Inter vlan Routing:

L2 Switches --> ROAS
L3 Switches ---> SVI

VTP ver 2
Private vlan in Trasparent

L2 Switches --> ROAS

```
conf t
vlan 10
Name sales
exit

vlan 20
name Mark
exit

vlan 30
name Guest
exit

Vlan 40
name HR
exit

int g0/0
Sw access vlan 10
exit

int g0/1
Sw access vlan 20
exit


int g0/2
Sw access vlan 30
exit

int g0/3
Sw access vlan 40
exit


Int g1/0
Sw trunk encap dot1q
sw mode trunk
exit
```

Router:

```
Conf t
int g0/0
Desc conn to SWitch
```

```
no Shut
ex

! Create sub-interfaces for each vlan

int g0/0.10
Desc GW for vlan 10
encap dot1q 10
ip add 10.1.1.100 255.255.255.0
exit

int g0/0.20
Desc GW for vlan 20
encap dot1q 20
ip add 20.1.1.100 255.255.255.0
exit

int g0/0.30
Desc GW for vlan 30
encap dot1q 30
ip add 30.1.1.100 255.255.255.0
exit


int g0/0.4000
Desc GW for vlan 40
encap dot1q 40
ip add 40.1.1.100 255.255.255.0
exit

==========================================================================

L3 Switches    ---> SVI

conf t
vlan 10
Name sales
exit

vlan 20
name Mark
exit

vlan 30
name Guest
exit

Vlan 40
name HR
exit

int g0/0
Sw access vlan 10
exit
```

```
int g0/1
Sw access vlan 20
exit


int g0/2
Sw access vlan 30
exit

int g0/3
Sw access vlan 40
exit

! Create SVI (Switch virtual interfaces)

int vlan 10
Desc Gw for vlan 10
ip add 10.1.1.100 255.255.255.0
no shut
exit


int vlan 20
Desc Gw for vlan 20
ip add 20.1.1.100 255.255.255.0
no shut
exit


int vlan 30
Desc Gw for vlan 30
ip add 30.1.1.100 255.255.255.0
no shut
exit


int vlan 40
Desc Gw for vlan 40
ip add 40.1.1.100 255.255.255.0
no shut
exit

! Enable routing

ip routing


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Vtp ver
v1/v2/v3

v1/v2  - Normal/standard   1-1005
V3      -Normal/Extended     1-4095
         vlan database/Private vlans/Mst DB
```

Modes: v1/v2

Server CIA -Cr,install,Adv
Client IA - install,Adv (Extended vlans can be cr locally)
Transparent A -Adv cr local,Private vlans
off mode Will not participate in Vtp

V3
Server -primary
Server - Secondary
Client
Transparent
off mode

Vtp messages
Summary ADV 300 sec/Change to vlan DB
Subset ADV

Server
Vtp domain ABC
Vtp ver 2
Vtp password cisco
vtp mode server

int range g0/0-1
Sw Trunk encap dot1q
Sw mode trunk
exit

Client
Vtp domain ABC
Vtp ver 2
Vtp password cisco
vtp mode client

int range e0/0-1
Sw Trunk encap dot1q
Sw mode trunk
exit

Transparent
Vtp domain ABC
Vtp ver 2
Vtp password cisco
vtp mode Transparent

int range e0/0-1
Sw Trunk encap dot1q
Sw mode trunk
exit
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Secondary vlans/Private vlans:

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1.community : They can communicate with in their vlan
e.g pc1 and pc2 in vlan 4001 can communicate but they cannot communicate with other communities and isolated vlans.

2.Isolated : They cannot communicate within the same vlan e.g vlan 4002
pc5 and pc6 cannot communicate with

3.primary vlan can communicate with every one

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Switch(config-vlan)#private-vlan primary
%Private VLANs can only be configured when VTP is in transparent/off modes
in VTP version 1 or 2 and in server/transparent/off modes in VTP version 3
when pruning is turned off

1. vtp mode configured as transparent

```
 vtp mode off
   vtp ver 2
or
   vtp mode transparent
   vtp ver 2

  vlan 4000-4003
```

3.Configure Primary and secondary vlans.
syntax:
---
vlan ID
private-vlan primary|community|isolated

```
vlan 4000
private-vlan primary
vlan 4001
private-vlan community
vlan 4002
private-vlan community
vlan 4003
private-vlan isolated
```

4.Associating Primary vlan with secondary vlans.

Before Association:

Primary	Secondary	Type	Ports
4000	none	primary	
none	4001	community	
none	4002	community	
none	4003	isolated	

```
vlan 4000
private-vlan association add 4001,4002,4003
exit

do sh vlan private-vlan

After Association:
Primary Secondary Type            Ports
------- --------- ----------------- --------
4000    4001      community
4000    4002      community
4000    4003      isolated

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5.Port configurations.
! promiscuous port config:

int g1/2
sw mode private-vlan promiscuous
sw private-vlan mapping  4000 4001,4002,4003
exit

Primary Secondary Type            Ports
------- --------- ----------------- ---------
4000    4001      community         Gi1/2
4000    4002      community         Gi1/2
4000    4003      isolated          Gi1/2

int range g0/0-1
switchport mode  private-vlan host
sw private-vlan host-association 4000 4001

int range g0/2-3
switchport mode  private-vlan host
sw private-vlan host-association 4000 4002

int range g1/0-1
switchport mode private-vlan host
sw private-vlan host-association 4000 4003

================================================================
R7:gateway router
primary vlan promiscious mode can communicate  with every one
conf t
int  g0/0
ip add 1.1.1.100 255.255.255.0
no sh
int lo 0
ip add 8.8.8.8 255.0.0.0
exit
--------------------------------
Community vlan 4001
pc1 and pc2
```

pc1 and pc2 can communicate with each other and they can also communicate with R1
 and lo 8.8.8.8
pc1 and pc2 cannot communicate other communities and isolated.

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