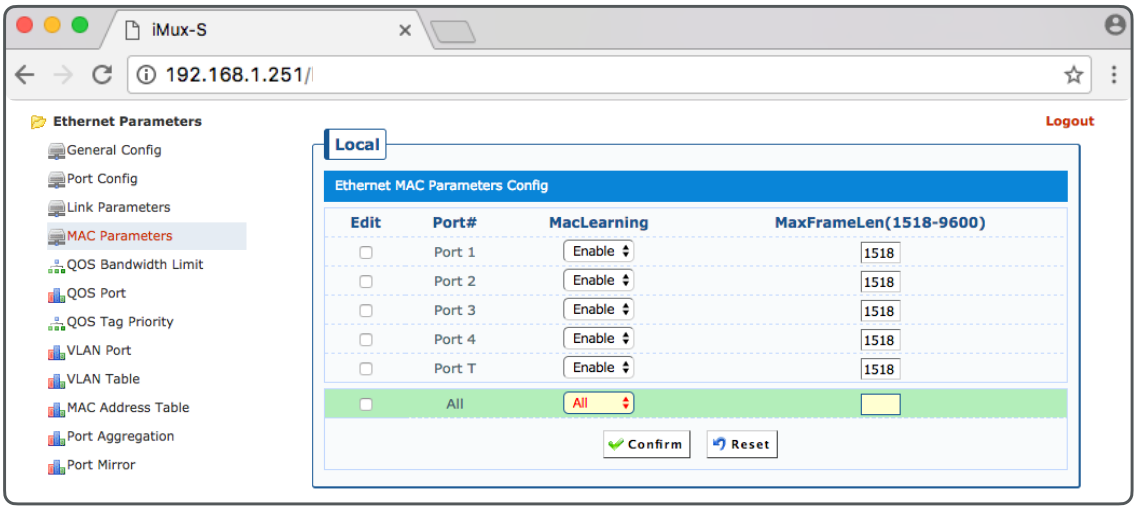
Link Parameters



Ethernet Link Parameters Web Interface

Settings		Description
Ethernet Link Config		These options only apply when Ethernet ports are configured in P2P mode.
Edit		Must be selected when editing parameters on the interface.
	All	Select to update all channels in the slot.
Port# 1~4		Ethernet port identification.
AggrFaultPropagation		When Enabled Ethernet port will turn off when the Aggregate interface is in alarm (LOF or AIS).
LinkFaultPropagation		When Enabled if the remote correlating Ethernet port link goes down, the local port will go down (LFP).
PauseFrameForward		When Enabled any ingress pause frames will be forwarded to the remote unit and transmitted to the connected Ethernet device.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.

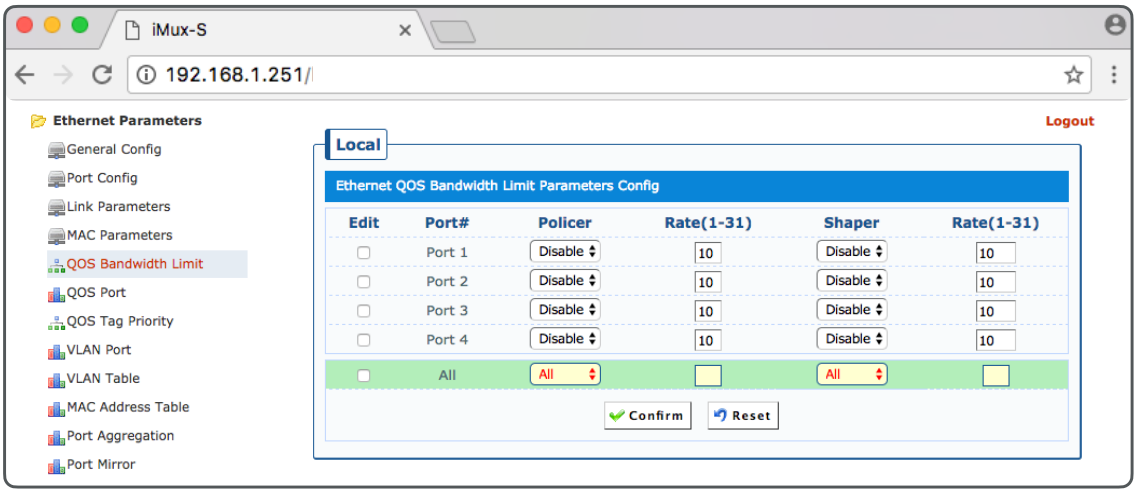
MAC Parameters



Ethernet MAC Parameters Web Interface

Settings		Description
Ethernet MAC Parameters Config		Allows the configuration of MAC address learning by Ethernet port.
Edit		Must be selected when editing parameters on the interface.
	All	Select to update all channels in the slot.
Port# 1-4 and T		Ethernet port identification.
MacLearning		Enable or Disable MAC address learning for each Ethernet port.
MaxFrameLen(1518-9600)		Set the maximum MTU size for Ethernet frames received.
		Jumbo Frames are supported when configured to 9600.
		Frames exceeding the configured size will be dropped.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.

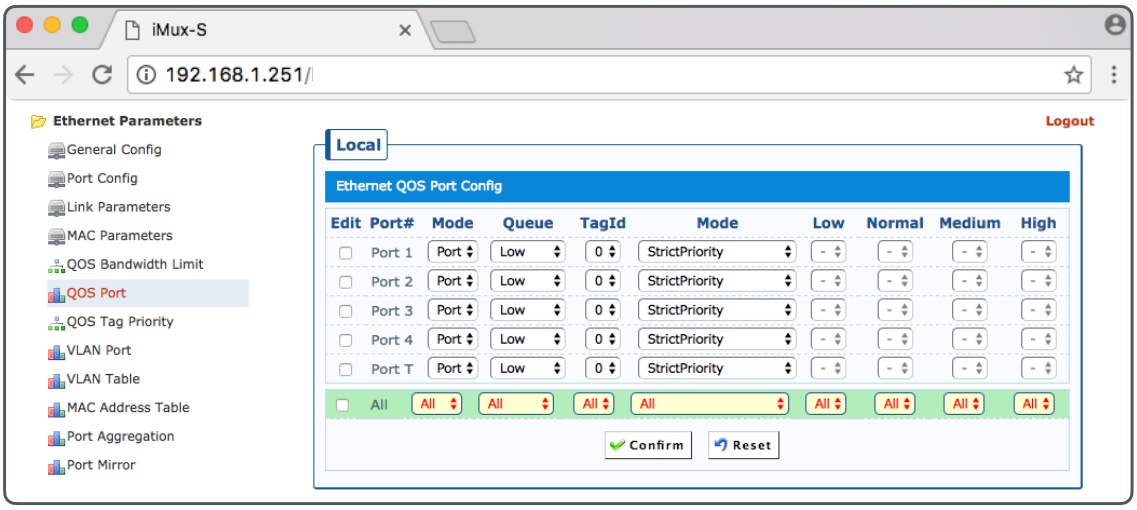
QoS Bandwidth Limit



QoS Bandwidth Limit Web Interface

Settings		Description
Ethernet QoS Bandwidth Limit Parameters Config		Allows the configuration of QoS Bandwidth Limit by Ethernet port.
Edit		Must be selected when editing parameters on the interface
	All	Select to update all channels in the slot.
Port# 1~4		Ethernet port identification.
Policer		Enable or Disable Traffic Policer for each port.
Rate (1-30)		The rate set here will be the multiplier for the Rate Unit set in the Ethernet Parameters > General Config section.
Shaper		Enable or Disable Traffic Shaper for each port.
Rate (1-31)		The rate set here will be the multiplier for the Rate Unit set in the Ethernet Parameters > General Config section.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.

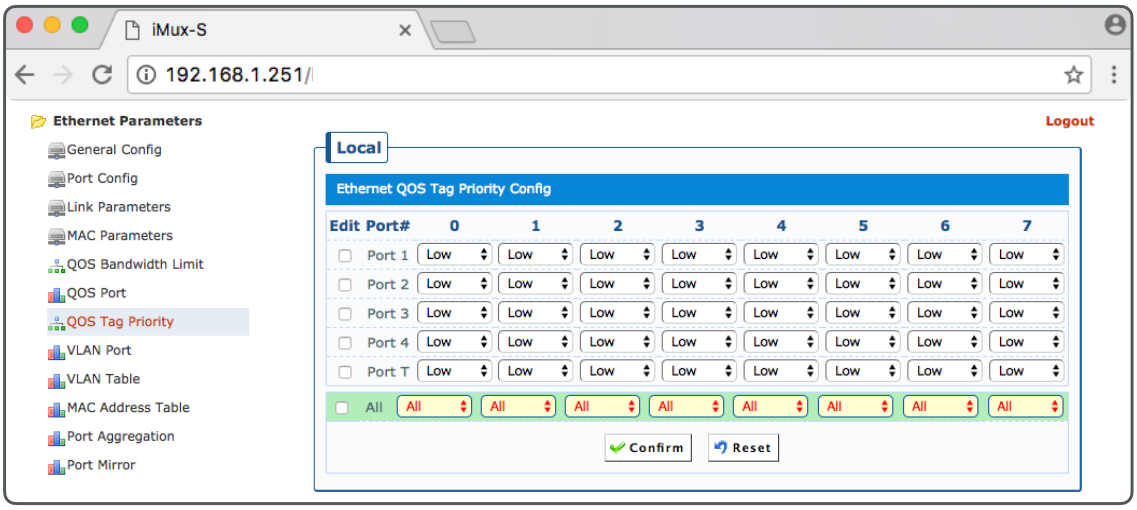
QoS Port



QoS Port Web Interface

Settings	Description
Ethernet QoS Port Config	Allows the configuration of packet prioritization based on port and/or VLAN.
Edit	Must be selected when editing parameters on the interface.
All	When selected all channels in the slot will be updated.
Port# 1~4 and T	Ethernet port identification.
Mode	Use the drop down menu to set the port mode.
Tag	QoS will be determined on the VLAN Tag.
Port	All ingress traffic per Ethernet port will be assigned to Queue.
Queue	Four QoS Queues are present in this device in order of prority lowest to Highest (Low, Normal, Medium, High).
TagId (1-7)	Assigning a TagID to the port will further prioritize Ethernet traffic within a Queue, 1 the lowest and 7 the highest.
Mode	Use the drop down menu to set the method of QoS packeting.
StrictPriority	Traffic will be queued and sent strictly by the priority assigned.
WeightedRoundRobin	Traffic will be queued and sent with higher priority traffic getting a weighted preference. (1/2/4/8) weight can be assigned.
Low	Assign the weighted preference to this Queue.
Normal	Assign the weighted preference to this Queue.
Medium	Assign the weighted preference to this Queue.
High	Assign the weighted preference to this Queue.
Confirm	Apply Settings.
Reset	Remove unconfirmed settings.

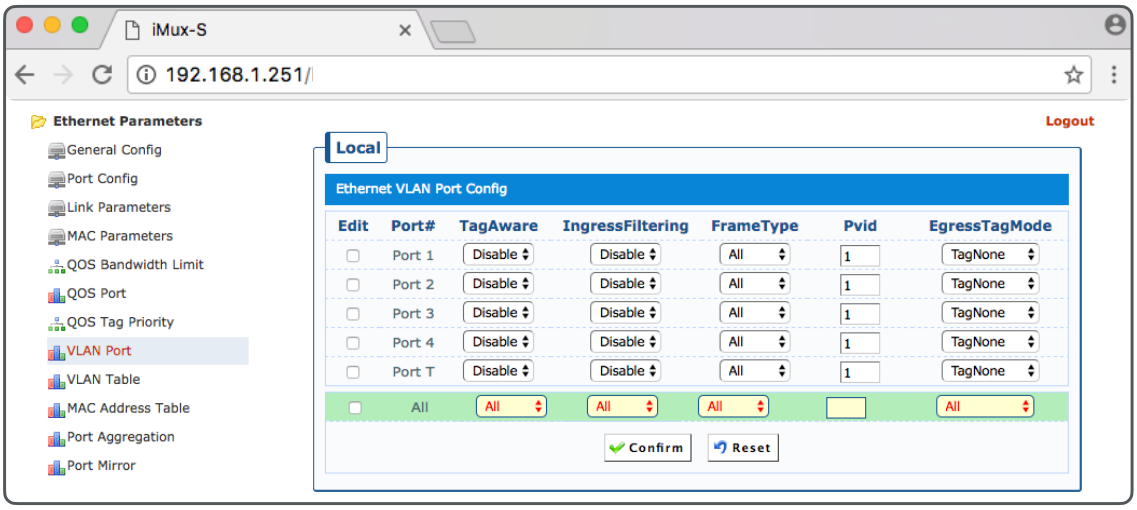
QoS Tag Priority



QoS Tag Priority Interface

Settings		Description
Ethernet QoS Tag Priority Config		Assign priority by port when tag mode is utilized with QoS tag id.
Edit		Must be selected when editing parameters on the interface.
	All	Select to update all channels in the slot.
Port# 1~4 and T		Ethernet port identification.
0~7		In tag mode, assign a priority to each QoS TagID.
		Dropdown options include: Low, Normal, Medium, and High.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.

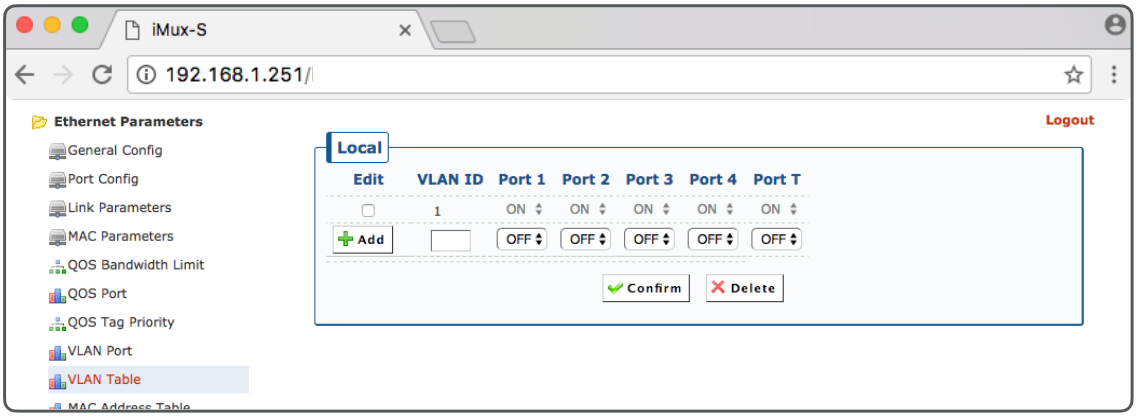
VLAN Port



VLAN Port Web Interface

Settings		Description
Ethernet VLAN Port Config		Each VLAN port can be individual configured.
Edit		Must be selected when editing parameters on the interface.
	All	Select to update all channels in the slot.
Port# 1~4 and T		Ethernet port identification.
TagAware		VLAN tags may be forwarded with the Ethernet Frame.
	Enable	Removes VLAN tags.
	Disable	Forwards the VLAN tags.
IngressFiltering		Filters out all Ethernet frames not matching the configured VLAN tags.
FrameType		Use the drop down menu to accept all or only tagged Ethernet frames.
	All	Accepts all Ethernet frames. (tagged or untagged)
	Tagged	Accepts only tagged Ethernet frames.
Pvid		Untagged Frames will be assigned to this VLAN ID.
EgressTagMode		Selections for Egress Ethernet tagging.
	Tagnone	No VLAN tag will be applied to outbound Ethernet Frames.
	TagNonPVID	Frames that don't match configured PVID will be re-tagged with the PVID.
	TagAll	Every Frame will have a VLAN tag applied.
	Note: Ensure TagAware is enabled on the Ingress port before selecting the TagALL mode.	
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.

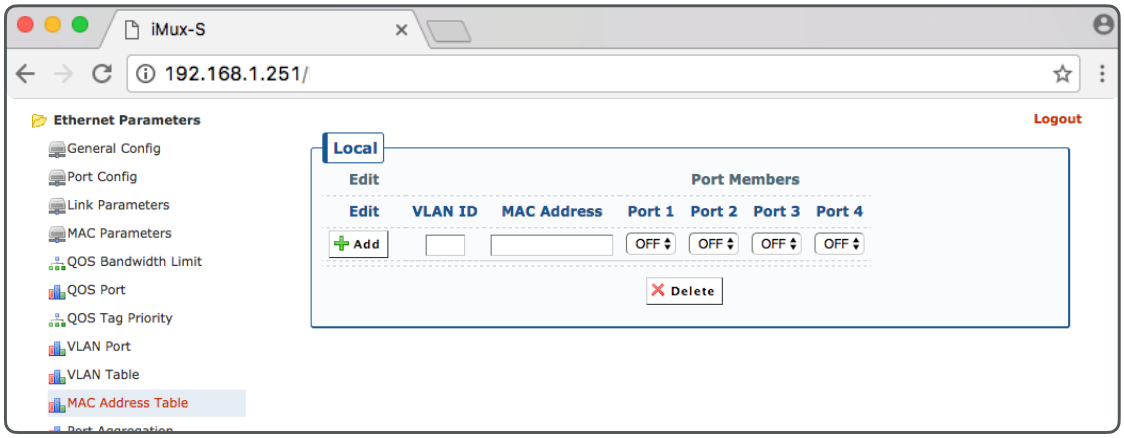
VLAN Table



VLAN Table Web Interface

Settings		Description
Edit		Must be selected when editing parameters on the interface.
	Add	Create new VLAN ID's as needed.
VLAN ID		Enter your desired VLAN ID.
Port 1~T	**OFF**	The port will not be a member of the VLAN ID being created.
	ON	The port will be a member of the VLAN ID Being created.
Confirm		Apply Settings.
Delete		Remove unconfirmed settings.

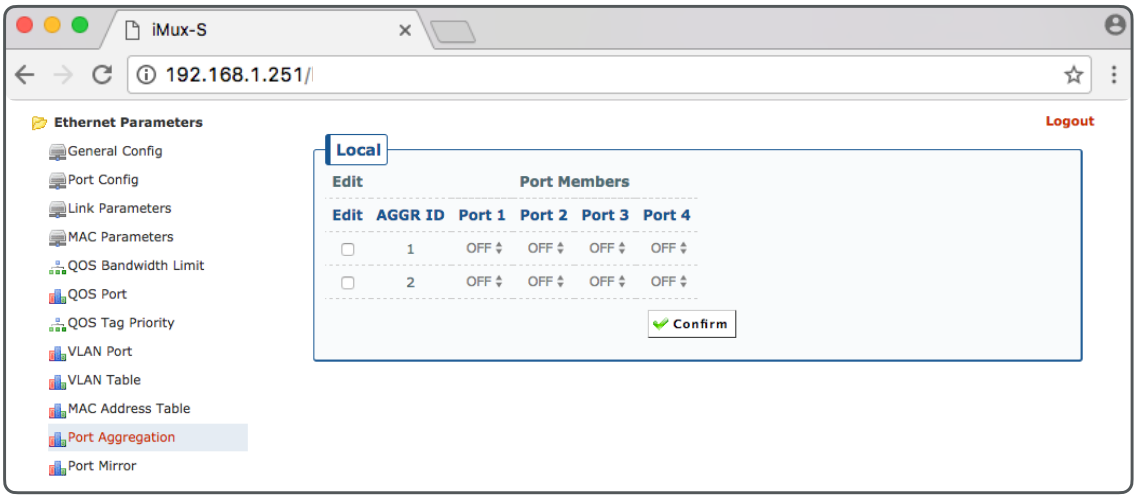
MAC Address Table



MAC Address Table Web Interface

Settings		Description
Edit		Must be selected when editing parameters on the interface.
	Add	Create new MAC-Based VLAN addresses as needed.
VLAN ID		Enter your desired VLAN ID.
MAC Address		Enter the static MAC address to be associated with this VLAN ID.
Port 1~4		Turn ON the member ports to listen for this MAC-Address.
Delete		Remove unconfirmed settings.

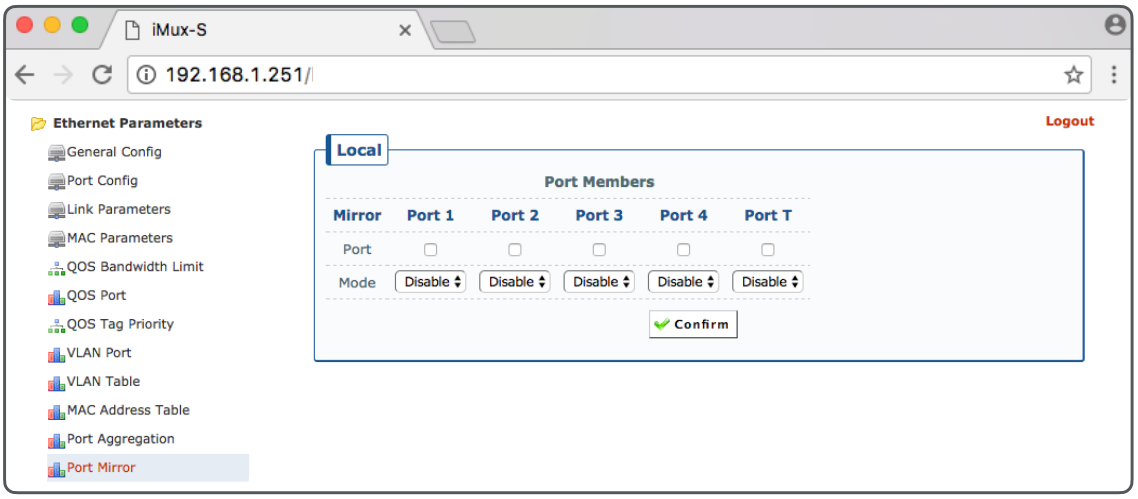
Port Aggregation



Port Aggregation Web Interface

Settings	Description
`Edit`	Change the parameters of this AGGR ID.
`AGGR ID`	Lists the ID of the aggregated port, only two aggregated links are allowed.
`Port 1~4`	Select ports to add to a single aggregated logical link.
`Confirm`	Apply Settings.
`Confirm Local + Remote`	Apply settings to both the local and remote iMux units.

Port Mirror



Port Mirror Web Interface

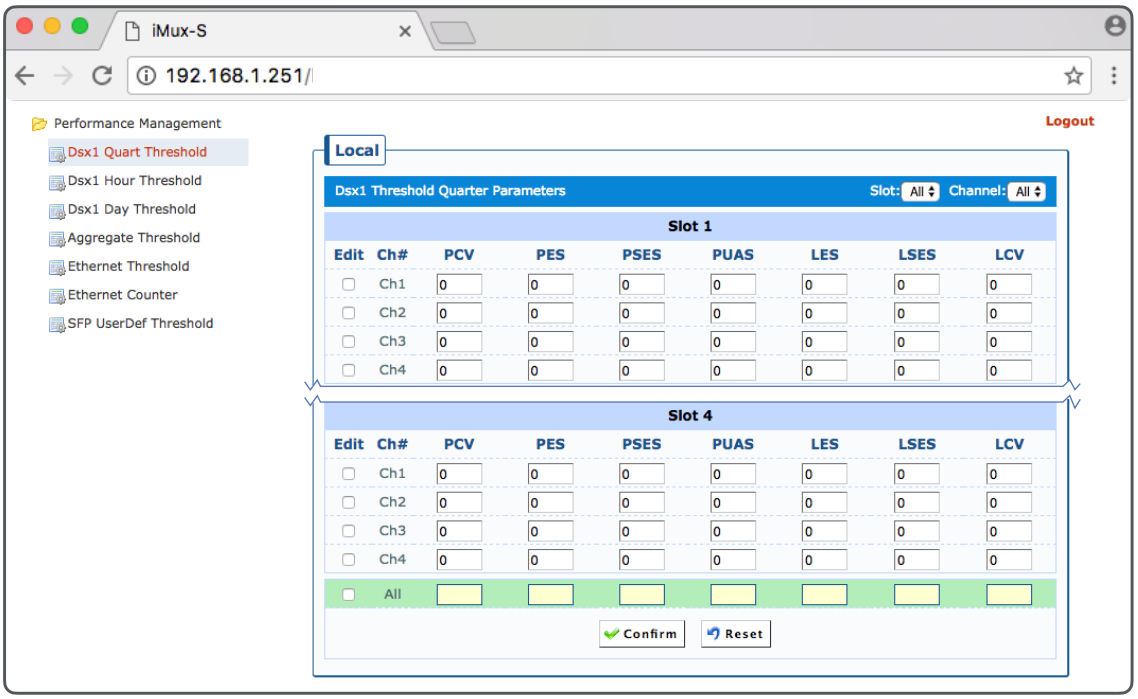
Settings		Description
Mirror		Passive analysis of network traffic for diagnosis purposes.
	Port 1~4 and T	The selected port will become the destination (output) of mirrored traffic.
	Mode	When enabled this port will mirror its traffic to the selected port.
Confirm		Apply Settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

Performance Management

The alarm threshold values for the various communications hardware attributes as well error counter or failure detection thresholds for the various communications links that are available in the system, can be set manually by system administrators in the Performance Management section.

Note: The Performance Management area can only be used to set these error threshold values for when a system attribute enters into the alarm state. The Equipment Monitoring, Performance Monitoring, and Alarm Monitoring sections should be used to monitor the status of alarm conditions and alerts from the system.

Dsx1 Threshold - Quarter (15 Minute), Hour and Day



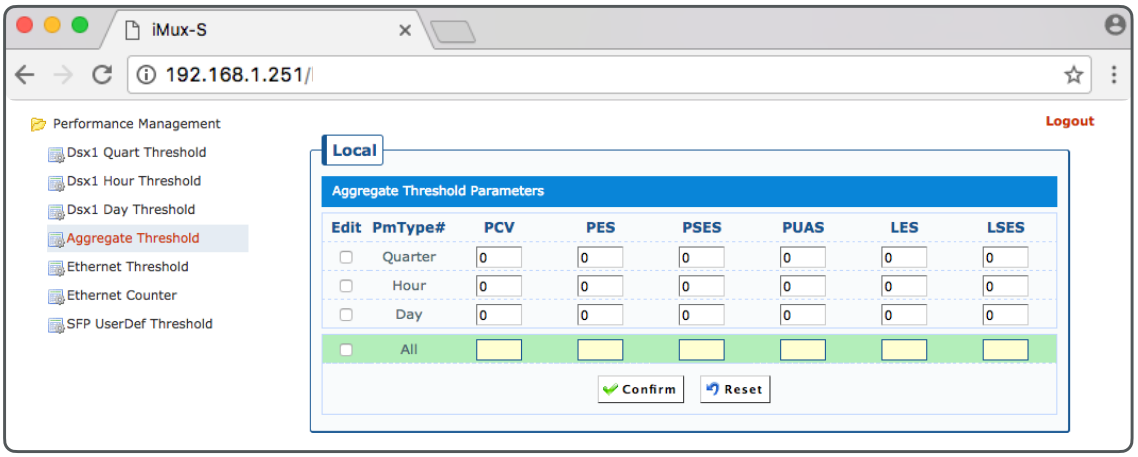
Dsx1 Threshold Quarter Parameters Web Interface

Settings		Description
Dsx1 Threshold Parameters		Alarm threshold values can be set for 15 minute, hour, and 24 hour increments.
	Slot	Slot Module is inserted into.
	Channel	Channel on the module.

NOTE: Dsx1 Threshold settings are continued on the following page.

Settings		Description
Slot 1~4		Set a counter threshold, to meet or exceed, for the TCA alarm.
		Placing a zero (0) in the field disables the TCA alarm for each value.
	Edit	Must be selected when editing parameters on the interface.
	All	When selected all channels in the slot will be updated.
	Ch#	Each slot has 4 channels.
	PCV	Path Code Violation.
	PES	Path Error Second.
	PSES	Path Several Error Second.
	PUAS	Path Unavailable Second.
	LES	Line Error Second.
	LSES	Line Severity Error Second.
	LCV	Line Code Violation.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

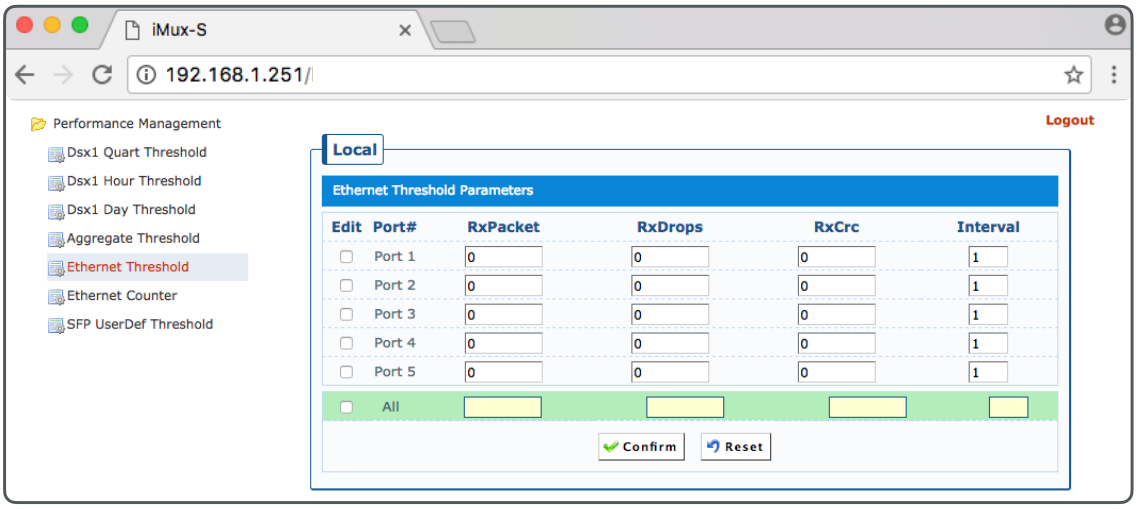
Aggregate Threshold



Aggregate Threshold Web Interface

Settings	Description
Aggregate Threshold Parameters	Enter a value for the aggregate alarm threshold of all DSX1 circuits.
Edit	Must be selected when editing parameters on the interface.
All	When selected all channels in the slot will be updated.
PMType#	Select the performance management time interval.
PCV	Path Code Violation.
PES	Path Error Second.
PSES	Path Several Error Second.
PUAS	Path Unavailable Second.
LES	Line Error Second.
LSES	Line Severity Error Second.
Confirm	Apply Settings.
Reset	Remove unconfirmed settings.
Confirm Local + Remote	Apply settings to both the local and remote iMux units.

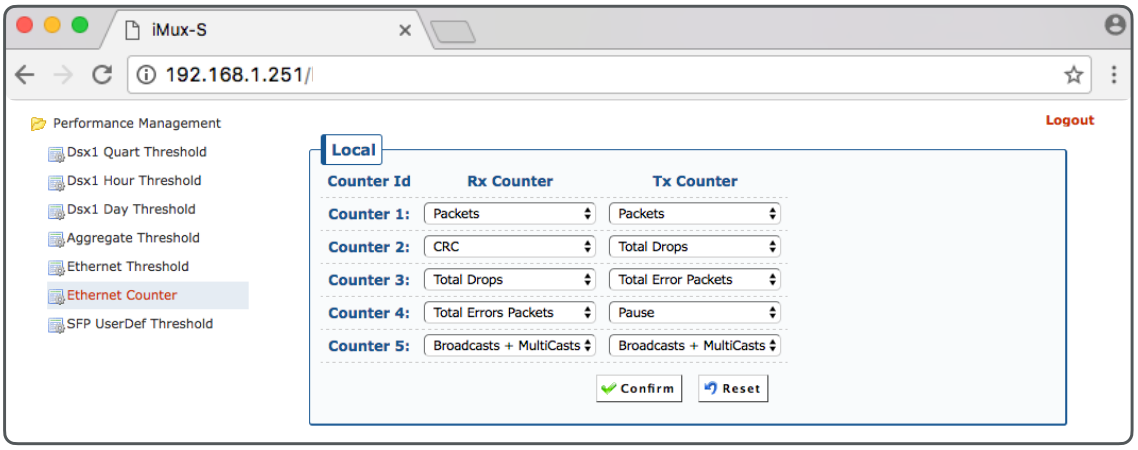
Ethernet Threshold



Ethernet Threshold Web Interface

Settings	Description
Ethernet Threshold Parameters	TCA Alarm based on the Ethernet Counters exceeding configured values.
	Placing a zero (0) in the field disables the threshold.
Edit	Must be selected when editing parameters on the interface.
All	When selected all channels in the slot will be updated.
Port# 1~5	Ethernet port identification.
RxPacket	Received Packets.
RxDrops	Packet Drops. (Packet Loss)
RxCrc	CRC Errors on received packets.
Interval	Interval in minutes considered for the threshold values.
Confirm	Apply Settings.
Reset	Remove unconfirmed settings.

Ethernet Counter



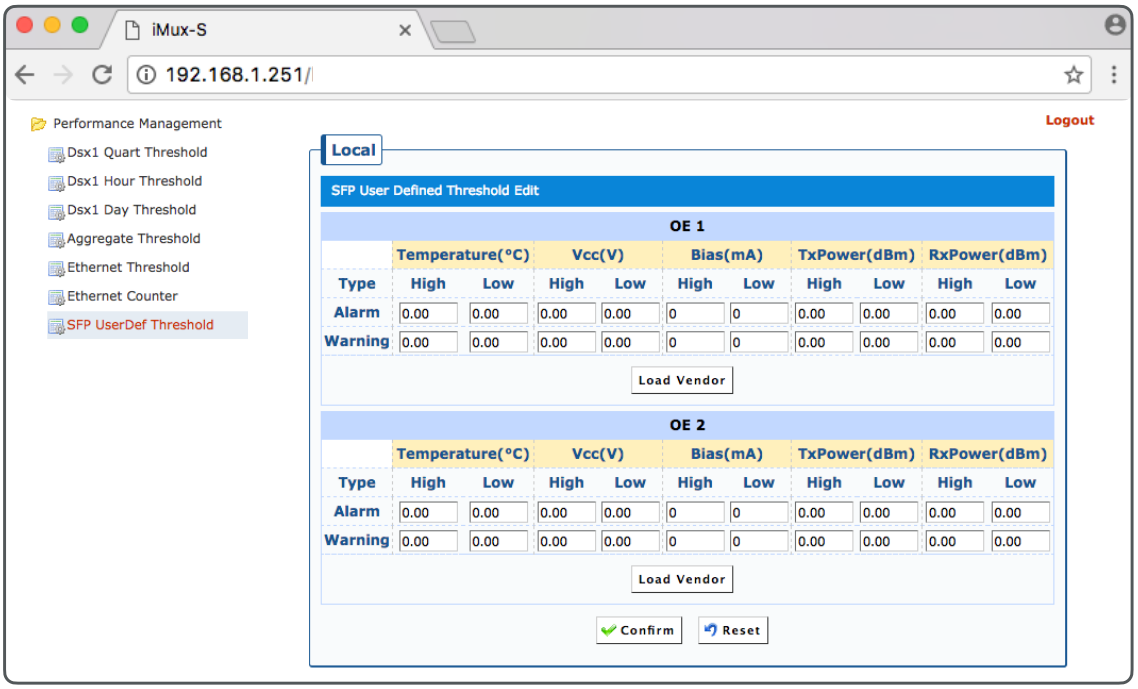
Ethernet Counter Web Interface

Settings	Description
Counter ID	Select to monitor up to 5 configured Transmit or Receive Counters.
Confirm	Apply Settings.
Reset	Remove unconfirmed settings.
Confirm + Reset	Apply settings to both the local and remote iMux units.

Counter Packet Options

- Packets	**- 64**	**- FIFO Drops**
- Broadcasts & Multicasts	**- 65-127**	**- Backward Drops**
- Total Error	**- 128-255**	**- Classifier Drops**
- Packets	**- 256-511**	**- CRC**
- Broadcasts	**- 512-1023**	**- undersize**
- Multicasts	**- 1024**	**- Oversize**
- Rx Packet	**- Jumbo**	**- Fragments**
- Tx Packet	**- Pause**	

SFP User Defined Threshold Edit



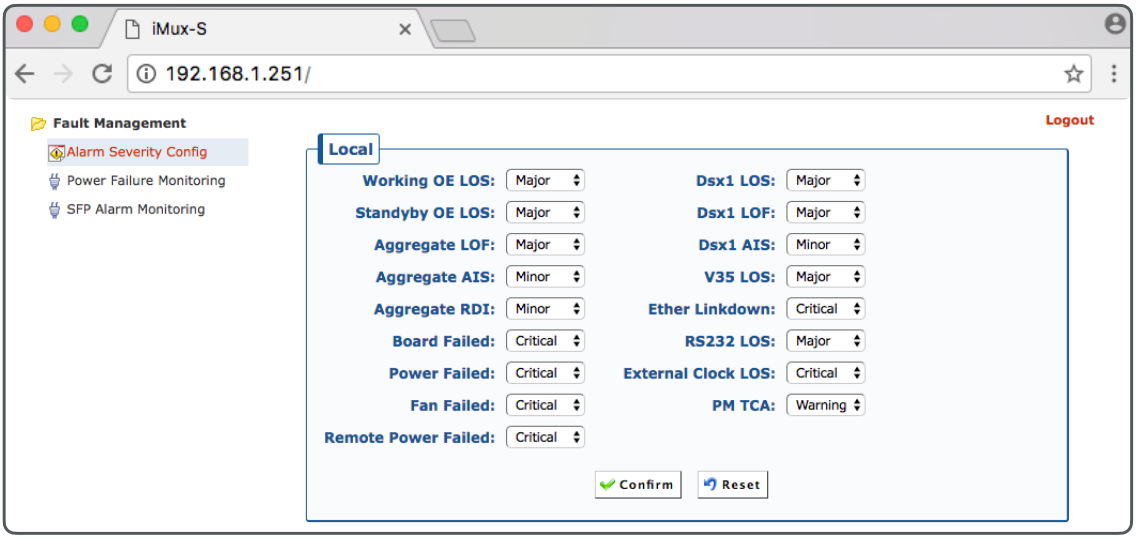
SFP User Defined Threshold Configuration Web Interface

Settings		Description
SFP User Defined Threshold Edit		These options are only available when SFP's supporting DDI are used, standard bundled iMux SFPs do not provide this information.
		Please contact us for our SFP DDI modules to enable this functionality.
OE 1~2		Threshold options can be defined per OE port.
Temperature (C)		Temperature provided by the SFP.
Vcc (V)		Voltage being provided to the SFP.
Bias (mA)		Current consumed by the SFP.
TxPower(dBm)		Transmitting optical power of the SFP.
RxPower(dBm)		Received signal.
Type	**High**	Set the over alarm Threshold.
	Low	Set the under alarm threshold.
Alarm		When thresholds are exceeded the SFP TCA will alarm.
Warning		Will send a warning alarm to the even log.
Load Vendor		Load threshold points from the SFP.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.

Fault Management

The Fault Management section is used to classify the various system alarm types by severity categories. Classifying the alarm types into categories will then allow admins to assign severity levels to different types of failures detected by the system. This section also provides a means to manage power and SFP alarm types.

Alarm Severity Configuration



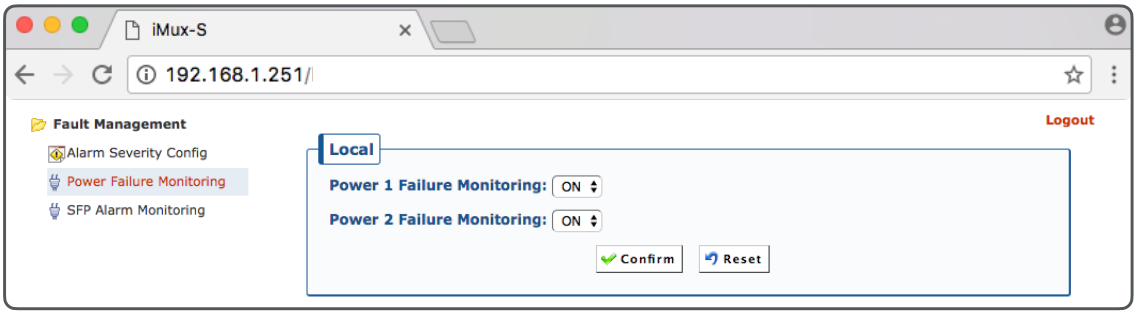
Alarm Severity Configuration Web Interface

Settings		Description
Drop Down Menu Options		Use the drop down menu to designate the desired alarm class for the respective system events listed below.
	Critical	The most serious form of system message classification available.
	Major	The next level down from Critical.
	Minor	The next level down from Major.
	Warning	The next level down from Minor.
	Message	The lowest system alert level classification.
Working OE LOS		The Primary optical circuit experiences loss of signal.
Standby OE LOS		The Secondary optical circuit experiences loss of signal.
Aggregate LOF		The aggregate loss of fiber is a condition where both optical circuits are down.
Aggregate AIS		Aggregate alarm indication signal is present.
Aggregate RDI		Aggregate remote defect indication is present.
Board Failed		Main circuit board failure detected.
Power Failed		AC or DC power input failure detected.
Fan Failed		Internal cooling fan failure detected.
Remote Power Failed		AC or DC power input failure detected on the remote iMux system.
Dsx1 LOS		Dsx1 loss of signal condition exists.
Dsx1 LOF		Dsx1 loss of fiber condition exists.
Dsx1 AIS		Dsx1 alarm indication signal is present.

NOTE: Alarm severity configuration settings are continued on the following page.

Settings	Description
V35 LOS	V35 loss of signal condition exists.
Ether Linkdown	A link loss event has occurred on an Ethernet port.
RS232 LOS	RS232 loss of signal condition exists.
External Clock LOS	An external clock loss of signal condition exists.
PM TCA	A performance monitoring alert and/or threshold crossing alert indication is present.
Confirm	Apply Settings
Reset	Remove unconfirmed settings
Confirm Local + Remote	Apply settings to both the local and remote iMux units

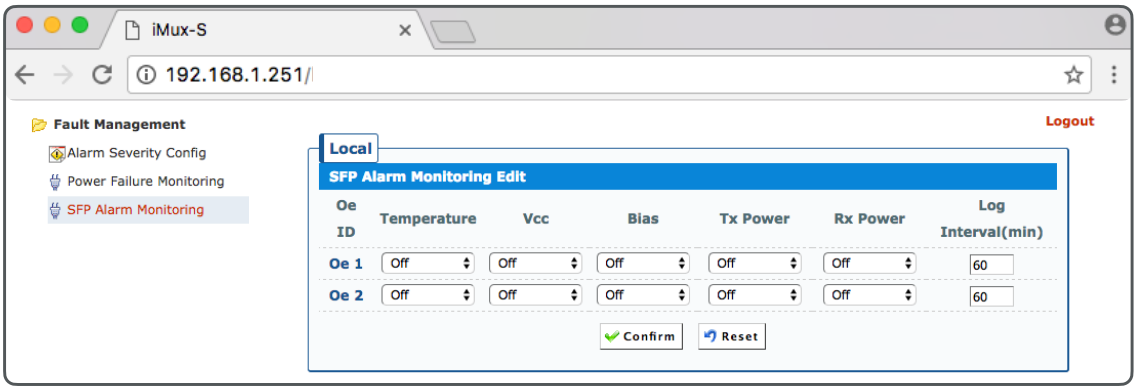
Power Failure Monitoring



Power Failure Monitoring Web Interface

Settings		Description
Failure Monitoring	**Power 1~2**	Enable or disable power failure monitoring for the two power inputs.
	ON	Enable.
	OFF	Disable.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm + Reset		Apply settings to both the local and remote iMux units.

SFP Alarm Monitoring



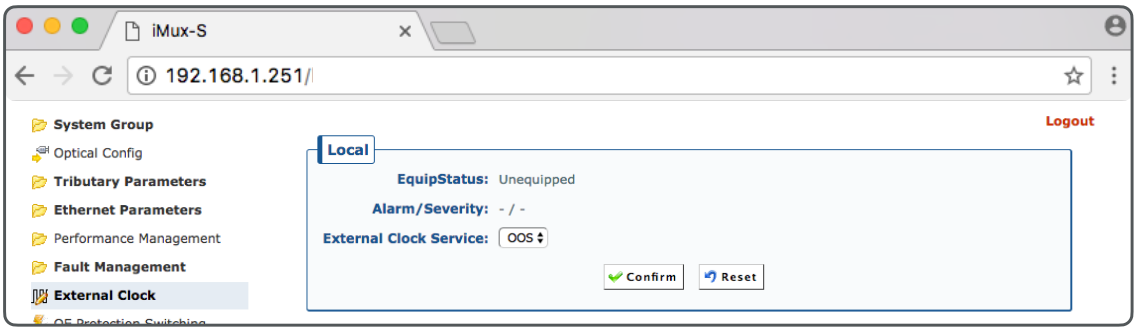
SFP Alarm Monitoring Web Interface

Settings		Description
SFP Alarm Monitoring Edit		Use the drop down menu to select one of the four following reference options for the respective SFP attribute.
	OFF	No set alarm monitoring.
	Vendor	Set to manufacturing provided values from DDI compatible SFP's.
	User	Set to the manually defined alarm threshold values.
	VendorUser	Assigns priority to vendor provided threshold values. User threshold is applied in the case of no vendor supplied values.
OE ID		Refers to the SFP installed in one of the two SFP slots.
	OE 1	Primary SFP slot.
	OE 2	Secondary SFP slot.
Temperature		SFP Temperature Attribute measured in Celsius (C).
Vcc		SFP Voltage Supply Attribute measured in Volts (V).
Bias		SFP Power Bias measured in milliamps (mA).
Tx Power		SFP detected Optical Transmission Power Ratio in Decibels (dBm).
Rx Power		SFP detected Optical Power Ratio Received in Decibels (dBm).
Log Interval (min)		The time interval between logging events of the attributes that have been selected for logging.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

External Clock

This section manages the External Clock input to the device in cases where the use an external clock is indicated.

External Clock Settings



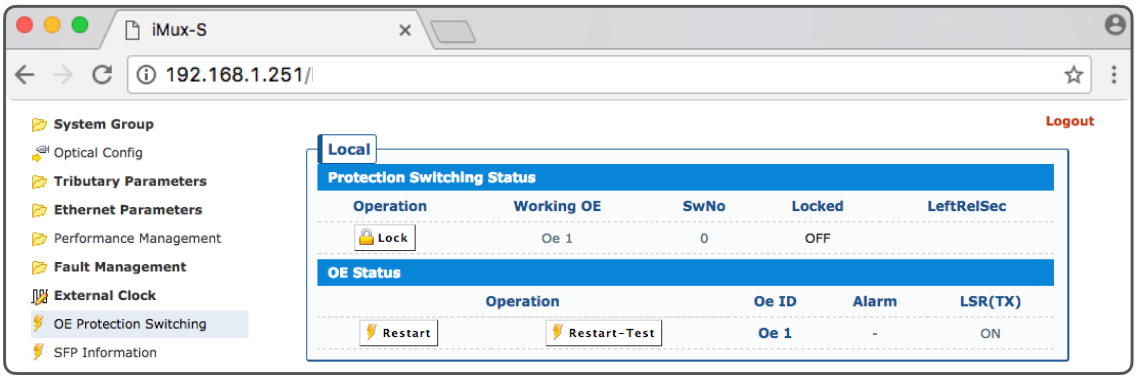
External Clock Web Interface

Settings		Description
EquipStatus		The detection status of the external clock is displayed.
	Unequipped	External Clock not Detected.
	Equipped	External Clock Detected.
Alarm/Severity		The alarm status of the external clock is displayed along with the severity of the alarm.
External Clock Service		Use the dropdown menu to select from the following options that will enable or disable the external clock.
	OOS	Out Of Service disables the external clock.
	IS	In Service enables the external clock.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

OE Protection Switching

This section provides basic information regarding the status of the optical networking modules or SFP's installed in the iMux-S system, as well as providing a means to test optical modules themselves as well as testing the redundancy or failover behavior of the optical modules.

Status



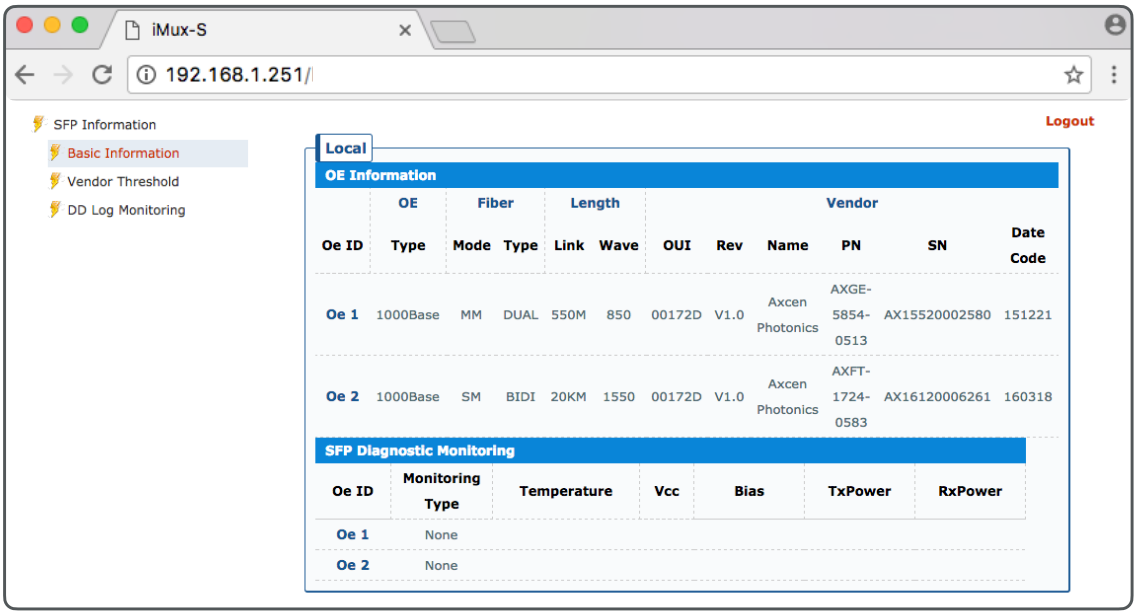
OE Protection Switching Status Web Interface

Settings		Description
Protection Switching Status		This section displays the OE link status and provides the capability to test and restart optical hardware as needed.
	Operation	Lock/Unlock, Restart, and Restart-Test operation types are offered here.
	Working OE	Displays the OE port currently the operating link port to the remote iMux system.
	SwNo	Displays the SwNo number.
	Locked	Displays the lock status of the respective OE. When an OE is locked, the system will be forced to only utilize the locked optical port only. (ON = Locked , OFF = Unlocked)
	LeftRelSec	Displays the remaining amount of time in seconds, before the locked OE automatically returns to unlocked status.
OE Status		This section displays the status of the SFP modules an provides the capability to test and restart the SFPs as needed.
	Operation	Two operation types are offered in this section. Restart and Restart-Test.
		Restart = Restart the respective SFP.
		Restart-Test = Restart the SFP and perform diagnostics.
	OE ID	Displays the ID tag of the respective OE port.
	Alarm	Displays the alarm status of the respective OE when an alarm condition exists.
	LSR(TX)	Displays whether the SFP in the respective EO port is actively transmitting or not.
		ON = The SFP is currently transmitting light.
		OFF = The SFP is not transmitting light.
Confirm		Apply Settings.
Reset		Remove unconfirmed settings.
Confirm Local + Remote		Apply settings to both the local and remote iMux units.

SFP Information

This section provides device administrators with detailed information regarding the SFP modules installed in the system. If the SFP modules are DDI compatible, the data retrieved from the diagnostic circuits of the SFP will be displayed in this section.

Basic Information



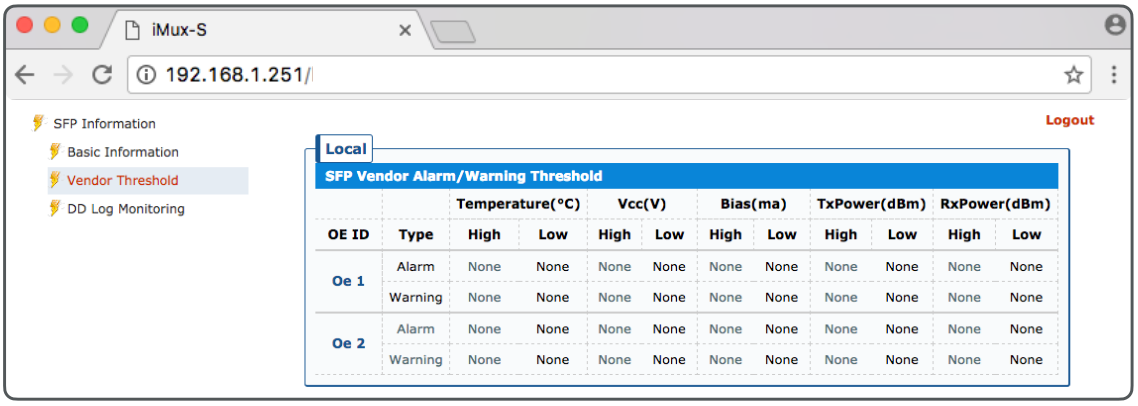
SFP Basic Information Web Interface

Settings		Description
OE Information		This section displays detailed SFP module information when available.
OE ID		Displays the ID tag of the respective OE.
OE Type		Displays the speed classification of the installed SFP module.
Fiber		Displays the type of optical fiber the SFP is designed to transmit signal across.
	Mode	SM = Singlemode
		MM = Multimode
	Type	Displays the installed SFP is a Dual Fiber or Single Fiber/Bi-Directional module.
Length		This section displays the length and wavelength specification of the fiber link.
	Link	Provides an estimate of the length of the link in meters. (M or kM)
	Wave	Displays the wavelength of light that is employed by the SFP module.
Vendor		Displays vendor specific information gathered from SFP modules.
	OUI	Displays the Organizationally Unique Identifier of the installed SFP module.
	Rev	Displays the manufacturer revision code.
	Name	Displays the name of the manufacturer of the installed SFP module.
	PN	Displays the part number of the installed SFP module.
	SN	Displays the serial number of the installed SFP module.
	Date Code	Displays the date code of the installed SFP module.

Note: SFP diagnostic monitoring settings are continued on the next page.

Settings		Description
SFP Diagnostic Monitoring		For DDMI or DDI enabled SFP modules, the retrieved diagnostic information will be displayed in this section.
	OE ID	Displays the ID tag of the respective OE.
	Type	Displays the detected monitoring type of the installed SFP module.
	Temperature	Displays the current operating temperature of the SFP module.
	Vcc	Displays the current voltage of the SFP module.
	Bias	Displays the current being actively drawn by the installed SFP module.
	TxPower	Displays the current transmission power of the installed SFP module.
	RxPower	Displays the received signal power of the installed SFP module.

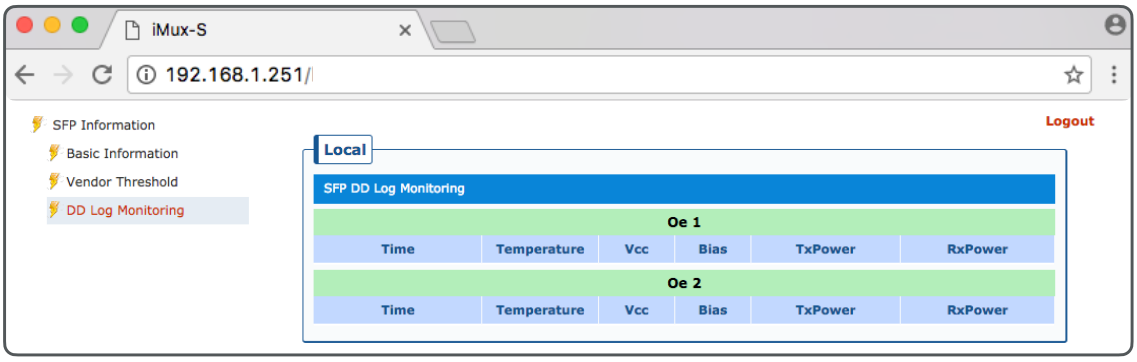
Vendor Threshold



Vendor Threshold Web Interface

Settings		Description
SFP Vendor Alarm/Warning Threshold		This section displays the vendor supplied attribute values that are retrieved from compatible SFP modules. Compatible SFP modules will display values.
		If "None" is displayed, the information could not be retrieved from the SFP module.
OE ID		Displays the ID tag of the optical link or SFP port.
Type		Displays the type of the attribute being listed.
	Alarm	Threshold values that need immediate attention.
	Warning	Threshold values that bring attention to potential issues.
Temperature (C)		Set the system high and low temperature threshold for notifications.
Vcc(V)		Set the system high and low voltage threshold for notifications.
Bias(ma)		Set the over high and low current threshold for notifications.
TxPower(dBm)		Set the transmission optical power high and low threshold for notifications.
RxPower(dBm)		Set the system reception optical power high and low threshold for notifications.

DD Log Monitoring



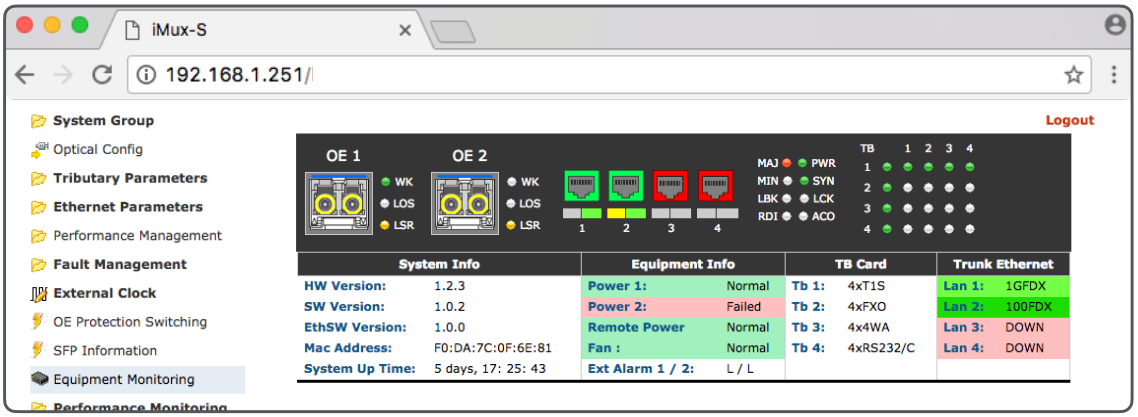
DD Log Monitoring Web Interface

Settings	Description
Oe 1~2	Identifies each optical link or SFP port.
Time	Displays the date and time of the log entry.
Temperature	Displays the logged temperature of the respective SFP at the time of logging.
Vcc	Displays the logged voltage of the respective SFP at the time of logging.
Bias	Displays the logged current of the respective SFP at the time of logging.
TxPower	Displays the transmitted optical power of the respective SFP at the time of logging.
RxPower	Displays the received optical power of the respective SFP at the time of logging.

Equipment Monitoring

The Equipment Monitoring section is an ideal graphical dashboard for the local and remotely connected iMux-S systems in operation. Any major alarms and alerts will be graphically displayed on this page along with the LED status of the systems connected.

Equipment Monitoring



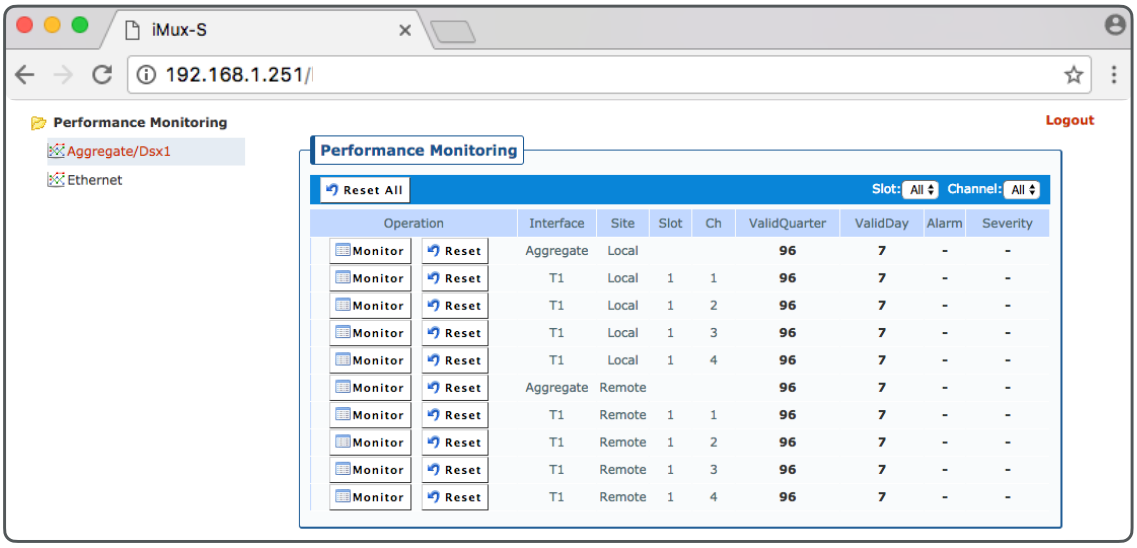
Equipment Monitoring Web Interface

Settings		Description
System Info		This section serves as an effective dashboard for the simplification of device monitoring and management by offering an all encompassing, one glance view of the system modules and their status.
	HW Version	Displays the hardware version of the system.
	SW Version	Displays the software version of the system.
	EthSW Version	Displays the Ethernet management software version of the system.
	MAC Address	Displays the physical address (MAC Address) of the system.
	System Up Time	Displays the system uptime since the last boot up.
Equipment Info		Consists of power inputs, remote power, internal fans, and external alarms.
	Power 1	Displays the status of the primary power input of the system.
	Power 2	Displays the status of the secondary power input of the system.
	Remote Power	Displays the power input status of the connected remote system.
		Note: Both power inputs on the remote iMux must fail in order for remote power failure status to be displayed.
	Fan	Displays the status of the internal cooling fan.
	Ext Alarm 1 / 2	Displays the status of the external alarm contacts.
Tb Card		Displays the type of tributary card installed in each of the four (4) slots.
	Tb 1~4	Type of tributary card installed in the designated slot location.
Trunk Ethernet		Displays the status of each of the four (4) Ethernet ports.
	Lan 1~4	Status of the designated Ethernet port.

Performance Monitoring

The Performance Monitoring section displays system performance, warning and alarm statuses for the communications systems being monitored, such as T1 and Ethernet channels.

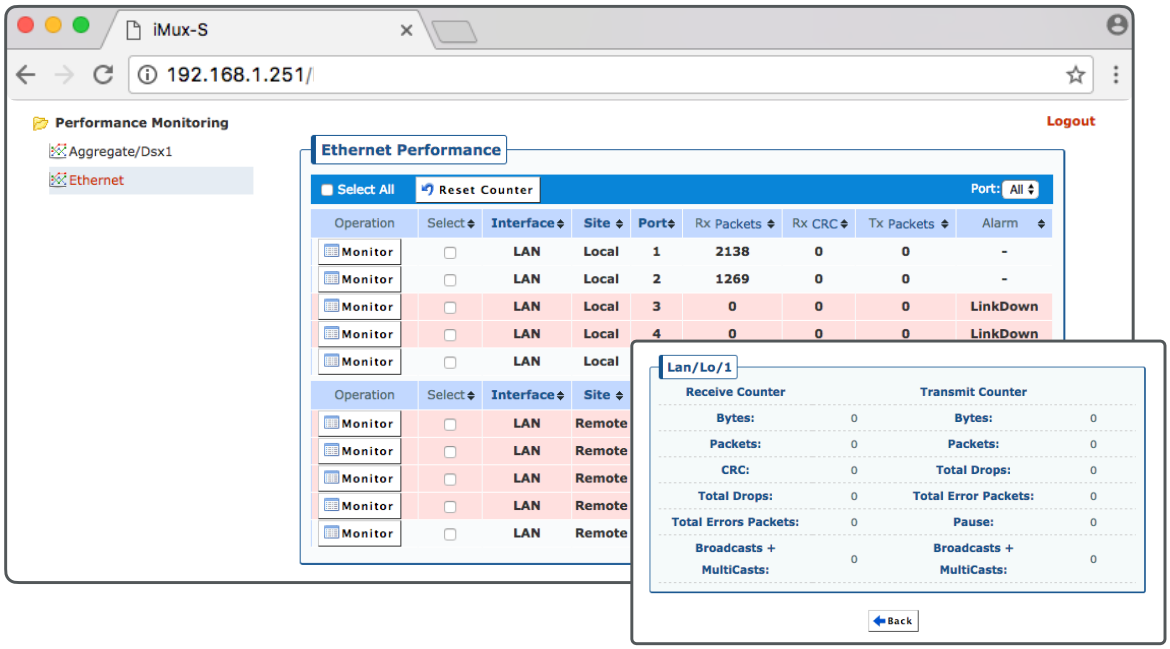
Aggregate/Dsx1



Aggregate / Dsx1 Web Interface

Settings		Description
Performance Monitoring		Monitor and reset T1 circuits.
Reset All		Issues a reset procedure to all of the connection types listed in this section.
Slot		Filters the tributary slots displayed below.
Channel		Filters the signal channel numbers of the slots and displays them below.
Operation		Click to monitor or reset the circuit.
	Monitor	Obtain detailed statistics for the respective signal channel being observed.
	Reset	Restarts the respective signal channel being selected.
Interface		The signal interface type is displayed here.
	Aggregate	Refers to all the channels on the tributary card listed below that line item.
Site		Displays the location of the tributary card.
Slot		Displays the tributary slot in which the respective signal channel is located.
Channel		Displays the signal channel number of the respective tributary card installed.
Valid Quarter		Displays the valid quarter of the signal channel or aggregate of signal channels being considered.
Valid Day		Displays the valid day of the signal channel or aggregate of signal channels being considered.
Alarm		Displays the alarm type for the signal channel.
	AIS	Alarm Indication Signal.
	LOS	Loss of Signal.
Severity		Displays the severity of the alarm type detected.

Ethernet Performance



Monitoring Local Port 1 Example

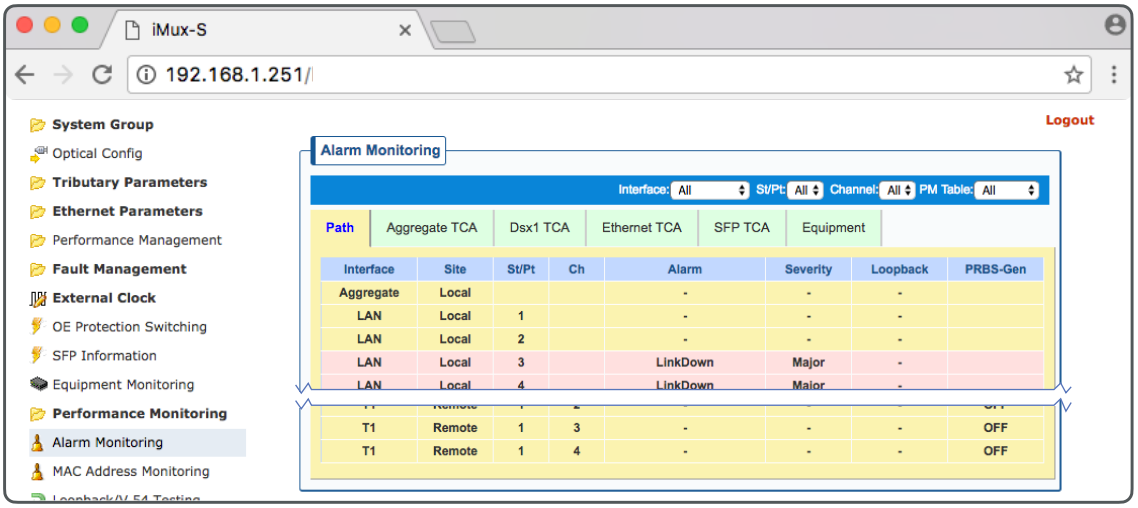
Ethernet Performance Web Interface

Settings		Description
Select All		Select Local and Remote iMux systems.
Reset Counter		Select the Local, Remote, or All check boxes and then select the Reset Counter button to zero out all counters.
Port 1~4 and T		Filters the Ethernet ports and optical port displayed below.
Operation		Select this field to view current counts of all counter options configured in Performance Management > Ethernet Counter section.
	Monitor	Click the button to see an individual port's performance.
Interface		All ports are LAN in the Ethernet performance web interface.
Site		Identifies the port as either on the local or remote system.
Port		Identifies Ethernet ports and adjusts the list in ascending or descending order.
Rx Packets		Indicates the number of packets received by port and sorts the list in ascending or descending order.
Rx CRC		Indicates the Ethernet port's CRC failure information and sorts the list in ascending or descending order.
Tx Packets		Indicates the number of packets transmitted by port and sorts the list in ascending or descending order.
Alarm		Indicates the Ethernet ports alarm state. May be sorted by port alarm state.

Alarm Monitoring

The Alarm Monitoring section allows detailed alarm status conditions to be displayed and viewed by administrators.

Alarm Monitoring Settings



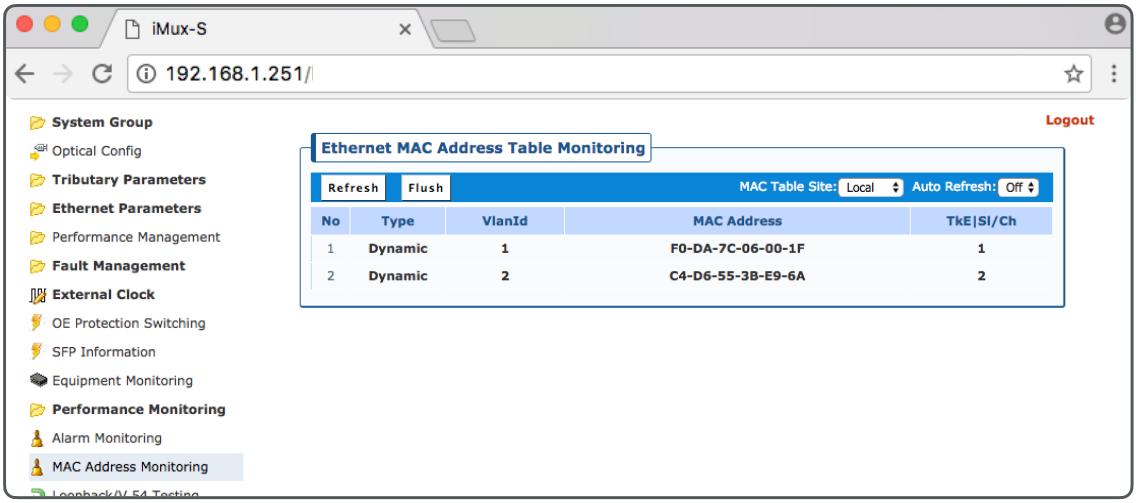
Alarm Monitoring Web Interface

Settings		Description
Interface		Select the type of interface you would like to filter.
	All	Displays every communication port and circuit.
	Aggregate	Displays any communication line on the device that has log events.
	OE	Displays Optic ports that has log events.
	TB	Displays any tributary ports that has log events.
	LAN	Displays any Ethernet ports that has log events.
St/Pt		Filters the slot or Ethernet ports (1-4) and lists them below.
Channel		Filters the tributary channels and lists those that have log events.
PM Table		Filter through time intervals of the performance monitoring tables.
Path		Interface type.
Aggregate TCA		Displays any Aggregate DSX1 threshold alarms.
Dsx1 TCA		Displays any DSX1 threshold alarms.
Ethernet TCA		Displays any Ethernet threshold alarms.
SFP TCA		Displays any SFP threshold alarms.
Equipment		Displays equipment alarms and severity.

MAC Address Monitoring

The MAC Address Monitoring section allows administrators to view the MAC addresses of devices that have communicated with the iMux-S system.

Mac Address Monitoring



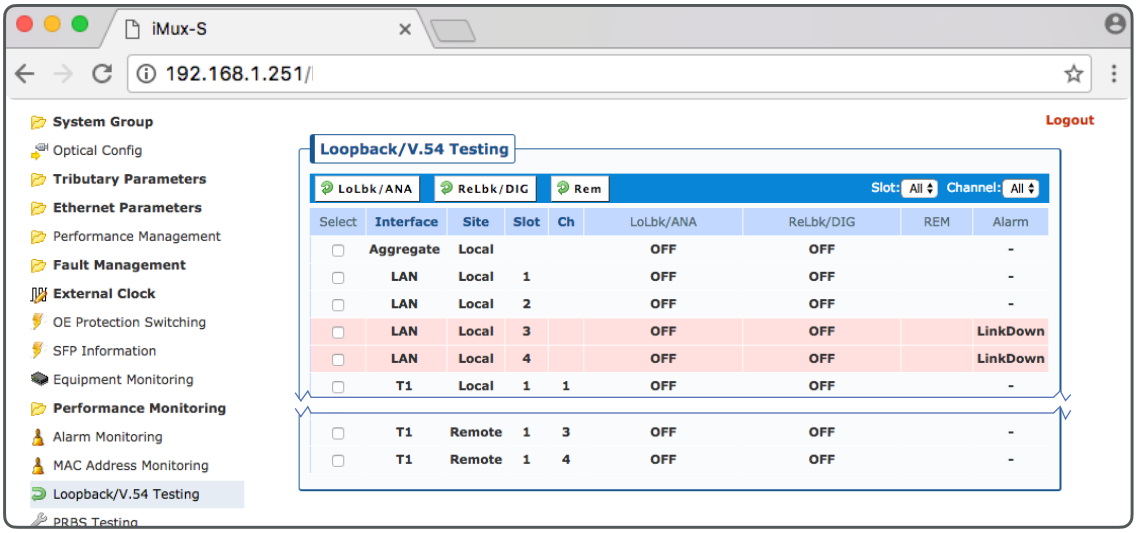
Mac Address Monitoring Web Interface

Settings		Description
Refresh		Update table information.
Flush		Flush address table and relearn dynamic addresses.
MAC Table Site		Select the local or remote MAC Address table.
Auto Refresh		Auto refresh the page.
Ethernet MAC Address Table Monitoring		Supports up to 8192 MAC Addresses.
	No	Line number of the table.
	Type	Dynamic or Static MAC Address.
	VlanId	VLAN MAC Address resides in.
	MAC Address	MAC Address Field.
	TkE|Sl/Ch	Ethernet Port 1-4 or T.

Loopback / V.54 Testing

The Loopback / V.54 Testing section allows administrators to create loopback conditions in order to perform diagnostic testing during installation and repair operations.

Loopback / V.54 Testing



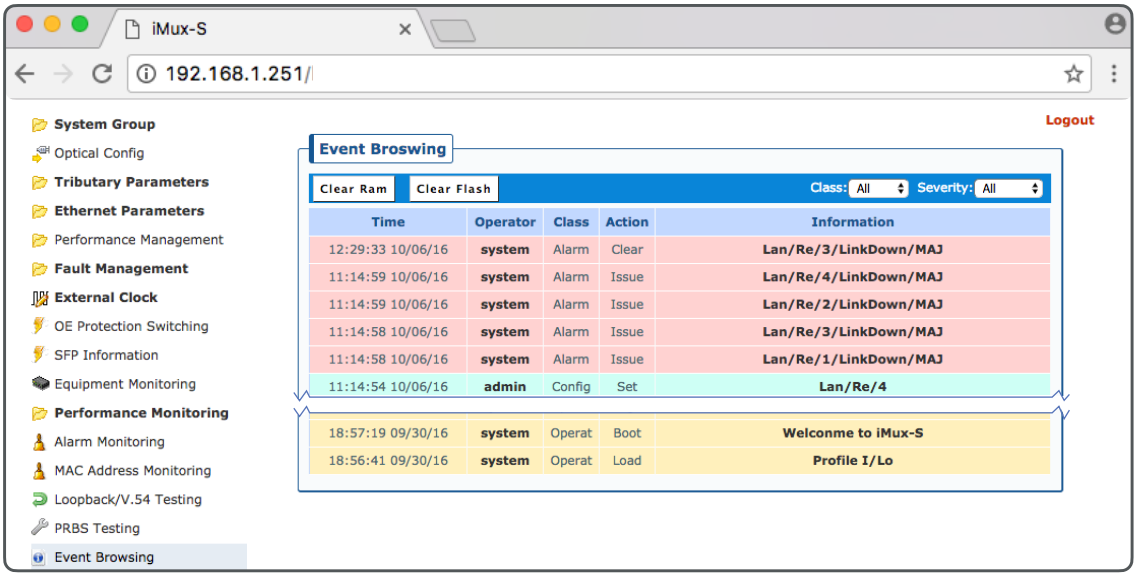
Loopback / V.54 Testing Web Interface

Settings	Description
LoLbk/ANA	Local Loopback / Analog.
ReLbk/DIG	Remote Loopback / digital.
Rem	Remove the loopback.
Slot	Tributary slot being constrained and/or individual VLAN ports.
Channel	Numbered port of the tributary slot.
Select	Check one or more box to test the circuits.
Interface	T1 or Aggregate. (All)
Site	Local or Remote iMux Unit.
Slot	Slot the T1 module is located in.
Ch	The slot T1 channel number (1-4).
LoLbk/ANA	Loop Back the Local T1 Interface.
ReLbk/DIG	Loop Back the Remote T1 interface.
REM	REM is only for V.54 Testing.
Alarm	Will display Alarm if present.

Event Browsing

The Event Browsing section allows administrators to observe the log entries in the system event log as well as clearing the log entries from both RAM and flash memory types when deemed appropriate.

Event Browsing Log



Event Browsing Web Interface

Settings		Description
Clear Ram		Clear events in running RAM memory.
Clear Flash		Clear events stored on local flash.
Class		Filter event categories. (Config, Operat, or Alarm)
	All	Shows all categories.
Severity		Filter Events. (Critical, Major, Minor, & Warning)
	All	Shows all events.
Event Browsing	**Time**	Device time when the event occurred.
	Operator	Displays the originator of the event. (administrator or System)
	Class	Displays the classification of event that occurred. (Config, Operat, or Alarm)
	Action	Displays what took place.
	Information	Displays the path to where the event took place.

Logout

The logout link can be found in the same spot on any of the management pages. By clicking the Logout link the user is logged out of the web interface. The user is returned to the login screen.

Logout

Web Interface Header - Logout

Settings	Description
Logout	Logs out of system and returns to the login page.

3. Support

Technical Support

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