Device Status

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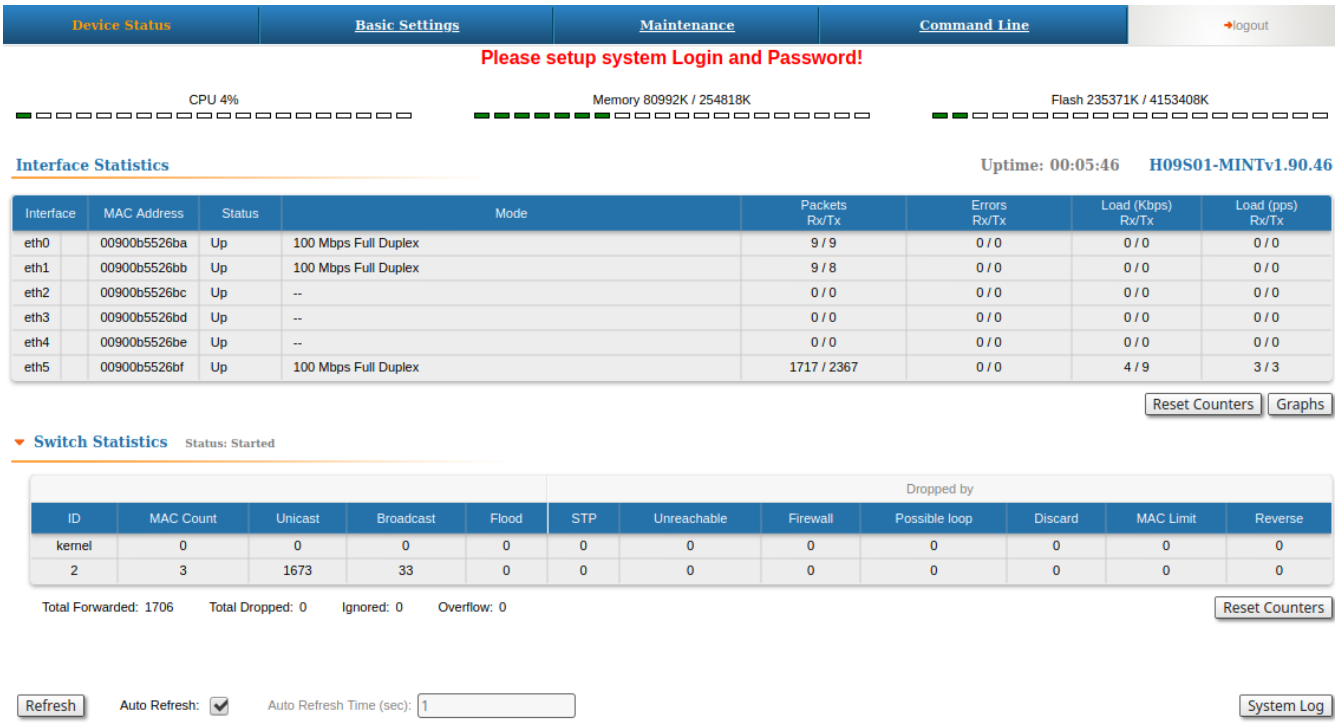
The "Device Status" page is displayed by default after the authentication step. It displays the main parameters of the unit in real-time.



You can set the "Auto Refresh" option to refresh the statistics automatically. Refresh frequency can be set by the "Auto Refresh Time" parameter. The minimal possible value is “0” seconds and it updates the information instantly. These options are available in the bottom-left side of the "Device Status" screen. The device statistics can also be refreshed manually by clicking the «Refresh» button.

The "Device Status" page has the following sections:

- "CPU load" - displays the load percentage of the CPU
- "Memory load":
  - Memory (the data stored in volatile memory are valid only during the current session, until the system reset) displays in real-time the total memory available and the used memory by the running processes.
  - Flash memory (non-volatile memory) displays in real-time the total memory available and the used memory by the WANFleX and configuration files.
- "Interface Statistics" - displays the main parameters of all configured interfaces (physical and logical)
- "Switch Statistics" - displays counters of the frames which have been switched or dropped.

Interface Statistics

The software version is displayed in the right side of Interface Statistics section. Following parameters are displayed in the "Interface Statistics" section:

Parameter	Description
Interface	• Displays all physical and logical set interfaces
MAC Address	• Displays the MAC address of each interface
Status	• Displays for each interface whether it is “up and running” or not

Mode	• Displays the operation mode of each interface. For example:
	  ◦ 10,100 or 1000 Mbps and half or full duplex for the Ethernet interface
	  ◦ Switch Group number for the SVI

Packets	• Displays the number of received and transmitted packets for each interface since the unit is operational. The local system packets are counted, too (and not only the ones that are passing through the switching groups - data traffic)
Errors	• Displays the number of received and transmitted error packets for each interface since the unit is operational
Load	• Displays the packet flow through each interface in real-time (for the system and the data traffic)

Table - Interface Statistics

All these counters can be reset by clicking the "Reset All Counters" button.

CAUTION

Clearing these counters by clicking the "OK" button in the pop-up page means losing the history data about the functionality of your unit. Avoid this operation unless you are completely sure you don’t need these data in the future. If you are not sure you want to permanently delete all statistics of the device for previous periods without the possibility to recover, click the "Cancel" button.

Switch Statistics

This section displays the number of detected MAC addresses, unicast, broadcast and flood packets switched within each Switch group and also within kernel system (internal traffic), in real-time (since the last reboot). In addition, this section displays in real time statistics on dropped packets from the last configuration update. Total forwarded, dropped, ignored and buffer overflow packets are displayed in real-time below the table.

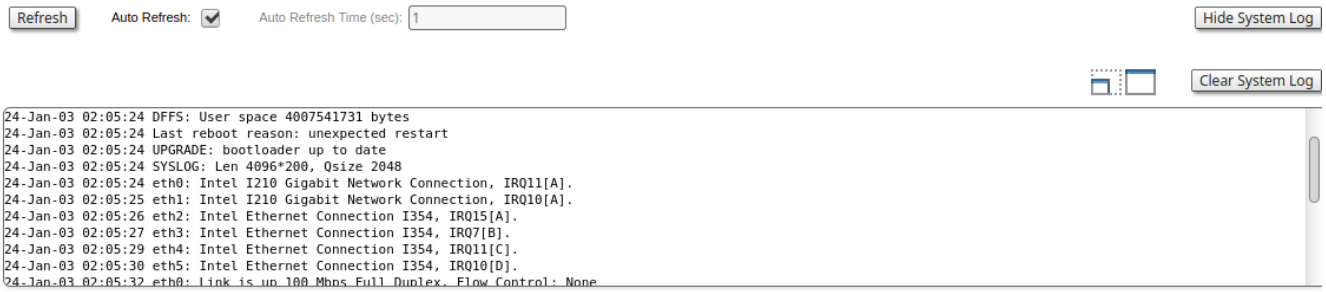
Parameter	Description
ID	• The ID of a switch group or Kernel
MAC Count	• The MAC addresses number involved in data transmission within this switch group
Unicast	• Sending a packet to a single host (network destination) identified by a unique address

Broadcast	• Sending a packet to all hosts (network destinations) simultaneously (broadcasting is done by specifying a special broadcast address on packets)
Flood	• Sending a packet along the same link multiple times (without specifying a destination address for the packets) • Several copies of the same packet would ultimately reach all nodes in the network in flooding
STP	• Spanning Tree Protocol - standardized as IEEE 802.1D • Creates a spanning tree within a network of connected layer-2 bridges (typically Ethernet switches) and disables those links that are not part of the spanning tree, leaving a single active path between any two network nodes • The value displayed in the Switch Statistics table represents the number of the packets blocked by the Spanning Tree Protocol
Unreachable	• The sender could not reach the specified network destination • The value displayed in the Switch Statistics table represents the number of the packets dropped because they flood to unreachable destination
Firewall	• A software or hardware-based network security system that controls the incoming and outgoing network traffic by analyzing the data packets and determining whether they should be allowed through or not, based on applied rules set • The value displayed in the Switch Statistics table represents the number of the packets dropped by the firewall system in the network
Possible loop	• A switching or bridging loop occurs in a network when there is more than one Layer 2 path between two endpoints • Because a physical topology that contains switching or bridging loops is needed for the redundancy reasons, the solution is to allow physical loops, but create a loop-free logical topology using the spanning tree protocol (STP) on the network switches • The value displayed in the Switch Statistics table represents the number of the packets dropped because they belong to a possible loop (more than one port declares same packet source)
Discard	• The value displayed in the Switch Statistics table represents the number of the packets dropped by the configuration (for example: "switch group N start [discard]")
MAC Limit	• MAC address-table limit reached (switch maxsources (MAXSOURCES|0) # default 5000) • The value displayed in the Switch Statistics table represents the number of the packets dropped because the limit of MAC address-table was reached
Reverse	• The value displayed in the Switch Statistics table represents the number of the packets dropped because they have the same source and destination port (the frame came to the unit through one port and according to the switching table it must leave through the same port

Table - Switch statistics parameters

System Log

By clicking the "System Log" button, you can view the "System Log" section.

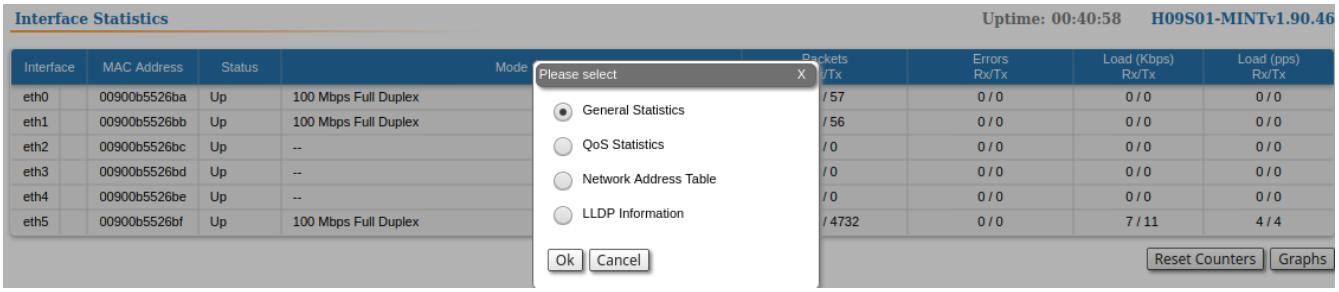


The "System Log" section allows browsing the unit's system log. It is possible to minimize/enlarge the system log window by clicking the buttons:  . You can delete all the information saved in the system log by clicking the "Clear System Log" button. You can hide the System Log section by clicking the "Hide System Log" button.

Extended Interface Statistics

The Extended Interface Statistics tools gather complete information and enhanced statistics for each interface of the unit.

In order to access the Extended Interface Statistics tools, click on the row of each interface within the "Interface Statistics" section.

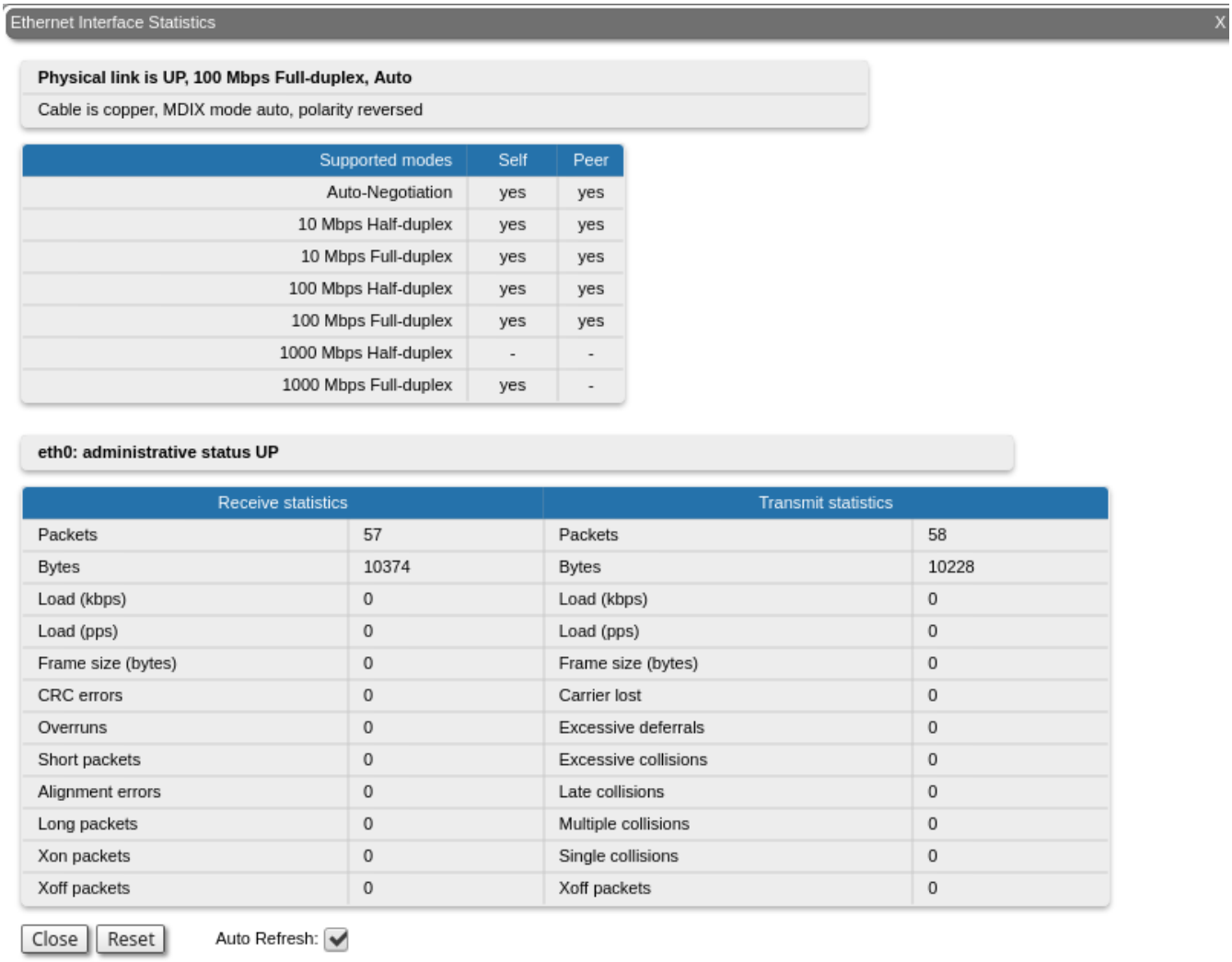


General Statistics

The "General Statistics" tool displays the information about the interface such as the operational mode, current status, load statistics, Rx and Tx statistics, etc.

Statistic for the Ethernet interface.

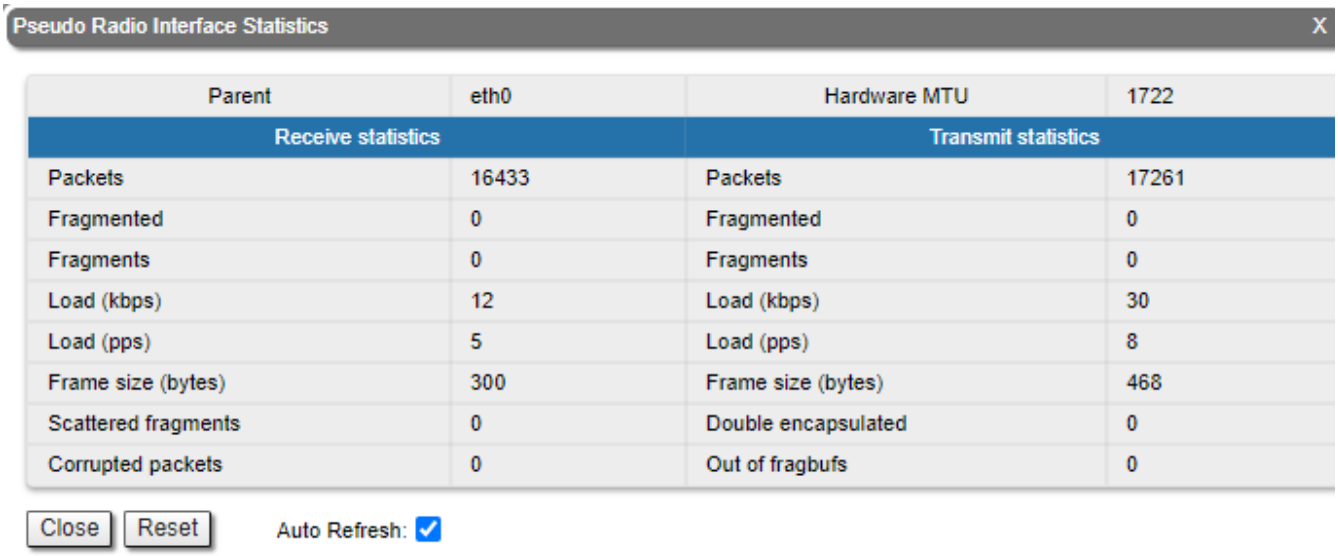
Title



Parameter	Description
Receive statistics	
Packets	The total number of received packets
Bytes	The sum of lengths of all good Ethernet frames received
Load (kbps)	The link load, Kbit/s
Load (pps)	The link load, packets per second
Frame size (bytes)	The frame size in bytes
CRC errors	Total frames received with a CRC error
Length errors	Total abnormal length frames received
Discards	Number of dropped frames
Transmit statistics	
Packets	The total number of transmitted packets
Bytes	The sum of lengths of all good Ethernet frames sent
Load (kbps)	The link load, Kbit/s

Load (pps)	The link load, packets per second
Frame size (bytes)	The frame size in bytes
Late collisions	The number of times a collision is detected later than 512 bits-times into the transmission of a frame
Underrun	The number of times the transmitter's packet processing rate exceeded the switch capabilities
Retransmit limit	Packets dropped due to queue overflow

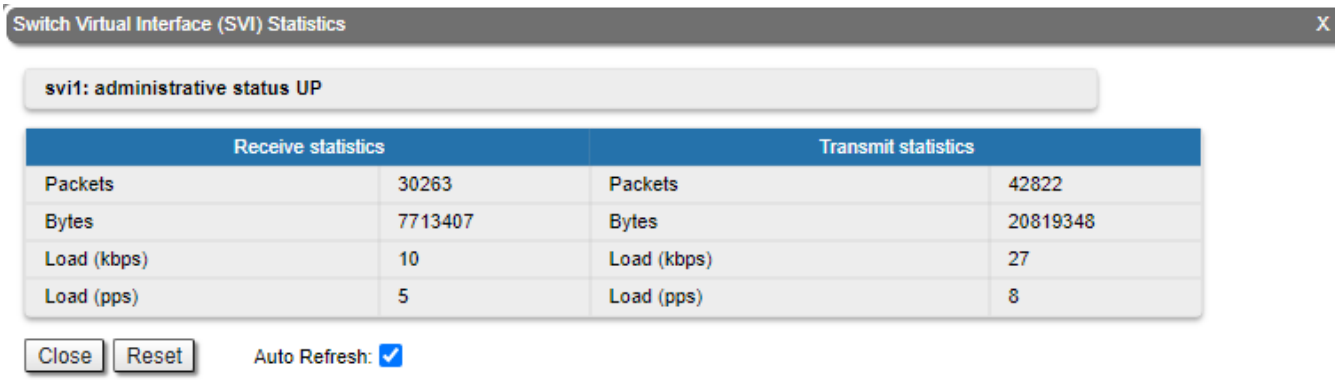
For the pseudo-radio interface information about parent interface, MTU value and load statistics is available.



Parameter	Description
Receive statistics	
Packets	Number of correctly received packets
Fragmented	Number of fragmented packets
Fragments	Number of fragments
Load (kbps)	The link load, Kbit/s
Load (pps)	The link load, packets per second
Frame size (bytes)	The frame size in bytes
Scattered fragments	Number of frames where one or several fragments were lost, the frame cannot be restored
Corrupted packets	Number of frames with the wrong length or structure
Transmit statistics	
Packets	Number of correctly transmitted packets
Fragmented	Number of fragmented packets
Fragments	Number of fragments
Load (kbps)	The link load, Kbit/s
Load (pps)	The link load, packets per second
Frame size (bytes)	The frame size in bytes
Double encapsulated packets	Number of frames with double encapsulation

Out of fragbufs	Number of errors as a result of frame assembly buffer overflow due to too many fragments (neighbors) sources

For the SVI interface information about current status, RX and TX staistics is available.



By clicking the "Close" button, you return to the "Device Status" page. By clicking the "Reset" button, you clear all counters displayed in the page. The "Auto Refresh" option is active by default and refreshes the statistics automatically. You can disable the auto refresh.

QoS Statistics

QoS characterizes the entire network performance which is defined by the parameters such as: throughput, latency, jitter, error rate, available bandwidth, etc. In order to provide the guaranteed Quality of Service for certain applications, users or data flows, different prioritization methods are used. The "QoS Statistics" tool displays the statistics of the MINT priority queues for the interface. Priority is one of the parameters which define in what sequence, different types of data traversing every Infinet device in MINT network are treated. Each channel may be assigned a priority (for example: P01, P02 … P16). Once assigned, a priority is automatically recognized by every node inside the MINT network. Each priority value corresponds to a device queue. Once in a queue, every packet is scheduled according to the queuing algorithm set on the device. QM manager supports Strict Priority Queuing and Weighted Fair Queuing scheduling algorithms. Strict Priority Queuing means that the packets from queue with lower priority are not processed until the queue with higher priority is not empty. Weighted Fair Queuing uses weights for every queue of an interface and allows different queues to have different service shares, depending on that weight. Every channel is also characterized by the latency parameter. This parameter determines the maximum time for the packets to stay in the channel. If a packet is waiting in a queue of the channel more than the time specified in the latency parameter, then it is discarded. Latency can be set for each channel in the "Traffic Shaping" section.

Channal	Priority
BACKGROUND	16
REGULAR Best Effort	15
BUSINESS6	14
BUSINESS5	13
BUSINESS4	12
BUSINESS3	11
BUSINESS2	10
BUSINESS1	9
QOS4	8
QOS3	7
QOS2	6
QOS1	5
VIDEO2	4
VIDEO	3
VOICE	2

CONTROL	1
NETCRIT	0

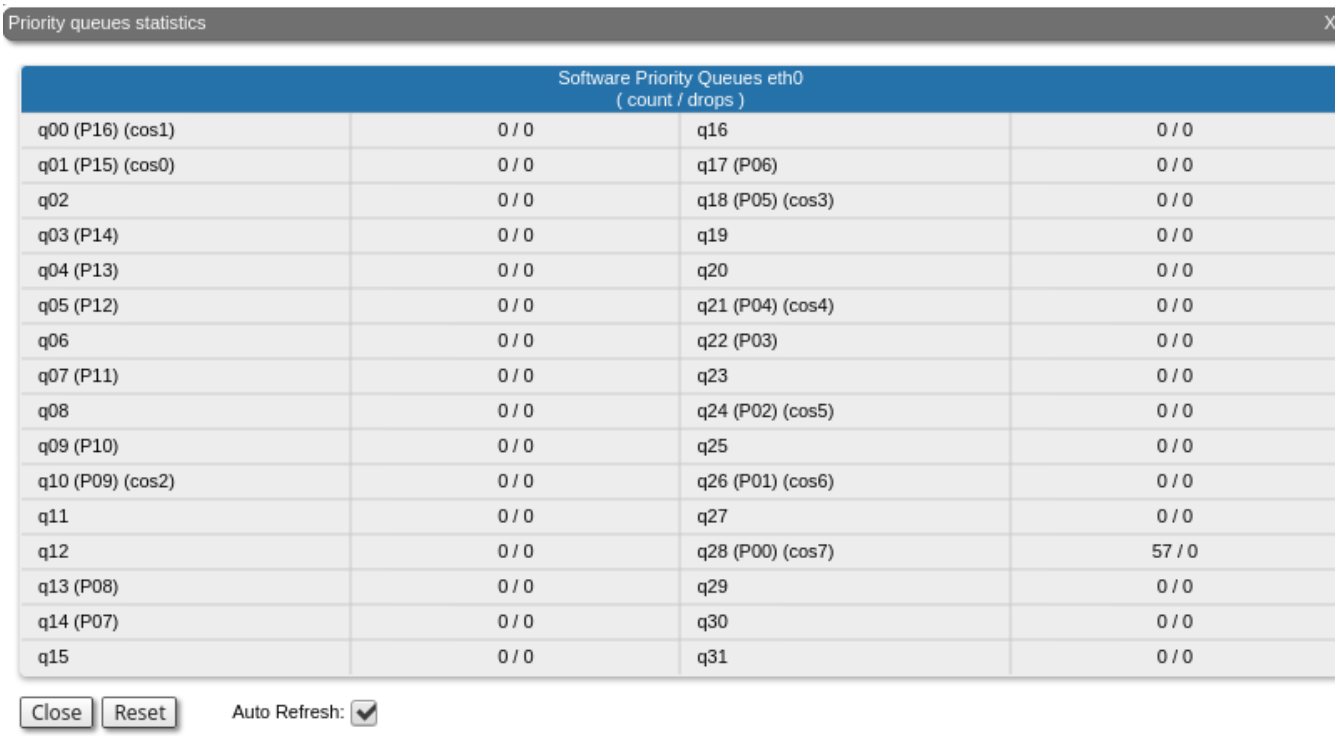
Table - MINT priorities

Transparent packet prioritization is a WANFleX feature which allows QM manager to transparently map 802.1p/TOS/DSCP priority to MINT priority for the ease of deployment. You have to make sure that “Dot1p Tags” and/or “IP ToS” options are enabled in the "QoS" section.

MINT Priority	Traffic Types (802.1p)	dot1p	TOS	DSCP Name	DS Field Value
16 BACKGROUND	Background	1			
15 REGULAR Best Effort	Best Effort	0	0	CS0	0
14 BUSINESS6			1	CS1, AF11-13	8, 10
13 BUSINESS5					12, 14
12 BUSINESS4			2	CS2, AF21-23	16, 18
11 BUSINESS3					20, 22
10 BUSINESS2			3	CS3, AF31-33	24, 26
9 BUSINESS1	Excellent Effort	2			28, 30
8 QOS4			4	CS4, AF41-43	32
7 QOS3					34
6 QOS2					36
5 QOS1	Critical Applications	3			38
4 VIDEO2	Video	4	5	CS5, EF	40, 42
3 VIDEO					44, 46
2 VOICE	Voice	5	6	CS6	48, 50
1 CONTROL	Internetwork Control	6			52, 54
0 NETCRIT	Network Control	7	7	CS7	56, 58, 60, 62

Table - MINT priority to 802.1p/TOS/DSCP

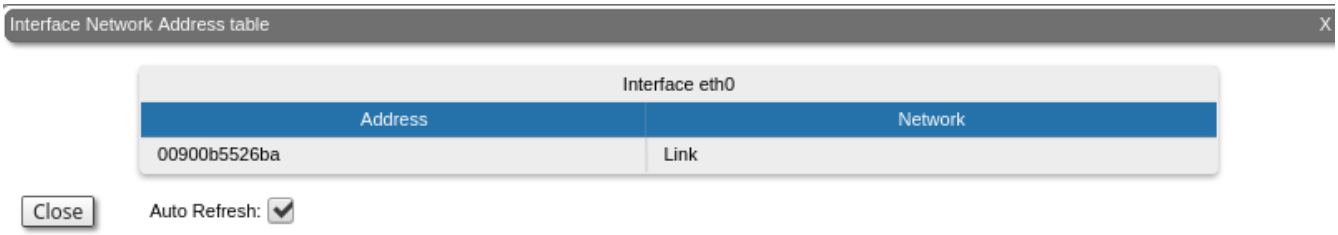
This section displays the number of inbound packets to each priority queue and the number of dropped packets. Of the 32 priority queues 17 are available for user configuration (from P00 to P16), where 0 is the highest priority. The rest are reserved for the system. Packets with 802.1p priority are distributed to queues with "cosX" values.



By clicking the "Close" button, you return to the "Device Status" page. By clicking the "Reset" button, you clear all counters displayed in the page. The "Auto Refresh" option is active by default and refreshes the statistics automatically. You can disable the auto refresh.

Network Address Table

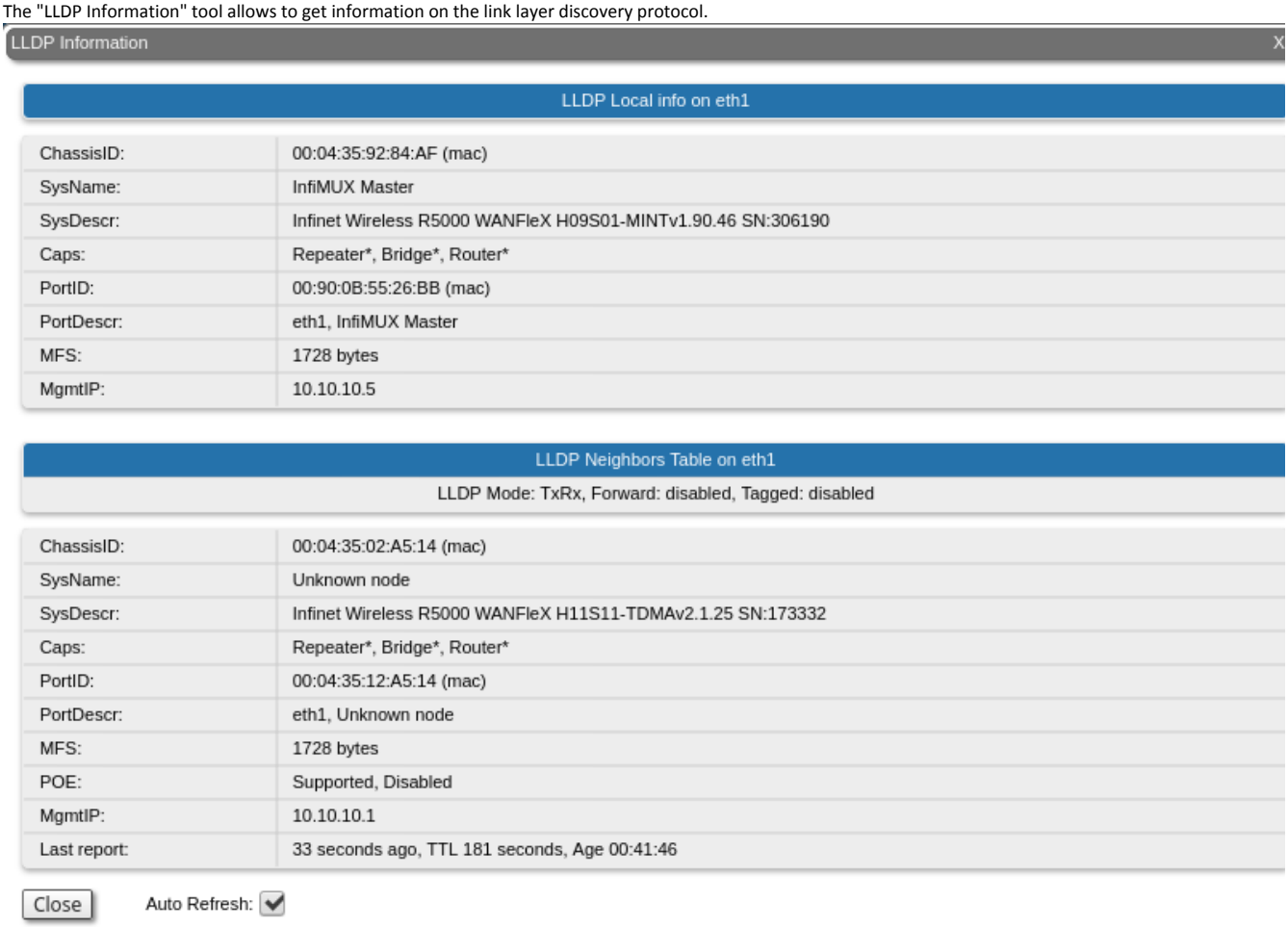
The "Network Address Table" tool shows the network address table for the interface.



By clicking the "Close" button, you return to the "Device Status" page. The "Auto Refresh" option is active by default and refreshes the statistics automatically. You can disable the auto refresh.

LLDP Information

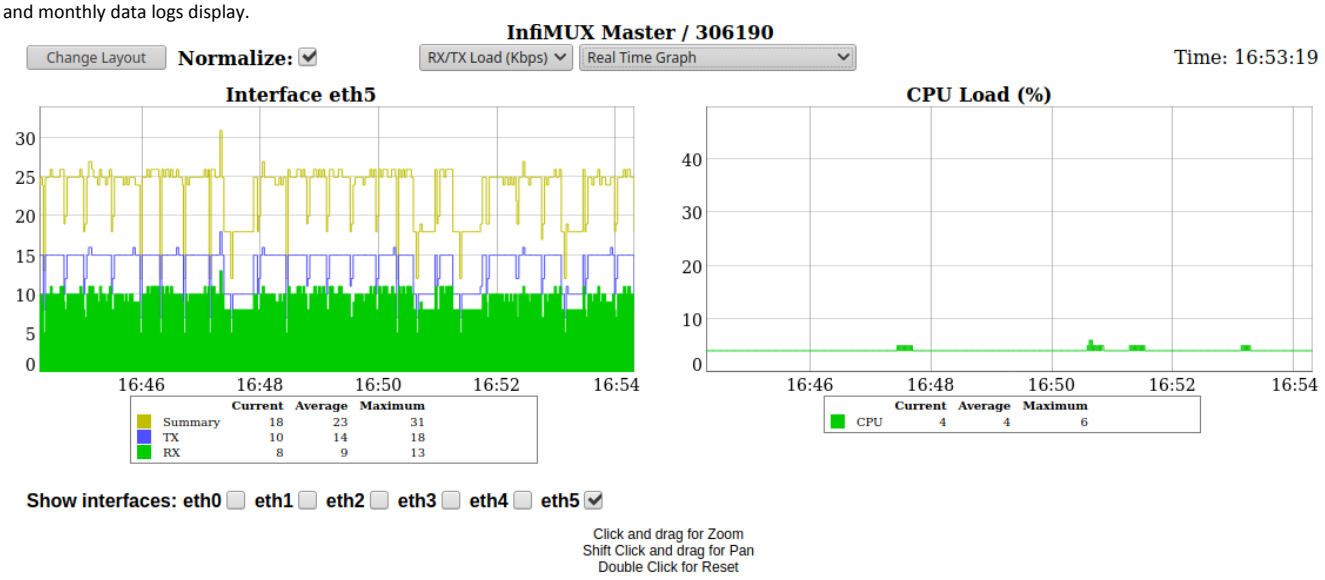
The "LLDP Information" tool allows to get information on the link layer discovery protocol.



By clicking the "Close" button, you return to the "Device Status" page. The "Auto Refresh" option is active by default and refreshes the statistics automatically. You can disable the auto refresh.

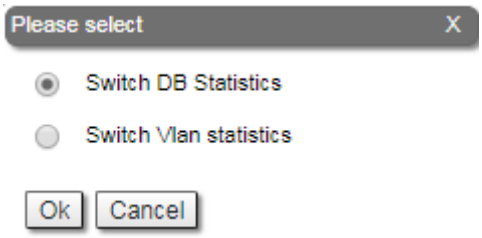
Graphs

The "Graphs" tool allows you to monitor the device parameters represented in the graphical charts. The following modes are available: real-time monitoring, daily and monthly data logs display.



Extended Switch Statistics

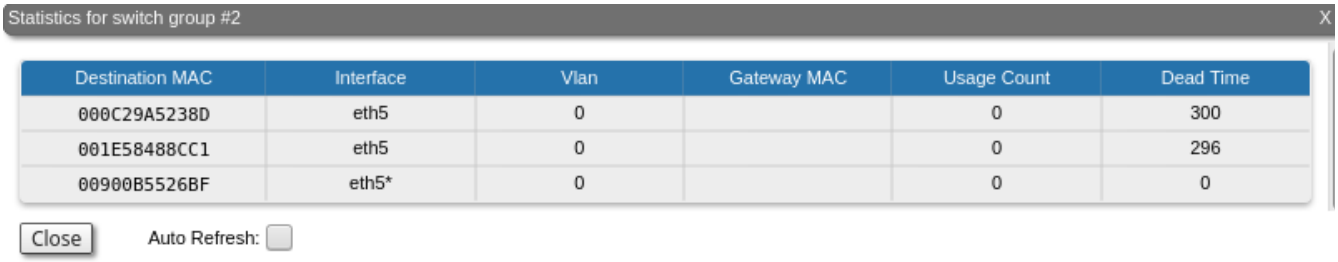
The "Extended Switch Statistics" tools allow gathering complete information and enhanced statistics for each group of the unit. In order to access the "Extended Switch Statistics" tools, click on the row of each switch group or kernel within the "Switch Statistics" section.



Two options are available: "Switch DB statistics" and "Switch VLAN statistics".

Switch DB Statistics

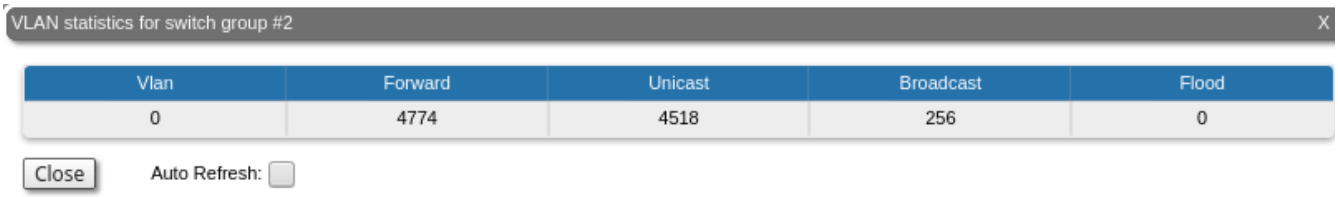
The "Switch DB Statistics" tool gathers complete information and enhanced statistics for each switch group, including kernel.



By clicking the "Close" button, you return to the "Device Status" page. The "Auto Refresh" option is disabled by default. You can enable the auto refresh in order to have the statistics automatically refreshed.

Switch VLAN Statistics

The "Switch VLAN Statistics" tool gathers complete information and enhanced statistics for each VLAN created.



By clicking the "Close" button, you return to the "Device Status" page. The "Auto Refresh" option is disabled by default. You can enable the auto refresh in order to have the statistics automatically refreshed.