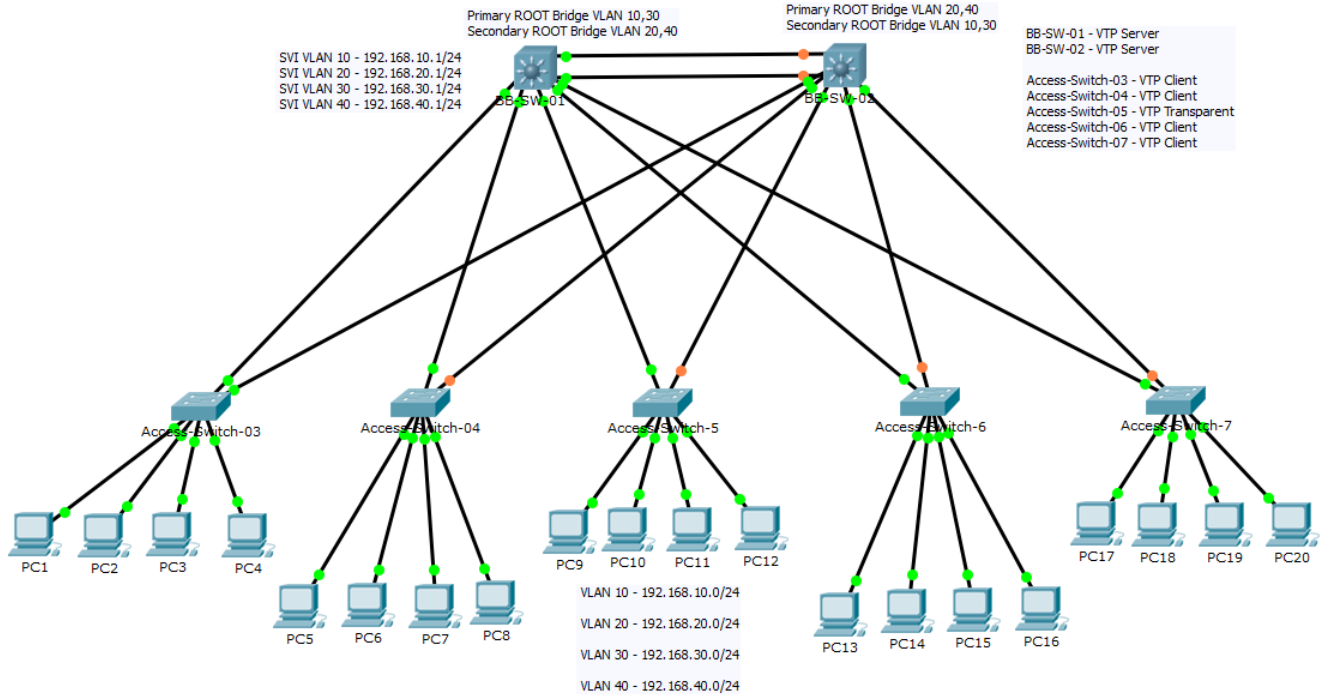


# LAB-211



## Hedef

VLAN oluşturma, Switch üzerinde Access port konfigürasyonu, Portların VLAN'a dahil edilmesi, Trunk port konfigürasyonu, Layer-3 Switch SVI ile Inter-VLAN routing, VTP ile VLAN bilgisinin dağıtılması, STP uygulamaları, PVRST konfigürasyonu, Spanning-Tree Portfast konfigürasyonu.

## PC'lerin IP konfigürasyonları

PC1	VLAN 10	192.168.10.11/24
PC2	VLAN 20	192.168.20.11/24
PC3	VLAN 30	192.168.30.11/24
PC4	VLAN 40	192.168.40.11/24
PC5	VLAN 10	192.168.10.12/24
PC6	VLAN 20	192.168.20.12/24
PC7	VLAN 30	192.168.30.12/24
PC8	VLAN 40	192.168.40.12/24
PC9	VLAN 10	192.168.10.13/24
PC10	VLAN 20	192.168.20.13/24
PC11	VLAN 30	192.168.30.13/24
PC12	VLAN 40	192.168.40.13/24
PC13	VLAN 10	192.168.10.14/24
PC14	VLAN 20	192.168.20.14/24
PC15	VLAN 30	192.168.30.14/24
PC16	VLAN 40	192.168.40.14/24
PC17	VLAN 10	192.168.10.15/24
PC18	VLAN 20	192.168.20.15/24
PC19	VLAN 30	192.168.30.15/24
PC20	VLAN 40	192.168.40.15/24

## Çalışma-01

Öncelikle **VTP** ayarlarını yapıp VTP-Server'larda oluşturacağımız VLAN'ların VTP-Client'larda dinamik olarak oluşmasını sağlayalım.

BB-SW-01 ve BB-SW-02 Adlı switchler VTP-Server modda çalışırken, Access-Switch-05 VTP-Transparent modda, geri kalan switchler ise VTP-Client modda çalışacaktır.

```
BB-SW-01>enable
BB-SW-01#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
BB-SW-01(config)#vtp mode server
Device mode already VTP SERVER.
BB-SW-01(config)#vtp domain IPCOMPRO
BB-SW-01(config)#end
BB-SW-01#
```

```
BB-SW-02(config)#vtp mode server
BB-SW-02(config)#vtp domain IPCOMPRO
```

```
Access-Switch-05(config)#vtp mode transparent
```

```
Access-Switch-03(config)#vtp mode client
```

```
Access-Switch-04(config)#vtp mode client
```

```
Access-Switch-06(config)#vtp mode client
```

```
Access-Switch-07(config)#vtp mode client
```

Şimdi VTP-Server ve VTP-Transparent switchlerde VLAN oluşturabiliriz.

```
BB-SW-01(config)#vlan 10
BB-SW-01(config-vlan)#vlan 20
BB-SW-01(config-vlan)#vlan 30
BB-SW-01(config-vlan)#vlan 40
```

```
BB-SW-02(config)#vlan 10
BB-SW-02(config-vlan)#vlan 20
BB-SW-02(config-vlan)#vlan 30
BB-SW-02(config-vlan)#vlan 40
```

```
Access-Switch-05(config)#vlan 10
Access-Switch-05(config-vlan)#vlan 20
Access-Switch-05(config-vlan)#vlan 30
Access-Switch-05(config-vlan)#vlan 40
```

Henüz Trunk portlar konfigure edilmediği için VTP-Client switchler VLAN konfiglerini VTP-Serverlardan alamıyorlar. Bu problemi ortadan kaldırmak için bütün switchlerin ilgili portlarını trunk moda çekelim. Bunu yaparken **DTP**'yi de kapatalım.

```
BB-SW-01(config)#interface range fastEthernet 0/1-7, fastEthernet 0/12  
BB-SW-01(config-if-range)#switchport trunk encapsulation dot1q  
BB-SW-01(config-if-range)#switchport mode trunk  
BB-SW-01(config-if-range)#switchport nonegotiate
```

```
BB-SW-02(config)#interface range fastEthernet 0/1-7, fastEthernet 0/11  
BB-SW-01(config-if-range)#switchport trunk encapsulation dot1q  
BB-SW-02(config-if-range)#switchport mode trunk  
BB-SW-02(config-if-range)#switchport nonegotiate
```

```
Access-Switch-03(config)#interface range fastEthernet 0/1-2  
Access-Switch-03(config-if-range)#switchport mode trunk  
Access-Switch-03(config-if-range)#switchport nonegotiate
```

```
Access-Switch-04(config)#interface range fastEthernet 0/1-2  
Access-Switch-04(config-if-range)#switchport mode trunk  
Access-Switch-04(config-if-range)#switchport nonegotiate
```

```
Access-Switch-05(config)#interface range fastEthernet 0/1-2  
Access-Switch-05(config-if-range)#switchport mode trunk  
Access-Switch-05(config-if-range)#switchport nonegotiate
```

```
Access-Switch-06(config)#interface range fastEthernet 0/1-2  
Access-Switch-06(config-if-range)#switchport mode trunk  
Access-Switch-06(config-if-range)#switchport nonegotiate
```

```
Access-Switch-07(config)#interface range fastEthernet 0/1-2  
Access-Switch-07(config-if-range)#switchport mode trunk  
Access-Switch-07(config-if-range)#switchport nonegotiate
```

Bun noktadan sonra VTP-Client olan kenar switchlerde VLAN'ların otomatik olarak oluştuğunu görmekteyiz.

```
Access-Switch-04#show vlan brief
```

VLAN	Name	Status	Ports
1	default	active	Fa0/3, Fa0/4, Fa0/5, Fa0/6 Fa0/7, Fa0/8, Fa0/9, Fa0/10 Fa0/11, Fa0/12, Fa0/13, Fa0/14 Fa0/15, Fa0/16, Fa0/17, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gig0/1, Gig0/2
10	VLAN0010	active	
20	VLAN0020	active	
30	VLAN0030	active	
40	VLAN0040	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

```
Access-Switch-04#
```

PC'lerin bağlı oldukları Access Switch portlarını ilgili VLAN'lara dahil edelim.

```
Access-Switch-03(config)#interface fastEthernet 0/11
Access-Switch-03(config-if)#switchport mode access
Access-Switch-03(config-if)#switchport access vlan 10
Access-Switch-03(config-if)#
Access-Switch-03(config-if)#interface fastEthernet 0/12
Access-Switch-03(config-if)#switchport mode access
Access-Switch-03(config-if)#switchport access vlan 20
Access-Switch-03(config-if)#
Access-Switch-03(config-if)#interface fastEthernet 0/13
Access-Switch-03(config-if)#switchport mode access
Access-Switch-03(config-if)#switchport access vlan 30
Access-Switch-03(config-if)#
Access-Switch-03(config-if)#interface fastEthernet 0/14
Access-Switch-03(config-if)#switchport mode access
Access-Switch-03(config-if)#switchport access vlan 40
Access-Switch-03(config-if)#
```

```
Access-Switch-04 (config) #interface fastEthernet 0/11
Access-Switch-04 (config-if) #switchport mode access
Access-Switch-04 (config-if) #switchport access vlan 10
Access-Switch-04 (config-if) #
Access-Switch-04 (config-if) #interface fastEthernet 0/12
Access-Switch-04 (config-if) #switchport mode access
Access-Switch-04 (config-if) #switchport access vlan 20
Access-Switch-04 (config-if) #
Access-Switch-04 (config-if) #interface fastEthernet 0/13
Access-Switch-04 (config-if) #switchport mode access
Access-Switch-04 (config-if) #switchport access vlan 30
Access-Switch-04 (config-if) #
Access-Switch-04 (config-if) #interface fastEthernet 0/14
Access-Switch-04 (config-if) #switchport mode access
Access-Switch-04 (config-if) #switchport access vlan 40
Access-Switch-04 (config-if) #
```

```
Access-Switch-05 (config) #interface fastEthernet 0/11
Access-Switch-05 (config-if) #switchport mode access
Access-Switch-05 (config-if) #switchport access vlan 10
Access-Switch-05 (config-if) #
Access-Switch-05 (config-if) #interface fastEthernet 0/12
Access-Switch-05 (config-if) #switchport mode access
Access-Switch-05 (config-if) #switchport access vlan 20
Access-Switch-05 (config-if) #
Access-Switch-05 (config-if) #interface fastEthernet 0/13
Access-Switch-05 (config-if) #switchport mode access
Access-Switch-05 (config-if) #switchport access vlan 30
Access-Switch-05 (config-if) #
Access-Switch-05 (config-if) #interface fastEthernet 0/14
Access-Switch-05 (config-if) #switchport mode access
Access-Switch-05 (config-if) #switchport access vlan 40
Access-Switch-05 (config-if) #
```

```
Access-Switch-06(config)#interface fastEthernet 0/11
Access-Switch-06(config-if)#switchport mode access
Access-Switch-06(config-if)#switchport access vlan 10
Access-Switch-06(config-if)#
Access-Switch-06(config-if)#interface fastEthernet 0/12
Access-Switch-06(config-if)#switchport mode access
Access-Switch-06(config-if)#switchport access vlan 20
Access-Switch-06(config-if)#
Access-Switch-06(config-if)#interface fastEthernet 0/13
Access-Switch-06(config-if)#switchport mode access
Access-Switch-06(config-if)#switchport access vlan 30
Access-Switch-06(config-if)#
Access-Switch-06(config-if)#interface fastEthernet 0/14
Access-Switch-06(config-if)#switchport mode access
Access-Switch-06(config-if)#switchport access vlan 40
Access-Switch-06(config-if)#
```

```
Access-Switch-07(config)#interface fastEthernet 0/11
Access-Switch-07(config-if)#switchport mode access
Access-Switch-07(config-if)#switchport access vlan 10
Access-Switch-07(config-if)#
Access-Switch-07(config-if)#interface fastEthernet 0/12
Access-Switch-07(config-if)#switchport mode access
Access-Switch-07(config-if)#switchport access vlan 20
Access-Switch-07(config-if)#
Access-Switch-07(config-if)#interface fastEthernet 0/13
Access-Switch-07(config-if)#switchport mode access
Access-Switch-07(config-if)#switchport access vlan 30
Access-Switch-07(config-if)#
Access-Switch-07(config-if)#interface fastEthernet 0/14
Access-Switch-07(config-if)#switchport mode access
Access-Switch-07(config-if)#switchport access vlan 40
Access-Switch-07(config-if)#
```

Omurga switchlerimizden BB-SW-01 üzerinde SVI interface'leri oluşturup IP adreslerini verelim ve routing özelliğini aktif edelim.

```
BB-SW-01(config)#ip routing
BB-SW-01(config)#interface vlan 10
BB-SW-01(config-if)#ip address 192.168.10.1 255.255.255.0
BB-SW-01(config-if)#interface vlan 20
BB-SW-01(config-if)#ip address 192.168.20.1 255.255.255.0
BB-SW-01(config-if)#interface vlan 30
BB-SW-01(config-if)#ip address 192.168.30.1 255.255.255.0
BB-SW-01(config-if)#interface vlan 40
BB-SW-01(config-if)#ip address 192.168.40.1 255.255.255.0
```

## Çalışma-02

Bu çalışmamızda, switchlerin yedekli bağlantılarının oluşturduğu LOOP'un engellenmesi için devreye giren SpanningTree protokolünün ilgili ayarlarını yapacağız. Çalışmamızda yer alan BB-SW-01'in VLAN 10 ve 30 için ROOT Bridge olması istenirken, BB-SW-02'nin VLAN 20 ve 40 için ROOT Bridge olması istenmektedir. Ayrıca çalışmamızda birçok konuda bizlere avantaj sağlamakta olan Rapid SpanningTree versiyonu kullanılacaktır.

Öncelikle bütün switchlerde Rapid SpanningTree versiyonuna geçiş yapalım.

```
(config)#spanning-tree mode rapid-pvst
```

BB-SW-01'in VLAN 10 ve 30 için ROOT Bridge olmasını sağlayalım. Aynı zamanda BB-SW-01 diğer VLAN'lar için yedek ROOT Bridge olacak.

```
BB-SW-01#show spanning-tree vlan 10
```

```
VLAN0010
```

```
Spanning tree enabled protocol rstp
```

```
Root ID      Priority      32778
Address      0003.E480.E6EB
Cost         19
Port         3(FastEthernet0/3)
Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
```

```
Bridge ID    Priority      32778 (priority 32768 sys-id-ext 10)
Address      000B.BECE.D902
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
Fa0/3	Root	FWD	19	128.3	P2p
Fa0/4	Desg	FWD	19	128.4	P2p
Fa0/5	Desg	FWD	19	128.5	P2p
Fa0/6	Desg	FWD	19	128.6	P2p
Fa0/7	Desg	FWD	19	128.7	P2p
Fa0/12	Desg	FWD	19	128.12	P2p

```
BB-SW-01#
```



```
BB-SW-01#show spanning-tree vlan 30
```

```
VLAN0030
```

```
Spanning tree enabled protocol rstp
```

```
Root ID      Priority      32798
            Address      0003.E480.E6EB
            Cost        19
            Port        3(FastEthernet0/3)
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
```

```
Bridge ID   Priority      32798 (priority 32768 sys-id-ext 30)
            Address      000B.BECE.D902
            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
Fa0/3	Root	FWD	19	128.3	P2p
Fa0/4	Desg	FWD	19	128.4	P2p
Fa0/5	Desg	FWD	19	128.5	P2p
Fa0/6	Desg	FWD	19	128.6	P2p
Fa0/7	Desg	FWD	19	128.7	P2p
Fa0/12	Desg	FWD	19	128.12	P2p

```
BB-SW-01#
```

```
BB-SW-01(config)#spanning-tree vlan 10 root primary
```

```
BB-SW-01(config)#spanning-tree vlan 30 root primary
```

```
BB-SW-01(config)#
```

```
BB-SW-01(config)#spanning-tree vlan 20 root secondary
```

```
BB-SW-01(config)#spanning-tree vlan 40 root secondary
```

BB-SW-01#**show spanning-tree vlan 10**

VLAN0010

Spanning tree enabled protocol rstp

Root ID      Priority      24586  
               Address      000B.BECE.D902  
               *This bridge is the root*  
               Hello Time  2 sec    Max Age 20 sec    Forward Delay 15 sec

Bridge ID    Priority      24586    (priority 24576 sys-id-ext 10)  
               Address      000B.BECE.D902  
               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
Fa0/3	Desg	FWD	19	128.3	P2p
Fa0/4	Desg	FWD	19	128.4	P2p
Fa0/5	Desg	FWD	19	128.5	P2p
Fa0/6	Desg	FWD	19	128.6	P2p
Fa0/7	Desg	FWD	19	128.7	P2p
Fa0/12	Desg	FWD	19	128.12	P2p

BB-SW-01#**show spanning-tree vlan 30**

VLAN0030

Spanning tree enabled protocol rstp

Root ID      Priority      24606  
               Address      000B.BECE.D902  
               ***This bridge is the root***  
               Hello Time  2 sec    Max Age 20 sec    Forward Delay 15 sec

Bridge ID    Priority      24606    (priority 24576 sys-id-ext 30)  
               Address      000B.BECE.D902  
               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
Fa0/3	Desg	FWD	19	128.3	P2p
Fa0/4	Desg	FWD	19	128.4	P2p
Fa0/5	Desg	FWD	19	128.5	P2p
Fa0/6	Desg	FWD	19	128.6	P2p
Fa0/7	Desg	FWD	19	128.7	P2p
Fa0/12	Desg	FWD	19	128.12	P2p

Şimdi de BB-SW-02'in VLAN 20 ve 40 için ROOT Bridge olmasını sağlayalım. Aynı zamanda BB-SW-02 diğer VLAN'lar için yedek ROOT Bridge olacak.

```
BB-SW-02 (config) #spanning-tree vlan 20 root primary
BB-SW-02 (config) #spanning-tree vlan 40 root primary
BB-SW-02 (config) #
BB-SW-02 (config) #spanning-tree vlan 10 root secondary
BB-SW-02 (config) #spanning-tree vlan 30 root secondary
```

```
BB-SW-02#show spanning-tree vlan 20
```

```
VLAN0020
```

```
Spanning tree enabled protocol rstp
```

```
Root ID      Priority      24596
             Address      0090.2138.68A2
```

```
This bridge is the root
```

```
Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
```

```
Bridge ID   Priority      24596  (priority 24576 sys-id-ext 20)
```

```
Address     0090.2138.68A2
```

```
Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
```

```
Aging Time  20
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/5	Desg	FWD	19	128.5	P2p
Fa0/1	Desg	FWD	19	128.1	P2p
Fa0/3	Desg	FWD	19	128.3	P2p
Fa0/4	Desg	FWD	19	128.4	P2p
Fa0/6	Desg	FWD	19	128.6	P2p
Fa0/7	Desg	FWD	19	128.7	P2p
Fa0/11	Desg	FWD	19	128.11	P2p

```
BB-SW-02#show spanning-tree vlan 40
```

```
VLAN0040
```

```
Spanning tree enabled protocol rstp
```

```
Root ID      Priority      24616
            Address      0090.2138.68A2
```

```
This bridge is the root
```

```
Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
```

```
Bridge ID   Priority      24616  (priority 24576 sys-id-ext 40)
```

```
Address      0090.2138.68A2
```

```
Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
```

```
Aging Time  20
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/5	Desg	FWD	19	128.5	P2p
Fa0/1	Desg	FWD	19	128.1	P2p
Fa0/3	Desg	FWD	19	128.3	P2p
Fa0/4	Desg	FWD	19	128.4	P2p
Fa0/6	Desg	FWD	19	128.6	P2p
Fa0/7	Desg	FWD	19	128.7	P2p
Fa0/11	Desg	FWD	19	128.11	P2p

```
BB-SW-02#
```

Access switch'lere baęlı PC'lerin SpanningTree yüzünden her açılışlarında 50/30 saniye beklemelerinin önüne geçmek ve bu portlarda SpanningTree'yi disable etmek için aşağıdaki konfigürasyon bütün PC portlarına girilir. Bir dięer önemli konfigürasyonda bu portlardan gelebilecek kötü niyetli BPDU framelerine karşı önlem almaktır. Bu önlem alınmaz ise PC den gelebilecek düşük priority'li BPDU'lar bütün topology'yi darmaduman edebilir.

```
Access-Switch-03(config)#interface fastEthernet 0/11
Access-Switch-03(config-if)#spanning-tree portfast
Access-Switch-03(config-if)# spanning-tree bpduguard enable
Access-Switch-03(config-if)#interface fastEthernet 0/12
Access-Switch-03(config-if)#spanning-tree portfast
Access-Switch-03(config-if)# spanning-tree bpduguard enable
Access-Switch-03(config-if)#interface fastEthernet 0/13
Access-Switch-03(config-if)#spanning-tree portfast
Access-Switch-03(config-if)# spanning-tree bpduguard enable
Access-Switch-03(config-if)#interface fastEthernet 0/14
Access-Switch-03(config-if)#spanning-tree portfast
Access-Switch-03(config-if)# spanning-tree bpduguard enable
```

```
Access-Switch-04(config)#interface fastEthernet 0/11
Access-Switch-04(config-if)#spanning-tree portfast
Access-Switch-04(config-if)# spanning-tree bpduguard enable
Access-Switch-04(config-if)#interface fastEthernet 0/12
Access-Switch-04(config-if)#spanning-tree portfast
Access-Switch-04(config-if)# spanning-tree bpduguard enable
Access-Switch-04(config-if)#interface fastEthernet 0/13
Access-Switch-04(config-if)#spanning-tree portfast
Access-Switch-04(config-if)# spanning-tree bpduguard enable
Access-Switch-04(config-if)#interface fastEthernet 0/14
Access-Switch-04(config-if)#spanning-tree portfast
Access-Switch-04(config-if)# spanning-tree bpduguard enable
```

```
Access-Switch-05(config)#interface fastEthernet 0/11
Access-Switch-05(config-if)#spanning-tree portfast
Access-Switch-05(config-if)# spanning-tree bpduguard enable
Access-Switch-05(config-if)#interface fastEthernet 0/12
Access-Switch-05(config-if)#spanning-tree portfast
Access-Switch-05(config-if)# spanning-tree bpduguard enable
Access-Switch-05(config-if)#interface fastEthernet 0/13
Access-Switch-05(config-if)#spanning-tree portfast
Access-Switch-05(config-if)# spanning-tree bpduguard enable
Access-Switch-05(config-if)#interface fastEthernet 0/14
Access-Switch-05(config-if)#spanning-tree portfast
Access-Switch-05(config-if)# spanning-tree bpduguard enable
```

```
Access-Switch-06(config)#interface fastEthernet 0/11
Access-Switch-06(config-if)#spanning-tree portfast
Access-Switch-06(config-if)# spanning-tree bpduguard enable
Access-Switch-06(config-if)#interface fastEthernet 0/12
Access-Switch-06(config-if)#spanning-tree portfast
Access-Switch-06(config-if)# spanning-tree bpduguard enable
Access-Switch-06(config-if)#interface fastEthernet 0/13
Access-Switch-06(config-if)#spanning-tree portfast
Access-Switch-06(config-if)# spanning-tree bpduguard enable
Access-Switch-06(config-if)#interface fastEthernet 0/14
Access-Switch-06(config-if)#spanning-tree portfast
Access-Switch-06(config-if)# spanning-tree bpduguard enable
```

```
Access-Switch-07(config)#interface fastEthernet 0/11
Access-Switch-07(config-if)#spanning-tree portfast
Access-Switch-07(config-if)# spanning-tree bpduguard enable
Access-Switch-07(config-if)#interface fastEthernet 0/12
Access-Switch-07(config-if)#spanning-tree portfast
Access-Switch-07(config-if)# spanning-tree bpduguard enable
Access-Switch-07(config-if)#interface fastEthernet 0/13
Access-Switch-07(config-if)#spanning-tree portfast
Access-Switch-07(config-if)# spanning-tree bpduguard enable
Access-Switch-07(config-if)#interface fastEthernet 0/14
Access-Switch-07(config-if)#spanning-tree portfast
Access-Switch-07(config-if)# spanning-tree bpduguard enable
```

## Switch'lerin son config'leri

```
BB-SW-01#show running-config
```

```
Building configuration...
```

```
Current configuration : 2197 bytes
```

```
!  
version 12.2  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname BB-SW-01  
!  
ip routing  
!  
no ip domain-lookup  
!  
spanning-tree mode rapid-pvst  
spanning-tree vlan 10,30 priority 24576  
spanning-tree vlan 20,40 priority 28672  
!  
interface FastEthernet0/1  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/2  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/3  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/4  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/5  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!
```

```
!  
interface FastEthernet0/6  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/7  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/8  
!  
interface FastEthernet0/9  
!  
interface FastEthernet0/10  
!  
interface FastEthernet0/11  
!  
interface FastEthernet0/12  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/13  
!  
interface FastEthernet0/14  
!  
interface FastEthernet0/15  
!  
interface FastEthernet0/16  
!  
interface FastEthernet0/17  
!  
interface FastEthernet0/18  
!  
interface FastEthernet0/19  
!  
interface FastEthernet0/20  
!  
interface FastEthernet0/21  
!  
interface FastEthernet0/22  
!  
interface FastEthernet0/23  
!  
interface FastEthernet0/24
```



```
!  
interface GigabitEthernet0/1  
!  
interface GigabitEthernet0/2  
!  
interface Vlan1  
  no ip address  
  shutdown  
!  
interface Vlan10  
  ip address 192.168.10.1 255.255.255.0  
!  
interface Vlan20  
  ip address 192.168.20.1 255.255.255.0  
!  
interface Vlan30  
  ip address 192.168.30.1 255.255.255.0  
!  
interface Vlan40  
  ip address 192.168.40.1 255.255.255.0  
!  
ip classless  
!  
ip flow-export version 9  
!  
line con 0  
  exec-timeout 0 0  
  logging synchronous  
!  
line aux 0  
!  
line vty 0 4  
  login  
!  
end
```

```
BB-SW-02#show running-config
```

```
Building configuration...
```

```
Current configuration : 1952 bytes
```

```
!  
version 12.2  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname BB-SW-02  
!  
no ip domain-lookup  
!  
spanning-tree mode rapid-pvst  
spanning-tree vlan 20,40 priority 24576  
spanning-tree vlan 10,30 priority 28672  
!  
interface FastEthernet0/1  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/2  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/3  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/4  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/5  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/6  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate
```

```
!  
interface FastEthernet0/7  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/8  
!  
interface FastEthernet0/9  
!  
interface FastEthernet0/10  
!  
interface FastEthernet0/11  
  switchport trunk encapsulation dot1q  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/12  
!  
interface FastEthernet0/13  
!  
interface FastEthernet0/14  
!  
interface FastEthernet0/15  
!  
interface FastEthernet0/16  
!  
interface FastEthernet0/17  
!  
interface FastEthernet0/18  
!  
interface FastEthernet0/19  
!  
interface FastEthernet0/20  
!  
interface FastEthernet0/21  
!  
interface FastEthernet0/22  
!  
interface FastEthernet0/23  
!  
interface FastEthernet0/24  
!  
interface GigabitEthernet0/1  
!  
interface GigabitEthernet0/2  
!
```

```
interface Vlan1
  no ip address
  shutdown
  !
  ip classless
  !
  ip flow-export version 9
  !
  line con 0
    exec-timeout 0 0
    logging synchronous
  !
  line aux 0
  !
  line vty 0 4
    login
  !
end
```

```
Access-Switch-03#show running-config
```

```
Building configuration...
```

```
Current configuration : 1512 bytes
```

```
!  
version 12.2  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname Access-Switch-03  
!  
no ip domain-lookup  
!  
spanning-tree mode rapid-pvst  
!  
interface FastEthernet0/1  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/2  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/3  
!  
interface FastEthernet0/4  
!  
interface FastEthernet0/5  
!  
interface FastEthernet0/6  
!  
interface FastEthernet0/7  
!  
interface FastEthernet0/8  
!  
interface FastEthernet0/9  
!  
interface FastEthernet0/10  
!  
interface FastEthernet0/11  
  switchport access vlan 10  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!
```

```
!  
interface FastEthernet0/12  
  switchport access vlan 20  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/13  
  switchport access vlan 30  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/14  
  switchport access vlan 40  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/15  
!  
interface FastEthernet0/16  
!  
interface FastEthernet0/17  
!  
interface FastEthernet0/18  
!  
interface FastEthernet0/19  
!  
interface FastEthernet0/20  
!  
interface FastEthernet0/21  
!  
interface FastEthernet0/22  
!  
interface FastEthernet0/23  
!  
interface FastEthernet0/24  
!  
interface GigabitEthernet0/1  
!  
interface GigabitEthernet0/2  
!  
interface Vlan1  
  no ip address  
  shutdown  
!
```

```
!  
line con 0  
  logging synchronous  
  exec-timeout 0 0  
!  
line vty 0 4  
  login  
line vty 5 15  
  login  
!  
end
```

```
Access-Switch-04#show running-config
```

```
Building configuration...
```

```
Current configuration : 1512 bytes
```

```
!  
version 12.2  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname Access-Switch-04  
!  
no ip domain-lookup  
!  
spanning-tree mode rapid-pvst  
!  
interface FastEthernet0/1  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/2  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/3  
!  
interface FastEthernet0/4  
!  
interface FastEthernet0/5  
!  
interface FastEthernet0/6  
!  
interface FastEthernet0/7  
!  
interface FastEthernet0/8  
!  
interface FastEthernet0/9  
!  
interface FastEthernet0/10  
!  
interface FastEthernet0/11  
  switchport access vlan 10  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!
```



```
!  
interface FastEthernet0/12  
  switchport access vlan 20  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/13  
  switchport access vlan 30  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/14  
  switchport access vlan 40  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/15  
!  
interface FastEthernet0/16  
!  
interface FastEthernet0/17  
!  
interface FastEthernet0/18  
!  
interface FastEthernet0/19  
!  
interface FastEthernet0/20  
!  
interface FastEthernet0/21  
!  
interface FastEthernet0/22  
!  
interface FastEthernet0/23  
!  
interface FastEthernet0/24  
!  
interface GigabitEthernet0/1  
!  
interface GigabitEthernet0/2  
!  
interface Vlan1  
  no ip address  
  shutdown  
!
```

```
!  
line con 0  
  logging synchronous  
  exec-timeout 0 0  
!  
line vty 0 4  
  login  
line vty 5 15  
  login  
!  
!  
end
```

```
Access-Switch-05#show running-config
```

```
Building configuration...
```

```
Current configuration : 1527 bytes
```

```
!  
version 12.2  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname Access-Switch-05  
!  
no ip domain-lookup  
!  
vtp mode transparent  
!  
!  
spanning-tree mode rapid-pvst  
!  
vlan 10  
!  
vlan 20  
!  
vlan 30  
!  
vlan 40  
!  
interface FastEthernet0/1  
  switchport mode trunk  
!  
interface FastEthernet0/2  
  switchport mode trunk  
!  
interface FastEthernet0/3  
!  
interface FastEthernet0/4  
!  
interface FastEthernet0/5  
!  
interface FastEthernet0/6  
!  
interface FastEthernet0/7  
!  
interface FastEthernet0/8  
!  
interface FastEthernet0/9  
!
```

```
interface FastEthernet0/10
!
interface FastEthernet0/11
  switchport access vlan 10
  switchport mode access
  spanning-tree portfast
  spanning-tree bpduguard enable
!
interface FastEthernet0/12
  switchport access vlan 20
  switchport mode access
  spanning-tree portfast
  spanning-tree bpduguard enable
!
interface FastEthernet0/13
  switchport access vlan 30
  switchport mode access
  spanning-tree portfast
  spanning-tree bpduguard enable
!
interface FastEthernet0/14
  switchport access vlan 40
  switchport mode access
  spanning-tree portfast
  spanning-tree bpduguard enable
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
```

```
!  
interface GigabitEthernet0/2  
!  
interface Vlan1  
  no ip address  
  shutdown  
!  
line con 0  
  logging synchronous  
  exec-timeout 0 0  
!  
line vty 0 4  
  login  
line vty 5 15  
  login  
!  
!  
end
```

```
Access-Switch-06#show running-config
```

```
Building configuration...
```

```
Current configuration : 1512 bytes
```

```
!  
version 12.2  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname Access-Switch-06  
!  
no ip domain-lookup  
!  
spanning-tree mode rapid-pvst  
!  
interface FastEthernet0/1  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/2  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/3  
!  
interface FastEthernet0/4  
!  
interface FastEthernet0/5  
!  
interface FastEthernet0/6  
!  
interface FastEthernet0/7  
!  
interface FastEthernet0/8  
!  
interface FastEthernet0/9  
!  
interface FastEthernet0/10  
!  
interface FastEthernet0/11  
  switchport access vlan 10  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!
```

```
!  
interface FastEthernet0/12  
  switchport access vlan 20  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/13  
  switchport access vlan 30  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/14  
  switchport access vlan 40  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/15  
!  
interface FastEthernet0/16  
!  
interface FastEthernet0/17  
!  
interface FastEthernet0/18  
!  
interface FastEthernet0/19  
!  
interface FastEthernet0/20  
!  
interface FastEthernet0/21  
!  
interface FastEthernet0/22  
!  
interface FastEthernet0/23  
!  
interface FastEthernet0/24  
!  
interface GigabitEthernet0/1  
!  
interface GigabitEthernet0/2  
!  
interface Vlan1  
  no ip address  
  shutdown  
!
```

```
!  
line con 0  
  logging synchronous  
  exec-timeout 0 0  
!  
line vty 0 4  
  login  
line vty 5 15  
  login  
!  
end
```



```
Access-Switch-07#show running-config
```

```
Building configuration...
```

```
Current configuration : 1512 bytes
```

```
!  
version 12.2  
no service timestamps log datetime msec  
no service timestamps debug datetime msec  
no service password-encryption  
!  
hostname Access-Switch-07  
!  
no ip domain-lookup  
!  
spanning-tree mode rapid-pvst  
!  
interface FastEthernet0/1  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/2  
  switchport mode trunk  
  switchport nonegotiate  
!  
interface FastEthernet0/3  
!  
interface FastEthernet0/4  
!  
interface FastEthernet0/5  
!  
interface FastEthernet0/6  
!  
interface FastEthernet0/7  
!  
interface FastEthernet0/8  
!  
interface FastEthernet0/9  
!  
interface FastEthernet0/10  
!  
interface FastEthernet0/11  
  switchport access vlan 10  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!
```

```
!  
interface FastEthernet0/12  
  switchport access vlan 20  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/13  
  switchport access vlan 30  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/14  
  switchport access vlan 40  
  switchport mode access  
  spanning-tree portfast  
  spanning-tree bpduguard enable  
!  
interface FastEthernet0/15  
!  
interface FastEthernet0/16  
!  
interface FastEthernet0/17  
!  
interface FastEthernet0/18  
!  
interface FastEthernet0/19  
!  
interface FastEthernet0/20  
!  
interface FastEthernet0/21  
!  
interface FastEthernet0/22  
!  
interface FastEthernet0/23  
!  
interface FastEthernet0/24  
!  
interface GigabitEthernet0/1  
!  
interface GigabitEthernet0/2  
!  
interface Vlan1  
  no ip address  
  shutdown  
!
```

```
!  
line con 0  
  logging synchronous  
  exec-timeout 0 0  
!  
line vty 0 4  
  login  
line vty 5 15  
  login  
!  
end
```

<https://goo.gl/Ei91i3>

Umarım faydalı bir LAB çalışması olmuştur.  
Soru ve yorumlarınız için,  
[aliaydemir80@gmail.com](mailto:aliaydemir80@gmail.com)