



## DHCP Troubleshooting Issues:

- Verify that DHCP is enabled on the DHCP server.
- Verify that the DHCP server is configured with the correct scope.
- Verify that the DHCP server is reachable from the client.
- Verify that the client is configured to obtain an IP address from DHCP.
- Verify that the client is not configured with a static IP address.
- Verify that the client is not in the DHCP blacklist.
- Verify that the DHCP server is not overloaded.
- Verify that the DHCP server is not experiencing any errors.
- Router is configured to act Relay agent if DHCP client & server are on different subnets.
- **Once Dynamic Host Configuration Protocol, pool is out of Internet Protocol addresses.** Once the DHCP IP pool becomes depleted, **new DHCP IP request requests are rejected.**
- The DHCP Misconfiguration, the configuration of a DHCP server might be incorrect. Most DHCP issues are related to configuration errors such as wrong DHCP pools etc.
- Handing out an IP address to a client that is statically assigned to another host in LAN.
- The DHCP Servers can coexist with other DHCP servers for redundancy and availability. If inter-server communication fails, DHCP servers hand out overlapping IP addresses.
- A Router or Multilayer Switch that is acting as a DHCP server must have an interface IP.
- You can check the overall status of DHCP pool by issuing show ip dhcp pool command. This command gives you a general overview of the current status of the DHCP Server.
- You can use show ip dhcp conflict to check conflicts. If the DHCP server finds a conflict. If everything is OK, make sure Dynamic Host Configuration Protocol service is running.

## Here are some additional troubleshooting tips:

Use the show ip dhcp server command to verify the configuration of the DHCP server.

Use the show ip dhcp binding command to verify the DHCP bindings on the DHCP server.

Use the debug ip dhcp server command to enable debugging for the DHCP server.

Use the debug ip dhcp client command to enable debugging for the DHCP client.

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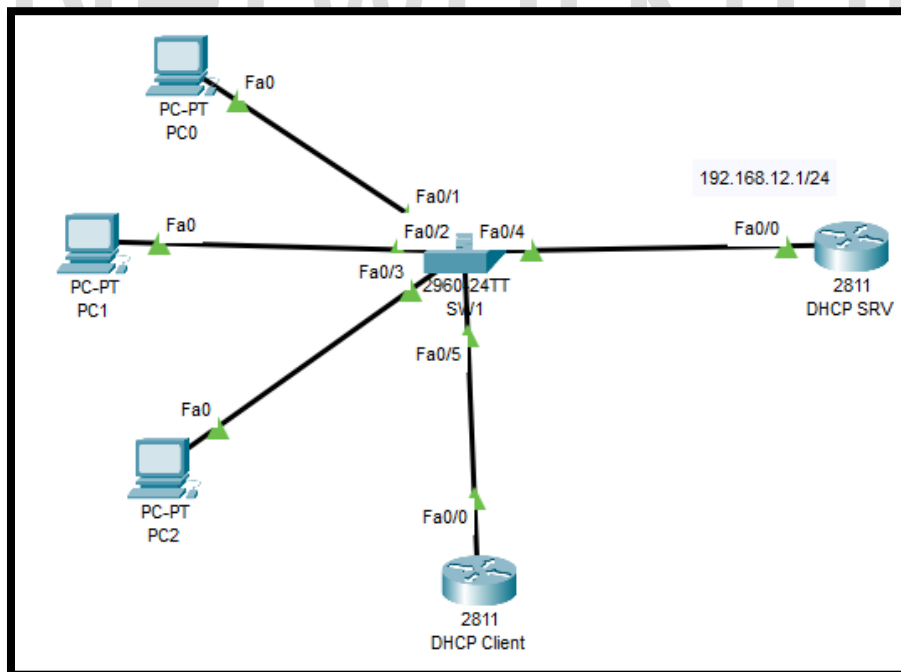
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### Important Command:

```
R# show ip dhcp conflict
R# clear ip dhcp conflict *
R# show ip dhcp binding
R# clear ip dhcp binding 192.168.1.20
R# debug ip dhcp server events
R# debug ip dhcp server packet
R# show ip interface brief
R# debug dhcp detail
R# show ip dhcp pool
R# show ip dhcp server statistics
R# show ip sockets
R# show sockets
R(config)#service dhcp
R# show running-config | sec dhcp
R# show running-config | sec service dhcp
R# debug ip packet
```

### DHCP T-Shoot Lab1 :



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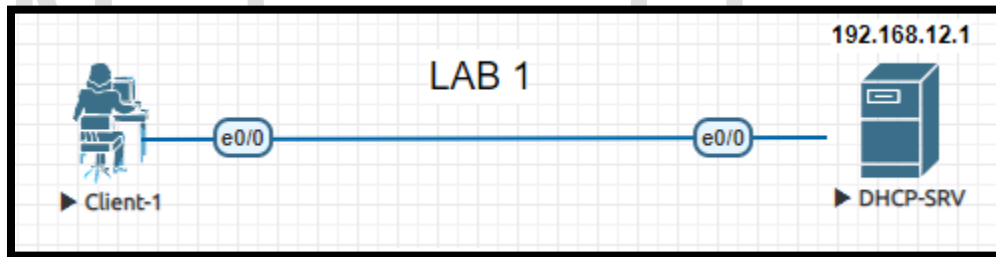
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DHCP Server Configuration (Misconfiguration Wrong Pool)	DHCP Client Configuration
<pre>en config t hostname DHCP  int f0/0 ip add 192.168.12.1 255.255.255.0 no sh  ip dhcp excluded-address 192.168.12.1 ip dhcp pool abc network 192.168.21.0 255.255.255.0 default-router 192.168.21.1 dns-server 8.8.8.8</pre>	<pre>en config t hostname DHCPclient  int f0/0 ip add dhcp no sh</pre>

### T-shoot: Lab 1:



DHCP Server Configuration (Misconfiguration Wrong Pool)	DHCP Client Configuration
<pre>en config t hostname DHCP  int e0/0 ip add 192.168.12.1 255.255.255.0 no sh  ip dhcp excluded-address 192.168.12.1 ip dhcp pool abc network 192.168.21.0 255.255.255.0 default-router 192.168.21.1</pre>	<pre>en config t hostname client  int e0/0 ip add dhcp no sh</pre>

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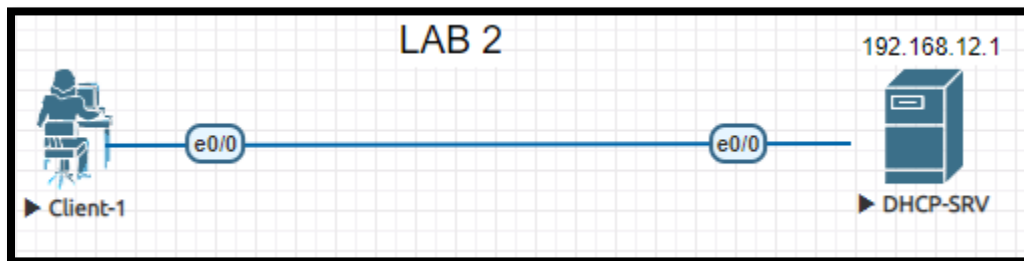
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dns-server 8.8.8.8

What is wrong: Misconfiguration Wrong Pool.

### T-shoot: Lab 2:



DHCP Server Configuration (No Interface IP address)	DHCP Client Configuration
<pre> en config t hostname DHCP  int e0/0 no sh  ip dhcp excluded-address 192.168.21.1 ip dhcp pool abc network 192.168.21.0 255.255.255.0 default-router 192.168.21.1 dns-server 8.8.8.8 </pre>	<pre> en config t hostname DHCPclient  int e0/0 ip add dhcp no sh </pre>

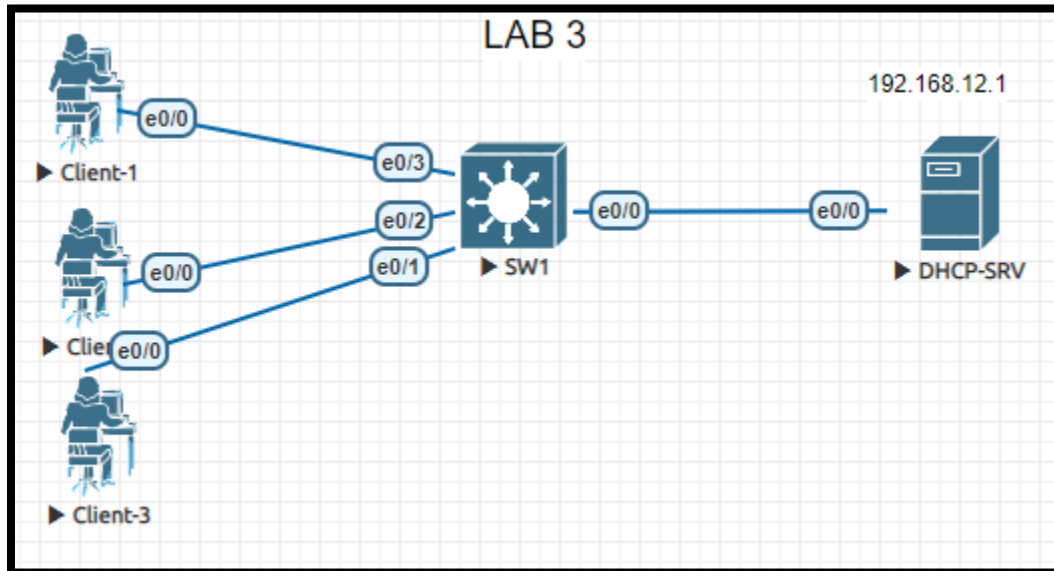
What is wrong: No Interface IP address.

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## T-shoot: Lab 3:



DHCP Server Configuration (DHCP Pool Exhausted)	DHCP Client Configuration
<pre>en config t hostname DHCP  int e0/0 ip add 192.168.12.1 255.255.255.0 no sh  ip dhcp excluded-address 192.168.12.1 192.168.12.252 ip dhcp pool abc network 192.168.12.0 255.255.255.0 default-router 192.168.12.1 dns-server 8.8.8.8</pre>	<pre>en config t hostname DHCPclient  int e0/0 ip add dhcp no sh</pre>

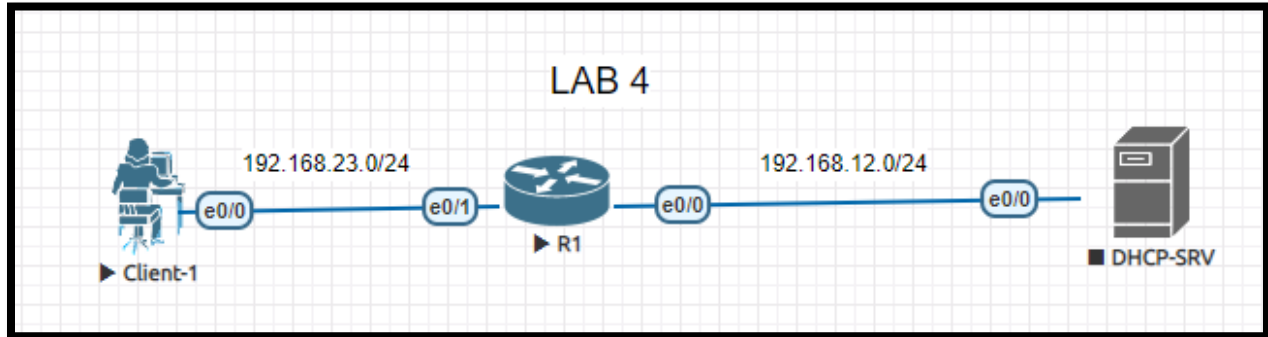
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### T-shoot: Lab 4:



DHCP Server Configuration	Misconfiguration Relay	DHCP Client Configuration
<pre> en config t hostname DHCP  int e0/0 ip add 192.168.12.1 255.255.255.0 no sh  ip dhcp excluded-address 192.168.12.1 ip dhcp pool abc network 192.168.12.0 255.255.255.0 default-router 192.168.12.1 dns-server 8.8.8.8  ip dhcp excluded-address 192.168.23.1 ip dhcp pool xyz network 192.168.23.0 255.255.255.0 default-router 192.168.23.1 dns-server 8.8.8.8 </pre>	<pre> en config t hostname Relay  int e0/0 ip add 192.168.12.2 255.255.255.0 no sh  int e0/1 ip add 192.168.23.1 255.255.255.0 no sh </pre>	<pre> en config t hostname DHCPclient  int e0/0 ip add dhcp no sh </pre>

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**Fix Relay:**

Int e0/1

Ip helper-address 192.168.12.1

**Fix Route:**

We can use static or Dynamic routing protocol.

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