

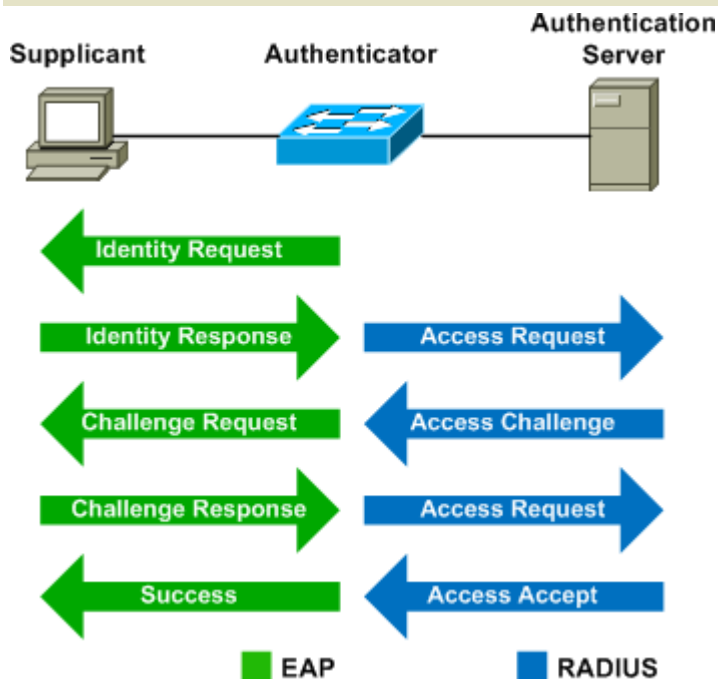
## 802.1X Header



## EAP Header



## EAP Flow Chart



## Configuration

### Global Configuration

```
! Define a RADIUS server
radius-server host 10.0.0.100
radius-server key MyRadiusKey
! Configure 802.1X to authenticate via AAA
aaa new-model
aaa authentication dot1x default group radius
! Enable 802.1X authentication globally
dot1x system-auth-control
```

### Interface Configuration

```
! Configure static access mode
switchport mode access
! Enable 802.1X authentication per port
dot1x port-control auto
! Configure host mode (single or multi)
dot1x host-mode single-host
! Configure maximum authentication attempts
dot1x max-reauth-req
! Enable periodic reauthentication
dot1x reauthentication
! Configure a guest VLAN
dot1x guest-vlan 123
! Configure a restricted VLAN
dot1x auth-fail vlan 456
dot1x auth-fail max-attempts 3
```

## Terminology

**Extensible Authentication Protocol (EAP)** · A flexible authentication framework defined in RFC 3748

**EAP Over LANs (EAPOL)** · The encapsulation used by 802.1X to carry EAP across a layer two segment

**Supplicant** · The device on one end of a link that requests authentication by the authenticator

**Authenticator** · The device that controls the status of a link; typically a wired switch or wireless access point

**Authentication Server** · A backend server which authenticates the credentials provided by supplicants (for example, a RADIUS server)

**Guest VLAN** · Fallback VLAN for clients not 802.1X-capable

**Restricted VLAN** · Fallback VLAN for clients which fail authentication

### 802.1X Packet Types

- 0 EAP Packet
- 1 EAPOL-Start
- 2 EAPOL-Logoff
- 3 EAPOL-Key
- 4 EAPOL-Encap-ASF-Alert

### EAP Codes

- 1 Request
- 2 Response
- 3 Success
- 4 Failure

### Interface Defaults

- Max Auth Requests** 2
- Reauthentication** Off
- Quiet Period** 60s
- Reauth Period** 3600s
- Server Timeout** 30s
- Supplicant Timeout** 30s
- Tx Period** 30s

### EAP Req/Resp Types

- 1 Identity
- 2 Notification
- 3 Nak
- 4 MD5 Challenge
- 5 One Time Password
- 6 Generic Token Card
- 254 Expanded Types
- 255 Experimental

## Port-Control Options

**force-authorized** · Port will always remain in authorized state (default setting)

**force-unauthorized** · Port will always remain in unauthorized state, ignoring authentication attempts

**auto** · Port is authorized only in the presence of a successfully authenticated supplicant

## Troubleshooting

- show dot1x [interface <interface>]
- show dot1x statistics interface <interface>
- dot1x test eapol-capable [interface <interface>]
- dot1x re-authenticate interface <interface>