



FortiSwitchOS

CLI Reference

Version 3.5.0

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FortiSwitchOS-3.5.0 CLI Reference

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Change Log

| Date | Change Description |
|---------------|-----------------------------------|
| Sept 14, 2016 | Initial version for release 3.5.0 |
| Sept 21, 2016 | Minor corrections. |

Introduction

This manual describes the command line interface (CLI) commands for FortiSwitchOS.

FortiSwitch models

This guide is applicable to all FortiSwitch models that are supported by FortiSwitchOS.

See the Release Notes for information about the software features supported on each of the models.

How this guide is organized

The chapters in this document describe the commands available for each of the top-level CLI commands:

- the following chapters describe the configuration commands:
 - "log" on page 14 - set the logging type, the logging severity level and the logging location.
 - "router" on page 18 - configure static routes.
 - "switch" on page 21 - configure Layer 2 interfaces, VLANs, trunks, STP.
 - "system" on page 44 - global parameters, system interfaces, NTP, and SNMP.
 - "user" on page 79 - create users and user groups and control authentication.
- "execute" on page 88 - commands that perform immediate operations.
- "get" on page 113 - commands that provide information about FortiSwitch operation.

Typographical conventions

This document uses the following typographical conventions:

| Convention | Example |
|------------|---|
| CLI input | <pre>config system dns set primary <address_ipv4> end</pre> |
| CLI output | <pre>FGT-602803030703 # get system setting comments : (No default) opmode : nat</pre> |
| Emphasis | HTTP connections are not secure and can be intercepted by a third party. |

| Convention | Example |
|-----------------------|---|
| File content | <HTML><HEAD><TITLE>Firewall Authentication</TITLE></HEAD> <BODY><H4>You must authenticate to use this service.</H4> |
| Hyperlink | Visit the Fortinet Technical Support web site: https://support.fortinet.com |
| Keyboard entry | Type a name for the remote VPN peer or client, such as <code>Central_Office_1</code> . |
| Publication | For details, see the FortiOS Handbook . |

CLI command syntax conventions

This guide uses the following conventions to describe the syntax to use when entering commands in the Command Line Interface (CLI).

| Convention | Description |
|---------------------|---|
| Angle brackets < > | A word constrained by data type. To define acceptable input, the angled brackets contain a descriptive name followed by an underscore (_) and suffix that indicates the valid data type. For example: <retries_int> indicates that you should enter a number of retries, such as 5. |
| Data types include: | |
| <xxx_name> | A name referring to another part of the configuration, such as <code>policy_A</code> . |
| <xxx_index> | An index number referring to another part of the configuration, such as 0 for the first static route. |
| <xxx_pattern> | A regular expression or word with wild cards that matches possible variations, such as <code>*@example.com</code> to match all email addresses ending in <code>@example.com</code> . |
| <xxx_fqdn> | A fully qualified domain name (FQDN), such as <code>mail.example.com</code> . |
| <xxx_email> | An email address, such as <code>admin@mail.example.com</code> . <xxx_url>: A uniform resource locator (URL) and its associated protocol and host name prefix, which together form a uniform resource identifier (URI), such as <code>http://www.fortinet./com/</code> . |

| Convention | Description |
|------------------------------------|--|
| <xxx_ipv4> | An IPv4 address, such as 192.168.1.99. |
| <xxx_v4mask> | A dotted decimal IPv4 netmask, such as 255.255.255.0. |
| <xxx_ipv4mask> | A dotted decimal IPv4 address and netmask separated by a space, such as 192.168.1.99 255.255.255.0. |
| <xxx_ipv4/mask> | A dotted decimal IPv4 address and CIDR-notation netmask separated by a slash, such as such as 192.168.1.99/24. |
| <xxx_ipv6> | A colon(:)-delimited hexadecimal IPv6 address, such as 3f2e:6a8b:78a3:0d82:1725:6a2f:0370:6234. |
| <xxx_v6mask> | An IPv6 netmask, such as /96. <xxx_ipv6mask>: An IPv6 address and netmask separated by a space. |
| <xxx_str> | A string of characters that is not another data type, such as P@ssw0rd. Strings containing spaces or special characters must be surrounded in quotes or use escape sequences. |
| <xxx_int> | An integer number that is not another data type, such as 15 for the number of minutes. |
| Square brackets [] | A non-required word or series of words. For example: [verbose {1 2 3}] indicates that you may either omit or type both the <code>verbose</code> word and its accompanying option, such as: <pre>verbose 3</pre> |
| Curly braces { } | A word or series of words that is constrained to a set of options delimited by either vertical bars or spaces. You must enter at least one of the options, unless the set of options is surrounded by square brackets []. |
| Options delimited by vertical bars | Mutually exclusive options. For example: {enable disable} indicates that you must enter either <code>enable</code> or <code>disable</code> , but must not enter both. |
| Options delimited by spaces | Non-mutually exclusive options. For example: {http https ping snmp ssh telnet} indicates that you may enter all or a subset of those options, in any order, in a space-delimited list, such as: <code>ping https ssh</code> Note: To change the options, you must re-type the entire list. For example, to add <code>snmp</code> to the previous example, you would type: <pre>ping https snmp ssh</pre> If the option adds to or subtracts from the existing list of options, instead of replacing it, or if the list is comma-delimited, the exception will be noted. |

Entering configuration data

The switch configuration is stored as a series of configuration settings in the FortiSwitchOS configuration database. To change the configuration you can use the CLI to add, delete or change configuration settings. These configuration changes are stored in the configuration database as they are made.

Individual settings in the configuration database can be text strings, numeric values, selections from a list of allowed options, or on/off (enable/disable).

Entering text strings (names)

Text strings are used to name entities in the configuration, such as an administrative user name. You can enter any character in a text string with the following exceptions (to prevent cross-site scripting vulnerabilities):

" (double quote), & (ampersand), ' (single quote), < (less than) and > (greater than)

You can determine the limit to the number of characters that are allowed in a text string by determining how many characters the CLI allows for a given name field. From the CLI, you can also use the `tree` command to view the number of characters that are allowed. For example, firewall address names can contain up to 64 characters. From the CLI you can do the following to confirm that the firewall address name field allows 64 characters.

```
config firewall address
  tree
    -- [address] --*name (64)
    |- subnet
    |- type
    |- start-ip
    |- end-ip
    |- fqdn (256)
    |- cache-ttl (0,86400)
    |- wildcard
    |- comment (64 xss)
    |- associated-interface (16)
    +- color (0,32)
```

Note that the `tree` command output also shows the number of characters allowed for other firewall address name settings. For example, the fully-qualified domain name (`fqdn`) field can contain up to 256 characters.

Entering numeric values

Numeric values are used to configure various sizes, rates, numeric addresses, or other numeric values. For example, a static routing priority of 10, a port number of 8080, or an IP address of 10.10.10.1. Numeric values can be entered as a series of digits without spaces or commas (for example, 10 or 64400), in dotted decimal format (for example the IP address 10.10.10.1) or as in the case of MAC or IPv6 addresses separated by colons (for example, the MAC address 00:09:0F:B7:37:00). Most numeric values are standard base-10 numbers, but some fields (again such as MAC addresses) require hexadecimal numbers.

CLI help includes information about allowed numeric value ranges. The CLI prevents you from entering invalid numbers.

log

Use the log commands to set the logging type, the logging severity level and the logging location for the system.

custom-field

Use the following command to customize the log fields with a name and/or value. The custom name and/or value will appear in the log message.

Syntax

```
config log custom-field
  edit <id>
    set name <name>
    set value <int>
end
```

| Variable | Description | Default |
|-------------|---|------------|
| <id > | Enter the identification string for the custom log . | No default |
| name <name> | Enter a name to identify the log. You can use letters, numbers, ('_'), but no special characters such as the number symbol (#). The name cannot exceed 16 characters. | No default |
| value <int> | Enter an integer value to associate with the log. | No default |

Example

This example shows how to configure a customized field for a log.

```
config log custom-field
  edit 1
    set name "Vlan"
    set value 3
```

eventfilter

Use this command to configure event logging.

Syntax

```
config log eventfilter
  set event {enable | disable}
  set router {enable | disable}
  set system {enable | disable}
```

```

    set user {enable | disable}
end

```

| Variable | Description | Default |
|---------------------------|---|---------|
| event {enable disable} | Log event messages. Must be enabled to make the following fields available. | enable |
| router {enable disable} | Log router activity messages. | enable |
| system {enable disable} | Log system activity messages. | enable |
| user {enable disable} | Log user activity messages. | enable |

gui

Use this command to select the device from which logs are displayed in the web-based manager.

Syntax

```

config log gui
    set log-device {memory | disk}
end

```

| Variable | Description | Default |
|----------------------------|--|---------|
| log-device {memory disk} | Select the device from which logs are displayed in the web-based manager. Currently, only logging to memory is available. | memory |

memory global-setting

Use this command to configure log threshold warnings, as well as the maximum buffer lines, for the FortiSwitch system memory.

The FortiSwitch system memory has a limited capacity and displays only the most recent log entries. Traffic logs are not stored in the memory buffer, due to the high volume of traffic information. After all available memory is used, by default, the system begins to overwrite the oldest log messages. All log entries are deleted when the system restarts.

Syntax

```

config log memory global-setting

```

```

set full-final-warning-threshold <int>
set full-first-warning-threshold <int>
set full-second-warning-threshold <int>
set hourly-upload {disable | enable}
set max-size <int>
end

```

| Variable | Description | Default |
|-------------------------------------|---|---------|
| full-final-warning-threshold <int> | Enter to configure the final warning before reaching the threshold. You can enter a number between 3 and 100. | 95 |
| full-first-warning-threshold <int> | Enter to configure the first warning before reaching the threshold. You can enter a number between 1 and 98. | 75 |
| full-second-warning-threshold <int> | Enter to configure the second warning before reaching the threshold. You can enter a number between 2 and 99. | 90 |
| hourly-upload {disable enable} | Enter <code>enable</code> to have log uploads occur hourly. | disable |
| max-size <int> | Enter the maximum size of the memory buffer log, in bytes. | 98304 |

{memory | syslogd | syslogd2 | syslogd3} filter

Use this command to configure log filter options. Log filters define the types of log messages sent to each log location.

Syntax

```

config log {memory | syslogd | syslogd2 | syslogd3} filter
    set severity {alert | critical | debug | emergency | error |
        information | notification | warning}
end

```


| Variable | Description | Default |
|---|--|-------------|
| severity {alert critical debug emergency error information notification warning} | <p>Select the logging severity level. The system logs all messages at and above the logging severity level you select. For example, if you select <code>error</code>, the system logs <code>error</code>, <code>critical</code>, <code>alert</code> and <code>emergency</code> level messages.</p> <ul style="list-style-type: none"> • <code>emergency</code> - The system is unusable. • <code>alert</code> - Immediate action is required. • <code>critical</code> - Functionality is affected. • <code>error</code> - An erroneous condition exists and functionality is probably affected. • <code>warning</code> - Functionality might be affected. • <code>notification</code> - Information about normal events. • <code>information</code> - General information about system operations. • <code>debug</code> - Information used for diagnosing or debugging the system. | information |

{memory | syslogd | syslogd2 | syslogd3} setting

Use this command to configure log settings for logging to the system memory.

The system memory has a limited capacity and only displays the most recent log entries. Traffic logs are not stored in the memory buffer, due to the high volume of traffic information. After all available memory is used, by default, the system begins to overwrite the oldest messages. All log entries are deleted when the system restarts.

Syntax

```
config log {memory | syslogd | syslogd2 | syslogd3} setting
    set status {disable | enable}
end
```

| Variable | Description | Default |
|---------------------------|---|---------|
| status {disable enable} | Enter <code>enable</code> to enable logging to system memory. | disable |

router

Use the router commands to configure options related to routing protocols and packet forwarding:

static

Use this command to add, edit, or delete static routes for IPv4 traffic. For IPv6 traffic, use the **static6** command.

You add static routes to manually control traffic exiting the FortiSwitch. You configure routes by specifying destination IP addresses and network masks and adding gateways for these destination addresses. Gateways are the next-hop routers to which traffic that matches the destination addresses in the route are forwarded.

You can adjust the administrative distance of a route to indicate preference when more than one route to the same destination is available. The lower the administrative distance, the greater the preferability of the route. If the routing table contains several entries that point to the same destination (the entries may have different gateways or interface associations), the system compares the administrative distances of those entries, selects the entries having the lowest distances, and installs them as routes in the FortiSwitch forwarding table. Any ties are resolved by comparing the routes' priority, with lowest priority being preferred. As a result, the forwarding table only contains routes having the lowest distances to every possible destination.

After the system selects static routes for the forwarding table based on their administrative distances, the sequence numbers of those routes determines routing priority. When two routes to the same destination exist in the forwarding table, the system selects the route having the lowest sequence number.

Syntax

```
config router static
  edit <sequence_number>
    set bfd {enable | disable | global}
    set blackhole {enable | disable}
    set comment <comment_str>
    set device <interface_name>
    set distance <distance>
    set dst <destination-address_ipv4mask>
    set dynamic-gateway {enable | disable}
    set gateway <gateway-address_ipv4>
    set priority <integer>
    set weight <integer>
  end
```



The `dst` and `gateway` fields are required when `blackhole` is disabled. When `blackhole` is enabled, the `dst` field is required. All other fields are optional.

| Variable | Description | Default |
|------------------------------------|---|------------|
| <sequence_number> | Enter a sequence number for the static route. The sequence number may influence routing priority in the forwarding table. | No default |
| blackhole {enable disable} | Enable or disable dropping all packets that match this route. This route is advertised to neighbors through dynamic routing protocols as any other static route. | disable |
| comment <comment_str> | Optionally enter a descriptive comment. | No default |
| device <interface_name> | This field is available when <code>blackhole</code> is set to <code>disable</code> . Enter the name of the interface through which to route traffic. Use '?' to see a list of interfaces. | No default |
| distance <distance> | Enter the administrative distance for the route. The distance value may influence route preference in the routing table. The range is an integer from 1-255. | 10 |
| dst <destination-address_ipv4mask> | Enter the destination IPv4 address and network mask for this route. You can enter <code>0.0.0.0/0</code> to create a new static default route. | 0.0.0.0/0 |
| dynamic-gateway {enable disable} | When enabled, <code>dynamic-gateway</code> hides the gateway variable for a dynamic interface, such as a DHCP or PPPoE interface. When the interface connects or disconnects, the corresponding routing entries are updated to reflect the change. | disable |
| gateway <gateway-address_ipv4> | This field is available when <code>blackhole</code> is set to <code>disable</code> . Enter the IPv4 address of the next-hop router to which traffic is forwarded. | 0.0.0.0 |
| priority <integer> | The administrative priority value is used to resolve ties in route selection. In the case where both routes have the same priority, such as equal cost multi-path (ECMP), the IP source hash for the routes will be used to determine which route is selected. The priority range is an integer from 0 to 4294967295. Lower priority routes are preferred routes. | 0 |
| weight <integer> | Enter weights for ECMP routes. More traffic is directed to routes with higher weights. This option is available when the <code>v4-ecmp-mode</code> field of the <code>config system settings</code> command is set to <code>weight-based</code> . | 0 |

static6

Use this command to add, edit, or delete static routes for IPv6 traffic. For IPv4 static routes, use the **static** command

You add static routes to specify the destination of traffic exiting the system. You configure routes by adding destination IP addresses and network masks and adding gateways for these destination addresses. The gateways are the next-hop routers to which traffic that matches the destination addresses in the route are forwarded.

Syntax

```
config router static6
  edit <sequence_number>
    set comment <comment_str>
    set device <interface_name>
    set distance <distance>
    set dst <destination-address_ipv6mask>
    set gateway <gateway-address_ipv6>
    set priority <integer>
end
```



The **device**, **dst**, and **gateway** fields are all required.

| Variable | Description | Default |
|------------------------------------|--|------------|
| <sequence_number> | Enter a sequence number for the static route. | No default |
| comment <comment_str> | Optionally enter a descriptive comment. | No default |
| device <interface_name> | The name of the interface through which to route traffic. | No default |
| distance <distance> | Enter the administrative distance for the route. The distance value may influence route preference in the routing table. The range is an integer from 1-255. | 10 |
| dst <destination-address_ipv6mask> | The destination IPv6 address and netmask for this route. You can enter ::/0 to create a new static default route for IPv6 traffic. | ::/0 |
| gateway <gateway-address_ipv6> | The IPv6 address of the next-hop router to which traffic is forwarded. | :: |
| priority <integer> | The administrative priority value is used to resolve ties in route selection. The priority range is an integer from 0 to 4294967295. Lower priority routes are preferred routes. | 0 |

switch

Use the switch commands to configure options related to switching functionality:

acl policer

Use this command to configure an ACL policer.

Syntax

```
config switch acl policer
edit <policer index>
  set description <string>
  set guaranteed-bandwidth <bandwidth_value>
  set guaranteed-burst <in_bytes>
  set maximum-burst <in_bytes>
```

| Variable | Description | Default |
|----------------------|---|------------|
| <policer index> | Enter the index for this ACL policer | No default |
| description | Enter a text description for the policer. | No default |
| guaranteed-bandwidth | Enter the amount of bandwidth guaranteed to be available for traffic controlled by the policy. The value range is 0 to 16 776 000 Kbits/second. | 0 |
| guaranteed-burst | Guaranteed burst size in bytes (max value = 4294967295) | 0 |
| maximum-burst | Maximum burst size in bytes (max value = 4294967295) | 0 |

acl policy

Use this command to configure an ACL policy.

Syntax

```
config switch acl policy
edit <policy-id>
  set description <string>
  set ingress-interface <port > [<port > ... [<port >]]
  set ingress-interface-all {enable | disable}
  config classifier
    set src-mac <mac>
    set dst-mac <mac>
    set ether-type <integer>
    set src-ip-prefix <IP address> <mask>
```

```

    set dst-ip-prefix <IP address> <mask>
    set service <service-id>
    set vlan-id <vlan-id>
end
config action
    set cos-queue <0 - 7>
    set count {enable | disable}
    set drop {enable | disable}
    set mirror [internal | <port> | <interface> | <trunk>]
    set outer-vlan-tag <integer>
    set policer <policer>
    set redirect [internal | <port>]
    set redirect-bcast-cpu {enable | disable}
    set redirect-bcast-no-cpu {enable | disable}
    set redirect-physical-port <list of physical ports to redirect>

end
end

```

| Variable | Description | Default |
|-----------------------|--|-------------------|
| <policy-id> | Enter the unique ID number of this policy. | No default |
| description | Enter a description or other information about the policy. The description is limited to 63 characters. Enclose the string in single quotes to enter special characters or spaces. | No default |
| ingress-interface | Interface list to which policy is bound on the ingress. | No default |
| ingress-interface-all | If enabled, policy is bound to all interfaces. | disable |
| src-mac | Source MAC address to be matched. | 00:00:00:00:00:00 |
| dst-mac | Destination MAC address to be matched. | 00:00:00:00:00:00 |
| ether-type | Ether type to be matched. | 0x0000 |
| src-ip-prefix | Source IP addresses to be matched. | 0.0.0.0 0.0.0.0 |
| dst-ip-prefix | Destination IP addresses to be matched. | 0.0.0.0 0.0.0.0 |
| service | Service name to be matched. | No default |
| vlan-id | VLAN id to be matched. | 0 |
| cos-queue <0 - 7> | CoS queue number(0 - 7). | 4294967295 |
| count | Enable or disable the count action. | disable |
| drop | Enable or disable the drop action. | disable |

| Variable | Description | Default |
|------------------------|--|------------|
| mirror | Mirror interface name. | No default |
| outer-vlan-tag | Outer VLAN tag. | 0 |
| policer | ID of the Policer to associate with this policy. | 0 |
| redirect | Redirect interface name. | No default |
| redirect-bcast-cpu | Redirect broadcast to all ports including the CPU. | disable |
| redirect-bcast-no-cpu | Redirect broadcast to all ports excluding the CPU. | disable |
| redirect-physical-port | List of ports to redirect the packet. | No default |

acl service

Use this command to customize one of the ACL services.

Syntax

```

config switch acl service custom
  edit <service name>
    set comment <string>
    set color <0-32>
    set protocol {ICMP | IP | TCP/UDP/SCTP}
    set protocol-number <IP protocol number>
    set sctp-portrange <dstportlow_int>[-<dstporthigh_int>]: <srcportlow_int>-<srcporthigh_int>]
    set tcp-portrange <dstportlow_int>[-<dstporthigh_int>:<srcportlow_int>-<srcporthigh_int>]
    set udp-portrange <dstportlow_int>[-<dstporthigh_int>:<srcportlow_int>-<srcporthigh_int>]
  end
end

```

| Variable | Description | Default |
|----------------|---|------------|
| <service name> | Enter the name of this custom service. | No default |
| comment | Add comments for the custom service. | No default |
| color | Set the icon color to use in the web-based manager. A value of zero sets the default color (1). | 0 |

| Variable | Description | Default |
|-----------------|--|--------------|
| protocol | Select the protocol used by the service. These protocols are available when explicit-proxy is enabled. | TCP/UDP/SCTP |
| protocol-number | For an IP service, enter the IP protocol number. | 0 |
| sctp-portrange | For SCTP services, enter the destination and source port ranges. | No default |
| tcp-portrange | For TCP services, enter the destination and source port ranges. | No default |
| udp-portrange | For UDP services, enter the destination and source port ranges. | No default |

Notes:

- **srcport_low** and **srcport_high** can be omitted if the value pair is 1-65535
- **dstport_high** can be omitted if **dstport_low** is equal to **dstport_high**
- **srcport_low** and **srcport_high** can be omitted if the value pair is 1-65535
- **dstport_high** can be omitted if **dstport_low** is equal to **dstport_high**

acl settings

Use this command to configure the global ACL settings

Syntax

```
config switch acl settings
    set density-mode {disable | enable}
    set trunk-load-balance {disable | enable}
```

| Variable | Description | Default |
|--------------------|--|----------|
| density-mode | Enable or disable density mode. | Disabled |
| trunk-load-balance | Enable/disable trunk-load-balancing for ACL actions. | Enabled |

flapguard settings

Use this command to configure port flap-guard settings.

Syntax

```
config switch flapguard settings
  set status {disable | enable}
  set flap-rate <integer>
  set flap-duration <integer>
```

| Variable | Description | Default |
|-------------------------|-----------------------------------|---------|
| status | Enable or disable flap-guard | disable |
| flap-rate <integer> | Range is 5-300. Units is seconds. | 5 |
| flap-duration <integer> | Range is 5-300. Units is seconds. | 30 |

global

Use this command to configure system-wide settings.

Syntax

```
config switch global
  set dmi-global-all {enable | disable}
  set ip-mac-binding {enable | disable}
  set loop-guard-tx-interval <0 - 30>
  set mac-aging-interval <seconds>
  set name <string>
  set trunk-hash-mode {default| enhanced}
  set trunk-hash-unkunicast-src-dst
  set virtual-wire-tpid
end
```

| Variable | Description | Default |
|------------------------|--|---------|
| auto-stp-priority | Enable or disable whether to auto-assign STP switch priority. | enable |
| dmi-global-all | Enable or disable DMI globally. | disable |
| ip-mac-binding | Enable or disable IP-MAC binding for the switch | disable |
| loop-guard-tx-interval | Loop guard transmit interval. Value range is 1-30. The units is seconds. | 3 |

| Variable | Description | Default |
|-------------------------------|---|------------|
| mac-aging-interval <seconds> | Set the time period after which an unused MAC address is removed from the MAC table. Range 10 to 1,000,000 seconds. 0 disables. | 0 |
| name <string> | Enter a name for the switch. | No default |
| trunk-hash-mode | Set the trunk hash mode to default or enhanced | default |
| trunk-hash-unkunicast-src-dst | Enable or disable trunk hash for unknown unicast src-dst. | |
| virtual-wire-tpid | TPID value used by virtual-wires. The value from 0x0001 to 0xfffe Choose a value unlikely to be seen as a TPID or ethertype in your network. | 0xdee5 |

igmp-snooping

Use this command to configure IGMP snooping on the switch.

Command

```
config switch igmp-snooping globals
  set aging-time <integer>
  set flood-unknown-multicast {enable | disable}
```

| Variable | Description | Default |
|-------------------------|--|---------|
| aging-time | max number of seconds to retain a multicast snooping entry for which no packets have been seen (15-3600) | 300 |
| flood-unknown-multicast | Enable or disable whether to flood the vlan with unknown multicast messages | disable |

interface

Use this command to configure switch features on an interface.

Command

```
config switch interface
  edit <interface_name>
    set allowed-vlans {vlan1 vlan2 ...}
    set auto-discovery-fortilink {enable | disable}
    set auto-discovery-fortilink-packet-interval <3-300>
    set default-cos <0 - 7>
    set dhcp-snooping {trusted | untrusted}
```

```

set dhcp-snoop-option82-trust {enable | disable}
set dot1x {enable | disable | enable-mac-based}
set dynamic-fortilink-mode {enable | disable}
set edge-port {enabled | disabled}
set fortilink-intf-mode {enable | disable}
set igmp-snooping {allowed | not-allowed }
set igmps-flood-reports {enable | disable}
set igmps-flood-traffic {enable | disable}
set ip-mac-binding {enable | disable | global}
set learning-limit <1 - 128>
set loop-guard {enable | disable}
set native-vlan <vlan_int>
set mab {enable | disable}
set private-vlan {disabled | promiscuous sub-vlan}
set qos-policy <string> | default
set security-mode {none | 802.1x | 802.1X-mac-based}
set security-groups <group_name>
set sflow-sampler {enable | disable}
set snmp-index <integer>
set stp-state {enabled | disabled}
set stp-loop-protection {enabled | disabled}
set switch-port-mode {enable | disable}
set trust-dot1p-map
set trust-ip-dscp-map
set untagged-vlans {vlan1 vlan2 ...}
end

```

| Variable | Description | Default |
|--|---|------------|
| <interface_name> | Enter the name of the interface. | No default |
| allowed-vlans {vlan1 vlan2 ...} | Enter the names of the VLANs permitted on this interface. | No default |
| auto-discovery-fortilink | Automatically discover the port used for Fortilink. | Disabled |
| auto-discovery-fortilink-packet-interval | Range is 3 to 300. | 5 |
| default-cos | Set the default CoS value for untagged packets. Integer in the range of 0 to 7. The configured default CoS only applies if you also set trust-dot1p-map on the interface. | 0 |
| dhcp-snooping | Set the interface to trusted or untrusted. | Untrusted |
| dhcp-snoop-option82-trust | Enable or disable (allow/disallow) DHCP packets with option-82 on an untrusted interface | Disabled |
| dot1x {enable disable enable-mac-based} | Enable or disable IEEE.1x authentication for the interface. | Disabled |

| Variable | Description | Default |
|--|---|----------------------------|
| dynamic-fortilink-mode {enable disable} | Enable or disable dynamic FortiLink mode for this interface. | Disabled |
| edge-port {enabled disabled} | Enable if the port does not have another switch connected to it. | Disabled |
| fortilink-intf-mode {enable disable} | Enable or disable FortiLink on this interface | Disabled |
| igmp-snooping | Allow or disallow this interface from taking part in IGMP snooping | not-allowed |
| igmps-flood-reports | Enable or disable whether to flood IGMP reports to this interface. | Enabled |
| igmps-flood-reports | Enable or disable whether to flood multicast traffic to this interface. | Disabled |
| ip-mac-binding | Enable or disable IP-MAC binding for this interface. Set the value to 'global', the interface inherits the global ip-mac-binding configuration value. | Disabled |
| learning-limit | per-port mac learning limit, Enter a value between 0 and 128 (0 = no limit, which is the default). | |
| loop-guard {enable disable} | Enable or disable loop guard for this interface | Disabled |
| mab {enable disable} | Enable or disable mac-authentication-bypass on this interface | |
| native-vlan <vlan_int> | Enter the native (untagged) VLAN for this interface. | 1 |
| private-vlan {disabled promiscuous sub-vlan} | Enable private VLAN functionality. Note: Private VLANs are not supported on the FortiSwitch-28C. | Disabled |
| security-mode {none 802.1X 802.1X-mac-based} | Set the security mode. | none |
| security-groups <group_name> | Set the security group name. This option is only available when <code>security-mode</code> is set to <code>802.1x</code> . | No default |
| sflow-sampler | Enable or disable sflow protocol on this interface | Disabled |
| snmp-index | Enter the SNMP index for this interface. | Default is the port number |

| Variable | Description | Default |
|--------------------------------|--|------------|
| stp-state {enabled disabled} | Enable or disable Spanning Tree Protocol (STP) on this interface. | Enabled |
| stp-loop-protection | Enable or disable STP loop protection on this interface. | Disabled |
| switch-port-mode | If enabled, the port is a Layer 2 port. If disabled, the port is a pure routed port | Enabled |
| trust-dot1p-map | Whether to trust the dot1p CoS value in the incoming packets. Specify a map to map the CoS value to an egress queue value. | No default |
| trust-ip-dscp-map | Whether to trust the DSCP QoS value in the incoming packets. Specify a map to map the DSCP value to an egress queue value. | No default |
| untagged-vlans | Select the allowed-vlans to be transmitted without VLAN tags | No default |

lldp profile

Use this command to configure LLDP profile settings. The LLDP profile contains most of the port-specific configuration. Profiles are designed to provide a central point of configuration for LLDP settings that are likely to be the same for multiple ports.

There are two static LLDP profiles: **default** and **default-auto-isl**. These profiles are created automatically. They can be modified but cannot be deleted. The **default-auto-isl** profile always has auto-isl enabled, and rejects any configurations which attempt to disable it.

Syntax

```
config switch lldp profile
  edit <profile>
    set 802.1-tlvs port-vlan-id
    set 802.3-tlvs max-frame-size
    set auto-isl {enable | disable}
    set auto-isl-hello-timer <1-30>
    set auto-isl-port-group <0-9>
    set auto-isl-receive-timeout <3-90>
    set med-tlvs (inventory-management | network-policy)
  config custom-tlvs
    set information-string <hex-bytes>
    set oui <hex-bytes>
    set subtype <integer>
  config med-network-policy
    edit {guest-voice | guest-voice-signaling | softphone-voice |
      streaming-video | video-conferencing | video-signaling |
      voice | voice-signaling}
    set status {enable | disable}
    set dscp <0 - 63>
```

```
set priority <0 - 7>
set vlan <0 - 4094>
```

| Variable | Description | Default |
|--|--|---|
| profile | Enter a name for the LLDP profile. | No default |
| 802.1-tlvs | The only 802.1 TLV that can be enabled or disabled is port-vlan-id . This TLV will send the native VLAN of the port. If the value is changed, the sent value will reflect the updated value. | no TLV enabled |
| 802.3-tlvs | The only 802.3 TLV that can be enabled or disabled is max-frame-size . This TLV will send the maximum frame size value of the port. If the value is changed, the sent value will reflect the updated value. | no TLV enabled |
| auto-isl | Enable or disable the auto ISL capability. | Disabled |
| auto-isl-hello-timer <1-30> | Enter a value (in seconds) for the hello timer. The range is 1 to 30. | 3 |
| auto-isl-port-group <0-9> | Enter a value for the port group. The range is 0 to 9. | 0 |
| auto-isl-receive-timeout | Enter a value (in seconds) for the receive timeout. The range is 3 to 90. | 9 |
| med-tlvs (inventory-management network-policy) | enable the Inventory Management TLVs and/or the Network Policy TLVs. | inventory-management and network-policy |
| Custom TLV parameters | | |
| information-string | Organizationally defined information string. Enter up to 507 bytes in hexadecimal notation. | No default |
| oui | Organizationally unique identifier. Enter 3 hexadecimal bytes (000000 - FFFFFFFF). At least one byte must have a non-zero value. | 000000 |
| subtype | Organizationally defined subtype. Enter an integer in the range of 0 to 255. | 0 |
| Network Policy TLV parameters | | |

| Variable | Description | Default |
|----------|--|----------|
| name | Enter one of the policy type names: guest-voice, guest-voice-signaling, softphone-voice, streaming-video, video-conferencing, video-signaling, voice, or voice-signaling | n/a |
| status | Enable or disable the policy for the policy type. | Disabled |
| dscp | DSCP value to send. Range is 0 to 63. | 0 |
| priority | CoS priority value to send. Range is 0 to 7. | 0 |
| vlan | VLAN value to send. Range is 0 to 4094. | 0 |

Note: LLDP-MED network policies cannot be deleted or added. To use a policy, the **med-tlvs** field must include **network-policy**, and you must set the policy to **enabled**. The VLAN values on the policy are cross-checked against the VLAN native, allowed, and untagged attributes for any interfaces that contain physical-ports using this profile. The cross-check determines if the policy TLV should be sent (VLAN must be native or allowed), and if the TLV should mark the VLAN as tagged or untagged (VLAN is native, or is in untagged). The network policy TLV is automatically updated when a switch interface changes VLAN configuration, or if a physical port is added to, or removed from, a trunk.

lldp settings

Configure global LLDP settings.

Syntax

```
config switch lldp settings
  set status {enable| disable}
  set tx-hold <1-16>
  set tx-interval <5-4095>
  set fast-start-interval <0 or 2-5>
  set management-interface (internal | <string>)
```

| Variable | Description | Default |
|----------|--|---------|
| status | Enable or disable | Enabled |
| tx-hold | Number of tx-intervals before the local LLDP data expires. Therefore, the packet TTL (in seconds) is tx-hold times tx-interval . The range for tx-hold is 1 to 16. | 4 |

| Variable | Description | Default |
|----------------------|--|--|
| tx-interval | How often the FortiSwitch transmits the LLDP PDU. The range is 5 to 4095 seconds. | 30 |
| fast-start-interval | How often the FortiSwitch transmits the first 4 LLDP packets when a link comes up. The range is 2 to 5 seconds. Set this variable to zero to disable fast start. | 2 |
| management-interface | Primary management interface to be advertised in LLDP and CDP PDUs. | mgmt or internal , depending on FortiSwitch model. |

mirror

Use this command to configure port mirror

Syntax

```
config switch mirror
  edit <mirror name>
    set dst <interface>
    set status {active | inactive}
    set switching-packet {enable | disable}
  end
```

| Variable | Description | Default |
|-------------------------------------|---|------------|
| <mirror name> | Enter the mirror to be configured (or a new mirror name) | No default |
| dst <interface> | Enter the port that will act as a mirror. | No default |
| status {active inactive} | Set mirroring active or inactive. | inactive |
| switching-packet {enable disable} | Enable or disable switching functionality when mirroring. | disable |

physical-port

Use this command to configure a switch interface.

Syntax

```
config switch physical-port
  edit <port>
    set description <description_str>
    set dmi-status {disable | enable | global}
    set flow-control {tx | rx | both | disable}
```



```

set l2-learning {enable | disable}
set lldp-status {tx-only | rx-only | tx-rx | disable}
set lldp-profile <profile name>
set max-frame-size <bytes_int>
set poe-pre-standard-detection {enable | disable}
set poe-reset reset
set poe-status {enable | disable}
set speed <speed_str>
set status {down | up}
end

```

| Variable | Description | Default |
|---|---|----------------|
| <interface> | Enter the interface name. | No default |
| description <description_str> | Optionally enter a description. | No default |
| dmi-status | Enable or disable DMI access. Set to global to use the global switch setting. | |
| flow-control {tx rx both disable} | Set flow control: tx — enable transmit pause only rx — enable receive pause only both — enable both transmit and receive pause disable — disable flow control | No default |
| l2-learning | enable or disable dynamic IP learning for this interface | |
| lldp-status | Set LLDP status for this port: tx-only — enable transmit only rx-only — enable receive only tx-rx — enable both transmit and receive disable — disable LLDP | tx-rx |
| lldp-profile | Enter the LLDP profile name for this port. | default |
| max-frame-size <bytes_int> | Set the maximum frame size. Range 68 to 16360. | 16360 |
| poe-pre-standard-detection | Disable or enable POE pre-standard detection | disable |
| poe-reset reset | Reset the Power Over Ethernet power supply. This option is only available with the FortiSwitch-324B-POE. | No default |
| poe-status enable | Enable Power Over Ethernet. This option is only available with the FortiSwitch-324B-POE. | No default |

| Variable | Description | Default |
|--------------------|---|---------|
| speed <speed_str> | Set the speed of this port. Enter <code>set speed ?</code> to list acceptable values for <speed_str>. | auto |
| status {down up} | Set the administrative status of this interface: up or down. | up |

qos dot1p-map

Use this command to configure a dot1p map. A dot1p map defines a mapping between IEEE 802.1p CoS values (from incoming packets on a trusted interface) and the egress queue values.

Syntax

```
config switch qos dot1p-map
  edit <dot1p map name>
    set description <text>
    set [priority-0|priority-1|priority-2|...priority-7] <queue number>
  next
end
```

Example

```
config switch qos dot1p-map
  edit "test1"
    set priority-0 queue-2
    set priority-1 queue-0
    set priority-2 queue-1
    set priority-3 queue-3
    set priority-4 queue-4
    set priority-5 queue-5
    set priority-6 queue-6
    set priority-7 queue-7
  next
end
```

Values that are not explicitly included in the map will follow the default mapping, which maps each priority (0-7) to queue 0.

If an incoming packet contains no CoS value, the switch assigns a CoS value of zero. Use the **set default-cos** interface command to configure a different default CoS value. The valid range is from 0 to 7. The configured default CoS only applies if you also set **trust-dot1p-map** on the interface.

qos ip-dscp-map

Use this command to configure a DSCP map. A DSCP map defines a mapping between IP Precedence or Differentiated Services Code Point (DSCP) values and the egress queue values.

Syntax

```

config switch qos ip-dscp-map
  edit <ip-dscp map name>
    set description <text>
    config map
      edit <entry-name>
        set diffserv [ [ AF11 | AF12 | AF13 | AF21 | AF22 | AF23 | AF31 | AF32 | AF33 |
          AF41 | AF42 | AF43 | CS0 | CS1 | CS2 | CS3 | CS4 | CS5 | CS6 | CS7 | EF ]
        set ip-precedence [ Network Control | Internetwork Control | Critic/ECP | Flash
          Override | Flash, Immediate | Priority | Routine ]
        set value <dscp raw value>
        set cos-queue <queue number>
      next
    end
  next
end

```

Example

The following example defines a mapping for two of the DSCP values:

```

config switch qos ip-dscp-map
  edit "m1"
    config map
      edit "e1"
        set cos-queue 0
        set ip-precedence Immediate
      next
      edit "e2"
        set cos-queue 3
        set value 13
      next
    end
  next
end

```

Values that are not explicitly included in the map will follow the default mapping, which assigns queue 0 for all DSCP values.

qos qos-policy

Use this command to configure QoS policies.

In a QoS policy, you set the scheduling mode (Strict, Round Robin, Weighted Round Robin) for the policy, and configure one or more CoS queues.

Syntax

```

config switch qos qos-policy
  edit < policy_name >
    set schedule [ strict | round-robin | weighted ]
    config cos-queue
      edit [queue0 .. queue7]
        set description <text>

```

```

        set min-rate <rate kbps>
        set max-rate <rate kbps>
        set drop-policy taildrop
        set weight <value>
    next
end
next
end

```

You can set the following values for each COS queue:

- min-rate: minimum rate in kbps
- max-rate: maximum rate in kbps
- drop policy: taildrop
- weight value (applicable if the policy schedule is weighted)

security-feature

Use this command to configure security checks for incoming TCP/UDP packets. The packet is dropped if the system detects the specified condition.

Syntax (for models FS108D-POE, FS112D-POE, FS224D-POE)

```

config switch security-feature
    set tcp-syn-data {enable | disable}
    set tcp-udp-port-zero {enable | disable}
    set tcp_flag_zero {enable | disable}
    set tcp_flag_FUP {enable | disable}
    set tcp_flag_SF {enable | disable}
    set tcp_flag_SR {enable | disable}
    set tcp_frag_ipv4_icmp {enable | disable}
    set tcp_arp_mac_mismatch {enable | disable}

```

| Variable | Description | Default |
|----------------------|--|---------|
| tcp-syn-data | TCP SYN packet contains additional data (possible DoS attack). | disable |
| tcp-udp-port-zero | TCP or UDP packet has source or destination port set to zero. | disable |
| tcp_flag_zero | TCP packet with all flags set to zero. | disable |
| tcp_flag_FUP | TCP packet with FIN, URG and PSH flag set. | disable |
| tcp_flag_SF | TCP packet with SYN and FIN flag set. | disable |
| tcp_flag_SR | TCP packet with SYN and RST flag set. | disable |
| tcp_frag_ipv4_icmp | Fragmented ICMPv4 packet. | disable |
| tcp_arp_mac_mismatch | ARP packet with MAC source address mismatch between the Layer 2 header and the ARP packet payload. | disable |

Syntax (for all other models)

```
config switch security-feature
  set sip-eq-dip {enable | disable}
  set tcp-flag {enable | disable}
  set tcp-port-eq {enable | disable}
  set tcp-flag-FUP {enable | disable}
  set tcp-flag-SF {enable | disable}
  set v4-first-frag {enable | disable}
  set udp-port-eq {enable | disable}
  set tcp-hdr-partial {enable | disable}
  set macsa-eq-macda {enable | disable}
```

| Variable | Description | Default |
|-----------------|--|---------|
| sip-eq-dip | TCP packet with Source IP equal to Destination IP. | disable |
| tcp_flag | DoS attack checking for TCP flags. | disable |
| tcp-port-eq | TCP packet with source and destination TCP port equal. | disable |
| tcp-flag-FUP | TCP packet with FIN, URG and PSH flags set, and sequence number is zero. | disable |
| tcp-flag-SF | TCP packet with SYN and FIN flag set. | disable |
| v4-first-frag | DoS attack checking for IPv4 first fragment. | disable |
| udp-port-eq | IP packet with source and destination UDP port equal. | disable |
| tcp-hdr-partial | TCP packet with partial header. | disable |
| macsa-eq-macda | Packet with source MAC equal to Destination MAC. | disable |

static-mac

Use this command to configure one (or more) static MAC address on an interface.

Syntax

```
config switch static-mac
  edit <name>
    set interface <interface>
    set mac <mac address>
    set vlan-id <1-4095>
```

storm-control

Use this command to configure storm control.

Syntax

```
config switch storm-control
  set broadcast {enable | disable}
  set rate [0 | 1-100000]
  set unknown-multicast {enable | disable}
  set unknown-unicast {enable | disable}
```

| Variable | Description | Default |
|------------------------------------|--|---------|
| broadcast | Enable or disable storm control for broadcast traffic. | disable |
| rate [0 1-100000] | Specify the rate as packets-per-second. If you set the rate to zero, the system drops all packets (for the enabled traffic types). | 0 |
| unknown-multicast | Enable or disable storm control for unknown multicast traffic. | disable |
| unknown-unicast {enable disable} | Enable or disable storm control for unknown unicast traffic. | disable |

stp instance

Use this command to configure an STP instance.

Syntax

```
config switch stp instance
  edit <instance_id>
    set priority <priority_int>
    set vlan-range <vlan_map>
  config stp-port
    edit <port name>
      set cost <cost_int>
      set priority <priority_int>
    end
  end
```

| Variable | Description | Default |
|-----------------------------|--|------------|
| <instance_id> | Enter a number to identify the table entry. | No default |
| set priority <priority_int> | Set STP priority. Use <code>set priority ?</code> to list the acceptable priority values. | 32768 |
| set vlan-range <vlan_map> | Enter the VLANs to which STP applies. <vlan_map> is a comma-separated list of VLAN IDs or VLAN ID ranges, for example "1,3-4,6,7,9-100". | No default |

| Variable | Description | Default |
|-------------------------------|--|------------|
| config stp-port fields | | |
| <port name> | Enter the name of the port. | No default |
| cost <cost_int> | Enter the cost of using this interface. Use <code>set cost ?</code> for suggested cost values based on link speed. | 0 |
| priority <priority_int> | Enter the priority of this interface. Use <code>set priority ?</code> to list the acceptable priority values. | 128 |

stp settings

Use this command to configure STP settings.

Syntax

```

config switch stp settings
  set forward-time <fseconds_int>
  set hello-time <hseconds_int>
  set max-age <age>
  set max-hops <hops_int>
  set name <name_str>
  set revision <rev_int>
  set status {enable | disable}
end

```

| Variable | Description | Default |
|-----------------------------|---|------------|
| forward-time <fseconds_int> | Enter the forwarding delay in seconds. Range 4 to 30. | 15 |
| hello-time <hseconds_int> | Enter the hello time in seconds. Range 1 to 10. | 2 |
| max-age <age> | Enter the maximum age. Range 6 to 40. | 20 |
| max-hops <hops_int> | Enter the maximum number of hops. Range 1 to 40. | 20 |
| name <name_str> | Enter a string value for the name. | No default |
| revision <rev_int> | Range 0 to 65535. | 0 |
| status {enable disable} | Enable or disable status report. | enable |

trunk

Use this command to configure link aggregation.

Syntax

```
config switch trunk
  edit <trunk name>
    set min_bundle <integer>
    set max_bundle <integer>
  set description <description_str>
  set lacp-speed {fast | slow}
  set members <intf1 ... intfN>
  set member-withdrawal-behaviour {block | forward}
  set mode {fortinet-trunk | lacp-active | lacp-passive | static}
  set port-selection-criteria {src-ip | dst-ip | src-dst-ip}
```

| Variable | Description | Default |
|--|--|------------|
| <trunk name> | Enter a name for the trunk. | No default |
| auto-isl <integer> | Automatically forms an ISL-encapsulated trunk, up to the specified maximum size. | 0 |
| bundle [enable disable] | Enable or disable bundling | No default |
| min_bundle | Set the minimum size of the bundle. | 1 |
| max_bundle | Set the maximum size of the bundle. | 8 |
| description <description_str> | Optionally, enter a description. | No default |
| lacp-speed {fast slow} | Select fast (one message per second) or slow (one message every 10 seconds) LACP speed. This is available only for LACP modes. | slow |
| members <intf1 ... intfN> | Enter the names of the interfaces that belong to this trunk. Separate the names with spaces. | No default |
| member-withdrawal-behavior {block forward} | Select whether traffic is blocked or forwarded on member interfaces that are withdrawn from the trunk. This field not available when mode is static. | block |

| Variable | Description | Default |
|---|---|------------|
| mode {fortinet-trunk lacp-active lacp-passive static} | Select the link aggregation mode: <i>lacp-active</i> — use active LACP 802.3ad aggregation <i>lacp-passive</i> — use passive LACP 802.3ad aggregation <i>static</i> — use static aggregation, ignoring and not sending control messages | static |
| port-selection-criteria {src-ip dst-ip src-dst-ip src-mac dst-mac src-dst-mac } | Select port selection criteria: <i>src-ip</i> — source IP address <i>dst-ip</i> — destination IP address <i>src-dst-ip</i> — both source and destination IP addresses <i>src-mac</i> — source MAC address <i>dst-mac</i> — destination MAC address <i>src-dst-mac</i> — both source and destination MAC addresses | src-dst-ip |

virtual-wire

Use this command to forward traffic between two ports with minimal filtering or packet modifications. The VLAN setting is optional.

Note: Virtual-wire ports will not be able to transmit or receive packets from other members of the VLAN or other virtual-wires that use the same VLAN. The VLAN should not have complex configurations such as private VLAN.

Syntax

```
config switch virtual-wire
edit <id>
    first-member <port>
    second-member <port>
    vlan <1-4095>
```

| Variable | Description | Default |
|----------------------|--|------------|
| <id> | Enter a unique integer to create a new entry. | No default |
| first-member <port> | first member in the virtual-wire pair | No default |
| second-member <port> | second member in the virtual-wire pair | No default |
| vlan <1-4095> | VLAN used. The VLAN can be shared between virtual-wires and non-virtual-wire ports | 4011 |

vlan

Use this command to configure VLANs.

Syntax

```
config switch vlan
  edit <vlan id>
    set description <description_str>
    set dhcp-snooping {enable | disable}
    set dhcp-snooping-verify-mac {enable | disable}
    set dhcp-snooping-option82 {enable | disable}
    set igmp-snooping {enable | disable}
    set private-vlan {enable | disable}
```

| Variable | Description | Default |
|-------------------------------|---|------------|
| <vlan id> | Enter a VLAN identifier. | No default |
| description <description_str> | Optionally, enter a description. | No default |
| dhcp-snooping | Enable/Disable DHCP snooping for this VLAN. | |
| dhcp-snooping-verify-mac | Enable/Disable whether to verify the source MAC address. | |
| dhcp-snooping-option82 | Enable/Disable whether to insert Option 82 fields. | |
| igmp-snooping | Enable IGMP snooping on the VLAN | disable |
| private-vlan | Set to enable if this is a private VLAN. | disable |
| isolated-vlan | (Valid if private vlan enabled) Enter the isolated VLAN. | |
| community-vlans | (Valid if private vlan enabled) Enter the range of community VLANs. | |

config member-by

Use this command to assign VLANs based on specific fields in the packet (source MAC address, source IP address, or layer 2 protocol).

```
config switch vlan
  edit <vlan id>
    config member-by-mac
      edit <id>
        set mac XX:XX:XX:XX:XX:XX
        set description <128 byte string>
      next
```

```

end
config member-by-ipv4
  edit <id>
    set address a.b.c.d/e #subnet mask must 1-32
    set description <128 byte string>
  next
end
config member-by-ipv6
  edit <id>
    set prefix xx:xx:xx:xx::/prefix #prefix must 1-64
    set description <128 byte string>
  next
end
config member-by-proto
  edit <id>
    set frametypes ethernet2 802.3d llc #default is all
    set protocol <6-digit hex value>
end

```

| Variable | Description | Default |
|-------------------------------------|--|---------|
| edit <id> | For a new entry, enter an unused ID. | |
| description | Enter up to 128 characters | |
| mac XX:XX:XX:XX:XX:XX | Enter a MAC address. If the source MAC address of an incoming packet matches this value, the associated VLAN will be assigned to the packet. | |
| address a.b.c.d/e | Enter an IPv4 address and network mask. If the source IP address of an incoming packet matches this value, the associated VLAN will be assigned to the packet. | |
| prefix xx:xx:xx:xx::/prefix | Enter an IPv6 prefix. If the source IP address of an incoming packet matches this value, the associated VLAN will be assigned to the packet. | |
| frametypes (ethernet2, 802.3d, llc) | Enter one or more Ethernet frame type. | all |
| protocol <6-digit hex value> | Enter an Ethernet protocol value. If the frametype and Ethernet protocol value of an incoming packet matches these values, the associated VLAN will be assigned to the packet. | |

system

Use system commands to configure options related to the overall operation of the FortiSwitch.

accprofile

Use this command to add access profile groups that control administrator access to FortiSwitch features. Each FortiSwitch administrator account must include an access profile. You can create access profiles that deny access, allow read only, or allow both read and write access to FortiSwitch features.

Syntax

```
config system accprofile
  edit <profile-name>
    set admingrp {none | read | read-write}
    set loggrp {none | read | read-write}
    set netgrp {none | read | read-write}
    set routegrp {none | read | read-write}
    set sysgrp {none | read | read-write}
  end
```

| Variable | Description | Default |
|-------------------------------------|---|------------|
| <profile-name> | Enter the name for the profile. | No default |
| admingrp {none read read-write} | Set the access permission for admingrp. | none |
| loggrp {none read read-write} | Set the access permission for loggrp. | none |
| netgrp {none read read-write} | Set the access permission for netgrp. | none |
| routegrp {none read read-write} | Set the access permission for routegrp. | none |
| sysgrp {none read read-write} | Set the access permission for sysgrp. | none |

admin

Use the default admin account or an account with system configuration read and write privileges to add new administrator accounts and control their permission levels. Each administrator account except the default admin must include an access profile. You cannot delete the default super admin account or change the access profile

(super_admin). In addition, there is also an access profile that allows read-only super admin privileges, super_admin_readonly. The super_admin_readonly profile cannot be deleted or changed, similar to the super_admin profile. This read-only super-admin may be used in a situation where it is necessary to troubleshoot a customer configuration without making changes.

You can authenticate administrators using a password stored on the FortiSwitch or you can use a RADIUS server to perform authentication. When you use RADIUS authentication, you can authenticate specific administrators or you can allow any account on the RADIUS server to access the FortiSwitch as an administrator.

Syntax

```
config system admin
  edit <admin_name>
    set accprofile <profile-name>
    set allow-remove-admin-session {enable | disable}
    set comments <comments_string>
    set gui-detail-panel-location {bottom | ide | side}
    set {ip6-trusthost1 | ip6-trusthost2 | ip6-trusthost3 |
ip6-trusthost4 | ip6-tru sthost5 | ip6-trusthost6 |
ip6-trusthost7 | ip6-trusthost8 | ip6-trusthost9 |
ip6-trusthost10} <address_ipv6mask>
    set password <admin_password>
    set peer-auth {disable | enable}
    set peer-group <peer-grp>
    set remote-auth {enable | disable}
    set remote-group <name>
    set schedule <schedule-name>
    set ssh-public-key1 "<key-type> <key-value>"
    set ssh-public-key2 "<key-type> <key-value>"
    set ssh-public-key3 "<key-type> <key-value>"
    set {trusthost1 | trusthost2 | trusthost3 | trusthost4 |
trusthost5 | trusthost6 | trusthost7 | trusthost8 | trusthost9
| trusthost10} <address_ipv4mask>
  end
end
```

| Variable | Description | Default |
|---|---|------------|
| <admin_name> | Enter the name for the admin account. | No default |
| accprofile <profile-name> | Enter the name of the access profile to assign to this administrator account. Access profiles control administrator access to FortiSwitch features. | No default |
| allow-remove-admin-session {enable disable} | Allow admin session to be removed by privileged admin users | disable |
| comments <comments_string> | Enter the last name, first name, email address, phone number, mobile phone number, and pager number for this administrator. Separate each attribute with a comma, and enclose the string in double-quotes. The total length of the string can be up to 128 characters. (Optional) | No default |

| Variable | Description | Default |
|--|---|--------------------|
| gui-detail-panel-location {bottom hide side} | Choose the position of the log detail window. | bottom |
| {ip6-trusthost1 ip6-trusthost2 ip6-trusthost3 ip6-trusthost4 ip6-trusthost5 ip6-trusthost6 ip6-trusthost7 ip6-trusthost8 ip6-trusthost9 ip6-trusthost10} <address_ipv6mask> | Any IPv6 address and netmask from which the administrator can connect to the FortiSwitch. If you want the administrator to be able to access the system from any address, set the trusted hosts to ::/0. | ::/0 |
| password <admin_password> | Enter the password for this administrator. It can be up to 256 characters in length. | No default |
| peer-auth {disable enable} | Set to enable peer certificate authentication (for HTTPS admin access). | disable |
| peer-group <peer-grp> | Name of peer group defined under <code>config user peergrp</code> or user group defined under <code>config user group</code> . Used for peer certificate authentication (for HTTPS admin access). | No default |
| remote-auth {enable disable} | Enable or disable authentication of this administrator using a remote RADIUS, LDAP, or TACACS+ server. | disable |
| remote-group <name> | Enter the administrator user group name, if you are using RADIUS, LDAP, or TACACS+ authentication. This is only available when <code>remote-auth</code> is enabled. | No default |
| schedule <schedule-name> | Restrict times that an administrator can log in. Defined in <code>config firewall schedule</code> . No default indicates that the administrator can log in at any time. | No default |
| ssh-public-key1 "<key-type> <key-value>" | You can specify the public keys of up to three SSH clients. These clients are authenticated without being asked for the administrator password. You must create the public-private key pair in the SSH client application. <key type> is <code>ssh-dss</code> for a DSA key or <code>ssh-rsa</code> for an RSA key. <key-value> is the public key string of the SSH client. | No default |
| ssh-public-key2 "<key-type> <key-value>" | | No default |
| ssh-public-key3 "<key-type> <key-value>" | | No default |
| {trusthost1 trusthost2 trusthost3 trusthost4 trusthost5 trusthost6 trusthost7 trusthost8 trusthost9 trusthost10} <address_ipv4mask> | Any IPv4 address or subnet address and netmask from which the administrator can connect to the system. If you want the administrator to be able to access the system from any address, set the trusted hosts to 0.0.0.0 and the netmask to 0.0.0.0. | 0.0.0.0 0.0.0.0 |

arp-table

Use this command to manually add ARP table entries to the FortiSwitch. ARP table entries consist of a interface name, an IP address, and a MAC address.

Syntax

```
config system arp-table
  edit <table_value>
    set interface <port>
    set ip <address_ipv4>
    set mac <mac_address>
  end
```

| Variable | Description | Default |
|-------------------|---|------------|
| <table_value> | Enter the identification number for the table. | No default |
| interface <port> | Enter the interface to associate with this ARP entry | No default |
| ip <address_ipv4> | Enter the IP address of the ARP entry. | No default |
| mac <mac_address> | Enter the MAC address of the device entered in the table, in the form of xx:xx:xx:xx:xx:xx. | No default |

bug-report

Use this command to configure a custom email relay for sending problem reports to Fortinet customer support.

Syntax

```
config system bug-report
  set auth {no | yes}
  set mailto <email_address>
  set password <password>
  set server <servername>
  set username <name>
  set username-smtp <account_name>
end
```

| Variable | Description | Default |
|------------------------|---|-----------------|
| auth {no yes} | Enter <i>yes</i> if the SMTP server requires authentication or <i>no</i> if it does not. | no |
| mailto <email_address> | The email address for bug reports. The default is <i>bug_report@fortinetvirussubmit.com</i> . | See description |

| Variable | Description | Default |
|------------------------------|---|-----------------|
| password <password> | If the SMTP server requires authentication, enter the required password. | No default |
| server <servername> | The SMTP server to use for sending bug report email. The default server is <code>fortinetvirussubmit.com</code> | See description |
| username <name> | A valid user name on the specified SMTP server. The default user name is <code>bug_report</code> . | See description |
| username-smtp <account_name> | A valid user name on the specified SMTP server. The default user name is <code>bug_report</code> . | See description |

certificate ca

Use this command to configure CA certificates.

FortiSwitch includes a reserved entry named "Fortinet_CA". Users cannot modify this entry.

Syntax

```
config system certificate ca
  edit <name>
    set ca <certificate>
    set scep-url <string>
  next
end
```

| Variable | Description | Default |
|--------------|---|---------|
| certificate | PEM format CA certificate. Paste the contents of a CA certificate file between quotation marks as shown in the example. | n/a |
| set scep-url | Full URL (such as <code>http://www.test.com</code>) | |

example

```
# config system certificate ca
# get
== [ Fortinet_CA ]
== [ OracleSSLCA ]
== [ ca ]
FortiCore-VM # config system certificate ca
FortiCore-VM (ca) # edit ca-new
FortiCore-VM (ca-new) # set certificate "-----BEGIN CERTIFICATE-----
> MIID0TCCArmG AwIBAgIJAKr1/WtE48FeMA0GCSqGSIb3DQEBCwUAMGgx EzARBgoJ
```



```

> kiaJk/IsZAEZFgNvcmcxFzAVBgoJkiaJk/IsZAEZFgdjaWxvZ29uMQswCQYDVQGG
> EwJVUzEQMA4GA1UEChMHQ01Mb2dvbJEZMBcGA1UEAxMQQ01Mb2dvbiBPU0cgQ0Eg
> MTAeFw0xNDA0MzAxNDE4MDhaFw0zNDA0MzAxNDE4MDhaMGgxZARBgoJkiaJk/Is
> ZAEZFgNvcmcxFzAVBgoJkiaJk/IsZAEZFgdjaWxvZ29uMQswCQYDVQGGewJVUzEQ
> MA4GA1UEChMHQ01Mb2dvbJEZMBcGA1UEAxMQQ01Mb2dvbiBPU0cgQ0EgMTCCASiw
> DQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBAMQQzsb9Uc37VuIyt5xJxcYYkc6K
> XpYihHgsKtQp6YYB4XHvimouHafMYyoFsnenrcgf2NGFDvi919x9mnL77920JqGr
> LijieMiFEyP1nhGW8C6nJjkSsXLbgZNh9u6U+0oAbspsFRwdHDZOI7gIHSJ2zuiY
> CkMAVjw9TN44Q4IFCvSIf7mfzZgBH7AW1sbgzqnqAJswQhQGTpxZAxubItesyduD
> vj8tz9eb5u8JO3iQ/LYhMspNnxcPTFdaLn2v82NAFTtCrZdCd7aLj1DM0DPEX7Nw
> V/rt/l+tlscglYyEoUnlPYuSQN0Q6Aj5i1GcKPvnFS0Oy91GY11T1vZJ4F0CAwEA
> Aan+MHwwDwYDVR0TAQH/BAUwAwEB/zAOBgNVHQ8BAf8EBAMCAQYwHQYDVR0OBBYE
> FP7bnvI4TIqtrM+KGgCvedJiQpuHMB8GA1UdIwQYMBaAFP7bnvI4TIqtrM+KGgCv
> FP7bnvI4TIqtrM+KGgCvedJiQpuHMB8GA1UdIwQYMBaAFP7bnvI4TIqtrM+KGgCv
> edJiQpuHMBkGA1UdEQQSMBCBDMNhQGNpbG9nb24ub3JnMA0GCSqGSIb3DQEBCwUA
> A4IBAQCq5KUHQNg51uh1pxKMXQ98ADj2bNzQbswDAFs1Pow8tTZIBMwhdrq02ZHC
> XPyp2IHxfv+G+pMV1JFtdR0fy8ivilMnyjObEGh1Ss3kvvU7d1z3XwPxpNcwDqs
> 1K6RRg4zpnWCFPcliAkPDsDbaN1B6A6zJXqOpGgzwoC3dZbPe5sYLgkWZO2/8MI
> eAEk7zoU1ZPSZiu5HghPafKue1HYshvsak090tRgC6VLvaSLonZlwr0GuFVGdewH
> 4jr1HpenH7QiLCB1NGCoJgDi3qiFosw3M2+0ExevE1afj2Usm4oZir+Uty0rvR8D
> 03RHH8yYbZ9rw0kuwTkJEo3bYDxH
> -----END CERTIFICATE-----"

```

certificate crl

Use this command to configure the certificate revocation list.

Syntax

```

config system certificate crl
edit <name>
    set crl <crl>
    set http-url <string>
    set ldap-server <LDAP>
    set scep-cert <certificate>
    set scep-url <string>

```

| Variable | Description | Default |
|-------------|---|---------|
| name | Name of the certificate revocation list | |
| crl | PEM format CRL. Paste the contents of a CRL file between quotation marks as shown in the example. | |
| http-url | URL of HTTP server for CRL update | |
| ldap-server | LDAP server | |
| scep-cert | Local certificate used for CRL update via SCEP | |

| Variable | Description | Default |
|----------|--|---------|
| scep-url | URL of CA server for CRL update via SCEP | |

certificate local

Use this command to manage local certificates. FortiSwitch includes a reserved entry named "Factory". Users cannot modify this entry.

Syntax

```

config system certificate local
  edit <name>
    set comments <string>
    set password <passwd>
    set private-key <key>
    set scep-url <string>
  next
end

```

| Variable | Description | Default |
|-------------|--|---------|
| name | Name of the certificate | |
| comments | Optional administrator note. | |
| password | Password that was used to encrypt the file. The FortiCore system uses the password to decrypt and install the certificate. | |
| private-key | Paste the contents of a key file between quotation marks as shown in the example. | |
| scep-url | URL of SCEP server | |

example

```

# config system certificate local
# get
  == [ Factory ]
  == [ csr_name_test ]

# show
config system certificate local
edit "csr_name_test"

```

```
t7e4fiX6Sd6T5426Gg/HQXRH41mBwGmjKdBShUBVUZTka2FtD1oLMWE2mTq1c9GMUz0DokP-
foqxkjkjma5mWv4/w
A5XdQ001QmTeMZK/X5OSFmSS
set private-key "-----BEGIN ENCRYPTED PRIVATE KEY-----
MIIBNjBABGkqhkiG9w0BBQ0wMzAbBgkqhkiG9w0BBQwwDgQI5/vf1VQB/28CAggA
MBQGCCqGSib3DQMHBAGZorM0zlnPNASCAViZk4wTZYMP10e7NwyxqvLND3LxUaV
UG1XpUSPfnUP4YgrV2d0Uijclj5M7MS341cMVkZ7G1pS/6jvxUr0NamQv4j7JsJ0
t3G7LMkzcTieP26GUCy55Qt+iob7lh0iiKa+4uPOq/Mzy+84AWnRNLfIhevHPsYb
rk4UbwnOFb0ZD9i06+UrFLsRGmtp/vlDyBgAoBojKxB/4j0G299QamnzPz4qneBc
HtPqTMPELyqtT6w4cmnwp6Ti200Ar9c44mKdyyAVZKie+Iu/4pSVBNSfuC+jjtmC
k8OrCrG14NwrhbTY9zEnGxBRR1NMTEBBTqAQNYWtjUEQVjmY1GAJA3/oBQe718C/
G/IUVvc/aaqMvsKSNfDpgZaudTDe1Wxi1792ADGh7zsl1s+ykH9nmqh7BPfm30Nv
f801hXgq01Lvo4v1xdC0w5oAeCyG1bTY5ZnXJFm0HCp0kA==
-----END ENCRYPTED PRIVATE KEY-----
"
set csr "-----BEGIN CERTIFICATE REQUEST-----
MIIBNzCB4gIBADBqMQswCQYDVQIEwJjYTESMBAGA1UEBxMjc3Vubnl2YWxlMREw
DwYDVQQKEwhmb3J0aW5ldDENMAsgA1UECxmEZmFkYzEQMA4GA1UEAxMHZXhhbXBs
ZTETMBEGCSqGSib3DQEJARYEcm9vdDBcMA0GCSqGSib3DQEBAQUAA0sAMEgCQQDK
XH/MC1KTkkZJiQDFb6IXHLYsSVbJzF0K30s3CVmKZvJQSBnmV8aq3fJjN281rrFT
iUovVdBzwCF5jKbxsrPLAgMBAAGgEzARBgNVHRMxChMIQ0E6RkFMU0UwDQYJKoZI
hvcNAQEFBQADQQB96NU+xjds83/6VRSzsyxeVxAGVD7F9Npuji8r/MpxPiMT0PQM
G8Wg//26Zqpwjupq2V1+7QU4MDk3B5VUJSEF
-----END CERTIFICATE REQUEST-----
"
```

certificate ocs

Use this command to configure the OCS server certificate.

cert OCS server certificate

unavail-action action when server is unavailable

url URL to OCS server

Syntax

```
config system certificate ocs
  set cert <cert>
  set unavail-action{batch | line}
  set url {standard | more}
end
```

certificate remote

Use this command to install remote certificates. The remote certificates are public certificates without a private key.

```
config system certificate remote
  edit <name>
    set remote <cert>
```

| Variable | Description | Default |
|----------|--------------------------|---------|
| name | Name for the certificate | |
| cert | PEM format certificate | |

console

Use this command to set the console command mode, the number of lines displayed by the console, and the baud rate.

Syntax

```
config system console
  set baudrate <speed>
  set mode {batch | line}
  set output {standard | more}
end
```

| Variable | Description | Default |
|--------------------------|--|---------|
| baudrate <speed> | Set the console port baudrate. Select one of 9600, 19200, 38400, 57600, or 115200. | 9600 |
| mode {batch line} | Set the console mode to line or batch. Used for autotesting only. | line |
| output {standard more} | Set console output to standard (no pause) or more (pause after each screen is full, resume on keypress). This setting applies to <code>show</code> or <code>get</code> commands only. | more |

dns

Use this command to set the DNS server addresses. Several FortiSwitch functions, including sending email alerts and URL blocking, use DNS.

Syntax

```
config system dns
  set cache-notfound-responses {enable | disable}
  set dns-cache-limit <integer>
  set dns-cache-ttl <int>
  set domain <domain_name>
  set ip6-primary <dns_ipv6>
  set ip6-secondary <dns_ipv6>
  set primary <dns_ipv4>
  set secondary <dns_ipv4>
```

```

    set source-ip <ipv4_addr>
end

```

| Variable | Description | Default |
|--|---|------------|
| cache-notfound-responses {enable disable} | Enable to cache NOTFOUND responses from the DNS server. | disable |
| dns-cache-limit <integer> | Set maximum number of entries in the DNS cache. | 5000 |
| dns-cache-ttl <int> | Enter the duration, in seconds, that the DNS cache retains information. | 1800 |
| domain <domain_name> | Set the local domain name (optional). | No default |
| ip6-primary <dns_ipv6> | Enter the primary IPv6 DNS server IP address. | :: |
| ip6-secondary <dns_ipv6> | Enter the secondary IPv6 DNS server IP address. | :: |
| primary <dns_ipv4> | Enter the primary DNS server IP address. | 0.0.0.0 |
| secondary <dns_ip4> | Enter the secondary DNS IP server address. | 0.0.0.0 |
| source-ip <ipv4_addr> | Enter the IP address for communications to DNS server. | 0.0.0.0 |

global

Use this command to configure global settings that affect various FortiSwitch systems and configurations.

Syntax

```

config system global
    set admin-concurrent {enable | disable}
    set admin-https-pki-required {enable | disable}
    set admin-lockout-duration <time_int>
    set admin-lockout-threshold <failed_int>
    set admin-maintainer {enable | disable}
    set admin-port <port_number>
    set admin-scp {enable | disable}
    set admin-server-cert { self-s ign | <certificate> }
    set admin-sport <port_number>
    set admin-ssh-grace-time <time_int>
    set admin-ssh-port <port_number>
    set admin-ssh-v1 {enable | disable}
    set admin-telnet-port <port_number>
    set admintimeout <admin_timeout_minutes>
    set allow-subnet-overlap {enable | disable}
    set asset-tag <string>
    set cfg-save {automatic | manual | revert}
    set csr-ca-attribute {enable | disable}
    set daily-restart {enable | disable}
    set detect_ip_conflict {enable | disable}

```

```

set dst {enable | disable}
set gui-lines-per-page <gui_lines>
set hostname <unithostname>
set kernel-crashlog {enable | disable}
set language <language>
set ldapconntimeout <ldaptimeout_msec>
set log-user-in-upper {enable | disable}
set radius-port <radius_port>
set refresh <refresh_seconds>
set registration-notification {disable | enable}
set remoteauthtimeout <timeout_sec>
set revision-backup-on-logout {enable | disable}
set revision-backup-on-upgrade {enable | disable}
set service-expire-notification {disable | enable}
set switch-mgmt-mode {fortilink | local}
set timezone <timezone_number>
set user-server-cert <cert_name>
end

```

| Variable | Description | Default |
|--|---|-----------------------------------|
| admin-concurrent {enable disable} | Enable to enforce concurrent administrator logins. When enabled, the FortiSwitch restricts concurrent access from the same admin user name but on different IP addresses. Use <code>policy-auth-concurrent</code> for firewall authenticated users. | enable |
| admin-https-pki-required {enable disable} | Enable to allow user to login by providing a valid certificate if PKI is enabled for HTTPS administrative access. Default setting <code>disable</code> allows admin users to log in by providing a valid certificate or password. | disable |
| admin-lockout-duration <time_int> | Set the administration account's lockout duration in seconds for the firewall. Repeated failed login attempts will enable the lockout. Use <code>admin-lockout-threshold</code> to set the number of failed attempts that will trigger the lockout. | 60 |
| admin-lockout-threshold <failed_int> | Set the threshold, or number of failed attempts, before the account is locked out for the <code>admin-lockout-duration</code> . | 3 |
| admin-maintainer {enable disable} | Enabled by default. | enable |
| admin-port <port_number> | Enter the port to use for HTTP administrative access. | 80 |
| admin-scp {enable disable} | Enable to allow system configuration download by the secure copy (SCP) protocol. | disable |
| admin-server-cert { self-sign <certificate> } | Select the admin https server certificate to use. Choices include <code>self-sign</code> , and the filename of any installed certificates. Default setting is <code>Fortinet_Factory</code> , if available, otherwise <code>self-sign</code> . | See definition under Description. |

| Variable | Description | Default |
|---|--|---------|
| admin-sport <port_number> | Enter the port to use for HTTPS administrative access. | 443 |
| admin-ssh-grace-time <time_int> | Enter the maximum time permitted between making an SSH connection to the FortiSwitch and authenticating. Range is 10 to 3600 seconds. | 120 |
| admin-ssh-port <port_number> | Enter the port to use for SSH administrative access. | 22 |
| admin-ssh-v1 {enable disable} | Enable compatibility with SSH v1.0. | disable |
| admin-telnet-port <port_number> | Enter the port to use for telnet administrative access. | 23 |
| admintimeout <admin_timeout_minutes> | Set the number of minutes before an idle administrator times out. This controls the amount of inactive time before the administrator must log in again. The maximum <code>admintimeout</code> interval is 480 minutes (8 hours). To improve security keep the idle timeout at the default value of 5 minutes. | 5 |
| allow-subnet-overlap {enable disable} | Enable limited support for interface and VLAN subinterface IP address overlap for this VDOM. Use this command to enable limited support for overlapping IP addresses in an existing network configuration. Caution: for advanced users only. Use this only for existing network configurations that cannot be changed to eliminate IP address overlapping. | disable |
| asset-tag | LLDP uses the asset tag to help identify the unit. The asset tag can be up to 32 characters, and will be added to the LLDP-MED inventory TLV (when that TLV is enabled). | none |

| Variable | Description | Default |
|---|---|----------------------------|
| <code>cfg-save {automatic manual revert}</code> | <p>Set the method for saving the FortiSwitch system configuration and enter into runtime-only configuration mode. Methods for saving the configuration are:</p> <p><code>automatic</code> automatically save the configuration after every change.</p> <p><code>manual</code> manually save the configuration using the "execute" on page 88 command.</p> <p><code>revert</code> manually save the current configuration and then revert to that saved configuration after <code>cfg-revert-timeout</code> expires.</p> <p>Switching to automatic mode disconnects your session. This command is used as part of the runtime-only configuration mode.</p> | automatic |
| <code>csr-ca-attribute {enable disable}</code> | Enable to use the CA attribute in your certificate. Some CA servers reject CSRs that have the CA attribute. | enable |
| <code>daily-restart {enable disable}</code> | Enable to restart the FortiSwitch every day. The time of the restart is controlled by <code>restart-time</code> . | disable |
| <code>dst {enable disable}</code> | Enable or disable daylight saving time. If you enable daylight saving time, the FortiSwitch adjusts the system time when the time zone changes to daylight saving time and back to standard time. | enable |
| <code>gui-lines-per-page <gui_lines></code> | Set the number of lines displayed on table lists. Range is from 20 - 1000 lines per page. | 50 |
| <code>hostname <unithostname></code> | <p>Enter a name to identify this FortiSwitch. A hostname can only include letters, numbers, hyphens, and underlines. No spaces are allowed.</p> <p>While the hostname can be longer than 16 characters, if it is longer than 16 characters it will be truncated and end with a "~" to indicate it has been truncated. This shortened hostname will be displayed in the CLI, and other locations the hostname is used.</p> <p>Some models support hostnames up to 35 characters. By default the hostname of your system is its serial number which includes the model.</p> | FortiSwitch serial number. |
| <code>kernel-crashlog {enable disable}</code> | Enable or disable whether to log a kernel crash. | enable |
| <code>language <language></code> | Set the display language. You can set <code><language></code> to one of <code>english</code> , <code>french</code> , <code>japanese</code> , <code>korean</code> , <code>portuguese</code> , <code>spanish</code> , <code>simch</code> (Simplified Chinese) or <code>trach</code> (Traditional Chinese). | english |

| Variable | Description | Default |
|---|--|---------|
| ldapconntimeout <ldaptimeout_msec> | LDAP connection timeout in msec | 500 |
| log-user-in-upper {enable disable} | Log username in uppercase letters. | disable |
| radius-port <radius_port> | Change the default RADIUS port. The default port for RADIUS traffic is 1812. If your RADIUS server is using port 1645 you can use the CLI to change the default RADIUS port on your system. | 1812 |
| refresh <refresh_seconds> | Set the Automatic Refresh Interval, in seconds, for the System Status Monitor. Enter 0 for no automatic refresh. | 0 |
| registration-notification {disable enable} | Enable or disable displaying the registration notification on the Web GUI if the FortiSwitch is not registered. | enable |
| remoteauthtimeout <timeout_sec> | The number of seconds that the FortiSwitch waits for responses from remote RADIUS, LDAP, or TACACS+ authentication servers. The range is 0 to 300 seconds, 0 means no timeout. To improve security keep the remote authentication timeout at the default value of 5 seconds. However, if a RADIUS request needs to traverse multiple hops or several RADIUS requests are made, the default timeout of 5 seconds may not be long enough to receive a response. | 5 |
| revision-backup-on-logout {disable enable} | Enable or disable backing up the latest configuration revision when the administrator logs out of the CLI or Web GUI. | enable |
| revision-backup-on-upgrade {enable disable} | Enable or disable backing up the latest configuration revision when the administrator starts an upgrade. | enable |
| service-expire-notification {disable enable} | Enable or disable displaying a notification on the Web GUI 30 days before the FortiSwitch support contract expires. | enable |
| strong-crypto {enable disable} | Strong encryption and only allow strong ciphers (AES, 3DES) and digest (SHA1) for HTTPS/SSH admin access. When strong encryption is enabled, HTTPS is supported by the following web browsers: Netscape 7.2, Netscape 8.0, Firefox, and Microsoft Internet Explorer 7.0 (beta). Note that Microsoft Internet Explorer 5.0 and 6.0 are not supported in strong encryption. | disable |
| switch-mgmt-mode {fortilink local} | Determines whether the switch is being managed locally, or managed by a FortiGate via a Fortilink connection. | local |

| Variable | Description | Default |
|------------------------------|--|-----------------------------------|
| timezone <timezone_number> | The number corresponding to your time zone from 00 to 72. Press ? to list time zones and their numbers. Choose the time zone for the FortiSwitch from the list and enter the correct number. | 00 |
| user-server-cert <cert_name> | Select the certificate to use for https user authentication. Default setting is <code>Fortinet_Factory</code> , if available, otherwise <code>self-sign</code> . | See definition under Description. |

interface

Use this command to edit the configuration of an interface.



If you enter a name string in the **edit** command that is not the name of a physical interface, the command creates a VLAN subinterface.

Syntax

```
config system interface
edit <interface name>
  set allowaccess <access_types>
  set alias <name_string>
  set defaultgw {enable | disable}
  set description <text>
  set dhcp-client-identifier <client_name_str>
  set dhcp-relay-ip <dhcp_relay1_ipv4> {... <dhcp_relay8_ipv4>}
  set dhcp-relay-option82 {enable | disable}
  set dhcp-relay-service {enable | disable}
  set disc-retry-timeout <pppoe_retry_seconds>
  set distance <admin_distance>
  set dns-server-override {enable | disable}
  set external {enable | disable}
  set fail-detect {enable | disable}
  set fail-detect-option {link-down | detectserver}
  set fail-alert-method {link-down | link-failed-signal}
  set fail-alert-interfaces {port1 port2 ...}
  set icmp-redirect {enable | disable}
  set ip <interface_ipv4mask>
  set log {enable | disable}
  set macaddr <mac_address>
  set mediatype {serdes-sfp | sgmii-sfp}
  set mode <interface_mode>
  set mtu <mtu_bytes>
  set mtu-override {enable | disable}
  set poe {disable | enable}
  set polling-interval <interval_int>
  set sample-direction {both | rx | tx}
  set sample-rate <rate_int>
  set secondary-IP {enable | disable}
```

```

set snmp-index <integer>
set sflow-sampler {disable | enable}
set speed <interface_speed>
set status {down | up}
set substitute-dst-mac <destination_mac_address>
set type {aggregate | hard-switch | loopback | physical
| redundant | vdom-link | vlan}
set username <pppoe_username>
set vlanid <id_number>
set vrrp-virtual-mac {enable | disable}
set weight <int>

config ipv6
  See config ipv6 section below
end

config vrrp
  See the config vrrp section below
end

```



A VLAN cannot have the same name as a zone or a virtual domain.

| Variable | Description | Default |
|------------------------------|--|----------------------------|
| allowaccess <access_types> | Enter the types of management access permitted on this interface or secondary IP address. Valid types are: <code>http https ping snmp ssh telnet</code> . Separate each type with a space. To add or remove an option from the list, retype the complete list as required. | Varies for each interface. |
| alias <name_string> | Enter an alias name for the interface. Once configured, the alias will be displayed with the interface name to make it easier to distinguish. The alias can be a maximum of 25 characters. This option is only available when interface type is <code>physical</code> . | No default. |
| defaultgw {enable disable} | Enable to get the gateway IP address from the DHCP or PPPoE server. This is valid only when the mode is one of DHCP or PPPoE. | disable |
| description <text> | Optionally, enter up to 63 characters to describe this interface. | No default |

| Variable | Description | Default |
|--|---|------------|
| <code>dhcp-client-identifier <client_name_str></code> | Override the default DHCP client identifier used by this interface. The DHCP client identifier is used by DHCP to identify individual DHCP clients (in this case individual interfaces). By default the DHCP client identifier for each interface is created based on the model name and the interface MAC address. In some cases you may want to specify your own DHCP client identifier using this command. This is available if <code>mode</code> is set to <code>dhcp</code> . | No default |
| <code>dhcp-relay-ip <dhcp_relay1_ipv4> {... <dhcp_relay8_ipv4>}</code> | Set DHCP relay IP addresses. You can specify up to eight DHCP relay servers for DHCP coverage of subnets. Replies from all DHCP servers are forwarded back to the client. The client responds to the offer it wants to accept. Do not set <code>dhcp-relay-ip</code> to 0.0.0.0. | No default |
| <code>dhcp-relay-option82 {enable disable}</code> | Enable to allow option-82 insertion in the DHCP relay. | disable |
| <code>dhcp-relay-service {enable disable}</code> | Enable to provide DHCP relay service on this interface. The DHCP type relayed depends on the setting of <code>dhcp-relay-type</code> . There must be no other DHCP server of the same type (regular or ipsec) configured on this interface. | disable |
| <code>dhcp-relay-type {ipsec regular}</code> | Set <code>dhcp_type</code> to <code>ipsec</code> or <code>regular</code> depending on type of firewall traffic. | regular |
| <code>disc-retry-timeout <pppoe_retry_seconds></code> | Set the initial PPPoE discovery timeout in seconds. This is the time to wait before retrying to start a PPPoE discovery. Set to 0 to disable this feature. This field is only available in NAT/Route mode when <code>mode</code> is set to <code>pppoe</code> . | 1 |
| <code>distance <admin_distance></code> | Configure the administrative distance for routes learned through PPPoE or DHCP. Use the administrative distance to specify the relative priorities of different routes to the same destination. A lower administrative distance indicates a more preferred route. Distance can be an integer from 1-255. For more information, see router on page 18 . This variable is only available in NAT/Route mode when <code>mode</code> is set to <code>dhcp</code> or <code>pppoe</code> . | 5 |
| <code>dns-server-override {enable disable}</code> | Disable to prevent this interface from using DNS server addresses it acquires via DHCP or PPPoE. This variable is only displayed if <code>mode</code> is set to <code>dhcp</code> or <code>pppoe</code> . | enable |

| Variable | Description | Default |
|--|---|----------------------------|
| edit <interface_name> | Edit an existing interface or create a new VLAN interface. | None. |
| edit <ipv6_prefix> | Enter the IPv6 prefix you want to configure. For settings, see the system section of this table. | None. |
| edit <secondary_ip_id> | Enter an integer identifier, e.g., 1, for the secondary ip address that you want to configure. | None. |
| external {enable disable} | Enable to indicate that an interface is an external interface connected to an external network. This option is used for SIP NAT when the <code>config VoIP profile SIP contact-fixup</code> option is disabled. | disable |
| fail-detect {enable disable} | Enable interface failure detection. | disable |
| fail-detect-option {link-down detectserver} | Select whether the system detects interface failure by port detection (<code>link-down</code>) or ping server (<code>detectserver</code>). | link-down |
| fail-alert-method {link-down link-failed-signal} | Select the signal that the system uses to signal the link failure: Link Down or Link Failed. | link-down |
| fail-alert-interfaces {port1 port2 ...} | Select the interfaces to which failure detection applies. | No default |
| icmp-redirect {enable disable} | Disable to stop ICMP redirect from sending from this interface. ICMP redirect messages are sent by a router to notify the original sender of packets that there is a better route available. | enable |
| ip <interface_ipv4mask> | Enter the interface IP address and netmask. This is not available if <code>mode</code> is set to <code>dhcp</code> or <code>pppoe</code> . You can set the IP and netmask, but it will not display. This is only available in NAT/Route mode. The IP address cannot be on the same subnet as any other interface. | Varies for each interface. |
| log {enable disable} | Enable or disable traffic logging of connections to this interface. Traffic will be logged only when it is on an administrative port. All other traffic will not be logged. Enabling this setting may reduce system performance, and is normally used only for troubleshooting. | disable |
| macaddr <mac_address> | Override the factory set MAC address of this interface by specifying a new MAC address. Use the form <code>xx:xx:xx:xx:xx:xx</code> . This is only used for physical interfaces. | Factory set. |

| Variable | Description | Default |
|--|--|-------------------------|
| <code>mediatype {serdes-sfp sgmi-sfp}</code> | Some FortiSwitch SFP interfaces can operate in SerDes (Serializer/Deserializer) or SGMII (Serial Gigabit Media Independent Interface) mode. The mode that the interface operates in depends on the type of SFP transceiver installed. Use this field to switch the interface between these two modes. Set <code>mediatype</code> to: <code>serdes-sfp</code> if you have installed a SerDes transceiver. In SerDes mode an SFP interface can only operate at 1000 Mbps. <code>sgmi-sfp</code> if you have installed an SGMII transceiver. In SGMII mode the interface can operate at 10, 100, or 1000 Mbps. This field is available for some FortiSwitch SFP interfaces. | <code>serdes-sfp</code> |
| <code>mode <interface_mode></code> | Configure the connection mode for the interface as one of: <code>static</code> — configure a static IP address for the interface. <code>dhcp</code> — configure the interface to receive its IP address from an external DHCP server. <code>pppoe</code> — configure the interface to receive its IP address from an external PPPoE server. This is available only in NAT/Route mode. | <code>static</code> |
| <code>mtu <mtu_bytes></code> | Set a custom maximum transmission unit (MTU) size in bytes. Ideally set <code>mtu</code> to the size of the smallest MTU of all the networks between this FortiSwitch and the packet destination. <code><mtu_bytes></code> valid ranges are: 68 to 1 500 bytes in <code>static</code> mode 576 to 1 500 bytes in <code>dhcp</code> mode 576 to 1 492 bytes in <code>pppoe</code> mode up to 9 000 bytes for NP2-accelerated interfaces If you enter an MTU that is not supported, an error message informs you of the valid range for this interface. In Transparent mode, if you change the MTU of an interface, you must change the MTU of all interfaces to match the new MTU. If you configure an MTU size larger than 1 500, all other network equipment on the route to the destination must also support that frame size. You can set the MTU of a physical interface and some tunnel interfaces (not IPsec). All virtual interfaces inherit the MTU of the parent physical interface. The variable <code>mtu</code> is only available when <code>mtu-override</code> is enabled. | 1 500 |
| <code>mtu-override {enable disable}</code> | Select <code>enable</code> to use custom MTU size instead of default (1 500). This is available only for physical interfaces and some tunnel interfaces (not IPsec). If you change the MTU size, you must reboot the FortiSwitch to update the MTU values of the VLANs on this interface. Some models support MTU sizes larger than the standard 1 500 bytes. | <code>disable</code> |
| <code>poe {disable enable}</code> | Enable or disable PoE (Power over Ethernet). This option is only available on models with PoE feature. | <code>disable</code> |

| Variable | Description | Default |
|-----------------------------------|---|---------|
| polling-interval <interval_int> | Set the amount of time in seconds that the sFlow agent waits between sending collected data to the sFlow collector. The range is 1 to 255 seconds. A higher <code>polling-interval</code> means less data is sent across the network but also means that the sFlow collector's picture of the network may be out of date. | 20 |
| sample-direction {both rx tx} | Configure the sFlow agent to sample traffic received by the interface (<code>rx</code>) or sent from the interface (<code>tx</code>) or <code>both</code> . | both |
| sample-rate <rate_int> | Set the sample rate for the sFlow agent added to this interface. The sample rate defines the average number of packets to wait between samples. For example, the default <code>sample-rate</code> of 2000 samples 1 of every 2000 packets. The <code>sample-rate</code> range is 10 to 99999 packets between samples. The lower the <code>sample-rate</code> the higher the number of packets sampled. Sampling more packets increases the accuracy of the sampling data but also increases the CPU and network bandwidth required to support sFlow. The default <code>sample-rate</code> of 2000 provides high enough accuracy in most cases. You can increase the <code>sample-rate</code> to reduce accuracy. You can also reduce the <code>sample-rate</code> to increase accuracy. | 2000 |
| secondary-IP {enable disable} | Enable to add a secondary IP address to the interface. This option must be enabled before configuring a secondary IP address. When disabled, the web-based manager interface displays only the option to enable secondary IP. | disable |
| sflow-sampler {disable enable} | Add an sFlow agent to an interface. You can also configure the sFlow agent's <code>sample-rate</code> , <code>polling-interval</code> , and <code>sample-direction</code> . You can add sFlow agents to any interface, including physical interfaces, VLAN interfaces, and aggregate interfaces. After adding the sFlow agent you can configure the sFlow. For more information about sFlow see "system" on page 44 . | disable |
| snmp-index <integer> | Configure the SNMP index | |

| Variable | Description | Default |
|--|--|---------------------|
| speed <interface_speed> | The interface speed: auto — the default speed. The interface uses auto-negotiation to determine the connection speed. Change the speed only if the interface is connected to a device that does not support auto-negotiation. 10full — 10 Mbps, full duplex 10half — 10 Mbps, half duplex 100full — 100 Mbps, full duplex 100half — 100 Mbps, half duplex 1000full — 1000 Mbps, full duplex 1000half — 1000 Mbps, half duplex Speed options vary for different models and interfaces. Enter a space and a “?” after the <code>speed</code> field to display a list of speeds available for your model and interface. You cannot change the speed for switch interfaces. Note: XG2 interfaces on models 3140B and 3950B cannot be configured for 1000Mbps. | auto |
| status {down up} | Start or stop the interface. If the interface is stopped, it does not accept or send packets. If you stop a physical interface, associated virtual interfaces such as VLAN interfaces will also stop. | up (down for VLANs) |
| substitute-dst-mac <destination_mac_address> | Enter the substitute destination MAC address to use when <code>subst</code> is enabled. Use the <code>xx:xx:xx:xx:xx:xx</code> format. | No default |

| Variable | Description | Default |
|---|--|---|
| type {aggregate hard-switch loopback physical redundant vlan} | <p>Enter the type of interface. Note: Some types are read only, and are set automatically by hardware. aggregate — available only on some FortiSwitch models. Aggregate links use the 802.3ad standard to group up to 8 interfaces together.</p> <p>hard-switch — used when a switch-interface is configured and hardware provides switch functionality such as with the 224B model.</p> <p>loopback — a virtual interface that is always up. This interface's status and link status are not affected by external changes. It is primarily used for blackhole routing - dropping all packets that match this route. This route is advertised to neighbors through dynamic routing protocols as any other static route. loopback interfaces have no dhcp settings, no forwarding, no mode, or dns settings. You can create a loopback interface from the CLI or web-based manager.</p> <p>physical — for reference only. All physical interfaces and only these interfaces have <code>type</code> set to <code>physical</code> and the type cannot be changed.</p> <p>redundant — used to group 2 or more interfaces together for reliability. Only one interface is in use at any given time. If the first interface fails, traffic continues uninterrupted as it switches to the next interface in the group. This is useful in HA configurations. The order interfaces become active in the group is determined by the order you specify using the <code>set member</code> field.</p> <p>vlan — a virtual LAN interface. This is the type of interface created by default on any existing physical interface. VLANs increase the number of network interfaces beyond the physical connections on the system. VLANs cannot be configured on a switch mode interface in Transparent mode.</p> | vlan for newly created interface, physical otherwise. |
| username <pppoe_username> | <p>Enter the user name used to connect to the PPPoE server. This is only available in NAT/Route mode when <code>mode</code> is set to <code>pppoe</code>.</p> | No default |

| Variable | Description | Default |
|-------------------------------------|---|------------|
| vlanid <id_number> | Enter a VLAN ID that matches the VLAN ID of the packets to be received by this VLAN subinterface. The VLAN ID can be any number between 1 and 4094, as 0 and 4095 are reserved, but it must match the VLAN ID added by the IEEE 802.1Q-compliant router on the other end of the connection. Two VLAN subinterfaces added to the same physical interface cannot have the same VLAN ID. However, you can add two or more VLAN subinterfaces with the same VLAN ID to different physical interfaces, and you can add more multiple VLANs with different VLAN IDs to the same physical interface. This is available only when editing an interface with a type of <code>VLAN</code> . | No default |
| vrrp-virtual-mac {enable disable} | Enable VRRP virtual MAC addresses for the VRRP routers added to this interface. See RFC 3768 for information about the VRRP virtual MAC addresses. | disable |
| weight <int> | Set the default weight for static routes on this interface. This applies if a route has no weight configured. | 0 |

config ipv6

Configure IPv6 settings for the interface.

syntax

```

config ipv6
  set autoconf {enable | disable}
  set ip6-address <if_ipv6mask>
  set ip6-allowaccess <access_types>
  set ip6-default-life <ipv6_life_seconds>
  set ip6-hop-limit <ipv6_hops_limit>
  set ip6-link-mtu <ipv6_mtu>
  set ip6-manage-flag {disable | enable}
  set ip6-max-interval <adverts_max_seconds>
  set ip6-min-interval <adverts_min_seconds>
  set ip6-other-flag {disable | enable}
  set ip6-reachable-time <reachable_msecs>
  set ip6-retrans-time <retrans_msecs>
  set ip6-send-adv {enable | disable}
  config ip6-prefix-list
    edit <ipv6_prefix>
      set autonomous-flag {enable | disable}
      set onlink-flag {enable | disable}
      set preferred-life-time <seconds>
      set valid-life-time <seconds>
    end
  end
  config ip6-extra-address
    edit <prefix_ipv6>
  end
end

```

| Variable | Description | Default |
|--|--|----------------------------|
| autoconf {enable disable} | Enable or disable automatic configuration of the IPv6 address. When enabled, and <code>ip6-send-adv</code> is disabled, the FortiSwitch acts as a stateless address auto-configuration client (SLAAC). | disable |
| ip6-address <if_ipv6mask> | The interface IPv6 address and netmask. The format for IPv6 addresses and netmasks is described in RFC 3513. This is available in NAT/Route mode only. | ::/0 |
| ip6-allowaccess <access_types> | Enter the types of management access permitted on this IPv6 interface. Valid types are: <code>fgfm</code> , <code>http</code> , <code>https</code> , <code>ping</code> , <code>snmp</code> , <code>ssh</code> , and <code>telnet</code> . Separate the types with spaces. If you want to add or remove an option from the list, retype the list as required. > | Varies for each interface. |
| ip6-default-life <ipv6_life_seconds> | Enter the number, in seconds, to add to the Router Lifetime field of router advertisements sent from the interface. The valid range is 0 to 9000. This is available in NAT/Route mode only. | 1800 |
| ip6-hop-limit <ipv6_hops_limit> | Enter the number to be added to the Cur Hop Limit field in the router advertisements sent out this interface. Entering 0 means no hop limit is specified. This is available in NAT/Route mode only. This is available in NAT/Route mode only. | 0 |
| ip6-link-mtu <ipv6_mtu> | Enter the MTU number to add to the router advertisements options field. Entering 0 means that no MTU options are sent. This is available in NAT/Route mode only. | 0 |
| ip6-manage-flag {disable enable} | Enable or disable the managed address configuration flag in router advertisements. This is available in NAT/Route mode only. | disable |
| ip6-max-interval <adverts_max_seconds> | Enter the maximum time interval, in seconds, between sending unsolicited multicast router advertisements from the interface. The valid range is 4 to 1800. This is available in NAT/Route mode only. | 600 |
| ip6-min-interval <adverts_min_seconds> | Enter the minimum time interval, in seconds, between sending unsolicited multicast router advertisements from the interface. The valid range is 4 to 1800. This is available in NAT/Route mode only. | 198 |

| Variable | Description | Default |
|---|--|------------|
| ip6-other-flag {disable enable} | Enable or disable the other stateful configuration flag in router advertisements. This is available in NAT/Route mode only. | disable |
| ip6-reachable-time <reachable_msecs> | Enter the number to be added to the reachable time field in the router advertisements. The valid range is 0 to 3600. Entering 0 means no reachable time is specified. This is available in NAT/Route mode only. | 0 |
| ip6-retrans-time <retrans_msecs> | Enter the number to be added to the Retrans Timer field in the router advertisements. Entering 0 means that the Retrans Timer is not specified. This is available in NAT/Route mode only. | 0 |
| ip6-send-adv {enable disable} | Enable or disable the flag indicating whether or not to send periodic router advertisements and to respond to router solicitations. When enabled, this interface's address will be added to all-routers group (FF02::02) and be included in an Multi Listener Discovery (MLD) report. If no interfaces on the system have ip6-send-adv enabled, the system will only listen to the all-hosts group (FF02::01) which is explicitly excluded from MLD reports according to RFC 2710 section 5. When disabled, and autoconf is enabled, the system acts as a stateless address auto-configuration client (SLAAC). This is available in NAT/Route mode only. | disable |
| config ipv6-prefix-list | Configure a prefix list for this IPv6 interface. | |
| autonomous-flag {enable disable} | Set the state of the autonomous flag for the IPv6 prefix. | disable |
| onlink-flag {enable disable} | Set the state of the on-link flag ("L-bit") in the IPv6 prefix. | No default |
| preferred-life-time <seconds> | Enter the preferred lifetime, in seconds, for this IPv6 prefix. | 604800 |
| valid-life-time <seconds> | Enter the valid lifetime, in seconds, for this IPv6 prefix. | 2592000 |
| config ip6-extra-addr | Configure a secondary address for this IPv6 interface. | |
| edit <prefix_ipv6> | IPv6 address prefix. | No default |

config vrrp

Add one or more VRRP virtual routers to a interface. For information about VRRP, see [RFC 3768](#).

syntax

```

config vrrp
  edit <VRID_int>
    set adv-interval <seconds_int>
    set preempt {enable | disable}
    set priority <prio_int>
    set start-time <seconds_int>
    set status {enable | disable}
    set vrdst <ipv4_addr>
    set vrip <ipv4_addr>
  end

```

| Variable | Description | Default |
|----------------------------|---|---------|
| <VRID_int> | VRRP virtual router ID (1 to 255). Identifies the VRRP virtual router. | None |
| adv-interval <seconds_int> | VRRP advertisement interval (1-255 seconds). | 1 |
| preempt {enable disable} | Enable or disable VRRP preempt mode. In preempt mode a higher priority backup system can preempt a lower priority master system. | enable |
| priority <prio_int> | Priority of this virtual router (1-255). The VRRP virtual router on a network with the highest priority becomes the master. | 100 |
| start-time <seconds_int> | The startup time of this virtual router (1-255 seconds). The startup time is the maximum time that the backup system waits between receiving advertisement messages from the master system. | 3 |
| status {enable disable} | Enable or disable this virtual router. | enable |
| vrdst <ipv4_addr> | Monitor the route to this destination. | 0.0.0.0 |
| vrip <ipv4_addr> | IP address of the virtual router. | 0.0.0.0 |

link monitor

Configure link health monitor.

```

config system link-monitor
  edit <name>
    set srcintf <string>
    set protocol (arp | ping)
    set gateway-ip <IP address>
    set source-ip <IP address>
    set interval <integer>
    set timeout <integer>
  end

```

```

    set failtime <integer>
    set recoverytime <integer>
    set update-cascade-interface (enable | disable)
    set update-static-route (enable | disable)
    set status (enable | disable)
  next
end

```

| Date | Change Description |
|--------------------------|--|
| srcintf | Interface where the monitor traffic is sent. |
| protocol | Protocols used to detect the server. Select ARP or ping. |
| gateway-ip | Gateway IP used to PING the server. |
| source-ip | Source IP used in packet to the server. |
| interval | Detection interval in seconds. The range is 1-3600. |
| timeout | Detect request timeout in seconds. The range is 1-255. |
| failtime | Number of retry attempts before bringing server down. The range is 1-10. |
| recoverytime | Number of retry attempts before bringing server up. The range is 1-10. |
| update-cascade-interface | Enable/disable update cascade interface. |
| update-static-route | Enable/disable update static route. |
| status | Enable/disable link monitor administrative status. |

ntp

Use this command to configure Network Time Protocol (NTP) servers.

Syntax

```

config system ntp
  set allow-unsync-source {enable | disable}
  set ntpsync {enable | disable}
  set source-ip <ipv4_addr>
  set syncinterval <interval_int>
config ntpserver
  edit <serverid_int>
    set ntpv3 {enable | disable}
    set server <ipv4_addr>[/<hostname_str>]
  end
end

```

| Variable | Description | Default |
|--------------------------------------|---|------------|
| allow-unsync-source | Allow or do not allow an unsynchronized NTP source. | disable |
| ntpsync {enable disable} | Enable to synchronize system time with the ntp server. | disable |
| source-ip <ipv4_addr> | Enter the source IP for communications to the NTP server. | 0.0.0.0 |
| syncinterval <interval_int> | Enter the interval in minutes between contacting NTP server to synchronize time. The range is from 1 to 1440 minutes. Only valid when <code>ntpsync</code> is enabled. | 0 |
| edit <serverid_int> | Enter the number for this NTP server | No default |
| ntp3 {enable disable} | Use NTPv3 protocol instead of NTPv4. | disable |
| server <ipv4_addr> [/<hostname_str>] | Enter the IPv4 address and hostname (optional) for this NTP server. | No default |

password-policy

Use this command to configure higher security requirements for administrator passwords and IPsec VPN pre-shared keys.

Syntax

```

config system password-policy
  set status {enable | disable}
  set apply-to [admin-password ipsec-preshared-key]
  set change-4-characters {enable | disable}
  set expire <days>
  set minimum-length <chars>
  set min-lower-case-letter <num_int>
  set min-upper-case-letter <num_int>
  set min-non-alphanumeric <num_int>
  set min-number <num_int>
  set expire-status {enable | disable}
  set expire-day <num_int>
end

```

| Variable | Description | Default |
|---|---|----------------|
| apply-to [admin-password ipsec-preshared-key] | Select where the policy applies: administrator passwords or IPsec pre-shared keys. | admin-password |
| change-4-characters {enable disable} | Enable to require the new password to differ from the old password by at least four characters. | disable |

| Variable | Description | Default |
|----------------------------------|--|---------|
| expire <days> | Set time to expiry in days. Enter zero for no expiry. | 0 |
| minimum-length <chars> | Set the minimum length of password in characters. Range 8 to 32. | 8 |
| min-lower-case-letter <num_int> | Enter the minimum number of required lower case letters in every password. | 0 |
| min-upper-case-letter <num_int> | Enter the minimum number of required upper case letters in every password. | 0 |
| min-non-alphanumeric <num_int> | Enter the minimum number of required non-alphanumeric characters in every password. | 0 |
| min-number <num_int> | Enter the minimum number of number characters required in every password. | 0 |
| expire-status {enable disable} | Set to Enable to have passwords expire. | enable |
| expire-day <num_int> | Enter the number of days before the current password is expired and the user will be required to change their password. This option is available only when <code>expire-status</code> is set to enable. | 90 |
| status {enable disable} | Enable password policy. | disable |

sflow

Use this command to add or change the IP address and UDP port that FortiSwitch sFlow agents use to send sFlow datagrams to an sFlow collector.

sFlow is a network monitoring protocol described in <http://www.sflow.org>. FortiSwitch implements sFlow version 5. You can configure one or more FortiSwitch interfaces as sFlow agents that monitor network traffic and send sFlow datagrams containing information about traffic flow to an sFlow collector.

sFlow is normally used to provide an overall traffic flow picture of your network. You would usually operate sFlow agents on switches, routers, and firewall on your network, collect traffic data from all of them and use a collector to show traffic flows and patterns.

Syntax

```
config system sflow
    set collector-ip <collector_ipv4>
    set collector_port <port_int>
end
```


| Variable | Description | Default |
|------------------------------|---|---------|
| collector-ip <collector_ip4> | The sFlow agents send sFlow datagrams to the sFlow collector at this IP address. | 0.0.0.0 |
| collector_port <port_int> | The UDP port number used for sending sFlow datagrams. Change this setting only if required by your sFlow collector or your network configuration. | 6343 |

snmp community

Use this command to configure SNMP communities on your FortiSwitch. You add SNMP communities so that SNMP managers can connect to the system to view system information and receive SNMP traps. SNMP traps are triggered when system events occur.

You can add up to three SNMP communities. Each community can have a different configuration for SNMP queries and traps. Each community can be configured to monitor the system for a different set of events. You can also add IP addresses of up to 8 SNMP managers for each community.



When you configure an SNMP manager, ensure that you list it as a host in a community on the FortiSwitch that it will be monitoring. Otherwise the SNMP monitor will not receive any traps from that FortiSwitch, and will not be able to query it.

Syntax

```
config system snmp community
  edit <index_number>
    set events <events_list>
    set name <community_name>
    set query-v1-port <port_number>
    set query-v1-status {enable | disable}
    set query-v2c-port <port_number>
    set query-v2c-status {enable | disable}
    set status {enable | disable}
    set trap-v1-lport <port_number>
    set trap-v1-rport <port_number>
    set trap-v1-status {enable | disable}
    set trap-v2c-lport <port_number>
    set trap-v2c-rport <port_number>
    set trap-v2c-status {enable | disable}
  config hosts
    edit <host_number>
      set ha-direct {enable | disable}
      set interface <if_name>
      set ip <address_ipv4>
      set source-ip <address_ipv4/mask>
    end
  config hosts6
    edit <host_number>
      set ha-direct {enable | disable}
      set interface <if_name>
      set ip6 <address_ipv6>
```

```

        set source-ip6 <address_ipv6>
    end
end

```

| Variable | Description | Default |
|-------------------------------------|---|---------------------|
| edit <index_number> | Enter the index number of the community in the SNMP communities table. Enter an unused index number to create a new SNMP community. | No default |
| events <events_list> | Enable the events for which the system should send traps to the SNMP managers in this community. | All events enabled. |
| name <community_name> | Enter the name of the SNMP community. | No default |
| query-v1-port <port_number> | Enter the SNMP v1 query port number used for SNMP manager queries. | 161 |
| query-v1-status {enable disable} | Enable or disable SNMP v1 queries for this SNMP community. | enable |
| query-v2c-port <port_number> | Enter the SNMP v2c query port number used for SNMP manager queries. | 161 |
| query-v2c-status {enable disable} | Enable or disable SNMP v2c queries for this SNMP community. | enable |
| status {enable disable} | Enable or disable the SNMP community. | enable |
| trap-v1-lport <port_number> | Enter the SNMP v1 local port number used for sending traps to the SNMP managers. | 162 |
| trap-v1-rport <port_number> | Enter the SNMP v1 remote port number used for sending traps to the SNMP managers. | 162 |
| trap-v1-status {enable disable} | Enable or disable SNMP v1 traps for this SNMP community. | enable |
| trap-v2c-lport <port_number> | Enter the SNMP v2c local port number used for sending traps to the SNMP managers. | 162 |
| trap-v2c-rport <port_number> | Enter the SNMP v2c remote port number used for sending traps to the SNMP managers. | 162 |
| trap-v2c-status {enable disable} | Enable or disable SNMP v2c traps for this SNMP community. | enable |
| hosts, hosts6 variables | | |
| edit <host_number> | Enter the index number of the host in the table. Enter an unused index number to create a new host. | No Default |

| Variable | Description | Default |
|-------------------------------|---|---------------------|
| ha-direct {enable disable} | Enable direct management of cluster members. | disable |
| interface <if_name> | Enter the name of the FortiSwitch interface to which the SNMP manager connects. | No Default |
| ip <address_ipv4> | Enter the IPv4 IP address of the SNMP manager (for <code>hosts</code>). | 0.0.0.0 |
| ip6 <address_ipv6> | Enter the IPv6 IP address of the SNMP manager (for <code>hosts6</code>). | :: |
| source-ip <address_ipv4/mask> | Enter the source IPv4 IP address for SNMP traps sent by the FortiSwitch (for <code>hosts</code>). | 0.0.0.0/ 0.0.0.0 |
| source-ip6 <address_ipv6> | Enter the source IPv6 IP address for SNMP traps sent by the FortiSwitch (for <code>hosts6</code>). | :: |

snmp sysinfo

Use this command to enable the FortiSwitch SNMP agent and to enter basic system information used by the SNMP agent. Enter information about the system to identify it. When your SNMP manager receives traps from this FortiSwitch, you will know which system sent the information. Some SNMP traps indicate high CPU usage, log full, or low memory.

Syntax

```
config system snmp sysinfo
  set contact-info <info_str>
  set description <description>
  set engine-id <engine-id_str>
  set location <location>
  set status {enable | disable}
  set trap-high-cpu-threshold <percentage>
  set trap-log-full-threshold <percentage>
  set trap-low-memory-threshold <percentage>
end
```

| Variable | Description | Default |
|---------------------------|---|------------|
| contact-info <info_str> | Add the contact information for the person responsible for this FortiSwitch. The contact information can be up to 35 characters long. | No default |
| description <description> | Add a name or description of the system. The description can be up to 35 characters long. | No default |

| Variable | Description | Default |
|--|---|------------|
| engine-id <engine-id_str> | Each SNMP engine maintains a value, snmpEngineID, which uniquely identifies the SNMP engine. This value is included in each message sent to or from the SNMP engine. In FortiOS, the snmpEngineID is composed of two parts: <ul style="list-style-type: none"> Fortinet prefix 0x8000304404 the optional engine-id string, 24 characters maximum, defined in this command Optionally, enter an engine-id value. | No default |
| location <location> | Describe the physical location of the system. The system location description can be up to 35 characters long. | No default |
| status {enable disable} | Enable or disable the FortiSwitch SNMP agent. | disable |
| trap-high-cpu-threshold <percentage> | Enter the percentage of CPU used that will trigger the threshold SNMP trap for the high-cpu. There is some smoothing of the high CPU trap to ensure the CPU usage is constant rather than a momentary spike. This feature prevents frequent and unnecessary traps. | 80 |
| trap-log-full-threshold <percentage> | Enter the percentage of disk space used that will trigger the threshold SNMP trap for the log-full. | 90 |
| trap-low-memory-threshold <percentage> | Enter the percentage of memory used that will be the threshold SNMP trap for the low-memory. | 80 |

snmp user

Use this command to configure an SNMP user including which SNMP events the user wants to be notified about, which hosts will be notified, and if queries are enabled which port to listen on for them.

FortiSwitchOS implements the user security model of RFC 3414. You can require the user to authenticate with a password and you can use encryption to protect the communication with the user.

Available events include:

cpu-high — cpu usage too high

ent-conf-change — entity config change (rfc4133)

fm-conf-change — config change (FM trap)

fm-if-change — interface IP change (FM trap)

intf-ip — interface IP address changed

log-full — available log space is low

mem-low — available memory is low

Syntax

```

config system snmp user
  edit <username>
    set auth-proto {md5 | sha}
    set auth-pwd <password>
    set events <event_string>
    set notify-hosts <hosts_string>
    set notify-hosts6 <hosts_string>
    set priv-proto {aes | des}
    set priv-pwd <key>
    set queries {enable | disable}
    set query-port <port_int>
    set security-level <slevel>
  end

```

| Variable | Description | Default |
|------------------------------|--|------------|
| edit <username> | Edit or add selected user. | No default |
| auth-proto {md5 sha} | <p>Select authentication protocol:</p> <p>md5 — use HMAC-MD5-96 authentication protocol.</p> <p>sha — use HMAC-SHA-96 authentication protocol.</p> <p>This is only available if <code>security-level</code> is <code>auth-priv</code> or <code>auth-no-priv</code>.</p> | sha |
| auth-pwd <password> | Enter the user's password. Maximum 32 characters. This is only available if <code>security-level</code> is <code>auth-priv</code> or <code>auth-no-priv</code> . | No default |
| events <event_string> | <p>Select which SNMP notifications to send. (Available events are listed above this table). Select each event that will generate a notification, and add to the string. Separate multiple events by a space.</p> <p>Note: On the <code>events</code> field, the <code>unset</code> command clears all options.</p> | No default |
| notify-hosts <hosts_string> | Enter IPv4 IP addresses to send SNMP notifications (SNMP traps) to when events occur. Separate multiple addresses with a space. | No default |
| notify-hosts6 <hosts_string> | Enter IPv6 IP addresses to send SNMP notifications (SNMP traps) to when events occur. Separate multiple addresses with a space. | No default |

| Variable | Description | Default |
|----------------------------|--|-----------------|
| priv-proto {aes des} | Select privacy (encryption) protocol: aes — use CFB128-AES-128 symmetric encryption. des — use CBC-DES symmetric encryption. This is available if <code>security-level</code> is <code>auth-priv</code> . | aes |
| priv-pwd <key> | Enter the privacy encryption key. Maximum 32 characters. This is available if <code>security-level</code> is <code>auth-priv</code> . | No default |
| queries {enable disable} | Enable or disable SNMP v3 queries for this user. Queries are used to determine the status of SNMP variables. | enable |
| query-port <port_int> | Enter the number of the port used for SNMP v3 queries. If multiple versions of SNMP are being supported, each version should listen on a different port. | 161 |
| security-level <slevel> | Set security level to one of: no-auth-no-priv — no authentication or privacy auth-no-priv — authentication but no privacy auth-priv — authentication and privacy | no-auth-no-priv |

user

The user commands provide configuration of user accounts and user groups for firewall policy authentication, administrator authentication and some types of VPN authentication

group

Use this command to add or edit user groups.

Syntax

```
config user group
  edit <groupname>
    set group-type <grp_type>
    set authtimeout <timeout>
    set http-digest-realm <attribute>
    set member <names>
  config match
    edit <match_id>
      set group-name <gname_str>
      set server-name <srvname_str>
  end
end
```

| Variable | Description | Default |
|-------------------------------|---|------------|
| edit <groupname> | Enter a new name to create a new group or enter an existing group name to edit that group. | No default |
| authtimeout <timeout> | Set the authentication timeout for the user group, range 1 to 480 minutes. If set to 0, the global authentication timeout value is used. | 0 |
| group-type <grp_type> | Enter the group type. <grp_type> determines the type of users and is one of the following: firewall - FortiSwitch users defined in user local, user ldap or user radius fsso-service - Directory Service users | firewall |
| http-digest-realm <attribute> | Enter the realm attribute for MD5-digest authentication | No default |
| member <names> | Enter the names of users, peers, LDAP servers, or RADIUS servers to add to the user group. Separate the names with spaces. To add or remove names from the group you must re-enter the whole list with the additions or deletions required. | No default |

| Variable | Description | Default |
|----------------------------|--|------------|
| config match fields | Specify the user group names on the authentication servers that are members of this FortiSwitch user group. If no matches are specified, all users on the server can authenticate. | |
| <match_id> | Enter an ID for the entry. | No default |
| group-name <gname_str> | The name of the matching group on the remote authentication server. | No default |
| server-name <srvname_str> | The name of the remote authentication server. | No default |

ldap

Use this command to add or edit the definition of an LDAP server for user authentication.

To authenticate with the FortiSwitch, the user enters a user name and password. The system sends this user name and password to the LDAP server. If the LDAP server can authenticate the user, the user is successfully authenticated with the FortiSwitch. If the LDAP server cannot authenticate the user, the connection is refused by the FortiSwitch.

Syntax

```
config user ldap
edit <server_name>
  set cnid <id>
  set dn <dname>
  set group-member-check {user-attr | group-object}
  set member-attr <attr_name>
  set port <number>
  set server <domain>
  set type <auth_type>
  set username <ldap_username>
  set password <ldap_passwd>
  set password-expiry-warning {disable | enable}
  set password-renewal {disable | enable}
  set secure <auth_port>
end
```

| Variable | Description | Default |
|--------------------|--|------------|
| edit <server_name> | Enter a name to identify the LDAP server. Enter a new name to create a new server definition or enter an existing server name to edit that server definition. | No default |

| Variable | Description | Default |
|--|---|------------------------|
| cnid <id> | Enter the common name identifier for the LDAP server. The common name identifier for most LDAP servers is <code>cn</code> . However some servers use other common name identifiers such as <code>uid</code> . Maximum 20 characters. | <code>cn</code> |
| dn <dname> | Enter the distinguished name used to look up entries on the LDAP server. It reflects the hierarchy of LDAP database object classes above the Common Name Identifier. The FortiSwitch passes this distinguished name unchanged to the server. You must provide a <code>dn</code> value if <code>type</code> is <code>simple</code> . Maximum 512 characters. | No default |
| group-member-check {user-attr group-object} | Select the group membership checking method: user attribute or group object. | <code>user-attr</code> |
| member-attr <attr_name> | An attribute of the group that is used to authenticate users. | No default |
| port <number> | Enter the port number for communication with the LDAP server. | 389 |
| server <domain> | Enter the LDAP server domain name or IP address. | No default |
| type <auth_type> | Enter the authentication type for LDAP searches. One of: <code>anonymous</code> , <code>regular</code> or <code>simple</code> . See the notes below the table for additional information. | <code>simple</code> |
| username <ldap_username> | This field is available only if <code>type</code> is <code>regular</code> . For <code>regular</code> authentication, you need a user name and password. See your server administrator for more information. | No default |
| password <ldap_passwd> | This field is available only if <code>type</code> is <code>regular</code> . For <code>regular</code> authentication, you need a user name and password. See your server administrator for more information. | No default |
| password-expiry-warning {disable enable} | Enable or disable password expiry warnings. | <code>disable</code> |
| password-renewal {disable enable} | Enable or disable online password renewal. | <code>disable</code> |
| secure <auth_port>{disable starttls ldaps} | Select the port to be used in authentication: <code>disable</code> — port 389 <code>ldaps</code> — port 636 <code>starttls</code> — port 389 | <code>disable</code> |

Notes on Authentication Type

The authentication types for LDAP searches include:

`anonymous` — bind using anonymous user search

`regular` — bind using username/password and then search

`simple` — simple password authentication without search

You can use `simple` authentication if the user records are all under one `dn` that you know. If the users are under more than one `dn`, use the `anonymous` or `regular` type, which can search the entire LDAP database for the required user name.

If your LDAP server requires authentication to perform searches, use the `regular` type and provide values for `username` and `password`.

local

Use this command to add local user names and configure user authentication for the system. To add authentication by LDAP or RADIUS server you must first add servers using the `config user ldap` and `config user radius` commands.

Syntax

```
config user local
  edit <username>
    set ldap-server <servername>
    set passwd <password_str>
    set radius-server <servername>
    set tacacs+-server <servername>
    set status {enable | disable}
    set type <auth-type>
  end
```

| Variable | Description | Default |
|---|---|------------|
| <code>edit <username></code> | Enter the user name. Enter a new name to create a new user account or enter an existing user name to edit that account. | No default |
| <code>ldap-server <servername></code> | Enter the name of the LDAP server with which the user must authenticate. You can only select an LDAP server that has been added to the list of LDAP servers. This is available when <code>type</code> is set to <code>ldap</code> . | No default |
| <code>passwd <password_str></code> | Enter the password with which the user must authenticate. Passwords at least 6 characters long provide better security than shorter passwords. This is available when <code>type</code> is set to <code>password</code> . | No default |

| Variable | Description | Default |
|----------------------------|---|------------|
| radius-server <servername> | Enter the name of the RADIUS server with which the user must authenticate. You can only select a RADIUS server that has been added to the list of RADIUS servers. This is available when <code>type</code> is set to <code>radius</code> . | No default |
| status {enable disable} | Enter <code>enable</code> to allow the local user to authenticate with the FortiSwitch. | enable |
| type <auth-type> | Enter one of the following to specify how this user's password is verified: ldap : The LDAP server specified in <code>ldap-server</code> verifies the password. password : The system verifies the password against the value of the password. radius : The RADIUS server specified in <code>radius-server</code> verifies the password. tacacs+ : The TACACS+ server specified in <code>tacacs+-server</code> verifies the password. | No default |

radius

Use this command to add or edit the information used for RADIUS authentication.

The default port for RADIUS traffic is 1812. If your RADIUS server is using a different port you can change the default RADIUS port. You may set a different port for each of your RADIUS servers. The maximum number of remote RADIUS servers that can be configured for authentication is 10.

The RADIUS server is now provided with more information to make authentication decisions, based on values in `server`, `use-management-vdom`, `use-group-for-profile`, and `nas-ip`, and the `config user group subcommand config match`. Attributes include:

NAS-IP-Address - RADIUS setting or IP address of FortiSwitch interface used to talk to RADIUS server, if not configured

NAS-Port - physical interface number of the traffic that triggered the authentication

Called-Station-ID - same value as NAS-IP Address but in text format

Fortinet-Vdom-Name - name of VDOM of the traffic that triggered the authentication

NAS-Identifier - configured hostname in non-HA mode; HA cluster group name in HA mode

Acct-Session-ID - unique ID identifying the authentication session

Connect-Info - identifies the service for which the authentication is being performed (`web-auth`, `vpn-ipsec`, `vpn-pptp`, `vpn-l2tp`, `vpn-ssl`, `admin-login`, `test`)

You may select an alternative authentication method for each server. These include CHAP, PAP, MS-CHAP, and MS-CHAP-v2.

Syntax

```

config user radius
  edit <server_name>
    set all-usergroup {enable | disable}
    set auth-type {auto | chap | ms_chap | ms_chap_v2 | pap}
    set dynamic-profile {enable | disable}
    set nas-ip <use_ip>
    set radius-port <radius_port_num>
    set secret <server_password>
    set server <domain>
    set source-ip <ipv4_addr>
  end

```

| Variable | Description | Default |
|--|--|------------|
| edit <server_name> | Enter a name to identify the RADIUS server. Enter a new name to create a new server definition or enter an existing server name to edit that server definition. | No default |
| all-usergroup {enable disable} | Enable to automatically include this RADIUS server in all user groups. | disable |
| auth-type {auto chap ms_chap ms_chap_v2 pap} | Select the authentication method for this RADIUS server. auto uses pap, ms_chap_v2, and chap. | auto |
| nas-ip <use_ip> | IP address used as NAS-IP-Address and Called-Station-ID attribute in RADIUS access requests. RADIUS setting or IP address of FGT interface used to talk with RADIUS server, if not configured. | No default |
| radius-port <radius_port_num> | Change the default RADIUS port for this server. The default port for RADIUS traffic is 1812. Range is 0..65535 | 1812 |
| secret <server_password> | Enter the RADIUS server shared secret. The server secret key should be a maximum of 16 characters in length. | No default |
| server <domain> | Enter the RADIUS server domain name or IP address. | No default |
| source-ip <ipv4_addr> | Enter the source IP for communications to RADIUS server. | 0.0.0.0 |

Notes on context timeout

The number of seconds that a user context entry can remain in the user context list without the system receiving a communication session from the carrier end point. If a user context entry is not being looked up, then the user must no longer be connected to the network.

This timeout is only required if the system doesn't receive the RADIUS Stop record. However, even if the accounting system does send RADIUS Stop records this timeout should be set in case the FortiSwitch misses a Stop record.

The default user context entry timeout is 28800 seconds (8 hours). You can keep this timeout relatively high because its not usually a problem to have a long list, but entries that are no longer used should be removed regularly.

You might want to reduce this timeout if the accounting server does not send RADIUS Stop records. Also if customer IP addresses change often you might want to set this timeout lower so that out of date entries are removed from the list.

If this timeout is too low the FortiSwitch could remove user context entries for users who are still connected.

Set the timeout to 0 if you do not want the FortiSwitch to remove entries from the list except in response to RADIUS Stop messages.

Dynamic Flag values:

`none` — Disable writing event log messages for dynamic profile events.

`accounting-event` — Enable to write an event log message when the system does not find the expected information in a RADIUS Record. For example, if a RADIUS record contains more than the expected number of addresses.

`accounting-stop-missed` — Enable to write an event log message whenever a user context entry timeout expires indicating that the system removed an entry from the user context list without receiving a RADIUS Stop message.

`context-missing` — Enable to write an event log message whenever a user context creation timeout expires indicating that the system was not able to match a communication session because a matching entry was not found in the user context list.

`profile-missing` — Enable to write an event log message whenever the system cannot find a profile group name in a RADIUS start message that matches the name of a profile group added to the system.

`protocol-error` — Enable to write an event log message if RADIUS protocol errors occur. For example, if a RADIUS record contains a RADIUS secret that does not match the one added to the dynamic profile.

`radiusd-other` — Enable to write event log messages for other events. The event is described in the log message. For example, write a log message if the memory limit for the user context list is reached and the oldest entries in the table have been dropped.

setting

Use this command to change user authorization settings.

Syntax

```
config user setting
  set auth-blackout-time <blackout_time_int>
  set auth-cert <cert_name>
  set auth-http-basic {disable | enable}
  set auth-invalid-max <int>
  set auth-multi-group {enable | disable}
  set auth-secure-http {enable | disable}
  set auth-type {ftp | http | https | telnet}
```

```

set auth-timeout <auth_timeout_minutes>
set auth-timeout-type {idle-timeout | hard-timeout | new-session}
config auth-ports
  edit <auth-table-entry-id>
    set port <port_int>
    set type {ftp | http | https | telnet}
  end
end

```

| Variable | Description | Default |
|---|--|------------|
| auth-blackout-time <blackout_time_int> | When a firewall authentication attempt fails 5 times within one minute the IP address that is the source of the authentication attempts is denied access for the <blackout_time_int> period in seconds. The range is 0 to 3600 seconds. | 0 |
| auth-cert <cert_name> | HTTPS server certificate for policy authentication. Fortinet_Factory, Fortinet_Firmware (if applicable to your FortiSwitch), and self-sign are built-in certificates but others will be listed as you add them. | self-sign |
| auth-http-basic {disable enable} | Enable or disable support for HTTP basic authentication for identity-based firewall policies. HTTP basic authentication usually causes a browser to display a pop-up authentication window instead of displaying an authentication web page. Some basic web browsers, for example, web browsers on mobile devices, may only support HTTP basic authentication. | disable |
| auth-invalid-max <int> | Enter the maximum number of failed authentication attempts to allow before the client is blocked. Range: 1-100. | 5 |
| auth-multi-group {enable disable} | This option can be disabled if the Active Directory structure is setup such that users belong to only 1 group for purpose of firewall authentication. (ECO 4-4021) | enable |
| auth-secure-http {enable disable} | Enable to have http user authentication redirected to secure channel - https . | disable |
| auth-type {ftp http https telnet} | Set the user authentication protocol support for firewall policy authentication. User controls which protocols should support the authentication challenge. | No Default |
| auth-timeout <auth_timeout_minutes> | Set the number of minutes before the firewall user authentication timeout requires the user to authenticate again. The maximum authtimeout interval is 480 minutes (8 hours). To improve security, keep the authentication timeout at the default value of 5 minutes. | 5 |

| Variable | Description | Default |
|---|--|--------------|
| auth-timeout-type {idle-timeout hard-timeout new-session} | Set the type of authentication timeout. <code>idle-timeout</code> — applies only to idle session <code>hard-timeout</code> — applies to all sessions <code>new-session</code> — applies only to new sessions | idle-timeout |
| config auth-ports variables | | |
| <auth-table-entry-id> | Create an entry in the authentication port table if you are using non-standard ports. | No Default |
| port <port_int> | Specify the authentication port. Range 1 to 65535. | 1024 |
| type {ftp http https telnet} | Specify the protocol to which <code>port</code> applies. | http |

tacacs+

Use this command to add or edit the information used for TACACS+ authentication.

Syntax

```
config user tacacs+
  edit <user name>
    set authen-type {ascii | auto | chap | mschap | pap}
    set authorization {enable | disable}
    set key <passwd>
    set port <port number>
    set server <domain>
    set source-ip <ipv4_addr>
```

| Variable | Description | Default |
|--|---|---------|
| authen-type{ascii auto chap mschap pap} | Set the authentication type. Auto will use PAP, MSCHAP, and CHAP (in that order). | |
| authorization {disable enable} | Enable TACACS+ authorization (service=fortigate) | disable |
| key <passwd> | Password value for the server. | |
| port <port_int> | Specify the authentication port. Range 1 to 65535. | 1024 |
| server <domain> | Specify the domain name of the server | n/a |
| source-ip <ipv4_addr> | Set the source IP address. | n/a |

execute

Use the execute commands perform immediate operations on the FortiSwitch.

acl

Use this command to clear the ACL counters:

```
execute acl clear-counter
```

backup

Use the backup commands to back up the FortiSwitch configuration files or logs to a TFTP or FTP server, USB disk or a management station. Management stations can either be a FortiManager unit, or FortiGuard Analysis and Management Service.

Syntax

```
execute backup config flash <comment>
execute backup config ftp <filename_str> <server_ipv4[:port_int] | server_fqdn[:port_int]>
    [<username_str> [<password_str>]] [<backup_password_str>]
execute backup config tftp <filename_str> <server_ipv4> [<backup_password_str>]
execute backup config usb <filename_str> [<backup_password_str>]
execute backup full-config ftp <filename_str> <server_ipv4[:port_int] | server_fqdn[:port_
int]> [<username_str> [<password_str>]] [<backup_password_str>]
execute backup full-config tftp <filename_str> <server_ipv4> [<backup_password_str>]
execute backup full-config usb <filename_str> [<backup_password_str>]
execute backup memory alllogs ftp <server_ipv4[:port_int] | server_fqdn[:port_int]>
    [<username_str> <password_str>]
execute backup memory alllogs tftp <server_ipv4>
execute backup memory log ftp <server_ipv4[:port_int] | server_fqdn[:port_int]> <username_
str> <password_str> {app-ctrl | event | ids | im | spam | virus | voip | webfilter}
execute backup memory log tftp <server_ipv4> {app-ctrl | event | ids | im | spam | virus |
voip | webfilter}
```

| Variable | Description |
|---|--|
| config flash <comment> | Back up the system configuration to the flash disk. Optionally, include a comment. |
| config ftp <filename_str> <server_ipv4[:port_int] server_fqdn[:port_int]> [<username_str> [<password_str>]] [<backup_password_str>] | Back up the system configuration to an FTP server. Optionally, you can specify a password to protect the saved data. |

| Variable | Description |
|--|---|
| config tftp <filename_str> <server_ipv4> [<backup_password_str>] | Back up the system configuration to a file on a TFTP server. Optionally, you can specify a password to protect the saved data. |
| config usb <filename_str> [<backup_password_str>] | Back up the system configuration to a file on a USB disk. Optionally, you can specify a password to protect the saved data. |
| full-config ftp <filename_str> <server_ipv4[:port_int] server_fqdn[:port_int]> [<username_str> [<password_str>]] [<backup_password_str>] | Back up the full system configuration to a file on an FTP server. You can optionally specify a password to protect the saved data. |
| full-config tftp <filename_str> <server_ipv4> [<backup_password_str>] | Back up the full system configuration to a file on a TFTP server. You can optionally specify a password to protect the saved data. |
| full-config usb <filename_str> [<backup_password_str>] | Back up the full system configuration to a file on a USB disk. You can optionally specify a password to protect the saved data. |
| memory alllogs ftp <server_ipv4[:port_int] server_fqdn[:port_int]> [<username_str> <password_str>] | Back up either all memory or all hard disk log files for to an FTP server. The disk option is available on FortiSwitch models that log to a hard disk. |
| memory alllogs tftp <server_ipv4> | Back up either all memory or all hard disk log files for this FortiSwitch to a TFTP server. The disk option is available on FortiSwitch models that log to a hard disk. |
| memory log ftp <server_ipv4[:port_int] server_fqdn[:port_int]> <username_str> <password_str> {app-ctrl event ids im spam virus voip webfilter} | Back up the specified type of log file from either hard disk or memory to an FTP server. The disk option is available on FortiSwitch models that log to a hard disk. |
| memory log tftp <server_ipv4> {app-ctrl event ids im spam virus voip webfilter} | Back up the specified type of log file from either hard disk or memory to an FTP server. The disk option is available on FortiSwitch models that log to a hard disk. |

Example

This example shows how to backup the FortiSwitch system configuration to a file named **fgt.cfg** on a TFTP server at IP address 192.168.1.23.

```
execute backup config tftp fgt.cfg 192.168.1.23
```

batch

Use the batch commands to execute a series of CLI commands.



The **execute batch** commands are controlled by the Maintenance (**mntgrp**) access control group.

Syntax

```
execute batch [<cmd_cue>]
```

The parameter <cmd_cue> includes the following values:

- **end** — exit session and run the batch commands
- **lastlog** — read the result of the last batch commands
- **start** — start batch mode
- **status** — batch mode status reporting if batch mode is running or stopped

Example

To start batch mode:

```
execute batch start
Enter batch mode...
```

To enter commands to run in batch mode:

```
config system global
set refresh 5
end
```

To execute the batch commands:

```
execute batch end
Exit and run batch commands...
```

cfg reload

Use this command to restore the saved configuration when the configuration change mode is `manual` or `revert`. This command has no effect if the mode is `automatic`, the default. The `set cfg-save` command in `system global` sets the configuration change mode.

When you reload the saved system configuration, the your session ends and the FortiSwitch performs a restart.

In the default configuration change mode, `automatic`, CLI commands become part of the saved system configuration when you execute them by entering either `next` or `end`.

In `manual` mode, commands take effect but do not become part of the saved configuration unless you execute the `execute cfg save` command. When the system restarts, the saved configuration is loaded. Configuration changes that were not saved are lost.

The `revert` mode is similar to `manual` mode, except that configuration changes are saved automatically if the administrative session is idle for more than a specified timeout period. This provides a way to recover from an

erroneous configuration change, such as changing the IP address of the interface you are using for administration. You set the timeout in `system global` using the `set cfg-revert-timeout` command.

Syntax

```
execute cfg reload
```

Example

This is sample output from the command when successful:

```
# execute cfg reload
configs reloaded. system will reboot.This is sample output from the command when not in
runtime-only configuration mode:
# execute cfg reload
no config to be reloaded.
```

cfg save

Use this command to save configuration changes when the configuration change mode is `manual` or `revert`. If the mode is `automatic`, the default, all changes are added to the saved configuration as you make them and this command has no effect. The `set cfg-save` command in `system global` sets the configuration change mode.

In `manual` mode, commands take effect but do not become part of the saved configuration unless you execute the `execute cfg save` command. When the system restarts, the saved configuration is loaded. Configuration changes that were not saved are lost.

The `revert` mode is similar to `manual` mode, except that configuration changes are reverted automatically if the administrative session is idle for more than a specified timeout period. This provides a way to recover from an erroneous configuration change, such as changing the IP address of the interface you are using for administration. To change the timeout from the default of 600 seconds, go to `system global` and use the `set cfg-revert-timeout` command.

Syntax

```
execute cfg save
```

Example

This is sample output from the command:

```
# execute cfg save
config saved.
This is sample output when not in runtime-only configuration mode. It also occurs when in
runtime-only configuration mode and no changes have been made:
# execute cfg save
no config to be saved.
```

clear switch

Use the following command to clear the learned/configured multicast groups from the switch:

Syntax

```
execute clear switch igmp-snoop
```

clear system arp table

Clear all the entries in the arp table.

Syntax

```
execute clear system arp table
```

cli check-template-status

Reports the status of the secure copy protocol (SCP) script template.

Syntax

```
execute cli check-template-status
```

cli status-msg-only

Enable or disable displaying standardized CLI error output messages. If executed, this command stops other debug messages from displaying in the current CLI session.

Syntax

```
execute cli status-msg-only [enable | disable]
```

| Variable | Description | Default |
|---------------------------------------|---|---------|
| status-msg-only [enable disable] | Enable or disable standardized CLI error output messages. Entering the command without enable or disable disables displaying standardized output. | enable |

date

Get or set the system date.

Syntax

```
execute date [<date_str>]
```

date_str has the form `yyyy-mm-dd`, where:

- **yyyy** is the year. The range is: 2001 to 2037
- **mm** is the month. The range is 01 to 12
- **dd** is the day of the month. The range is 01 to 31

If you do not specify a date, the command returns the current system date. Shortened values, such as '06' instead of '2006' for the year or '1' instead of '01' for month or day, are not valid.

Example

This example sets the date to 17 September 2016:

```
execute date 2016-09-17
```

dhcp6 lease-clear

Clear all DHCP address leases.

Syntax

```
execute dhcp6 lease-clear
```

dhcp6 lease-list

Display DHCP leases on a given interface

Syntax

```
execute dhcp6 lease-list [interface_name]
```

If you specify an interface, the command lists only the leases issued on that interface. Otherwise, the list includes all leases issued by DHCP servers on the FortiSwitch.

If there are no DHCP leases in user on the FortiSwitch, an error will be returned.

disconnect-admin-session

Disconnect an administrator who is logged in.

Syntax

```
execute disconnect-admin-session <index_number>
```

To determine the index of the administrator that you want to disconnect, view the list of logged-in administrators by using the following command:

```
execute disconnect-admin-session ?
```

The list of logged-in administrators looks like this:

```
Connected:
INDEX  USERNAME  TYPE  FROM  TIME
  0      admin    WEB  172.20.120.51  Mon Aug 14 12:57:23 2006
  1      admin2   CLI  ssh(172.20.120.54)  Mon Aug 14 12:57:23 2006
```

Example

This example shows how to disconnect the logged administrator `admin2` from the above list.

```
execute disconnect-admin-session 1
```

factoryreset

Reset the FortiSwitch configuration to factory default settings.

Syntax

```
execute factoryreset
```



This procedure deletes all changes that you have made to the FortiSwitch configuration and reverts the system to its original configuration, including resetting interface addresses.

flapguard

Use this command to reset the specified port, if flapguard was triggered on that port:

```
execute flapguard reset <port>
```



In addition to deleting logs, this operation will erase all other data on the disk, including system configuration.

interface dhcpclient-renew

Renew the DHCP client for the specified DHCP interface and close the CLI session. If there is no DHCP connection on the specified port, there is no output.

Syntax

```
execute interface dhcpclient-renew <interface>
```

Example

This is the output for renewing the DHCP client on port1 before the session closes:

```
# execute interface dhcpclient-renew port1
renewing dhcp lease on port1
```

interface pppoe-reconnect

Reconnect to the PPPoE service on the specified PPPoE interface and close the CLI session. If there is no PPPoE connection on the specified port, there is no output.

Syntax

```
execute interface pppoe-reconnect <interface>
```

license add

Use this command to add a new license.

Syntax

```
execute license add <key>
```

license status

Use this command to display the status of all installed licenses.

Syntax

```
execute license status
```

log delete

Use this command to clear all traffic log entries in memory. You will be prompted to confirm the command.

Syntax

```
execute log delete
```

log delete-all

Use this command to clear all log entries in memory and current log files on hard disk. If your system has no hard disk, only log entries in system memory will be cleared. You will be prompted to confirm the command.

Syntax

```
execute log delete-all
```

log display

Use this command to display log messages that you have selected with the `execute log filter` command.

Syntax

```
execute log display
```

The console displays the first 10 log messages. To view more messages, run the command again. You can do this until you have seen all of the selected log messages. To restart viewing the list from the beginning, use the commands

```
execute log filter start-line 1
execute log display
```

You can restore the log filters to their default values using the command

```
execute log filter reset
```

log filter

Use this command to select log messages for viewing or deletion. You can view one log category on one device at a time. Optionally, you can filter the messages to select only specified date ranges or severities of log messages. For traffic logs, you can filter log messages by source or destination IP address.

Commands are cumulative. If you omit a required variable, the command displays the current setting.

Use as many **execute log filter** commands as you need to define the log messages that you want to view.

```
execute log filter category <category_name>
execute log filter device {memory | faz | fds}
execute log filter dump
execute log filter field <name>
execute log filter ha-member <unitsn_str>
execute log filter max-checklines <int>
execute log filter reset
execute log filter start-line <line_number>
execute log filter view-lines <count>
```

| Variable | Description | Default |
|-----------------------------|---|------------|
| category <category_name> | Enter the type of log you want to select. For SQL logging and memory logging, one of: utm, content, event, or traffic | event |
| device {memory faz fds} | Device where the logs are stored. | memory |
| dump | Display current filter settings. | No default |

| Variable | Description | Default |
|--------------------------|---|------------|
| field <name> | Press Enter to view the fields that are available for the associated category. Enter the fields you want, using commas to separate multiple fields. | No default |
| ha-member <unitsn_str> | Select logs from the specified HA cluster member. Enter the serial number of the system. | No default |
| max-checklines <int> | Set maximum number lines to check. Range 100 to 1 000 000. 0 disables. | No default |
| reset | Execute this command to reset all filter settings. | No default |
| start-line <line_number> | Select logs starting at specified line number. | 1 |
| view-lines <count> | Set lines per view. Range: 5 to 1000 | 10 |

log-report reset

Use this command to delete all logs, archives and user configured report templates.

Syntax

```
execute log-report reset
```

loop-guard

Use this command to reset a port that has been put out of service by loop-guard.

```
execute loop-guard reset <interface>
```

mac clear

Use this command to clear MAC addresses.

Syntax

```
execute mac clear by-interface <interface>
execute mac clear by-mac-address <mac_address>
execute mac clear by-vlan <vlan_int>
execute mac clear by-vlan-and-interface <vlan_int> <interface>
execute mac clear by-vlan-and-mac-address <vlan_int> <mac_address>
```

mrouter

Clears the specified multicast routes.

```
execute mrouter clear {dense-routes | igmp-group | igmp-interface | multicast-routes |  
sparse-mode-bsr | sparse-routes | statistics}
```

dense-routes: Clear PIM dense mode routes

igmp-group: Clear all IGMP entries for one or all groups

igmp-interface: Clear all IGMP entries from one interface

multicast-routes: Clear all PIM dense mode and sparse mode routes

sparse-mode-bsr : Clear PIM-SM RP sets learned from the BSR

sparse-routes :Clear PIM sparse mode routes

statistics: Clear PIM routing statistics

ping

The ping command sends one or more ICMP echo request (ping) to test the network connection between the FortiSwitch and another network device.

Syntax

```
execute ping {<address_ipv4> | <host-name_str>}
```

<host-name_str> should be an IP address, or a fully qualified domain name.

Example

This example shows how to ping a host with the IP address 172.20.120.16.

```
#execute ping 172.20.120.16  
  
PING 172.20.120.16 (172.20.120.16): 56 data bytes  
64 bytes from 172.20.120.16: icmp_seq=0 ttl=128 time=0.5 ms  
64 bytes from 172.20.120.16: icmp_seq=1 ttl=128 time=0.2 ms  
64 bytes from 172.20.120.16: icmp_seq=2 ttl=128 time=0.2 ms  
64 bytes from 172.20.120.16: icmp_seq=3 ttl=128 time=0.2 ms  
64 bytes from 172.20.120.16: icmp_seq=4 ttl=128 time=0.2 ms  
  
--- 172.20.120.16 ping statistics ---  
  
5 packets transmitted, 5 packets received, 0% packet loss  
round-trip min/avg/max = 0.2/0.2/0.5 ms
```

ping-options, ping6-options

Use this command to set ICMP echo request (ping) options to control the way ping tests the network connection between the FortiSwitch and another network device.

Syntax

```
execute ping-options data-size <bytes>
execute ping-options df-bit {yes | no}
execute ping-options pattern <2-byte_hex>
execute ping-options repeat-count <repeats>
execute ping-options source {auto | <source-intf_ip>}
execute ping-options timeout <seconds>
execute ping-options tos <service_type>
execute ping-options ttl <hops>
execute ping-options validate-reply {yes | no}
execute ping-options view-settings
```

| Variable | Description | Default |
|-------------------------------------|---|------------|
| data-size <bytes> | Specify the datagram size in bytes. | 56 |
| df-bit {yes no} | Set <code>df-bit</code> to <code>yes</code> to prevent the ICMP packet from being fragmented. Set <code>df-bit</code> to <code>no</code> to allow the ICMP packet to be fragmented. | no |
| pattern <2-byte_hex> | Used to fill in the optional data buffer at the end of the ICMP packet. The size of the buffer is specified using the <code>data_size</code> parameter. This allows you to send out packets of different sizes for testing the effect of packet size on the connection. | No default |
| repeat-count <repeats> | Specify how many times to repeat ping. | 5 |
| source {auto <source-intf_ip>} | Specify the FortiSwitch interface from which to send the ping. If you specify <code>auto</code> , the system selects the source address and interface based on the route to the <code><host-name_str></code> or <code><host_ip></code> . Specifying the IP address of a FortiSwitch interface tests connections to different network segments from the specified interface. | auto |
| timeout <seconds> | Specify, in seconds, how long to wait until ping times out. | 2 |
| tos <service_type> | Set the ToS (Type of Service) field in the packet header to provide an indication of the quality of service wanted. lowdelay = minimize delay throughput = maximize throughput reliability = maximize reliability lowcost = minimize cost | 0 |

| Variable | Description | Default |
|---------------------------|--|------------|
| ttl <hops> | Specify the time to live. Time to live is the number of hops the ping packet should be allowed to make before being discarded or returned. | 64 |
| validate-reply {yes no} | Select <code>yes</code> to validate reply data. | no |
| view-settings | Display the current ping-option settings. | No default |

Example

Use the following command to increase the number of pings sent.

```
execute ping-options repeat-count 10
```

Use the following command to send all pings from the FortiSwitch interface with IP address 192.168.10.23.

```
execute ping-options source 192.168.10.23
```

ping6

The ping6 command sends one or more ICMP echo request (ping) to test the network connection between the FortiSwitch and an IPv6 capable network device.

Syntax

```
execute ping6 {<address_ipv6> | <host-name_str>}
```

Example

This example shows how to ping a host with the IPv6 address 12AB:0:0:CD30:123:4567:89AB:CDEF.

```
execute ping6 12AB:0:0:CD30:123:4567:89AB:CDEF
```

poe-reset

This command performs a poe reset on the specified port.

Syntax

```
execute poe-reset <port_number>
```

reboot

Use this command to restart the system.



Abruptly powering off your system may corrupt its configuration. Use the `reboot` or `shutdown` commands to ensure proper shutdown procedures are followed to prevent any loss of configuration.

Syntax

```
execute reboot <comment "comment_string">
<comment "comment_string"> enables you to optionally add a message that will appear in the hard disk
log indicating the reason for the reboot. If the message is more than one word it must be enclosed in quotes.
```

Example

This example shows the `reboot` command with a message included.

```
execute reboot comment "December monthly maintenance"
```

restore

Use this command to restore configuration, firmware or IPS signature file. The following options are available:

- restore the configuration from a file
- change the FortiSwitch firmware
- restore the bios from a file

When virtual domain configuration is enabled, the content of the backup file depends on the administrator account that created it.

A backup of the system configuration from the super admin account contains the global settings and the settings for all of the VDOMs. Only the super admin account can restore the configuration from this file.

A backup file from a regular administrator account contains the global settings and the settings for the VDOM to which the administrator belongs. Only a regular administrator account can restore the configuration from this file.

Syntax

```
execute restore bios tftp <filename_str> <server_ipv4[:port_int]>
execute restore config flash <revision>
execute restore config ftp <filename_str> <server_ipv4[:port_int] | server_fqdn[:port_
int]> [<username_str> <password_str>] [<backup_password_str>]
execute restore config tftp <filename_str> <server_ipv4> [<backup_password_str>]
execute restore image flash <revision>
execute restore image ftp <filename_str> <server_ipv4[:port_int] | server_fqdn[:port_int]>
[<username_str> <password_str>]
execute restore image management-station <version_int>
execute restore image tftp <filename_str> <server_ipv4>
execute restore secondary-image ftp <filename_str> <server_ipv4[:port_int] | server_fqdn
[:port_int]> [<username_str> <password_str>]
execute restore secondary-image tftp <filename_str> <server_ipv4>
```

| Variable | Description |
|---|--|
| bios tftp <filename_str> <server_ipv4[:port_int]> | Restore the bios. Download the restore file from a TFTP server. |
| config flash <revision> | Restore the specified revision of the system configuration from the flash disk. |
| config ftp <filename_str> <server_ipv4[:port_int] server_fqdn[:port_int]> [<username_str> <password_str>] [<backup_password_str>] | Restore the system configuration from an FTP server. The new configuration replaces the existing configuration, including administrator accounts and passwords. If the backup file was created with a password, you must specify the password. |
| config tftp <filename_str> <server_ipv4> [<backup_password_str>] | Restore the system configuration from a file on a TFTP server. The new configuration replaces the existing configuration, including administrator accounts and passwords. If the backup file was created with a password, you must specify the password. |
| image flash <revision> | Restore specified firmware image from flash disk. |
| image ftp <filename_str> <server_ipv4[:port_int] server_fqdn[:port_int]> [<username_str> <password_str>] | Download a firmware image from an FTP server to the FortiSwitch. The FortiSwitch reboots, loading the new firmware. This command is not available in multiple VDOM mode. |
| image management-station <version_int> | Download a firmware image from the central management station. This is available if you have configured a FortiManager unit as a central management server. This is also available if your account with FortiGuard Analysis and Management Service allows you to upload firmware images. |
| image tftp <filename_str> <server_ipv4> | Download a firmware image from a TFTP server to the FortiSwitch. The FortiSwitch reboots, loading the new firmware. |
| secondary-image ftp <filename_str> <server_ipv4[:port_int] server_fqdn[:port_int]> [<username_str> <password_str>] | Download a firmware image from an FTP server to the FortiSwitch. The FortiSwitch saves the new firmware image in the secondary image partition. |
| secondary-image tftp <filename_str> <server_ipv4> | Download a firmware image from a TFTP server to the FortiSwitch. The FortiSwitch saves the new firmware image in the secondary image partition. |

Example

This example shows how to upload a configuration file from a TFTP server to the FortiSwitch and restart the FortiSwitch with this configuration. The name of the configuration file on the TFTP server is `backupconfig`. The IP address of the TFTP server is 192.168.1.23.

```
execute restore config tftp backupconfig 192.168.1.23
```

revision

Use this command to manage configuration and firmware image files on the local disk.

Syntax

To delete a configuration file

```
execute revision delete config <revision>
```

To list the configuration files

```
execute revision list config
```

To display the contents a configuration file

```
execute revision show config <id>
```

router

Use this command to restart the router software:

```
execute router restart
```

set system session filter

Use this command to define the session filter for the **get system session** command.

Syntax

To clear the filter settings

```
execute set system session filter clear  
{all|dport|dst|duration|expire|policy|proto|sport|src|vd}
```

To specify destination port

```
execute set system session filter dport <port_range>
```

To specify destination IP address

```
execute set system session filter dst <ip_range>
```

To specify duration

```
execute set system session filter duration <duration_range>
```

To specify expiry

```
execute set system session filter expire <expire_range>
```

To list the filter settings

```
execute set system session filter list
```

To invert a filter setting

```
execute set system session filter negate
    {dport|dst|duration|expire|policy|proto|sport|src|vd}
```

To specify firewall policy ID

```
execute set system session filter policy <policy_range>
```

To specify protocol

```
execute set system session filter proto <protocol_range>
```

To specify source port

```
execute set system session filter sport <port_range>
```

To specify source IP address

```
execute set system session filter src <ip_range>
```

| Variable | Description |
|------------------|---|
| <duration_range> | The start and end times (units?), separated by a space. |
| <expire_range> | The start and end times (units?), separated by a space. |
| <ip_range> | The start and end IP addresses, separated by a space. |
| <policy_range> | The start and end policy numbers, separated by a space. |
| <port_range> | The start and end port numbers, separated by a space. |
| <protocol_range> | The start and end protocol numbers, separated by a space. |

set-next-reboot

Use this command to start the FortiSwitch with primary or secondary firmware after the next reboot. This command is available on models that can store two firmware images. By default, the FortiSwitch loads the firmware from the primary partition.

Syntax

```
execute set-next-reboot {primary | secondary}
```


shutdown

Use this command to shut down the system immediately. You will be prompted to confirm this command.



Abruptly powering off your system may corrupt its configuration. Using the reboot and shutdown options in the CLI or in the web-based manager ensure proper shutdown procedures are followed to prevent any loss of configuration.

Syntax

```
execute shutdown [comment <comment_string>]
```

The comment field is optional. Use it to add a message that will appear in the event log message that records the shutdown. The comment message does not appear on the Alert Message console. If the message is more than one word it must be enclosed in quotes.

Example

This example shows the reboot command with a message included.

```
execute shutdown comment "emergency facility shutdown"
```

An event log message similar to the following is recorded:

```
2009-09-08 11:12:31 critical admin 41986 ssh(172.20.120.11) shutdown User admin shutdown
the device from ssh(172.20.120.11). The reason is 'emergency facility shutdown'
```

ssh

Use this command to establish an SSH session with another system.

Syntax

```
execute ssh <destination>
```

<destination> - the destination in the form user@ip or user@host.

Example

```
execute ssh admin@172.20.120.122
```

To end an ssh session, type `exit`:

```
FGT-6028030112 # exit
Connection to 172.20.120.122 closed.
FGT-8002805000 #
```

stage

Use this command to stage an image from an ftp or tftp server.

Syntax

```
execute stage image ftp <string> <ftp server>[:ftp port]
execute stage image tftp <string> <ip>
```

image is the image file name (including path) on the remote server

switch-controller

Use this command to display the status of the fortilink connection. This command is valid only when the FortiSwitch is operating in Managed mode

Syntax

```
execute switch-controller get-conn-status
```

system certificate ca

Use this command to import a CA certificate from a TFTP or SCEP server to the FortiSwitch, or to export a CA certificate from the FortiSwitch to a TFTP server.

Before using this command you must obtain a CA certificate issued by a Certificate Authority.

Syntax

```
execute system certificate ca export tftp <name> <file-name> <tftp_ip>
execute system certificate ca import auto <ca_server_url> [ca_identifier_str]
execute system certificate ca import tftp <file-name> <tftp_ip>
```

| Variable | Description | Default |
|-------------|---|---------|
| import | Import the CA certificate from a TFTP server to the FortiSwitch. | |
| export | Export or copy the CA certificate from the FortiSwitch to a file on the TFTP server. To view a list of the CA certificates, use the following command: <code>execute system certificate ca export tftp ?</code> | |
| <name> | Enter the name of the CA certificate. | |
| <file-name> | Enter the file name on the TFTP server. | |
| <tftp_ip> | Enter the TFTP server address. | |

| Variable | Description | Default |
|---------------------|---|---------|
| auto | Retrieve a CA certificate from a SCEP server. | |
| tftp | Import the CA certificate to the FortiSwitch from a file on a TFTP server (local administrator PC). | |
| <ca_server_url> | Enter the URL of the CA certificate server. | |
| <ca_identifier_str> | CA identifier on CA certificate server (optional). | |

system certificate crl

Use this command to get a certificate revocation list via LDAP, HTTP, or SCEP protocol, depending on the **autoupdate** configuration.

In order to use this command, the authentication servers must already be configured.

Syntax

```
execute system certificate crl import auto <crl-name>
```

| Variable | Description | Default |
|------------|--|---------|
| import | Import the CRL from the configured LDAP, HTTP, or SCEP authentication server to the FortiSwitch. | |
| <crl-name> | Enter the name of the CRL. | |
| auto | Trigger an auto-update of the CRL from the configured authentication server. | |

system certificate local export

Use this command to export a local certificate from the FortiSwitch to a TFTP server.

Syntax

```
execute system certificate local export tftp <name> <file-name> <tftp_ip>
```

| Variable | Description | Default |
|----------|---|---------|
| export | Export or copy the local certificate from the FortiSwitch to a file on the TFTP server. | |

| Variable | Description | Default |
|-------------|--|---------|
| <name> | Enter the name of the local certificate. To view a list of the local certificates, use the following command: <code>execute system certificate local export tftp ?</code> | |
| <file-name> | Enter the file name on the TFTP server. | |
| <tftp_ip> | Enter the TFTP server address. | |

system certificate local generate

Use this command to generate a local certificate.

When you generate a certificate request, you create a private and public key pair for the local FortiSwitch. The public key accompanies the certificate request. The private key remains confidential.

When you receive the signed certificate from the CA, use the **system certificate local import** command to install it on the FortiSwitch.

Syntax

To generate a local certificate request

```
execute system certificate local generate <name> <key-length> <subject_str> [<optional_information>]
```

system certificate local import

Use this command to to import a local certificate to the FortiSwitch from a TFTP server.

Syntax

```
execute system certificate local import tftp <file-name> <tftp_ip>
```

| Variable | Description | Default |
|-------------|--|---------|
| <name> | Enter the name of the local certificate. | |
| <file-name> | Enter the file name on the TFTP server. | |
| <tftp_ip> | Enter the TFTP server address. | |

system certificate remote

Use this command to import a remote certificate from a TFTP server, or export a remote certificate from the FortiSwitch to a TFTP server. The remote certificates are public certificates without a private key. They are used as OCSP (Online Certificate Status Protocol) server certificates.

Syntax

```
execute system certificate remote import tftp <file-name> <tftp_ip>
execute system certificate remote export tftp <name> <file-name> <tftp_ip>
```

| Variable | Description | Default |
|-------------|--|---------|
| import | Import the remote certificate from the TFTP server to the FortiSwitch. | |
| export | Export or copy the remote certificate from the FortiSwitch to a file on the TFTP server. To view a list of the certificates, use the following command: <code>execute system certificate remote export tftp ?</code> | |
| <name> | Enter the name of the local certificate. | |
| <file-name> | Enter the file name on the TFTP server. | |
| <tftp_ip> | Enter the TFTP server address. | |

telnet

Use this command to create a Telnet client. You can use this tool to test network connectivity.

Syntax

```
execute telnet <telnet_ipv4>
<telnet_ipv4> is the address to connect with.
```

Type `exit` to close the telnet session.

time

Get or set the system time.

Syntax

```
execute time [<time_str>]
```

time_str has the form **hh:mm:ss**, where:

- **hh** is the hour. The range is 00 to 23.
- **mm** is the minutes. The range is 00 to 59.
- **ss** is the seconds. The range is 00 to 59.

If you do not specify a time, the command returns the current system time.

You are allowed to shorten numbers to only one digit when setting the time. For example both 01:01:01 and 1:1:1 are allowed.

Example

This example sets the system time to 15:31:03:

```
execute time 15:31:03
```

traceroute

Use this command to test the connection between the FortiSwitch and another network device, and display information about the network hops between the FortiSwitch and the device.

Syntax

```
execute traceroute {<ip_address> | <host-name>}
```

Example

This example shows how to test the connection with <http://docs.forticare.com>. In this example the traceroute command times out after the first hop indicating a possible problem.

```
#execute traceoute docs.fortinet.com
traceroute to docs.fortinet.com (65.39.139.196), 30 hops max, 38 byte packets
 1 172.20.120.2 (172.20.120.2) 0.324 ms 0.427 ms 0.360 ms
 2 * * *
```

If your FortiSwitch is not connected to a working DNS server, you will not be able to connect to remote host-named locations with traceroute.

tracert6

Use this command to test the connection between the FortiSwitch and another network device using IPv6 protocol, and display information about the network hops between the FortiSwitch and the device.

Syntax

```
tracert6 [-Fdn] [-f first_ttl] [-i interface] [-m max_ttl]
[-s src_addr] [-q nprobes] [-w waittime] [-z sendwait]
host [paddatalen]
```

| Variable | Description |
|----------------|---|
| -F | Set Don't Fragment bit. |
| -d | Enable debugging. |
| -n | Do not resolve numeric address to domain name. |
| -f <first_ttl> | Set the initial time-to-live used in the first outgoing probe packet. |
| -i <interface> | Select interface to use for tracer. |
| -m <max_ttl> | Set the max time-to-live (max number of hops) used in outgoing probe packets. |
| -s <src_addr> | Set the source IP address to use in outgoing probe packets. |
| -q <nprobes> | Set the number probes per hop. |
| -w <waittime> | Set the time in seconds to wait for response to a probe. Default is 5. |
| -z <sendwait> | Set the time in milliseconds to pause between probes. |
| host | Enter the IP address or FQDN to probe. |
| <paddatalen> | Set the packet size to use when probing. |

upload

Use this command to upload system configurations to the flash disk from FTP or TFTP sources.

Syntax

To upload configuration files:

```
execute upload config ftp <filename_str> <comment> <server_ipv4[:port_int] | server_fqdn
[:port_int]> [<username_str> [<password_str>]] [<backup_password_str>]
execute upload config tftp <filename_str> <comment> <server_ipv4>
```

| Variable | Description |
|-----------|-----------------|
| <comment> | Comment string. |

| Variable | Description |
|--------------------------|---|
| <filename_str> | Filename to upload. |
| <server_fqdn[:port_int]> | Server fully qualified domain name and optional port. |
| <server_ipv4[:port_int]> | Server IP address and optional port number. |
| <username_str> | Username required on server. |
| <password_str> | Password required on server. |
| <backup_password_str> | Password for backup file. |

get

The get commands provide information about the operation of the FortiSwitch.

hardware cpu

Use this command to display detailed information about the CPUs in your FortiSwitch.

Syntax

```
get hardware cpu
```

Example output

```
S124DN3W14000093 # get hardware cpu
Processor      : ARMv7 Processor rev 1 (v7l)
processor      : 0
BogoMIPS      : 795.44

Features       : swp half thumb fastmult edsp tls
CPU implementer : 0x41
CPU architecture: 7
CPU variant    : 0x4
CPU part       : 0xc09
CPU revision   : 1

Hardware       : Broadcom iProc
Revision       : 0000
Serial        : 0000000000000000
```

hardware memory

Use this command to display information about FortiSwitch memory use. Information includes the total memory, memory in use, and free memory.

Syntax

```
S124DN3W14000093 # get hardware memory
```

Example output

```
get hardware memory

MemTotal: 499404 kB
MemFree: 219116 kB
Buffers: 1872 kB
Cached: 66960 kB
SwapCached: 0 kB
```

```
Active: 59572 kB
Inactive: 56980 kB
Active(anon): 47720 kB
Inactive(anon): 0 kB
Active(file): 11852 kB
Inactive(file): 56980 kB
Unevictable: 0 kB
Mlocked: 0 kB
SwapTotal: 0 kB
SwapFree: 0 kB
Dirty: 0 kB
Writeback: 0 kB
AnonPages: 47720 kB
Mapped: 12248 kB
Shmem: 0 kB
Slab: 8564 kB
SReclaimable: 3824 kB
SUnreclaim: 4740 kB
KernelStack: 656 kB
PageTables: 2924 kB
NFS_Unstable: 0 kB
Bounce: 0 kB
WritebackTmp: 0 kB
CommitLimit: 249700 kB
Committed_AS: 520108 kB
VmallocTotal: 516096 kB
VmallocUsed: 648 kB
VmallocChunk: 488184 kB
```

hardware nic

Use this command to display hardware and status information about each FortiSwitch interface. The hardware information includes details such as the driver name and version and chip revision. Status information includes transmitted and received packets, and different types of errors.

Syntax

```
get hardware nic <interface_name>
```

| Variable | Description |
|------------------|-------------------------------|
| <interface_name> | A FortiSwitch interface name. |

Example output

```
# get hardware nic
The following NICs are available:
internal
mgmt

# get hardware nic mgmt
Driver Name :Fortinet Nplite Driver
Version :1.0
```

```
Admin :up
Current_HWaddr 00:09:0f:ee:f5:29
Permanent_HWaddr 00:09:0f:ee:f5:29
Status :up
Speed :100
Duplex :Full
Host Rx Pkts :2388534
Host Rx Bytes :373419510
Host Tx Pkts :12876
Host Tx Bytes :1275606
Rx Pkts :2954556
Rx Bytes :657649553
Tx Pkts :12874
Tx Bytes :1177684
rx_buffer_len :2048
Hidden :No
cmd_in_list :0
> | setting <device_name_str>}
```

hardware status

Report information about the FortiSwitch hardware including ASIC version, CPU type, amount of memory, flash drive size, hard disk size (if present), and USB flash size (if present). Use this information to troubleshoot, to provide to Fortinet Support, or to confirm the features that your FortiSwitch model supports.

Syntax

```
get hardware status
```

Example output

```
S124DN3W14000093 # get hardware status
Model name: FortiSwitch-124D
CPU: ARMv7 Processor rev 1 (v7l)
RAM: 487 MB
MTD Flash: 25 MB /dev/mtd
Hard disk: not available
```

log {custom field | eventfilter | gui}

Use this command to get information about your log settings.

Syntax

```
get log {custom field | eventfilter | gui}
```

Example output

```
# get log eventfilter
event : enable
```

```
router : enable
system : enable
user : enable
```

log memory global-setting

Use this command to get information about your logging to memory global settings.

Syntax

```
get log memory global-setting
```

Example output

```
# get log memory global-setting
full-final-warning-threshold: 95
full-first-warning-threshold: 75
full-second-warning-threshold: 90
hourly-upload : disable
max-size : 98304
```

log {memory | syslogd | syslogd2 | syslogd3} filter

Use this command to get information about your log filter settings.

Syntax

```
get log {memory | syslogd | syslogd2 | syslogd3} filter
```

Example output

```
# get log memory filter
severity : information
```

log {memory | syslogd | syslogd2 | syslogd3} setting

Use this command to get information about your log settings.

Syntax

```
get log {memory | syslogd | syslogd2 | syslogd3} setting
```

Example output

```
# get log memory setting
diskfull : overwrite
status : enable
```

router info

Use this command to get information about the routing tables and protocols

Syntax

```
get router info { routing-table | kernel | vrrp | gwdetect }
```

router static

```
get router static
```

router static6

```
get router static6
```

switch acl

Use this command to display the ACL settings:

```
get switch acl { counters | policer | policy | service custom | settings }
```

Enter **get switch acl service custom** to display all of the preconfigured service entries.

switch dhcp snooping

Use this command to display the DHCP Snooping status or database:

```
get switch dhcp-snooping status  
get switch dhcp-snooping database
```

switch flapguard

Use this command to display the flapguard settings:

```
get switch flapguard settings
```

switch global

Use this command to get information about the global settings of your FortiSwitch.

Syntax

```
get switch global
```

Example output

```
# get switch global
mac-aging-interval : 300
name : (null)
```

switch igmp-snooping

Use this command to get the IGMP snooping settings of your FortiSwitch.

```
get switch igmp-snooping {group | interface | mrouter}
```

switch interface

Use this syntax to get information about the interfaces.

Syntax

```
get switch interface
```

switch ip-mac-binding

Use this syntax to get information about IP MAC binding.

Syntax

```
get switch ip-mac-binding
```

switch lldp

Use this syntax to get information about LLDP.

Syntax

```
get switch lldp {auto-isl-status | neighbors-detail | neighbors-summary | profile
| settings | stats}
```

switch mirror

Use this syntax to get information about the mirror settings of your FortiSwitch.

Syntax

```
get switch mirror
```

Example output

```
# get switch mirror
dst : (null)
status : inactive
switching-packet : disable
```

switch modules

Use this syntax to get information about the modules in your FortiSwitch.

Syntax

```
get switch modules {detail | limits | status | summary} [<port>]
```

switch physical-port

Use this command to get information about the physical ports of your FortiSwitch.

Syntax

```
get switch physical-port
```

Example output

```
# get switch physical-port
== [ port1 ]
name: port1 link-status: down poe-status: 0.00W status: up
== [ port2 ]
name: port2 link-status: down poe-status: 0.00W status: up
== [ port3 ]
name: port3 link-status: down poe-status: 0.00W status: up
```

switch poe inline

Use this command to get information about the system's power over Ethernet (PoE) functions.

Syntax

```
get switch poe inline
```

Example output

```
# get switch poe inline
Unit Power Budget: 75.00W
Unit Power Consumption: 0.00W
Unit Temperature: 60.00 Centigrade
```

switch qos

Use this command to get information about the QoS configuration:

Syntax

```
get switch qos (dot1p-map | ip-dscp-map | qos-policy)
```

Example output

```
# get switch qos dot1p-map
== [ 1 ]
name: 1 priority-0: queue-0 priority-1: queue-0 priority-2: queue-0 priority-3: queue-0
      priority-4: queue-0 priority-5: queue-0 priority-6: queue-0 priority-7: queue-0
```

switch security-feature

Use this command to display the security-feature settings.

Syntax

```
get switch security-feature
```

switch static-mac

Use this command to display the static MAC addresses.

Syntax

```
get switch static-mac
```

switch storm-control

Use this command to display storm control settings on your FortiSwitch.

Syntax

```
get switch storm-control
```

switch stp instance

Use this command to get information about STP instances on your FortiSwitch.

Syntax

```
get switch stp instance
```

Example output

```
# get switch stp instance
== [ 0 ]
id: 0
== [ 1 ]
id: 1
```

switch stp settings

Use this command to get information about STP settings on your FortiSwitch.

Syntax

```
get switch stp settings
```

Example output

```
# get switch stp settings
forward-time : 15
hello-time : 2
max-age : 20
max-hops : 20
name : (null)
revision : 0
status : enable
```

switch trunk

Use this command to get information about the trunks on the FortiSwitch.

Syntax

```
get switch trunk
```

Example output

```
# get switch trunk
== [ 1 ]
name: 1 members:
== [ port3 ]
member-name: port3
== [ port10 ]
member-name: port10
== [ port1 ]
member-name: port1
```

switch virtual-wire

Virtual wire allows you to forward traffic between two ports with minimal filtering or packet modifications.

Syntax

```
get switch virtual-wire
```

Example output

```
# get switch virtual-wire
```

switch vlan

Use this command to get information about VLANs on the FortiSwitch.

Syntax

```
get switch vlan
```

Example output

```
# get switch vlan
== [ 1 ]
id: 1 private-vlan-type: primary isolated-vlan: 2 community-vlans: 3
== [ 2 ]
id: 2 private-vlan-type: isolated sub-VLAN primary-vlan: 1
== [ 3 ]
id: 3 private-vlan-type: community sub-VLAN primary-vlan: 1
```

system accprofile

Use this command to view a list of all the system administration access groups.

Syntax

```
get system admin accprofile
```

system admin list

Use this command to view a list of all the current administration sessions.

Syntax

```
get system admin list
```

Example output

```
# get system admin list
username local device remote started
admin sshv2 port1:172.20.120.148:22 172.20.120.16:4167 2006-08-09 12:24:20
admin https port1:172.20.120.148:443 172.20.120.161:56365 2006-08-09 12:24:20
admin https port1:172.20.120.148:443 172.20.120.16:4214 2006-08-09 12:25:29
```

| Variable | Description |
|----------|--|
| username | Name of the admin account for this session |
| local | The protocol this session used to connect to the system. |
| device | The interface, IP address, and port used by this session to connect to the system. |
| remote | The IP address and port used by the originating computer to connect to the system. |
| started | The time the current session started. |

system admin status

Use this command to view the status of the currently logged in admin and their session.

Syntax

```
get system admin status
```

Example

The output looks like this:

```
# get system admin status
username: admin
login local: sshv2
login device: port1:172.20.120.148:22
login remote: 172.20.120.16:4167
login vdom: root
login started: 2006-08-09 12:24:20
current time: 2006-08-09 12:32:12
```

| Variable | Description |
|-------------|---|
| username | Name of the admin account currently logged in. |
| login local | The protocol used to start the current session. |

| Variable | Description |
|---------------|--|
| login device | The login information from the FortiSwitch including interface, IP address, and port number. |
| login remote | The computer the user is logging in from including the IP address and port number. |
| login vdom | The virtual domain the admin is current logged into. |
| login started | The time the current session started. |
| current time | The current time of day on the system |

system arp

Use this command to view the ARP table entries on the FortiSwitch.

Syntax

```
get system arp
```

Example output

```
# get system arp
Address Age(min) Hardware Addr Interface
172.20.120.16 0 00:0d:87:5c:ab:65 internal
172.20.120.138 0 00:08:9b:09:bb:01 internal
```

system arp-table

Use this command to view the ARP tables on the FortiSwitch.

Syntax

```
get system arp-table
```

Example output

```
# get system arp-table
== [ 1 ]
id: 1 interface: internal ip: 10.10.10.10 mac: 01:02:03:04:05:aa
```

system auto-update

Use this command to get information about auto-update

Syntax

```
get system auto-update status
get system auto-update versions
```

system bug-report

Use this command to get information about configuration related to bug reporting.

Syntax

```
get system bug-report
```

Example output

```
auth : no
mailto : bug_report@fortinetvirussubmit.com
password : (null)
server : fortinetvirussubmit.com
username : bug_report
username-smtp : bug_report
```

system central-mgmt

Use this command to display configuration related to central management service:

Syntax

```
get system central-mgmt status
```

system certificate

Use this command to display configuration related to central management service:

Syntax

```
get system certificate (ca | crl | local | oscp | remote)
```

system checksum status

Use this command to view system checksum values

Syntax

```
get system checksum status
```

Example

```
# get system checksum status
global: 6a da e7 8e 4b 0a 9a 44 8a 9f c8 1d 74 60 1f 58
root: f1 8d 2d d2 db 0b b8 57 a9 46 0a 90 d6 43 98 76
all: e9 b9 3a 21 ff 7d fb fd a4 ca c4 91 71 a9 3c bf
```

system cmdb status

Use this command to view information about cmdbsvr on the FortiSwitch.

Syntax

```
get system cmdb status
```

Example output

```
# get system cmdb status
version: 1
owner id: 18
update index: 6070
config checksum: 12879299049430971535
last request pid: 68
last request type: 29
last request: 78
```

| Variable | Description |
|-------------------|--|
| version | Version of the cmdb software. |
| owner id | Process ID of the cmdbsvr daemon. |
| update index | The updated index shows how many changes have been made in cmdb. |
| config checksum | The config file version used by FortiManager. |
| last request pid | The last process to access the cmdb. |
| last request type | Type of the last attempted access of cmdb. |
| last request | The number of the last attempted access of cmdb. |

system console

Use this command to get information about the console connection.

Syntax

```
get system console
```

Example output

```
# get system console
baudrate : 9600
mode : line
output : more
```

system dns

Use this command to get information about the DNS settings.

Syntax

```
get system dns
```

Example output

```
# get system dns
primary : 208.91.112.53
secondary : 208.91.112.52
domain : (null)
ip6-primary : ::
ip6-secondary : ::
dns-cache-limit : 5000
dns-cache-ttl : 1800
cache-notfound-responses: disable
source-ip : 0.0.0.0
```

system fdp-fortianalyzer

Use this command to get the serial number of the FortiAnalyzer.

Syntax

```
get system fdp-fortianalyzer
```

system fortianalyzer-connectivity

Use this command to get connectivity status of FortiAnalyzer:

```
get system fortianalyzer-connectivity status
```

system fortiguard-log-service

Use this command to get status of FortiGuard log service:

```
get system fortiguard-log-service status
```

Example output

```
# get system fortiguard-log-service status
```

system fortiguard service

Use this command to get status of FortiGuard service:

```
get system fortiguard-service status
```

Example output

```
# get system fortiguard-service status
NAME VERSION LAST UPDATE METHOD EXPIRE
AV Engine 0.000 2001-01-01 00:00:00 manual n/a
Virus Definitions 0.000 2001-01-01 00:00:00 manual n/a
Extended set 0.000 2001-01-01 00:00:00 manual n/a
Attack Definitions 0.000 2001-01-01 00:00:00 manual n/a
IPS Attack Engine 0.000 2001-01-01 00:00:00 manual n/a
```

system global

Use this command to get the global settings of your FortiSwitch.

Syntax

```
get system global
```

Example output

```
# get system global
admin-concurrent : enable
admin-https-pki-required: disable
admin-lockout-duration: 60
admin-lockout-threshold: 3
admin-maintainer : enable
admin-port : 80
admin-scp : disable
admin-server-cert : self-sign
admin-sport : 443
admin-ssh-grace-time: 120
admin-ssh-port : 22
admin-ssh-v1 : disable
admin-telnet-port : 23
admintimeout : 5
allow-subnet-overlap: disable
cfg-save : automatic
csr-ca-attribute : enable
daily-restart : disable
dst : enable
gui-lines-per-page : 50
hostname : FS324P3W11000127
language : english
```



```
ldapconntimeout : 500
log-user-in-upper : disable
radius-port : 1812
refresh : 0
registration-notification: enable
remotethreshold : 5
revision-backup-on-logout: enable
send-pmtu-icmp : enable
service-expire-notification: enable
strong-crypto : disable
switch-mgmt-mode : local
timezone : (GMT-8:00)Pacific Time (US&Canada)
user-server-cert : self-sign
```

system ha-nonsync-csum

Use this command to display the system checksums.

Syntax

```
get system ha-nonsync-csum
```

Example

```
# get system ha-nonsync-csum
debugzone
global: f1 d7 ea 74 d1 a4 12 f2 44 a6 de 63 3b 72 68 4a
root: cb f5 51 b2 f8 da 64 41 23 69 bb 00 60 25 b6 ca
all: 38 1b c0 bc fe e9 88 77 30 fc 80 5d 59 d8 0c 7b

checksum
global: f1 d7 ea 74 d1 a4 12 f2 44 a6 de 63 3b 72 68 4a
root: cb f5 51 b2 f8 da 64 41 23 69 bb 00 60 25 b6 ca
all: 38 1b c0 bc fe e9 88 77 30 fc 80 5d 59 d8 0c 7b

FS324P3W11000005 #
```

system info admin ssh

Use this command to display information about the SSH configuration on the FortiSwitch such as:

- the SSH port number
- the interfaces with SSH enabled
- the hostkey DSA fingerprint
- the hostkey RSA fingerprint

Syntax

```
get system info admin ssh
```

Example output

```
# get system info admin ssh
SSH v2 is enabled on port 22
SSH is enabled on the following 1 interfaces:
mgmt
SSH hostkey DSA fingerprint = cd:e1:87:70:bb:f0:9c:7d:e3:7b:73:f7:44:23:a5:99
SSH hostkey RSA fingerprint = c9:5b:49:1d:7c:ba:be:f3:9d:39:33:4d:48:9d:b8:49
```

system info admin status

Use this command to display administrators that are logged into the FortiSwitch.

Syntax

```
get system info admin status
```

Example

This shows sample output.

```
Index User name Login type From
0 admin CLI ssh(172.20.120.16)
1 admin WEB 172.20.120.16
```

| Variable | Description |
|------------|--|
| Index | The order the administrators logged in. |
| User name | The name of the user account logged in. |
| Login type | Which interface was used to log in. |
| From | The IP address this user logged in from. |

system interface physical

Use this command to list information about the physical network interfaces.

Syntax

```
get system interface physical
```

Example output

```
# get system interface physical
== [onboard]
==[internal]
mode: static
ip: 0.0.0.0 0.0.0.0
ipv6: ::/0
```

```
status: up
speed: 1000Mbps (Duplex: full)
==[mgmt]
mode: static
ip: 172.20.120.129 255.255.255.0
ipv6: ::/0
status: up
speed: 1000Mbps (Duplex: full)
```

system link-monitor

Use this command to list information about the physical network interfaces.

Syntax

```
get system link-monitor
```

system mgmt-csum

Use this command to display system checksum values.

Syntax

```
get system mgmt-csum
```

Example

```
# get system mgmt-csum
debugzone
global: 6a da e7 8e 4b 0a 9a 44 8a 9f c8 1d 74 60 1f 58
root: f1 8d 2d d2 db 0b b8 57 a9 46 0a 90 d6 43 98 76
all: e9 b9 3a 21 ff 7d fb fd a4 ca c4 91 71 a9 3c bf

checksum
global: 6a da e7 8e 4b 0a 9a 44 8a 9f c8 1d 74 60 1f 58
root: f1 8d 2d d2 db 0b b8 57 a9 46 0a 90 d6 43 98 76
all: e9 b9 3a 21 ff 7d fb fd a4 ca c4 91 71 a9 3c bf
```

system ntp

Use this command to get information about the NTP settings.

Syntax

```
get system ntp
```

Example output

```
ntpserver:
```

```
== [ 1 ]
id: 1
== [ 2 ]
id: 2
ntpsync : enable
source-ip : 0.0.0.0
syncinterval : 1
```

system password-policy

Use this command to view the password policy.

Syntax

```
get system password-policy
```

Example output

```
# get system password-policy
status : enable
apply-to : admin-password
minimum-length : 8
min-lower-case-letter: 2
min-upper-case-letter: 2
min-non-alphanumeric: 0
min-number : 2
    change-4-characters : disable
expire-status : disable
```

| Variable | Description |
|---------------------|--|
| packet-distribution | Display a list of packet size ranges and the number of packets of each size accepted by the firewall since the system restarted. You can use this information to learn about the packet size distribution on your network. |
| statistics | Display a list of traffic types (browsing, email, DNS etc) and the number of packets and number of payload bytes accepted by the firewall for each type since the system was restarted. |

system performance status

Use this command to display FortiSwitch CPU usage, memory usage, network usage, sessions, virus, IPS attacks, and system up time.

Syntax

```
get system performance status
```

| Variable | Description |
|----------------------------|---|
| CPU states | <p>The percentages of CPU cycles used by user, system, nice and idle categories of processes. These categories are:</p> <ul style="list-style-type: none"> <code>user</code> -CPU usage of normal user-space processes <code>system</code> -CPU usage of kernel <code>nice</code> - CPU usage of user-space processes having other-than-normal running priority <code>idle</code> - Idle CPU cycles <p>Adding user, system, and nice produces the total CPU usage as seen on the CPU widget on the web-based system status dashboard.</p> |
| Memory states | The percentage of memory used. |
| Average network usage | The average amount of network traffic in kbps in the last 1, 10 and 30 minutes. |
| Average sessions | The average number of sessions connected to the FortiSwitch over the last 1, 10 and 30 minutes. |
| Average session setup rate | The number of sessions set up per second. |
| Uptime | How long since the system has been restarted. |

Example output

```
# get system performance status
CPU states: 0% user 0% system 0% nice 100% idle
Memory states: 18% used
Average network usage: 0 kbps in 1 minute, 0 kbps in 10 minutes, 1 kbps in 30 minutes
Average sessions: 5 sessions in 1 minute, 6 sessions in 10 minutes, 5 sessions in 30
minutes
Virus caught: 0 total in 1 minute
IPS attacks blocked: 0 total in 1 minute
Uptime: 9days, 22 hours, 0 minutes
```

system performance top

Use this command to display the list of processes running on the system (similar to the Linux `top` command).

The following commands are available when **get system performance top** is running:

- Press Q or Ctrl+C to quit.
- Press P to sort the processes by the amount of CPU that the processes are using.
- Press M to sort the processes by the amount of memory that the processes are using.

Syntax

```
get system performance top [<delay_int>] <max_lines_int>]]
```

| Variable | Description |
|-----------------|---|
| <delay_int> | The delay, in seconds, between updating the process list. The default is 5 seconds. |
| <max_lines_int> | The maximum number of processes displayed in the output. The default is 20 lines. |

system session list

This command returns a list of all the sessions active on the system.

Syntax

```
get system session list
```

Example output

```

PROTO    EXPIRE  SOURCE          SOURCE-NAT  DESTINATION  DESTINATION-NAT
tcp 0 127.0.0.1:1083 -    127.0.0.1:514 -
tcp 0 127.0.0.1:1085 -    127.0.0.1:514 -
tcp 10 127.0.0.1:1087 -    127.0.0.1:514 -
tcp 20 127.0.0.1:1089 -    127.0.0.1:514 -
tcp 30 127.0.0.1:1091 -    127.0.0.1:514 -
tcp 40 127.0.0.1:1093 -    127.0.0.1:514 -
tcp 60 127.0.0.1:1097 -    127.0.0.1:514 -
tcp 70 127.0.0.1:1099 -    127.0.0.1:514 -
tcp 80 127.0.0.1:1101 -    127.0.0.1:514 -
tcp 90 127.0.0.1:1103 -    127.0.0.1:514 -
tcp 100 127.0.0.1:1105 -    127.0.0.1:514 -
tcp 110 127.0.0.1:1107 -    127.0.0.1:514 -
tcp 103 172.20.120.16:3548 -    172.20.120.133:22 -
tcp 3600 172.20.120.16:3550 -    172.20.120.133:22 -
udp 175 127.0.0.1:1026 -    127.0.0.1:53 -
tcp 5 127.0.0.1:1084 -    127.0.0.1:514 -
tcp 5 127.0.0.1:1086 -    127.0.0.1:514 -
tcp 15 127.0.0.1:1088 -    127.0.0.1:514 -
tcp 25 127.0.0.1:1090 -    127.0.0.1:514 -
tcp 45 127.0.0.1:1094 -    127.0.0.1:514 -
tcp 59 127.0.0.1:1098 -    127.0.0.1:514 -
tcp 69 127.0.0.1:1100 -    127.0.0.1:514 -
tcp 79 127.0.0.1:1102 -    127.0.0.1:514 -
tcp 99 127.0.0.1:1106 -    127.0.0.1:514 -
tcp 109 127.0.0.1:1108 -    127.0.0.1:514 -
tcp 119 127.0.0.1:1110 -    127.0.0.1:514 -

```

| Variable | Description |
|-----------------|--|
| PROTO | The transfer protocol of the session. |
| EXPIRE | How long before this session will terminate. |
| SOURCE | The source IP address and port number. |
| SOURCE-NAT | The source of the NAT. '-' indicates there is no NAT. |
| DESTINATION | The destination IP address and port number. |
| DESTINATION-NAT | The destination of the NAT. '-' indicates there is no NAT. |

system session status

Use this command to display the number of active sessions on the system.

Syntax

```
get system session status
```

Example output

```
The total number of sessions for the current VDOM: 3100
```

system session-helper-info list

Use this command to list the FortiSwitch session helpers and the protocol and port number configured for each one.

Syntax

```
get system sesion-helper-info list
```

Example output

```
list builtin help module:
mgcp
dcerpc
rsh
pmap
dns-tcp
dns-udp
rtsp
pstp
sip
rms
tns
h245
```

```

h323
ras
tftp
ftp
list session help:
help=pmap, protocol=17 port=111
help=rtsp, protocol=6 port=8554
help=rtsp, protocol=6 port=554
help=pptp, protocol=6 port=1723
help=rtsp, protocol=6 port=7070
help=sip, protocol=17 port=5060
help=pmap, protocol=6 port=111
help=rsh, protocol=6 port=512
help=dns-udp, protocol=17 port=53
help=tftp, protocol=17 port=69
help=tns, protocol=6 port=1521
help=mgcp, protocol=17 port=2727
help=dcerpc, protocol=17 port=135
help=rsh, protocol=6 port=514
help=ras, protocol=17 port=1719
help=ftp, protocol=6 port=21
help=mgcp, protocol=17 port=2427
help=dcerpc, protocol=6 port=135
help=mms, protocol=6 port=1863
help=h323, protocol=6 port=1720

```

system session-info

Use this command to display session information.

Syntax

```

get system session-info expectation
get system session-info full-stat
get system session-info list
get system session-info statistics
get system session-info ttl

```

| Variable | Description |
|-------------|---|
| expectation | Display expectation sessions. |
| full-stat | Display detailed information about the session table including a session table and expect session table summary, firewall error statistics, and other information. |
| list | Display detailed information about all current sessions. For each session the command displays the protocol number, traffic shaping information, policy information, state information, statistics and other information. |

| Variable | Description |
|------------|---|
| statistics | Display the same information as the <code>full-stat</code> command except for the session table and expect session table summary. |
| tll | Display the current setting of the <code>config system session-ttl</code> command including the overall session timeout as well as the timeouts for specific protocols. |

Example output

```
get system session-info statistics
misc info: session_count=15 exp_count=0 clash=0 memory_tension_drop=0 ephemeral=1/32752
           removeable=14
delete=0, flush=0, dev_down=0/0
firewall error stat:
error1=00000000
error2=00000000
error3=00000000
error4=00000000
tt=00000000
cont=00000000
ids_recv=00000000
url_recv=00000000
av_recv=00000000
fqdn_count=00000001
tcp reset stat:
syncqf=0 acceptqf=0 no-listener=227 data=0 ses=0 ips=0
global: ses_limit=0 ses6_limit=0 rt_limit=0 rt6_limit=0
```

system settings

Use this command to get information about xxx settings.

Syntax

```
get system settings
```

Example output

```
#get system system settings
v4-ecmp-mode : source-ip-based
```

system sflow

Use this command to display the sflow settings.

Syntax

```
get system sflow
```

Example output

```
## get system sflow
collector-ip : 0.0.0.0
collector-port : 6343
```

system snmp sysinfo

Use this command to get information about your system's SNMP settings.

Syntax

```
get system snmp sysinfo
```

system snmp sysinfo

Use this command to get information about your system's SNMP settings.

Syntax

```
get system snmp sysinfo
```

Example output

```
# get system snmp sysinfo
contact-info : (null)
description : (null)
engine-id : (null)
location : (null)
status : disable
trap-high-cpu-threshold: 80
trap-log-full-threshold: 90
trap-low-memory-threshold: 80
```

system source-ip status

Use this command to list defined source-IPs.

Syntax

```
get system source-ip status
```

Example output

```
# get sys source-ip status
The following services force their communication to use
a specific source IP address:
```

```
service=NTP source-ip=172.18.19.101
service=DNS source-ip=172.18.19.101
vdom=root service=RADIUS name=server-pc25 source-ip=10.1.100.101
vdom=root service=TACACS+ name=tac_plus_pc25 source-ip=10.1.100.101
vdom=root service=FSAE name=pc26 source-ip=172.18.19.101
vdom=V1 service=RADIUS name=pc25-Radius source-ip=172.16.200.101
vdom=V1 service=TACACS+ name=pc25-tacacs+ source-ip=172.16.200.101
vdom=V1 service=FSAE name=pc16 source-ip=172.16.200.101
```

system startup-error-log

Use this command to display information about system startup errors. This command only displays information if an error occurs when the system starts up.

Syntax

```
get system startup-error-log
```

system status

Use this command to display FortiSwitch status information including:

firmware version, build number and branch point

- serial number
- host name
- system time and date and related settings

Syntax

```
get system status
```

Example output

```
# get system status
Version: FortiSwitch-324B-POE v1.0,build0102,111125 (GA)
Serial-Number: FS324P3W11000005
BIOS version: 04000005
System Part-Number: P09835-01
Hostname: FS324P3W11000005
Distribution: International
Branch point: 102
Release Version Information: GA
System time: Mon Jan 30 11:27:15 2012
```

test

Use this command to display information about applications on this FortiSwitch:

Syntax

```
get test {dnsproxy | radiusd | sflowd | snmpd} <test_level_int>
```

| Variable | Description |
|---------------------------------------|--|
| {dnsproxy radiusd sflowd snmpd} | Set the application to be tested. Tests can be run on the following applications: <dnsproxy> dns proxy <radiusd> radius daemon <sflowd> sflowd <snmpd> snmpd daemon |
| <test_level_int> | Set the level for the test. |

user group

Use this command to get information on all the system's user groups.

Syntax

```
get user group
```

user ldap

Use this command to get information on ldap .

Syntax

```
get user ldap
```

user local

Use this command to get information about local users.

Syntax

```
get user local
```

user radius

Use this command to get information about radius users.

Syntax

```
get user ldap
```

user setting

Use this command to get information on all the system's user settings.

Syntax

```
get user setting
```

Example output

```
# get user setting
auth-blackout-time : 0
auth-cert : (null)
auth-http-basic : disable
auth-invalid-max : 5
auth-multi-group : enable
auth-ports:
auth-secure-http : disable
auth-timeout : 5
auth-timeout-type : idle-timeout
auth-type : http https ftp telnet
```

user tacacs+

Use this command to get information about tacacs+ users.

Syntax

```
get user tacacs+
```

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