Rhein Tech Laboratories
360 Herndon Parkway
Suite 1400
Herndon, VA 20170
http://www.rheintech.com

Client: OSLINK Sp. z o.o.
Model: OSBRIDGE 5GXi
FCC ID: UEV-5GXI
Standard: FCC 15.247
Report #:   2007118

Appendix H: Manual

Please see the following pages.

OSBRiDGE 5XLi/5GXi/5GXi-HP

Configuration Manual

Caution: Exposure to Radio Frequency Radiation

To comply with the FCC radio frequency exposure requirements the separation between this device built in antenna and any person's body (including hands, wrists, feet and ankles) must be atleast 15 inch (38 centimeter).

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

1. Initial setup and configuration.

OSBRiDGE 5XLi/5GXi devices are configurable via WWW interface. Each device uses following default settings:

IP Address: 192.168.1.251
Subnet Mask: 255.255.255.0
Login: admin
Password: public

The initial login screen looks as follows:

Please enter username and password, then press submit to log into the device.

Please note that after changing device parameters and pressing submit button, new settings will only be saved when you press "Apply Changes" button at the right bottom of the configuration page. You also need to reboot the device for the device to start with new settings.

2. System Information

System information tab shows information about system hardware and operational parameters:

OSBRIDGE 5G

System Information

Settings
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Services
QOS Settings
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DHCP Settings
Port Forwarding

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Firmware Upgrade
Load Configuration
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System Information:

Device Information

Device Type:	OSBRIDGE 5XLi
MAC Address:	00:15:D6:05:90:04
Firmware Version:	3.29
Hardware Revision:	1
Regulatory Domain:	EUROPE
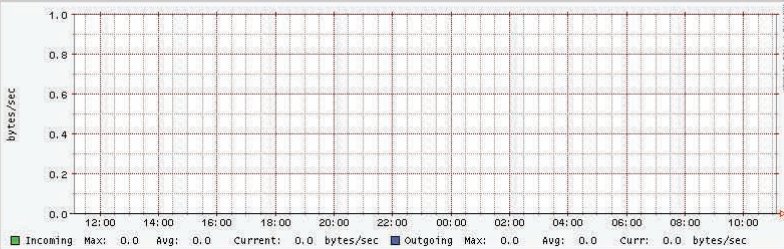
Connection Information

Status:	Searching for Network
BSSID:	Not Available
Signal Strength:	Not Available
Noise Level:	Not Available
Operational Rate:	Not Available
Tx Packets:	0
Tx Bytes:	0
Rx Packets:	0
Rx Bytes:	0
Ethernet Speed:	100Mbps Full Duplex

Operational Settings
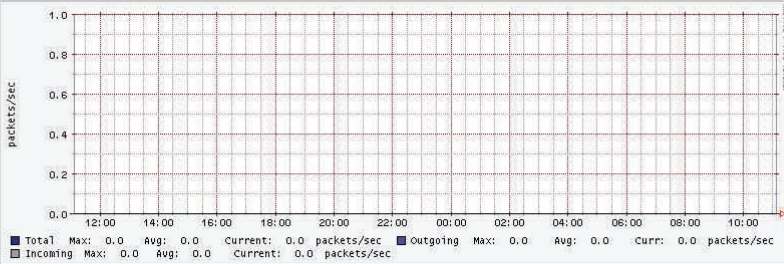
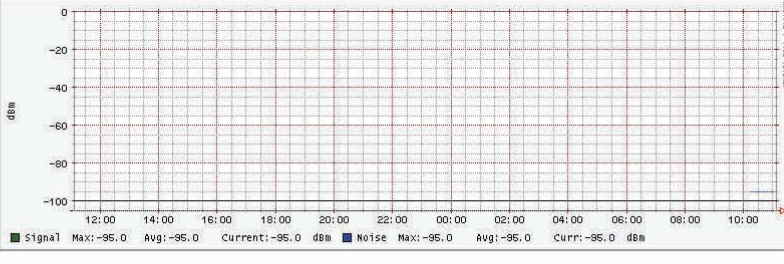|	
Device Name:	OSBRIDGE 5XLi
WLAN Operational Mode:	Infrastructure Client
802.11 Mode:	802.11a
IP Operational Mode:	Bridge
Uptime:	1 min
System Load:	0.64, 0.20, 0.07
ESSID:	osbridge
Frequency:	Not Available
Channel Width:	20 MHz
Preferred BSSID:	00:00:00:00:00:00
PPPoE Authorization:	Disabled
PPPoE Link Status:	Disabled
Fragmenation Threshold:	2346
RTS Threshold:	2347
WLAN Speed:	Auto
Supported Data Rates:	6, 9, 12, 18, 24, 36, 48, 54 Mbps
Supported Frequencies:	5500, 5520, 5540, 5560, 5580, 5600, 5620, 5640, 5660, 5680, 5700 MHz
Distance to the Access Point:	10 km
IP Address:	192.168.1.201
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.1.1
DHCP:	Disabled
Traffic Shaping:	Disabled
Firewall:	Disabled
Web Server on port:	80
Watchdog:	Enabled to IP: 0.0.0.0
Web Login Timeout:	600 seconds

Interface Utilization:

Incoming Max: 0.0   Avg: 0.0   Current: 0.0 bytes/sec   Outgoing Max: 0.0   Avg: 0.0   Curr: 0.0 bytes/sec

Packets Per Second:

Total Max: 0.0   Avg: 0.0   Current: 0.0 packets/sec   Outgoing Max: 0.0   Avg: 0.0   Curr: 0.0 packets/sec
Incoming Max: 0.0   Avg: 0.0   Current: 0.0 packets/sec

Signal Strength:

Signal Max:-95.0   Avg:-95.0   Current:-95.0 dBm   Noise Max:-95.0   Avg:-95.0   Curr:-95.0 dBm

Device Information:

Device Type – Device type you are logged into, it can be either OSBRiDGE 5XLi or OSBRiDGE 5GXi.

MAC Address – Device MAC address.

Firmware Version – Current firmware version..

Hardware Revision – Device Hardware version.

Regulatory Domain – Currently configured regulatory domain.

Connection Information:

Status – Connected – device is currently connected to an Access Point (802.11a Mode) or Polling Base Station (Polling Mode).

Not Connected – the connection has not yet been established.

BSSID – MAC address of the Access Point or Base Station the device is currently connected to.

Signal Strength – Access Point signal strength.

Noise Level – Level of the Noise the device is sensing.

Operational Rate – Bit data rate at which device sends packets to the Access Point.

TX Packets – Number of data packets that have been transmited to the Access Point.

RX Packets – Number of data packets that have been received from the Access Point.

TX Bytes – Number of bytes transmited to the Access Point.

RX Bytes – Number of bytes received from the Access Point.

Operational Settings:

Device Name - System name for easy identification of the OSBRiDGE 5XLi/5GXi unit.

WLAN Operational Mode – Wireless LAN Operational mode the device has been configured to.

 Available modes are:

– Infrastructure Client - Client for 802.11a compatible Access Points. To achieve compatibility with all 802.11a Access Points the so-called MAC address NAT is being performed for all traffic going from devices connected to the ethernet interface.

– Polling Client - Client for OSBRiDGE 5G device using OSBRiDGE proprietary polling protocol.

– AP Client - Client for OSBRiDGE 5G device operating in Access Point mode. In this mode full MAC address passthrough is achieved between bridged ethernet segments

– PtP Bridge Master - Master device when configured to operate as point to point wireless bridge.

– PtP Bridge Slave - Client device when configured to operate as point to point wireless bridge.

802.11 Mode – Regular 802.11a mode or 802.11a Turbo Mode (if allowed by regulatory domain).

IP Operational Mode – Network mode the device has been configured to work with. Available modes are Bridge, Router and NAT Router.

Uptime – How long the device has been up and running since last reboot.

System Load – Shows system load - average number of processes in the queue waiting for CPU time, over the last 1, 5, and 15 minutes.

ESSID - An ESSID is the name of a wireless network. All wireless devices on a common wireless network must employ the same ESSID in order to communicate with each other.

Frequency – The frequency the device is currenly operating on.

Channel Width – Channel width the device is configured to operate. Available values are 20 MHz (standard width), 10 MHz (half width), 5 MHz (quarter width) and 40 MHz (802.11a Turbo mode).

Preferred BSSID – MAC Address of the Access Point the device should connect to. If it is set to 00:00:00:00:00:00 then nly ESSID is taken into account.

PPPoE Authorization – Disabled or Enabled.

PPPoE Link Status – If the OSBRiDGE 5XLi/5GXi device succesfuly established PPPoE connection to the PPPoE concentrator the status will show Connected. Otherwise it will show Not Connected.

Fragmentation Threshold - The size at which packets are fragmented.

RTS Threshold - Minimum packet size to require an RTS (Request To Send) handshaking limiting on-the air collisions. For packets smaller than this threshold, an RTS is not sent and the packet is transmitted directly to the WLAN. For packets larger than this threshold the RTS/CTS handshaking is established.

WLAN Speed – Configured wireless interface Data Rate.

Supported Data Rates – Wireless Data rates the device supports.

Available Data Rates are:

– 6, 9, 12, 18, 24, 36, 48 and 54 Mbps for regular 802.11a mode,

– 12, 18, 24, 36, 48, 72, 96 and 108 Mbps in 802.11a Turbo mode,

– 3, 4.5, 6, 9, 12, 18, 24 and 27 Mbps for 802.11a mode with 10 MHz channel width,

– 1.5, 2.25, 3, 4.5, 6, 9, 12 and 13.5 Mbps for 802.11a mode with 5 MHz channel width.

Supported Frequencies – Supported Frequencies for currently configured Regulatory Domain.

Distance to the Access Point – Configured distance between OSBRiDGE 5XLi/5GXi device and the Access Point (or other Wireless Bridge) it is connecting to.

IP Address – Device IP address.

Subnet Mask – Currently defined subnet mask.

Default Gateway – Currently defined default gateway.

DHCP – Whether built in DHCP (Dynamic Host Configuration Protocol) server or client is disabled or enabled.

Traffic Shaping – If enabled then device will use traffic shaping to limit data according to defined rules. If disabled then there is no data traffic limiting.

Firewall – If enabled then device will use build in firewall to pass/block traffic according to defined rules. If disabled then there will be no packet filtering.

Web Server on Port - Port number the build-in web server currently runs on.

Watchdog – Disabled or Enabled, depending on current Watchdog configuration.

Web Login Timeout – Currently configured Web Login Timeout variable.

3. General Settings

Regulatory Domain – Please select regulatory domain that is most appropriate to your location.

Supported Regulatory Domains and allowed frequency ranges are as follows:

Europe – 5500 – 5700 MHz with DFS;

OFCOM UK – 5735 MHz, 5755 MHz, 5775 MHz, 5835 MHz with DFS;

USA – 5180 – 5320 MHz, 5745 – 5825MHz;

Far East & Africa – 4920 – 6100 MHz, 802.11a and 802.11a Turbo modes (236 channels).

Device Name - This is the system name for easy identification of the OSBRiDGE 5XLi/5GXi unit.

ESSID - An ESSID is the unique name shared among all peers in your wireless network. The name must be identical for all devices and points attempting to connect to the same network. It shall be up to 32 characters length.

BSSID - BSSID corresponds to the MAC Address of the Access Point or Wireless Bridge you want to connect to. Using 00:00:00:00:00:00 as BSSID will make the device connect to any Access Point based on correct ESSID only.

WLAN Operational Mode - Wireless LAN Operational mode for the device. Available modes are:

Infrastructure Client - This mode allows connection to any 802.11a based Access Point.

Polling Client – This mode allows connection to OSBRiDGE 5G device, utilizing proprietary polling wireless mac protocol, that has been specifically optimized for high performance outdoor networks.

AP Client – This mode allows connection to OSBRiDGE 5G device and full MAC address passthrough in Bridge mode.

PtP Bridge Master – This mode allows creation of a point to point connection with another OSBRiDGE 5XLi/5GXi or OSBRiDGE 5Gi device operating in Slave (or Client) mode. Please note that entering preferred BSSID is mandatory in this mode.

PtP Bridge Slave – This mode allows creation of a point to point connection with another OSBRiDGE 5XLi/5GXi or OSBRiDGE 5Gi device operating in Master mode. Please note that entering preferred BSSID is mandatory in this mode.

IP Operational Mode –

Bridge - Bridge works at OSI model Layer 2. This means it does not know anything about protocols, but just forwards data depending on the destination address in the data packet. This address is not the IP address, but the MAC (Media Access Control) address that is unique to each network adapter card. With a Bridge, all your computers are in the same network subnet, so you don't have to worry about not being able to communicate between computers or share an Internet connection. The only data that is allowed to cross the bridge is data that is being sent to a valid address on the other side of the bridge. Bridges don't require programming.   They learn the addresses of the computers connected to them by listening to the data flowing through them. Bridges are very useful for joining networks made of different media types together into larger networks, and keeping network segments free of data that doesn't belong in a particular segment.

Router - Router is an OSI model Layer 3 device, and forwards data depending on the network address, not the hardware (MAC) address. For TCP/IP networks this means the IP address of the network interface. Routers isolate each LAN into a separate subnet. Routers provide bandwidth control by keeping data out of subnets where it doesn't belong, however routes need to be set up before they can get going.

NAT Router – This mode is similar to the Router mode only that all traffic coming on wired interface and going out on wireless interface is masqueraded. Masquerade allows a set of machines to invisibly access the Internet via the gateway (OSBRiDGE device in this case). To other machines on the Internet, all this outgoing traffic will appear to be from the OSBRiDGE device itself. In addition to the added functionality, IP Masquerade provides the foundation to create a fairly secure networking environment.

DHCP – Enable or disable built in DHCP client/server.

DHCP Relay – In IP Router/NAT Router mode enable DHCP Relay so DHCP requests coming from the LAN subnetwork will be relayed to the WLAN subnetwork and DHCP Server replies will be relayed back to the LAN interface. If no specific DHCP server IP address is configured (default value 0.0.0.0) then DHCP requests will be relayed to any DHCP server on the WLAN address. If the DHCP server IP address is configured then all DHCP requests will be relayed to that particular DHCP server.

Firewall – Enable or disable built in packet filtering firewall.

PPPoE Authorization – Enable or disable device built in PPPoE client:

- In IP Bridge mode, if PPPoE is enabled, the device will authorize itself to the PPPoE concentrator and establish a PPP link to it. Ethernet traffic will be bridged as usual.

- In IP Router mode, if PPPoE is enabled, the device will authorize itself to the PPPoE concentrator and establish a PPP link to it – over the wireless interface in the Access Point Client mode or over the wired interface in the Access Point mode, PPPoE link will be then used as a default gateway by the device. While operating in Router/Access Point Client all traffic originating from the wired LAN subnetwork will be transported over PPPoE link to the PPPoE concentrator.

PPPoE Username/Password – A PPPoE Username and Password that are required to create PPP link to the PPPoE concentrator.

Currently supported PPPoE authorization types are CHAP, PAP, MSCHAP and MPPE.

Watchdog – If enabled then OSBRiDGE 5XLi/5GXi device will send 3 ICMP Echo Requests to the configured IP address, each in 3 minutes interval. If there is no single ICMP Echo Reply to any of these requests, then the device will reboot itself.
The device has also independent hardware watchdog built in, that checks for critical operational parameters and reboots the device, should the system hang or become unstable. That watchdog works all the time, regardless of the ping watchdog configuration.

Run Web Server on Port – Enter the port the build-in Web server should be configured to run on.

Web Login Timeout – Enter the value the management Web session should be kept alive without any action from the user.

Reset to Default Password – Password that is used to reset device to factory default settings using OSReset software.

NTP Server – Configure IP address of the external NTP (Network Time Protocol) server OSBRiDGE device will obtain current time from at startup time.

ETH Speed – LAN Port connection speed - available values are Auto (Auto Negotiation), 100Mbps FDX, 100Mbps HDX, 10Mbps FDX, 10Mbps HDX.

Last Good Config - If Enabled then device will keep copy of previously used configuration and directly after reboot, if the built in watchdog triggers reset, will revert back to that configuration.

4. IP Settings

Bridge Mode

Device IP – Enter device IP address here.

Subnet Mask – Enter network subnet mask here.

Default Gateway – IP address of a router where traffic going outside of the local network will be forwarded.

Router Mode / NAT Router Mode

Wired Interface IP – Enter IP address of the wired interface here.

Wired Interface Mask – Enter wired network subnet mask here.

Wireless Interface IP – Enter IP address of the wireless interface here.

Wireless Interface Mask – Enter wireless network subnet mask here.

Default Gateway – IP address of a router where traffic not destined for defined routes / local routes will be forwarded.

Defined Routes – This table displays currently defined static routes. To delete a route select "Delete" checkbox and press Submit on the bottom of the page. Please note that it is not possible to delete first two entries – direct routes to local interfaces.

Add Route:

Direct – Wired/Wireless - When router has two or more IP subnets directly attached to its different interfaces, it can route IP packets between those subnets using a direct route. A direct route consists of an IP Address which specifies the basic IP address to route, a Subnet Mask which defines the class of IP addresses that will be routed, and an interface which specifies where the IP subnet is attached. When an IP packet addressed to a system on the directly routed subnet arrives at the router, the router will send it directly to the target machine on the interface specified. When entering direct route use 0.0.0.0 as Gateway.

Indirect - When router needs to send IP packets between IP subnets which are not directly connected to one of its interfaces, it must have an indirect route for sending those packets. An indirect route consists of an IP Address which specifies the basic IP address to route, a Subnet Mask which defines the class of IP addresses that will be routed and a Gateway that will relay the IP packet. When an IP packet addressed to a system on the indirectly routed subnet arrives at the router, the router will route it over to the specified Gatway to be routed further.

5. Advanced Settings

Fragmentation Threshold – Enter the size at which the packets will be fragmented.

RTS/CTS Threshold – Enter the minimum packet size to require RTS (Request To Send) handshaking limiting on-the air collisions. For packets smaller than this threshold, a RTS is not sent and the packet is transmitted directly to the WLAN. For packets larger than this threshold the RTS/CTS handshaking is established. This value should be only changed while operating as an Access Point Client.

Distance to the Access Point – Configure distance between OSBRiDGE 5XLi/5GXi device and the Access Point it is connecting to.

Tx Power - By default, the OSBRiDGE 5XLi/5GXi transmits data at the maximum output power for the regulatory domain selected and frequency used. With Transmit Power Control (TPC), you can adjust the output power of the unit to a lower level in order to reduce interference from neighboring devices.

WLAN Speed – Choose data rate the device will support while connecting to the Access Point.
Available Data Rates are:
- 6, 9, 12, 18, 24, 36, 48 and 54 Mbps for regular 802.11a mode,
- 12, 18, 24, 36, 48, 72, 96 and 108 Mbps in 802.11a Turbo mode,
- 3, 4.5, 6, 9, 12, 18, 24 and 27 Mbps for 802.11a mode with 10 MHz channel width,
- 1.5, 2.25, 3, 4.5, 6, 9, 12 and 13.5 Mbps for 802.11a mode with 5 MHz channel width.

Data Encryption – Enable or Disable over the air Data Encryption here.

Encryption – Please select generic WLAN encryption scheme: WEP or WPA-PSK (TKIP).

WEP Key – Enter WEP encryption key here. Keys are entered as hexadecimal numbers in following format:
64 bit WEP: xxxx-xxxx-xx
128 bit WEP: xxxx-xxxx-xxxx-xxxx-xxxx-xxxx-xx
156 bit WEP: xxxx-xxxx-xxxx-xxxx-xxxx-xxxx-xxxx-xxxx

Pre-shared WPA Key – the key is entered as 8-63 characters long string, ie. OSBRiDGE.

Supported Data Rates – Enable or Disable WLAN Data Rates the OSBRiDGE device should support when communicating with other devices.

6. QOS Settings

When the device operates as Access Point the built-in traffic shaper allows you to set up different data flow speeds for it's clients –

In IP Bridge Mode - based on MAC Address,

In IP Router Mode - based on IP Address or IP Subnetwork.

Downlink – In Access Point mode this is speed of the data going out of the wireless interface. In Access Point Client mode is speed of the data going out of the wired interface.

Uplink –In Access Point mode this is speed of the data going out of the wired interface. In Access Point Client mode is speed of the data going out of the wireless interface.

Total Downlink Speed - Cumultative speed the data can flow through the device.

Total Uplink Speed - Cumultative speed the data can flow through the device.

High Priority Traffic - Size that will be reserved for high priority queue and sent before any other traffic. High Priority traffic is defined as traffic from VOIP applications and other types of applications requiring low latency for correct operation.

Default Priority Traffic - Size that will be reserved for default priority queue from which data is sent after the High Priority queue is empty. Default Priority traffic is defined as traffic originating from well known services (http, smp, pop3, ssh etc.) which should be prioritized but is not as latency dependent as high priority traffic.

Low Priority Traffic - Size that will be reserved for all traffic that does not fall into other queues.

Per User QOS - If enabled then individual entries from the table below will be used for further configuration of the traffic shapping.

Table QOS Entries –

Enabled – If checked then this particular entry is enabled, in not checked then that entry is disabled.

Description - Entry description.

Type - MAC Address or IP Address.

Address – For MAC Address enter it as **xx:yy:xx:yy:xx:yy**. For single IP Address enter it as **x.x.x.x/32**, or if you want to limit speed for whole subnetwork enter it as **x.x.x.x/y** (ie. 192.168.0.0/24 if you want to limit all IP addresses within 192.168.0.0 - 192.168.0.255 range).

Downlink Speed – Queue size for all packets matching defined IP/MAC Address.

Uplink Speed - Queue size for all packets matching defined IP/MAC Address.

High Down/Up - Queue size for high priority traffic in format **xx:yy**, where **xx** is percentage of the queue size that will be guaranteed for high priority traffic and **yy** is percentage of queue size that can be used if queue is not used by other kind of traffic.

Default Down/Up - Queue size for default priority traffic in format **xx:yy**, where **xx** is percentage of the queue size that will be guaranteed for default priority traffic and **yy** is percentage of queue size that can be used if queue is not used by other kind of traffic.

Low Down/Up - Queue size for default priority traffic in format **xx:yy**, where **xx** is percentage of the queue size that will be guaranteed for default priority traffic and **yy** is percentage of queue size that can be used if queue is not used by other kind of traffic.

7. Firewall Settings

Built in Firewall allows you to pass or block traffic going through the device, based on selected criteria.

There are two tables shown on the configuration screen. "Ethernet" table shows currently defined firewall rules for the wired interface of the OSBRiDGE 5XLi/5GXi device. "Wireless" table shows currently defined rules for the wireless interface. You can delete existing firewall rule by selecting "Delete" checkbox on the right side of the rule and pressing Submit button.

Define New Rule (IP Bridge Mode):

Interface – Select the incoming interface the rule should apply to. Choose either Ethernet or Wireless interface.

Action – Select what to do with the packet matching the rule. You can either pass that packet through, or block it.

Protocol – Enter the number representing protocol that should be matched. Use "*" to match all protocols. Most common numbers are:

0 – All IP protcols
1 – ICMP protocol
6 – TCP protocol
17 – UDP protocol

For complete list of protocols please see Appendix 1 of this document, or go to:
http://www.iana.org/assignments/protocol-numbers

Source – Source MAC address of the packet to be matched. Use "*" to match any MAC address.

Source Port – Source port of the packet to be matched. Use "*" to match any source port.

Destination – Destination MAC address of the packet to be matched. Use "*" to match any MAC address.

Destination Port - Destination port of the packet to be matched. Use "*" to match any destination port.

Define New Rule (IP Router Mode):

Interface – Select the incoming interface the rule should apply to. Choose either Ethernet or Wireless interface.

Action – Select what to do with the packet matching the rule. You can either pass that packet through, or block it.

Protocol – Enter the number representing protocol that should be matched. Use "*" to match all protocols. Most common numbers are:

0 – All IP protcols
1 – ICMP protocol
6 – TCP protocol
17 – UDP protocol

For complete list of protocols please see Appendix 1 of this document, or go to:
http://www.iana.org/assignments/protocol-numbers

Source – Source IP address or IP subnet (in x.x.x.x/y format) of the packet to be matched. Use "0.0.0.0/0" to match any IP address.

Source Port – Source port of the packet to be matched. Use "*" to match any source port.

Destination – Destination IP address or IP subnet (in x.x.x.x/y format) of the packet to be matched. Use "0.0.0.0/0" to match any IP address.

Destination Port - Destination port of the packet to be matched. Use "*" to match any destination port.

8. DHCP Settings

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DHCP Server Settings

Setting	Value
Server Enabled on Interface:	Wired
Offered IP Starting Address:	0.0.0.0
Offered IP Ending Address:	0.0.0.0
Default Subnet Mask:	0.0.0.0
Default Gateway IP:	0.0.0.0
First DNS Server IP:	0.0.0.0
Second DNS Server IP:	0.0.0.0
Lease Time in Minutes:	1200

Static Mapping:

MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
MAC:	IP:
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MAC:	IP:

SUBMIT   CLEAR

Depending on which DHCP opton is enabled (or disabled) on the **General Settings** page, this page will show appropriate information.

If DHCP server is enabled then you can configure it's operational parameters on this page.

Server Enabled on Interface – Choose the interface the DHCP server should listen for requests on. You can choose either Wired or Wireless interface.

Offered IP Starting Address – First IP address from the range that will be provided to hosts requesting DHCP server to provide them an address.

Offered IP Ending Address – Last IP address from the range that will be provided to hosts requesting DHCP server to provide them an address.

Default Subnet Mask – Subnet Mask that will be provided to hosts requesting IP information.

Default Gateway IP – Gateway IP address that will be provided to hosts requesting IP information.

First DNS Server IP – First DNS IP address that will be provided to hosts requesting IP information.

Second DNS Server IP - Second DNS IP address that will be provided to hosts requesting IP information.

Lease Time in Minutes – Lease time the information received from DHCP service is valid. After that time computer that has requested the DHCP server to provide it IP addres information will automaticaly request that information again.

Static Mapping – This option allows static mapping of MAC addresses to specific IP addresses offered by DHCP server.

9. Port Forwarding

When the device is operating in Access Point Client and IP Router/NAT Router mode this menu will let you configure port forwarding from external (WLAN) interface to the host available on the internal (ethernet) interface.

Each forwarding rule consists of:

Application - Description of the application the rule applies to.

Port - Port on the external (WLAN) interface - when connection is made to that port it will be forwarded to defined IP address.

Protocol - protocol type this rule applies to - TCP, UDP or both TCP and UDP.

IP Address - IP address on the internal (ethernet) interface connection will be forwarded to.

Enabled - select checkbox to enable the rule or leave it not selected to disable the rule.

10. Device Settings

Use this screen to change password which is used to access and configure the device.

11. Syslog Settings

This option allows device events logging to remote Syslog server.

Syslog Server IP - IP Address of the computer where Syslog server is running.

Syslog Server Port - Port the Syslog server is listening on.

Log Messages - Enable or disable logging for specific events:

Device Startup - save an event when the device has started.

Firmware Upgrade - save an event when firmware upgrade was performed on the device.

Device Reboot - save an event when device is rebooting.

Admin Log In - save an event when user admin logged to device via WWW.

DHCP Server Lease - save an event when the built in DHCP server leased an IP address to the client (event will contain MAC address of the network card build into computer that obtained the lease).

12. Interface Status

OSBRIDGE 5G

[APPLY CONFIGURATION] [REBOOT]

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Interface Information:

Ethernet:

Bytes Received:	6694822	Packets Received:	65566
RX Errors:	0	RX Drop:	0
RX FIFO:	0	RX Frame:	0
RX Compressed:	0	RX Multicast:	0
Bytes Transmited:	94182970	Packets Transmited:	93540
TX Errors:	0	TX Drop:	0
TX FIFO:	0	TX Collisions:	0
TX Carrier:	0	TX Compressed:	0

Wireless:

Bytes Received:	10898769	Packets Received:	203120
RX Errors:	23021	RX Drop:	0
RX FIFO:	0	RX Frame:	676
RX Compressed:	0	RX Multicast:	8648
Bytes Transmited:	9208250	Packets Transmited:	64655
TX Errors:	80267	TX Drop:	0
TX FIFO:	0	TX Collisions:	63069
TX Carrier:	1	TX Compressed:	0

ARP Table:

IP Address:	MAC Address:	Interface:	State:
10.0.212.6	00:0A:E6:27:4D:D4	ETH	reachable
10.0.212.5	00:00:00:00:00:00	ETH	reachable
10.0.212.4	00:E0:4C:E8:84:F6	ETH	reachable
10.0.212.3	00:A1:B0:08:9F:4E	ETH	reachable
10.1.0.1	00:0D:B9:00:2A:55	ETH	reachable
10.0.212.128	00:00:E8:74:8D:99	ETH	reachable

Active DHCP Leases:

MAC Address:	IP Address:	Expires:
00:00:e8:74:8d:99	10.0.212.128	0 days, 1 hours, 15 minutes, 23 seconds

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This page shows statistical information about packets that traversed the bridge/router. In IP Bridge mode there is also Bridge Learn Table shown, in IP Router mode there is device ARP table shown, containing it's neighbours MAC addresses.

Currently active DHCP leases are also displayed here.

13. Services

Site Survey – Allows to see other Access Points in range.

Reset Default – Allows to reset device to factory default settings.

Traceroute – This command is used to determine the route taken by packets across an IP network.

Ping – This command is used to to test whether a particular host is reachable across an IP network. Ping works by sending ICMP "echo request" packets to the target host and listening for ICMP "echo response" replies. Using interval timing and response rate, ping estimates the round-trip time and packet loss rate between hosts.

14. Firmware Upgrade

This page allows you to upgrade the device firmware. It is recommended to upgrade firmware only to newer version than the one currently installed in the device.

Please always remember to reboot the device first before you proceed with firmware upgrade.

15. Load Configuration

You can use this option to save current device configuration to file.

16. Save Configuration

You can use this option to load device configuration from file.

17. SNMP Support

OSBRiDGE 5XL(i) devices support SNMP monitoring feature and appropriate .mib file is provided with each firmware release.

SNMP community string required for monitoring is always configured to be the same as **admin** user password used for device configuration.

An example usage of SNMP from a linux box looks as follows:

```
[root@gw root]# snmpwalk -c public -v 2c 10.1.0.155 enterprises.19025
SNMPv2-SMI::enterprises.19025.1.1.1.1.0 = STRING: "OSBRiDGE 5XLi"
SNMPv2-SMI::enterprises.19025.1.1.1.2.0 = STRING: "0050fc480202"
SNMPv2-SMI::enterprises.19025.1.1.1.3.0 = STRING: "3.29R"
SNMPv2-SMI::enterprises.19025.1.1.1.4.0 = INTEGER: 1
SNMPv2-SMI::enterprises.19025.1.1.1.5.0 = INTEGER: 4
SNMPv2-SMI::enterprises.19025.1.1.2.1.0 = INTEGER: 1
SNMPv2-SMI::enterprises.19025.1.1.2.2.0 = STRING: "00:15:D6:07:32:85"
SNMPv2-SMI::enterprises.19025.1.1.2.3.0 = INTEGER: -82
SNMPv2-SMI::enterprises.19025.1.1.2.4.0 = INTEGER: -95
SNMPv2-SMI::enterprises.19025.1.1.2.5.0 = STRING: "24"
SNMPv2-SMI::enterprises.19025.1.1.2.7.0 = STRING: "1572928"
SNMPv2-SMI::enterprises.19025.1.1.2.8.0 = STRING: "112952904"
SNMPv2-SMI::enterprises.19025.1.1.2.9.0 = STRING: "1538322"
SNMPv2-SMI::enterprises.19025.1.1.2.10.0 = STRING: "44898886"
SNMPv2-SMI::enterprises.19025.1.1.3.1.0 = STRING: "OSBRiDGE 5XLi "
SNMPv2-SMI::enterprises.19025.1.1.3.2.0 = INTEGER: 1
SNMPv2-SMI::enterprises.19025.1.1.3.3.0 = INTEGER: 0
SNMPv2-SMI::enterprises.19025.1.1.3.4.0 = INTEGER: 2
SNMPv2-SMI::enterprises.19025.1.1.3.5.0 = STRING: "50 min"
SNMPv2-SMI::enterprises.19025.1.1.3.6.0 = STRING: "0.24, 0.22, 0.30"
SNMPv2-SMI::enterprises.19025.1.1.3.7.0 = STRING: "osbridge"
SNMPv2-SMI::enterprises.19025.1.1.3.9.0 = STRING: "00:00:00:00:00:00"
SNMPv2-SMI::enterprises.19025.1.1.3.11.0 = INTEGER: 1
SNMPv2-SMI::enterprises.19025.1.1.3.12.0 = INTEGER: 1
SNMPv2-SMI::enterprises.19025.1.1.3.13.0 = INTEGER: 2347
SNMPv2-SMI::enterprises.19025.1.1.3.14.0 = INTEGER: 2346
SNMPv2-SMI::enterprises.19025.1.1.3.15.0 = STRING: "6, 9, 12, 18, 24, 36, 48, 54"
SNMPv2-SMI::enterprises.19025.1.1.3.16.0 = STRING: "4920 - 6100 MHz with 5 MHz step"
SNMPv2-SMI::enterprises.19025.1.1.3.17.0 = INTEGER: 10
SNMPv2-SMI::enterprises.19025.1.1.3.18.0 = INTEGER: 0
SNMPv2-SMI::enterprises.19025.1.1.3.19.0 = IpAddress: 10.1.0.155
SNMPv2-SMI::enterprises.19025.1.1.3.20.0 = IpAddress: 255.255.255.0
SNMPv2-SMI::enterprises.19025.1.1.3.21.0 = IpAddress: 10.2.20.193
SNMPv2-SMI::enterprises.19025.1.1.3.22.0 = IpAddress: 255.255.255.192
SNMPv2-SMI::enterprises.19025.1.1.3.23.0 = IpAddress: 10.1.0.1
SNMPv2-SMI::enterprises.19025.1.1.3.24.0 = INTEGER: 2
SNMPv2-SMI::enterprises.19025.1.1.3.25.0 = INTEGER: 0
SNMPv2-SMI::enterprises.19025.1.1.3.26.0 = INTEGER: 0
SNMPv2-SMI::enterprises.19025.1.1.3.27.0 = INTEGER: 80
SNMPv2-SMI::enterprises.19025.1.1.3.32.0 = INTEGER: 1
SNMPv2-SMI::enterprises.19025.1.1.3.33.0 = IpAddress: 213.25.114.6
SNMPv2-SMI::enterprises.19025.1.1.3.34.0 = INTEGER: 600
SNMPv2-SMI::enterprises.19025.1.1.3.35.0 = INTEGER: 0
SNMPv2-SMI::enterprises.19025.1.1.3.36.0 = INTEGER: 0
[root@gw root]#
```

18. TFTP Firmware upgrade

Each OSBRiDGE device allows firmware upgrade via TFTP.

From the Windows DOS box you need to enter following command:

X:\>tftp -i -s 192.168.1.251 PUT OSBRiDGE_5XLi_3.30R2.bin admin_public

WinAgents TFTP Client version 1.3 Copyright (c)2004-2005 by Tandem Systems,Ltd.
http://www.winagents.com - Software for network administrators

Transfering file OSBRiDGE_5XLi_3.30R2.bin to server in octet mode…
Using blocksize = 512
Using TFTP timeout = 10s
File OSBRiDGE_5XLi_3.30R2.bin was transferred successfully.
1964844 bytes transfered for 63 seconds, 31188 bytes/second

X:\>

Please note that username (admin) and password (public in this case) required for authorization are sent to the device as remote file name (admin_public).

The device will accept firmware, reflash and reboot automaticaly.

19. CLI (Command Line Interface)

CLI allows to perform device mainteance using telnet session:

[root@gw root]# telnet 192.168.1.7
Trying 192.168.1.7...
Connected to 192.168.1.7 (192.168.1.7).
Escape character is '^]'.
Login: admin
Password: ********

Osbridge 5Xli - CLI
Use "help" for list of available commands
> help
Available commands:

traceroute
system
survey
show
set
reboot
ping
help
apply
?

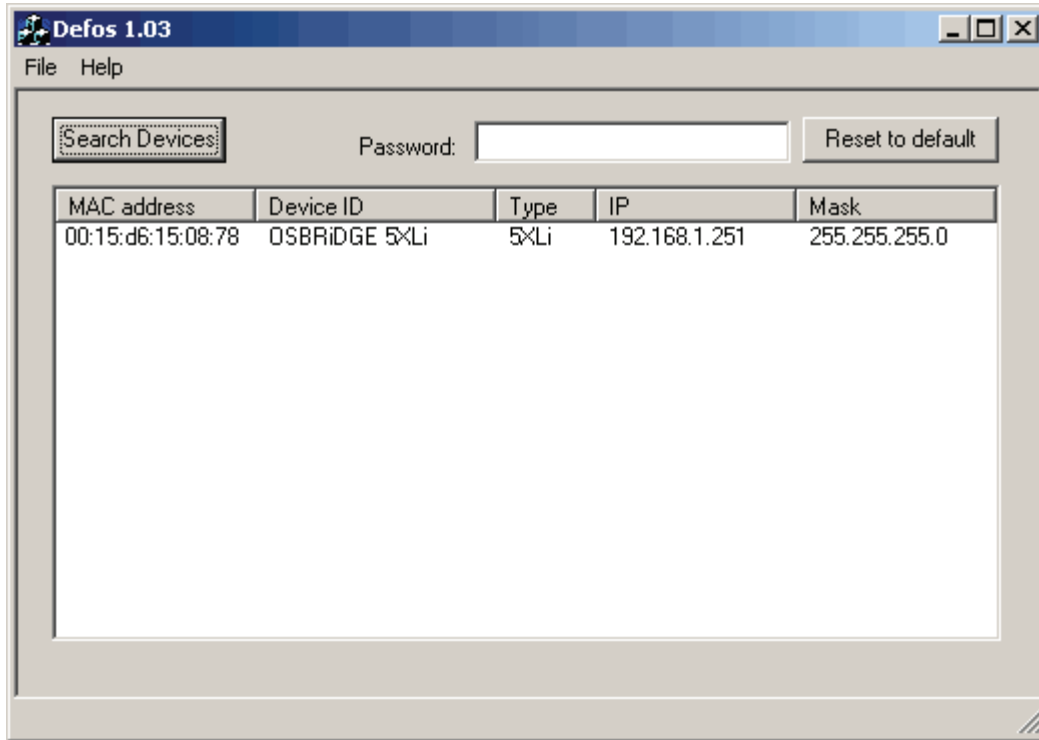Please use: "help <command>" for more info about specific command.
To exit shell use: exit/logout/quit
>

20. Resetting device to default settings.

In order to reset OSBRiDGE device to factory default settings you need to use OSReset software available for download at http://www.osbridge.com/software.php.

OSReset will locate any compatible OSBRiDGE device regardless of its IP address located on the same physical subnetwork with the computer it is running on.
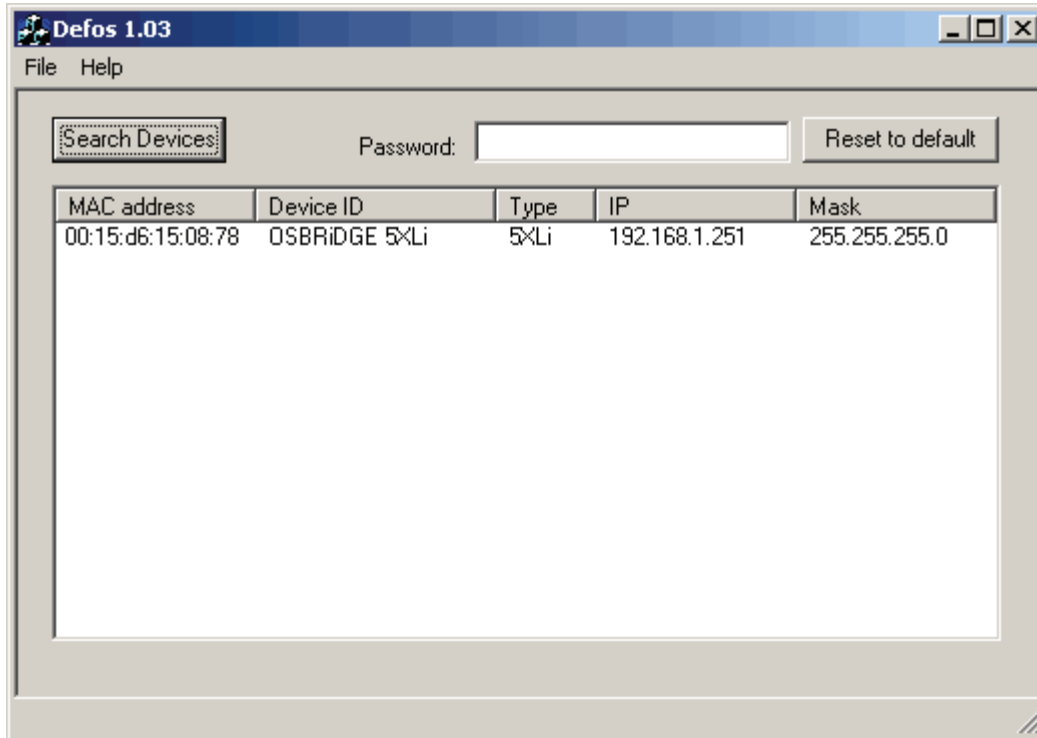

After selecting the device you want to reset enter "Reset to Default Password" in the Password: field and press button.

If you have changed Reset to Default Password to one you no longer remember then please email us at support@osbridge.com stating device type and MAC Address and we will provide you one time, generated password that will let you reset the device to factory default settings.

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