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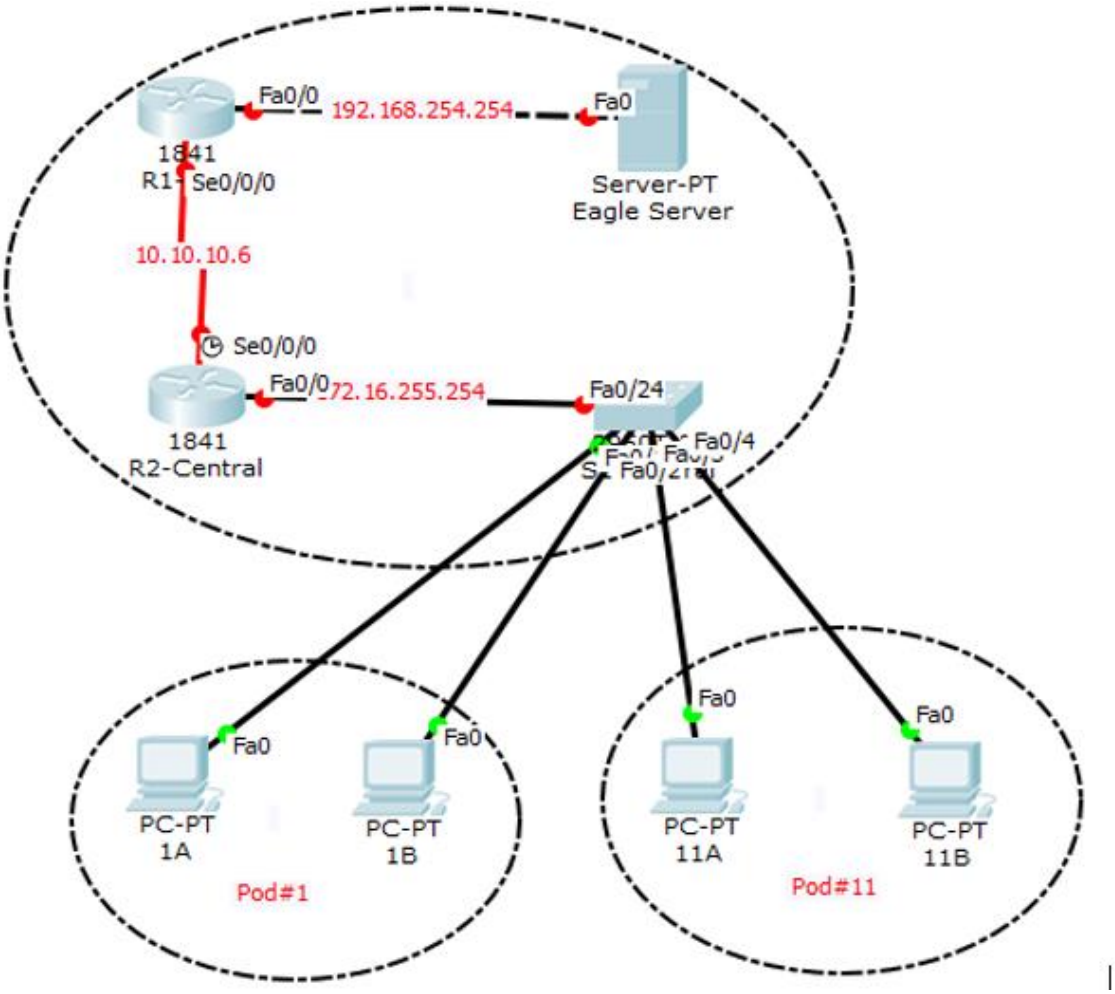
Lab01.Ping And Traceroute-01



Màn hình ping của máy với máy,router,server

```
Packet Tracer PC Command Line 1.0
PC>ping 172.16.255.2

Pinging 172.16.255.2 with 32 bytes of data:

Reply from 172.16.255.2: bytes=32 time=0ms TTL=128
Reply from 172.16.255.2: bytes=32 time=0ms TTL=128
Reply from 172.16.255.2: bytes=32 time=0ms TTL=128
Reply from 172.16.255.2: bytes=32 time=0ms TTL=128

Ping statistics for 172.16.255.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
PC>ping 172.16.255.11

Pinging 172.16.255.11 with 32 bytes of data:

Reply from 172.16.255.11: bytes=32 time=2ms TTL=128
Reply from 172.16.255.11: bytes=32 time=1ms TTL=128
Reply from 172.16.255.11: bytes=32 time=5ms TTL=128
Reply from 172.16.255.11: bytes=32 time=0ms TTL=128

Ping statistics for 172.16.255.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 5ms, Average = 2ms

PC>ping 172.16.255.12

Pinging 172.16.255.12 with 32 bytes of data:

Reply from 172.16.255.12: bytes=32 time=1ms TTL=128
Reply from 172.16.255.12: bytes=32 time=1ms TTL=128
Reply from 172.16.255.12: bytes=32 time=0ms TTL=128
Reply from 172.16.255.12: bytes=32 time=0ms TTL=128

Ping statistics for 172.16.255.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

```
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>ping 172.16.255.254

Pinging 172.16.255.254 with 32 bytes of data:

Reply from 172.16.255.254: bytes=32 time=1ms TTL=255
Reply from 172.16.255.254: bytes=32 time=0ms TTL=255
Reply from 172.16.255.254: bytes=32 time=0ms TTL=255
Reply from 172.16.255.254: bytes=32 time=0ms TTL=255

Ping statistics for 172.16.255.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>ping 10.10.10.6

Pinging 10.10.10.6 with 32 bytes of data:

Reply from 10.10.10.6: bytes=32 time=2ms TTL=254
Reply from 10.10.10.6: bytes=32 time=12ms TTL=254
Reply from 10.10.10.6: bytes=32 time=1ms TTL=254
```

```
Reply from 10.10.10.6: bytes=32 time=1ms TTL=254

Ping statistics for 10.10.10.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 12ms, Average = 4ms

PC>ping 192.168.254.254

Pinging 192.168.254.254 with 32 bytes of data:

Request timed out.
Reply from 192.168.254.254: bytes=32 time=16ms TTL=126
Reply from 192.168.254.254: bytes=32 time=1ms TTL=126
Reply from 192.168.254.254: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.254.254:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 16ms, Average = 6ms

PC>
```

```
Router(config)#router ospf 10
Router(config-router)#network 10.10.10.6 0.0.0.255 area 1
Router(config-router)#
00:13:23: %OSPF-5-ADJCHG: Process 10, Nbr 172.16.255.254 on Serial0/0/0 from LOADING to FULL, Loading Done

Router(config-router)#network 192.168.254.254 0.0.0.255 area 1
Router(config-router)#exit
Router(config)#do ping 192.168.254.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.254.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/0/0 ms

Router(config)#ping 172.16.255.254
               ^
% Invalid input detected at '^' marker.

Router(config)#do ping 172.16.255.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.255.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/6/20 ms

Router(config)#do ping 172.16.255.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.255.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/3/11 ms

Router(config)#
```

Màn hình CLI của R1-ISP:

```
         --- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n


Press RETURN to get started!



Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int s0/0/0
Router(config-if)#ip add 10.10.10.6 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

Router(config-if)#exit
Router(config)#int f0/0
Router(config-if)#ip add 192.168.254.253 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol

FastEthernet0/0        192.168.254.253 YES manual up                    up

FastEthernet0/1        unassigned      YES unset  administratively down down

Serial0/0/0            10.10.10.6      YES manual up                    up

Serial0/0/1            unassigned      YES unset  administratively down down

Vlan1                  unassigned      YES unset  administratively down down
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router ospf 10
```

Màn hình CLI của Router R2-Central:

```
         --- System Configuration Dialog ---

Continue with configuration dialog? [yes/no]: n


Press RETURN to get started!



Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R2-Central
R2-Central(config)#int f0/0
R2-Central(config-if)#172.16.255.254 255.255.255.252
                     ^
% Invalid input detected at '^' marker.

R2-Central(config-if)#ip add 172.16.255.254 255.255.255.252
R2-Central(config-if)#no shutdown

R2-Central(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R2-Central(config-if)#exit
R2-Central(config)#int s0/0/0
R2-Central(config-if)#exit
R2-Central(config)#int f0/0
R2-Central(config-if)#ip add 172.16.255.254 255.255.0.0
R2-Central(config-if)#no shutdown
R2-Central(config-if)#exit
R2-Central(config)#int s0/0/0
R2-Central(config-if)#ip add 10.10.10.5 255.255.255.252
R2-Central(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
R2-Central(config-if)#exit
R2-Central(config)#exit
R2-Central#
%SYS-5-CONFIG_I: Configured from console by console

R2-Central#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol

FastEthernet0/0        172.16.255.254  YES manual up                    up

FastEthernet0/1        unassigned      YES unset  administratively down down

Serial0/0/0            10.10.10.5      YES manual down                  down
```

```
R2-Central#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol

FastEthernet0/0        172.16.255.254  YES manual up                    up

FastEthernet0/1        unassigned      YES unset  administratively down down

Serial0/0/0            10.10.10.5      YES manual down                  down

Serial0/0/1            unassigned      YES unset  administratively down down

Vlan1                  unassigned      YES unset  administratively down down
R2-Central#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

R2-Central#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2-Central(config)#router ospf 10
R2-Central(config-router)#network 172.16.255.254 0.0.0.255 area 1
R2-Central(config-router)#network 10.10.10.6 0.0.0.255 area 1
R2-Central(config-router)#exit
R2-Central(config)#
00:13:32: %OSPF-5-ADJCHG: Process 10, Nbr 192.168.254.253 on Serial0/0/0 from LOADING to FULL, Loading Done

R2-Central(config)#do ping 10.10.10.6

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.10.6, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/8/17 ms

R2-Central(config)#do ping 192.168.254.254

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.254.254, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/8/22 ms

R2-Central(config)#
```

Màn hình CLI của Switch S1-Central:

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname S1-Central
S1-Central(config)#int vlan 1
S1-Central(config-if)#add ip 172.16.254.1 255.255.0.0
                      ^
% Invalid input detected at '^' marker.

S1-Central(config-if)#ip add 172.16.254.1 255.255.0.0
S1-Central(config-if)#no shutdown

S1-Central(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

S1-Central(config-if)#exit
S1-Central(config)#ip default-gateway 172.16.255.254
S1-Central(config)#exit
S1-Central#
%SYS-5-CONFIG_I: Configured from console by console

S1-Central#
%LINK-5-CHANGED: Interface FastEthernet0/24, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up
```

Giải thích các câu lệnh trong CLI:

-Đối với S1-Central:

En vào chế độ đặc quyền

Conf t: vào chế độ cấu hình

Hostname: cấu hình tên thiết bị

Int vlan1 và ip add: để gán ip cho vlan

Ip default-gateway: gán default-gateway

-Đối với Router:

Int f0/0 và ip add: để gán ip cho fastEthernet 0/0

Int s0/0/0 và ip add: để gán ip cho serial 0/0/0

No shutdown để bật interface

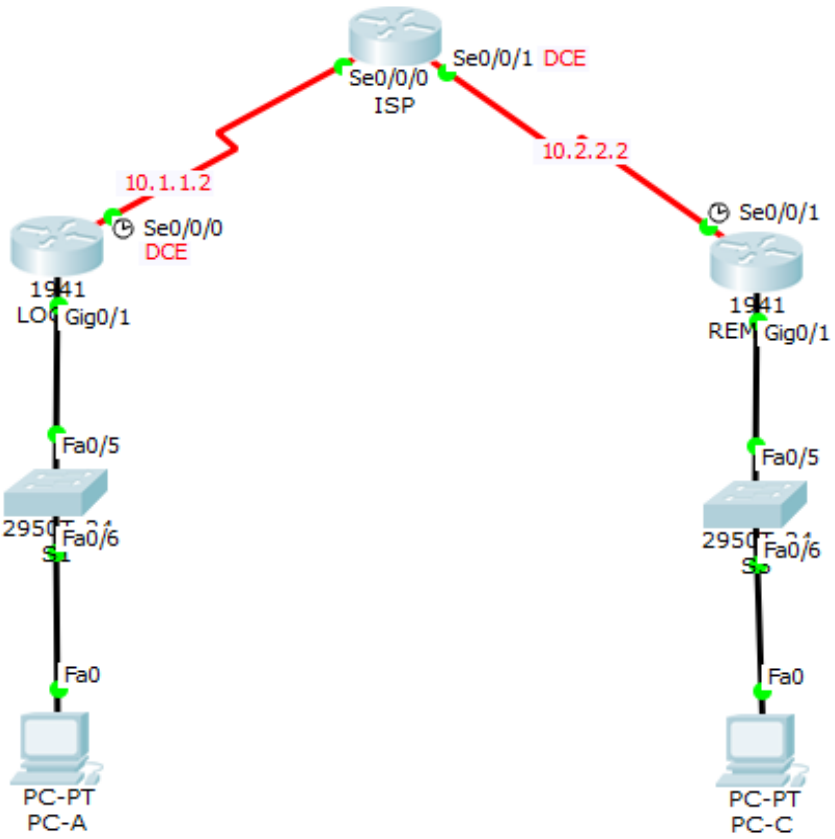
Show ip int brief: để show các ip interface

Router ospf 10: bật ospf

Network xxx.xxx.xxx.xxx 0.0.0.255 area 1 để bật ospf trên local interface có địa chỉ bắt đầu như xxx.xxx.xxx

Do ping: để ping giữa các router, máy và sever

Lab01.Ping And Traceroute-02



Màn hình ping máy với máy, router:

```
PC>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=2ms TTL=125
Reply from 192.168.1.3: bytes=32 time=9ms TTL=125
Reply from 192.168.1.3: bytes=32 time=3ms TTL=125
Reply from 192.168.1.3: bytes=32 time=8ms TTL=125

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 9ms, Average = 5ms
```

```
PC>ping 192.168.3.3

Pinging 192.168.3.3 with 32 bytes of data:

Reply from 192.168.3.3: bytes=32 time=3ms TTL=125
Reply from 192.168.3.3: bytes=32 time=2ms TTL=125
Reply from 192.168.3.3: bytes=32 time=8ms TTL=125
Reply from 192.168.3.3: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 8ms, Average = 3ms
```

```
PC>ping 193.168.1.3

Pinging 193.168.1.3 with 32 bytes of data:

Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.
Reply from 192.168.1.1: Destination host unreachable.

Ping statistics for 193.168.1.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

```
PC>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=24ms TTL=253
Reply from 192.168.1.1: bytes=32 time=2ms TTL=253
Reply from 192.168.1.1: bytes=32 time=9ms TTL=253
Reply from 192.168.1.1: bytes=32 time=3ms TTL=253

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 24ms, Average = 9ms
```

```
ISP(config)#do ping 192.168.3.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.3.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/6/20 ms

ISP(config)#do 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 100 percent (5/5), round-trip min/avg/max = 1/10/15 ms

ISP(config)#do ping 192.168.1.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/10/21 ms
```

```
REMOTE(config)#do ping 10.2.2.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.2.2.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/8/13 ms

REMOTE(config)#do 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 100 percent (5/5), round-trip min/avg/max = 14/16/20 ms

REMOTE(config)#do ping 192.168.1.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.3, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 9/10/13 ms
```

Code bật giao thức định tuyến(ospf):

```
LOCAL>en
LOCAL#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
LOCAL(config)#router ospf 1
LOCAL(config-router)#network 192.168.1.1 0.0.0.255 area 0
LOCAL(config-router)#network 10.1.1.2 0.0.0.3 area 0
LOCAL(config-router)#exit
LOCAL(config)#

ISP>en
ISP#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ISP(config)#router ospf 1
ISP(config-router)#network 10.1.1.2 0.0.0.3 area 0
ISP(config-router)#
01:33:52: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.1 on Serial0/0/0 from LOADING
to FULL, Loading Done

ISP(config-router)#network 10.2.2.2 0.0.0.3 area 0
ISP(config-router)#exit
ISP(config)#

REMOTE(config)#router ospf 1
REMOTE(config-router)#network 10.2.2.2 0.0.0.3 area 0
REMOTE(config-router)#
01:38:00: %OSPF-5-ADJCHG: Process 1, Nbr 10.2.2.2 on Serial0/0/1 from LOADING to
FULL, Loading Done

REMOTE(config-router)#network 192.168.3.1 0.0.0.255 area 0
REMOTE(config-router)#exit
REMOTE(config)#
```

Màn hình CLI của ISP:

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname ISP
ISP(config)#int s0/0/0
ISP(config-if)#ip add 10.1.1.2 255.255.255.252
ISP(config-if)#no shutdown

ISP(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

ISP(config-if)#exit

ISP(config)#int s0/0/1
ISP(config-if)#ip add 10.2.2.2 255.255.255.252
ISP(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/0/1, changed state to down
ISP(config-if)#exit
ISP(config)#
```

Màn hình CLI của LOCAL:

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname LOCAL
LOCAL(config)#int g0/1
LOCAL(config-if)#ip add 192.168.1.1 255.255.255.0
LOCAL(config-if)#no shutdown

LOCAL(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state
to up

LOCAL(config-if)#exit
LOCAL(config)#int s0/0/0
LOCAL(config-if)#ip add 10.1.1.1 255.255.255.252
LOCAL(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
LOCAL(config-if)#
```

Màn hình CLI của REMOTE:

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname REMOTE
REMOTE(config)#int g0/1
REMOTE(config-if)#ip add 192.168.3.1 255.255.255.0
REMOTE(config-if)#no shutdown

REMOTE(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

REMOTE(config-if)#exit
```

```
REMOTE(config)#int s0/0/1
REMOTE(config-if)#ip add 10.2.2.1 255.255.255.252
REMOTE(config-if)#no shutdown

REMOTE(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

REMOTE(config-if)#exit
REMOTE(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
```

Màn hình CLI của S1

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname S1
S1(config)#int vlan 1
S1(config-if)#ip add 192.168.1.11 255.255.255.0
S1(config-if)#no shutdown

S1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

S1(config-if)#exit
S1(config)#ip default-gateway 192.168.1.1
S1(config)#exit
S1#
%SYS-5-CONFIG_I: Configured from console by console
```

Màn hình CLI của S1

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname S3
S3(config)#int vlan 1
S3(config-if)#ip add 192.168.3.11 255.255.255.0
S3(config-if)#no shutdown

S3(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

S3(config-if)#exit
S3(config)#ip default-gateway 192.168.3.1
S3(config)#exit
S3#
%SYS-5-CONFIG_I: Configured from console by console
```

Giải thích các câu lệnh trong CLI:

-Đối với S1 và S2

En vào chế độ đặc quyền

Conf t: vào chế độ cấu hình

Hostname: cấu hình tên thiết bị

Int vlan1 và ip add: để gán ip cho vlan

Ip default-gateway: gán default-gateway

-Đối với LOCAL, ISP,REMOTE:

Int f0/0 và ip add: để gán ip cho fastEthernet 0/0

Int s0/0/0 và ip add: để gán ip cho serial 0/0/0

No shutdown để bật interface

Show ip int brief: để show các ip interface

Router ospf 10: bật ospf

Network xxx.xxx.xxx.xxx 0.0.0.255 area 1 để bật ospf trên local interface có địa chỉ bắt đầu như xxx.xxx.xxx

Do ping: để ping giữa các router, máy và sever