

Лабораторная работа №2

Настройка протокола STP (IEEE 802.1D)

Фаламеева Анастасия

1) Для заданной на схеме `schema-lab2` сети, состоящей из управляемых коммутаторов и персональных компьютеров настроить протокол STP, назначив явно один из коммутаторов корневым настройкой приоритета.

В качестве корневого коммутатора был выбран Switch4. Для настройки коммутатора переходим в режим конфигурации. Пишем сначала *enable*, после в командной строке *configure terminal*.

Включаем STP и назначаем приоритет с помощью команды *spanning-tree vlan 1 root primary*.

```
vIOS-L2-01>enable
vIOS-L2-01#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
vIOS-L2-01(config)#spanning-tree vlan 1 root primary
vIOS-L2-01(config)#exit
vIOS-L2-01#
*Aug 16 05:17:56.501: %SYS-5-CONFIG_I: Configured from console by console
vIOS-L2-01#show spanning-tree
```

```
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    24577
             Address     0c73.03c9.0000
             This bridge is the root
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    24577  (priority 24576 sys-id-ext 1)
             Address     0c73.03c9.0000
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  15  sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Gi0/0	Desg	LRN	4	128.1	Shr
Gi0/1	Desg	LRN	4	128.2	Shr
Gi0/2	Desg	FWD	4	128.3	Shr

Gi0/3	Desg LRN 4	128.4	Shr
Gi1/0	Desg FWD 4	128.5	Shr
Gi1/1	Desg FWD 4	128.6	Shr

2) Проверить доступность каждого с каждым всех персональных компьютеров (VPCS), результаты запротоколировать.

pc1->pc2

```
PC1> ping 192.168.10.3
```

```
84 bytes from 192.168.10.3 icmp_seq=1 ttl=64 time=5.486 ms
84 bytes from 192.168.10.3 icmp_seq=2 ttl=64 time=4.066 ms
84 bytes from 192.168.10.3 icmp_seq=3 ttl=64 time=0.827 ms
84 bytes from 192.168.10.3 icmp_seq=4 ttl=64 time=0.676 ms
84 bytes from 192.168.10.3 icmp_seq=5 ttl=64 time=8.939 ms
```

pc1->pc3

```
PC1> ping 192.168.10.4
```

```
84 bytes from 192.168.10.4 icmp_seq=1 ttl=64 time=5.691 ms
84 bytes from 192.168.10.4 icmp_seq=2 ttl=64 time=4.649 ms
84 bytes from 192.168.10.4 icmp_seq=3 ttl=64 time=3.951 ms
84 bytes from 192.168.10.4 icmp_seq=4 ttl=64 time=7.182 ms
84 bytes from 192.168.10.4 icmp_seq=5 ttl=64 time=1.907 ms
```

pc1->pc4

```
PC1> ping 192.168.10.5
```

```
84 bytes from 192.168.10.5 icmp_seq=1 ttl=64 time=9.010 ms
84 bytes from 192.168.10.5 icmp_seq=2 ttl=64 time=5.712 ms
84 bytes from 192.168.10.5 icmp_seq=3 ttl=64 time=6.639 ms
84 bytes from 192.168.10.5 icmp_seq=4 ttl=64 time=9.162 ms
84 bytes from 192.168.10.5 icmp_seq=5 ttl=64 time=5.807 ms
```

pc1->pc5

```
PC1> ping 192.168.10.6
```

```
84 bytes from 192.168.10.6 icmp_seq=1 ttl=64 time=5.724 ms
84 bytes from 192.168.10.6 icmp_seq=2 ttl=64 time=6.202 ms
84 bytes from 192.168.10.6 icmp_seq=3 ttl=64 time=7.600 ms
84 bytes from 192.168.10.6 icmp_seq=4 ttl=64 time=13.912 ms
84 bytes from 192.168.10.6 icmp_seq=5 ttl=64 time=6.869 ms
```

pc1->pc6

```
PC1> ping 192.168.10.7
```

```
84 bytes from 192.168.10.7 icmp_seq=1 ttl=64 time=8.975 ms
84 bytes from 192.168.10.7 icmp_seq=2 ttl=64 time=7.422 ms
84 bytes from 192.168.10.7 icmp_seq=3 ttl=64 time=5.801 ms
84 bytes from 192.168.10.7 icmp_seq=4 ttl=64 time=8.302 ms
84 bytes from 192.168.10.7 icmp_seq=5 ttl=64 time=7.211 ms
```

pc2->pc3

```
PC2> ping 192.168.10.4
```

```
84 bytes from 192.168.10.4 icmp_seq=1 ttl=64 time=6.611 ms
84 bytes from 192.168.10.4 icmp_seq=2 ttl=64 time=7.830 ms
84 bytes from 192.168.10.4 icmp_seq=3 ttl=64 time=13.454 ms
84 bytes from 192.168.10.4 icmp_seq=4 ttl=64 time=2.731 ms
84 bytes from 192.168.10.4 icmp_seq=5 ttl=64 time=1.821 ms
```

pc2->pc4

```
PC2> ping 192.168.10.5
```

```
84 bytes from 192.168.10.5 icmp_seq=1 ttl=64 time=4.458 ms
84 bytes from 192.168.10.5 icmp_seq=2 ttl=64 time=1.569 ms
84 bytes from 192.168.10.5 icmp_seq=3 ttl=64 time=1.752 ms
84 bytes from 192.168.10.5 icmp_seq=4 ttl=64 time=8.788 ms
84 bytes from 192.168.10.5 icmp_seq=5 ttl=64 time=8.274 ms
```

pc2->pc5

```
PC2> ping 192.168.10.6
```

```
84 bytes from 192.168.10.6 icmp_seq=1 ttl=64 time=6.157 ms
84 bytes from 192.168.10.6 icmp_seq=2 ttl=64 time=2.334 ms
84 bytes from 192.168.10.6 icmp_seq=3 ttl=64 time=3.803 ms
84 bytes from 192.168.10.6 icmp_seq=4 ttl=64 time=9.515 ms
84 bytes from 192.168.10.6 icmp_seq=5 ttl=64 time=5.492 ms
```

pc2->pc6

```
PC2> ping 192.168.10.7
```

```
84 bytes from 192.168.10.7 icmp_seq=1 ttl=64 time=3.440 ms
84 bytes from 192.168.10.7 icmp_seq=2 ttl=64 time=1.819 ms
84 bytes from 192.168.10.7 icmp_seq=3 ttl=64 time=13.554 ms
84 bytes from 192.168.10.7 icmp_seq=4 ttl=64 time=7.525 ms
84 bytes from 192.168.10.7 icmp_seq=5 ttl=64 time=13.765 ms
```

pc3->pc4

```
PC3> ping 192.168.10.5
```

```
84 bytes from 192.168.10.5 icmp_seq=1 ttl=64 time=0.805 ms
84 bytes from 192.168.10.5 icmp_seq=2 ttl=64 time=6.395 ms
84 bytes from 192.168.10.5 icmp_seq=3 ttl=64 time=7.827 ms
84 bytes from 192.168.10.5 icmp_seq=4 ttl=64 time=4.228 ms
84 bytes from 192.168.10.5 icmp_seq=5 ttl=64 time=1.819 ms
```

pc3->pc5

```
PC3> ping 192.168.10.6
```

```
84 bytes from 192.168.10.6 icmp_seq=1 ttl=64 time=6.552 ms
84 bytes from 192.168.10.6 icmp_seq=2 ttl=64 time=2.863 ms
84 bytes from 192.168.10.6 icmp_seq=3 ttl=64 time=3.526 ms
84 bytes from 192.168.10.6 icmp_seq=4 ttl=64 time=1.593 ms
84 bytes from 192.168.10.6 icmp_seq=5 ttl=64 time=7.909 ms
```

pc3->pc6

```
PC3> ping 192.168.10.7
```

```
84 bytes from 192.168.10.7 icmp_seq=1 ttl=64 time=6.821 ms
84 bytes from 192.168.10.7 icmp_seq=2 ttl=64 time=1.715 ms
84 bytes from 192.168.10.7 icmp_seq=3 ttl=64 time=13.471 ms
84 bytes from 192.168.10.7 icmp_seq=4 ttl=64 time=8.754 ms
84 bytes from 192.168.10.7 icmp_seq=5 ttl=64 time=9.104 ms
```

pc4->pc5

```
PC4> ping 192.168.10.6
```

```
84 bytes from 192.168.10.6 icmp_seq=1 ttl=64 time=10.034 ms
84 bytes from 192.168.10.6 icmp_seq=2 ttl=64 time=3.798 ms
84 bytes from 192.168.10.6 icmp_seq=3 ttl=64 time=23.159 ms
84 bytes from 192.168.10.6 icmp_seq=4 ttl=64 time=1.946 ms
84 bytes from 192.168.10.6 icmp_seq=5 ttl=64 time=13.259 ms
```

pc4->pc6

```
PC4> ping 192.168.10.7
```

```
84 bytes from 192.168.10.7 icmp_seq=1 ttl=64 time=8.918 ms
84 bytes from 192.168.10.7 icmp_seq=2 ttl=64 time=7.164 ms
84 bytes from 192.168.10.7 icmp_seq=3 ttl=64 time=2.510 ms
84 bytes from 192.168.10.7 icmp_seq=4 ttl=64 time=4.288 ms
84 bytes from 192.168.10.7 icmp_seq=5 ttl=64 time=9.795 ms
```

pc5->pc6

```
PC5> ping 192.168.10.7
```

```
84 bytes from 192.168.10.7 icmp_seq=1 ttl=64 time=2.169 ms
84 bytes from 192.168.10.7 icmp_seq=2 ttl=64 time=0.913 ms
84 bytes from 192.168.10.7 icmp_seq=3 ttl=64 time=4.414 ms
84 bytes from 192.168.10.7 icmp_seq=4 ttl=64 time=6.983 ms
84 bytes from 192.168.10.7 icmp_seq=5 ttl=64 time=7.834 ms
```

3) При помощи wireshark отследить передачу пакетов hello от корневого коммутатора на всех линках (nb!), результаты включить в отчет.

Layer2Switch-1_Ethernet4_to_Layer2Switch-4_Ethernet0

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
2	0.154992	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/100/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
3	0.155355	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
4	0.155305	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
5	0.970288	0c:56:63:e4:00:04		Spanning-tree (for...	60	Conf. Root = 32768/100/0c:56:63:e4:00:00 Cost = 0 Port = 0x8005
6	0.974304	0c:56:63:e4:00:04		Spanning-tree (for...	60	Conf. Root = 32768/200/0c:56:63:e4:00:00 Cost = 0 Port = 0x8005
7	0.976298	0c:56:63:e4:00:04		Spanning-tree (for...	60	Conf. Root = 32768/300/0c:56:63:e4:00:00 Cost = 0 Port = 0x8005
8	0.995864	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
9	1.999713	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
10	2.215483	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/100/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
11	2.154883	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
12	2.154957	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
13	2.970806	0c:56:63:e4:00:04		Spanning-tree (for...	60	Conf. Root = 32768/100/0c:56:63:e4:00:00 Cost = 0 Port = 0x8005
14	2.974014	0c:56:63:e4:00:04		Spanning-tree (for...	60	Conf. Root = 32768/200/0c:56:63:e4:00:00 Cost = 0 Port = 0x8005
15	2.975959	0c:56:63:e4:00:04		Spanning-tree (for...	60	Conf. Root = 32768/300/0c:56:63:e4:00:00 Cost = 0 Port = 0x8005
16	2.999772	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
17	3.973700	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
18	4.154378	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/100/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
19	4.154569	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001
20	4.154673	0c:73:03:c9:00:00		Spanning-tree (for...	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8001

Layer2Switch-1_Ethernet5_to_Layer2Switch-4_Ethernet1

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
2	0.154947	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
3	0.155008	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
4	0.155187	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
5	0.973223	0c:56:63:e4:00:05	Spanning-tree (for...	STP	60	Conf. Root = 32768/100/0c:56:63:e4:00:00 Cost = 0 Port = 0x8006
6	0.977224	0c:56:63:e4:00:05	Spanning-tree (for...	STP	60	Conf. Root = 32768/200/0c:56:63:e4:00:00 Cost = 0 Port = 0x8006
7	0.979196	0c:56:63:e4:00:05	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:56:63:e4:00:00 Cost = 0 Port = 0x8006
8	0.990817	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
9	1.999697	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
10	12.145443	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/100/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
11	12.145496	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
12	13.154857	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
14	2.972979	0c:56:63:e4:00:05	Spanning-tree (for...	STP	60	Conf. Root = 32768/100/0c:56:63:e4:00:00 Cost = 0 Port = 0x8006
15	2.977018	0c:56:63:e4:00:05	Spanning-tree (for...	STP	60	Conf. Root = 32768/200/0c:56:63:e4:00:00 Cost = 0 Port = 0x8006
16	2.978901	0c:56:63:e4:00:05	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:56:63:e4:00:00 Cost = 0 Port = 0x8006
17	2.993950	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
18	3.995958	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
19	12.145498	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
20	4.154407	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002
21	4.154636	0c:73:03:c9:00:01	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8002

Layer2Switch-2_Ethernet4_to_Layer2Switch-4_Ethernet2

No.	Time	Source	Destination	Protocol	Length	Info
14	2.599763	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
15	2.599782	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 32768/100/0c39:47:51:00:00 Cost = 0 Port = 0x0005
16	3.805219	0c39:47:51:00:04	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c39:47:51:00:00 Cost = 0 Port = 0x0005
17	3.809385	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
18	4.949311	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 32768/100/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
19	4.949454	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
20	4.949452	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
21	5.998773	0c39:47:51:00:04	Spanning-tree (for...	STP	60	Conf. Root = 32768/100/0c39:47:51:00:00 Cost = 0 Port = 0x0005
22	5.999233	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
23	5.993739	0c39:47:51:00:04	Spanning-tree (for...	STP	60	Conf. Root = 32768/200/0c39:47:51:00:00 Cost = 0 Port = 0x0005
24	5.804842	0c39:47:51:00:04	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c39:47:51:00:00 Cost = 0 Port = 0x0005
25	5.999087	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
26	7.949004	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 32768/100/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
28	6.949138	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
29	6.949279	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
30	6.990549	0c39:47:51:00:04	Spanning-tree (for...	STP	60	Conf. Root = 32768/100/0c39:47:51:00:00 Cost = 0 Port = 0x0005
31	6.999148	0c73:03:c9:00:02	Spanning-tree (for...	STP	60	Conf. Root = 24576/1/0c73:03:c9:00:02 Cost = 0 Port = 0x0003
32	7.800452	0c39:47:51:00:04	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c39:47:51:00:00 Cost = 0 Port = 0x0005
33	7.800445	0c39:47:51:00:04	Spanning-tree (for...	STP	60	Conf. Root = 32768/300/0c39:47:51:00:00 Cost = 0 Port = 0x0005

Layer2Switch-2 Ethernet5 to Layer2Switch-4 Ethernet3

No.	Time	Source	Destination	Protocol	Length	Info
0	0.000000	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
2	0.000131	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
3	0.000214	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
4	0.000310	0c:73:03:c9:00:05	Spanning-tree-for-	STP	60	Conf. Root = 32768/100/0c:39:47:51:00:00 Cost = 0 Port = 0x8006
5	0.000502	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
6	0.000552	0c:39:47:51:00:05	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:39:47:51:00:00 Cost = 0 Port = 0x8006
7	0.005601	0c:39:47:51:00:05	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:39:47:51:00:00 Cost = 0 Port = 0x8006
8	0.049762	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
10	0.999721	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
11	0.999881	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
12	0.000000	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
13	0.049105	0c:39:47:51:00:05	Spanning-tree-for-	STP	60	Conf. Root = 32768/100/0c:39:47:51:00:00 Cost = 0 Port = 0x8006
14	0.049728	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
15	0.054125	0c:39:47:51:00:05	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:39:47:51:00:00 Cost = 0 Port = 0x8006
16	0.055154	0c:39:47:51:00:05	Spanning-tree-for-	STP	60	Conf. Root = 32768/300/0c:39:47:51:00:00 Cost = 0 Port = 0x8006
17	0.049409	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 24576/1/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
18	0.399386	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
19	0.999346	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/200/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
20	0.999659	0c:73:03:c9:00:03	Spanning-tree-for-	STP	60	Conf. Root = 32768/300/0c:73:03:c9:00:00 Cost = 0 Port = 0x8004
21	0.048873	0c:39:47:51:00:05	Spanning-tree-for-	STP	60	Conf. Root = 32768/100/0c:39:47:51:00:00 Cost = 0 Port = 0x8006

4) Изменить стоимость маршрута для порта RP произвольного назначенного (designated) коммутатора, повторить действия из п.3, результат сохранить в отдельный файл.

Для изменения стоимости выберем Switch1. Заходим в режим конфигурации. Идём дальше и вводим команду *interface GigabitEthernet1/1*. Меняем стоимость с помощью команды *spanning-tree vlan 1 cost 50*.

```
vIOS-L2-01>enable
vIOS-L2-01#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
vIOS-L2-01(config)#interface GigabitEthernet1/1
vIOS-L2-01(config-if)#spanning-tree vlan 1 cost 50
vIOS-L2-01(config-if)#exit
vIOS-L2-01(config)#exit
vIOS-L2-01#show spanning-tree

VLAN0001

  Spanning tree enabled protocol ieee
    Root ID    Priority    24577
              Address      0c73.03c9.0000
              Cost         4
              Port         5 (GigabitEthernet1/0)
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
              Address      0c56.63e4.0000
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time   300 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Gi0/0	Altn	BLK	4	128.1	Shr
Gi0/1	Altn	BLK	4	128.2	Shr
Gi0/2	Desg	FWD	4	128.3	Shr
Gi0/3	Desg	FWD	4	128.4	Shr
Gi1/0	Root	FWD	4	128.5	Shr
Gi1/1	Altn	BLK	50	128.6	Shr
Gi1/2	Desg	FWD	4	128.7	Shr

