Student notes for

David Bombal's

Packet Tracer
Labs Course

David Bombal

THANK YOU!

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Remember: You will probably learn more by making notes like these and sharing them for the benefit of others.

All the best!

David Bombal

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Contents

Brief

These labs cover configuring inter-vlan routing with router on a stick using sub interfaces per vlan.

Router on a stick

- Router on a stick is used to configure inter-Vlan routing on a router using sub interfaces, from this many protocols can be configured e.g. HSRP .
- Practically it is better to enable communication with one device than needing multiple devices as shown.

Lab requirements

Configure Router on a stick as follows:

1. VLAN 1 = 10.1.1.0/24, VLAN 10 = 10.1.10.0/24, VLAN 20 = 10.1.20.0/24
2. Router = last IP address in subnet
3. Switch = 10.1.1.253/24 only
4. Configure VLANs on switch (PC1 in VLAN 10 and PC2 in VLAN 20)
5. Configure link between switch and router
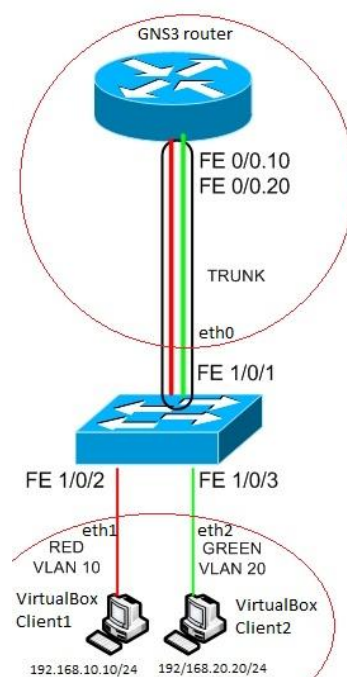6. Make sure PC1 can ping PC2 (PC1 = 10.1.10.1) PC2 = 10.1.20.2)
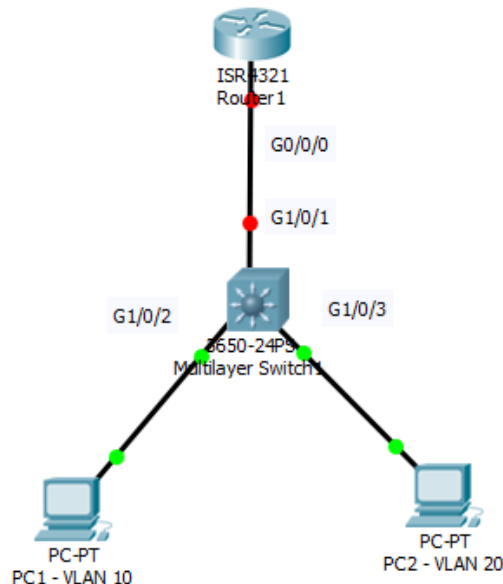
Figure 1 ref Remote-Lab.net

Lab Topology

Figure 2

Here we have a Router connected to a multi-layer switch the router is acting as a router on a stick.

Configurations and Verification

Figure 3

Figure 4

Here we can ping the default gateway for Vlan 10 10.1.10.254 and the PC2 on Vlan 20 confirming we have inter-Vlan routing enabled.

ROAS Configuration
R1 ! interface GigabitEthernet0/0/0.1 encapsulation dot1Q 1 native ip address 10.1.1.254 255.255.255.0 ! interface GigabitEthernet0/0/0.10 encapsulation dot1Q 10 ip address 10.1.10.254 255.255.255.0 ! interface GigabitEthernet0/0/0.20 encapsulation dot1Q 20 ip address 10.1.20.254 255.255.255.0 !
S1 ! ip default-gateway 10.1.1.254 //when using default route disable routing with no ip routing ! interface GigabitEthernet1/0/1 switchport trunk encapsulation dot1q switchport mode trunk ! interface GigabitEthernet1/0/2 switchport access vlan 10 switchport mode access switchportnonegotiate ! interface GigabitEthernet1/0/3 switchport access vlan 20 switchport mode access switchportnonegotiate !
Verification
R1#show ipint brief Interface IP-Address OK? Method Status Protocol GigabitEthernet0/0/0 unassigned YES unset up up GigabitEthernet0/0/0.1 10.1.1.254 YES manual up up GigabitEthernet0/0/0.1010.1.10.254 YES manual up up GigabitEthernet0/0/0.2010.1.20.254 YES manual up up !
S1#show interfaces gigabitEthernet 1/0/1 switchport Name: Gig1/0/1 Switchport: Enabled Administrative Mode: trunk Operational Mode: trunk Administrative Trunking Encapsulation: dot1q Operational Trunking Encapsulation: dot1q

Table 1

Note: Encapsulation dot1q is required before turning a trunk port into a trunk for some switches

Extra Examples and Resources

Cisco

https://www.cisco.com/c/en/us/support/docs/lan-switching/inter-vlan-routing/14976-50.html

Remote-Lab

https://remote-lab.net/router-on-a-stick-inter-vlan-routing