

Loopback Interfaces

This chapter tells how to configure loopback interfaces.

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About Loopback Interfaces

A loopback interface is a software-only interface that emulates a physical interface. This interface is reachable on IPv4 and IPv6 through multiple physical interfaces. The loopback interface helps to overcome path failures; it is accessible from any physical interface, so if one goes down, you can access the loopback interface from another.

Loopback interfaces can be used for:

- AAA
- BGP
- DNS
- HTTP
- ICMP
- SNMP
- SSH
- Static and dynamic VTI tunnels
- Syslog
- Telnet

The ASA can distribute the loopback address using dynamic routing protocols, or you can configure a static route on the peer device to reach the loopback IP address through one of the ASA's physical interfaces. You cannot configure a static route on the ASA that specifies the loopback interface.

Guidelines for Loopback Interfaces

Failover and Clustering

- No clustering support.

Context Mode

- VTI is supported in single context mode only. Other loopback uses are supported in multiple context mode.

Additional Guidelines and Limitations

- TCP sequence randomization is always disabled for traffic from the physical interface to the loopback interface.

Configure a Loopback Interface

Add a loopback interface.

Procedure

Step 1 Create a loopback interface:

interface loopback *number*

The number can be between 0 and 10413.

Example:

```
ciscoasa(config)# interface loopback 10
```

Step 2 Configure the name and IP address. See Routed and Transparent Mode Interfaces.

Step 3 Configure rate-limiting for loopback traffic. See Rate-Limit Traffic to the Loopback Interface, on page 3.

Rate-Limit Traffic to the Loopback Interface

You should rate-limit traffic going to the loopback interface IP address to prevent excessive load on the system. You can add a connection limit rule to the global service policy. This procedure shows adding to the default global policy (global_policy).

Procedure

Step 1 Create an access list identifying traffic to the loopback interface IP address.

access-list *name* **extended permit ip any host** *loopback_ip*

Create an ACE for each loopback interface IP address. You can also narrow this access list by specifiying the source IP addresses instead of **any**.

Example:

```
ciscoasa(config)# access-list loop extended permit ip any host 10.1.1.1
ciscoasa(config)# access-list loop extended permit ip any host 10.2.1.1
```

Step 2 Create a class map that identifies the access list.

class-map *name*

match access-list *acl_name*

Example:

```
ciscoasa(config)# class-map rate-limit-loopback
ciscoasa(config-cmap)# match access-list loop
```

Step 3 Apply maximum connections and maximum embryonic connections to the class map as part of the global policy map.

policy-map global_policy

class *class_map_name*

set connection conn-max *conns* **embryonic-conn-max** *conns*

Set the maximum connections to the expected number of connections for the loopback interface, and the embryonic connections to a lower number. For example, you can set it to 5/2, or 10/5, or 1024/512, depending on the expected loopback interface sessions you need.

Setting the embryonic connection limit enables TCP Intercept, which protects the system from a DoS attack perpetrated by flooding an interface with TCP SYN packets.

Example:

```
ciscoasa(config-cmap)# policy-map global_policy
ciscoasa(config-pmap)# class rate-limit-loopback
```

```
ciscoasa(config-pmap-c)# set connection conn-max 5 embryonic-conn-max 2
```

Example

The following example sets the maximum connections and embryonic connections to 10 and 5 for the default global policy for all traffic going to two loopback interfaces at 10.1.1.1 and 10.2.1.1.

```
ciscoasa(config)# interface loopback 1
ciscoasa(config-if)# ip address 10.1.1.1 255.255.255.0
ciscoasa(config-if)# nameif loop1
ciscoasa(config-if)# interface loopback 2
ciscoasa(config-if)# ip address 10.2.1.1 255.255.255.0
ciscoasa(config-if)# nameif loop2
ciscoasa(config-if)# access-list loop extended permit ip any host 10.1.1.1
ciscoasa(config)# access-list loop extended permit ip any host 10.2.1.1
ciscoasa(config)# class-map CONNS
ciscoasa(config-cmap)# match access-list loop
ciscoasa(config-cmap)# policy-map global_policy
ciscoasa(config-pmap)# class CONNS
ciscoasa(config-pmap-c)# set connection conn-max 10 embryonic-conn-max 5
```

Monitoring Loopback Interfaces

See the following commands:

- **show interface**

  Displays interface statistics.

- **show interface ip brief**

  Displays interface IP addresses and status.

History for Loopback Interfaces

Table 1: History for Loopback Interfaces

Feature Name	Version	Feature Information
Loopback interface support for DNS, HTTP, ICMP, and IPsec Flow Offload	9.20(1)	You can now add a loopback interface and use it for: • DNS • HTTP • ICMP • IPsec Flow Offload

Feature Name	Version	Feature Information
Loopback interface support for VTI	9.19(1)	A loopback interface provides redundancy of static and dynamic VTI VPN tunnels. You can now set a loopback interface as the source interface for a VTI. The VTI interface can also inherit the IP address of a loopback interface instead of a statically configured IP address. The loopback interface helps to overcome path failures. If an interface goes down, you can access all interfaces through the IP address of the loopback interface. New/Modified commands: **tunnel source interface**, **ip unnumbered**, **ipv6 unnumbered**
Support for loopback interface	9.18(2)	You can now add a loopback interface and use it for: • BGP • AAA • SNMP • Syslog • SSH • Telnet New/Modified commands: **interface loopback**, **logging host**, **neighbor update-source**, **snmp-server host**, **ssh**, **telnet**