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packetlife.net
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v2.0

VLAN

S

Trunk Encapsulation

VLAN Creation

```
Switch(config) #
vlan 100
Switch(config-vlan) #
name Engineering
0
```

Reserved

1

default

1002

fddi-default

1003

tr

Terminology

Trunking

Carrying multiple VLANs over the same
physical connection

Access VLAN

The VLAN to which an access port is assigned

Voice VLAN

If configured, enables minimal trunking to
support voice traffic in addition to data traffic
on an access port

Troubleshooting

```
show vlan
show interface [status | switchport]
show interface trunk
show vtp status
show vtp password
```

Access Port Configuration

```
Switch(config-if) #
switchport mode access
Switch(config-if) #
```

```
switchport nonegotiate
Switch(config-if)#
switchport access vlan 100
Switch(config-if)#
switchport voice vlan 150
```

Trunk Port Configuration

```
Switch(config-if)#
switchport mode trunk
Switch(config-if)#
switchport trunk encapsulation dot1q
Switch(config-if)#
switchport trunk allowed vlan 10,20-30
Switch(config-if)#
switchport trunk native vlan 10
```

Trunk Types

Header Size

26 bytes

ISL

4 bytes

802.1Q

Trailer Size

4 bytes

N/A

Standard

Cisco

IEEE

Maximum VLANs

1000

4094

VLAN Numbers

1004

fdnet

1005

trnet

1006-4094

Extended

4095

Reserved

Native VLAN

By default, frames in this VLAN are untagged when sent across a trunk

Dynamic Trunking Protocol (DTP)

Can be used to automatically establish trunks between capable ports (insecure)

Switched Virtual Interface (SVI)

A virtual interface which provides a routed gateway into and out of a VLAN

SVI Configuration

```
Switch(config)#
```

```
interface vlan100
Switch(config-if)#
ip address 192.168.100.1 255.255.255.0
```

ISL

Header

Dest

MAC

Source

MAC

Type

FCS

ISL

Dest

MAC

Source

MAC

Type

802.1Q

802.1Q

26 6 6 2 4

6 6 2

4

Dest

MAC

Source

MAC

Type

Untagged

Switch Port Modes

trunk

Forms an unconditional trunk

dynamic desirable

Attempts to negotiate a trunk with the far end

dynamic auto

Forms a trunk only if requested by the far end

access

Will never form a trunk

VLAN Trunking Protocol (VTP)

Domain

Common to all switches participating in VTP

Server Mode

Generates and propagates VTP advertisements to clients;

default mode on unconfigured switches

Client Mode

Receives and forwards advertisements from servers;

VLANs

cannot be manually configured on switches in client

mode

Transparent Mode

Forwards advertisements but does not participate in VTP;

VLANs must be configured manually

Pruning

VLANs not having any access ports on an end switch are

removed from the trunk to reduce flooded traffic

VTP Configuration

```
Switch(config)#
```

```
vtp mode {server | client | transparent}
```

```
Switch(config)#
```

```
vtp domain
```

```
<name>
```

```
Switch(config)#
```

```
vtp password
```

```
<password>
```

```
Switch(config)#
```

```
vtp version {1 | 2}
```

```
Switch(config)#
```

```
vtp pruning
```