

## What is Dynamic Trunking Protocol (DTP)?

**Dynamic Trunking Protocol (DTP)** is a **Cisco proprietary protocol** used to **negotiate trunk links** between **switch ports** on Cisco switches **automatically**.

## Purpose of DTP

The main goal of DTP is to **dynamically establish a trunk** between two switches **without manual configuration** of both ends.

## What is a Trunk?

A **trunk** is a link that can carry **traffic for multiple VLANs**. It uses **802.1Q tagging** to differentiate between VLANs.

## Why DTP is Required

Without DTP:

- Both switch ports would have to be **manually set to trunk mode**
- Configuration mismatch could occur (e.g., one in access mode, one in trunk)

With DTP:

- One port set as **dynamic desirable**, other as **dynamic auto** → trunk forms automatically
- Reduces manual errors
- Saves time during network setup

## DTP Modes

| Mode              | Description                                      | Trunk Forms With                     |
|-------------------|--|--------------------------------------|
| Access            | Forces the port into access mode (no trunking)   | No one                               |
| Trunk             | Forces the port into trunk mode                  | Trunk, Dynamic Desirable             |
| Dynamic Auto      | Passive, waits for other side to request trunk   | Dynamic Desirable, Trunk             |
| Dynamic Desirable | Actively tries to form a trunk                   | Dynamic Auto, Trunk                  |
| Nonegotiate       | Disables DTP; must manually configure both sides | Only with another manually set trunk |

## Security Warning

 **DTP can be a security risk** if left enabled on ports facing end-users or untrusted devices.

Attackers can:

- Send DTP frames
- Form a trunk
- Access **all VLANs** → VLAN hopping attack

 Best practice: **Disable DTP** on all access ports:

## DTP Disable

```
switchport nonegotiate
```

### Example: Configure Trunk Without DTP

```
interface FastEthernet0/1
switchport mode trunk
switchport nonegotiate
```

### 1. View Current DTP Settings

```
Switch# show dtp interface Int g0/0
```

### Example:

```
Switch# show dtp interface FastEthernet0/1
```

### 2. Common DTP Configuration Modes

#### A. Access Mode (No Trunk)

```
interface FastEthernet0/1
```

```
switchport mode access
```

```
switchport nonegotiate
```

 Use for **host-facing ports** to prevent DTP negotiation.

#### B. Trunk Mode (Manual)

```
interface FastEthernet0/1
```

```
switchport mode trunk
```

```
switchport nonegotiate
```

 Best for **secure trunk links** where both sides are manually configured.

### C. Dynamic Auto (Passive)

```
interface FastEthernet0/1
```

```
switchport mode dynamic auto
```

 Waits for the other side to initiate trunking.

### D. Dynamic Desirable (Active)

```
interface FastEthernet0/1
```

```
switchport mode dynamic desirable
```

 Actively tries to negotiate trunking via DTP.

### E. Disable DTP (Optional)

```
interface FastEthernet0/1
```

```
switchport nonegotiate
```

 Disables DTP on a port — must be used **with trunk or access mode**.

#### Example Scenarios

##### Scenario 1: Auto + Desirable → Trunk Forms Automatically

```
Switch1(config)# interface fa0/1
```

```
Switch1(config-if)# switchport mode dynamic desirable
```

```
Switch2(config)# interface fa0/1
```

```
Switch2(config-if)# switchport mode dynamic auto
```

##### Scenario 2: Both Auto → No Trunk!

```
# Both sides are passive, no one initiates trunk
```

```
Switch1(config-if)# switchport mode dynamic auto
```

```
Switch2(config-if)# switchport mode dynamic auto
```

##### Scenario 3: Manual Trunk with No DTP

```
Switch1(config)# interface fa0/1
```

```
Switch1(config-if)# switchport mode trunk
```

```
Switch1(config-if)# switchport nonegotiate
```

```
Switch2(config)# interface fa0/1
```

```
Switch2(config-if)# switchport mode trunk
```

```
Switch2(config-if)# switchport nonegotiate
```

### Verify Trunk and DTP Status

```
Switch# show interfaces trunk  
Switch# show dtp interface fa0/1  
Switch# show running-config interface fa0/1
```