CHAPTER 52

show nac-policy through show ospf virtual-links Commands

show nac-policy

To show the NAC policy usage statistics and the assignment of NAC policies to group policies, use the **show nac-policy** command in privileged EXEC mode.

show nac-policy [*nac-policy-name*]

SyntaxDescription

nac-policy-name	(Optional) Name of the NAC policy for which to display usage statistics.

Defaults

If you do not specify a name, the CLI lists all NAC policy names along with their respective statistics.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	—	—	•

Command History

Release	Modification
8.0(2)	This command was introduced.

Examples

The following example shows the data for the NAC policies named framework1 and framework2:

```
asa2(config)# show nac-policy
nac-policy framework1 nac-framework
  applied session count = 0
  applied group-policy count = 2
  group-policy list:    GroupPolicy2    GroupPolicy1
nac-policy framework2 nac-framework is not in use.
```

The first line of each NAC policy indicates its name and type (nac-framework). The CLI shows the text "is not in use" next to the policy type if the policy is not assigned to any group policies. Otherwise, the CLI displays the usage data for the group policy. Table 52-1 explains the fields in the **show nac-policy** command.

Table 52-1 show nac-policy Command Fields

Field	Description
applied session count	Cumulative number of VPN sessions to which this ASA applied the NAC policy.

Table 52-1 show nac-policy Command Fields

Field	Description
applied group-policy count	Cumulative number of group polices to which this ASA applied the NAC policy.
group-policy list	List of group policies to which this NAC policy is assigned. In this case, the usage of a group policy does not determine whether it appears in this list; if the NAC policy is assigned to a group policy in the running configuration, then the group policy appears in this list.

Related Commands

clear nac-policy	Resets the NAC policy usage statistics.
show vpn-session.db	Displays information about VPN sessions, including NAC results.
show vpn-session_summary.db	Displays the number IPSec, Cisco WebVPN, and NAC sessions.

show nameif

To view the interface name set using the **nameif** command, use the show nameif command in privileged EXEC mode.

show nameif [*physical_interface*[**.***subinterface*] | *mapped_name*]

Syntax Description

mapped_name	(Optional) In multiple context mode, identifies the mapped name if it was assigned using the **allocate-interface** command.
physical_interface	(Optional) Identifies the interface ID, such as **gigabitethernet0/1**. See the **interface** command for accepted values.
subinterface	(Optional) Identifies an integer between 1 and 4294967293 designating a logical subinterface.

Defaults

If you do not specify an interface, the ASA shows all interface names.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

In multiple context mode, if you mapped the interface ID in the **allocate-interface** command, you can only specify the mapped name in a context. The output for this command shows only the mapped name in the Interface column.

Examples

The following is sample output from the **show nameif** command:

```
hostname# show nameif
Interface                Name                     Security
GigabitEthernet0/0       outside                  0
GigabitEthernet0/1       inside                   100
GigabitEthernet0/2       test2                    50
```

Related Commands

Command	Description
allocate-interface	Assigns interfaces and subinterfaces to a security context.
interface	Configures an interface and enters interface configuration mode.
nameif	Sets the interface name.
show interface ip brief	Shows the interface IP address and status.

show nat

To display statistics of NAT policies, use the **show nat** command in privileged EXEC mode.

show nat [**interface** *name*] [*ip_addr mask* | {**object** | **object-group**} *name*] [**translated** [**interface** *name*] [*ip_addr mask* | {**object** | **object-group**} *name*]] [**detail**] [**divert-table** [**ipv6**] [**interface** *name*]]

Syntax Description

detail	(Optional) Includes more verbose expansion of the object fields.
divert-table	(Optional) Shows the NAT divert table.
interface *name*	(Optional) Specifies the source interface.
ip_addr mask	(Optional) Specifies an IP address and subnet mask.
ipv6	(Optional) Shows IPv6 entries in the divert table.
object *name*	(Optional) Specifies a network object or service object.
object-group *name*	(Optional) Specifies a network object group
translated	(Optional) Specifies the translated parameters.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
9.0(1)	This command now supports IPv6 traffic, as well as translations between IPv4 and IPv6.

Usage Guidelines

Use the **show nat** command to show runtime representation of the NAT policy. Use the **detail** optional keyword to expand the object and view the object values. Use the additional selector fields to limit the **show nat** command output.

Examples

The following is sample output from the **show nat** command:

```
hostname# show nat
   Manual NAT Policies (Section 1)
   1 (any) to (any) source dynamic S S' destination static D' D
       translate_hits = 0, untranslate_hits = 0
   Auto NAT Policies (Section 2)
   1 (inside) to (outside) source dynamic A 2.2.2.2
       translate_hits = 0, untranslate_hits = 0

   Manual NAT Policies (Section 3)
   1 (any) to (any) source dynamic C C' destination static B' B service R R'
       translate_hits = 0, untranslate_hits = 0

hostname# show nat detail
   Manual NAT Policies (Section 1)
   1 (any) to (any) source dynamic S S' destination static D' D
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 1.1.1.2/32, Mapped: 2.2.2.3/32
       Destination - Real: 10.10.10.0/24, Mapped: 20.20.20.0/24

   Auto NAT Policies (Section 2)
   1 (inside) to (outside) source dynamic A 2.2.2.2
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 1.1.1.1/32, Mapped: 2.2.2.2/32

   Manual NAT Policies (Section 3)
    1 (any) to (any) source dynamic C C' destination static B' B service R R'
       translate_hits = 0, untranslate_hits = 0
       Source - Real: 11.11.11.10-11.11.11.11, Mapped: 192.168.10.10/32
       Destination - Real: 192.168.1.0/24, Mapped: 10.75.1.0/24
       Service - Real: tcp source eq 10 destination eq ftp-data , Mapped: tcp source eq
       100 destination eq 200
```

The following is sample output from the **show nat detail** command between IPv6 and IPv4:

```
hostname# show nat detail
1 (in) to (outside) source dynamic inside_nw outside_map destination static inside_map any
translate_hits = 0, untranslate_hits = 0
Source - Origin: 2001::/96, Translated: 192.168.102.200-192.168.102.210
Destination - Origin: 2001::/96, Translated: 0.0.0.0/0
```

The following is sample output from the **show nat divert ipv6** command:

```
hostname# show nat divert ipv6
Divert Table
id=0xcb9ea518, domain=divert-route
type=static, hits=0, flags=0x21, protocol=0
src ip/id=2001::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
dst ip/id=2001::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
input_ifc=in, output_ifc=outside
id=0xcf24d4b8, domain=divert-route
type=static, hits=0, flags=0x20, protocol=0
src ip/id=::/::, port=0-0
dst ip/id=2222::/ffff:ffff:ffff:ffff:ffff:ffff::, port=0-0
input_ifc=in, output_ifc=mgmt
```

Related Commands

Command	Description
clear nat counters	Clears NAT policy counters.
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.

show nat divert-table

To display statistics of NAT divert table, use the **show nat divert-table** command in privileged EXEC mode.

show nat divert-table [**ipv6**] [**interface** *name*]

Syntax Description

divert-table	Shows the NAT divert table.
ipv6	(Optional) Shows IPv6 entries in the divert table.
interface *name*	(Optional) Specifies the source interface.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.4(2)	This command was introduced.

Usage Guidelines

Use the **show nat divert-table** command to show runtime representation of the NAT divert table. Use the **ipv6** optional keyword to view the IPv6 entries in the divert table. Use the **interface** optional keyword to view the NAT divert table for the specific source interface.

Examples

The following is sample output from the **show nat divert-table** command:

```
hostname# show nat divert-table
Divert Table
id=0xad1521b8, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=10.86.119.255, mask=255.255.255.255, port=0-0
        input_ifc=outside, output_ifc=NP Identity Ifc
id=0xad1523a8, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=10.86.116.0, mask=255.255.255.255, port=0-0
        input_ifc=outside, output_ifc=NP Identity Ifc
id=0xad1865c0, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=192.168.255.255, mask=255.255.255.255, port=0-0
        input_ifc=amallio-wizard, output_ifc=NP Identity Ifc
id=0xad1867b0, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=192.168.0.0, mask=255.255.255.255, port=0-0
        input_ifc=amallio-wizard, output_ifc=NP Identity Ifc
id=0xad257bf8, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=172.27.48.255, mask=255.255.255.255, port=0-0
        input_ifc=folink, output_ifc=NP Identity Ifc
id=0xad257db8, domain=twice-nat section=1 ignore=no
        type=none, hits=0, flags=0x9, protocol=0
        src ip/id=0.0.0.0, mask=0.0.0.0, port=0-0
        dst ip/id=172.27.48.0, mask=255.255.255.255, port=0-0
        input_ifc=folink, output_ifc=NP Identity Ifc
```

Related Commands

Command	Description
clear nat counters	Clears NAT policy counters.
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.
show nat	Displays runtime representation of the NAT policies.

show nat pool

To display statistics of NAT pool usage, use the **show nat pool** command in privileged EXEC mode.

show nat pool [**cluster**]

Syntax Description

cluster	(Optional) When ASA clustering is enabled, shows the current assignment of a PAT address to the owner unit and backup unit.

Defaults

This command has no default settings.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	Modification
8.3(1)	This command was introduced.
8.4(3)	The output was modified to show the destination address for extended PAT. The PAT range was also modified depending on the use of the **flat** and **include-reserve** keywords.
9.0(1)	This command now supports IPv6 traffic. We added the **cluster** keyword to show the current assignment of a PAT address to the owner unit and backup unit.

Usage Guidelines

A NAT pool is created for each mapped protocol/IP address/port range, where the port ranges are 1-511, 512-1023, and 1024-65535 by default. If you use the **flat** keyword for a PAT pool in the **nat** command, you will see fewer, larger ranges.

Each NAT pool exists for at least 10 minutes after the last usage. The 10 minute hold-down timer is canceled if you clear the translations with **clear xlate**.

Examples

The following is sample output for the NAT pools created by a dynamic PAT rule shown by the **show running-config object network** command.

```
hostname(config)# show running-config object network
object network myhost
 host 10.10.10.10
 nat (pppoe2,inside) dynamic 10.76.11.25

hostname# show nat pool
```

```
TCP inside, address 10.76.11.25, range 1-511, allocated 0
TCP inside, address 10.76.11.25, range 512-1023, allocated 0
TCP inside, address 10.76.11.25, range 1024-65535, allocated 1
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **flat** option. Without the **include-reserve** keyword, two ranges are shown; the lower range is used when a source port below 1024 is mapped to the same port.

```
hostname# show nat pool

ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-1024, allocated 0
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1024-65535, allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-1024, allocated 0
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1024-65535, allocated 2
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **flat include-reserve** options.

```
hostname# show nat pool

ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 2
```

The following is sample output from the **show nat pool** command showing use of the PAT pool **extended flat include-reserve** options. The important items are the parenthetical addresses. These are the destination addresses used to extend PAT.

```
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.99), range 1-65535,
allocated 2
TCP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
UDP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
TCP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
ICMP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.100), range 1-65535,
allocated 1
TCP PAT pool outside:dynamic-pat, address 172.16.2.200(172.16.2.99), range 1-65535,
allocated 2
UDP PAT pool outside:dynamic-pat, address 172.16.2.200, range 1-65535, allocated 0
```

Related Commands

Command	Description
nat	Identifies addresses on one interface that are translated to mapped addresses on another interface.
show nat	Displays NAT policy statistics.

show ntp associations

To view NTP association information, use the **show ntp associations** command in user EXEC mode.

show ntp associations [**detail**]

Syntax Description

detail	(Optional) Shows additional details about each association.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
User EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

See the “Examples” section for a description of the display output.

Examples

The following is sample output from the **show ntp associations** command:

```
hostname> show ntp associations
     address         ref clock     st  when  poll  reach  delay  offset    disp
 ~172.31.32.2      172.31.32.1       5    29  1024  377      4.2   -8.59     1.6
+~192.168.13.33    192.168.1.111     3    69   128  377      4.1    3.48     2.3
*~192.168.13.57    192.168.1.111     3    32   128  377      7.9   11.18     3.6
* master (synced), # master (unsynced), + selected, - candidate, ~ configured
```

Table 52-2 shows each field description.

Table 52-2 show ntp associations Fields

Field	Description
(leading characters in display lines)	The first characters in a display line can be one or more of the following characters: • * —Synchronized to this peer. • # —Almost synchronized to this peer. • + —Peer selected for possible synchronization. • - —Peer is a candidate for selection. • ~ —Peer is statically configured, but not synchronized.
address	The address of the NTP peer.
ref clock	The address of the reference clock of the peer.
st	The stratum of the peer.
when	The time since the last NTP packet was received from the peer.
poll	The polling interval (in seconds).
reach	The peer reachability (as a bit string, in octal).
delay	The round-trip delay to the peer (in milliseconds).
offset	The relative time of the peer clock to the local clock (in milliseconds).
disp	The dispersion value.

The following is sample output from the **show ntp associations detail** command:

```
hostname> show ntp associations detail
172.23.56.249 configured, our_master, sane, valid, stratum 4
ref ID 172.23.56.225, time c0212639.2ecfc9e0 (20:19:05.182 UTC Fri Feb 22 2002)
our mode client, peer mode server, our poll intvl 128, peer poll intvl 128
root delay 38.04 msec, root disp 9.55, reach 177, sync dist 156.021
delay 4.47 msec, offset -0.2403 msec, dispersion 125.21
precision 2**19, version 3
org time c02128a9.731f127b (20:29:29.449 UTC Fri Feb 22 2002)
rcv time c02128a9.73c1954b (20:29:29.452 UTC Fri Feb 22 2002)
xmt time c02128a9.6b3f729e (20:29:29.418 UTC Fri Feb 22 2002)
filtdelay =     4.47    4.58    4.97    5.63    4.79    5.52    5.87   0.00
filtoffset =   -0.24   -0.36   -0.37    0.30   -0.17    0.57   -0.74   0.00
filterror =     0.02    0.99    1.71    2.69    3.66    4.64    5.62   16000.0
```

Table 52-3 shows each field description.

Table 52-3 show ntp associations detail Fields

Field	Description
IP-address configured	The server (peer) IP address.
(status)	• our_master—The ASA is synchronized to this peer. • selected—Peer is selected for possible synchronization. • candidate—Peer is a candidate for selection.

Table 52-3 show ntp associations detail Fields (continued)

Field	Description
(sanity)	• sane—The peer passes basic sanity checks. • insane—The peer fails basic sanity checks.
(validity)	• valid—The peer time is believed to be valid. • invalid—The peer time is believed to be invalid. • leap_add—The peer is signalling that a leap second will be added. • leap-sub—The peer is signalling that a leap second will be subtracted.
stratum	The stratum of the peer.
(reference peer)	unsynced—The peer is not synchronized to any other machine. ref ID—The address of the machine that the peer is synchronized to.
time	The last time stamp the peer received from its master.
our mode client	Our mode relative to the peer, which is always client.
peer mode server	The mode of the peer relative to the server.
our poll intvl	Our poll interval to the peer.
peer poll intvl	The peer poll interval to us.
root delay	The delay along the path to the root (ultimate stratum 1 time source).
root disp	The dispersion of the path to the root.
reach	The peer reachability (as a bit string in octal).
sync dist	The peer synchronization distance.
delay	The round-trip delay to the peer.
offset	The offset of the peer clock relative to our clock.
dispersion	The dispersion of the peer clock.
precision	The precision of the peer clock (in hertz).
version	The NTP version number that the peer is using.
org time	The originate time stamp.
rcv time	The receive time stamp.
xmt time	The transmit time stamp.
filtdelay	The round-trip delay (in milliseconds) of each sample.
filtoffset	The clock offset (in milliseconds) of each sample.
filterror	The approximate error of each sample.

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.

Command	Description
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp status	Shows the status of the NTP association.

show ntp status

To show the status of each NTP association, use the **show ntp status** command in user EXEC mode.

show ntp status

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
User EXEC	•	•	•	—	•

Command History

Release	Modification
7.0(1)	This command was introduced.

Usage Guidelines

See the “Examples” section for a description of the display output.

Examples

The following is sample output from the **show ntp status** command:

```
hostname> show ntp status
Clock is synchronized, stratum 5, reference is 172.23.56.249
nominal freq is 99.9984 Hz, actual freq is 100.0266 Hz, precision is 2**6
reference time is c02128a9.73c1954b (20:29:29.452 UTC Fri Feb 22 2002)
clock offset is -0.2403 msec, root delay is 42.51 msec
root dispersion is 135.01 msec, peer dispersion is 125.21 msec
```

Table 52-4 shows each field description.

Table 52-4 show ntp status Fields

Field	Description
Clock	• synchronized—The ASA is synchronized to an NTP server. • unsynchronized—The ASA is not synchronized to an NTP server.
stratum	NTP stratum of this system.
reference	The address of the NTP server to which the ASA is synchronized.
nominal freq	The nominal frequency of the system hardware clock.

Table 52-4 show ntp status Fields

Field	Description
actual freq	The measured frequency of the system hardware clock.
precision	The precision of the clock of this system (in hertz).
reference time	The reference time stamp.
clock offset	The offset of the system clock to the synchronized peer.
root delay	The total delay along the path to the root clock.
root dispersion	The dispersion of the root path.
peer dispersion	The dispersion of the synchronized peer.

Related Commands

Command	Description
ntp authenticate	Enables NTP authentication.
ntp authentication-key	Sets an encrypted authentication key to synchronize with an NTP server.
ntp server	Identifies an NTP server.
ntp trusted-key	Provides a key ID for the ASA to use in packets for authentication with an NTP server.
show ntp associations	Shows the NTP servers with which the ASA is associated.

show object-group

To display object group information and the relevant hit count if the object group is of the network object-group type, use the **show object-group** command in privileged EXEC mode.

show object-group [protocol | service | icmp-type | id *object-group name*]

Syntax Description

icmp-type	(Optional) An ICMP-type object group.
id	(Optional) Identifies the existing object group.
object-group name	(Optional) Assigns a given name to the object group.
protocol	(Optional) Protocol-type object group.
service	(Optional) Service-type object.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		**Security Context**		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	•	•	•	—

Command History

Release	**Modification**
8.3(1)	This command was introduced.

Usage Guidelines

A routine attempt to show object groups also shows the object hit count if the object group is of the network object-group type. Hit counts do not display for service, protocol, and icmp-type object groups.

Examples

The following is sample output from the **show object-group** command and shows information about the network object group named “Anet”:

```
hostname# show object-group id Anet
Object-group network Anet (hitcnt=10)
   Description OBJ SEARCH ALG APPLIED
   network-object 1.1.1.0 255.255.255.0 (hitcnt=4)
   network-object 2.2.2.0 255.255.255.0 (hitcnt=6)
```

The following is sample output from the **show object-group** command and shows information about a service group:

```
hostname (config)# show object-group service
object-group service B-Serobj
   description its a service group
   service-object tcp eq bgp

   object-group protocol C-grp-proto
   protocol-object ospf
```

The following is sample output from the **show object-group** command and shows information about a protocol:

```
hostname (config)# show object-group protocol
object-group protocol C-grp-proto
   protocol-object ospf
```

Related Commands

Command	Description
clear object-group	Clears the network objects hit count for a given object group.
show access list	Shows all access lists, relevant expanded access list entries, and hit counts.

show ospf

To display the general information about the OSPF routing processes, use the **show ospf** command in privileged EXEC mode.

show ospf [*pid* [*area_id*]]

Syntax Description

area_id	(Optional) ID of the area that is associated with the OSPF address range.
pid	(Optional) The ID of the OSPF process.

Defaults

Lists all OSPF processes if no *pid* is specified.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	**Routed**	**Transparent**	**Single**	**Context**	**System**
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

If the *pid* is included, only information for the specified routing process is included.

Examples

The following is sample output from the **show ospf** command, showing how to display general information about a specific OSPF routing process:

```
hostname# show ospf 5
 Routing Process "ospf 5" with ID 127.0.0.1 and Domain ID 0.0.0.5
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0
```

The following is sample output from the **show ospf** command, showing how to display general information about all OSPF routing processes:

```
hostname# show ospf
 Routing Process "ospf 5" with ID 127.0.0.1 and Domain ID 0.0.0.5
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0

 Routing Process "ospf 12" with ID 172.23.59.232 and Domain ID 0.0.0.12
 Supports only single TOS(TOS0) routes
 Supports opaque LSA
 SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
 Minimum LSA interval 5 secs. Minimum LSA arrival 1 secs
 Number of external LSA 0. Checksum Sum 0x     0
 Number of opaque AS LSA 0. Checksum Sum 0x     0
 Number of DCbitless external and opaque AS LSA 0
 Number of DoNotAge external and opaque AS LSA 0
 Number of areas in this router is 0. 0 normal 0 stub 0 nssa
 External flood list length 0
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf border-routers

To display the internal OSPF routing table entries to ABRs and ASBRs, use the **show ospf border-routers** command in privileged EXEC mode.

show ospf border-routers

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the show **ospf border-routers** command:

```
hostname# show ospf border-routers

OSPF Process 109 internal Routing Table

Codes: i - Intra-area route, I - Inter-area route

i 192.168.97.53 [10] via 192.168.1.53, fifth, ABR, Area 0, SPF 20
i 192.168.103.51 [10] via 192.168.96.51, outside, ASBR, Area 192.168.12.0, SPF 14
i 192.168.103.52 [10] via 192.168.96.51, outside, ABR/ASBR, Area 192.168.12.0, SPF 14
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf database

To display the information contained in the OSPF topological database on the ASA, use the **show ospf database** command in privileged EXEC mode.

show ospf [*pid* [*area_id*]] **database** [**router** | **network** | **summary** | **asbr-summary** | **external** | **nssa-external**] [*lsid*] [**internal**] [**self-originat**e | **adv-router** *addr*]

show ospf [*pid* [*area_id*]] **database database-summary**

Syntax Description

addr	(Optional) Router address.
adv-router	(Optional) Advertised router.
area_id	(Optional) ID of the area that is associated with the OSPF address range.
asbr-summary	(Optional) Displays an ASBR list summary.
database	Displays the database information.
database-summary	(Optional) Displays the complete database summary list.
external	(Optional) Displays routes external to a specified autonomous system.
internal	(Optional) Routes that are internal to a specified autonomous system.
lsid	(Optional) LSA ID.
network	(Optional) Displays the OSPF database information about the network.
nssa-external	(Optional) Displays the external not-so-stubby-area list.
pid	(Optional) ID of the OSPF process.
router	(Optional) Displays the router.
self-originate	(Optional) Displays the information for the specified autonomous system.
summary	(Optional) Displays a summary of the list.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

Examples

The following is sample output from the **show ospf database** command:

```
hostname# show ospf database
OSPF Router with ID(192.168.1.11) (Process ID 1)

                 Router Link States(Area 0)
Link ID   ADV Router   Age   Seq# Checksum Link count
192.168.1.8 192.168.1.8 1381 0x8000010D    0xEF60 2
192.168.1.11 192.168.1.11 1460 0x800002FE    0xEB3D 4
192.168.1.12 192.168.1.12 2027 0x80000090    0x875D 3
192.168.1.27 192.168.1.27 1323 0x800001D6    0x12CC 3

                 Net Link States(Area 0)
Link ID ADV Router   Age   Seq# Checksum
172.16.1.27 192.168.1.27 1323 0x8000005B    0xA8EE
172.17.1.11 192.168.1.11 1461 0x8000005B    0x7AC

                 Type-10 Opaque Link Area Link States (Area 0)
Link ID ADV Router   Age Seq# Checksum Opaque ID
10.0.0.0 192.168.1.11 1461 0x800002C8    0x8483   0
10.0.0.0 192.168.1.12 2027 0x80000080    0xF858   0
10.0.0.0 192.168.1.27 1323 0x800001BC    0x919B   0
10.0.0.1 192.168.1.11 1461 0x8000005E    0x5B43   1
```

The following is sample output from the **show ospf database asbr-summary** command:

```
hostname# show ospf database asbr-summary
OSPF Router with ID(192.168.239.66) (Process ID 300)
Summary ASB Link States(Area 0.0.0.0)
Routing Bit Set on this LSA
LS age: 1463
Options: (No TOS-capability)
LS Type: Summary Links(AS Boundary Router)
Link State ID: 172.16.245.1 (AS Boundary Router address)
Advertising Router: 172.16.241.5
LS Seq Number: 80000072
Checksum: 0x3548
Length: 28
Network Mask: 0.0.0.0
TOS: 0 Metric: 1
```

The following is sample output from the **show ospf database router** command:

```
hostname# show ospf database router
OSPF Router with id(192.168.239.66) (Process ID 300)
Router Link States(Area 0.0.0.0)
Routing Bit Set on this LSA
LS age: 1176
Options: (No TOS-capability)
LS Type: Router Links
Link State ID: 10.187.21.6
Advertising Router: 10.187.21.6
LS Seq Number: 80002CF6
Checksum: 0x73B7
Length: 120
AS Boundary Router
Number of Links: 8
Link connected to: another Router (point-to-point)
(link ID) Neighboring Router ID: 10.187.21.5
```

```
(Link Data) Router Interface address: 10.187.21.6
Number of TOS metrics: 0
TOS 0 Metrics: 2
```

The following is sample output from the **show ospf database network** command:

```
hostname# show ospf database network
OSPF Router with id(192.168.239.66) (Process ID 300)
Displaying Net Link States(Area 0.0.0.0)
LS age: 1367
Options: (No TOS-capability)
LS Type: Network Links
Link State ID: 10.187.1.3 (address of Designated Router)
Advertising Router: 192.168.239.66
LS Seq Number: 800000E7
Checksum: 0x1229
Length: 52
Network Mask: 255.255.255.0
Attached Router: 192.168.239.66
Attached Router: 10.187.241.5
Attached Router: 10.187.1.1
Attached Router: 10.187.54.5
Attached Router: 10.187.1.5
```

The following is sample output from the **show ospf database summary** command:

```
hostname# show ospf database summary
OSPF Router with id(192.168.239.66) (Process ID 300)
Displaying Summary Net Link States(Area 0.0.0.0)
LS age: 1401
Options: (No TOS-capability)
LS Type: Summary Links(Network)
Link State ID: 10.187.240.0 (summary Network Number)
Advertising Router: 10.187.241.5
LS Seq Number: 80000072
Checksum: 0x84FF
Length: 28
Network Mask: 255.255.255.0 TOS: 0 Metric: 1
```

The following is sample output from the **show ospf database external** command:

```
hostname# show ospf database external
OSPF Router with id(192.168.239.66) (Autonomous system 300)

                   Displaying AS External Link States
LS age: 280
Options: (No TOS-capability)
LS Type: AS External Link
Link State ID: 172.16.0.0 (External Network Number)
Advertising Router: 10.187.70.6
LS Seq Number: 80000AFD
Checksum: 0xC3A
Length: 36
Network Mask: 255.255.0.0

      Metric Type: 2 (Larger than any link state path)
TOS: 0
Metric: 1
Forward Address: 0.0.0.0
External Route Tag: 0
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf flood-list

To display a list of OSPF LSAs waiting to be flooded over an interface, use the **show ospf flood-list** command in privileged EXEC mode.

show ospf flood-list *interface_name*

Syntax Description

interface_name	The name of the interface for which to display neighbor information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

Examples

The following is sample output from the **show ospf flood-list** command:

```
hostname# show ospf flood-list outside

  Interface outside, Queue length 20
  Link state flooding due in 12 msec

  Type  LS ID          ADV RTR          Seq NO       Age   Checksum
     5  10.2.195.0     192.168.0.163    0x80000009   0     0xFB61
     5  10.1.192.0     192.168.0.163    0x80000009   0     0x2938
     5  10.2.194.0     192.168.0.163    0x80000009   0     0x757
     5  10.1.193.0     192.168.0.163    0x80000009   0     0x1E42
     5  10.2.193.0     192.168.0.163    0x80000009   0     0x124D
     5  10.1.194.0     192.168.0.163    0x80000009   0     0x134C
```

Related Commands

Command	Description
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf interface

To display the OSPF-related interface information, use the **show ospf interface** command in privileged EXEC mode.

show ospf interface [*interface_name*]

Syntax Description

interface_name	(Optional) Name of the interface for which to display the OSPF-related information.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

When used without the *interface_name* argument, the OSPF information for all interfaces is shown.

Examples

The following is sample output from the **show ospf interface** command:

```
hostname# show ospf interface outside
out is up, line protocol is up
  Internet Address 10.0.3.4 mask 255.255.255.0, Area 0
  Process ID 2, Router ID 10.0.3.4, Network Type BROADCAST, Cost: 10
  Transmit Delay is 1 sec, State WAITING, Priority 1
  No designated router on this network
  No backup designated router on this network
  Timer intervals configured, Hello 10 msec, Dead 1, Wait 1, Retransmit 5
    Hello due in 5 msec
    Wait time before Designated router selection 0:00:11
  Index 1/1, flood queue length 0
  Next 0x00000000(0)/0x00000000(0)
  Last flood scan length is 0, maximum is 0
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)
```

Related Commands

Command	Description
interface	Enters interface configuration mode.

show ospf neighbor

To display the OSPF-neighbor information on a per-interface basis, use the **show ospf neighbor** command in privileged EXEC mode.

show ospf neighbor [**detail** | *interface_name* [*nbr_router_id*]]

Syntax Description

detail	(Optional) Lists detail information for the specified router.
interface_name	(Optional) Name of the interface for which to display neighbor information.
nbr_router_id	(Optional) Router ID of the neighbor router.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf neighbor** command. It shows how to display the OSPF-neighbor information on a per-interface basis.

```
hostname# show ospf neighbor outside

Neighbor 192.168.5.2, interface address 10.225.200.28
    In the area 0 via interface outside
    Neighbor priority is 1, State is FULL, 6 state changes
    DR is 10.225.200.28 BDR is 10.225.200.30
    Options is 0x42
    Dead timer due in 00:00:36
    Neighbor is up for 00:09:46
  Index 1/1, retransmission queue length 0, number of retransmission 1
    First 0x0(0)/0x0(0) Next 0x0(0)/0x0(0)
    Last retransmission scan length is 1, maximum is 1
    Last retransmission scan time is 0 msec, maximum is 0 msec
```

Related Commands

Command	Description
neighbor	Configures OSPF routers interconnecting to non-broadcast networks.
router ospf	Enables OSPF routing and configures global OSPF routing parameters.

show ospf request-list

To display a list of all LSAs that are requested by a router, use the **show ospf request-list** command in privileged EXEC mode.

show ospf request-list *nbr_router_id interface_name*

Syntax Description

interface_name	Name of the interface for which to display neighbor information. Displays the list of all LSAs that are requested by the router from this interface.
nbr_router_id	Router ID of the neighbor router. Displays the list of all LSAs that are requested by the router from this neighbor.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf request-list** command:

```
hostname# show ospf request-list 192.168.1.12 inside

          OSPF Router with ID (192.168.1.11) (Process ID 1)

  Neighbor 192.168.1.12, interface inside address 172.16.1.12

  Type   LS ID          ADV RTR        Seq NO       Age   Checksum
     1   192.168.1.12   192.168.1.12   0x8000020D   8     0x6572
```

Related Commands

Command	Description
show ospf retransmission-list	Displays a list of all LSAs waiting to be resent.

show ospf retransmission-list

To display a list of all LSAs waiting to be resent, use the **show ospf retransmission-list** command in privileged EXEC mode.

show ospf retransmission-list *nbr_router_id interface_name*

Syntax Description

interface_name	Name of the interface for which to display neighbor information.
nbr_router_id	Router ID of the neighbor router.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Usage Guidelines

The OSPF routing-related **show** commands are available in privileged mode on the ASA. You do not need to be in an OSPF configuration mode to use the OSPF-related **show** commands.

The *nbr_router_id* argument displays the list of all LSAs that are waiting to be resent for this neighbor.

The *interface_name* argument displays the list of all LSAs that are waiting to be resent for this interface.

Examples

The following is sample output from the **show ospf retransmission-list** command, where the *nbr_router_id* argument is 192.168.1.11 and the *if_name* argument is outside:

```
hostname# show ospf retransmission-list 192.168.1.11 outside

          OSPF Router with ID (192.168.1.12) (Process ID 1)

  Neighbor 192.168.1.11, interface outside address 172.16.1.11
  Link state retransmission due in 3764 msec, Queue length 2


  Type   LS ID          ADV RTR        Seq NO       Age   Checksum
     1   192.168.1.12   192.168.1.12   0x80000210   0     0xB196
```

Related Commands

Command	Description
show ospf request-list	Displays a list of all LSAs that are requested by a router.

show ospf summary-address

To display a list of all summary address redistribution information that is configured under an OSPF process, use the **show ospf summary-address** command in privileged EXEC mode.

show ospf summary-address

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

Command Mode	Firewall Mode		Security Context		
				Multiple	
	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following shows sample output from the **show ospf summary-address** command. It shows how to display a list of all summary address redistribution information before a summary address has been configured for an OSPF process with the ID of 5.

```
hostname# show ospf 5 summary-address

OSPF Process 2, Summary-address

10.2.0.0/255.255.0.0 Metric -1, Type 0, Tag 0
10.2.0.0/255.255.0.0 Metric -1, Type 0, Tag 10
```

Related Commands

Command	Description
summary-address	Creates aggregate addresses for OSPF.

show ospf traffic

To display a list of different types of packets that have been processed (sent or received) by a particular OSPF instance, use the **show ospf traffic** command in privileged EXEC mode. With this command, you can get a snapshot of the different types of OSPF packets that are being being processed without enabling debugging. If there are two OSPF instances configured, the show ospf traffic command displays the statistics for both instances with the process ID of each instance. You can also display the statistics for a single instance by using the sho**w ospf** *process_id* **traffic** command.

show ospf traffic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
9.0(1)	This command was introduced.

Usage Guidelines

With this command, you can get a snapshot of the different types of OSPF packets that are being being processed without enabling debugging. If there are two OSPF instances configured, the **show ospf traffic** command displays the statistics for both instances with the process ID of each instance. You can also display the statistics for a single instance by using the **show ospf** *process_id* **traffic** command.

Examples

The following shows sample output from the **show ospf traffic** command.

```
hostname# show ospf traffic

OSPF statistics (Process ID 70):

       Rcvd: 244 total, 0 checksum errors
             234 hello, 4 database desc, 1 link state req
             3 link state updates, 2 link state acks
       Sent: 485 total
             472 hello, 7 database desc, 1 link state req
             3 link state updates, 2 link state acks
```

Related Commands

Command	Description
show ospf virtual-links	Displays the parameters and the current state of OSPF virtual links.

show ospf virtual-links

To display the parameters and the current state of OSPF virtual links, use the **show ospf virtual-links** command in privileged EXEC mode.

show ospf virtual-links

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values.

Command Modes

The following table shows the modes in which you can enter the command:

	Firewall Mode		Security Context		
				Multiple	
Command Mode	Routed	Transparent	Single	Context	System
Privileged EXEC	•	—	•	•	—

Command History

Release	Modification
7.0(1)	This command was introduced.
9.0(1)	Multiple context mode is supported.

Examples

The following is sample output from the **show ospf virtual-links** command:

```
hostname# show ospf virtual-links

Virtual Link to router 192.168.101.2 is up
Transit area 0.0.0.1, via interface Ethernet0, Cost of using 10
Transmit Delay is 1 sec, State POINT_TO_POINT
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Hello due in 0:00:08
Adjacency State FULL
```

Related Commands

Command	Description
area virtual-link	Defines an OSPF virtual link.