DXS-3x00 HowTo Policy Based Routing (PBR)/ Source Based Routing (SPB)

[Requirements]

1. DXS-3x00 with latest firmware

ftp://ftp.dlink.de/dxs/dxs-3400-24sc/driver_software/

ftp://ftp.dlink.de/dxs/dxs-3400-24tc/driver_software/

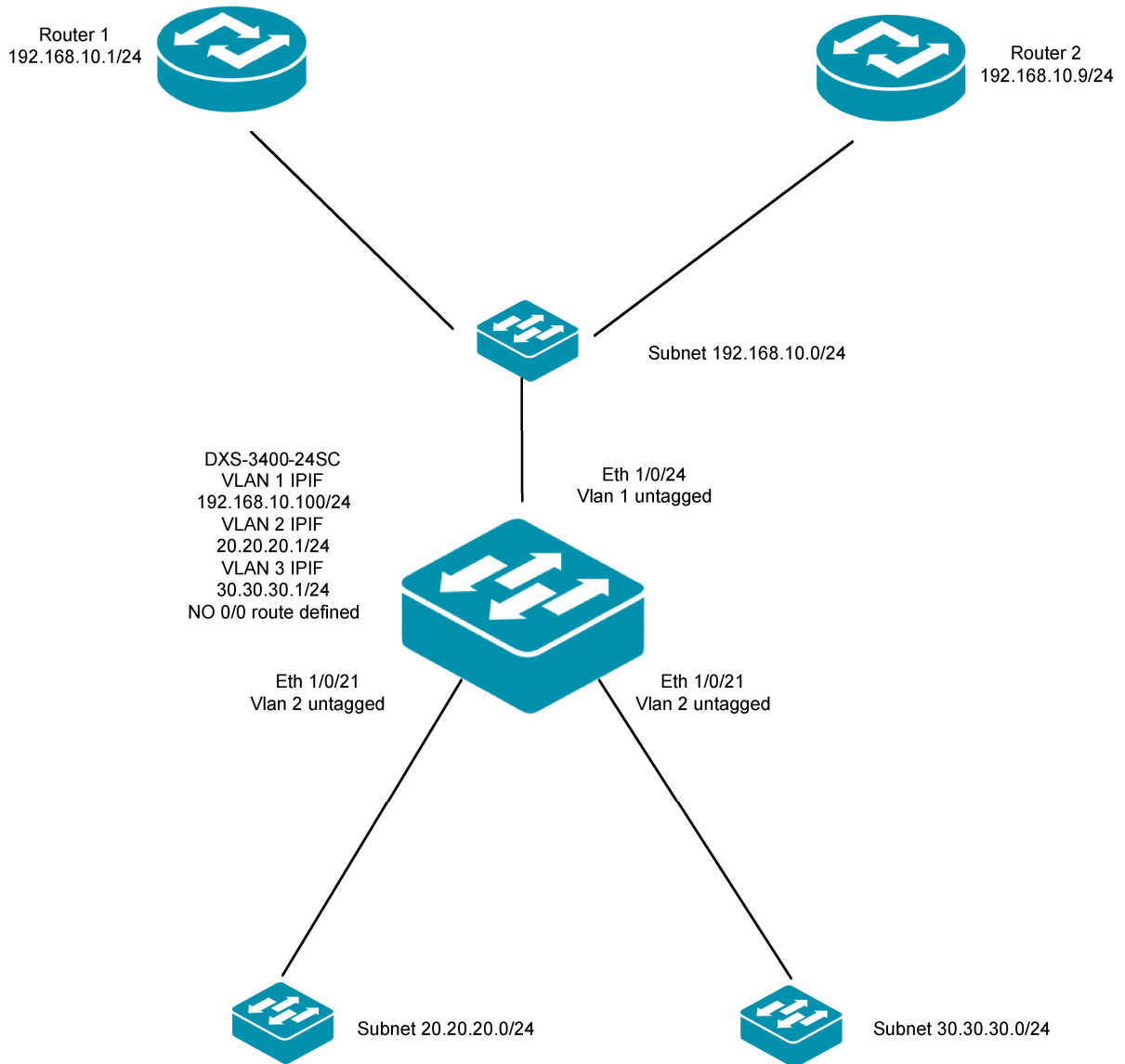ftp://ftp.dlink.de/dxs/dxs-3600-32s/driver_software/

[Scenario 1]

In this scenario the DXS-3400-24SC is the router for Subnet 20.20.20.0/24 and 30.30.30.0/24.

The Clients from Subnet 20.20.20.0/24 should only use Router 1 (192.168.10.1/24) as Internet-access / next Hop Router.

The Clients from Subnet 30.30.30.0/24 should only use Router 1 (192.168.10.9/24) as Internet-access / next Hop Router.

[Topology]

Router 1
192.168.10.1/24

Router 2
192.168.10.9/24

Subnet 192.168.10.0/24

DXS-3400-24SC
VLAN 1 IPIF
192.168.10.100/24
VLAN 2 IPIF
20.20.20.1/24
VLAN 3 IPIF
30.30.30.1/24
NO 0/0 route defined

Eth 1/0/24
Vlan 1 untagged

Eth 1/0/21
Vlan 2 untagged

Eth 1/0/21
Vlan 2 untagged

Subnet 20.20.20.0/24

Subnet 30.30.30.0/24

[setup]

1.) create 2 more VLANs (f.e. 2 & 3)

        configure terminal (no need for this command, if still in configure terminal level)
        vlan 2-3
        exit

2.) modify IP Interface for VLAN 1

        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan1
        ip address 192.168.10.100 255.255.255.0
        exit

3.) create IP Interface for VLAN 2 and VLAN 3

        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan2
        ip address 20.20.20.1 255.255.255.0
        exit
        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan3
        ip address 30.30.30.1 255.255.255.0
        exit

4.) add the VLAN 2 to Port 21 untagged and VLAN 3 to Port 22 untagged

        configure terminal (no need for this command, if still in configure terminal level)
        interface Ethernet 1/0/21
        switchport mode access
        switchport access vlan 2
        exit
        configure terminal (no need for this command, if still in configure terminal level)
        interface Ethernet 1/0/22
        switchport mode access
        switchport access vlan 3
        exit

5.) create ACL for Subnet VLAN 2 & VLAN 3 to grant from Subnet IP Adresses to ANY

        configure terminal (no need for this command, if still in configure terminal level)
        ip access-list vlan2
        permit 20.20.20.0 0.255.255.255 any
        exit
        configure terminal (no need for this command, if still in configure terminal level)
        ip access-list vlan3
        permit 30.30.30.0 0.255.255.255 any
        exit

6.) define a Route-Map

        configure terminal (no need for this command, if still in configure terminal level)
        route-map vlan2 permit 1
        set ip next-hop 192.168.10.1
        match ip address vlan2
        exit
        route-map vlan3 permit 1
        set ip next-hop 192.168.10.9
        match ip address vlan3
        exit

7.) add the PBR tot he IP Interface from Step 3

        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan2
        ip policy route-map vlan2
        exit
        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan3
        ip policy route-map vlan3
        exit

8.) exit configuration mode and save configuration
        exit
        copy running-config startup-config
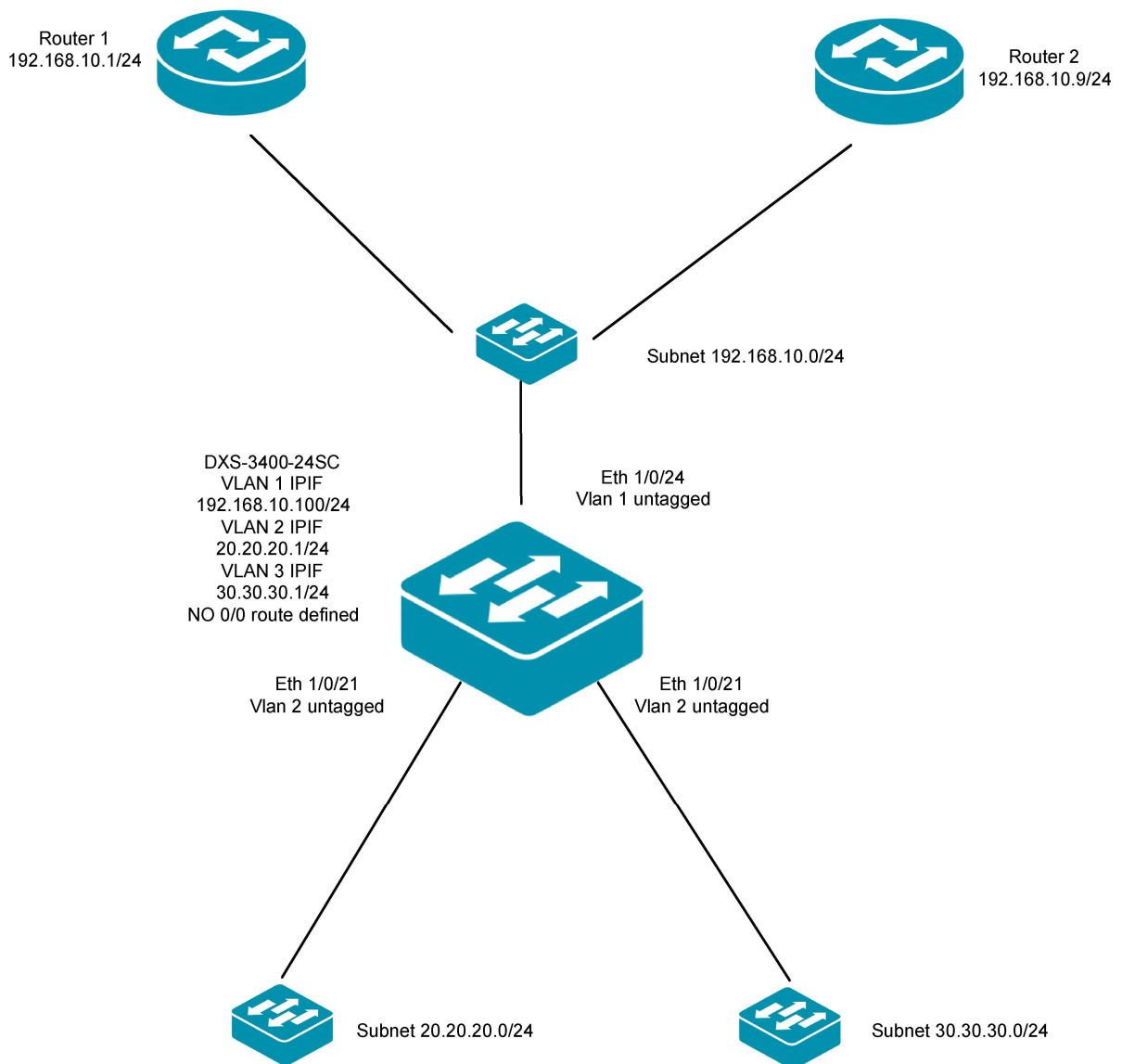
[Scenario 2]

In this scenario the DXS-3400-24SC is the router for Subnet 20.20.20.0/24 and 30.30.30.0/24.

The Clients from Subnet 20.20.20.0/24 should only use Router 1 (192.168.10.1/24) as Internet-access / next Hop Router.

The Clients from Subnet 30.30.30.0/24 should only use Router 1 (192.168.10.9/24) as Internet-access / next Hop Router.

VLAN 2 and VLAN 3 should also be able to communicate with each other.

[Topology]

Router 1
192.168.10.1/24

Router 2
192.168.10.9/24

Subnet 192.168.10.0/24

DXS-3400-24SC
VLAN 1 IPIF
192.168.10.100/24
VLAN 2 IPIF
20.20.20.1/24
VLAN 3 IPIF
30.30.30.1/24
NO 0/0 route defined

Eth 1/0/24
Vlan 1 untagged

Eth 1/0/21
Vlan 2 untagged

Eth 1/0/21
Vlan 2 untagged

Subnet 20.20.20.0/24

Subnet 30.30.30.0/24

[setup]

   1.) create 2 more VLANs (f.e. 2 & 3)

        configure terminal (no need for this command, if still in configure terminal level)
        vlan 2-3
        exit

   2.) modify IP Interface for VLAN 1

        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan1
        ip address 192.168.10.100 255.255.255.0
        exit

   3.) create IP Interface for VLAN 2 and VLAN 3

        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan2
        ip address 20.20.20.1 255.255.255.0
        exit
        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan3
        ip address 30.30.30.1 255.255.255.0
        exit

   4.) add the VLAN 2 to Port 21 untagged and VLAN 3 to Port 22 untagged

        configure terminal (no need for this command, if still in configure terminal level)
        interface Ethernet 1/0/21
        switchport mode access
        switchport access vlan 2
        exit
        configure terminal (no need for this command, if still in configure terminal level)
        interface Ethernet 1/0/22
        switchport mode access
        switchport access vlan 3
        exit

5.) create ACL for Subnet VLAN 2 & VLAN 3 to grant from Subnet IP Adresses to ANY

        configure terminal (no need for this command, if still in configure terminal level)
        ip access-list vlan2
        permit 20.20.20.0 0.255.255.255 any
        exit
        configure terminal (no need for this command, if still in configure terminal level)
        ip access-list vlan3
        permit 30.30.30.0 0.255.255.255 any
        exit
        ip access-list vlan2tovlan3 1997
        permit 20.20.20.0 0.255.255.255 30.30.30.0 0.255.255.255
        exit
        ip access-list vlan3tovlan2 1996
        permit 30.30.30.0 0.255.255.255 20.20.20.0 0.255.255.255
        exit

6.) define a Route-Map

        configure terminal (no need for this command, if still in configure terminal level)
        route-map vlan2 permit 1
        set ip next-hop 30.30.30.1
        match ip address vlan2tovlan3
        exit
        route-map vlan2 permit 2
        set ip next-hop 192.168.10.1
        match ip address vlan2
        exit
        route-map vlan3 permit 1
        set ip next-hop 20.20.20.1
        match ip address vlan3tovlan2
        exit
        route-map vlan3 permit 2
        set ip next-hop 192.168.10.11
        match ip address vlan3
        exit

7.) add the PBR tot he IP Interface from Step 3

        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan2
        ip policy route-map vlan2
        exit
        configure terminal (no need for this command, if still in configure terminal level)
        interface Vlan3
        ip policy route-map vlan3
        exit

8.) exit configuration mode and save configuration
        exit
        copy running-config startup-config