Создана сеть согласно топологии
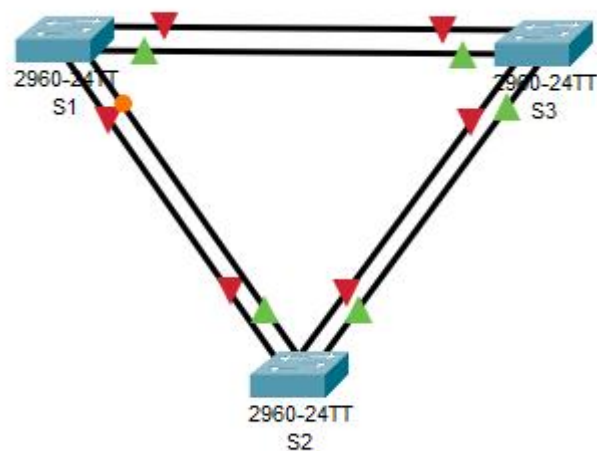

Шаг 1. Отключение всех портов на коммутаторах

Коммутатор S1_Sidorov

```
S1_Sidorov#config t
Enter configuration commands, one per line.  End with CNTL/Z.
S1_Sidorov(config)#interface range fa0/1 - 24
S1_Sidorov(config-if-range)#shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to administratively down
```

Коммутатор S2

```
S2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
S2(config)#interface range fa0/1 -24
S2(config-if-range)#shutdown
```

```
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down
```

Коммутатор S3

```
S3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
S3(config)#interface range f0/1 - 24
S3(config-if-range)#shutdown

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down
```

Шаг 2. Настройка подключённых портов в качестве транковых

Коммутатор S1_Sidorov

```
S1_Sidorov(config)# interface range f0/1 - 4
S1_Sidorov(config-if-range)#switchport mode trunk
S1_Sidorov(config-if-range)#switchport mode trunk
S1_Sidorov(config-if-range)#exit
```

Коммутатор S2

```
S2(config)#interface range f0/1-4
S2(config-if-range)#swi
S2(config-if-range)#switchport mode trunk
S2(config-if-range)#exit
```

Коммутатор S3

```
S3(config)#interface range f0/1-4
S3(config-if-range)#switchport mode trunk
S3(config-if-range)#exit
```

Шаг 3. Включение портов на всех комутаторах

Коммутатор S1_Sidorov

```
S1_Sidorov(config)# interface range f0/2, f0/4
S1_Sidorov(config-if-range)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to down

%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to down
S1_Sidorov(config-if-range)#ex
S1_Sidorov(config-if-range)#exit
```

Коммутатор S2

```
S2(config)#interface range fa0/2, fa0/4
S2(config-if-range)#no shutdown


%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to down
S2(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

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

S2(config-if-range)#exit
```

Коммутатор S3

```
S3(config)#interface range f0/2, f0/4
S3(config-if-range)#no shutdown


S3(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up

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

%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up

S3(config-if-range)#exit
```

Шаг 4. Данные протокола spanning tree

Коммутатор S1_Sidorov

```
S1_Sidorov#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000C.CF9A.2335
             Cost        19
             Port        4(FastEthernet0/4)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     00D0.FFE8.1948
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/2            Altn BLK 19        128.2    P2p
Fa0/4            Root FWD 19        128.4    P2p
```

Коммутатор S2

```
S2#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000C.CF9A.2335
             Cost        19
             Port        4(FastEthernet0/4)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     0030.F2CE.D07D
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/4            Root FWD 19        128.4    P2p
Fa0/2            Desg FWD 19        128.2    P2p
```

Коммутатор S3

```
S3#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000C.CF9A.2335
             This bridge is the root
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     000C.CF9A.2335
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/2            Desg FWD 19        128.2    P2p
Fa0/4            Desg FWD 19        128.4    P2p
```

Шаг 2. Изменение стоимости порта

Коммутатор S1_Sidorov - с заблокированным портом

```
S1_Sidorov(config)#interface f0/4
S1_Sidorov(config-if)#spann
S1_Sidorov(config-if)#spanning-tree cost 18
S1_Sidorov(config-if)#exit
```

Шаг 3. Изменения протокола spanning-tree

Коммутатор S1_Sidorov Fa0/2 - сменил роль на назначенный

```
S1_Sidorov#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000C.CF9A.2335
             Cost        18
             Port        4(FastEthernet0/4)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     00D0.FFE8.1948
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- ------------------------------
Fa0/2            Desg FWD 19        128.2    P2p
Fa0/4            Root FWD 18        128.4    P2p
```

Коммутатор S2 Fa0/2 - сменил роль на альтернативный

```
S2#sh spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000C.CF9A.2335
             Cost        19
             Port        4(FastEthernet0/4)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     0030.F2CE.D07D
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- ------------------------------
Fa0/4            Root FWD 19        128.4    P2p
Fa0/2            Altn BLK 19        128.2    P2p
```

Шаг 4. Удаление изменения стоимости порта на коммутаторе S1

```
S1_Sidorov(config)#interface f0/4
S1_Sidorov(config-if)#no span
S1_Sidorov(config-if)#no spanning-tree cost 18
```

```
S1_Sidorov#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000C.CF9A.2335
             Cost        19
             Port        4(FastEthernet0/4)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     00D0.FFE8.1948
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/2            Altn BLK 19        128.2    P2p
Fa0/4            Root FWD 19        128.4    P2p
```

<div align="center">

Часть 4

</div>

Включение всех портов

Коммутатор S1_Sidorov

```
S1_Sidorov(config)#interface range f0/1, f0/3
S1_Sidorov(config-if-range)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to down

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to down
```

Коммутатор S2

```
S2(config)#interface range fa0/1, fa0/3
S2(config-if-range)#no shutdown


%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to down
S2(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

S2(config-if-range)#exit
```

Коммутатор S3

```
S3(config)#interface range fa0/1, fa0/3
S3(config-if-range)#no shutdown


S3(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up

S3(config-if-range)#exit
```

Изменения протокола spanning-tree

Коммутатор S1_Sidorov

```
S1_Sidorov#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000C.CF9A.2335
             Cost        19
             Port        3(FastEthernet0/3)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     00D0.FFE8.1948
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/2            Altn BLK 19        128.2    P2p
Fa0/3            Root FWD 19        128.3    P2p
Fa0/1            Altn BLK 19        128.1    P2p
Fa0/4            Altn BLK 19        128.4    P2p
```

Коммутатор S2

```
S2#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000C.CF9A.2335
             Cost        19
             Port        3(FastEthernet0/3)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     0030.F2CE.D07D
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------------
Fa0/4            Altn BLK 19        128.4    P2p
Fa0/1            Desg FWD 19        128.1    P2p
Fa0/2            Desg FWD 19        128.2    P2p
Fa0/3            Root FWD 19        128.3    P2p
```