How to Configure VLANs

https://campus.barracuda.com/doc/96025989/

A VLAN is a logical network that is run on a switch or on top of a physical network. A VLAN jointly uses the same physical interface that is used for the physical network.

Because both the sending and the receiving interface must be able to distinguish which traffic belongs to which kind of network, the transmitted traffic packets must be distinguishable. This is achieved by a tag – a label that is added to each packet of a session. Both communication partners must support this feature. You must use a properly configured 802.1q VLAN-capable switch and NICs that use drivers capable of tagging VLAN traffic.

The Barracuda CloudGen Firewall can use up to 256 VLANs on one physical network interface and a maximum of 4094 VLANs globally. The VLAN interfaces are named <physical interface>.<VLAN id> (e.g., eth2.200), where the VLAN id represents the tag.
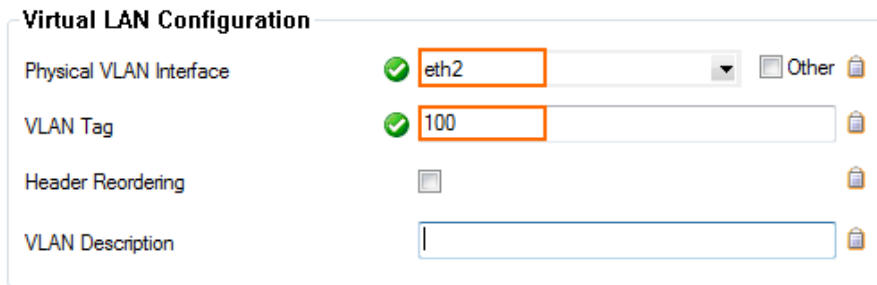
The firewall can serve both untagged and tagged VLANs simultaneously. Because untagged VLANs do not use the tagging information, an untagged VLAN is the same as a connection that uses its own physical interface. Therefore, if you want to use an untagged VLAN, assign a direct attached network to an interface of your choice. For more information, see How to Configure Directly Attached Routes.

To use tagged VLANs solely or simultaneously with an untagged VLAN, follow the steps below and use the same interface as for the untagged VLAN interface.

Configure the VLAN Interface

Step 1. Add a VLAN Interface

1. Go to **CONFIGURATION > Configuration Tree > Box > Network**.
2. In the left menu, select **Virtual LANs**.
3. Click **Lock**.
4. Add an entry in the **VLAN** table:
   - **Name** – Enter a name and click **OK**.
   - **Physical VLAN Interface** – Select the physical interface that will host the VLAN. E.g., **eth2**
   - **VLAN Tag** – Enter the VLAN tag that was configured on the switch port the physical interface is plugged into. E.g., 200
   - **Header Reordering** – This setting makes the virtual interface seem like a real Ethernet interface. Keep disabled for better performance. Enable if you are experiencing problems with network services, such as DHCP running in the VLAN.

5. Click **OK**.
6. Click **Send Changes** and **Activate**.

Step 2. Activate the Network Configuration

VLANs can be activated without interruption to the network subsystem. For more information, see
How to Activate Network Changes.

1. Go to **CONTROL > Box**.
2. In the left navigation pane, expand **Network** and then click **Activate new network configuration**.
3. Click **Activate now**.

To verify that the VLAN interface and its pending direct route were successfully introduced, go to
CONTROL > Network.

Configure IP Addresses

According to the concept of the 2-layer architecture (which was released with firmware 8.0.1) where
services are operated on top of the box layer, you now have aside from **Additional Local IPs**
another option for configuring IP addresses on the configured interface:

- Configure an **Additional Local IP**: Use this option if you want the IP address to be available
  even if the service layer is not available. However, consider that this is a drawback in high-
  availability configurations where IP addresses must be 'moveable' between the HA partners.
- Configure a **SharedIP**: Use this option if you have a preference for using flexible IP addresses,
  like for HA configurations.
  For more information on the concept of SharedIPs, see Understanding the Usage of Operational-
  Relevant IP Addresses on the CloudGen Firewall and How to Configure Shared Networks and IPs.

Option #1: Configure an Additional Local IP

For ARP requests to work on multi-homed VLAN interfaces, use additional local IPs instead of the
direct attached route and shared network for the VLAN interface.

1. Go to **CONFIGURATION > Configuration Tree > Box > Box > Network**.
2. Click **Lock**.
3. Click **+** to add the VLAN network and IP address as an **Additional Local IP**.
4. Enter a **Name** and click **OK**. The **IP Address Configuration** window opens.
    - **Interface Name** – Select the VLAN interface.
    - **IP Address** – Enter the IP address from the VLAN network.
    - **Associated Netmask** – Select the netmask of the VLAN network.
    - **Responds to Ping** – Set to **yes**.
    - **Management IP** – Set to **no**.
5. Click **OK**.
6. Click **Send Changes** and **Activate**.

The virtual network interfaces are now listed on the **CONTROL > Network** page.

Interface/IP	Label	Ping	MAC of duplicate IP
eth0. Speed=10000Mb/s. Duplex=Full			
10.0.81.100/24	mip0	ok	-
10.0.81.101/32	BO2VIRT1	ok	-
eth1. Speed=10000Mb/s. Duplex=Full			
213.47.0.13/24	net1	ok	-
eth2. Speed=10000Mb/s, Duplex=Full			
eth2.100. Speed=10000Mb/s. Duplex=Full			
10.0.82.1/32	BO2VIRT1	ok	-
eth2.200. Speed=10000Mb/s. Duplex=Full			
10.0.83.1/32	BO2VIRT1	ok	-

If you want to combine VLANs and bridging, see Bridging.

Option #2: Configure a Shared IP for the Virtual LAN

If you want to configure a shared IP address, follow the instructions in the article How to Configure Shared Networks and IPs.

This option assumes that you want to use the following data:

Configuration Parameter	Value
The VLAN tag of your configured VLAN interface	20
The interface of your VLAN	eth3
The effective name of your VLAN interface	eth3.20
The network address	10.0.20.0/24
A shared IP address in this network	10.0.20.1

The following screenshots show the related configurations:

- Virtual LAN: Go to **CONFIGURATION > Configuration Tree > Network > Virtual LANs**.

Virtual LANs

VLANs

Name	Physical VLAN Interface	VLAN Tag
VLAN01	eth3	20
VLAN02	eth3	30

- This configuration contains the following values in detail:

Virtual LAN Configuration

Physical VLAN Interface	eth3	Other
VLAN Tag	20
MTU	1500
Header Reordering	☑
VLAN Description	VLAN20

- The configuration for SharedIPs now bundles the VLAN configuration with IP addresses:

Shared Network and IPs

Interface	eth3.20	Other
Network Address	10.0.20.0/24

Shared IPs in this Network

IP Address	Alias for this IP	Responds to
10.0.20.1	None	yes

The virtual network interface is now listed on the **CONTROL > Network** page.

Figures

1. vlan01.png
2. vlan02.png
3. VLANs_vlan_configuration.png
4. VLANs_vlan_configuration_detail.png
5. VLANs_sharedIPs_configuration.png
6. VLANs_CONTROL_network_page.png