CHAPTER 57

Preventing Network Attacks

This chapter describes how to prevent network attacks, and includes the following sections:

Preventing IP Spoofing

This section lets you enable Unicast Reverse Path Forwarding on an interface. Unicast RPF guards against IP spoofing (a packet uses an incorrect source IP address to obscure its true source) by ensuring that all packets have a source IP address that matches the correct source interface according to the routing table.

Normally, the ASA only looks at the destination address when determining where to forward the packet. Unicast RPF instructs the ASA to also look at the source address; this is why it is called Reverse Path Forwarding. For any traffic that you want to allow through the ASA, the ASA routing table must include a route back to the source address. See RFC 2267 for more information.

For outside traffic, for example, the ASA can use the default route to satisfy the Unicast RPF protection. If traffic enters from an outside interface, and the source address is not known to the routing table, the ASA uses the default route to correctly identify the outside interface as the source interface.

If traffic enters the outside interface from an address that is known to the routing table, but is associated with the inside interface, then the ASA drops the packet. Similarly, if traffic enters the inside interface from an unknown source address, the ASA drops the packet because the matching route (the default route) indicates the outside interface.

Unicast RPF is implemented as follows:

- ICMP packets have no session, so each packet is checked.
- UDP and TCP have sessions, so the initial packet requires a reverse route lookup. Subsequent packets arriving during the session are checked using an existing state maintained as part of the session. Non-initial packets are checked to ensure they arrived on the same interface used by the initial packet.

To enable Unicast RPF, enter the following command:

```
hostname(config)# ip verify reverse-path interface interface_name
```

Configuring the Fragment Size

By default, the ASA allows up to 24 fragments per IP packet, and up to 200 fragments awaiting reassembly. You might need to let fragments on your network if you have an application that routinely fragments packets, such as NFS over UDP. However, if you do not have an application that fragments traffic, we recommend that you do not allow fragments through the ASA. Fragmented packets are often used as DoS attacks. To set disallow fragments, enter the following command:

```
hostname(config)# fragment chain 1 [interface_name]
```

Enter an interface name if you want to prevent fragmentation on a specific interface. By default, this command applies to all interfaces.

Blocking Unwanted Connections

If you know that a host is attempting to attack your network (for example, system log messages show an attack), then you can block (or shun) connections based on the source IP address. All existing connections and new connections are blocked until you remove the shun.

Note If you have an IPS that monitors traffic, such as an AIP SSM, then the IPS can shun connections automatically.

To shun a connection manually, perform the following steps:

Step 1 If necessary, view information about the connection by entering the following command:

```
hostname# show conn
```

The ASA shows information about each connection, such as the following:

```
TCP out 64.101.68.161:4300 in 10.86.194.60:23 idle 0:00:00 bytes 1297 flags UIO
```

Step 2 To shun connections from the source IP address, enter the following command:

```
hostname(config)# shun src_ip [dst_ip src_port dest_port [protocol]] [vlan vlan_id]
```

If you enter only the source IP address, then all future connections are shunned; existing connections remain active.

To drop an existing connection, as well as blocking future connections from the source IP address, enter the destination IP address, source and destination ports, and the protocol. By default, the protocol is 0 for IP.

For multiple context mode, you can enter this command in the admin context, and by specifying a VLAN ID that is assigned to an interface in other contexts, you can shun the connection in other contexts.

Step 3 To remove the shun, enter the following command:

```
hostname(config)# no shun src_ip [vlan vlan_id]
```

Configuring IP Audit for Basic IPS Support

The IP audit feature provides basic IPS support for a ASA that does not have an AIP SSM. It supports a basic list of signatures, and you can configure the ASA to perform one or more actions on traffic that matches a signature.

To enable IP audit, perform the following steps:

Step 1 To define an IP audit policy for informational signatures, enter the following command:

```
hostname(config)# ip audit name name info [action [alarm] [drop] [reset]]
```

Where **alarm** generates a system message showing that a packet matched a signature, **drop** drops the packet, and **reset** drops the packet and closes the connection. If you do not define an action, then the default action is to generate an alarm.

Step 2 To define an IP audit policy for attack signatures, enter the following command:

```
hostname(config)# ip audit name name attack [action [alarm] [drop] [reset]]
```

Where **alarm** generates a system message showing that a packet matched a signature, **drop** drops the packet, and **reset** drops the packet and closes the connection. If you do not define an action, then the default action is to generate an alarm.

Step 3 To assign the policy to an interface, enter the following command:

```
ip audit interface interface_name policy_name
```

Step 4 To disable signatures, or for more information about signatures, see the **ip audit signature** command in the *Cisco ASA 5500 Series Command Reference*.