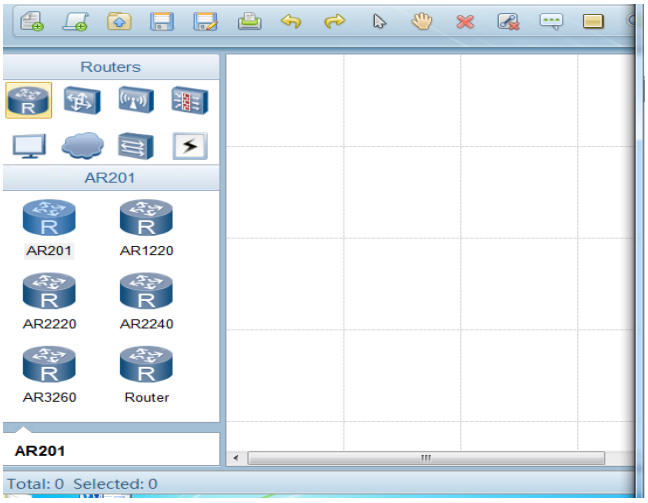
PRACTICAL

GETTING STARTED WITH eNSP

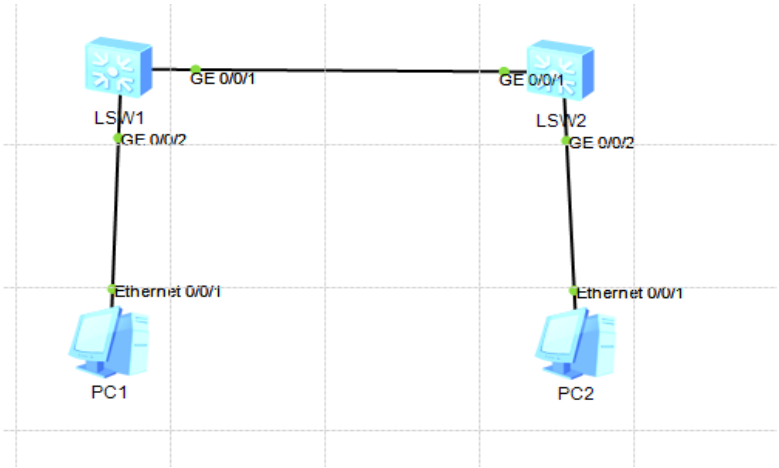
Adding devices to the simulator

Add the devices from the left and connect them using appropriate media



Start them up by Right clicking on them

SETTING UP A SIMPLE LAN

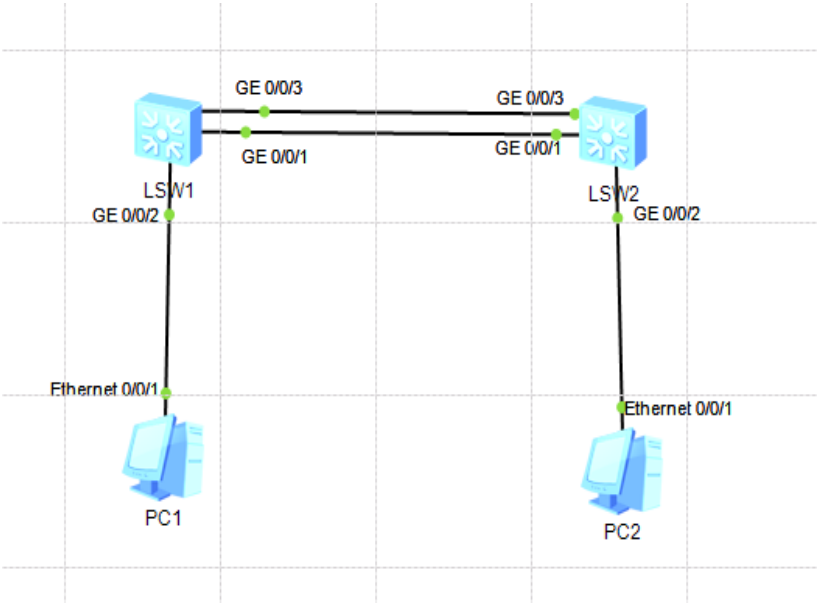


CONFIGURING DEVICES

Type system view to get the privileges to configure the devices

- Name
- IP address

CONFIGURING STP



Switch 1 (S1)

```
The device is running!

<Huawei>
<Huawei>sys
<Huawei>system-view
[S1]stp mode stp
[S1]stp root primary
[S1]
```

Switch 2 (S2)

```
<Huawei>
<Huawei>sys
<Huawei>system-view
[S2]stp mode stp
[S2]stp root secondary
[S2]
```

To Display the STP configuration

```
[S1]display stp brief
 MSTID  Port                        Role  STP State     Protection
   0    GigabitEthernet0/0/1        DESI  FORWARDING      NONE
   0    GigabitEthernet0/0/2        DESI  FORWARDING      NONE
   0    GigabitEthernet0/0/3        DESI  FORWARDING      NONE
[S1]
[S2]display stp brief
 MSTID  Port                        Role  STP State     Protection
   0    GigabitEthernet0/0/1        ROOT  FORWARDING      NONE
   0    GigabitEthernet0/0/2        DESI  FORWARDING      NONE
   0    GigabitEthernet0/0/3        ALTE  DISCARDING      NONE
[S2]
```

TO VIEW THE ROOT BRIDGE

```
[S1]display stp
-------[CIST Global Info][Mode STP]-------
CIST Bridge          :0    .4c1f-cc25-062f
Config Times         :Hello 2s MaxAge 20s FwDly 15s MaxHop 20
Active Times         :Hello 2s MaxAge 20s FwDly 15s MaxHop 20
CIST Root/ERPC       :0    .4c1f-cc25-062f / 0 (This is the
root bridge)
CIST RegRoot/IRPC    :0    .4c1f-cc25-062f / 0
CIST RootPortId      :0.0
```

```
BPDU-Protection     :Disabled
CIST Root Type      :Primary root
TC or TCN received  :6
TC count per hello  :0
STP Converge Mode   :Normal
Time since last TC  :0 days 0h:3m:45s
Number of TC        :10
Last TC occurred    :GigabitEthernet0/0/1
----[Port1(GigabitEthernet0/0/1)][FORWARDING]----
Port Protocol       :Enabled
Port Role           :Designated Port
Port Priority       :128
Port Cost(Dot1T )   :Config=auto / Active=20000
Designated Bridge/Port   :0.4c1f-cc25-062f / 128.1
Port Edged          :Config=default / Active=disabled
Point-to-point      :Config=auto / Active=true
Transit Limit       :147 packets/hello-time
Protection Type     :None
```

From Switch 2

```
[S2]disp stp
-------[CIST Global Info][Mode STP]-------
CIST Bridge         :4096 .4c1f-ccb2-28d5
Config Times        :Hello 2s MaxAge 20s FwDly 15s MaxHop 20
Active Times        :Hello 2s MaxAge 20s FwDly 15s MaxHop 20
CIST Root/ERPC      :0    .4c1f-cc25-062f / 20000
```

```
CIST RegRoot/IRPC    :4096 .4c1f-ccb2-28d5 / 0
CIST RootPortId      :128.1
BPDU-Protection      :Disabled
CIST Root Type       :Secondary root
TC or TCN received   :79
TC count per hello   :0
STP Converge Mode    :Normal
Time since last TC   :0 days 0h:5m:39s
Number of TC         :10
Last TC occurred     :GigabitEthernet0/0/1
----[Port1(GigabitEthernet0/0/1)][FORWARDING]----
Port Protocol        :Enabled
Port Role            :Root Port
Port Priority        :128
Port Cost(Dot1T )    :Config=auto / Active=20000
Designated Bridge/Port   :0.4c1f-cc25-062f / 128.1
Port Edged           :Config=default / Active=disabled
Point-to-point       :Config=auto / Active=true
Transit Limit        :147 packets/hello-time
```

SETTING THE ROOT PRIORITY

```
[S1]undo stp root

[S1]stp priority 8192

[S2]undo stp root
```

```
[S2]stp priority 4096
```

Check the priority now

From switch 1

```
[S1]display stp
-------[CIST Global Info][Mode STP]-------
CIST Bridge          :8192 .4c1f-cc25-062f
Config Times         :Hello 2s MaxAge 20s FwDly 15s MaxHop 20
Active Times         :Hello 2s MaxAge 20s FwDly 15s MaxHop 20
CIST Root/ERPC       :4096 .4c1f-ccb2-28d5 / 20000
CIST RegRoot/IRPC    :8192 .4c1f-cc25-062f / 0
CIST RootPortId      :128.1
BPDU-Protection      :Disabled
TC or TCN received   :48
TC count per hello   :1
STP Converge Mode    :Normal
Time since last TC   :0 days 0h:0m:14s
Number of TC         :13
Last TC occurred     :GigabitEthernet0/0/1
----[Port1(GigabitEthernet0/0/1)][FORWARDING]----
Port Protocol        :Enabled
Port Role            :Root Port
Port Priority        :128
Port Cost(Dot1T )    :Config=auto / Active=20000
Designated Bridge/Port    :4096.4c1f-ccb2-28d5 / 128.1
Port Edged           :Config=default / Active=disabled
Point-to-point       :Config=auto / Active=true
Transit Limit        :147 packets/hello-time
Protection Type      :None
```

```
[S2]display stp
-------[CIST Global Info][Mode STP]-------
CIST Bridge          :4096 .4c1f-ccb2-28d5
Config Times         :Hello 2s MaxAge 20s FwDly 15s MaxHop 20
```

```
Active Times          :Hello 2s MaxAge 20s FwDly 15s MaxHop 20
CIST Root/ERPC        :4096 .4c1f-ccb2-28d5 / 0
CIST RegRoot/IRPC     :4096 .4c1f-ccb2-28d5 / 0
CIST RootPortId       :0.0
BPDU-Protection       :Disabled
TC or TCN received    :91
TC count per hello    :0
STP Converge Mode     :Normal
Time since last TC    :0 days 0h:0m:50s
Number of TC          :14
Last TC occurred      :GigabitEthernet0/0/3
----[Port1(GigabitEthernet0/0/1)][FORWARDING]----
Port Protocol         :Enabled
Port Role             :Designated Port
Port Priority         :128
Port Cost(Dot1T )     :Config=auto / Active=20000
Designated Bridge/Port   :4096.4c1f-ccb2-28d5 / 128.1
Port Edged            :Config=default / Active=disabled
Point-to-point        :Config=auto / Active=true
Transit Limit         :147 packets/hello-time
Protection Type       :None
```

Display STP Brief

```
[S1]disp stp brief
 MSTID  Port                    Role  STP State     Protection
   0    GigabitEthernet0/0/1   ROOT  FORWARDING      NONE
   0    GigabitEthernet0/0/2   DESI  FORWARDING      NONE
   0    GigabitEthernet0/0/3   ALTE  DISCARDING      NONE
[S1]
```

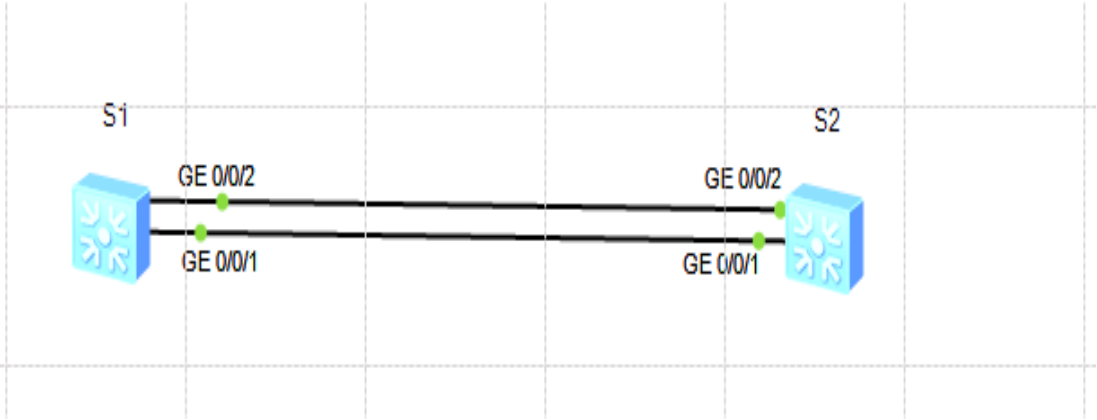
```
[S2]disp stp brief
 MSTID  Port                    Role  STP State     Protection
   0    GigabitEthernet0/0/1   DESI  FORWARDING      NONE
   0    GigabitEthernet0/0/2   DESI  FORWARDING      NONE
   0    GigabitEthernet0/0/3   DESI  FORWARDING      NONE
```

```
[S2]
```

To view the configuration

```
<S1>display current-configuration
#
sysname S1
#
stp mode stp
stp instance 0 priority 8192


#
sysname S2
#
stp mode stp
stp instance 0 priority 4096
#
```

CONFIGURING RSTP




```
<Huawei>

<Huawei> system view

[Huawei]sysname S1

[S1]stp mode rstp
```

```
<Huawei>
<Huawei> system view
[Huawei]sysname S2
[S2]stp mode rstp
```

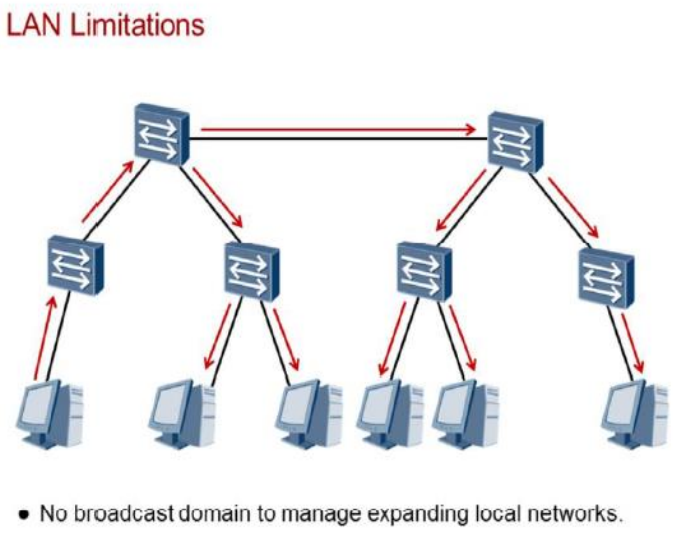
TO DISPLAY RSTP

```
[S1]display stp
-------[CIST Global Info][Mode RSTP]-------
CIST Bridge          :32768.4c1f-ccf3-1622
Config Times         :Hello 2s MaxAge 20s FwDly 15s
MaxHop 20
Active Times         :Hello 2s MaxAge 20s FwDly 15s
MaxHop 20
CIST Root/ERPC       :32768.4c1f-cc27-6913 / 20000
CIST RegRoot/IRPC    :32768.4c1f-ccf3-1622 / 0
CIST RootPortId      :128.1
BPDU-Protection      :Disabled
TC or TCN received   :6
TC count per hello   :0
STP Converge Mode    :Normal
Time since last TC   :0 days 0h:9m:59s
Number of TC         :4
Last TC occurred     :GigabitEthernet0/0/1
```

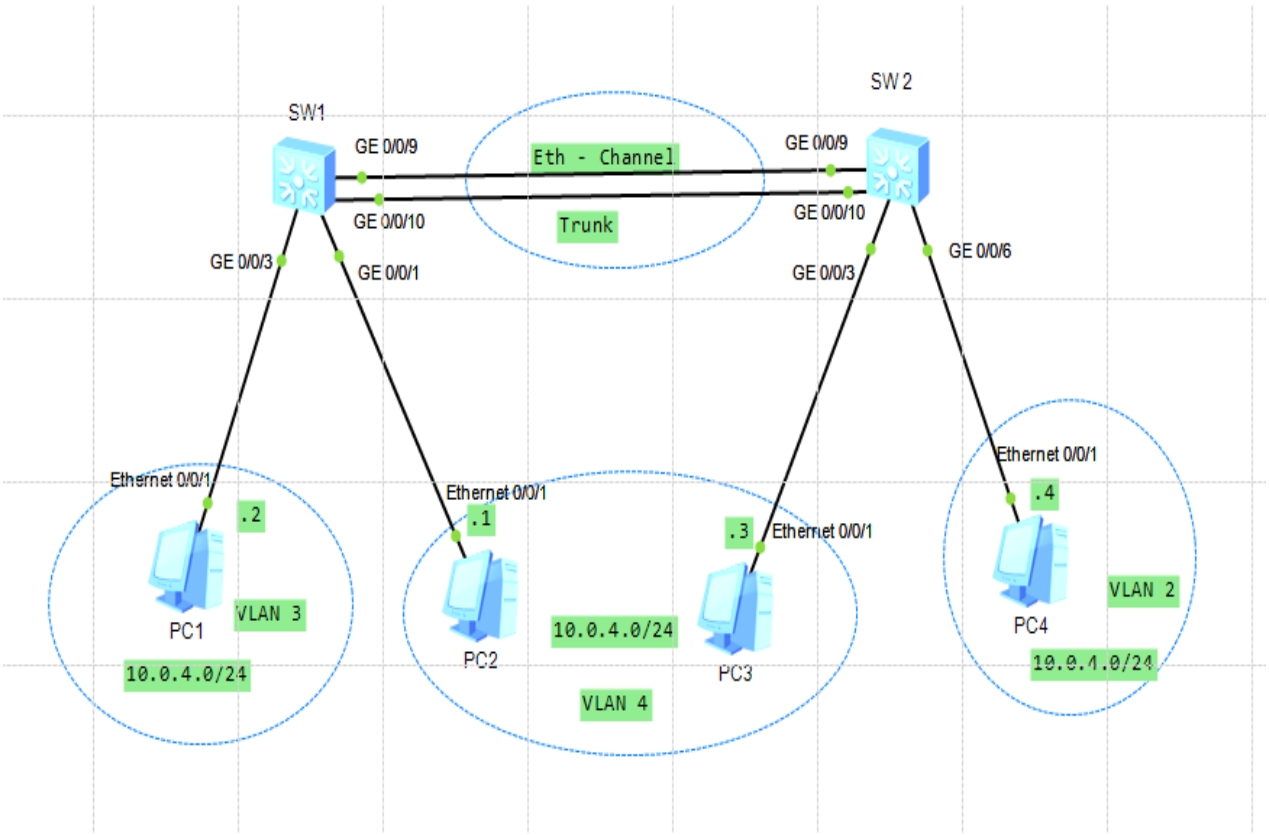
```
----[Port1(GigabitEthernet0/0/1)][FORWARDING]----
 Port Protocol        :Enabled
 Port Role            :Root Port
 Port Priority        :128
 Port Cost(Dot1T )    :Config=auto / Active=20000
 Designated Bridge/Port   :32768.4c1f-cc27-6913 / 128.1
 Port Edged           :Config=default / Active=disabled
 Point-to-point       :Config=auto / Active=true
 Transit Limit        :147 packets/hello-time
 Protection Type      :None

[S2]display stp
-------[CIST Global Info][Mode RSTP]-------
CIST Bridge          :32768.4c1f-cc27-6913
Config Times         :Hello 2s MaxAge 20s FwDly 15s
MaxHop 20
Active Times         :Hello 2s MaxAge 20s FwDly 15s
MaxHop 20
CIST Root/ERPC       :32768.4c1f-cc27-6913 / 0
CIST RegRoot/IRPC    :32768.4c1f-cc27-6913 / 0
CIST RootPortId      :0.0
BPDU-Protection      :Disabled
TC or TCN received   :2
TC count per hello   :0
STP Converge Mode    :Normal
Time since last TC   :0 days 0h:0m:18s
Number of TC         :4
```

```
Last TC occurred    :GigabitEthernet0/0/1
----[Port1(GigabitEthernet0/0/1)][FORWARDING]----
 Port Protocol        :Enabled
 Port Role            :Designated Port
 Port Priority        :128
 Port Cost(Dot1T )    :Config=auto / Active=20000
 Designated Bridge/Port   :32768.4c1f-cc27-6913 / 128.1
 Port Edged           :Config=default / Active=disabled
 Point-to-point       :Config=auto / Active=true
 Transit Limit        :147 packets/hello-time
 Protection Type      :None
```

VLANS



TOPOLOGY



Configuration

On switch 1

```
<Huawei>
<Huawei>system-view
[Huawei] sysname S1
[S1]interface Eth-Trunk 1
[S1-Eth-Trunk1]mode lacp
```

```
[S1-Eth-Trunk1]quit
[S1]
[S1]int g0/0/9
[S1-GigabitEthernet0/0/9]eth-trunk 1
[S1-GigabitEthernet0/0/9]quit
[S1]int g0/0/10
[S1-GigabitEthernet0/0/10]eth-trunk 1
```

LACP (Link Aggregation Control Protocol) which supports backup links for aggregation

On switch 2

```
<Huawei> system-view
[Huawei] sysname S2
[S2]interface Eth-Trunk 1
[S2-Eth-Trunk1]mode lacp
[S2-Eth-Trunk1]quit
[S2-Eth-Trunk1]trunkport g0/0/9
[S2-Eth-Trunk1]trunkport g0/0/10
```

CONFIGURE THE ETH-TRUNK 1

The link type is normally hybrid by default so it is necessary to configure the port link type for the Eth-Trunk 1 to become a trunk port. Then allow all VLANs to be permitted over the trunk port.

```
[S1]interface Eth-Trunk 1
[S1-Eth-Trunk1]port link-type trunk
[S1-Eth-Trunk1]port trunk allow-pass vlan all

[S2]interface Eth-Trunk 1
[S2-Eth-Trunk1]port link-type trunk
[S2-Eth-Trunk1]port trunk allow-pass vlan all
```

CONFIGURE VLANS

```
int g0/0/3
[S1-GigabitEthernet0/0/3]port link-type access
[S1-GigabitEthernet0/0/3]quit
[S1]int g0/0/1
[S1-GigabitEthernet0/0/1]port link-type access
[S1-GigabitEthernet0/0/1]quit

[S1]vlan 2
[S1-vlan2]vlan 3
[S1-vlan3]
[S1-vlan3]port g0/0/3
[S1-vlan3]vlan 4
[S1-vlan4]port g0/0/1
```

```
[S2]vlan batch 2 to 4
[S2]int g0/0/3
[S2-GigabitEthernet0/0/3]port link-type access
[S2-GigabitEthernet0/0/3]port default vlan 4
[S2-GigabitEthernet0/0/3]quit
[S2]int g0/0/6
[S2-GigabitEthernet0/0/6]port link-type access
[S2-GigabitEthernet0/0/6]port default vlan 2

[S1]display vlan
The total number of vlans is : 4
--------------------------------------------------------
U: Up;         D: Down;         TG: Tagged;         UT:
Untagged;
MP: Vlan-mapping;               ST: Vlan-stacking;
#: ProtocolTransparent-vlan;    *: Management-vlan;
--------------------------------------------------------

VID  Type    Ports
--------------------------------------------------------
1    common  UT:GE0/0/2(D)      GE0/0/4(D)
GE0/0/5(D)      GE0/0/6(D)
                GE0/0/7(D)      GE0/0/8(D)
GE0/0/11(D)     GE0/0/12(D)
                GE0/0/13(D)     GE0/0/14(D)
GE0/0/15(D)     GE0/0/16(D)
```

```
                GE0/0/17(D)     GE0/0/18(D)
GE0/0/19(D)     GE0/0/20(D)
                GE0/0/21(D)     GE0/0/22(D)
GE0/0/23(D)     GE0/0/24(D)
                Eth-Trunk1(U)
2    common
3    common  UT:GE0/0/3(U)

4    common  UT:GE0/0/1(U)

VID  Status  Property      MAC-LRN Statistics
Description
--------------------------------------------------------------

1    enable  default       enable  disable    VLAN 0001
2    enable  default       enable  disable    VLAN 0002
3    enable  default       enable  disable    VLAN 0003
4    enable  default       enable  disable    VLAN 0004
[S1]

<S2>disp vlan
The total number of vlans is : 4
--------------------------------------------------------------
U: Up;         D: Down;         TG: Tagged;         UT:
Untagged;
MP: Vlan-mapping;               ST: Vlan-stacking;
#: ProtocolTransparent-vlan;    *: Management-vlan;
--------------------------------------------------------------

VID  Type    Ports
```

```
--------------------------------------------------------------
1    common  UT:GE0/0/1(D)       GE0/0/2(D)
GE0/0/4(D)       GE0/0/5(D)
                 GE0/0/7(D)      GE0/0/8(D)
GE0/0/11(D)      GE0/0/12(D)
                 GE0/0/13(D)     GE0/0/14(D)
GE0/0/15(D)      GE0/0/16(D)
                 GE0/0/17(D)     GE0/0/18(D)
GE0/0/19(D)      GE0/0/20(D)
                 GE0/0/21(D)     GE0/0/22(D)
GE0/0/23(D)      GE0/0/24(D)
                 Eth-Trunk1(U)

2    common  UT:GE0/0/6(U)
             TG:Eth-Trunk1(U)

3    common  TG:Eth-Trunk1(U)

4    common  UT:GE0/0/3(U)

             TG:Eth-Trunk1(U)


VID  Status  Property      MAC-LRN Statistics
Description
--------------------------------------------------------------

1    enable  default       enable  disable    VLAN 0001
2    enable  default       enable  disable    VLAN 0002
3    enable  default       enable  disable    VLAN 0003
4    enable  default       enable  disable    VLAN 0004
```

Task 1

Test Connectivity From all the PCs and see what the outcome is

CONFIGURE A HYBRID INTERFACE

The **port hybrid pvid vlan** command will ensure frames received from the host are tagged with the appropriate VLAN tag.

```
[S1]int g0/0/1
[S1-GigabitEthernet0/0/1]undo port default vlan
[S1-GigabitEthernet0/0/1]port link-type hybrid
[S1-GigabitEthernet0/0/1]port hybrid untagged vlan 2 4
[S1-GigabitEthernet0/0/1]port hybrid pvid vlan 4
[S1-GigabitEthernet0/0/1]quit

[S2]int g0/0/3
[S2-GigabitEthernet0/0/3]undo port default vlan
[S2-GigabitEthernet0/0/3]port link-type hybrid
[S2-GigabitEthernet0/0/3]port hybrid untagged vlan 2 4
[S2-GigabitEthernet0/0/3]port hybrid pvid vlan 4
[S2-GigabitEthernet0/0/3]quit

[S2]int g0/0/6
[S2-GigabitEthernet0/0/6]undo port default vlan
[S2-GigabitEthernet0/0/6]port link-type hybrid
[S2-GigabitEthernet0/0/6]port hybrid untagged vlan 2 4
[S2-GigabitEthernet0/0/6]port hybrid pvid vlan 2
```

Task 2

Test connectivity between the PCs and see what the outcome is using the PING command

TO SEE THE CONFIGURATION

Use the command `display current-configuration` on all the switches

Example:-

```
[S1]display current-configuration
```