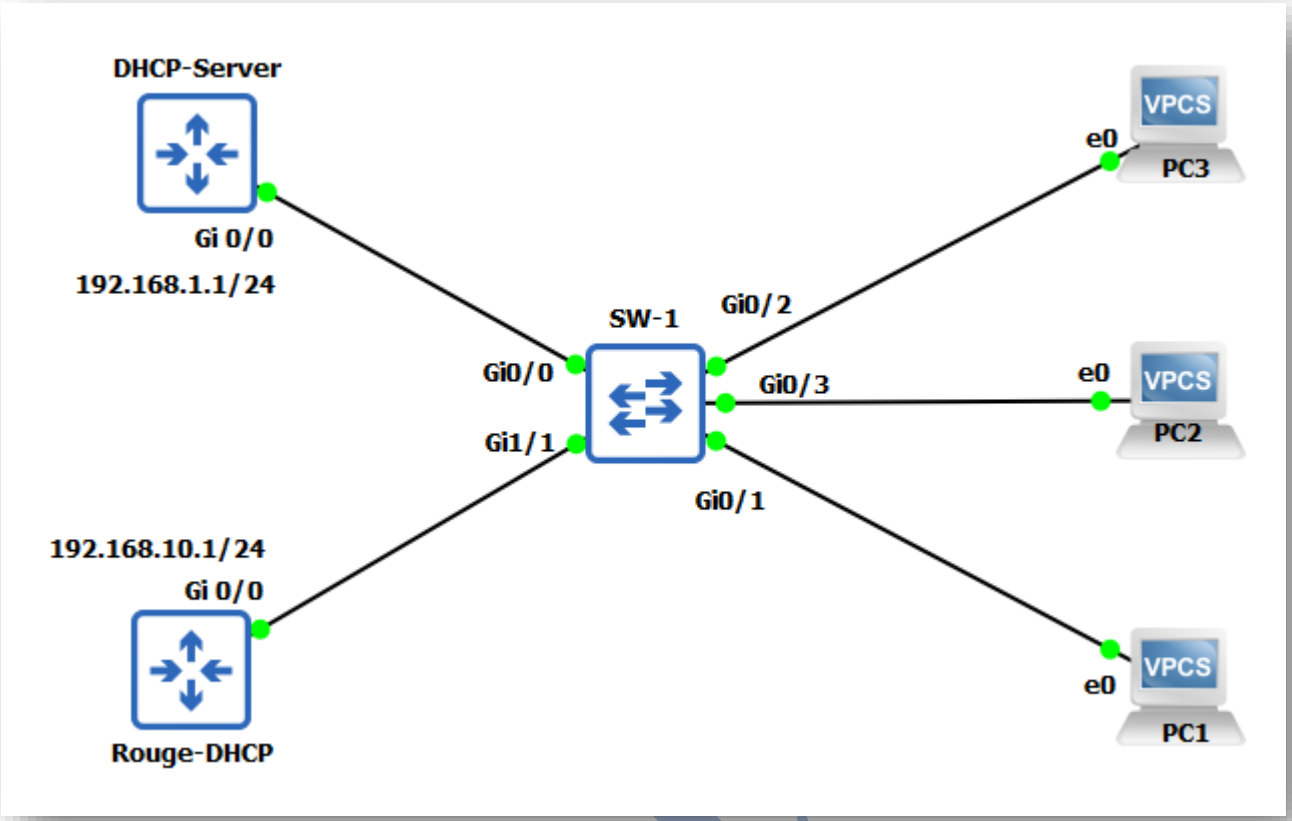
DHCP Snooping



Task

1. Configure DHCP-Server with IP address and IP pool of 192.168.1.0/24 excluding initial 10 IP addresses.
2. Configure Rouge-DHCP with IP address and IP pool of 192.168.10.0/24 excluding initial 10 IP addresses.
3. Create VLAN 10 on SW-1and assign all connected ports in VLAN 10.
4. Assign IP address to all hosts via DHCP. Observe the allocated IP addresses by DHCP servers.
5. Configure DHCP snooping on SW-1 and disable DHCP Option 82
6. Release the Host IP address and reassign IP address via DHCP.

Task-1: Configure DHCP-Server with IP address and IP pool of 192.168.1.0/24 excluding initial 10 IP addresses.

DHCP-Server Configuration:

```
Router#config t
Router(config)#hostname DHCP-Server
DHCP-Server(config)#no ip domain-lookup
DHCP-Server(config)#int Gi0/0
DHCP-Server(config-if)#ip address 192.168.1.1 255.255.255.0
DHCP-Server(config-if)#no shut
```

```
DHCP-Server(config-if)#exit
DHCP-Server(config)#ip dhcp pool Trusted-LAN
DHCP-Server(dhcp-config)#network 192.168.1.0 255.255.255.0
DHCP-Server(dhcp-config)#default-router 192.168.1.1
DHCP-Server(dhcp-config)#dns-server 8.8.8.8
DHCP-Server(dhcp-config)#domain-name rsatechforum.in
DHCP-Server(dhcp-config)#lease 1 0 0
DHCP-Server(dhcp-config)#exit
DHCP-Server(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.10
DHCP-Server(config)#exit
DHCP-Server#
```

- ✓ **Verification & Testing:**

DHCP-Server#sh ip int brief | exclude unassigned

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	192.168.1.1	YES	manual	up	up

DHCP-Server#sh ip dhcp pool

```
Pool Trusted-LAN :
 Utilization mark (high/low)       : 100 / 0
 Subnet size (first/next)          : 0 / 0
 Total addresses                   : 254
 Leased addresses                  : 0
 Pending event                     : none
 1 subnet is currently in the pool :
 Current index          IP address range                  Leased addresses
 192.168.1.1      192.168.1.1    - 192.168.1.254         0
```

Task-2: Configure Rouge-DHCP with IP address and IP pool of 192.168.10.0/24 excluding initial 10 IP addresses

Rouge-DHCP Configuration:

```
Router#config t
Router(config)#hostname Rouge-DHCP
Rouge-DHCP(config)#no ip domain-lookup
Rouge-DHCP(config)#int Gi0/0
Rouge-DHCP(config-if)#ip address 192.168.10.1 255.255.255.0
Rouge-DHCP(config-if)#no shut
Rouge-DHCP(config-if)#exit
Rouge-DHCP(config)#ip dhcp pool Untrusted-LAN
Rouge-DHCP(dhcp-config)#network 192.168.10.0 255.255.255.0
Rouge-DHCP(dhcp-config)#default-router 192.168.10.1
Rouge-DHCP(dhcp-config)#dns-server 8.8.8.8
Rouge-DHCP(dhcp-config)#domain-name rsatechforum.in
Rouge-DHCP(dhcp-config)#lease 1 0 0
Rouge-DHCP(dhcp-config)#exit
Rouge-DHCP(config)#ip dhcp excluded-address 192.168.10.1 192.168.10.10
Rouge-DHCP(config)#exit
```

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Rouge-DHCP#

✓ Verification & Testing:

Rouge-DHCP#sh ip int brief | exclude unassigned

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	192.168.10.1	YES	manual	up	up

Rouge-DHCP#sh ip dhcp pool

Pool Untrusted-LAN :
 Utilization mark (high/low) : 100 / 0
 Subnet size (first/next) : 0 / 0
 Total addresses : 254
 Leased addresses : 0
 Pending event : none
 1 subnet is currently in the pool :

Current index	IP address range		Leased addresses
192.168.10.1	192.168.10.1	- 192.168.10.254	0

Task-3: Create VLAN 10 on SW-1and assign all connected ports in VLAN 10.

```
Switch>enable
Switch#config t
Switch(config)#hostname SW-1
SW-1(config)#vlan 10
SW-1(config-vlan)#name End-User
SW-1(config-vlan)#exit
SW-1(config)#interface range Gi0/0 - 3, Gi1/1
SW-1(config-if-range)#switchport mode access
SW-1(config-if-range)#switchport access vlan 10
SW-1(config-if-range)#exit
SW-1(config)#exit
SW-1#
```

✓ Verification & Testing:

SW-1#sh vlan brief

VLAN	Name	Status	Ports
1	default	active	Gi1/0, Gi1/2, Gi1/3, Gi2/0 Gi2/1, Gi2/2, Gi2/3, Gi3/0 Gi3/1, Gi3/2, Gi3/3
10	End-User	active	Gi0/0, Gi0/1, Gi0/2, Gi0/3 Gi1/1
1002	fddi-default	act/unsup	
1003	token-ring-default	act/unsup	
1004	fddinet-default	act/unsup	
1005	trnet-default	act/unsup	

SW-1#

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SW-1#sh int status | exclude notconnect

Port	Name	Status	Vlan	Duplex	Speed	Type
Gi0/0		connected	10	a-full	auto	RJ45
Gi0/1		connected	10	a-full	auto	RJ45
Gi0/2		connected	10	a-full	auto	RJ45
Gi0/3		connected	10	a-full	auto	RJ45
Gi1/1		connected	10	a-full	auto	RJ45

Task-4: Assign IP address to all hosts via DHCP.

PC1> ip dhcp
DDORA IP 192.168.10.11/24 GW 192.168.10.1

PC1> sh ip
NAME : PC1[1]
IP/MASK : 192.168.10.11/24
GATEWAY : 192.168.10.1
DNS : 8.8.8.8
DHCP SERVER : 192.168.10.1
DHCP LEASE : 86357, 86400/43200/75600
DOMAIN NAME : rsatechforum.com
MAC : 00:50:79:66:68:00
LPORT : 10005
RHOST:PORT : 127.0.0.1:10006
MTU: : 1500

PC2> ip dhcp
DDORA IP 192.168.10.12/24 GW 192.168.10.1

PC2> sh ip
NAME : PC2[1]
IP/MASK : 192.168.10.12/24
GATEWAY : 192.168.10.1
DNS : 8.8.8.8
DHCP SERVER : 192.168.10.1
DHCP LEASE : 86368, 86400/43200/75600
DOMAIN NAME : rsatechforum.com
MAC : 00:50:79:66:68:01
LPORT : 10007
RHOST:PORT : 127.0.0.1:10008
MTU: : 1500

PC3> ip dhcp
DDORA IP 192.168.1.13/24 GW 192.168.1.1

PC3> sh ip
NAME : PC3[1]
IP/MASK : 192.168.1.13/24
GATEWAY : 192.168.1.1
DNS : 8.8.8.8

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DHCP SERVER : 192.168.1.1
DHCP LEASE : 86384, 86400/43200/75600
DOMAIN NAME : rsatechforum.in
MAC : 00:50:79:66:68:02
LPORT : 10003
RHOST:PORT : 127.0.0.1:10004
MTU: : 1500

Task-5: Configure DHCP snooping on SW-1 and disable DHCP Option 82

A **Trusted Port**, also known as a **Trusted Source or Trusted Interface**, is a port or source whose DHCP server messages are trusted because it is under the organization's administrative control. For example, the port to which your organization's DHCP server connects to is considered a **Trusted Port**

An **Untrusted Port**, also known as an **Untrusted Source** or **Untrusted Interface**, is a port from which DHCP server messages are **not trusted**. An example on an **untrusted port** is one where hosts or PCs connect to from which **DHCP OFFER, DHCP ACK** or **DHCPNAK messages** should **never be seen** as these are sent only by DHCP Servers.

```
SW-1#config t
SW-1(config)#ip dhcp snooping
SW-1(config)#ip dhcp snooping vlan 10
SW-1(config)#no ip dhcp snooping information option
SW-1(config)#int Gi0/0
SW-1(config-if)#ip dhcp snooping trust
SW-1(config-if)#exit
SW-1(config)#exit
SW-1#
```

✓ Verification & Testing:

SW-1#sh ip dhcp snooping
Switch DHCP snooping is enabled
Switch DHCP gleaning is disabled
DHCP snooping is configured on following VLANs: 10
DHCP snooping is operational on following VLANs: 10
DHCP snooping is configured on the following L3 Interfaces:

Insertion of option 82 is disabled
circuit-id default format: vlan-mod-port
remote-id: 0c9a.afd5.0b00 (MAC)
Option 82 on untrusted port is not allowed
Verification of hwaddr field is enabled
Verification of giaddr field is enabled
DHCP snooping trust/rate is configured on the following Interfaces:

Interface	Trusted	Allow option	Rate limit (pps)
GigabitEthernet0/0	yes	yes	unlimited

Custom circuit-ids:
SW-1#

Task-6: Release the Host IP address and reassign IP address via DHCP.

PC1> ip dhcp -x

PC1> ip dhcp
DDORA IP 192.168.1.14/24 GW 192.168.1.1

PC1> sh ip
NAME : PC1[1]
IP/MASK : 192.168.1.14/24
GATEWAY : 192.168.1.1
DNS : 8.8.8.8
DHCP SERVER : 192.168.1.1
DHCP LEASE : 86391, 86400/43200/75600
DOMAIN NAME : rsatechforum.in
MAC : 00:50:79:66:68:00
LPORT : 10005
RHOST:PORT : 127.0.0.1:10006
MTU: : 1500

PC2> ip dhcp -x

PC2> ip dhcp
DDORA IP 192.168.1.15/24 GW 192.168.1.1

PC2> sh ip
NAME : PC2[1]
IP/MASK : 192.168.1.15/24
GATEWAY : 192.168.1.1
DNS : 8.8.8.8
DHCP SERVER : 192.168.1.1
DHCP LEASE : 86393, 86400/43200/75600
DOMAIN NAME : rsatechforum.in
MAC : 00:50:79:66:68:01
LPORT : 10007
RHOST:PORT : 127.0.0.1:10008
MTU: : 1500

PC3> ip dhcp -x

PC3> ip dhcp
DDORA IP 192.168.1.16/24 GW 192.168.1.1

PC3> sh ip
NAME : PC3[1]
IP/MASK : 192.168.1.16/24
GATEWAY : 192.168.1.1
DNS : 8.8.8.8
DHCP SERVER : 192.168.1.1
DHCP LEASE : 86397, 86400/43200/75600
DOMAIN NAME : rsatechforum.in

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MAC : 00:50:79:66:68:02
LPORT : 10003
RHOST:PORT : 127.0.0.1:10004
MTU: : 1500

✓ Verification & Testing:

SW-1#sh ip dhcp snooping binding

MacAddress	IpAddress	Lease(sec)	Type	VLAN	Interface
00:50:79:66:68:01	192.168.1.15	86341	dhcp-snooping	10	GigabitEthernet0/3
00:50:79:66:68:02	192.168.1.16	86377	dhcp-snooping	10	GigabitEthernet0/2
00:50:79:66:68:00	192.168.1.14	86288	dhcp-snooping	10	GigabitEthernet0/1

Total number of bindings: 3

SW-1#sh ip dhcp snooping statistics

Packets Forwarded = 6
Packets Dropped = 12
Packets Dropped From untrusted ports = 12
SW-1#

DHCP-Server#sh ip dhcp pool

Pool Trusted-LAN :
Utilization mark (high/low) : 100 / 0
Subnet size (first/next) : 0 / 0
Total addresses : 254
Leased addresses : 3
Pending event : none
1 subnet is currently in the pool :

Current index	IP address range		Leased addresses
192.168.1.17	192.168.1.1	- 192.168.1.254	3

Rouge-DHCP#sh ip dhcp pool

Pool Untrusted-LAN :
Utilization mark (high/low) : 100 / 0
Subnet size (first/next) : 0 / 0
Total addresses : 254
Leased addresses : 2
Pending event : none
1 subnet is currently in the pool :

Current index	IP address range		Leased addresses
192.168.10.14	192.168.10.1	- 192.168.10.254	2

PC1> ping 192.168.1.15

84 bytes from 192.168.1.15 icmp_seq=1 ttl=64 time=3.257 ms
84 bytes from 192.168.1.15 icmp_seq=2 ttl=64 time=4.279 ms
84 bytes from 192.168.1.15 icmp_seq=3 ttl=64 time=3.851 ms
84 bytes from 192.168.1.15 icmp_seq=4 ttl=64 time=4.324 ms
84 bytes from 192.168.1.15 icmp_seq=5 ttl=64 time=3.217 ms

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PC1> ping 192.168.1.16
84 bytes from 192.168.1.16 icmp_seq=1 ttl=64 time=3.567 ms
84 bytes from 192.168.1.16 icmp_seq=2 ttl=64 time=4.106 ms
84 bytes from 192.168.1.16 icmp_seq=3 ttl=64 time=3.234 ms
84 bytes from 192.168.1.16 icmp_seq=4 ttl=64 time=3.510 ms
84 bytes from 192.168.1.16 icmp_seq=5 ttl=64 time=4.123 ms

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Important Commands:

sh ip int brief | exclude unassigned
sh ip dhcp pool
sh vlan brief
sh int status | exclude notconnect
sh ip dhcp snooping
sh ip dhcp snooping binding
sh ip dhcp snooping statistics
sh ip dhcp pool

For more labs, join  **group**

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