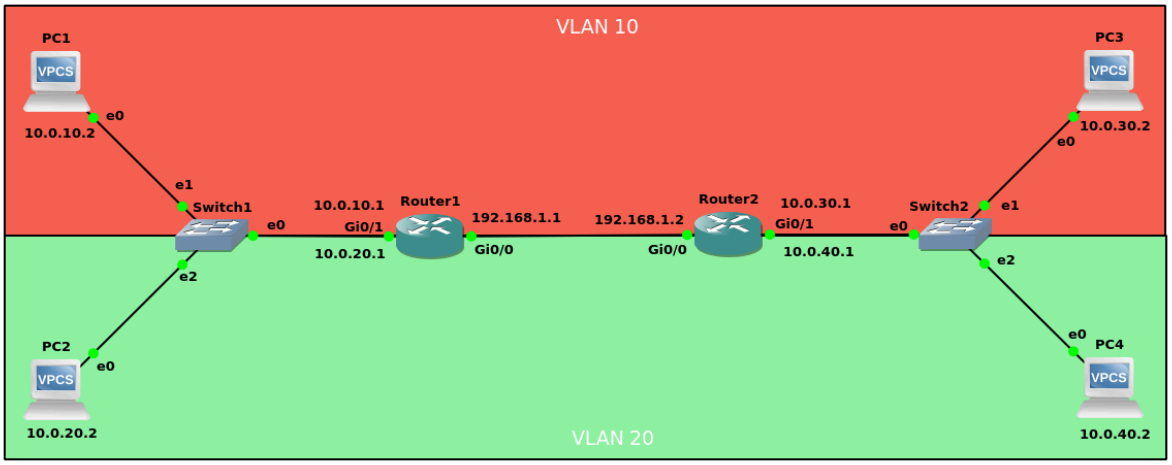
Documentazione

https://www.cisco.com/en/US/docs/ios/lanswitch/configuration/guide/lsw_cfg_vlan_encap.html#wp1003496

Topologia



Configurazione PC

 # PC1

ip 10.0.10.2 255.255.255.0 10.0.10.1

 # PC2

ip 10.0.20.2 255.255.255.0 10.0.20.1

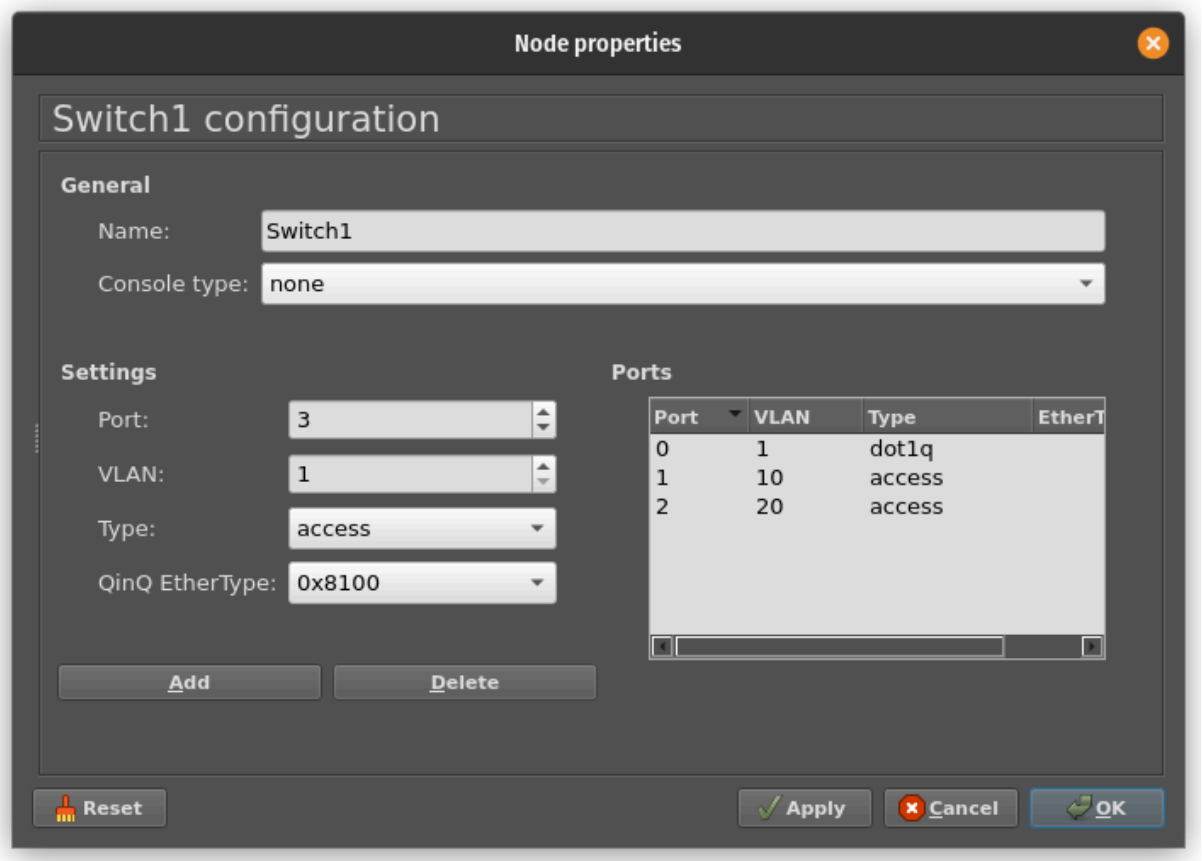
 # PC3

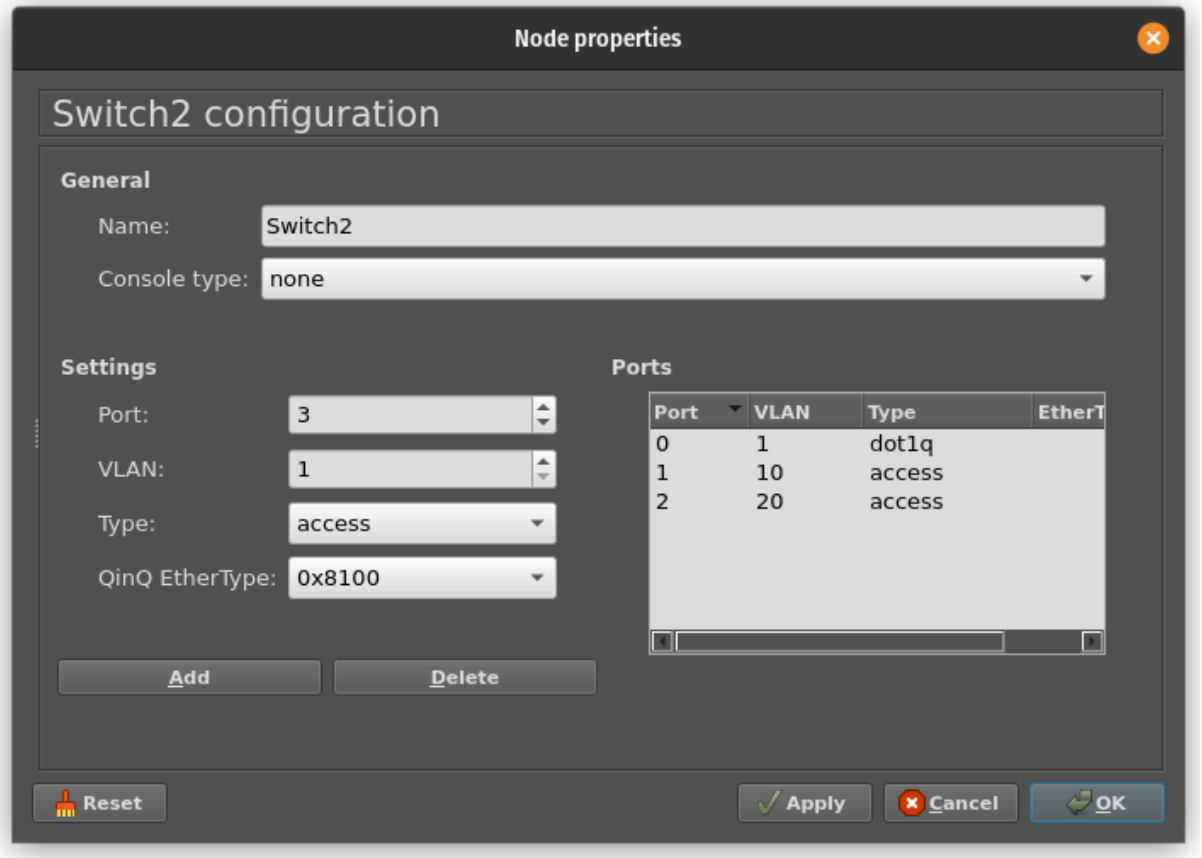
ip 10.0.30.2 255.255.255.0 10.0.30.1

 # PC4

ip 10.0.40.2 255.255.255.0 10.0.40.1

Configurazione Switch





Configurazione Router1

```
enable
configure terminal

# Configurazione interfaccia Gi0/0 tra Router1 e Router2
interface Gi0/0
ip address 192.168.1.1 255.255.255.252
no shutdown

# Configurazione  interfaccia Gi0/1 tra Router1 e Switch1
interface Gi0/1
no shutdown
exit

# Configurazione interfaccia Gi0/1 tramite sub-interfacce
# VLAN 10
interface Gi0/1.10
encapsulation dot1Q 10
ip address 10.0.10.1 255.255.255.0

# VLAN 20
interface Gi0/1.20
encapsulation dot1Q 20
ip address 10.0.20.1 255.255.255.0
exit

# Abilitazione ip routing e rotte statiche
ip routing
ip route 10.0.30.0 255.255.255.0 192.168.1.2
ip route 10.0.40.0 255.255.255.0 192.168.1.2

# Salvataggio configurazione
end
wr
```

Verifica configurazione Router1

```
# Verifica  configurazione interfacce
Router#show ip int br
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     192.168.1.1     YES NVRAM  up                    up
GigabitEthernet0/1     unassigned      YES NVRAM  up                    up
GigabitEthernet0/1.10  10.0.10.1       YES manual up                    up
GigabitEthernet0/1.20  10.0.20.1       YES manual up                    up

# Verifica tabelle di routing
Router#show ip route
```

```
      10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C        10.0.10.0/24 is directly connected, GigabitEthernet0/1.10
L        10.0.10.1/32 is directly connected, GigabitEthernet0/1.10
C        10.0.20.0/24 is directly connected, GigabitEthernet0/1.20
L        10.0.20.1/32 is directly connected, GigabitEthernet0/1.20
S        10.0.30.0/24 [1/0] via 192.168.1.2
S        10.0.40.0/24 [1/0] via 192.168.1.2
      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/30 is directly connected, GigabitEthernet0/0
L        192.168.1.1/32 is directly connected, GigabitEthernet0/0
```

```
# Verifica raggiungibilità PC1
(il primo pacchetto mancante dovuto da creazione tabelle ARP)
Router#ping 10.0.10.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.10.2, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/5/18 ms
```

```
# Verifica raggiungibilità PC2
(il primo pacchetto mancante dovuto da creazione tabelle ARP)
Router#ping 10.0.20.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.20.2, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 2/2/3 ms
```

Configurazione Router2

```
enable
configure terminal
```

```
# Configurazione interfaccia Gi0/0 tra Router1 e Router2
interface Gi0/0
ip address 192.168.1.2 255.255.255.252
no shutdown
```

```
# Configurazione  interfaccia Gi0/1 tra Router2 e Switch1
interface Gi0/1
no shutdown
exit
```

```
# Configurazione interfaccia Gi0/1 tramite sub-interfacce
# VLAN 10
interface Gi0/1.10
encapsulation dot1Q 10
ip address 10.0.30.1 255.255.255.0
```

```
# VLAN 20
interface Gi0/1.20
encapsulation dot1Q 20
ip address 10.0.40.1 255.255.255.0
exit


# Abilitazione ip routing e rotte statiche
ip routing
ip route 10.0.10.0 255.255.255.0 192.168.1.1
ip route 10.0.20.0 255.255.255.0 192.168.1.1


# Salvataggio configurazione
end
wr
```

Verifica configurazione Router2

```
# Verifica  configurazione interfacce
Router#show ip int br
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     192.168.1.2     YES manual up                    up
GigabitEthernet0/1     unassigned      YES unset  up                    up
GigabitEthernet0/1.10  10.0.30.1       YES manual up                    up
GigabitEthernet0/1.20  10.0.40.1       YES manual up                    up

# Verifica tabelle di routing
Router#show ip route
      10.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
S        10.0.10.0/24 [1/0] via 192.168.1.1
S        10.0.20.0/24 [1/0] via 192.168.1.1
C        10.0.30.0/24 is directly connected, GigabitEthernet0/1.10
L        10.0.30.1/32 is directly connected, GigabitEthernet0/1.10
C        10.0.40.0/24 is directly connected, GigabitEthernet0/1.20
L        10.0.40.1/32 is directly connected, GigabitEthernet0/1.20
      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/30 is directly connected, GigabitEthernet0/0
L        192.168.1.2/32 is directly connected, GigabitEthernet0/0

# Verifica raggiungibilità PC3
(il primo pacchetto mancante dovuto da creazione tabelle ARP)
Router#ping 10.0.30.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.30.2, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/5/18 ms
```

 # Verifica raggiungibilità Router1
(il primo pacchetto mancante dovuto da creazione tabelle ARP)
Router#ping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 2/6/18 ms

Verifica comunicazione Inter-VLAN

 # Da PC1 a PC3
ping 10.0.30.2

84 bytes from 10.0.30.2 icmp_seq=1 ttl=62 time=2.425 ms
84 bytes from 10.0.30.2 icmp_seq=2 ttl=62 time=2.339 ms
84 bytes from 10.0.30.2 icmp_seq=3 ttl=62 time=1.456 ms
84 bytes from 10.0.30.2 icmp_seq=4 ttl=62 time=1.476 ms
84 bytes from 10.0.30.2 icmp_seq=5 ttl=62 time=1.713 ms

 # Da PC4 a PC2
ping 10.0.20.2

84 bytes from 10.0.20.2 icmp_seq=1 ttl=62 time=3.654 ms
84 bytes from 10.0.20.2 icmp_seq=2 ttl=62 time=1.313 ms
84 bytes from 10.0.20.2 icmp_seq=3 ttl=62 time=1.375 ms
84 bytes from 10.0.20.2 icmp_seq=4 ttl=62 time=1.296 ms
84 bytes from 10.0.20.2 icmp_seq=5 ttl=62 time=1.572 ms