

VLAN Switching



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The following configuration can be performed in order to customize the VLAN-based switching operation of the unit:

- [VLAN Management](#)
- [VLAN Creation](#)
- [Examples](#)
 - [Both tagged and untagged traffic transmission](#)
 - [VLAN for management and traffic forwarding](#)
 - [Trunk and Trunk VLAN](#)
 - [Access and Trunk VLAN](#)

Switch default configuration works as transparent Layer 2 bridge. Therefore, by default any frames with any VLAN tags and untagged frames too will flow freely through wireless link.

VLAN Management

It is possible to add VLAN management configuration and to keep transparent Layer 2 bridging operational.

- Go to the "Network Access" → "Network Settings", add IP address and associate it with VLAN 100 (example), click the "Apply" button.

Network Settings

Network Settings

IP Address						Vlan	Vlan ID	DHCP
10	10	10	12	/	24	<input type="checkbox"/>		<input type="checkbox"/>
192	168	103	38	/	24	<input checked="" type="checkbox"/>	100	<input type="checkbox"/>

Figure - Adding a management IP address and associate it with VLAN 100



NOTE

Now, our unit has two management interfaces:

- 10.10.10.12 for untagged frame.
- 192.168.103.38 for VLAN 100.

Security considerations imply to remove management interface for untagged frames, leaving only management VLAN access operational. Such configuration do not allow to restrict any other VLAN transport except management VLAN. In order to allow switching of selected VLANs only, please proceed to the next chapters.

VLAN Creation

"Default VLAN" with "Untagged" mode for all ports is configured by default.

VLAN-based Switching

VLAN-based Switching Enable: ☐

Vlan	Priority	ge0	ge1	sfp	mgmt	radio	
Default VLAN	None ▾	Untagged ▾	Untagged ▾	Untagged ▾	Untagged ▾	Untagged ▾	

Add VLAN

Figure - Default switching configuration



NOTE

"Default VLAN" could not be deleted.

1. In the section "Switch" → "VLAN-based Switching" enable VLAN-based Switching. Now only traffic based on connectivity matrix and VLAN is allowed.
2. Click the "Add VLAN" button, "VLAN 2" is added by default.
3. Modify the value for the VLAN tag according to the actual requirements.
4. Select VLAN mode.
5. Set the priority for the selected VLAN.
6. In the section "Radio" → "Radio Setting" enable "Traffic Prioritization".



NOTE

VLAN modes and mapping between 802.1p priorities and 4 queues can be found in the section "[Switch](#)".

VLAN-based Switching

VLAN-based Switching Enable: ☒ 1

Vlan	Priority	ge0	ge1	sfp	mgmt	radio	
Default VLAN	None ▾	Untagged ▾	Untagged ▾	Untagged ▾	Untagged ▾	Untagged ▾	
2 3	3 5 ▾	Off ▾ Off Tagged Untagged Access 4	Off ▾	Off ▾	Off ▾	Off ▾	

Add VLAN 2

Figure - Adding and configuring a new VLAN



NOTE

In order to allow both tagged and untagged traffic to pass the "Untagged" mode should be configured on selected VLAN. There can be maximum one VID for each port in "Untagged" mode.



NOTE

Choosing the "Access" mode for a specific port will automatically disable all VLANs on that port.

Examples

Both tagged and untagged traffic transmission

- "ge0" allows to pass tagged traffic VLAN 100 and VLAN 200.
- "ge1" allows to pass traffic from untagged VLAN 100 and tagged VLAN 200.

VLAN-based Switching

VLAN-based Switching Enable: ☒

Vlan	Priority	ge0	ge1
Default VLAN	None	Off	Off
100	None	Tagged	Untagged
200	None	Tagged	Tagged

Figure - VLAN configuration example

VLAN for management and traffic forwarding

This document uses the following network setup:

- VLAN 100 is a management VLAN.
- VLAN 200 is a data VLAN.

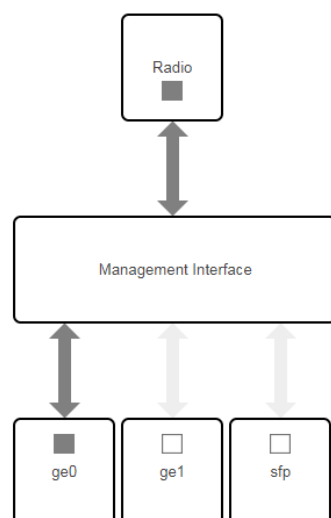
Configuration steps:

- [Connectivity Matrix configuration.](#)
- [Set up management.](#)
- [Set up traffic forwarding.](#)

Connectivity Matrix configuration

Connectivity Matrix

Management



Data Path

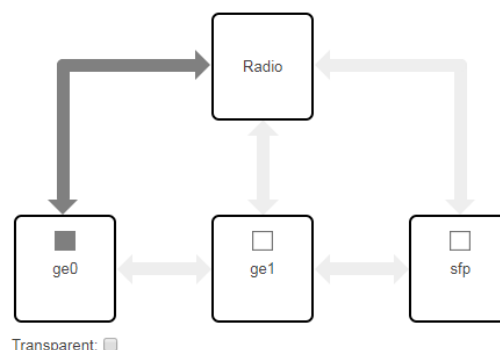


Figure - Connectivity matrix configuration

Set up management

- Go to the "Network Access" → "Network Settings", add IP address and associate it with VLAN 100, click the "Apply" button.

Network Settings

Network Settings

IP Address						Vlan	Vlan ID	DHCP
10	10	10	12	/	24	<input type="checkbox"/>		<input type="checkbox"/>
192	168	103	38	/	24	<input checked="" type="checkbox"/>	100	<input type="checkbox"/>

Figure - Adding a management IP address and associate it with VLAN 100



NOTE

Configured IP address could not be used for management if you begin by enabling the VLAN-based switching and remove the "Untagged" mode. The access to the unit is allowed using initial IP address, in this case 10.10.10.12.

- In the section "Switch" → "VLAN-based Switching" enable VLAN-based Switching.
- Add VLAN 100 and allow it to pass through ports "ge0", "mgmt" and "radio".
- Set "off" mode on all "Default VLAN" ports.

VLAN-based Switching

VLAN-based Switching Enable: ☒

Vlan	Priority	ge0	ge1	sfp	mgmt	radio
Default VLAN	None	Off	Off	Off	Off	Off
100	None	Tagged	Off	Off	Tagged	Tagged

Figure - Set up management

Set up traffic forwarding

- Add VLAN 200 and allow it to pass through ports "ge0" and "radio", click "Apply".

VLAN-based Switching

VLAN-based Switching Enable: ☒

Vlan	Priority	ge0	ge1	sfp	mgmt	radio
Default VLAN	None	Off	Off	Off	Off	Off
100	None	Tagged	Off	Off	Tagged	Tagged
200	None	Tagged	Off	Off	Off	Tagged

Figure - Set up traffic forwarding

At this point, the access to the unit is allowed using only VLAN 100 and the newly assigned IP address. Traffic tagged with VLAN 200 will be switched only between the "ge0" and the "radio" ports. Untagged traffic or tagged traffic with other VLANs besides 100 or 200 is not allowed.

Trunk and Trunk VLAN

Installation which requires VLAN tagged frames to flow in both directions through the unit wireless link, does not require any specific configuration. Just due to security reasons it is recommended to set up Management VLAN. All the rest configuration is not needed in most cases, except the issue to deny certain VLANs. Please, use the configuration steps from chapter [VLAN Management](#).

Access and Trunk VLAN

One unit receives VLAN tagged frames from switch trunk port (port configured to carry frames with different VLAN tags), another unit connects with end-customer LAN with requirement to egress untagged frames from certain VLAN only.

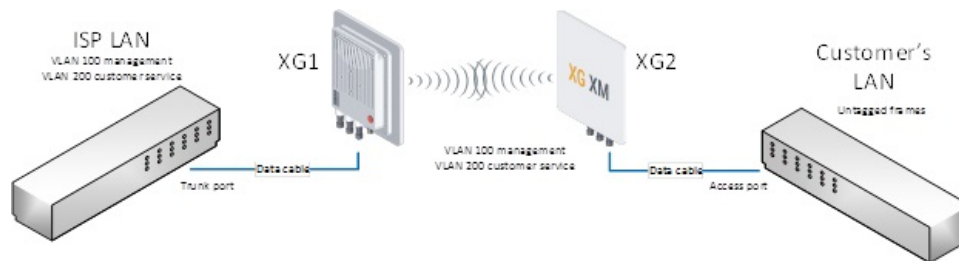


Figure – Trunk and Access VLAN example

- XG1 Configuration
- XG2 Configuration

XG1 Configuration

- Configure Connectivity Matrix
- Go to the "Network Access" → "Network Settings", add IP address and associate it with VLAN 100, click the "Apply" button.

Network Settings

Network Settings

IP Address	Vlan	Vlan ID	DHCP
10.10.10.12 / 24	<input type="checkbox"/>		<input type="checkbox"/>
192.168.103.38 / 24	<input checked="" type="checkbox"/>	100	<input type="checkbox"/>

Figure - Adding a management IP address and associate it with VLAN 100

- In the section "Switch" → "VLAN-based Switching" enable VLAN-based Switching.
- Add VLAN 100 with "Tagged" mode on the ports "ge0", "mgmt" and "radio".
- Add VLAN 200 with "Tagged" mode on the ports "ge0" and "radio".
- Set "off" mode on all "Default VLAN" ports.

VLAN-based Switching

VLAN-based Switching Enable: ☒

Vlan	Priority	ge0	ge1	sfp	mgmt	radio	
Default VLAN	None	Off	Off	Off	Off	Off	
100	None	Tagged	Off	Off	Tagged	Tagged	
200	None	Tagged	Off	Off	Off	Tagged	

Figure - VLAN Configuration

XG2 Configuration

- Configure Connectivity Matrix
- Go to the "Network Access" → "Network Settings", add IP address and associate it with VLAN 100, click "Apply".

Network Settings

Network Settings

IP Address

10

10

10

12

/

24

x

+

Vlan

☐

Vlan ID

DHCP

☐

192

168

103

38

/

24

x

+

☒

Vlan ID

100

DHCP

☐

Figure - Adding a management IP address and associate it with VLAN 100

- In the section "Switch" → "VLAN-based Switching" enable VLAN-based Switching.
- Add VLAN 100 with "Tagged" mode on the ports "mgmt" and "radio".
- Add VLAN 200 with "Access" mode on the port "ge0" and "Tagged" on "radio".
- Set "off" mode on all "Default VLAN" ports.

VLAN-based Switching

VLAN-based Switching Enable: ☒

Vlan	Priority	ge0	ge1	sfp	mgmt	radio	
Default VLAN	None	Off	Off	Off	Off	Off	
100	None	Off	Off	Off	Tagged	Tagged	
200	None	Access	Off	Off	Off	Tagged	

Figure - VLAN Configuration

At this point, the access to the unit is allowed using only VLAN 100 and the newly assigned IP address. Traffic tagged with VLAN 200 will be received by "radio" port and switched untagged to customer's LAN through "ge0" port.