

FSOS

URPF Configuration

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1. URPF

URPF (Unicast Reverse Path Forwarding) is to prevent the network attack based on source address spoofing. URPF obtains the source address and ingress interface of the packet, taking the source address as the destination address, and then searching the route which corresponds to the source address in the routing table. If the route exists, it will be forwarded, otherwise it will be discarded.

URPF has two modes:

1.strict mode: That is, when searching the routing table for reverse path detection, it must match the source address existing in the routing table, and the egress interface to the source address of the packet is the same as the ingress interface of the packet.

2.loose mode: That is, when searching the routing table for reverse path detection, only to detect whether the source address of the packet is existent in the unicast routing table. If the routing table exists, it can pass the detection.

Under interface mode, configure the URPF function of the corresponding interface.

1.1 Configure URPF

Configure URPF

Operation	Command	Remarks
Enter global configuration mode	configure terminal	-
Enter interface configuration mode	interface { vlan-interface supervlan-interface } if-id	required
Enable and configure the mode	urpf { strict loose }	required
Disable the function	no urpf	optional
Display the configurations	show urpf [interface { vlan-interface supervlan-interface } if-id]	optional

1.2 URPF Configuration Example

1.Network requirements

There are two Layer3 interfaces: if-1, if-2.

If-1 enables urpf for strict mode. There is a default route and next hop points to the ip in if-2 interface. Ixia A sends an if-1 packet to a Layer 3 packet whose sip is not equal to that of the if-1 network segment and then validates the urpf process.



sketch map of URPF

2.Configuration steps

Enable urpf on VLAN-interface 1 and use strict mode

```
SW(config)#interface vlan 1
```

```
SW(config-if-vlanInterface-1)#ip address 192.168.1.27 255.255.255.0
```

This ipaddress will be the primary ipaddress of this interface.

Config ipaddress successfully!

```
SW(config-if-vlanInterface-1)#urpf strict
```

Configure URPF strict mode successfully.

Configure VLAN 2 interface, and configure the default route as VLAN 2 interface

```
SW(config-if-vlanInterface-1)#vlan 2
```

```
SW(config-if-vlan)#interface ethernet 0/0/2
```

```
SW(config-if-ethernet-0/0/2)#switchport default vlan 2
```

```
SW(config-if-ethernet-0/0/2)#switchport mode access
```

```
SW(config-if-ethernet-0/0/2)#interface vlan-interface 2
```

Create vlan-interface successfully!

```
SW(config-if-vlanInterface-2)#ip address 192.168.2.27 255.255.255.0
```

This ipaddress will be the primary ipaddress of this interface.

Config ipaddress successfully!

```
SW(config-if-vlanInterface-2)#exit
```

```
SW(config)#ip route 0.0.0.0 0.0.0.0 192.168.2.100
```

Config static route successfully!

```
SW(config)#logging monitor 0
```

```
SW(config)#debug urpf
```

3.Result validation

(1) Display urpf configuration information.

```
SW(config-if-vlanInterface-1)#exit
SW(config)#show urpf
Interface          URPF Status
VLAN-IF1          Strict Mode
```

(2) Ixia A forwards a Layer 3 packet to the if-1 interface whose sip is not equal to that of the if-1 network segment, the following log information will be printed:

```
SW(config)#00:06:21: SW: %URPF-7-urpf:
VLAN 1:--6-- strict mode, route exists, interface is different, packet dropped
```

```
SW(config)#00:06:50: SW: %URPF-7-urpf:
VLAN 1:--6-- strict mode, route exists, interface is different, packet dropped
```

(3) If-1 interface runs loose mode, forwarding packets in the same way: Ixia A forwards a Layer 3 packet to the if-1 interface whose sip is not equal to that of the if-1 network segment, the following log information will be printed:

```
SW(config)#interface vlan-interface 1
SW(config-if-vlanInterface-1)#urpf loose
Configure URPF loose mode successfully.
```

```
SW(config-if-vlanInterface-1)#00:37:25: SW: %URPF-7-urpf:
VLAN 1:--7-- loose mode, route exists, packet allowed
```