IOS Zone-Based Firewall

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Terminology

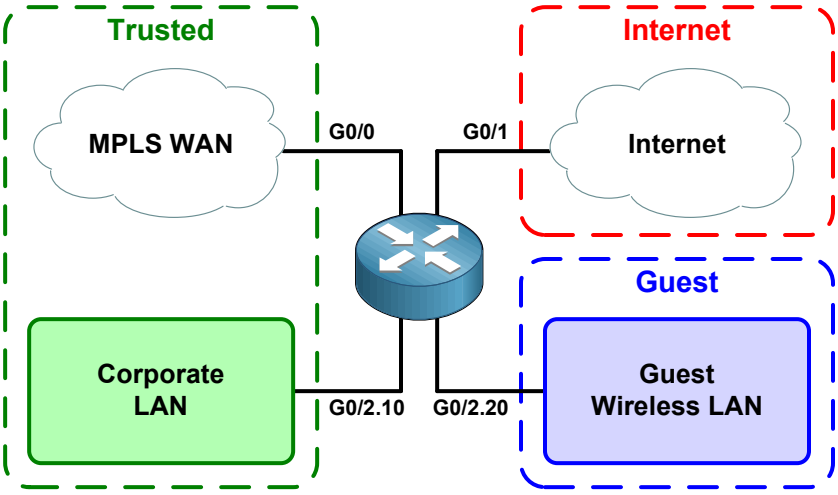
Security Zone
A group of interfaces which share a common level of security

Zone Pair
A unidirectional pairing of source and destination zones to which a security policy is applied

Inspection Policy
An inspect-type policy map used to statefully filter traffic by matching one or more inspect-type class maps

Parameter Map
An optional configuration of protocol-specific parameters referenced by an inspection policy

Security Zones




```
! Defining security zones
zone security Trusted
zone security Guest
zone security Internet

! Assigning interfaces to security zones
interface GigabitEthernet0/0
 zone-member security Trusted
!
interface GigabitEthernet0/1
 zone-member security Internet
!
interface GigabitEthernet0/2.10
 zone-member security Trusted
!
interface GigabitEthernet0/2.20
 zone-member security Guest
```

Inspection Class Configuration

```
! Match by protocol
class-map type inspect match-any ByProtocol
 match protocol tcp
 match protocol udp
 match protocol icmp

! Match by access list
ip access-list extended MyACL
 permit ip 10.0.0.0 255.255.0.0 any
!
class-map type inspect match-all ByAccessList
 match access-group name MyACL
```

Parameter Map Configuration

```
parameter-map type inspect MyParameterMap
 alert on
 audit-trail off
 dns-timeout 5
 max-incomplete low 20000
 max-incomplete high 25000
 icmp idle-time 3
 tcp synwait-time 3
```

Inspection Policy Actions

Drop	Traffic is prevented from passing
Pass	Traffic is permitted to pass without stateful inspection
Inspect	Traffic is subjected to stateful inspection; legitimate return traffic is permitted in the opposite direction

Inspection Policy Configuration

```
policy-map type inspect MyInspectionPolicy
 ! Pass permitted stateless traffic
 class VPN-Tunnel
  pass
 ! Inspect permitted stateful traffic
 class Allowed-Traffic1
  inspect
 ! Stateful inspection with a parameter map
 class Allowed-Traffic2
  inspect MyParameterMap
 ! Drop and log unpermitted traffic
 class class-default
  drop log
```

Zone Pair Configuration

```
! Service policies are applied to zone pairs
zone-pair security T2I source Trusted destination Internet
 service-policy type inspect Trusted2Internet

zone-pair security G2I source Guest destination Internet
 service-policy type inspect Guest2Internet

zone-pair security I2T source Internet destination Trusted
 service-policy type inspect Internet2Trusted
```

Troubleshooting

```
show zone security
show zone-pair security
show policy-map type inspect
show class-map type inspect
show parameter-map type inspect
debug zone security events
```