PORTrockIT
VLANs
Setup Guide
Eli-v6.2.20

1 Introduction

This document is intended to guide a user through the setup of Virtual LANs (*VLANs*) for use with Bridgeworks PORTrockIT technology. It covers the VLAN-specific configuration steps required on a PORTrockIT Node in order to set up a typical VLAN system.

1.1 VLANs Overview

VLANs are a way of logically segregating traffic on a network, such that each VLAN is isolated from one another despite being in the same network segment.

Rules can be created on network switches and routers, to handle traffic on different VLANs in different ways. Similarly, on a PORTrockIT device, acceleration services can be adjusted to take VLANs into consideration. This way, only traffic on certain VLANs will be accelerated.

2 Definitions

Tagged Traffic using the IEEE 802.1Q format will have an extra 32-bit field in the header to define VLAN information. This is referred to as a tagged packet since it contains VLAN information such as the VLAN ID.
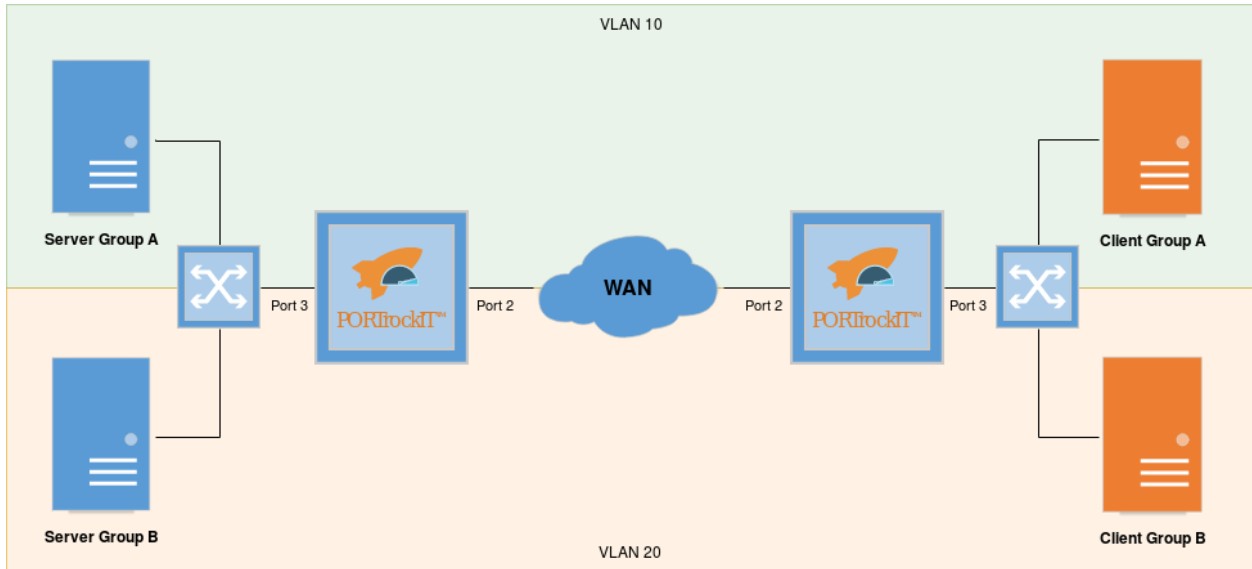
Untagged Untagged traffic specifically refers to traffic that has no VLAN information in the packet header.
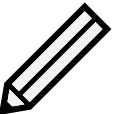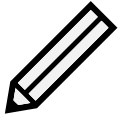
✎	Note: While technically different, PORTrockIT devices consider VLAN 0 to mean the same thing as an *untagged* packet.

3 Topology & Requirements

In order to demonstrate VLAN configuration and usage, this guide uses a simple example PORTrockIT topology:

This guide assumes that there is an active connection between the two PORTrockIT Nodes in each local area network (LAN), with Port 2 and Port 3 set up in *Bridged Physically-In-Path* topology.

> Note: VLANs will also work with any of the other regular topology setups.

For a more general Node setup information, see the appropriate guides/manuals for your platform and specific PORTrockIT product.

The VLANs must exist on both sides of your network topology, otherwise accelerated traffic will be lost when it is re-tagged. Additionally, the PORTrockIT Node can only handle a maximum of 64 unique VLANs across the system. This does not include configuring the same VLAN on multiple ports.

4 Procedure

This guide first covers adding VLANs to the server side of the topology and creating some service relationships. Afterwards the client side configuration will be covered.

4.1 Enabling VLANs

In order to get access to VLAN configurations, they must first be enabled. From the main page, navigate to the *Network Connections* then the *General Settings* page by clicking on the relevant icons.
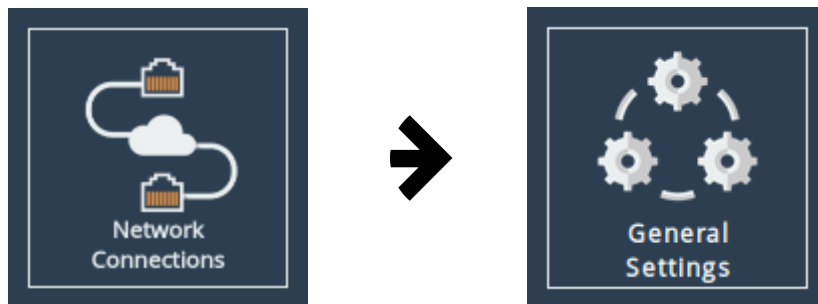
Check the *Enable VLANs* box and *Save* the changes. Since the 802.1Q module needs to be loaded, the system will require a reboot before these changes take effect.

4.2 Adding VLANs to an Interface

Once booted with VLANs enabled, various new configuration options will be available.

Before adding the VLANs, the correct interface to add them to must first be identified. For this guide, since it is assuming a *Bridged Physically-In-Path* setup, the VLANs will be assigned to the master interface of the bridge. If, however, a *Logical-In-Path* or other topology was in use, the VLANs may need to be added to the LAN interface, WAN interface, or both, in order for traffic to flow uninterrupted through the device.

Navigate to the configuration page for the required interface by clicking the *Network Connections* icon, followed by the relevant interface from the list (in this case Port 2).

There should now be an empty list at the bottom of the page for VLANs as shown.

Link Status

Link State:	Up	Link Speed:	10Gb/s
RX Bytes:	165265	TX Bytes:	115520
RX Errors:	0	TX Errors:	0

Settings

IPv4 Address: 192.168.3.2
MTU: 1500

Mapped Protocols

WAN

Port Settings

Enable Port: ☑
MTU Size: 1500
Enable Routing: ☑

○ Use DHCP to assign an IP address automatically
◉ Use the following IP address:

IP Address: 192.168.3.2
Netmask: 255.255.0.0
Gateway:

Interface VLANs

No VLANs configured

+ Add VLAN   Cancel   Save

Click on the *Add VLAN* button to begin adding a new VLAN to this interface. A dialog box should appear as follows.

Add New VLAN

VLAN ID   Enter a VLAN ID

Cancel   OK

Enter the ID for the VLAN that needs to be added; in this case, VLAN 10 will be used. Clicking the *Ok* button will close the dialog and add the VLAN to the list.
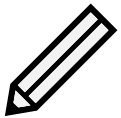
5

> **i** Important: Only VLANs in the range 1-4094 can be used, and no more than 64 unique VLANs can be used on the system at any one time.

The VLAN should now appear in the *Interface VLANs* list, marked with the status *Queued to be added*.
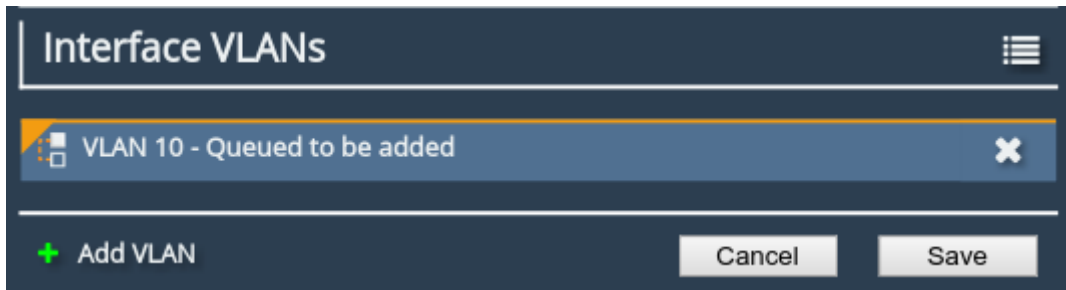
Click the *Save* button to confirm these changes and commit them to the system.

> ✎ Note: Clicking the *Cancel* button or navigating away from the page while VLANs are queued will not save them to the system.

When navigating back to the port page, the VLAN should now appear with no warnings.

4.3   Setting the VLAN IP

Navigate to the VLAN's interface page by clicking on the VLAN in the list. VLANs can be configured similarly to a standard network interface, however only limited options are available.

For more information about which configuration options are available please reference the PORTrockIT product manual.

Basic IP address information can be set for the new VLAN interface as shown below.

> **Important:** PORTrockIT accelerated protocol mappings for VLANs are inherited from their parent interface.

Clicking the *Save* button will commit these changes and return to the parent interface page.

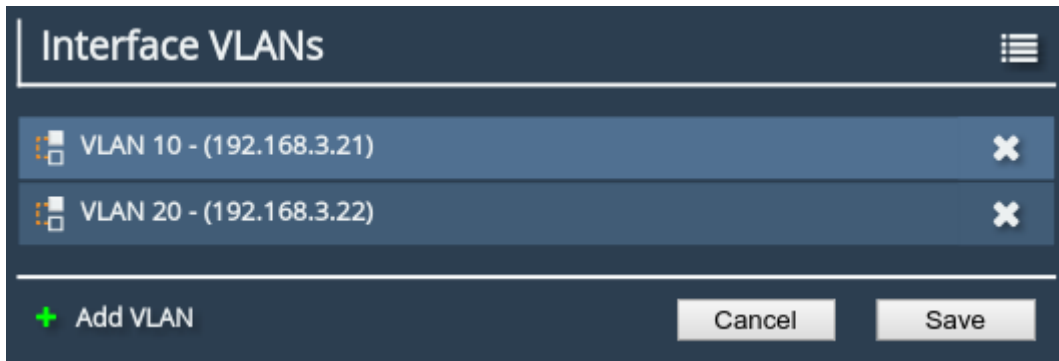The VLAN should now correctly display IP address information in the list summary.

As with other interfaces, a reboot will be required for any IP address changes to take effect.

This process can be repeated as many times as necessary to set up the VLANs required for the network topology in use.

For this example, VLAN 10 and VLAN 20 will be used as shown.

> **Important:** In the *Bridged Physically-In-Path* topology, VLANs can only be added to the bridge master. These VLANs will be duplicated to the slave interface and bridged in turn. This happens internally and does not need to be configured.

Once the VLANs are set up they can be used to add PORTrockIT services to the system.

4.4   Adding Services

A service defines a part of the local topology, including all information the PORTrockIT Node needs to connect to a target server.

For this guide, the NetApp SnapMirror protocol will be used to create services and demonstrate the use of VLANs.

To access service configurations, click on the *Service List* icon, under the PORTrockIT section on the home screen.
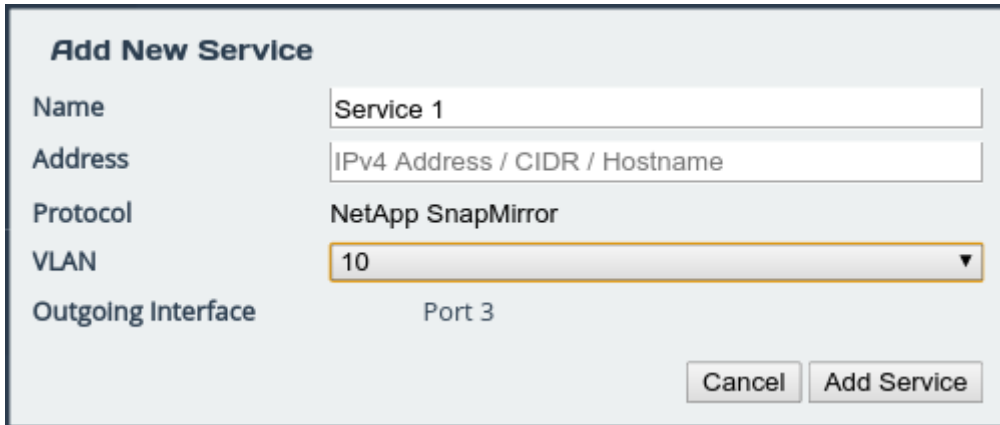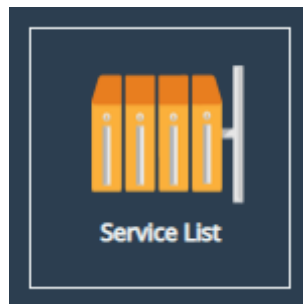

This is where services are displayed and configured.
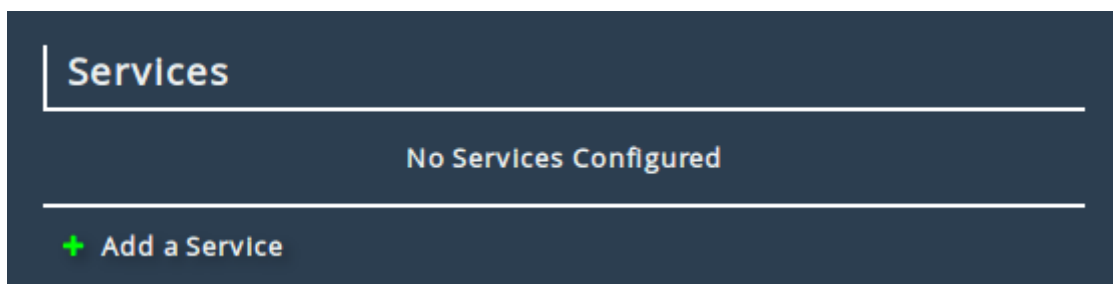
To add a service, click on the *Add a Service* button. This will show a dialog box where local server details can be added. The *Name* field can be changed to something more descriptive if desired.

Add the address of the local service into the *Address* field. Options for the address are IPv4, CIDR or a resolvable DNS address.


The VLANs dropdown field allows for a single VLAN to be chosen for each service. This way, even with the same address and interface data being used, accelerated traffic can be selected by VLAN.

The above dialog may look different depending on the settings on the *Port Mappings* page. More details on the available settings are in the Bridgeworks user manuals, please refer to the Useful Links section.

Clicking on the *Add Service* button finishes the creation of the service. The service will now be available to remote Nodes for creating a relationship.

For this guide two services will be created, one for each VLAN.
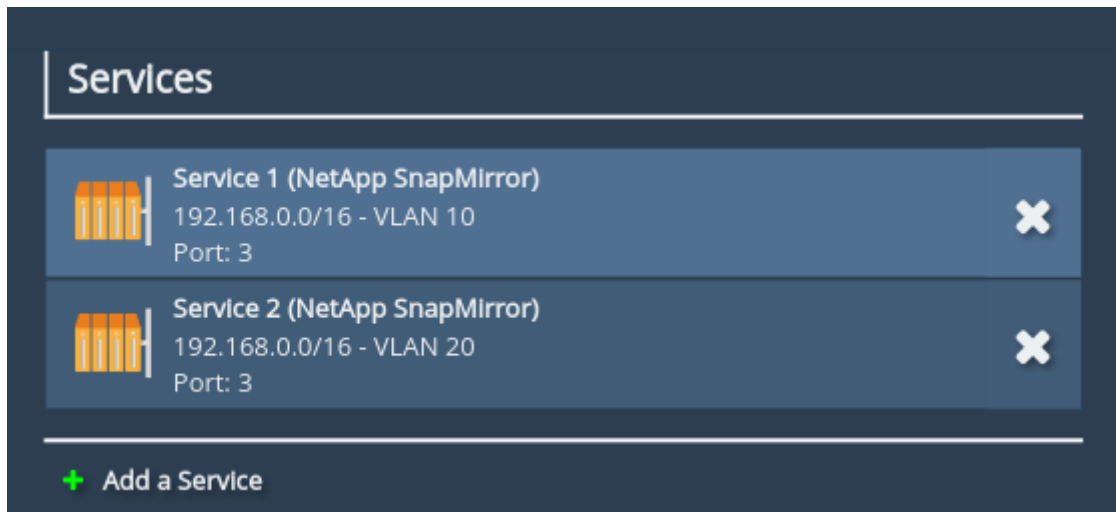
These can be used to control acceleration based on VLANs.

4.5   Establishing Relationships

Once a service has been created, it is ready to be associated with one or more remote Nodes. This association between a service and a remote Node is referred to as a relationship. Once the relationships have been created, the PORTrockITs will be ready to accelerate traffic.

To create the relationship, navigate to the *Node Management* page which is on the main page

under the *PORTrockIT* section. From the list of remote Nodes, click on the button for the Node you would like to make a relationship for. From the *Remote Node Management* page the *Relationships* icon can be found under *Applications & Utilities*.
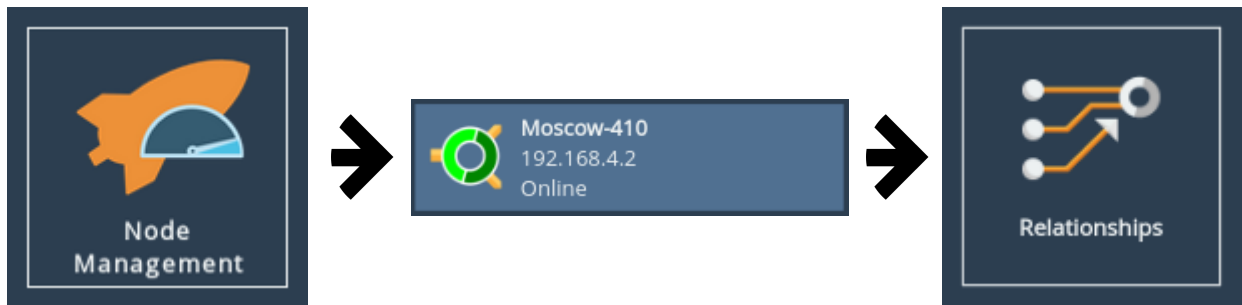
The *Relationships* page will display the service configured in the previous section. If the service is missing or incorrect click on the *Configure Services* button and follow the steps in Adding Services.
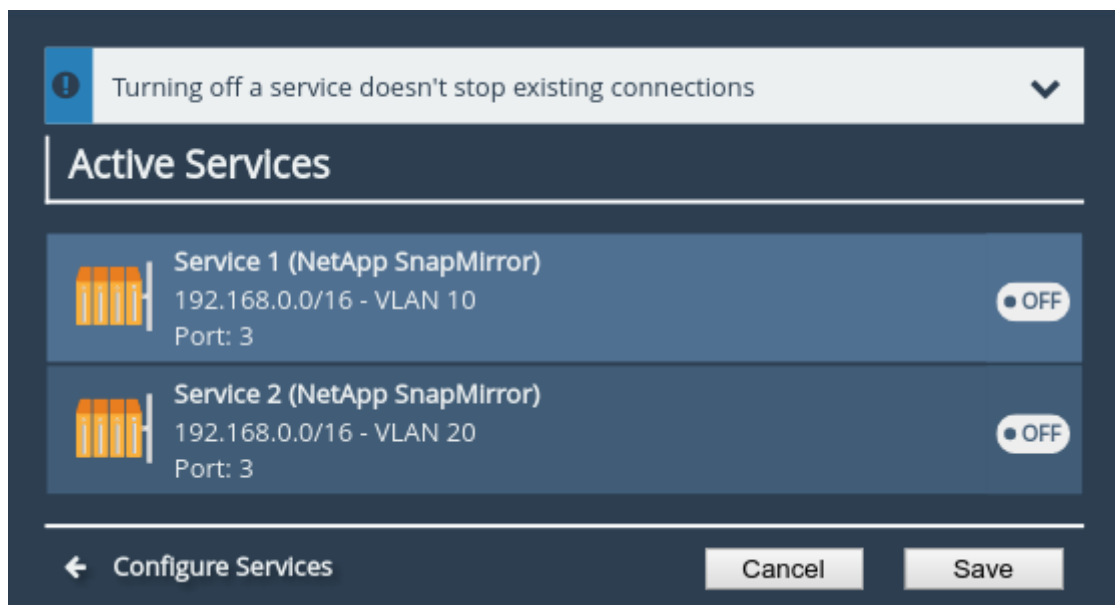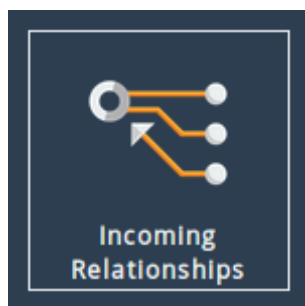

To create the relationship, toggle the switch next to the desired service to the "on" position and save the page.
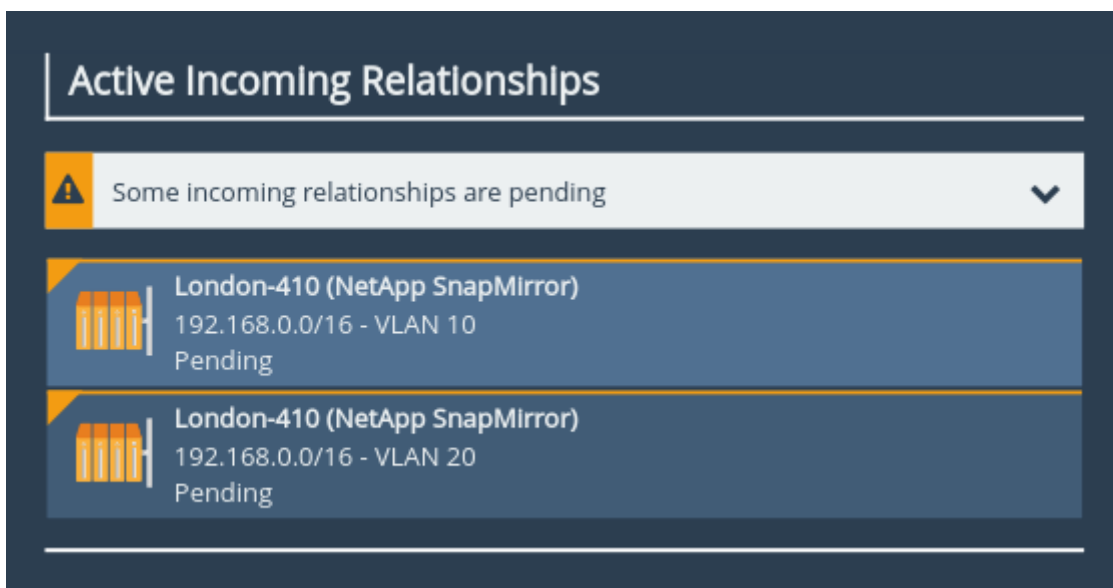
4.6   Incoming Relationships

This section of the guide will now cover setting up the client side of the topology. For reference please see Chapter 3: Topology & Requirements.

On the client side PORTrockIT Node, navigate to the *Incoming Relationships* page by clicking on the relevant icon in the PORTrockIT section of the main page.

Incoming
Relationships

The two previously configured relationships should be visible as shown.

Active Incoming Relationships

⚠ Some incoming relationships are pending ⌄

London-410 (NetApp SnapMirror)
192.168.0.0/16 - VLAN 10
Pending

London-410 (NetApp SnapMirror)
192.168.0.0/16 - VLAN 20
Pending

Notice that the relationships are flagged as pending. This occurs because the VLANs have not yet been set up on the client side PORTrockIT Node.

ⓘ Important: If the relationships do not show up, check that the link between the two Nodes is active, and that the relationships on the server Node were correctly switched on.

Repeat the steps from section 4.2 on the client Node to add VLAN 10 and VLAN 20 to the bridge interface on Port 2, then return to the *Incoming Relationships* page.

The relationships should no longer have any warnings displayed as shown.

The PORTrockIT Nodes are now ready to use. When traffic is passed through on individual VLANs, the different services can be seen in use.

5 Useful Links

The following section contains links to other guides and FAQs. Support is available through our website: `https://support.4bridgeworks.com/`

The following resources are available online:

- User Manuals

- Installation Guides

- General FAQ

- AWS FAQ

If your question is not answered in our documentation, please submit a ticket through our website.