

Command Reference

Configure PIX Firewall using the commands that follow. You can enter commands from your console computer or terminal, or through Telnet or the HTML management interface.

Help Information

Help information is available by entering a question mark by itself for a listing of all commands, or with a command for command syntax. For example:

```
pixfirewall> int ?  
usage: interface ethernet inside|outside 10baseT|100baseTX|auto
```

Comments

You can add comments to your configuration by entering a colon (:) as the first command in a line. Use comments to improve configuration file readability or to make configuration file commands not executable.

Abbreviating Commands

You can abbreviate most commands down to the fewest unique characters for a command; for example, you can enter **write t** to view the configuration instead of entering the full command **write terminal**, or you can enter **en** (enable) to start privileged mode and **conf t** (configure terminal) to start configuration mode.

“Type ‘?’ for a list of commands” Message

To simplify the PIX Firewall interface, the “Type ‘?’ for a list of commands” message displays for a variety of reasons:

- 1 Incorrect access mode — Ensure you are in configuration mode before entering configuration mode commands. From unprivileged mode, enter the **enable** command to start privileged mode. From privileged mode, enter **config terminal** to start configuration mode.
- 2 Incorrect number of parameters — Enter the **help** command. If the command you want to use is not listed, you are in the wrong access mode. If so, refer to Step 1 for how to change modes. If you are in the correct mode, enter the first part of the command followed by a question mark, for example:

```
pixfirewall(config)# hostname ?  
usage: hostname <newname>
```

- 3 Incorrect abbreviations — Try the command again with more characters or the full command. View help information as described in Step 2 to view command parameters.

age

Sets Private Link key duration. (Configuration mode.)

age *minutes*

Syntax Description

minutes Duration in minutes that a Private Link key is used to encrypt information on the connection. If you enter 0, the duration is set to 10 minutes. The maximum duration is 1215752191 minutes (2345 years).

Usage Guidelines

The **age** command specifies the length of time in minutes that a key is active over Private Link. Private Link supports up to seven keys that it selects sequentially to ensure additional security.

Note Use the same **link** statements on either side of the Private Link to ensure that the keys are the same and in the same order on both sides of the link.

Private Link packet information tells the remote side what key number to use to decrypt the data. The aging duration can be different, as well as the system clocks themselves on either side of the link, but as long as you use the same **link** statements on both sides, all information decrypts correctly.

See also: **link**, **show age**.

Example

```
pixfirewall(config)# age 0
pixfirewall(config)# show age
Private Link Key Aging: 10 minutes
```

apply

Apply outbound access list to an IP address. (Configuration mode.)

apply *number* **outgoing_src**|**outgoing_dest**

Syntax Description

<i>number</i>	An outbound access list identification number previously created with the outbound command.
outgoing_src	Examines the source address on packets traversing the PIX Firewall for access list enforcement. Limits access for an inside network address. For example, specify outgoing_src if you want to deny an inside user access to an external web site.
outgoing_dest	Examines the destination address on packets traversing the PIX Firewall for access list enforcement. Limits access to a particular IP address and service on the Internet. For example, specify outgoing_dest to prevent inside users from accessing a particular external web site.

Usage Guidelines

The **apply** command applies the outbound list parameters to permit or deny access from an IP address in your inside network to an IP address in the outside network. Use outbound lists to permit or deny access to system ports.

See also: **clear apply**, **no apply**, **outbound**, **show apply**, **show outbound**.

Example

```
pixfirewall(config)# apply 1 192.168.42.42 10.10.10.42
```

arp

Add entry to PIX Firewall ARP table. (Configuration mode.)

arp *inside|outside* *ip_address* *mac_address* [*alias*]

Syntax Description

inside	Network interface that protects the inside network.
outside	Network interface for the unprotected outside network connection to the PIX Firewall.
<i>ip_address</i>	IP address for the ARP table entry.
<i>mac_address</i>	Hardware MAC address for the ARP table entry.
alias	Make this entry permanent. Alias entries do not time out and are automatically stored in the configuration when you use the write command to store the configuration.

Usage Guidelines

The **arp** command adds an entry to the PIX Firewall ARP table. ARP is a low-level TCP/IP protocol that resolves a node's physical address from its IP address through an ARP request asking the node with a particular IP address to send back its physical address.

See also: **clear arp**, **no arp**, **show arp**.

Example

```
pixfirewall(config)# arp 192.168.0.42 0000.0101.0202
pixfirewall(config)# arp 192.168.0.43 0000.0101.0203 alias
```

arp timeout

Change PIX Firewall ARP table entry duration. (Configuration mode.)

arp timeout *seconds*

Syntax Description

seconds Duration that an ARP entry can exist in the ARP table before being cleared.

Usage Guidelines

The **arp timeout** command sets the duration that an ARP entry can stay in the PIX Firewall ARP table before expiring. The timer is known as the ARP persistence timer. The default value is 14400 seconds (4 hours).

See also: **show arp timeout**

Example

```
pixfirewall(config)# arp timeout 42
pixfirewall(config)# show arp timeout
arp timeout 42 seconds
```

auth

Enable PIX Firewall user authentication. (Configuration mode.)

auth *inside|outside*

Syntax Description

inside	Specifies that you require authentication for connections originating on your local network (inside the PIX Firewall).
outside	Specifies that you require authentication for connections originating on the outside of the PIX Firewall.

Usage Guidelines

The **auth** command enables PIX Firewall authentication. The **no auth** command disables authentication. With the **inside** or **outside** argument, you can enable or disable authentication on one side of the PIX Firewall or the other. Without arguments, you can enable or disable authentication on both sides.

For outside connections, a challenge prompt appears during FTP or Telnet sessions as defined by the type of authentication server.

Authorization notes:

- 1 PIX Firewall only accepts 7-bit characters during authentication. After authentication, the client and server can negotiate for 8-bits if required. During authentication, PIX Firewall only negotiates Go-Ahead, Echo, and NVT (network virtual terminal).
- 2 PIX Firewall permits only one authentication type per network. For example, if one network connects through the PIX Firewall using TACACS+ for authentication, another network connecting through the PIX Firewall can authenticate with RADIUS, but one network cannot authenticate with both TACACS+ and RADIUS.
- 3 PIX Firewall permits a user up to five chances to log in and then if the user name or password still fails, PIX Firewall drops the connection.
- 4 PIX Firewall supports up to 127 characters in the user name and up to 63 in the password.
- 5 The key you specify in **auth-server** must be the same on both the client and server.
- 6 For TACACS+, if you do not specify a key, no encryption occurs.
- 7 PIX Firewall does not support FTP over HTTP if you enable authentication.
- 8 Network browsers such as Netscape do not present a challenge value during authentication; therefore, only password authentication can be used from a network browser.
- 9 Some FTP graphical user interfaces (GUIs) do not display challenge values. Cisco recommends the Cisco TCP/IP Suite 100 for Windows FTP Client which presents the challenge value correctly.
- 10 On outbound connections, **auth-user** authenticates the IP address, not an individual user. On inbound connections, **auth-user** authenticates only a user, not anyone at a specific IP address.
- 11 When you use FTP and enter a password for authentication, some FTP clients do not echo the password as asterisks.
- 12 PIX Firewall does not support at signs (@) in an authentication user name or password.

- 13** If the user name or password on the authentication database differs from the user name or password on the remote host to which you are using FTP to access, enter the user name and password in these formats:

```
authentication_username@remote_system_username  
authentication_password@remote_system_password
```

- 14** If you daisy-chain PIX Firewall units, Telnet authentication works in the same way as a single unit, but FTP and HTTP authentication have additional complexity for users because they have to enter each password and user name as shown in Step 12 with an additional at (@)sign and password or user name for each daisy-chained system. Users could exceed the 63-character password limit depending on how many units are daisy-chained and password length.
- 15** The authentication server must be on the inside PIX Firewall network interface.

Example

```
pixfirewall(config)# auth inside
```


auth-server

Specify IP address of authentication server. (Configuration mode.)

auth-server *type server_ip[-server_ip] skey*

Syntax Description

<i>type</i>	Authentication type: radius or tacacs+ .
<i>server_ip</i>	The IP address of the authentication server.
<i>skey</i>	An alphanumeric keyword of up to 127 characters defined by what the authentication server accepts. This is a public key between the client and server for encrypting data between them. The <i>skey</i> value must be the same on both the client and server systems.

Usage Guidelines

The **auth-server** command lets you identify the IP address of the authentication server. The authentication server must be on the inside PIX Firewall network interface.

Defines a server for the specified authentication server *type*. PIX Firewall tries each server in order until it receives an answer for the type of authentication you specify. Refer to the previous **auth** command description for more information on authentication.

Note For TACACS+, if you do not specify *skey*, no encryption occurs.

RADIUS must have *skey* defined.

Example

```
pixfirewall(config)# auth-server radius 192.168.42.20-192.168.42.42
```

auth-user

Specify IP address of authentication user. (Configuration mode.)

auth-user *type ip_address netmask*

Syntax Description

<i>type</i>	Authentication type: radius or tacacs+
<i>ip_address</i>	IP address from which or to which access is authenticated. If you want every system in your network to authenticate to this type of server, use 0.0.0.0 for the IP address. You can specify a network IP address by entering zero in each octet of the host portion of the IP address; for example, for a class C address, code 0 in the last octet, such as 192.168.42.0.
<i>netmask</i>	Network mask of <i>ip_address</i> . Always specify a specific mask value. If you want to limit authentication to a single IP address use 255 in each octet; for example, 255.255.255.255.

Usage Guidelines

The **auth-user** command lets you provide authentication services for an IP address. For outbound connections, use of **auth-user** indicates that anyone on the IP address you specify must use authentication when using Telnet, FTP, or HTTP. For inbound connections, **auth-user** indicates that anyone attempting to access the specified IP address with FTP, Telnet, or HTTP must use authentication.

Note If you do not supply an **auth-user** statement for an inside network/IP address, it is not authenticated and acts like a plain conduit, static, or outbound connection.

Refer to the previous **auth** command description for more information on authentication.

See Also: **auth**, **no auth-user**, **show auth-user**

Example

```
pixfirewall(config)# auth-user radius 192.168.42.1 255.255.255.0
```

clear apply

Clear previous apply of outbound access lists to an IP address. (Configuration mode.)

clear apply *number* [**outgoing_src**|**outgoing_dest**]

Syntax Description

<i>number</i>	An outbound access list identification number previously created with the outbound command.
outgoing_src	Examines the source address on packets traversing the PIX Firewall for access list enforcement. Limits access for an inside network address. For example, specify outgoing_src if you want to deny an inside user access to an external web site.
outgoing_dest	Examines the destination address on packets traversing the PIX Firewall for access list enforcement. Limits access to a particular IP address and service on the Internet. For example, specify outgoing_dest to prevent inside users from accessing a particular external web site.

Usage Guidelines

The **clear apply** command clears an outbound access list created by a previous use of **apply**.

See also: **apply**, **no apply**, **show apply**.

Example

```
pixfirewall(config)# clear apply
```

clear arp

Clear PIX Firewall ARP table entry. (Privileged mode.)

clear arp inside|outside [*ip_address mac_address alias*]

Syntax Description

inside	PIX Firewall inside network interface ARP table.
outside	PIX Firewall outside network interface ARP table.
<i>ip_address</i>	IP address.
<i>mac_address</i>	Hardware MAC address for the ARP table entry.
alias	An ARP entry for one host that points to another. These entries are not cleared from the PIX Firewall ARP table during reboots.

Usage Guidelines

The **clear arp** command clears the PIX Firewall ARP table. To remove alias entries, specify the **alias** keyword. You may clear entries by IP or MAC address.

This command is the same as **no arp**.

See also: **arp**, **no arp**, **show arp**.

Example

```
pixfirewall# clear arp inside
```

clear auth-user

Remove authentication support for IP address. (Configuration mode.)

clear auth-user *type ip_address netmask*

Syntax Description

<i>type</i>	Authentication type: radius or tacacs+ .
<i>ip_address</i>	IP address from which or to which access is directed depending on whether the connection is inbound or outbound.
<i>netmask</i>	Network mask of <i>ip_address</i> . Always specify a specific mask value. If you want to limit access to a single IP address use 255 in each octet; for example, 255.255.255.255.

Usage Guidelines

The **clear auth-user** command removes authentication access for an IP address. You can remove all access by not specifying options, or you can remove access by authentication type, such as TACACS+, or by type and IP address.

Example

```
pixfirewall(config)# clear auth-user tacacs+
```

clear auth-server

Stop authentication access to a server. (Configuration mode.)

clear auth-server *type server_ip key*

Syntax Description

<i>type</i>	Authentication type: radius or tacacs+
<i>server_ip</i>	The IP address of the authentication server.
<i>key</i>	An alphanumeric keyword of up to 127 characters defined by what the authentication server accepts. This is a public key between the client and server for encrypting data between them. The <i>key</i> value must be the same on both the client and server systems.

Usage Guidelines

The **clear auth-server** command specifies that an authentication server is no longer servicing authentication requests. Use this command when you take an authentication server offline or have changed your network topology.

You can remove access to all authentication servers by not specifying options, or you can remove access by authentication type, such as TACACS+, or by type and server IP address.

Note For TACACS+, if you do not specify *key*, no encryption occurs.

RADIUS must have *key* defined.

Example

```
pixfirewall(config)# clear auth-server
```

clear http

Remove HTTP access to the PIX Firewall HTML management interface from the specified IP address or all IP addresses. (Configuration mode.)

clear http *ip_address* [*netmask*]

Syntax Description

ip_address IP address of systems on the inside of the PIX Firewall that are able to access the HTML management interface. You can give access to a maximum of 16 IP addresses.

netmask Network mask of *ip_address*.

Usage Guidelines

The **clear http** command removes HTTP access to an IP address. This is the same as the **no http** command.

See also: **http**, **show http**.

Example

```
pixfirewall(config)# clear http
```

clear outbound

Clear outbound access list. (Configuration mode.)

clear outbound *num* [**permit**|**deny** *ip_address netmask port*]

Syntax Description

<i>num</i>	A tag number for the access list.
permit	Allow the access list to access the specified IP address and port.
deny	Deny the access list access to the specified IP address and port.
<i>ip_address</i>	The IP address for this access list entry.
<i>netmask</i>	The network mask for comparing with the IP address; 255.255.255.0 causes the access list to apply to an entire class C address. 0.0.0.0 disables all access.
<i>port</i>	A port or range of ports that the access list is permitted or denied access to; for example, 1-1024.

Usage Guidelines

The **clear outbound** command clears an outbound access list or specific details within it.

See also: **apply**, **no outbound**, **outbound**, **show outbound**.

Example

```
pixfirewall(config)# clear outbound 1
```


clear route

Clear the inside or outside interface's routing table. (Configuration mode.)

clear route **inside|outside** [**static**]

Syntax Description

inside|outside Sets the network default route and path for either the inside or outside interface.

static Clears the static routes. Static routes are those entered manually with the **route** command. They are stored in the in the configuration when it is saved.

Usage Guidelines

The **clear route** command clears the routing table for the specified interface. You can clear both routing tables by entering **clear route** without the **inside** or **outside** keywords. To clear static routes, use the **static** keyword. To remove an individual route without clearing the entire table, use the **no route** command.

See also: **no route**, **route**, **show route**

Example

```
pixfirewall(config)# clear route inside static
```

clear snmp-server

Clear SNMP contact or location, or stop sending SNMP event information. (Configuration mode.)

clear snmp-server **contact**|**location**|**host** *value*

Syntax Description

contact	Clear the contact information.
location	Clear the PIX Firewall location.
host	Stop sending SNMP event information.

Usage Guidelines

The **clear snmp-server contact** command deletes the contact information from that which is sent to the SNMP server. The **clear snmp-server location** command has the same effect for the location. Use these commands when you want to change the text in the contact or location fields; that is, by clearing it and then replacing the information with the **snmp-server** command.

The **clear snmp-server host** command stops sending SNMP traps, or you can specify one or more IP addresses to which SNMP traps are not sent.

Using SNMP, you can monitor system events on the PIX Firewall.

See also: **no snmp-server**, **snmp-server**, **show snmp-server**

Example

```
pixfirewall(config)# clear snmp-server location
```

clear syslog

Stop logging SYSLOG messages. (Configuration mode.)

clear syslog console

clear syslog host *ip_address*

clear syslog output *facility.level*

Syntax Description

ip_address SYSLOG host IP address.

facility Eight facilities LOCAL0(16) through LOCAL7(23); the default is LOCAL4(20). Hosts file the messages based on the *facility* number in the message.

level Message type; sets the level above which PIX Firewall suppresses messages to the SYSLOG hosts. Setting the level to 3, for example, allows messages with levels 0, 1, 2, and 3 to display. The default is 3. The levels are:

- 0 — System unusable
- 1 — Take immediate action
- 2 — Critical condition
- 3 — Error message
- 4 — Warning message
- 5 — Normal but significant condition
- 6 — Informational
- 7 — Debug message

Usage Guidelines

The **clear syslog console** command disables SYSLOG messages on the console. The **clear syslog host** command disables sending SYSLOG messages to the specified host. The **clear syslog output** command stops sending all SYSLOG messages. This command is the same as **no syslog**.

See also: **syslog**, **show syslog**

Example

```
pixfirewall(config)# clear syslog
```

clear telnet

Remove PIX Firewall Telnet access from user. (Configuration mode.)

clear telnet *ip_address netmask*

Syntax Description

ip_address The IP address or network of a host that is authorized to access the PIX Firewall Telnet management interface.

netmask The netmask for the network specified in this Telnet command. This allows multiple machines on a particular IP subnet access to the PIX Firewall management interface.

Usage Guidelines

The **clear telnet** command removes Telnet access to an IP address. Up to 16 hosts or networks are allowed access to the PIX Firewall, 4 simultaneously. **show telnet** displays the current list of IP addresses authorized to access the PIX Firewall. You can use the **who** command to see which IP addresses are currently accessing the firewall with Telnet.

See also: **show telnet**, **who**

Example

```
pixfirewall(config)# clear telnet 192.168.42.42
```

conduit

Add conduit through firewall for incoming connections. (Configuration mode.)

conduit *global_ip* *port*[-*port*] *protocol* *ip_address* [*netmask*]

Syntax Description

<i>global_ip</i>	The IP address from the global pool to associate this conduit with.
<i>port</i>	Destination port number into which connections are permitted on the inside machine (if using TCP, 25 for SMTP, 80 for HTTP, and so on). 0 means match any port. The port values are defined in RFC 1700.
<i>protocol</i>	tcp or udp .
<i>ip_address</i>	IP address (host or network) from which to permit incoming connections (0.0.0.0 is any host).
<i>netmask</i>	Network mask of <i>ip_address</i> .

Usage Guidelines

The **conduit** command creates an exception to the PIX Firewall Adaptive Security mechanism by letting you permit connections from outside the PIX Firewall to hosts on the inside network. Conduits exist on the static translation slots and can be added with the **conduit** command or through the last parameter of the **static** command. The **conduit** command is the recommended method. The **no conduit** command removes the conduit you specify.

Note **static** statements must be entered in the configuration before **conduit** statements. If you attempt to enter a **conduit** before entering a **static** statement, the message “Cannot locate the xlate” appears. The logic is that you create a conduit on a static, but you cannot create a static without a global to create it from. Therefore, first use **global**, then **static**, then **conduit**.

If a conduit is specified as, for example: **conduit 192.1.1.1 tcp:192.1.2.2/32-0**, the host 192.1.2.2 can access the inside host that is mapped to the global address 192.1.1.1 on any TCP port. The same syntax applies for UDP.

See also: **no conduit**, **show conduit**.

Example

The following pair of commands enables only SMTP communication between the UNIX gateway host (10.10.25.10) and an SMTP server on the inside network (192.168.1.49):

```
pixfirewall(config)# static 10.10.26.147 192.168.1.49
pixfirewall(config)# conduit 10.10.26.147 tcp:10.10.25.10/32-25
```

To remove the last conduit, issue the following:

```
pixfirewall(config)# no conduit 10.10.26.147 tcp:10.10.25.10/32-25
```

configure floppy

Merge current configuration with that on floppy disk. (Privileged mode.)

configure floppy

Usage Guidelines

The **configure floppy** command merges the current running configuration with the configuration stored on floppy disk. This command assumes that the floppy disk was previously created by the **write floppy** command.

Each statement on floppy disk is read into the current configuration and evaluated in the same way as commands entered from a keyboard with these rules:

- If the command on floppy disk is identical to an existing command in the current configuration, it is ignored.
- If the command on floppy disk is an additional instance of an existing command, such as if you already have one **telnet** command for IP address 1.2.3.4 and the floppy disk configuration has a **telnet** command for 6.7.8.9, then both commands appear in the current configuration.
- If the command redefines an existing command, the command on floppy disk overwrites the command in the current configuration in RAM. For example, if you have **hostname ram** in the current configuration and **hostname floppy** on floppy disk, the command in the configuration becomes **hostname floppy** and the command line prompt changes to match the new host name when that command is read from floppy disk.

Example

```
pixfirewall# configure floppy
```

configure memory

Merge configuration with that from flash memory. (Privileged mode.)

configure memory

Usage Guidelines

The **configure memory** command merges the configuration in flash memory into the current configuration in RAM. Each statement in flash memory is read into the current configuration and evaluated in the same way as commands entered from a keyboard with these rules:

- If the command in flash memory is identical to an existing command in the current configuration, it is ignored.
- If the command in flash memory is an additional instance of an existing command, such as if you already have one **telnet** command for IP address 1.2.3.4 and the flash memory configuration has a **telnet** command for 6.7.8.9, then both commands appear in the current configuration.
- If the command redefines an existing command, the command in flash memory overwrites the command in the current configuration in RAM. For example, if you have **hostname ram** in the current configuration and **hostname flash** in flash memory, the command in the configuration becomes **hostname flash** and the command line prompt changes to match the new host name when that command is read from flash memory.

Example

```
pixfirewall# configure memory
```

configure terminal

Start configuration mode. (Privileged mode.)

configure terminal

Usage Guidelines

The **configure terminal** command starts configuration mode. Exit configuration mode by pressing **^z**. After exiting configuration mode, use **write memory** to store your changes in flash memory or **write floppy** to store the configuration on floppy disk. Use the **write terminal** command to display the current configuration.

Example

```
pixfirewall# configure terminal
```


disable

Exit privileged mode and return to unprivileged mode. (Privileged mode.)

disable

Usage Guidelines

The **disable** command exits privileged mode and returns you to unprivileged mode. Use the **enable** command to return to privileged mode.

Example

```
pixfirewall# disable  
pixfirewall>
```

enable

Start privileged mode. (Unprivileged mode.)

enable

Usage Guidelines

The **enable** command starts privileged mode. PIX Firewall prompts you for your privileged mode password. The default password is **cisco**. Use **disable** to exit privileged mode. Use **enable password** to change the password.

Example

```
pixfirewall> enable  
Password: #####  
pixfirewall# disable  
pixfirewall>
```

enable password

Set the privileged mode password. (Privileged mode.)

enable password *password*

Syntax Description

password A password of up to 16 alphanumeric characters, which is not case sensitive. PIX Firewall converts the password to all lowercase.

Usage Guidelines

The **enable password** command changes the privileged mode password, for which you are prompted after you enter the **enable** command. When the PIX Firewall starts and you enter privileged mode, the password prompt appears. The default password is **cisco**.

Note If you create a new password, write it down on paper. You can only view the password by using the **write term** command to display the current configuration. However, you can only use this command if you first access privileged mode, which requires the password you set with **enable password**. Use the space provided here to keep this password available to you:

Privileged mode password: _____

Example

```
pixfirewall(config)# enable password fnord42
```

failover

Enable access to the optional failover feature. (Configuration mode.)

failover [active]

Syntax Description

active Make a PIX Firewall the primary unit. This argument cannot be used in a configuration file. Only use this command when you need to force control of the connection back to the unit you are accessing, such as when you want to switch control back from a unit after you have fixed a problem and want to restore service to the primary unit. Either enter **no failover active** on the secondary unit to switch service to the primary or **failover active** on the primary unit.

Usage Guidelines

The **failover** command without an argument indicates that you have connected the optional failover cable from your primary PIX Firewall to a secondary PIX Firewall. Failover works by passing control to the secondary unit should the primary unit fail. The switch between units occurs within 60 seconds of the failure event. The markings on the cable let you choose which unit is primary and which is secondary. Refer to *Installing the Failover Connector Assembly and Cable* (Document Number 78-3749-01) supplied with the failover cable option for more information about upgrading an existing PIX Firewall unit to accept the failover cable.

Note The primary PIX Firewall does not maintain a copy of the connection state in the secondary unit. If the primary fails, network traffic must re-establish previous connections.

Failover only works with the Cisco failover cable. PIX Firewall failover does not work with alternate vendor DB15-to-DB15 cables.

Enable the failover feature by adding the **failover** command (without the **active** parameter) to the configuration files for both the primary and secondary PIX Firewalls.

When you use Telnet to access the PIX Firewall, only the active unit serves the connection. Use the **hostname** command on both units to identify a unique name for each unit. Using the host name, you can tell if you are communicating with the primary or secondary unit. If you are using Telnet when a failure occurs, you need to disconnect the Telnet session and restart it to the IP address.

If a failure occurs, the host name in the Telnet command prompt gives you positive acknowledgment that the secondary unit is active. In addition, SYSLOG messages indicate whether the primary or secondary unit failed. Use the **show failover** command to verify which unit is active.

Aside from the different host names, the configuration files for both units need to be identical.

If you want to force a PIX Firewall to be active or go to standby you can use the **failover active** or **no failover active** command. Use this feature to force a PIX Firewall offline for maintenance or to return a failed unit to service.

Use the **show failover** command to verify the status of the connection and to determine which unit is active.

Failover SYSLOG Messages

In the messages that follow, *P/S* can be either Primary or Secondary depending on which PIX Firewall is sending the message. Failover messages always have a SYSLOG priority level of 2, which indicates critical condition. Refer to the **syslog output** command description for more information on SYSLOG messages.

The SYSLOG messages sent to record failover events are:

- System okay messages:
 - “P/S: Cable OK.”
 - “P/S: Disabling failover.” The **no failover** command was entered.
 - “P/S: Enabling Failover.” Either a PIX Firewall is booting that has the **failover** command in its configuration file or the **failover** command was just entered in the current configuration.
 - “P/S: Mate ifc *number* OK.” The interface (ifc) is now working correctly after being brought back online after a failure. The *number* is either **0** for the inside network interface or **1** for the outside interface.
- Cabling problem messages:
 - “P/S: Bad cable.” The cable is connected on both units, but is not a Cisco failover cable or has developed a wiring problem.
 - “P/S: Cable not connected my side.” The cable on the current PIX Firewall is not connected.
 - “P/S: Cable not connected other side.” The cable on the current unit is connected, but the connector on the other unit is disconnected.
 - “P/S: Error reading cable status.” The cable state cannot be determined. Ensure that you are using a Cisco failover cable and all connectors are securely attached.
- Failure in process messages:
 - “P/S: No response from mate.” The other PIX Firewall has not responded in the last 30 seconds.
 - “P/S: Power failure other side.” The other unit has lost power.
 - “P/S: Mate ifc *number* failed.” The interface (ifc) for the other unit failed. The *number* is either **0** for the inside network interface or **1** for the outside interface.
- Status messages:
 - “P/S: Switching to ACTIVE.” The other unit has brought the network back online and is receiving connections. This message also occurs if you force a unit to active with the **failover active** command, or forced the other unit inactive with the **no failover active** command.
 - “P/S: Switching to STANDBY.” The unit is inactive as a result of entering **no failover active** on the unit or by entering **failover active** on the other unit.

See also: **no failover**, **show failover**.

Example

```
pixfirewall(config)# failover active
```

global

Define IP address in the global pool. (Configuration mode.)

global *global_id* *ip_address*

Syntax Description

<i>global_id</i>	An identification number from 1 to 10 that groups global addresses for use by networks on the inside of the PIX Firewall. If there is a single network on the inside of the PIX Firewall, the <i>global_id</i> has no meaning and you use 1 .
<i>ip_address</i>	One or more IP addresses that the PIX Firewall shares among its connections. Each IP address must be registered with the Network Information Center (NIC). You can specify a range of IP addresses by separating the starting and ending addresses with a dash (-).

Usage Guidelines

The **global** command defines the addresses in the global pool. Global pool addresses must be registered with the NIC; they provide an IP address for each incoming and outgoing connection. Always use the **nat** command with the **global** command to assign the *global_id* values to each network.

Configuring the PIX Firewall requires you to specify at least two global IP addresses with the **global** command. PIX Firewall uses the global addresses to assign a virtual IP address to a connection. When the translate times out (defined by the **timeout** command), the global address returns to the available pool. If the outside network connects with the Internet, each IP address you specify as a global must be registered with the NIC. The phrases *global network* and *virtual network* are synonymous in this document.

When you assign global addresses from the pool for Private Link, select addresses from the start of global pool range. The PIX Firewall allocates IP addresses from the global pool by starting at the end of the range you specify and working backward.

The minimum number of IP addresses you must add to the global pool is 2; for example, 10.10.26.10-10.10.26.11. The maximum is 1 class B network worth of IP addresses. It is not valid to add 1 address; for example, **global** 10.10.26.20.

Note that the IP addresses assigned to the global pool differ by class type. If you specify a class A address, such as 1.2.3.0, **global** assigns address 1.0.0.1 through 1.0.255.254 to the global pool; whereas, if you specify a class C address, such as 192.168.42.0, **global** assigns only the 254 addresses from .1 to .254.

If you are using the same subnet and want to share it between the outside network and the PIX Firewall virtual network, the PIX Firewall causes a proxy-arp for the global pool on the outside network. If you are using global networks that are disjoint from the outside network address, be certain that the networking equipment and computers have a routing table entry for the global network with a next hop of the outside interface of the PIX Firewall.

When you enter the **global** command and specify a network address, such as 192.168.42.0, the “Some globals not created” message appears if the addresses you requested could not be assigned to the global pool. The firewall cannot assign either the .0 address or the .255 address to the global pool. Use the **show global** command to view which IP addresses were created.

Example

```
pixfirewall(config)# global 1 10.10.10.0
```

help

Display help information. (Unprivileged mode.)

help
?

Usage Guidelines

The **help** or **?** command displays help information about all commands. You can view help on an individual command by entering the command name followed by a question mark.

Example

```
pixfirewall(config)# age ?  
age <minutes>
```

Help information is available on the core commands (not show, no, or clear commands) by entering **?** at the command prompt:

```
pixfirewall(config)# ?  
age                Age PIX Private Link keys  
apply              Apply outbound lists  
arp                ARP table manipulation  
auth               User Authorization Enable/Disable  
auth-server        Maintain Authorization Server lists  
auth-user          Maintain IP to Authorization lists  
conduit            Add/remove conduits to static translations  
configure          Configure from terminal, floppy, or memory  
disable            Turn off privileged commands  
enable             Modify enable password  
failover           Administer Failover  
global             Enter global network addresses  
hostname           Change host name  
http               Add authorized IP addresses for http access to PIX  
interface          Interface configuration  
ip                 Set network number  
kill               Terminate a telnet session  
link               Establish an encrypted PIX Private Link  
linkpath           Set the network paths for Private Links  
lnko               Establish an encrypted PIX Private Link (OLD)  
lnkopath           Set the network paths for Private Links (OLD)  
nat                Administer Address Translations  
outbound           Create outbound lists  
passwd             Modify telnet login password  
ping               Source a PING request message  
reload             Halt and reload system  
rip                RIP table  
route              Set the network default router  
static             Reserve a local to global address translation table entry  
snmp-server        Administer SNMP daemon  
syslog             Log messages to syslog server  
telnet             Add authorized IP addresses for telnet access to PIX  
timeout            Set the maximum idle time for translation and connection slots  
who                Show active administration sessions on PIX  
write              Write configuration memory, type 'write ?' for list  
?                  ?Help list
```


hostname

Change the host name in the PIX Firewall command line prompt. (Configuration mode.)

hostname *newname*

Syntax Description

newname New host name for the PIX Firewall prompt. This name can be up to 16 alphanumeric characters and is not case sensitive. PIX Firewall converts the host name to all lowercase.

Usage Guidelines

The **hostname** command changes the host name label on prompts. The default host name is “pixfirewall.” If you have the optional failover feature, assign host names to both PIX Firewall units. Then if a failure occurs and you Telnet to the IP address, the host name in the prompt verifies that the secondary unit is functioning.

Example

```
pixfirewall(config)# hostname spinner
spinner(config)# hostname pixfirewall
pixfirewall(config)#
```

http

Permit inside IP address access to the PIX Firewall HTML management interface. (Configuration mode.)

http *ip_address netmask*

Syntax Description

ip_address IP address of systems on the inside of the PIX Firewall that are able to access the PIX Firewall HTML management interface.

netmask Network mask of *ip_address*. If you want to limit access to a single IP address use 255 in each octet; for example, 255.255.255.255.

Usage Guidelines

The **http** command lets an IP address access the PIX Firewall HTML management interface. Use **no http** or **clear http** to disable management interface access. Use **show http** to list the information you entered.

Note You must use the **http** command for your workstation before you can use the PIX Firewall HTML network browser configuration capability.

You cannot access the PIX Firewall HTML management interface unless you have used the **passwd** command to create an access password.

Example

```
pixfirewall(config)# http 192.168.42.42 255.255.255.255
```

interface ethernet

Identify Ethernet board speed and duplex. (Configuration mode.)

interface ethernet inside|outside 10baseT|100baseTX|auto

Syntax Description

inside	Network interface for inside PIX Firewall network.
outside	Network interface for network outside the PIX Firewall.
10baseT	Sets 10Mbit Ethernet and half duplex communications.
100baseTX	Sets 100Mbit Ethernet and half duplex communications.
auto	Automatically determines networking speed and sets full duplex communications.

Usage Guidelines

The **interface ethernet** command identifies the speed and duplex settings of the network interface boards. The speed setting affects the **show blocks** command. Refer to *Installing Circuit Boards in the Cisco PIX Firewall* (Document Number 78-3748-01) for information on installing an Ethernet board. Use **no interface ethernet** to disable access to the network interface. Use **show interface ethernet** to view information about the interface.

Example

```
pixfirewall(config)# interface ethernet inside auto
pixfirewall(config)# interface ethernet outside auto
```

interface token

Identify Token-Ring board speed. (Configuration mode.)

interface token inside|outside [4mbps|16mbps]

Syntax Description

inside	Network interface for inside PIX Firewall network.
outside	Network interface for network outside the PIX Firewall.
4mbps	4 megabytes per second data transfer speed.
16mbps	(default) 16 megabytes per second data transfer speed.

Usage Guidelines

The **interface token** command identifies the speed of the Token-Ring network interface. Refer to *Installing Circuit Boards in the Cisco PIX Firewall* (Document Number 78-3748-01) for more information on installing a Token-Ring board. Use **no interface token** to disable access to the network interface. Use **show interface token** to view information about the interface.

Example

```
pixfirewall(config)# interface token inside 16mbps
pixfirewall(config)# interface token outside 16mbps
```

ip address

Identify IP address for PIX Firewall. (Configuration mode.)

ip address **inside|outside** *ip_address* [*netmask*]

Syntax Description

inside|outside The inside or outside network interface.

ip_address IP address.

[*netmask*] Network mask of *ip_address*.

Usage Guidelines

The **ip address** command assigns an IP address to the PIX Firewall. Use the **show ip address** command to view which addresses are assigned to the inside and outside network interfaces.

Example

```
pixfirewall(config)# ip address inside 130.10.2.1 255.255.255.0
```

kill

Terminate a Telnet session. (Privileged mode.)

kill *telnet_id*

Syntax Description

telnet_id Telnet session ID.

Usage Guidelines

The **kill** command terminates a Telnet session. Use the **who** command to view the Telnet session ID value. When you kill a Telnet session, PIX Firewall lets any active commands terminate and then drops the connection without warning to the user.

See also: **show who**, **telnet**

Example

```
pixfirewall# show who
2: From 10.10.54.0
pixfirewall# kill 2
```

link

Specify Private Link connection to PIX Firewall. (Configuration mode.)

link *remote_ip_address key-id key*

Syntax Description

<i>remote_ip_address</i>	IP address of a PIX Firewall running Private Link.
<i>key-id</i>	The key number. Version 3 PIX Firewall supports up to seven Private Link encryption keys. The <i>key_id</i> value can be from 1 to 7.
<i>key</i>	The 56-bit key (up to 14 hexadecimal digits) used to seed the encryption chip. This key must be the same on each host end of an encrypted link. The key consists of hexadecimal numbers; for example, fadebac . Select a unique key that is difficult to guess.

Usage Guidelines

The **link** command creates an encrypted path between version 3 Private Link equipped PIX Firewall units. You can specify up to seven encryption keys for data access between your unit and the remote unit. The key-ID and key values must be the same on each side of the Private Link. Once you specify the same keys on both sides of the connection, the systems alert each other when a new key takes effect. You can use the **age** command to specify the number of minutes that a key is in effect.

Specify the **link** command once for each key you want to specify; for example, if you want seven keys, enter the **link** command in the configuration seven times.

The PIX Firewall Private Link consists of an encryption card and software that permits PIX Firewall units to provide encrypted communications across an unsecure network such as the Internet. This optional feature is available to domestic customer sites.

PIX Firewall allows up to 64 Private Links. At least two PIX Firewall units are required along with the hardware/software option to use this feature.

Private Link works by checking packets that arrive at the PIX Firewall inside interface. If a route link previously created by the **linkpath** command exists that matches the destination network address, the packet is encrypted and encapsulated in an AH/ESP frame. The frame has a destination address of the remote PIX Firewall and a source address of the local PIX Firewall. When the packet arrives at the remote PIX Firewall unit, the data in the packet is decrypted and then sent through the inside interface to the original IP address specified. No translation takes place on packets that traverse the PIX Firewall Private Link. The addressing and data remains completely unchanged.

PIX Firewall allows up to 512 link paths.

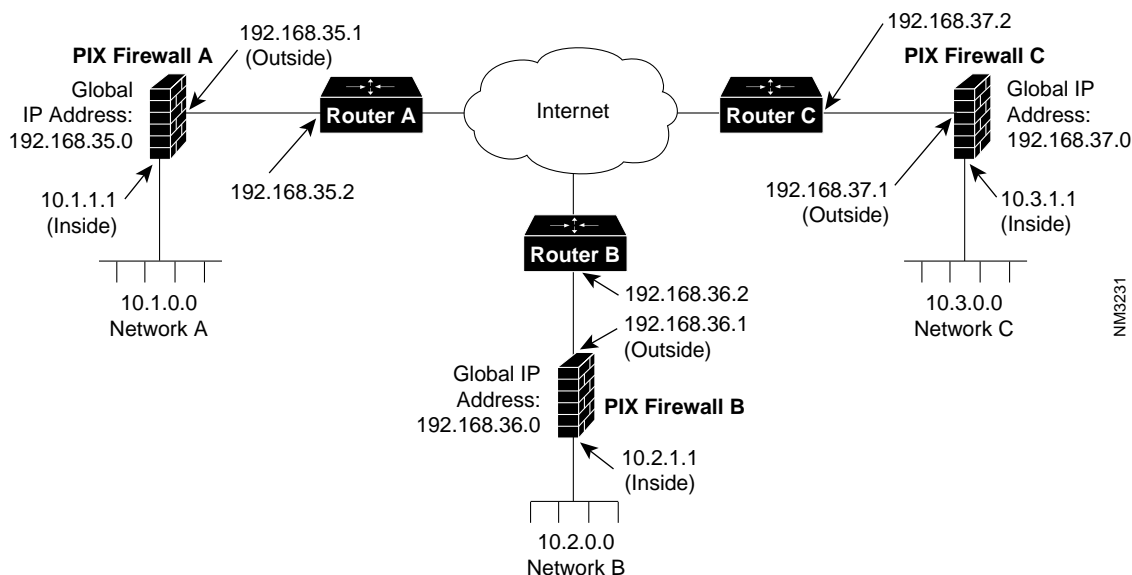
You can manage remote PIX Firewall units through the Private Link interface.

See also: **linkpath**, **show link**

Example

To configure a Private Link, refer to the example setup in Figure 4-1.

Figure 4-1 Example Private Link Network Diagram



Before configuring Private Link, you would initially configure the systems using the standard commands. To configure PIX Firewall A, use these commands:

```
pixfirewall(config)# interface ethernet inside auto up
pixfirewall(config)# interface ethernet outside auto up
pixfirewall(config)# ip address inside 10.1.1.1 255.255.255.0
pixfirewall(config)# ip address outside 192.168.35.1 255.255.255.0
pixfirewall(config)# nat 1 0.0.0.0
pixfirewall(config)# global 1 192.168.35.0
pixfirewall(config)# route inside 10.1.1.2
pixfirewall(config)# route outside 192.168.35.2
```

For this example, assume that PIX Firewall B, the version 2 PIX Firewall, is already configured to have the IP addresses and global IP addresses shown in the illustration, and that it has its Private Link configured to talk to PIX Firewall A and C. Refer to the version 2 *Private Internet Exchange Reference Guide* (Document Number 78-3362-02) for more information on configuring Private Link.

To initially configure PIX Firewall C, use these commands:

```
pixfirewall(config)# interface ethernet inside auto up
pixfirewall(config)# interface ethernet outside auto up
pixfirewall(config)# ip address inside 10.3.1.1 255.255.255.0
pixfirewall(config)# ip address outside 192.168.37.1 255.255.255.0
pixfirewall(config)# nat 1 0.0.0.0
pixfirewall(config)# global 1 192.168.37.0
pixfirewall(config)# route inside 10.3.1.2
pixfirewall(config)# route outside 192.168.37.2
```


When you configure a Private Link, follow these steps:

- Step 1** In this example, with a version 2 PIX Firewall to which a connection is being made, you need to select an address from the global pool. In version 3, this dependency has been eliminated. For this example, IP address 192.168.36.2 was selected from the global address pool. When you assign global addresses from the pool for version 2 Private Link, select addresses from the start of global pool range.
- Step 2** Agree on up to seven hexadecimal encryption keys for use between the PIX Firewall Private Link local and remote units; for example, one key could be like the hexadecimal value **fadebac**. Be sure to select unique keys that are difficult to guess. The key can be up to 56 bits in length (14 hexadecimal digits).
- Step 3** Use the **link** command to create an encrypted link for each key you want to specify.
- Step 4** Use **linkpath** to tell the firewall to send packets for the destination network across the link rather than translating and forwarding them.

On PIX Firewall A, in the previous illustration, enter these commands to configure the Private Link:

```
pixfirewall(config)# : Configure for firewall C:
pixfirewall(config)# link 192.168.37.1 1 fadebac
pixfirewall(config)# link 192.168.37.1 2 bacfade
pixfirewall(config)# link 192.168.37.1 3 baabaaa
pixfirewall(config)# link 192.168.37.1 4 beebeee
pixfirewall(config)# linkpath 10.3.1.1 255.255.255.0 192.168.37.1
pixfirewall(config)# :
pixfirewall(config)# : Configure for firewall B:
pixfirewall(config)# lnko 192.168.36.2 fadebac
pixfirewall(config)# lnkopath 10.2.1.1 255.255.255.0 192.168.36.2
```

On PIX Firewall C, enter these commands:

```
pixfirewall(config)# : Configure for firewall A:
pixfirewall(config)# link 192.168.35.1 1 fadebac
pixfirewall(config)# link 192.168.35.1 2 bacfade
pixfirewall(config)# link 192.168.35.1 3 baabaaa
pixfirewall(config)# link 192.168.35.1 4 beebeee
pixfirewall(config)# linkpath 10.1.1.1 255.255.255.0 192.168.35.1
pixfirewall(config)# :
pixfirewall(config)# : Configure for firewall B:
pixfirewall(config)# lnko 192.168.36.2 fadebac
pixfirewall(config)# lnkopath 10.2.1.1 255.255.255.0 192.168.36.2
```

linkpath

Define a Private Link destination IP address. (Configuration mode.)

linkpath *dest_net netmask remote_ip*

Syntax Description

dest_net The IP address of the destination network on the inside interface of the remote PIX Firewall of a Private Link.

netmask Specifies a subnet mask to apply to *dest_net*.

remote_ip IP address of the remote PIX Firewall's outside network interface.

Usage Guidelines

The **linkpath** command specifies IP address information for the remote Private Link PIX Firewall. Use **show linkpath** to view the IP addresses you specify. Use **no linkpath** to stop access to a Private Link remote firewall. Refer to the **link** command description for more information about using **linkpath**.

See also: **no linkpath**, **show linkpath**, **lnkopath**

Example

```
pixfirewall(config)# linkpath
```

Inko

Define access to an older version 2 Private Link PIX Firewall. (Configuration mode.)

Inko *remote_global* *key*

Syntax Description

remote_global IP address from the global address pool.

key The encryption key. Version 2 PIX Firewall supports one Private Link encryption key. The encryption key can be up to 56 bits in length (14 hexadecimal digits); for example, **fadebac**.

Usage Guidelines

The **Inko** command defines access to a version 2 Private Link PIX Firewall and specifies an encryption key. The PIX Firewall Private Link consists of an encryption card and software that permits PIX Firewall units to provide encrypted communications across an unsecure network such as the Internet. This optional feature is available to domestic customer sites.

Note This command will be obsoleted in a future release.

Refer to the **link** command description for more information about using **Inko**.

See also: **Inkopath**, **show Inko**

Example

```
pixfirewall(config)# Inko 192.168.42.1 0xfaded
```

Inkopath

Specify a version 2 Private Link path to the remote PIX Firewall. (Configuration mode.)

Inkopath *dest_net netmask remote_global*

Syntax Description

<i>dest_net</i>	The IP address of the destination network on the inside interface of the remote PIX Firewall of a Private Link.
<i>netmask</i>	Specifies a subnet mask to apply to <i>dest_net</i> .
<i>remote_global</i>	IP address in the global pool of the remote PIX Firewall in a Private Link environment.

Usage Guidelines

The **Inkopath** command sets the network paths for PIX Firewall version 2 Private Link connections.

Note This command will be obsoleted in a future release.

See also: **show Inkopath**, **Inko**

Example

```
pixfirewall(config)# Inkopath 1.2.3.4 255.255.255.0 192.168.42.1
```

nat

Associate a network with a pool of IP addresses. (Configuration mode.)

```
nat global_id ip_address [netmask]
```

Syntax Description

<i>global_id</i>	A number in the range of 1 to 10 previously specified with the global command. Specify 0 to indicate that no address translation be used with <i>ip_address</i> .
<i>ip_address</i>	IP address of the network to which the global pool pertains.
<i>netmask</i>	Network mask for <i>ip_address</i> . You can use 0.0.0.0 to allow everyone access.

Usage Guidelines

The **nat** command lets you specify lists of inside hosts that can use the firewall for address translation. You can specify up to 10 global pools of IP addresses. Use **nat 0** to enable the identity feature so that address translation is not performed. Use this feature when you have NIC-registered IP addresses on your inside network that you want to be visible on the outside network.

See also: **global**, **no nat**, **show nat**.

Example

```
pixfirewall(config)# nat 1 192.168.42.0 255.255.255.255
pixfirewall(config)# show nat
nat 1 192.168.42.0 255.255.255.255
```

no apply

Cancel a previous use of the **apply** command. (Configuration mode.)

no apply *num* **outgoing_src|outgoing_dest**

Syntax Description

num An access list number previously created with **outbound**.

outgoing_src Use if previously specified with the **apply** command. **outgoing_src** causes the firewall to examine the source address on packets traversing the PIX Firewall for access list enforcement.

outgoing_dest Use if previously specified with the **apply** command. **outgoing_dest** causes the firewall to examine the destination address on packets traversing the PIX Firewall for access list enforcement.

Usage Guidelines

The **no apply** command cancels a previous **apply** statement. All arguments must be specified.

See also: **apply**, **show apply**

Example

```
pixfirewall(config)# outbound 1 deny 192.168.42.2 255.255.255.255 80
pixfirewall(config)# apply 1 outgoing_src
pixfirewall(config)# show apply
apply 1 outgoing_src
pixfirewall(config)# no apply 1 outgoing_src
pixfirewall(config)# show apply
pixfirewall(config)#
```

no arp

Erases the contents of the PIX Firewall ARP table. (Privileged mode.)

no arp [**inside|outside** *ip_address mac_address alias*]

Syntax Description

inside PIX Firewall inside network interface ARP table.

outside PIX Firewall outside network interface ARP table.

ip_address IP address.

mac_address Ethernet MAC address for the ARP table entry.

alias Delete aliased ARP entries (those pointing to another host).

Usage Guidelines

The **no arp** command clears the PIX Firewall ARP table. This command does not clear aliased ARPs unless you specify **alias**. You may remove individual entries by specifying either the IP or MAC address.

This command is the same as **clear arp**.

See also: **arp**, **clear arp**, **show arp**

Example

```
pixfirewall(config)# no arp
```

no auth

Suspend user authentication services. (Configuration mode.)

no auth [**inside**|**outside**]

Syntax Description

- | | |
|----------------|--|
| inside | Specifies that you require authentication for connections originating on your local network (inside the PIX Firewall). |
| outside | Specifies that you require authentication for connections originating on the outside of the PIX Firewall. |

Usage Guidelines

The **no auth** command suspends user authentication for both inside and outside, or you can selectively disable it by interface. Use **show auth** to view the state of authentication. Use **auth** to restart authentication. Refer to the **auth** command description for more information on user authentication.

See also: **auth**, **show auth**

Example

```
pixfirewall(config)# auth
pixfirewall(config)# show auth
auth outside
auth inside
pixfirewall(config)# no auth
pixfirewall(config)# show auth
no auth outside
no auth inside
```


no auth-server

Remove access to authentication server. (Configuration mode.)

no auth-server [*type server_ip[-server_ip] key*]

Syntax Description

type Authentication type: **radius** or **tacacs+**.

server_ip The IP address of the authentication server.

key An alphanumeric keyword of up to 127 characters defined by what the authentication server accepts. This is a public key between the client and server for encrypting data between them. The *key* value must be the same on both the client and server systems.

Usage Guidelines

The **no auth-server** command removes knowledge of all authentication servers, or you can remove servers by type, or type and server IP address. Use **show auth-server** to view which servers are specified in the configuration.

Note For TACACS+, if you do not specify *key*, no encryption occurs.

RADIUS must have *key* defined.

See also: **auth-server**, **show auth-server**

Example

```
pixfirewall(config)# show auth-server
auth-server 1.2.3.4 thisModernWorld
pixfirewall(config)# no auth-server
pixfirewall(config)# show auth-server
pixfirewall(config)#
```

no auth-user

Disable user authentication for IP address. (Configuration mode.)

no auth-user [*type ip_address netmask*]

Syntax Description

<i>type</i>	Authentication type: radius or tacacs+ .
<i>ip_address</i>	IP address from which or to which access is directed depending on whether the connection is inbound or outbound.
<i>netmask</i>	Network mask of <i>ip_address</i> .

Usage Guidelines

The **no auth-user** command disables user authentication access to the PIX Firewall. Use **show auth-user** to view which IP addresses have access to user authentication.

See also: **auth-user**, **show auth-user**

Example

```
pixfirewall(config)# show auth-user
auth-user radius 192.168.30.2 255.255.255.0
pixfirewall(config)# no auth-user
pixfirewall(config)# show auth-user
pixfirewall(config)#
```

no conduit

Remove a conduit. (Configuration mode.)

no conduit *global_ip* *port* *protocol* *ip_address* [*netmask*]

Syntax Description

<i>global_ip</i>	The IP address from the global pool to associate this conduit with.
<i>port</i>	Destination port number into which connections are permitted on the inside machine (if using TCP, 25 for SMTP, 80 for http, and so on). 0 means match any port.
<i>protocol</i>	tcp or udp .
<i>ip_address</i>	IP address (host or network) from which to permit incoming connections (0.0.0.0 is any host).
<i>netmask</i>	Network mask.

Usage Guidelines

The **no conduit** command removes conduits to static translations. To remove groups of conduits, you must specify the global IP address, the port, and the protocol. You can also delete individual conduits by specifying the IP address and network mask. Use the **show conduit** command to view which conduits remain.

The **conduit** command lets you permit connections from outside the PIX Firewall to hosts on the inside network. Conduits exist on the static translation slots and can be added with the **conduit** command. The **conduit** command is the recommended method.

Example

```
pixfirewall(config)# no conduit 192.168.42.0 25 tcp
```

no failover

Turn failover off or force PIX Firewall into standby mode. (Configuration mode.)

no failover [active]

Syntax Description

active Force the current PIX Firewall into standby mode.

Usage Guidelines

The **no failover** command without an argument turns the optional failover feature off. With the **active** argument, **no failover** forces a PIX Firewall into standby mode. The failover feature works by passing control to a secondary PIX Firewall should the primary unit fail.

Use **show failover** to view the status of the connection and to determine if the failover cable is connected to both units.

Refer to the description of the **failover** command for more information on this feature.

See also: **failover**, **show failover**

Example

```
pixfirewall(config)# no failover
pixfirewall(config)# show failover
Failover Off
    This host: Primary - Active
...
pixfirewall(config)# no failover active
pixfirewall(config)# show failover
Failover Off
    This host: Primary - Standby
...
pixfirewall(config)#
```

no global

Remove IP address from the global pool. (Configuration mode.)

no global *global_id* [*ip_address*]

Syntax Description

global_id An identification number from 1 to 10 that groups global addresses for use by networks on the inside of the PIX Firewall.

ip_address An IP address or a range of IP addresses previously entered with the **global** command.

Usage Guidelines

The **no global** command removes IP addresses from the global pool.

Example

```
pixfirewall(config)# global 1 192.168.42.0
Some globals not created
pixfirewall(config)# show global
global 1 192.168.42.1-192.168.42.254
pixfirewall(config)# no global 1
pixfirewall(config)# show global
pixfirewall(config)#
```

no http

Remove IP address access to the PIX Firewall HTML management interface. (Configuration mode.)

no http *ip_address netmask*

Syntax Description

ip_address IP address of systems on the inside of the PIX Firewall that are able to access the PIX Firewall HTML management interface.

netmask Network mask of *ip_address*. If you want to limit access to a single IP address use 255 in each octet; for example, 255.255.255.255.

Usage Guidelines

The **no http** command lets you deny an IP address access to the PIX Firewall HTML management interface. This command is the same as **clear http**.

After you enter **no http**, current HTML sessions can view the pages in the network browser's memory, but if the user tries to reload the configuration interface, the network browser returns an error message and the screen goes blank.

If you immediately re-enter the **http** command, the network browser restores access to the HTML management interface. Use the reload command in the browser to display the pages.

See also: **http**, **show http**, **passwd**

Example

```
pixfirewall(config)# no http
```

no link

Disable Private Link connection. (Configuration mode.)

no link *remote_ip_address* *key-id* *key*

Syntax Description

<i>remote_ip_address</i>	IP address of a PIX Firewall running Private Link.
<i>key-id</i>	The key number. Version 3 PIX Firewall supports up to seven Private Link encryption keys.
<i>key</i>	The 56-bit key (up to 14 hexadecimal digits) used to seed the encryption chip. This key must be the same on each host end of an encrypted link. The key consists of hexadecimal numbers; for example, fadebac . Select a unique key that is difficult to guess.

Usage Guidelines

The **no link** command disables a Private Link connection. Use **show link** to view link information. Refer to the description of the **link** command for more information on Private Link.

Removing the last key removes the link. You can only remove the link if all **linkpath** statements have already been removed.

See also: **link**, **show link**

Example

```
pixfirewall(config)# no link 1.2.3.4 1
```

no linkpath

Disable Private Link destination IP address. (Configuration mode.)

no linkpath *dest_net netmask remote_ip*

Syntax Description

dest_net The IP address of the destination network on the inside interface of the remote PIX Firewall of a Private Link.

netmask Specifies a subnet mask to apply to *dest_net*.

remote_ip IP address of the remote PIX Firewall's outside network interface.

Usage Guidelines

The **no linkpath** command disables a Private Link connection to a remote PIX Firewall. Use **show linkpath** to view connection status. Refer to the description of the **link** command for more information on Private Link.

Improper use of this command can yield the error message "Path does not exist." This results from the **no linkpath** command being used for a link not previously created.

See also: **link**, **linkpath**

Example

```
pixfirewall(config)# no linkpath
```


no loko

Disable access to an older version 2 Private Link PIX Firewall. (Configuration mode.)

no loko *remote_global* *key*

Syntax Description

remote_global IP address from the global address pool.

key The encryption key. Version 2 PIX Firewall supports one Private Link encryption key. The encryption key can be up to 56 bits in length (14 hexadecimal digits); for example, **fadebac**.

Usage Guidelines

The **no loko** command disables access to a version 2 Private Link PIX Firewall. Use **show loko** to view Private Link status. Refer to the description of the **link** command for more information on Private Link.

Note This command will be obsoleted in a future release.

See also: **link**, **loko**, **lokoopath**

Example

```
pixfirewall(config)# no loko 16.17.18.19 1a2b3c4d
```

no lnkopath

Disable a version 2 Private Link path to the remote PIX Firewall. (Configuration mode.)

no lnkopath *dest_net netmask remote_global*

Syntax Description

<i>dest_net</i>	The IP address of the destination network on the inside interface of the remote PIX Firewall of a Private Link.
<i>netmask</i>	Specifies a subnet mask to apply to <i>dest_net</i> .
<i>remote_global</i>	IP address in the global pool of the remote PIX Firewall in a Private Link environment.

Usage Guidelines

The **no lnkopath** command disables the network paths for PIX Firewall version 2 Private Link connections.

Note This command will be obsoleted in a future release.

See also: **show lnkopath**, **lnko**

Example

```
pixfirewall(config)# no lnkopath 1.2.3.0 255.255.255.255.0 5.6.7.8
```

no nat

Disassociate a network with a pool of IP addresses. (Configuration mode.)

no nat *global_id ip_address [netmask]*

Syntax Description

<i>global_id</i>	A number in the range of 1 to 10 previously specified with the global command. Specify 0 to indicate that no address translation be used with <i>ip_address</i> .
<i>ip_address</i>	IP address of the network to which the global pool pertains.
<i>netmask</i>	Network mask for <i>ip_address</i> . You can use 0.0.0.0 to allow access to everyone.

Usage Guidelines

The **no nat** command disables a previous occurrence of the **nat** command.

See also: **nat**, **show nat**

Example

```
pixfirewall(config)# no nat
```

no outbound

Removes an access list previously created with **outbound**. (Configuration mode.)

no outbound *num* **permit|deny** *ip_address* [*netmask* [*port*[-*port*]]]

Syntax Description

<i>num</i>	A tag number for the access list.
permit	Use if supplied in the outbound command. The permit keyword allows the access list to access the specified IP address and port.
deny	Use if supplied in the outbound command. The deny keyword denies the access list access to the specified IP address and port.
<i>ip_address</i>	The IP address for this access list entry.
<i>netmask</i>	The network mask for comparing with the IP address; 255.255.255.0 causes the access list to apply to an entire class C address. 0.0.0.0 disables all access.
<i>port</i>	A port or range of ports that the access list is permitted or denied access to.

Usage Guidelines

The **no outbound** command removes an access list. Use **show outbound** to view status.

See also: **outbound**, **show outbound**

Example

```
pixfirewall(config)# no outbound
```

no rip

Disables RIP updates. (Configuration mode.)

no rip inside|outside default|passive

Syntax Description

inside	Modifies RIP behavior on the inside interface.
outside	Modifies RIP behavior on the outside interface.
default	Disables the default route broadcast on the specified interface.
passive	Disables passive RIP on either the inside or outside interface.

Usage Guidelines

The **rip** command enables IP routing table updates from received RIP (Routing Information Protocol) broadcasts. Use **show rip** to display the current RIP settings. Use **no rip** to disable PIX Firewall IP routing table updates. The default is to disable all RIP functionality.

Example

```
pixfirewall(config)# no rip outside default
```

no route

Remove an entry from the routing table. (Configuration mode.)

no route **inside|outside** *dest_net_ip* [**static**]

Syntax Description

inside|outside Specifies either the inside or outside

dest_net_ip The destination network IP address.

static Remove a static route entry.

Usage Guidelines

The **no route** command lets you remove an entry from the routing table. To remove a static entry, use the **static** keyword. Static routes are routes previously entered with the **route** command.

Example

```
pixfirewall(config)# no route inside 192.168.42.0
```

no snmp-server

Stops the PIX Firewall from sending SNMP event information. (Configuration mode.)

no snmp-server contact*|location text*

no snmp-server host *ip_address*

Syntax Description

contact	Indicates that you are supplying your name or that of the PIX Firewall system administrator.
location	Indicates that you are specifying your PIX Firewall location.
host	Indicates that you are specifying the IP address of the SNMP server.
<i>text</i>	When used with contact , your name or that of the PIX Firewall system administrator. When used with location , your PIX Firewall location. If the location name contains spaces, surround the string in single quotes; for example, 'building 42'.
<i>ip_address</i>	When used with host , the IP address of the SNMP server.

Usage Guidelines

The **no snmp-server** command clears a previously specified **snmp-server** statement. Use this command to either erase the information from what SNMP receives or to change an existing statement by clearing it and re-entering it with the **snmp-server** command.

Using SNMP, you can monitor system events on the PIX Firewall.

Example

```
pixfirewall(config)# no snmp-server
```

no static

Disable local IP address to a global IP address. (Configuration mode.)

no static *global_ip* [*local_ip*]

Syntax Description

global_ip The registered IP address to be used from the global pool.

local_ip The local IP address from the inside network.

Usage Guidelines

The **no static** command disables a permanent mapping (static translation slot) between a local IP address and a global IP address in the virtual pool. A static address is a permanent mapping from one of the global, registered IP addresses to a local IP address inside the private network. Use **show static** to view static statements in the configuration.

See also: **conduit**, **show static**

Example

```
pixfirewall(config)# no static
```


no syslog

Stop logging SYSLOG messages. (Configuration mode.)

no syslog console

no syslog host *ip_address*

no syslog output *facility.level*

Syntax Description

ip_address SYSLOG host IP address.

facility Eight facilities LOCAL0(16) through LOCAL7(23); the default is LOCAL4(20). Hosts file the messages based on the *facility* number in the message. Refer to the **syslog output** command for more information on the facilities.

level Message type; sets the level above which PIX Firewall suppresses messages to the SYSLOG hosts. Setting the level to 3, for example, allows messages with levels 0, 1, 2, and 3 to display. The default is 3. The levels are:

- 0 — System unusable
- 1 — Take immediate action
- 2 — Critical condition
- 3 — Error message
- 4 — Warning message
- 5 — Normal but significant condition
- 6 — Informational
- 7 — Debug message

Usage Guidelines

The **no syslog console** command disables SYSLOG messages on the console. The **no syslog host** command disables sending SYSLOG messages to the specified host. The **no syslog output** command stops sending all SYSLOG messages. The **no syslog** command is the same as **clear syslog**.

See also: **syslog**, **show syslog**

Example

```
pixfirewall(config)# no syslog console
```

no telnet

Disable IP address Telnet access to the PIX Firewall. (Privileged mode.)

no telnet *ip_address netmask*

Syntax Description

<i>ip_address</i>	The IP address or network of a host that is authorized to access the PIX Firewall Telnet management interface.
<i>netmask</i>	The netmask for the network specified in this Telnet command. Use a network IP address to enable access to all in the subnet; for example if you set <i>netmask</i> to 255.255.255.0, all systems in the subnet can access the firewall over Telnet. If you set <i>netmask</i> to 255.255.255.255, only the IP address you specify can access the firewall.

Usage Guidelines

The **no telnet** command lets you disable Telnet access to the PIX Firewall. The **show telnet** command displays the current list of IP addresses authorized to access the PIX Firewall. Use the **who** command to view which IP addresses are currently accessing the firewall. The **no telnet** command is the same as the **clear telnet** command.

See also: **telnet**, **who**

Example

```
pixfirewall(config)# no telnet 192.168.42.2 255.255.255.255
```

outbound

Creates an access list for controlling Internet use. (Configuration mode.)

outbound *num* **permit|deny** *ip_address* [*netmask* [*port*[-*port*]]]

Syntax Description

<i>num</i>	A tag number for the access list.
permit	Allow the access list to access the specified IP address and port.
deny	Deny the access list access to the specified IP address and port.
<i>ip_address</i>	The IP address for this access list entry.
<i>netmask</i>	The network mask for comparing with the IP address; 255.255.255.0 causes the access list to apply to an entire class C address. 0.0.0.0 indicates all access.
<i>port</i>	A port or range of ports that the access list is permitted or denied access to.

Usage Guidelines

The **outbound** command creates an access list that determines how inside IP addresses can access outside activities. Use with the **apply** command to specify whether an access list applies to the outside network, or to downloading information from a remote source to the inside network.

See also: **apply**, **show outbound**

Example

The following commands prevent host 192.168.1.49 from accessing the World Wide Web (port 80).

```
pixfirewall(config)# outbound 11 deny 192.168.1.49 255.255.255.255 80  
pixfirewall(config)# apply 11 outgoing_src
```

If your employees are spending too much time examining GIF images on a particular site with two web servers, you can use the following lines to restrict this access:

```
pixfirewall(config)# outbound 12 deny 192.168.146.201 255.255.255.255 80  
pixfirewall(config)# outbound 12 deny 192.168.146.202 255.255.255.255 80  
pixfirewall(config)# apply 12 outgoing_dest
```

passwd

Set password for Telnet and HTML access.

passwd *password*

Syntax Description

password A password of up to 16 alphanumeric characters, which is not case sensitive. PIX Firewall converts the password to all lowercase.

Usage Guidelines

The **passwd** command sets a password for Telnet and HTML access. Use **show passwd** to view this password.

See also: **enable password**, **show passwd**

Example

```
pixfirewall# passwd athensge0rg1a
pixfirewall# show passwd
passwd athensge0rg1a
```

ping

Determine if other IP addresses are visible from the PIX Firewall. (Configuration mode.)

ping *inside|outside* *ip_address*

Syntax Description

ip_address The IP address of a host on the inside or outside networks.

Usage Guidelines

The **ping** command determines if the PIX Firewall has connectivity or if a host is available on the network. The command output shows if the response was received; that is, that the host exists on the network. If the host is not responding, **ping** displays “no response received.” Use **show interface** to ensure that the PIX Firewall is connected to the network and has connectivity.

Example

The command displays three attempts to reach the specified address:

```
pixfirewall(config)# ping inside 192.168.42.54  
192.168.42.54 response received - nnMs  
192.168.42.54 response received - nnMs  
192.168.42.54 response received - nnMs
```

reload

Reboots and reloads the configuration from flash memory. (Privileged mode.)

reload

Usage Guidelines

The reload command reboots the PIX Firewall and reloads the configuration from flash memory.

Note You are prompted for confirmation before starting with “Proceed with reload?”. Any response other than **n** causes the reboot to occur.

Example

```
pixfirewall# reload
Proceed with reload? [confirm] n

Rebooting...
```

rip

Changes RIP settings. (Configuration mode.)

rip **inside|outside** **default|passive**

Syntax Description

inside	Modifies RIP behavior on the inside interface.
outside	Modifies RIP behavior on the outside interface.
default	Causes the PIX Firewall to broadcast a default route to the inside network.
passive	Enables passive RIP on either the inside or outside interface. The PIX Firewall listens for RIP routing broadcasts and uses that information to populate its routing tables.

Usage Guidelines

The **rip passive** command enables IP routing table updates from received RIP (Routing Information Protocol) broadcasts. Use **show rip** to display the current RIP settings. Use **no rip** to disable PIX Firewall IP routing table updates. The default is to enable IP routing table updates.

RIP default broadcast is possible on either the inside interface.

The **rip default passive** command causes the PIX Firewall to broadcast default route messages on the specified interface.

Examples

```
pixfirewall(config)# show rip
rip outside passive
no rip outside default
rip inside passive
no rip inside default
pixfirewall(config)# rip inside default
pixfirewall(config)# show rip
rip outside passive
no rip outside default
rip inside passive
rip inside default
```

route

Enter a static route for the specified interface. (Configuration mode.)

route **inside|outside** *dest_net_ip netmask gateway_ip metric*

Syntax Description

inside outside	Specifies the interface.
<i>dest_net_ip</i>	The destination network IP address. Use 0.0.0.0 to specify a default route.
<i>netmask</i>	Specifies a network mask to apply to <i>dest_net_ip</i> . Use 0.0.0.0 to specify a default route.
<i>gateway_ip</i>	Specifies the IP address of the gateway router (the next hop address for this route).
<i>metric</i>	Specifies the number of hops to <i>dest_net_ip</i> . If you are not sure, enter 1 . Your network administrator can supply this information or you can use a traceroute command to obtain the number of hops (such as the traceroute command provided with Cisco TCP/IP Suite 100 for Windows).

Usage Guidelines

Use the **route** command to enter static routes for an interface. To enter a default route, set *dest_net_ip* and *netmask* to 0.0.0.0. All routes entered using the **route** command are stored in the configuration when it is saved. Refer to the **write** command for more information.

Example

```
pixfirewall(config)# route inside 192.168.42.0 255.255.255.255.0 192.168.88.1 1
pixfirewall(config)# route outside 0.0.0.0 0.0.0.0 10.10.1.1 1
```


show

View command information. (Differs by mode.)

show
show ?

Usage Guidelines

The **show** command without arguments or the **show ?** command lets you view the names of the **show** commands and a description.

Example

```
pixfirewall> show
actkey          Display activation key
age             Age PIX Private Link keys
apply          Apply outbound lists
arp            ARP table manipulation
auth           User Authorization Enable/Disable
auth-user      Maintain IP to Authorization lists
auth-server    Maintain Authorization Server lists
blocks         System buffer utilization
conduit        Add/remove conduits to static translations
configure      Configure from terminal, floppy, or memory
failover       Administer Failover
global         Enter global network addresses
http           Add authorized IP addresses for http access to PIX
hw             Hardware identification
interface      Interface configuration
ip             Set network number
link           Establish an encrypted PIX Private Link
linkpath       Set the network paths for Private Links
lnko           Establish an encrypted PIX Private Link (OLD)
lnkopath       Set the network paths for Private Links (OLD)
memory         System memory utilization
nat            Create outbound lists
outbound       Administer Address Translations
passwd         Modify telnet login password
processes      Display processes
rip            RIP table
route          Set the network default router
snmp-server    Administer SNMP daemon
static         Reserve a local to global address translation table entry
syslog         Log messages to syslog server
telnet         Add authorized IP addresses for telnet access to PIX
timeout        Set the maximum idle time for translation and connection
slots          slots
version        Display PIX system software version
who            Show active administration sessions on PIX
xlate          Display current translation and connection slot
information
```

show actkey

Show activation key and number of user licenses. (Unprivileged mode.)

show actkey

Usage Guidelines

The **show actkey** command displays the activation key and number of licensed users for your PIX Firewall. When you install new software, PIX Firewall prompts you for an activation key. Use this command to view the activation key after you have completed the installation. Write this number down in the space that follows so that it is available the next time you upgrade your unit:

Activation Key: _____
Number of User Licenses: _____

Example

```
pixfirewall> show actkey
Activation Key: 0xfadebacc 0x42424242 0xalb2c3d4 0xe5f6a1b2
Connections:    16384
```

show age

Show duration of Private Link key aging. (Unprivileged mode.)

show age

Usage Guidelines

The **show age** command shows the current length of time that a Private Link key encrypts communications between the local and remote PIX Firewall units. Refer to the **link** command for more information on Private Link.

Example

```
pixfirewall> show age
Private Link Key Aging: 10 minutes
```

show apply

View outbound access list to an IP address. (Unprivileged mode.)

show apply [*number* **outgoing_src**|**outgoing_dest**]

Syntax Description

<i>number</i>	View access lists by an identification number previously created with the outbound command.
outgoing_src	View access lists by the source address on packets traversing the PIX Firewall.
outgoing_dest	View access lists by the destination address on packets traversing the PIX Firewall.

Usage Guidelines

The **show apply** command lets you view outbound access lists collectively or you can search for lists by number or with the **outgoing_src** or **outgoing_dest** keywords.

See also: **apply**

Example

```
pixfirewall> show apply
apply 1 outgoing_src
```

show arp

Display ARP table. (Unprivileged mode.)

show arp [**inside|outside** *ip_address mac alias*]

Syntax Description

inside	PIX Firewall inside network interface ARP table.
outside	PIX Firewall outside network interface ARP table.
<i>ip_address</i>	IP address.
<i>mac_address</i>	Hardware MAC address for the ARP table entry.
alias	Permanent ARP entry.

Usage Guidelines

The **show arp** command without arguments displays all inside and outside network interfaces' ARP tables, aliased or not. **show arp inside** displays all inside arps, aliased or not. **show arp inside ip** displays the IP address if it exists. **show arp inside 0 alias** displays all aliased ARP entries for the inside network interface ARP table (0 is used as a place holder for wild card). **show arp inside 0 mac** finds and displays the ARP entry that matches the MAC address.

Example

```
pixfirewall> show arp
inside 192.168.89.113 0020.af29.51b0
```

show arp timeout

Display number of seconds that an ARP entry can remain in the ARP table. (Unprivileged mode.)

show arp timeout

Usage Guidelines

The **show arp timeout** command lets you view the number of seconds that an ARP entry remains in the ARP table before expiring. Set the duration with the **arp** command. The default is 14400 seconds (4 hours).

Example

```
pixfirewall> show arp timeout
arp timeout 14400 seconds
```

show auth

Show status of PIX Firewall user authentication. (Unprivileged mode.)

show auth

Usage Guidelines

The **show auth** command lists the status of PIX Firewall user authentication on each interface:

- | | |
|----------------|--|
| inside | Specifies that you require authentication for connections originating on your local network (inside the PIX Firewall). |
| outside | Specifies that you require authentication for connections originating on the outside of the PIX Firewall. |

See also: **auth**

Example

```
pixfirewall# show auth
auth outside
auth inside
```

show auth-server

Show IP address of authentication server. (Unprivileged mode.)

show auth-server

Usage Guidelines

The **show auth-server** command output lists the following information:

<i>type</i>	Authentication type: radius or tacacs+ .
<i>server_ip</i>	The IP address of the authentication server.
<i>key</i>	An alphanumeric keyword of up to 127 characters defined by what the authentication server accepts. This is a public key between the client and server for encrypting data between them. The <i>key</i> value must be the same on both the client and server systems.

Example

```
pixfirewall> show auth-server
auth-server radius 192.168.89.106 ski
```


show auth-user

Show IP address information for user authentication. (Unprivileged mode.)

show auth-user

Usage Guidelines

The **show auth-user** command output lists the following information:

<i>type</i>	Authentication type: radius or tacacs+ .
<i>ip_address</i>	IP address from which or to which access is authenticated. If you want every system in your network to authenticate to this type of server, use 0.0.0.0 for the IP address. You can specify a network IP address by entering zero in each octet of the host portion of the IP address; for example, for a class C address, code 0 in the last octet, such as 192.168.42.0.
<i>netmask</i>	Network mask of <i>ip_address</i> . Always specify a specific mask value. If you want to limit authentication to a single IP address use 255 in each octet; for example, 255.255.255.255.

Note If you do not supply an **auth-user** statement for an inside IP address or network IP address, authentication does not occur.

See also: **auth**, **auth-user**

Example

```
pixfirewall> show auth-user
auth-user radius 192.168.89.0 255.255.255.0
```

show blocks

Show system buffer utilization. (Unprivileged mode.)

show blocks

Usage Guidelines

The **show blocks** command lists system buffer utilization.

Example

```
pixfirewall> show blocks
  SIZE      MAX      LOW      CNT
    4      1600     1598     1600
   80       100       94       97
  256        80       79       80
 1550       800      791      800
64000        16       16       16
```

show conduit

Show conduit through firewall for incoming connections. (Unprivileged mode.)

show conduit

Usage Guidelines

The **show conduit** command output contains the following information:

<i>global_ip</i>	The IP address from the global pool associated with this conduit.
<i>port</i>	Destination port number into which connections are permitted on the inside machine. Port values are defined by RFC 1700.
<i>protocol</i>	tcp or udp .
<i>ip_address</i>	IP address (host or network) from which to permit incoming connections (0.0.0.0 is any host).
<i>netmask</i>	Network mask of <i>ip_address</i> .

Example

```
pixfirewall> show conduit
conduit 192.168.42.1 80 tcp 10.10.10.1 255.255.255.255
```

show config

View configuration in flash memory. (Privileged mode.)

show config

Usage Guidelines

The **show config** command displays the configuration in flash memory. Use **write term** to view the current configuration in RAM.

See also: **write term**

Example

```
pixfirewall# show config
: Saved
... config commands ...
: End
```

show failover

Show status of optional failover feature. (Unprivileged mode.)

show failover

Usage Guidelines

The show failover command lists the following information:

- Failover status. If on, then the failover command has enabled the feature.
- Active or standby modes. One PIX Firewall needs to be in active mode and the other in standby.
- Cable status. If the cable is not connected or not a Cisco failover cable, this message provides its status.
- Rx cnt. The number of received packets for the current 15 second interval.
- Uptime. How long the interface has been active.

See also: **failover**

Example

```
pixfirewall> show failover
Failover On
  This host: Secondary - Active
  Other host: Secondary - Standby
  Cable status: 0x2 - My side not connected
  Outside Interface
    this host:      Rx cnt 0      Uptime 12975
    other host:     Rx cnt 0      Uptime 0
  Inside Interface
    this host:      Rx cnt 0      Uptime 12975
    other host:     Rx cnt 0      Uptime 0
```

show global

View **global** commands in the configuration. (Unprivileged mode.)

show global

Usage Guidelines

The **show global** command lists the contents of the **global** command statements in the configuration.

See also: **global**

Example

```
pixfirewall> show global
global 1 192.168.88.1-192.168.88.7
```

show http

View which IP addresses can access the PIX Firewall HTML management interface. (Unprivileged mode.)

show http

Usage Guidelines

The **show http** command lists the IP addresses that can access the PIX Firewall HTML management interface.

See also: **http**

Example

```
pixfirewall> show http
192.168.89.111 255.255.255.255
192.168.89.113 255.255.255.255
```

show hw

Display hardware identification values. (Unprivileged mode.)

show hw

Usage Guidelines

The **show hw** command lets you view hardware identification information.

Example

```
pixfirewall> show hw  
Hardware ID: 0x52c 0x1bf 19126
```


show interface

View network interface information. (Unprivileged mode.)

show interface

Usage Guidelines

The show interface command lets you view network interface information for both Ethernet and Token-Ring depending on which is installed in your PIX Firewall. This is the first command that you should use whenever you are attempting to get connectivity with the rest of your network.

The information in the display is as follows:

- “ethernet” (or token-ring) indicates that you have used the **interface** command to configure the interface. The statement indicates either outside or inside and whether the interface is available (“up”) or not available (“down”).
- “line protocol up” means a working cable is plugged into the network interface. If the message is “line protocol down,” either the cable is incorrect or not plugged into the interface connector.
- Network interface type and its MAC address. Intel cards start with “i,” and 3Com cards with “3c.”
- MTU (Maximum Transmission Unit): the size in bytes that data can best be sent over the network.
- “nn packets input” indicates that packets are being received in the firewall.
- “nn packets output” indicates that packets are being sent from the firewall.
- Line duplex status: half duplex indicates that the network interface switches back and forth between sending and receiving information; full duplex indicates that the network interface can send or receive information simultaneously.
- Line speed: 10baseT is listed as 10000 Kbit; 100baseTX is listed as 100000 Kbit.
- Interface problems:
 - no buffer, the PIX Firewall is out of memory or slowed down due to heavy traffic and cannot keep up with the received data. If these errors appear, reboot your PIX Firewall.
 - runts are packets with less information than expected.
 - giants are packets with more information than expected.
 - CRC (cyclic redundancy check) are packets containing corrupted data (checksum error).
 - frame errors are framing errors.
 - ignored and abort errors are provided for future use, but are not currently checked; the PIX Firewall does not ignore or abort frames.
 - underruns occur when the PIX Firewall is overwhelmed and cannot get data fast enough to the network interface card. This problem is only noticeable on the Intel network interface cards because data can be sent before a full frame is sent. The 3Com cards only transmit after receiving a full frame.
 - overruns occur when the network interface card is overwhelmed and cannot buffer received information before more needs to be sent.

Example

```
pixfirewall> show interface
ethernet outside is up, line protocol is up
  Hardware is i82557 ethernet, address is 00a0.c90a.eb4d
  MTU 1500 bytes, BW 10000 Kbit half duplex
    798 packets input, 35112 bytes, 0 no buffer
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    798 packets output, 35112 bytes, 0 underruns
ethernet inside is up, line protocol is up
  Hardware is i82557 ethernet, address is 00a0.c90a.eb43
  MTU 1500 bytes, BW 10000 Kbit half duplex
    1071 packets input, 71410 bytes, 0 no buffer
    Received 232 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
    1071 packets output, 71410 bytes, 0 underruns
```

show ip address

Display the IP address of the PIX Firewall. (Unprivileged mode.)

show ip address

Usage Guidelines

The **show ip address** command displays the IP address of the PIX Firewall. The **inside** or **outside** keywords in the display indicate the interface to which the IP address is assigned.

Example

```
pixfirewall> show ip address
inside ip address 1.2.3.4 mask 255.255.255.0
outside ip address 5.6.7.8 mask 255.255.255.0
```

show link

View Private Link remote IP address and interface status. (Unprivileged mode.)

show link

Usage Guidelines

The **show link** command lets you view the remote Private Link’s IP address, each encryption key, and the number of packets sent and transmitted (“*nn* out, *nn* in”).

Example

```
pixfirewall> show link

Foreign IP      KeyID  Key
192.168.42.2    1      0x000000000002222
                2      0x000000000001111
                3      0x000000000003333
                4      0x000000000004444
                20 out, 20 in
```

show linkpath

View Private Link connection information. (Unprivileged mode.)

show linkpath

Usage Guidelines

The **show linkpath** command lets you view the IP address of the outside interface on the remote PIX Firewall (“Foreign IP”), the IP address of the network served by the remote firewall, and the network mask of the foreign network.

Example

```
pixfirewall> show linkpath
Foreign IP      Foreign Network      Mask
192.168.31.33           11.0.0.0      255.0.0.0
```

show loko

View version 2 Private Link information. (Unprivileged mode.)

show loko

Usage Guidelines

The **show loko** command lets you view the IP of the outside interface on the remote PIX Firewall (“Foreign IP”), the local IP address, and the encryption key.

Note This command will be obsoleted in a future release.

See also: **loko**, **loko**path

Example

```
pixfirewall> show loko

      Foreign IP      Local IP      Key
      1.2.3.4         5.6.7.8      fadebac
pixfirewall>
```

show lnkopath

View version 2 Private Link information. (Unprivileged mode.)

show lnkopath

Usage Guidelines

The **show lnkopath** command lets you view the remote IP address, the remote network address, and the network mask.

See also: **lnko**, **linkopath**

Example

```
pixfirewall> show lnkopath
      Foreign IP  Foreign Network      Mask
      1.2.3.4      5.6.7.8          255.255.255.0
pixfirewall>
```

show nat

View **nat** statement information from the configuration. (Unprivileged mode.)

show nat

Usage Guidelines

The **show nat** command lets you view the contents of the **nat** statements in the configuration.

See also: **nat**

Example

```
pixfirewall> show nat
nat 1 0.0.0.0 0.0.0.0
```


show memory

Show system memory utilization. (Unprivileged mode.)

show memory

Usage Guidelines

The **show memory** command displays a summary of the maximum physical memory and current free memory available to the PIX Firewall operating system. Everything in PIX Firewall is preallocated and the number of free memory should never change.

Example

```
pixfirewall> show memory  
nnnnnnnn bytes total, nnnnnnn bytes free
```

show outbound

View **outbound** statement information in configuration. (Unprivileged mode.)

show outbound

Usage Guidelines

The **show outbound** command lets you view the contents of the previously entered **outbound** statements in your configuration.

See also: **outbound**

Example

```
pixfirewall> show outbound
outbound    1 permit 192.168.42.1 255.255.255.255 80-80
outbound    2 deny 192.168.42.1 255.255.255.255 80-80
```

show passwd

View the password you entered with the **passwd** command. (Privileged mode.)

show passwd

Usage Guidelines

The **show passwd** command lets you view the password you entered with the **passwd** command. This password permits access to the PIX Firewall with the Telnet command and to the HTTP configuration facility, which you access with a network browser such as Netscape Navigator.

Note This command does not display the password you set with the **enable password** command. To view that password, use the **write term** command.

See also: **passwd**, **enable password**, **telnet**, **http**, **write term**

Example

```
pixfirewall# passwd moo
pixfirewall# show passwd
Password moo
```

show processes

Display processes. (Unprivileged mode.)

show processes

Usage Guidelines

The **show processes** command displays a summary listing of running processes. Processes are lightweight threads requiring only few instructions to switch. In the listing, PC is the program counter, SP is the stack pointer, STATE is the address of a thread queue, Runtime is the number of milliseconds that the thread has been running, SBASE is the stack base address, Stack is the current number of bytes used and the total size of the stack, and Process lists the thread's function.

Example

```
pixfirewall> show processes
      PC      SP      STATE  Runtime      SBASE      Stack Process
8000139e 8024ad00 80005354      940      80249d1c 36/4096 arp_timer
...
```

show rip

View the RIP listening status on your PIX Firewall. (Unprivileged mode.)

show rip

Usage Guidelines

The **show rip** command lets you view the status of RIP listening on the PIX Firewall. The display contains the following information:

- | | |
|----------------|--|
| inside | Shows RIP configuration on the inside interface. |
| outside | Shows RIP configuration on the outside interface. |
| default | Causes the PIX Firewall to broadcast a default route to the outside network. |
| passive | Enables passive RIP on the inside interface. The PIX Firewall listens for RIP routing broadcasts and uses that information to populate its routing tables. |

See also: **rip**

Example

```
pixfirewall> show rip
rip outside passive
no rip outside default
rip inside passive
no rip inside default
```

show route

View PIX Firewall routing table. (Unprivileged mode.)

show route

Usage Guidelines

The **show route** command lets you view the **route** information.

The output display contains the following information:

inside outside	The inside or outside interface.
<i>dest_net_ip</i>	The destination network IP address. 0.0.0.0 specifies a default route.
<i>netmask</i>	Specifies a network mask to apply to <i>dest_net_ip</i> . 0.0.0.0 specifies a default route.
<i>gateway_ip</i>	Specifies the IP address of the gateway router (the next hop IP address).
<i>metric</i>	Specifies the number of hops to <i>dest_net_ip</i> .

Example

```
pixfirewall> show route
      outside 0.0.0.0 0.0.0.0 192.168.42.42 1 OTHER static
      inside 0.0.0.0 0.0.0.0 10.10.41.10 1 OTHER static
```

show snmp-server

View PIX Firewall SNMP location, contact, and host information from configuration. (Unprivileged mode.)

show snmp-server

Usage Guidelines

The **show snmp-server** command lists the following information:

contact	Your name or that of the PIX Firewall system administrator.
location	Your PIX Firewall location.
host	One or more IP addresses of hosts to which SNMP traps are being sent.

See also: **snmp-server**

Example

```
pixfirewall(config)# show snmp-server
pixfirewall(config)# show snmp-server host
snmp-server host 192.168.42.54
pixfirewall(config)# snmp-server contact 'arthur dent'
pixfirewall(config)# snmp-server location 'building 42, earth'
pixfirewall(config)# show snmp-server
snmp-server host 192.168.42.54
snmp-server location 'building 42, earth'
snmp-server contact 'arthur dent'
pixfirewall(config)#
```

show static

View static information in the configuration. (Unprivileged mode.)

show static

Usage Guidelines

The **show static** command lets you view the static information you entered in the configuration.

See also: **static**

Example

```
pixfirewall> show static
static 10.1.1.5 192.168.42.2
```


show syslog

View previously sent SYSLOG events. (Unprivileged mode.)

show syslog

Usage Guidelines

The **show syslog** command lets you view previously sent SYSLOG events. The *facility* value tells the host where to file the messages. Refer to the description of the **syslog output** command for more information.

The levels are:

- 0 — System unusable
- 1 — Take immediate action
- 2 — Critical condition
- 3 — Error
- 4 — Warning
- 5 — Significant, but normal
- 6 — Information
- 7 — Debug

See also: **clear syslog**, **syslog output**

Example

```
pixfirewall> show syslog
  OUTPUT ON (20.6)
  CONSOLE OFF

<162> Secondary: Switching to ACTIVE.
<162> Secondary: Disabling Failover.
```

show telnet

View which IP addresses have Telnet access to the PIX Firewall. (Unprivileged mode.)

show telnet

Usage Guidelines

The **show telnet** command lets you view which IP addresses can access the PIX Firewall with Telnet. Use the **who** command to view which of these IP addresses are currently using the PIX Firewall.

See also: **telnet**, **who**, **kill**

Example

```
pixfirewall> show telnet
192.168.42.42 255.255.255.255
```

show timeout

Displays the maximum idle time for translation and connection slots. (Configuration mode.)

show timeout

Usage Guidelines

The **show timeout** command lets you view the idle time for connection and translation slots. If the connection or translation slot has not been used for the idle time specified, the resource is returned to the free pool. The minimum idle time for both **xlate** and **conn** is 5 minutes. TCP connection slots are freed within 60 seconds after a normal connection close sequence.

See also: **timeout**

Example

```
pixfirewall(config)# show timeout  
timeout xlate 24:00:00 conn 12:00:00
```

show version

View PIX Firewall version. (Unprivileged mode.)

show version

Usage Guidelines

The **show version** command lets you view the version of your PIX Firewall software.

Example

```
pixfirewall> show version
```

```
PIX Version 3.pv.nnn
```

where: *pv* is the point release version and *nnn* is the release number

show who

Shows active HTTP and Telnet administration sessions on PIX Firewall. (Unprivileged mode.)

show who [*ip_address*]

Syntax Description

ip_address An optional IP address to limit the listing to one IP address or to a network IP address.

Usage Guidelines

The **show who** command shows the PIX Firewall tty_id and IP address of each HTTP and Telnet client currently logged into the PIX Firewall. This command is the same as the **who** command.

See also: **http**, **kill**, **telnet**

Example

```
pixfirewall# show who
2: From 192.168.2.2
1: From 192.168.1.3
0: On console
pixfirewall#
```

show xlate

View translation slot information. (Unprivileged mode.)

show xlate [*global_ip*] [*local_ip*]

Syntax Description

global_ip The registered IP address to be used from the global pool.

local_ip The local IP address from the inside network.

Usage Guidelines

The **show xlate** command displays the contents of the translation slots.

Example

```
pixfirewall# show xlate
Global 192.168.88.7 Local 192.168.89.207 static
Global 192.168.88.11 Local 192.168.89.215
   out 192.168.88.207:23 in 192.168.89.215:1284 idle 0:00:00 Bytes 436
Global 192.168.88.12 Local 192.168.89.11
```

snmp-server

Provide SNMP event information. (Configuration mode.)

snmp-server contact*|location text*

snmp-server host *ip_address*

Syntax Description

contact	Indicates that you are supplying your name or that of the PIX Firewall system administrator.
location	Indicates that you are specifying your PIX Firewall location.
host	Indicates that you are specifying an IP address of a host to which SNMP traps should be sent. You can specify a maximum of 5 host IP addresses.
<i>text</i>	When used with contact , specify your name or that of the PIX Firewall system administrator. When used with location , specify your PIX Firewall location. If the location name contains spaces, surround the string in single quotes; for example, 'building 42'.
<i>ip_address</i>	When used with host , the IP address of a host to which SNMP traps should be sent. You can specify a maximum of 5 host IP addresses.

Usage Guidelines

This command causes the PIX Firewall to send SNMP traps so that the firewall can be monitored remotely. Use **snmp-server host** to specify which systems receive the SNMP traps. You can specify up to five systems and all must be on the inside network of the firewall. PIX Firewall converts the contact and location information to lowercase.

Note PIX Firewall does not send SNMP traps until you configure **snmp-server host**.

Use **snmp-server contact** and **snmp-server location** to specify your name and the location of the PIX Firewall so that hosts receiving SNMP traps can contact you if monitored problems occur.

Using SNMP, you can monitor system events on the PIX Firewall.

The PIX Firewall SNMP MIB-II groups available are System, Interfaces, and SNMP.

The PIX Firewall SNMP traps available to an SNMP server are:

- Link up and link down (cable on outside interface working or not working)
- Warm and cold start
- Failover SYSLOG messages
- Security-related events sent via the Cisco Enterprise MIB:
 - Global access denied
 - SYSLOG messages

Use CiscoWorks Windows (Product Number CWPC-2.0-WIN) or any other SNMP V1, MIB-II compliant browser to receive SNMP traps and browse the MIB. SNMP traps occur at UDP port 162. Up to five hosts can receive SNMP traps. SNMP events can be read, but information on the PIX Firewall cannot be changed with SNMP.

Example

```
pixfirewall(config)# snmp-server location 'building 42, sector 54'
```

static

Map local IP address to a global IP address. (Configuration mode.)

static *global_ip* *local_ip*

Syntax Description

global_ip The registered IP address to be used from the global pool.

local_ip The local IP address from the inside network.

Usage Guidelines

The **static** command creates a permanent mapping (static translation slot) between a local IP address and a global IP address in the virtual pool. A static address is a permanent mapping from one of the global, registered IP addresses to a local IP address inside the private network. Static addresses are recommended for internal network service hosts, such as an SMTP server. Use **show static** to view static statements in the configuration.

See also: **conduit**, **show static**

Example

```
pixfirewall(config)# static
```

syslog console

View SYSLOG messages on the PIX Firewall console. (Configuration mode.)

syslog console

Usage Guidelines

Displays syslog messages on the console port. Use **no syslog console** to stop the display. Refer to the description of **syslog output** for more information on SYSLOG.

See also: **no syslog console**

Example

```
pixfirewall(config)# syslog console  
pixfirewall(config)# no syslog console
```

syslog host

Define which hosts are sent SYSLOG messages. (Configuration mode.)

syslog host *ip_address*

Syntax Description

ip_address The IP address or network of a host that is authorized to receive SYSLOG messages.

Usage Guidelines

The **syslog host** command lets you specify up to 16 host IP addresses to which SYSLOG messages are sent. Use **no syslog host** to remove a host from the receiving list. Use **show syslog** to view the current hosts. Refer to the description of **syslog output** for more information on SYSLOG.

Example

```
pixfirewall(config)# syslog host 192.168.0.99  
pixfirewall(config)# no syslog host 192.168.0.99
```

syslog output

Start sending SYSLOG notification messages. (Configuration mode.)

syslog output *facility.level*

Syntax Description

facility Eight facilities LOCAL0(16) through LOCAL7(23); the default is LOCAL4(20). Hosts file the messages based on the *facility* number in the message.

level Message type; sets the level above which PIX Firewall suppresses messages to the SYSLOG hosts. Setting the level to 3, for example, allows messages with levels 0, 1, 2, and 3 to display. The default is 3. The levels are:

- 0 — System unusable
- 1 — Take immediate action
- 2 — Critical condition
- 3 — Error message
- 4 — Warning message
- 5 — Normal but significant condition
- 6 — Informational
- 7 — Debug message

Usage Guidelines

The **syslog output** command configures the facility and level of SYSLOG messages. Because network devices share the eight facilities, **syslog output** lets you set the facility marked on all messages. Messages are sent to the SYSLOG host over UDP. The **syslog output** command also starts sending messages onto the network. Use the **syslog host** command to specify which systems receive the messages.

You can use **show syslog** to view previously sent messages.

PIX Firewall generates SYSLOG messages for system events, such as security alerts and resource depletion. SYSLOG messages may be used to create email alerts and log files, or displayed on the console of a designated host using UNIX SYSLOG conventions. The log host must be on the internal network.

A PC WinSock version of syslogd also will work.

Note You can specify only one **syslog output** command in your configuration. PIX Firewall sends all messages to the single facility you choose.

In addition, PIX Firewall sends SYSLOG messages only to a single file on the receiving system.

PIX Firewall sends SYSLOG messages to document the following events:

- Security — Dropped UDP packets and denied TCP connections.
- Resources — Notification of 80% and 100% connection and translation slot depletion, and translation and connection counts every 10 minutes.
- System — Console and Telnet logins and logouts and PIX Firewall reboots.
- Accounting — Bytes transferred per connection.

Logging is enabled by configuring the PIX Firewall with the IP address of the log host.

Configuring a UNIX System for SYSLOG

To configure a UNIX system to accept SYSLOG messages:

- 1 Use the PIX Firewall **syslog host** command to configure the PIX Firewall to send SYSLOG messages to the UNIX host's IP address.
- 2 Log into the UNIX system as root (superuser) and execute the following commands; change *name* to the log file in which you want SYSLOG messages to appear:

```
# mkdir /var/log/pix
# touch /var/log/pix/name
```

- 3 While still logged in as root, edit the */etc/syslog.conf* file with a UNIX editor and add the following selector and action pairs for each message type you want to capture:

Message Priority	UNIX <i>syslog.conf</i> File Keyword
0 — Emergency	localn.emerg
1 — Immediate action	localn.alert
2 — Critical condition	localn.crit
3 — Error	localn.err
4 — Warning	localn.warning
5 — Notice	localn.notice
6 — Information	localn.info
7 — Debug	localn.debug

In the *syslog.conf* file, you code each selector and action pair for the messages you want to receive. For example, if you want to receive messages in a file called *pixfirewall* for message priorities 0, 1, 2, and 3, and you use the default LOCAL4 facility, the *syslog.conf* statements would be:

```
# PIX Firewall SYSLOG messages (formerly A.S. violations)
local4.emerg    /var/log/pix/pixfirewall
local4.alert    /var/log/pix/pixfirewall
local4.crit     /var/log/pix/pixfirewall
local4.error    /var/log/pix/pixfirewall
```

This configuration directs PIX Firewall SYSLOG message to the specified file. Alternatively, if you want the message sent to the logging host console or emailed to a system administrator, refer to the UNIX **syslog.conf**(4) manual page.

Note The UNIX log file can grow to several megabytes per day when monitoring a busy PIX Firewall.

Entries in */etc/syslog.conf* must obey these rules:

- Comments, which start with the pound (#) character, are only allowed on separate lines.
 - Separate the selector and action pairs with a tab character. Blanks are not acceptable.
 - Ensure that there are no trailing spaces after the file names.
- 4 Inform the SYSLOG server program on the UNIX system to reread the *syslog.conf* file by sending it a HUP (hang up) signal with the following commands:

```
# cat /etc/syslog.pid
92
# kill -HUP 92
```

The first command lists the SYSLOG process ID. This number may vary by system. The second command sends SYSLOG the HUP signal to cause it to restart.

```
pixfirewall(config)# syslog output 23.4
```

Examples of PIX Firewall SYSLOG messages resemble the following:

```
Oct 15 12:55:03 pix-in  PIX out of connections!
Oct 15 12:54:28 pix-in  conn end faddr 192.168.42.42 fport 4457 gaddr 10.10.10.1 laddr 10.10.10.2
Oct 15 13:04:02 pix-in  deny tcp out 192.168.96.14 in 10.10.10.42 flags SYN ACK
Oct 15 13:37:44 pix-in  conns 16384 conns_used 0 xlate 254 xlate_used 1
Oct 15 13:47:21 pix-in  PIX logged in from 10.10.42.112
```

Example

```
pixfirewall(config)# syslog
```

telnet

Allow inside IP address to configure the PIX Firewall from Telnet. (Privileged mode.)

telnet *ip_address netmask*

Syntax Description

<i>ip_address</i>	The IP address or network of a host that is authorized to access the PIX Firewall Telnet management interface.
<i>netmask</i>	The netmask for the network specified in this Telnet command. Use any valid mask, or a network IP address to enable access to all in the subnet; for example if you set <i>netmask</i> to 255.255.255.0, all systems in the subnet can access the firewall over Telnet. If you set <i>netmask</i> to 255.255.255.255, only the IP address you specify can access the firewall.

Usage Guidelines

The **telnet** command lets you decide who can configure the PIX Firewall from Telnet. Up to 16 hosts or networks are allowed access to the PIX Firewall, four simultaneously. The **show telnet** command displays the current list of IP addresses authorized to access the PIX Firewall. Use **no telnet** or **clear telnet** to remove Telnet access from a previously set IP address. Use the **who** command to view which IP addresses are currently accessing the firewall.

With Telnet, you can configure the PIX Firewall from the inside network or over Private Link.

Note You cannot log into the Telnet unless you have used the **passwd** command to create an access password.

See also: **clear telnet**, **no telnet**, **show telnet**, **who**

Examples

```

pixfirewall(config)# telnet 192.168.1.3 255.255.255.255
pixfirewall(config)# telnet 192.168.1.4 255.255.255.255
pixfirewall(config)# telnet 192.168.2.0 255.255.255.0
pixfirewall(config)# show telnet
      192.168.1.3 255.255.255.255
      192.168.1.4 255.255.255.255
      192.168.2.0 255.255.255.0
pixfirewall(config)# no telnet 192.168.1.3
pixfirewall(config)# show telnet
      192.168.1.4 255.255.255.255
      192.168.2.0 255.255.255.0

```

timeout

Sets the maximum idle time for translation and connection slots. (Configuration mode.)

timeout [**xlate** *hh:mm:ss*] [**conn** *hh:mm:ss*]

Syntax Description

xlate *hh:mm:ss* Idle time until a translation slot is cleared (default value is 24 hours).

conn *hh:mm:ss* Idle time until a connection slot is cleared (default value is 12 hours).

Usage Guidelines

The **timeout** command sets the idle time for connection and translation slots. If the connection or translation slot has not been used for the idle time specified, the resource is returned to the free pool. The minimum idle time for both **xlate** and **conn** is 5 minutes. TCP connection slots are freed within 30 seconds after a normal connection close sequence.

Use **show timeout** to display the current timeout settings.

See also: **show timeout**

Examples

```
pixfirewall(config)# show timeout
timeout xlate 24:00:00 conn 12:00:00
pixfirewall(config)# timeout xlate 5:0:0
pixfirewall(config)# timeout conn 2:0:0
pixfirewall(config)# show timeout
timeout xlate 5:00:00 conn 2:00:00
pixfirewall(config)# timeout xlate 0:10:0 conn 0:5:0
pixfirewall(config)# show timeout
timeout xlate 0:10:00 conn 0:05:00
pixfirewall(config)# timeout xlate 0:0:12345
pixfirewall(config)# show timeout
timeout xlate 3:25:45 conn 0:05:00
pixfirewall(config)#
```


who

Shows active Telnet administration sessions on PIX Firewall. (Unprivileged mode.)

who [*ip_address*]

Syntax Description

ip_address An optional IP address to limit the listing to one IP address or to a network IP address.

Usage Guidelines

The **who** command shows the PIX Firewall tty_id and IP address of each Telnet client currently logged into the PIX Firewall. This command is the same as the **show who** command.

See also: **http**, **kill**, **telnet**

Example

```
pixfirewall# who
2: From 192.168.2.2
1: From 192.168.1.3
0: On console
pixfirewall#
```

write erase

Clear the contents of flash memory. (Privileged mode.)

write erase

Usage Guidelines

The **write erase** command clears the flash memory configuration. To clear the current running configuration, use **write erase** and then **reload** to reboot the PIX Firewall.

Example

```
pixfirewall# write erase
pixfirewall# reload
```

write floppy

Store the current configuration on floppy disk. (Privileged mode.)

write floppy

Usage Guidelines

The **write floppy** command stores the current running configuration on floppy disk. Use **configure floppy** to replace the current configuration with what you saved on floppy disk. The **write floppy** command assumes that the floppy disk is formatted for an IBM computer; however, once you use **write floppy** to write to the disk, its contents can only be accessed with the PIX Firewall.

See also: **configure floppy**

Example

```
pixfirewall# write floppy
```

write memory

Save current configuration in flash memory. (Privileged mode.)

write memory

Usage Guidelines

The **write memory** command saves the current running configuration to flash memory. Use **configure memory** to replace the current configuration with the image you saved in flash memory.

Note Only use this command if a configuration has been created with IP addresses for both network interfaces.

See also: **configure memory**

Example

```
pixfirewall# write memory
```

write terminal

View current configuration on console. (Privileged mode.)

write terminal

Usage Guidelines

The **write terminal** command displays the current running configuration on the console computer. Before using this command, set your terminal communications program to store the screen display in a log file, or else once the configuration displays, you can use copy and paste commands to copy it to a file on your console computer.

Use **configure terminal** to start configuration mode. You can then copy and paste a configuration from a text file into the configuration.

You can also display the current configuration contents with **show config**, but passwords are not displayed. The **write terminal** command lists all information in configuration including passwords.

See also: **configure terminal**, **show config**

Example

```
pixfirewall# write terminal
```

