

## **LAB: Assignment 4**

1. Discuss the GNS simulation environment.
2. Consider the following information Table:

VPCS	PC1	PC2
IP Address	192.168.1.1	192.168.1.2
Subnet Mask	255.255.255.0	255.255.255.0
Default Gateway	192.168.1.100	192.168.1.100
DNS Server	192.168.1.100	192.168.1.100

### **Creating Topology**

- In the GNS3 console, drag an Ethernet Switch in the work view area.
- Drag two VPCS machines in the work view area.
- Connect PC1 to port 1 of Ethernet switch and connect PC2 to port 2 of Ethernet switch.
- Right-click on PC1 and then select Start to start it. Similarly, start PC2 also.
- The following figure shows how to add VPCS in GNS3

### **Syntax to configure IP address on VPCS in GNS3**

Once you have created the preceding topology in GNS3, the next task is configuring IP addresses and other TCP/IP settings on VPCS machines. In order to configure IP addresses on VPCS in GNS3, you need to perform the following steps:

1. Select and right-click PC1 and select Console to open its console. The CLI prompt window will be displayed.
2. In the CLI prompt window, use the following syntax to configure TCP/IP settings on the VPCS.

```
ip <IP Address> </Subnet Mask> <Default Gateway>
```

3. Next, use the following syntax to configure DNS server IP address.  
`ip dns <DNS server IP address>`
4. If you want to obtain TCP/IP setting on VPCS machine using the DHCP server, use the following syntax to obtain the TCP/IP settings from the DHCP server.

```
ip dhcp
```

5. Once you have configured appropriate IP addresses on a VPCS machine, use the following command to view the TCP/IP settings.

```
show ip
```

### Configure TCP/IP settings on VPCS PC1

1. First, execute the following command on PC1 to configure 192.168.1.1/24 IP address and 192.168.1.100 as the default gateway.

```
PC1>ip 192.168.1.1 /24 192.168.1.100
```

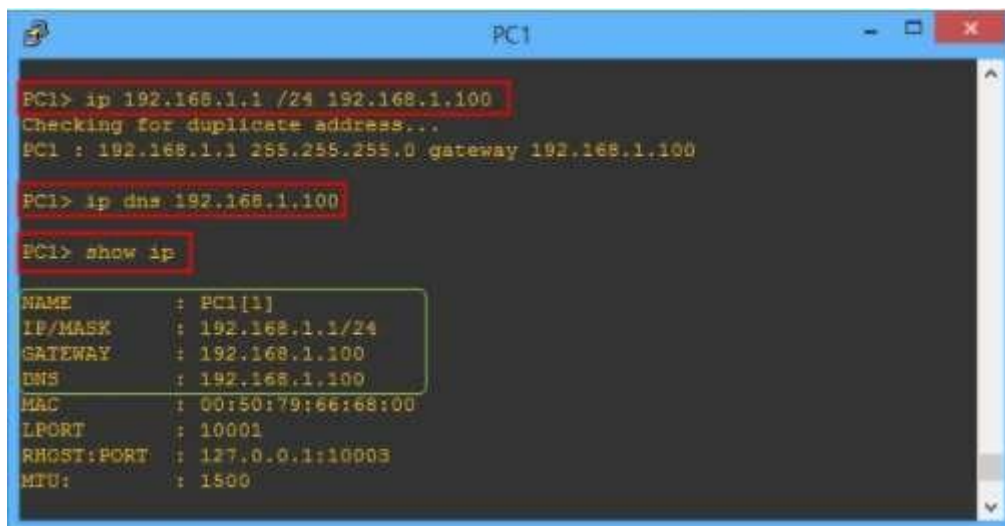
2. Next, execute the following command to configure 192.168.1.100 as DNSserver IP address.

```
PC1>ip dns 192.168.1.100
```

3. Next, execute the following command to view the TCP/IP settings on VPCSPC1.

```
PC1>show ip
```

4. The following figure shows the TCP/IP configuration of VPCS PC1.



The screenshot shows a terminal window titled 'PC1'. The following commands and their outputs are visible:

```
PC1> ip 192.168.1.1 /24 192.168.1.100
Checking for duplicate address...
PC1 : 192.168.1.1 255.255.255.0 gateway 192.168.1.100

PC1> ip dns 192.168.1.100

PC1> show ip
```

NAME	: PC1[1]
IP/MASK	: 192.168.1.1/24
GATEWAY	: 192.168.1.100
DNS	: 192.168.1.100
MAC	: 00:50:79:66:68:00
LPORT	: 10001
RHGST:PORT	: 127.0.0.1:10003
MTU:	: 1500

### Configure TCP/IP settings on VPCS PC2

1. Execute the following command on PC2 to configure 192.168.1.1/24 IP address and 192.168.1.100 as the default gateway.

```
PC2>ip 192.168.1.2 /24 192.168.1.100
```

2. Next, execute the following command to configure 192.168.1.100 as DNSserver IP address.

```
PC2>ip dns 192.168.1.100
```

3. Next, execute the following command to view the TCP/IP settings on VPCSPC2.

```
PC2>show ip
```

4. Then Test the connectivity to PC1

```
PC2> ping 192.168.1.1
```

5. The following figure shows the TCP/IP configuration of VPCS PC2

The screenshot shows a Windows command prompt window titled "PC2". The user has entered the following commands and received the following output:

```
PC2> ip 192.168.1.2 /24 192.168.1.100
Checking for duplicate address...
PC1 : 192.168.1.2 255.255.255.0 gateway 192.168.1.100

PC2> ip dns 192.168.1.100

PC2> show ip

NAME       : PC2{1}
IP/MASK    : 192.168.1.2/24
GATEWAY    : 192.168.1.100
DNS        : 192.168.1.100
MAC        : 00:50:79:66:68:01
LPORT     : 10005
RHOST:PORT : 127.0.0.1:10004
MTU        : 1500

PC2> ping 192.168.1.1
64 bytes from 192.168.1.1 icmp_seq=1 ttl=64 time=0.153 ms
64 bytes from 192.168.1.1 icmp_seq=2 ttl=64 time=0.757 ms
64 bytes from 192.168.1.1 icmp_seq=3 ttl=64 time=0.886 ms
64 bytes from 192.168.1.1 icmp_seq=4 ttl=64 time=0.932 ms
64 bytes from 192.168.1.1 icmp_seq=5 ttl=64 time=0.932 ms

PC2>
```

Three callout boxes provide additional context:

- "Configure IP, Gateway, and DNS server addresses" points to the `ip` and `ip dns` commands.
- "Verify TCP/IP configuration" points to the `show ip` command output.
- "Testing connectivity to PC1" points to the `ping` command output.

6. If you have misconfigured the TCP/IP settings or want to remove the TCP/IP setting on a VPCS machine, use the following command.

**PC>clear ip**

The screenshot shows a Windows command prompt window titled "PC2". The user has entered the following commands and received the following output:

```
PC2> clear ip
IPv4 address/mask, gateway, DNS, and DHCP cleared

PC2> show ip

NAME       : PC2{1}
IP/MASK    : 0.0.0.0/0
GATEWAY    : 0.0.0.0
DNS        :
MAC        : 00:50:79:66:68:01
LPORT     : 10005
RHOST:PORT : 127.0.0.1:10004
MTU        : 1500

PC2>
```

Red boxes highlight the `clear ip` command and the resulting `show ip` output, specifically the `IP/MASK` and `GATEWAY` fields, which are now set to `0.0.0.0/0` and `0.0.0.0` respectively.