ipinfusion™

ZebOS®
Advanced Routing Suite
Version 5.4

BGP Command Reference

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ZebOS Command Line Interface Environment

About This Command Reference

Network administrators and application developers who install and configure ZebOS® IP routing software should use this Command Reference.

This Reference contains the following information:

*   An overview of the ZebOS Command Line Interface.
*   The complete command reference for ZebOS Border Gateway Protocol (BGP).

Users can use a telnet session to log onto the BGP daemon and use the CLI described in this Command Reference to issue commands to configure and to get information about the BGP daemon.

Command Line Interface Primer

The ZebOS® Command Line Interface (CLI) is a text based facility similar to industry standards. Many of the commands may be used in scripts to automate many configuration tasks. Each command CLI is usually associated with a specific function or a common function performing a specific task. Multiple users can telnet and issue commands using the Exec mode and the Priviledged Exec mode. However, only one user is allowed to use the Configure mode at a time, to avoid multiple users from issuing configuration commands simultaneously.

The VTY shell, described in the ZebOS VTY Shell Developer Guide, gives users and administrators the ability to issue commands to several daemons from a single telnet session.

Command Line Help

The ZebOS CLI contains a text-based help facility. Access this help by typing in the full or partial command string then typing "?". The ZebOS CLI displays the command keywords or parameters plus a short description.

For example, at the CLI command prompt, type `show` ? (the CLI does not display the question mark).
The CLI displays this keyword list with short descriptions for each keyword:

```
bgpd# show
    debugging       Debugging functions (see also 'undebug')
    history         Display the session command history
    ip              IP information
    memory          Memory statistics
    route-map       route-map information
    running-config  running configuration
    startup-config  Contents of startup configuration
    version         Displays ZebOS version
```

Syntax Help

The ZebOS CLI can complete the spelling of command or parameter keywords. Begin typing the command or parameter then press TAB. At the CLI command prompt type `sh`:

```
Router> sh
```
Press TAB. The CLI shows:

```
Router> show
```
If the command or parameter partial spelling is ambiguous, the ZebOS CLI displays the choices that match the abbreviation. Type `show i`. Press TAB. The CLI shows:

```
Router> show i
interface   ip
Router> show i
```
The interface displays the `interface` and `ip` keywords. Type `n` to select `interface` and press TAB. The CLI shows:

```
Router> show in
Router> show interface
```
Type ? and the CLI shows the list of parameters for the `show interface` command.

```
    [IFNAME]   Interface name
Router> show interface
```
This command has but one positional parameter, an interface name. Supply a value for the `IFNAME` parameter.

Command Abbreviations

The ZebOS CLI accepts abbreviations for commands. For example,

```
sh in 7
```
is the abbreviation for the `show interface` command.

Command line errors

If the router does not recognize the command after ENTER is pressed, it displays this message:

```
% Unknown command.
```
If a command is incomplete it displays this message:

```
% Command incomplete.
```
Some commands are too long for the display line and can wrap in mid-parameter or mid-keyword if necessary:

```
area 10.10.0.18 virtual-link 10.10.0.19 authent
ication-key 57393
```

Command Reference Primer

Conventions for the syntax, procedures describing how to enter commands and how information is displayed by daemons in response to commands on the console are given in the following table.

Convention	Description
command	This monospaced font represents command strings entered on a command line and sample source code.
UPPERCASE	A variable parameter. Enter a value according to the descriptions that follow.
lowercase	A keyword parameter. Enter lowercase values exactly as shown
|	The vertical bar. Delimits choices; select one from the list.
()	Parentheses. Encloses options. Do not enter parentheses as part of any command.

Convention	Description
`[ ]`	Square brackets: groups parameters and keywords into a single unit. Take all parts within these brackets. Do not enter brackets as part of any command.
`< >`	Angle brackets: enclose a numeric range. Do not enter angle brackets as part of any command.
description	Proportional font gives specific details about a parameter.
`=`	Equal sign: separates the command syntax from explanatory text.
`.`	A dot. Repeats the element that immediately follows an unspecified number of times. For example: `.AA:NN` can be expanded to: `1:01 1:02 1:03.` Do not enter the period as part of the command.
`A.B.C.D`	An IPv4-style address for example, `10.0.11.123.`
`X:X::X:X`	An IPv6-style address, for example, `3ffe:506::1,` where the `::` represents all 0s for those address components not explicitly given.

Note: Unless otherwise stated, press Enter after each command entry.

sample command name

Description of the command: what it does, when to use it and so on.

Command Syntax

```
sample command name mandatory-parameters (OPTIONAL-PARAMETERS)
```

Default

Disabled | Enabled Whether the command is default enabled or disabled before it is executed.

Command Mode

Exec, Privilege Exec, Configure mode and so on.

Usage

Describes the interactions between and among parameters and how this command is used. This, in conjunction with the Example, gives detailed information about the command usage. This section includes appropriate sample displays.

Example

Used if needed to show the complexities of the command syntax.

Related Commands

Not every one but only those that are "next of kin".

Equivalent Commands

This heading is optional and lists commands that accomplish the same function.

Validation Commands

This heading is optional and lists commands that can be used to validate the effects of other commands.

Command Negation

In this example, the OSPF `area virtual-link` command, `no` is optional. This means that the entire syntax can be negated. Depending on the command or the parameters, command negation can mean the disabling of one entire feature for the router or the disabling of that feature for a specific ID, interface or address.

```
(no) area AREAADDRESSID virtual-link ROUTERID (AUTHENTICATE|MSGD|INTERVAL)
```

In this example negation is for the base command; the negated form does not take any parameters.

```
default-metric <1-16777214>
```

```
no default-metric
```

Variable Parameter expansion

For the `area virtual-link` command,

```
(no) area AREAADDRESSID virtual-link ROUTERID (AUTHENTICATE|MSGD|INTERVAL)
```

the `AREAADDRESSID` parameter is replaced by either an IP address or a number in the given range:

```
AREAADDRESSID=A.B.C.D|<0-4294967295>
```

and `ROUTERID` by an IP address. The minimum command then is:

```
area 10.10.0.11 virtual-link 10.10.0.12
```

The parameters in the string `(AUTHENTICATE|MSGD|INTERVAL)` are optional, and only one may be chosen. Each one can be replaced by more keywords and parameters. One of these parameters, `MD5`, is replaced by the following string:

```
MD5= [message-digest-key <1-255> md5 MD5_KEY]
```

with `MD5_KEY` replaced by a 1-16 character string.

Common Command Modes

The commands available for each protocol are separated into several modes (nodes) arranged in a hierarchy; Exec is the lowest. Each mode has its own special commands; in some modes, commands from a lower level are available.

Note: Multiple users can telnet and issue commands using the Exec mode and the Priviledged Exec mode. However, only one user is allowed to use the Configure mode at a time, to avoid multiple users from issuing configuration commands simultaneously.

Exec This mode, also called the View mode, is the base mode from where users can perform basic commands like show, exit, quit, help, list, and enable. All ZebOS daemons have this mode.

Priviledged Exec This mode, also called the Enable mode, allows users to perform debugging commands, the write commands (for saving and viewing the configuration), show commands, and so on. All ZebOS daemons have this mode.

Configure Sometimes referred to as Configure Terminal, this mode serves as a gateway into the Interface, Router, Line, Route Map, Key Chain and Address Family modes. All ZebOS daemons have this mode.

Interface This mode is used to configure protocol-specific settings for a particular interface. Any attribute configured in this mode overrides an attribute configured in the router mode.

Line This mode makes available access-class commands.

This diagram shows the common command mode tree.

```
        ┌─────────────────┐
        │  Startup Router │──── Command Mode
        │  in EXEC mode   │
        │   (View mode)   │
        └────────┬────────┘
                 │
         enable ─────── Command used to enter
       (password)       the next Command Mode
                 │
                 ▼
        ┌─────────────────┐
        │    Privileged   │
        │    EXEC mode    │
        │   (Enable mode) │
        └────────┬────────┘
                 │
          configure terminal
                 │
                 ▼
        ┌─────────────────┐
        │    Configure    │
        │      mode       │
        └────────┬────────┘
                ╱ ╲
   interface IFNAME   Line vty
              ╱         ╲
             ▼           ▼
    ┌──────────┐   ┌──────────┐
    │ Interface│   │   Line   │
    │   mode   │   │   mode   │
    └──────────┘   └──────────┘
```
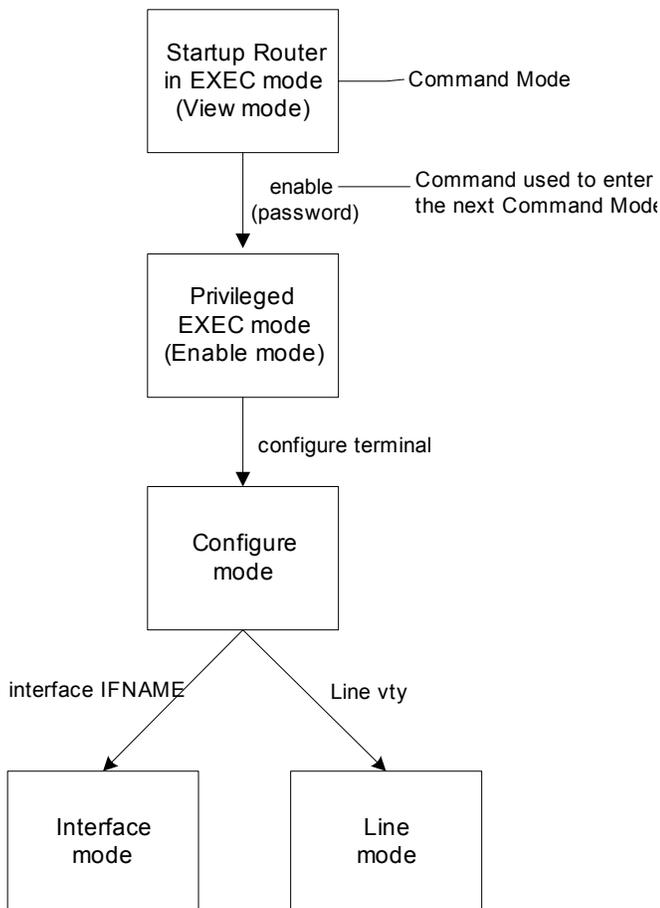
BGP Daemon Command Modes

Router Sometimes referred to as `configure router` mode, this mode is available for the MPLS, BGP, OSPF, and RIP protocols only and makes available router and routing commands.

Route-map This mode is used to set route metric, route-length and cost data. It is available for the BGP, OSPF, and RIP protocols only.

Address Family This mode allows support for multiprotocol BGP extension. It includes address family-specific commands that are used to modify the behavior of BGP for a specific address family. For details on this mode, see "Address Family Mode" on page 6.

The following diagram shows the complete BGP daemon command mode tree. For information about Exec, Privileged Exec, Configure and Interface modes please refer to the ZebOS daemon command modes mentioned earlier in this chapter.

Startup Router in Exec mode (View mode) —— Command Mode

enable (password) —— Command used to enter the next command mode

Privileged Exec mode (Enable mode)

configure terminal

Configure mode

route-map TAG → Route-map mode

router bgp PROCESSID → Router mode

ip vrf VRF_NAME → VRF mode

address-family* → Address Family mode
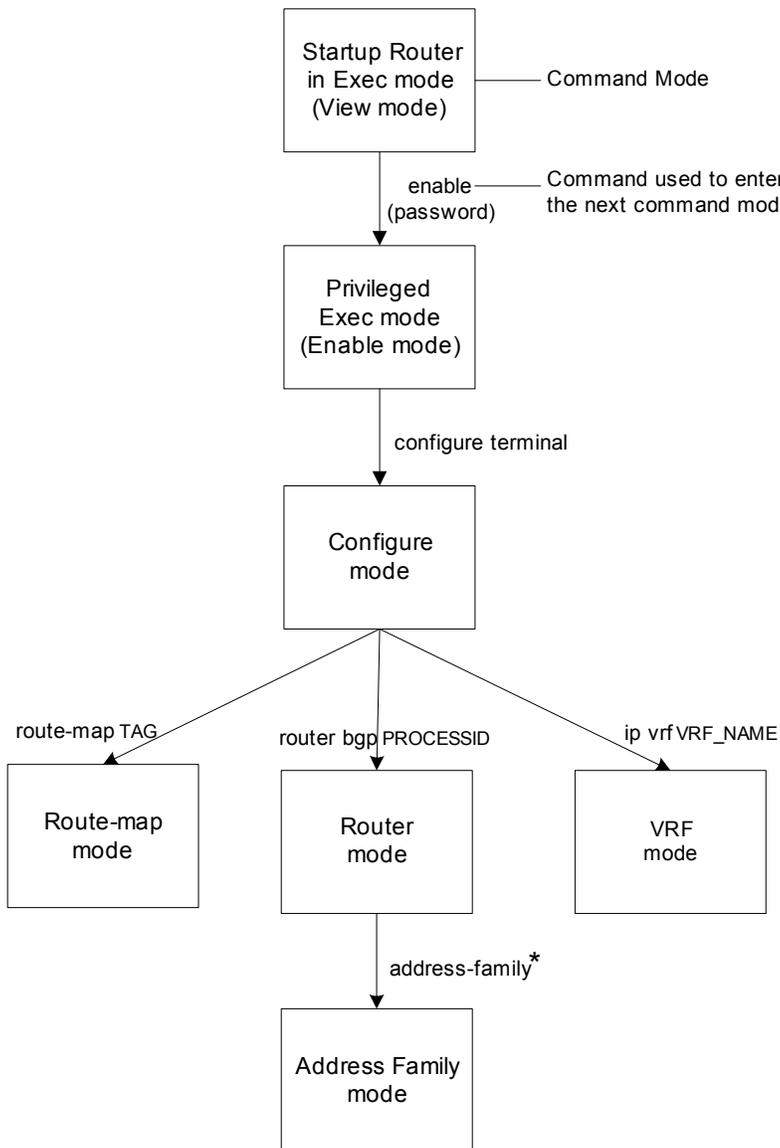
Following is a description of the parameters used in the above mentioned commands.

`PROCESSID` **= < 0-65535 >**

`TAG` **=** `WORD` **(**`deny|permit`**)** **<1-65535>**

 `WORD`

 `deny` Route-map denies set operations

 `permit` Route-map permits set operations

 `<1-65535>` Sequence to insert to / delete from existing route-map entry.

`VRF_NAME` = A name used to identify a `VRF`.

 * The Address Family mode is described in the following section.

Address Family Mode

The following commands support BGP-4 extensions (refer to RFC 2283) and enable carrying of routing information for multiple Network Layer protocols. .

```
┌──────────┐
│  Router  │────── Command Mode
│  Mode    │
└──────────┘
     │
     │   1. address-family ipv4 (unicast | multicast)
     │
     │                                    Command used to
     │   2. address-family ipv6 (unicast) ──── enter the next
     │                                    command mode
     │   3. address-family vpnv4 (unicast)
     │
     │   4. address-family ipv4 vrf VRF-NAME
     │
┌──────────────┐
│ Address Family│
│    Mode       │
└──────────────┘
```
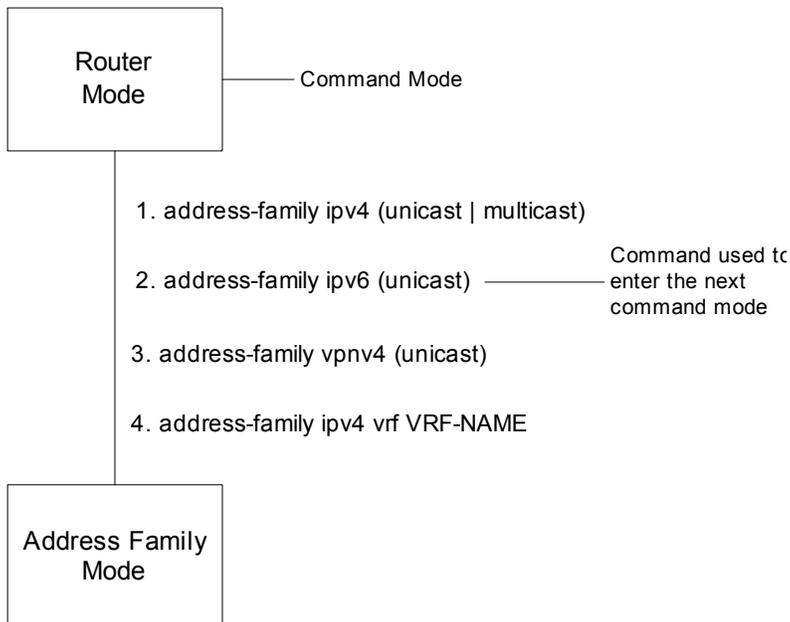
The following is a description of the parameters used in the above mentioned commands:

 `ipv4` Specifies IPv4 Address Family

 `ipv6` Specifies IPv6 Address Family

 `vpn4` Specifies VPNv4 Address Family

 `vrf VRF_NAME` Specifies the name of the virtual routing and forwarding (VRF) instance

 `unicast` Specifies unicast address prefixes

 `multicast` Specifies multicast address prefixes

Commands Common to Multiple Protocols

See the *ZebOS NSM Command Reference* for information about using these commands in multiple protocol daemons.

Command Name	Use this command to:
access-class	filter a connection based on an IP access list, for IPv4 networks
banner	toggle the displaying of the banner text.
configure terminal	enter the configure terminal mode.
copy running-config startup-config	replace the current config with the startup config
description	provide interface-specific information
disable	exit priviledged exec mode
enable	enter the priviledge exec command mode
enable password	change the password for the enable command
end	leave the current mode
exec-timeout	set command interpreter wait interval
exit	leave the current mode, or logout of the session
help	display online text assistance
hostname	set or change network server name
ip prefix-list	create an entry for a prefix list.
ipv6 access-class	filter connection based on an IP access list for IPv6 networks
ipv6 prefix-list	create an entry for an IPv6 prefix list.
line vty	enter vty mode
list	list all commands for a mode
log file	specify the file that collects logging information
log record-priority	specify the logging of the priority of a message
log stderr	begin logging information to the standard error log
log stdout	begin logging information to the standard output
log syslog	begin logging information to the system log
log trap	limit logging to a specified level or type
log vty	begin logging information to the VTY
login	set a password prompt and enable password checking
match as-path	match an autonomous system path access list
match community	specify the community to be matched
match interface	define the interface match criterion
match ip address	specify the match address of route
match ip next-hop	specify a next-hop address to be matched in a route-map
match ip next-hop prefix-list	specify the next-hop IP address match criterion, using the prefix-list
match ipv6 address	specify the match IPv6 address of route
match ipv6 address prefix-list	match entries of IPv6 prefix-lists
match ipv6 next-hop	specify a next-hop IPv6 address to be matched by the route-map
match metric	match a metric of a route
match origin	match origin code

Command Name	Use this command to:
match route-type	match specified external route type.
match tag	match the specified tag value.
memory maximum	specify maximum limit of memory usage.
memory warning	specify the memory usage warning threshold.
password	specify a network password.
quit	leave the current mode.
route-map	enter the route-map mode and to permit or deny match/set operations.
service advanced-vty	set the VTY session to Privileged Exec mode instead of the Exec mode (which is the default).
service password-encryption	specify encription of passwords.
service terminal-length	set the terminal length for VTY sessions.
set aggregator	set the AS number for the route map and router ID.
set as-path	modify an autonomous system path for a route.
set atomic-aggregate	set an atomic aggregate attribute.
set comm-list delete	delete matching communities from inbound or outbound updates.
set community	set the communities attribute.
set community-additive	add a community to the already existing communities.
set extcommunity	set an extended community attribute.
set ip next-hop	set the specified next-hop value.
set ipv6 next-hop	set a next hop-address.
set metric	set a metric value for a route.
set metric-type	set the metric type for the destination routing protocol.
set next-hop	specify the next-hop address.
set origin	set the origin code.
set originator-id	set the originator ID attribute.
set tag	set specified tag value.
set vpnv4 next-hop	set a VPNv4 next-hop address.
set weight	set weights for the routing table.
show history	display all commands used in a session.
show ip prefix-list	display the prefix list entries.
show memory	display the memory usage for the current session.
show memory all	display the memory reports for all protocols.
show memory detail	display a detailed cell list for the specified cell type.
show memory lib	display the memory report for the NSM library.
show memory stats	display statistics and counters for the specified Memory Cell Type.
show memory summary	display the summary of memory subsystem statistics.
show route-map	display user readable route-map information.
show running-config	display the current configuration.
show startup-config	display the startup configuration (from storage).
show version	display the current ZebOS version.

Command Name	Use this command to:
terminal length	set the number of lines in a terminal display.
terminal monitor	display debugging on a monitor.
who	display other VTY connections.
write file and write memory	write the current configuration file.
write terminal	display current configurations to the VTY terminal.

CHAPTER 2   BGP Commands

This chapter provides an alphabetized reference for each of the BGP commands.

address-family

Use this command to enter the IPv4, IPv6 or VPNv4 `address-family` command mode.

Command Syntax

```
address-family ipv4 multicast|unicast

address-family ipv6 (unicast)

address-family vpnv4 (unicast)
```

> `vpnv4` Configures sessions for VPN-IPv4 prefixes. Commands entered after this parameter is used should have IPv4 style addresses: `A.B.C.D`.

> `ipv6` Configures sessions for VPN-IPv6 prefixes. Commands entered after this parameter is used should have IPv6 style addresses: `X:X::X:X`.

> `multicast` Specifies multicast prefixes.

> `unicast` Specifies unicast prefixes.

Command Mode

Router mode

Usage

Use the address family command to enter the address family mode allowing configuration of address-family specific parameters. To leave the address family mode and retrun to the Configure mode use the exit-address-family command.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 7657
ZebOS(config-router) neighbor 3ffe:506::1 remote-as 7657
!
ZebOS# configure terminal
ZebOS(config) router bgp 7657
ZebOS(config-router)address-family ipv6
ZebOS(config-router-af)neighbor 3ffe:506::1 activate
ZebOS(config-router-af)exit-address-family
```

Related Commands

exit, exit-address-family

aggregate-address

Use this command to configure BGP aggregate entries.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) aggregate-address IPADDRESS (summary-only) (as-set)
    IPADDRESS = A.B.C.D/M Specifies the aggregate prefix.
    summary-only Filters more specific routes from updates.
    as-set Generates AS set path information
```

Default

Disabled

Command Mode

Router mode

Usage

Aggregates are used to minimize the size of routing tables. Aggregation combines the characteristics of several different routes and advertises a single route. The `aggregate-address` command creates an aggregate entry in the BGP routing table if any more-specific BGP routes are available in the specified range. Using the `summary-only` parameter advertises the prefix only, suppressing the more-specific routes to all neighbors. In the following example Router1 will propagate network 172.0.0.0 and suppresses the more specific route 172.10.0.0.

```
Router1#
aggregate-address 172.0.0.0/ 8 summary-only
```

The `as-set` parameter creates an aggregate entry advertising the path for this route, consisting of all elements contained in all paths being summarized. Use the `as-set` parameter to reduce the size of path information by listing the AS number only once, even if it was included in multiple paths that were aggregated. The `as-set` parameter is useful when aggregation of information results in an incomplete path information. In the following configuration Router1 has set the as-set parameter. When sending aggregate information to Router2 this indicates that 172.0.0.0 belongs to a set 100 and 200. Without the `as-set` parameter Router2 would receive path information indicating that the information was originating from AS 300 and have no knowledge that it was coming from two different autonomous systems. This might create loops.

```
Router1#
   router bgp 300
   neighbor 2.2.2.2 remote-as 100
   neighbor 3.3.3.3 remote-as 200
   aggregate-address 172.0.0.0/8 summary-only as-set
```

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# aggregate-address 10.0.0.0/8 as-set summary-only
```

Related Commands

match as-path

bgp aggregate-nexthop-check

Use this command to set the BGP option to perform aggregation only when next-hop matches the specified IP address.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no)bgp aggregate-nexthop-check
```

Default

Disabled

Command Mode

Configure mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# bgp aggregate-nexthop-check
```

Related Commands

bgp always-compare-med

Use this command to compare the Multi Exit Discriminator (MED) for paths from neighbors in different autonomous systems.

Use the `no` parameter with this command to disallow the comparison.

Command Syntax

```
(no) bgp always-compare-med
```

Default

Disabled

Command Mode

Router mode

Usage

Multi Exit Discriminator (MED) is used in best path selection by BGP. MED is compared after BGP attributes weight, local preference, AS-path and origin have been compared and are equal.

MED comparison is done only among paths from the same autonomous system (AS). Use `bgp always-compare-med` command to allow comparison of MEDs from different ASs. The MED parameter is used to select the best path. A path with lower MED is preferred. If the bgp table shows the following and the always-compare-med is enabled:

```
Route1: as-path 400, med 300
Route2: as-path 200, med 200
Route3: as-path 400, med 250
```

Route1 is compared to Route2. Route2 is best of the two (lower MED). Next, Route2 is compared to Route3 and Route2 is chosen best path again (lower MED). If always-compare-med was disabled, MED is not taken into account when Route1 and Route2 are compared, because of different ASs and MED is compared for only Route1 and Route3. In this case, Route3 would be the best path. The selected route is also affected by the `bgp deterministic-med` command. Please see `bgp deterministic-med` command for details.

If this command is used to compare MEDs for all paths, it should be configured on every BGP router in the AS.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# bgp always-compare-med
```

Related Commands

bgp bestpath med, bgp bestpath as-path ignore, bgp bestpath compare-routerid, bgp deterministic-med

bgp bestpath as-path ignore

Use this command to prevent the router from considering as-path as a factor in the algorithm for choosing a route.

Use the `no` parameter with this command to allow the router to consider as-path in choosing a route.

Command Syntax

```
(no) bgp bestpath ASPATH
```

> ASPATH= `as-path ignore` AS path attribute.
>
> > `ignore` AS path length in selecting a route.

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp bestpath as-path ignore
```

Related Commands

bgp always-compare-med, bgp bestpath med, bgp bestpath compare-routerid

bgp bestpath compare-routerid

Use this command to compare router-id for identical eBGP paths.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) bgp bestpath COMPARE
```

> COMPARE = `compare-routerid` Compare router-id for identical eBGP paths.

Default

BGP receives routes with identical eBGP paths from eBGP peers and selects the first route received as the best path.

Command Mode

Router mode

Usage

When comparing similar routes from peers the BGP router does not consider router ID of the routes. By default, it selects the first received route. Use this command to include router ID in the selection process; similar routes are compared and the route with lowest router ID is selected. The router-id is the highest IP address on the router, with preference given to loopback addresses. Router-id can be manually set by using the bgp router-id command.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp bestpath compare-routerid
```

Related Commands

show ip bgp, show ip bgp neighbors

bgp bestpath med

Use this command to specify Multi Exit Discriminator (MED) attribute comparison.

Use the `no` parameter with this command to prevent BGP from considering the MED attribute in comparing paths.

Command Syntax

```
bgp bestpath med (confed) (missing-as-worst)
bgp bestpath med missing-as-worst confed
```

> `confed` Compares MED among confederation paths
> `missing-as-worst` Treats missing MED as the least preferred one

Command Mode

Router mode

Default

MED value is zero.

Usage

Use this command to specify two MED attributes--confed and missing-as-worst. The confed attribute enables MED comparison among paths learned from confederation peers. The MEDs are compared only if there is no external autonomous system (an AS not within the confederation) in the path. If there is an external autonomous system in the path, the MED comparison is not made. For example in the following paths, the MED is not compared with Route3 as it is not in the confederation. MED is compared for Route1 and Route2 only.

```
Path1 = 32000 32004, med=4
Path2 = 32001 32004, med=2
Path3 = 32003 1, med=1
```

The missing-as-worst attribute to consider a missing MED attribute in a path as having a value of infinity, making the path without a MED value the least desirable path. If missing-as-worst is disabled, the missing MED is assigned the value of 0, making the path with the missing MED attribute the best path.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp bestpath med missing-as-worst
```

Related Commands

bgp-always-compare-med, bgp bestpath as-path ignore, bgp deterministic-med

bgp client-to-client reflection

Use this command to restore route reflection from a BGP route reflector to clients.

Use the `no` parameter with this command to turn off client-to-client reflection.

Command Syntax

```
(no) bgp client-to-client reflection
```
      `reflection` Allows reflection of routes

Default

When a router is configured as a route reflector, client-to-client reflection is enabled bye default.

Command Mode

Router mode

Usage

The `neighbor route-reflector-client` command is used to configure routers as route reflectors.Route reflectors are used when all Interior Border Gateway Protocol (iBGP) speakers are not fully meshed. If the clients are fully meshed the route reflector is not required, use `no bgp client-to-client reflection` command to disable the client-to-client route reflection.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) no bgp client-to-client reflection
```

Related Commands

bgp cluster-id, neighbor route-reflector-client, show ip bgp

bgp cluster-id

Use this command to configure the cluster ID if the BGP cluster has more than one route reflector.

Use the `no` parameter with this command to remove the cluster ID.

Command Syntax

```
(no) bgp cluster-id CLUSTERID
```

`CLUSTERID = A.B.C.D|<1-4294967295>` Specifies the cluster ID of this router acting as a route reflector, either as IP address or as a maximum of 4 bytes.

`A.B.C.D` Route Reflector Cluster-id in IP address format

`<1-4294967295>` Route Reflector cluster-id as a 32 bit quantity

Command Mode

Router mode

Usage

A cluster includes route reflectors and its clients. Usually, each cluster is identified by the router ID of its single route reflector but to increase redundancy sometimes a cluster may have more than one route reflector. All router reflectors in such a cluster are then identified by a cluster ID. The `bgp cluster-id` command is used to configure the 4 byte cluster ID for clusters with more than one route reflectors.

The following configuration creates a cluster-id 5 including two route-reflector-clients.

```
Router1#
router bgp 200
neighbor 2.2.2.2 remote-as 200
neighbor 3.3.3.3 remote-as 200
neighbor 3.3.3.3 route-reflector-client
neighbor 5.5.5.5 remote-as 200
neighbor 5.5.5.5 route-reflector-client
neighbor 6.6.6.6 remote-as 200
bgp cluster-id 5
```

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp cluster-id 1.1.1.1
```

Related Commands

bgp client-to-client reflection, neighbor route-reflector-client, show ip bgp

bgp confederation identifier

Use this command to specify a BGP confederation identifier.

Use the `no` parameter with this command to remove the BGP confederation identifier.

Command Syntax

```
(no) bgp confederation identifier ID
```

`ID= <1-65535>` Set routing domain confederation AS number

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
```

```
ZebOS(config) router bgp 100
ZebOS(config-router) bgp confederation identifier 1
```

Related Commands

bgp confederation peer

bgp confederation peer

Use this command to configure the Autonomous Systems (AS) that belong to the confederation.

Use the `no` parameter with this command to remove an autonomous system from the confederation.

Command Syntax

```
(no) bgp confederation peer .ASN
        ASN <1-65535>  AS numbers of eBGP peers that are under same confederation but in a different sub-AS
```

Command Mode

Router mode

Usage

A confederation allows an AS to be divided into several ASs. The AS is given a confederation identifier. External routers view only the whole confederation as one AS. Each AS is fully meshed within itself and is visible internally to the confederation. Use the `bgp confederation peer` command to define the list of confederation peers.

In the following configuration of Router1 the neighbor 172.210.30.2 and 172.210.20.1 have iBGP connection within AS 100, neighbor 173.213.30.1 is a BGP connection with a confederation peer 200 and neighbor 6.6.6.6 has an eBGP connection to external AS 300. In the configuration of Router2 neighbor 5.5.5.4 has an eBGP connection to confederation 300.

Router2 does not know about the ASs 100 and 200, it knows about only confederation 300. BGP confederation thus reduces the iBGP mesh inside an AS.

Router1#
```
router bgp 100
bgp confederation identifier 300
bgp confeferation peer 200
neighbor 172.210.30.2 remote-as 100
neighbor 172.210.20.1 remote-as 100
neighbor 173.213.30.1 remote-as 200
neighbor 6.6.6.6 remote-as 300
!
```
Router2#
```
router bgp 500
neighbor 5.5.5.4 remote-as 300
```

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp confederation peer 1234 21345
```

Related Commands

bgp confederation identifier

bgp config-type

Use this command to set the bgp configuration type.

Command Syntax

```
bgp config-type standard|zebos
```

> `standard` Specifies the Industry standard style configuration.
>
> `zebos` Specifies the ZebOS style configuration.

Default

The default configuration type is: `bgp config-type zebos`

Command Mode

Configure mode

Usage

Use this command to set the BGP configuration to `standard` type. `Zebos` type is the default. If configuration is set to `standard type`, use the `neighbor send-community` command to send out BGP community attributes. The `Zebos` type requires no specific configuration for sending out BGP community and extended community attributes.

For the `standard` type `no synchronization` and `no auto-summary` commands are always shown in the configuration, whereas, for the `Zebos` type these two commands are the default.

Examples

```
ZebOS# configure terminal
ZebOS(config)# bgp config-type standard
```

Related Commands

bgp dampening

Use this command to set bgp dampening parameters.

Use the `no` parameter with this command to unset the bgp dampening parameters.

Command Syntax

```
(no) bgp dampening (HALFLIFE (REUSE SUPPRESS MAXSUPPRESS))
```

> `HALFLIFE <1-45>` Specifies the half-life time in minutes. The time for the penalty to decrease to one-half of its current value. The default is 15 minutes.
>
> `REUSE <1-20000>` Specifies the reuse limit value. When the penalty for a suppressed route decays below the reuse value, the routes become unsuppressed. The default reuse limit is 750
>
> `SUPPRESS <1-20000>` Specifies the suppress limit value. When the penalty for a route exceeds the suppress value, the route is suppressed. The default suppress limit is 2000.
>
> `MAXSUPPRESS <1-255>` Specifies the max-suppress-time. Maximum time that a dampened route is suppressed. The default max-suppress value is 4 times the half-life time (60 minutes).

Command Mode

Router mode

Usage

Route dampening minimizes the instability caused by route flapping. A penalty is added for every flap in a flapping route. As soon as the total penalty reaches the `suppress` limit the advertisement of the route is suppressed. This penalty is decayed according to the configured `half time` value. Once the penalty is lower than the `reuse` limit, the route advertisement is un-suppressed.

The dampening information is purged from the router once the penalty becomes less than half of the `reuse` limit.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 11
ZebOS(config-router)# bgp dampening 20 800 2500 80
```

Related Commands

bgp default ipv4-unicast

Use this command to configure BGP defaults and activate ipv4-unicast for a peer by default. This affects the BGP global configuration

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) bgp default ipv4-unicast
```

> `ipv4-unicast` Activates ipv4-unicast for a peer by default

Default

The `bgp default ipv4 unicast` is the default behavior.

Command Mode

Router mode

Usage

The `no bgp default ipv4-unicast` command is used to disable the default behavior of the BGP routing process of exchanging IPv4 addressing information with BGP neighbor routers.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp default ipv4-unicast
```

Related Commands

bgp default local-preference

Use this command to change the default local preference value.

Use the `no` parameter with this command to revert to the default setting.

Command Syntax

```
(no) bgp default local-preference PREF_VALUE
```

PREF_VALUE = <0-4294967295> Configure default local preference value.

The default local preference value is 100.

Command Mode

Router mode

Usage

Local preference indicates the preferred path when there are multiple paths to the same destination. The path having a higher preference is preferred. Use `bgp default local-preference` command to define preference of a particular path. The preference is sent to all routers and access servers in the local autonomous system.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp default local-preference 2345555
```

Related Commands

set local-preference

bgp defer-route-select time

Use this command to set the upper bound of time that a router defers its route selection when performing graceful restart.

Use the `no` parameter with this command to disable the set time that a router defers its route selection during graceful restart.

Command Syntax

```
bgp defer-route-select time <0-65535>
no bgp defer-route-select time
```

<0-65535> The time in seconds after that the router defers its route selection. The default value is 60 seconds.

Command Mode

Router mode

Usage

When restarting speaker, do graceful restart and re-establish the BGP session with receiving side, it shall defer route selection for an address family until it receives the End-Of-RIB marker from all its peers, no routes to advertise to its peers and no routes to update the forwarding state. To put an upper bound on the time a restarting router defer its route selection, we provide a command to configure the defer-route-select timer:

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# bgp defer-route-select time 127
```

Related Commands

bgp deterministic med

Use this command to have ZebOS software compare the Multi Exit Discriminator (MED) variable when choosing among routes advertised by different peers in the same autonomous system.

Use the `no` parameter with this command to disallow this setting.

Command Syntax

```
(no) bgp deterministic-med
```

Default

Disabled

Command Mode

Router mode

Usage

Multi Exit Discriminator (MED) is used in best path selection by BGP. MED is compared after BGP attributes weight, local preference, AS-path and origin have been compared and are equal.

Enable `bgp deterministic med` command on all routers in the local AS, for a correct comparison result. After enabling this command, all paths for the same prefix are grouped together and arranged according to their MED value. Based on this comparison, the best path is then chosen.

This command compares MED variable when choosing routes advertised by different peers in the `same` AS, to compare MED, when choosing routes from neighbors in different ASs use the `bgp always-compare-med` command.

When the bgp deterministic-med command is enabled, routes from the same AS are grouped together, and the best routes of each group are compared. If the BGP table showed:

```
Route1: as-path 200, med 300, internal
Route2: as-path 400, med 200, internal
Route3: as-path 400, med 250, external
```

BGP would have a group of Route1 and a second group of Route2 and Route3 (the same ASs). The best of each group is compared. Route1 is the best of its group because it is the only route from AS 200. Route1 is compared to the Route2, the best of group AS 400 (the lower MED). Since the two routes are not from the same AS, the MED is not considered in the comparison. The external BGP route is preferred over the internal BGP route, making Route3 the best route. The preferred route would be different if `always-compare-med` command is enabled (See `always-compare-med` command).

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp deterministic-med
```

Related Commands

show ip bgp, show ip bgp neighbors

bgp graceful-restart time

Use this command to set graceful restart time.

Use the `no` parameter with this command to disable the restart time value setting.

Command Syntax

```
bgp graceful-restart time <1-65535>

no bgp graceful-restart time
```

`<1-65535>` Restart time in seconds. The default value for restart time is 100 seconds.

Command Mode:

Configure mode

Usage

Restart time is the estimated time it will take for the BGP session to be re-established after a restart. This can be used to speed up routing convergence by its peer in case that BGP speaker doesn't come back after a restart. It is configured in BGP before BGP speaker does graceful restart.

When BGP does graceful restart:

- On the restarting side, restart timer will be checked by ZebOS, if the restarting side BGP has not come back between this configured time, ZebOS discards all the stale BGP routes information, and updates the forwarding states.
- On the receiving side, bgp checks the restart timer, if the restarting side BGP has not come back in this configured time, bgp discards all the stale BGP routes information and updates the forwarding states.

Examples

```
ZebOS# configure terminal
ZebOS(config)# bgp graceful-restart time 127
```

Related Commands

bgp fast-external-failover

Use this command to reset a BGP session immediately, if the interface used for BGP connection goes down.

Use the `no` parameter with this command to disable this feature.

Command Syntax

```
(no) bgp fast-external-failover
```

Default

Enabled

Command Mode

Router mode

Usage

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# bgp fast-external-failover
```

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Related Commands

bgp log-neighbor-changes

Use this command to enable logging of status change messages without turning on `debug bgp` commands.

Use the `no` parameter with this command to disable this feature.

Command Syntax

```
bgp log-neighbor-changes
```

Default

Command Mode

Router mode

Usage

ZebOS implementation provides other kinds of logging services for neighbor status, for example, `debug bgp fsm`, `debug bgp events`, etc. However, these commands create a significant hit in the logging performance. If you need to log neighbor status changes only, IPI recommends turning off all the `debug` commands and using the `bgp log-neighbor-changes` command.

A sample output of this log is:

```
%Protocol-Severity-Events: Message-text
```

A sample output of the log for an `interface down` event is:

```
%BGP-5-ADJCHANGE: neighbor 10.10.0.24 Down  Interface flap
```

The `bgp log-neighbor-changes` command, logs the following events:

- BGP Notification Received
- Erroneous BGP Update Received
- User reset request
- Peer time-out
- Peer Closing down the session
- Interface flap
- Router ID changed
- Neighbor deleted
- Member added to peer group
- Administrative shutdown
- Remote AS changed
- RR client configuration modification
- Soft reconfiguration modification

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# bgp log-neighbor-changes
```

bgp multiple-instance

Use this command to enable or disable the bgp multiple instance support.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) bgp multiple-instance
```

Default

No multiple-instance support

Command Mode

Configure mode

Usage

The following example shows the use of the `bgp multiple-instance` command allowing the configuration of two instances.

```
ZebOS(config)# bgp multiple-instance
ZebOS(config)# quit
ZebOS# show run

Current configuration:
!
hostname ZebOS
password zebra
log stdout
!
debug bgp
debug bgp events
debug bgp updates
debug bgp fsm
!
bgp multiple-instance
!
router bgp 11
 bgp router-id 10.10.10.50
 neighbor 10.10.10.51 remote-as 11
!
line vty
 exec-timeout 0 0
!
end

2.
ZebOS# configure terminal
ZebOS(config)# router bgp 10 view I2
ZebOS(config-router)# bgp router-id 10.10.10.50
ZebOS(config-router)# neighbor 10.10.10.51 remote-as 10
ZebOS(config-router)# end
```

```
ZebOS# show run
Current configuration:
!
hostname ZebOS
password zebra
log stdout
!
debug bgp
debug bgp events
debug bgp updates
debug bgp fsm
!
bgp multiple-instance
!
router bgp 11
 bgp router-id 10.10.10.50
 neighbor 10.10.10.51 remote-as 11
!
router bgp 10 view I2
 bgp router-id 10.10.10.50
 neighbor 10.10.10.51 remote-as 10
!
line vty
 exec-timeout 0 0
!
end
```

Example

```
ZebOS# configure terminal
ZebOS(config)# bgp multiple-instance
```

Related Commands

bgp network import-check

Use this command to check if the BGP network route is reachable through IGP or not.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) bgp network import-check
```

Default

There is no import-check by default.

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 11
ZebOS(config-router)# bgp network import-check
```

Related Commands

bgp rfc1771-path-select

Use this command to set RFC1771 compatible path selection mechanism.

Use the `no` parameter with this command to revert this setting.

Command Syntax

```
(no)bgp rfc1771-path-select
```

Default

Industry standard compatible path selection mechanism.

Command Mode

Configure mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# bgp rfc1771-path-select
```

Related Commands

bgp rfc1771-strict

Use this command to set the Strict RFC1771 setting.

Use the `no` parameter with this command to revert this setting.

Command Syntax

```
(no)bgp rfc1771-strict
```

Default

Disabled

Command Mode

Configure mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# bgp rfc1771-strict
```

Related Commands

bgp router-id

Use this command to configure the router identifier.

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) bgp router-id ROUTERID
```

> ROUTERID = A.B.C.D Manually configured router ID.

Default

In case the loopback interface is configured the router-id is set to the IP address of a loopback interface. If not, the highest IP address is the router-id.

Command Mode

Router mode

Usage

Use `bgp router-id` command to manually configure a fixed router ID as a BGP router identifier.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp router-id 1.1.2.3
```

Related Commands

bgp scan-time

Use this command to set the interval for BGP route next-hop scanning.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
bgp scan-time TIME
```

> TIME= <5-60> Scanning interval in seconds. The default scanning interval is 60 seconds.

Command Mode

Router mode

Usage

Use this command to configure scanning intervals of BGP routers. This interval is the period after which router checks the validity of the routes in its database.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) bgp scan-time 10
```

Related Commands

clear bgp *

Use this command to reset the BGP connection for all peers.

Command Syntax

```
clear bgp * ([in(prefix-filter)]|out|SOFT)
```

```
clear bgp ipv6 * ([in(prefix-filter)]|out|SOFT)
```

> * = Clears all bgp peers
>
> `in` = Indicates that incoming advertised routes will be cleared
>
> `prefix-filters` = Pushes out prefix-list ORF and does inbound soft reconfiguration
>
> `out` = Indicates that outgoing advertised routes will be cleared
>
> `SOFT = soft (in|out)` Indicates that both incoming and outgoing routes will be cleared

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear bgp * soft in
ZebOS# clear bgp ipv6 * in prefix-filter
```

Related Commands

clear bgp A.B.C.D|X:X::X:X

Use this command to reset the BGP connection for specified peers.

Command Syntax

```
clear bgp A.B.C.D|X:X::X:X ([in(prefix-filter)]|out|SOFT)
```

```
clear bgp ipv6 (A.B.C.D|X:X::X:X) ([in(prefix-filter)]|out|SOFT)
```

> `A.B.C.D` Specifies the IPv4 address of the BGP route to be cleared
>
> `X:X::X:X` Specifies the IPv6 address of the BGP route to be cleared
>
> `in` = Indicates that incoming advertised routes will be cleared
>
> `prefix-filters` = Pushes out prefix-list ORF and does inbound soft reconfiguration
>
> `out` = Indicates that outgoing advertised routes will be cleared

SOFT = soft (in|out) Indicates that both incoming and outgoing routes will be cleared

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear bgp 3.3.3.3 soft in prefix-filter
ZebOS# clear bgp ipv6 2.2.2.2 out
```

Related Commands

clear bgp ASN

Use this command to reset the BGP connection for peers in the specified Autonomous Sytem.

Command Syntax

```
clear bgp ASN ([in(prefix-filter)]|out|SOFT)

clear bgp ipv6 ASN ([in(prefix-filter)]|out|SOFT)
```

      ASN = <1-65535> The AS number for which all routes will be cleared

      in = Indicates that incoming advertised routes will be cleared

      prefix-filters = Pushes out prefix-list ORF and does inbound soft reconfiguration

      out = Indicates that outgoing advertised routes will be cleared

      SOFT = soft (in|out) Indicates that both incoming and outgoing routes will be cleared

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear bgp 300 soft in prefix-filter
ZebOS# clear bgp ipv6 500 soft out
```

Related Commands

clear bgp external

Use this command to reset the BGP connection for all external peers.

Command Syntax

```
clear bgp external ([in(prefix-filter)]|out|SOFT)

clear bgp ipv6 external ([in(prefix-filter)]|out|SOFT)
```

      external = clears all external peers

      in = Indicates that incoming advertised routes will be cleared

      prefix-filters = Pushes out prefix-list ORF and does inbound soft reconfiguration

`out =` Indicates that outgoing advertised routes will be cleared

`SOFT = soft (in|out)` Indicates that both incoming and outgoing routes will be cleared

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear bgp external soft in prefix-filter
ZebOS# clear bgp ipv6 external in
```

Related Commands

---

clear bgp peer-group

Use this command to reset the BGP connection for all members of a peer group.

Command Syntax

```
clear bgp peer-group WORD ([in(prefix-filter)]|out|SOFT)
```

```
clear bgp ipv6 peer-group WORD ([in(prefix-filter)]|out|SOFT)
```

`peer-group =` clears all members of a peer group

`in` = indicates that incoming advertised routes will be cleared

`prefix-filters` = pushes out prefix-list ORF and does inbound soft reconfiguration

`out =` indicates that outgoing advertised routes will be cleared

`SOFT = soft (in|out)` indicates that both incoming and outgoing routes will be cleared

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear bgp peer-group P1 soft in prefix-filter
ZebOS# clear bgp ipv6 peer-group P2 in
```

Related Commands

---

clear bgp view

Use this command to reset all BGP connections.

Command Syntax

```
clear bgp view WORD * (soft(in|out))
```

```
clear bgp ipv6 view WORD * (soft(in|out)
```

`*` Clears all bgp peers

`WORD` Name of the instance

       `soft` Indicates that both incoming and outgoing routes will be cleared

       `in`   Indicates that incoming advertised routes will be cleared

       `out`   Indicates that outgoing advertised routes will be cleared.

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear bgp view instance1 * soft in
ZebOS# clear bgp ipv6 view instance2 * soft
```

Related Commands

---

clear ip bgp *

Use this command to reset a BGP connection for all peers.

Command Syntax

```
clear ip bgp * ([in (prefix-filter)]|out|SOFT|)

clear ip bgp * ipv4 [unicast|multicast] [[in (prefix-filter)]|out|SOFT]

clear ip bgp * vpnv4 unicast [in|out|SOFT]
```

      `*` = clears all bgp peers

      `ipv4` = clears all IPv4 address family peers

      `vpnv4` = clears all VPNv4 address family peers

      `in` = Indicates that incoming advertised routes will be cleared

      `prefix-filter` = Pushes out prefix-list ORF and does inbound soft reconfiguration

      `out` =   Indicates that outgoing advertised routes will be cleared.

      `SOFT = soft (in|out)` Indicates that both incoming and outgoing routes will be cleared

      `unicast` = address family modifier

      `multicast` = address family modifier

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear ip bgp *
ZebOS# clear ip bgp * ipv4 unicast in prefix-filter
ZebOS# clear ip bgp * vpnv4 unicast in
```

Related Commands

---

clear ip bgp A.B.C.D|X:X::X:X

Use this command to reset a IPv4 BGP connection for a specific IP address.

Command Syntax

```
clear ip bgp A.B.C.D|X:X::X:X ([in (prefix-filter)]|out|SOFT|)

clear ip bgp A.B.C.D|X:X::X:X ipv4 [unicast|multicast] [[in (prefix-filter)]|out|SOFT]

clear ip bgp A.B.C.D|X:X::X:X vpnv4 unicast [in|out|SOFT]
```

`A.B.C.D` Specifies the IPv4 address of the BGP route to be cleared

`X:X::X:X` Specifies the IPv6 address of the BGP route to be cleared

`ipv4` = clears all IPv4 address family peers

`vpnv4` = clears all VPNv4 address family peers

`in` = Indicates that incoming advertised routes will be cleared

`prefix-filter` = Pushes out prefix-list ORF and does inbound soft reconfiguration

`out` = Indicates that outgoing advertised routes will be cleared.

`SOFT = soft (in|out)` Indicates that both incoming and outgoing routes will be cleared

`unicast` = address family modifier

`multicast` = address family modifier

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear ip bgp 10.10.0.12 soft
ZebOS# clear ip bgp 10.10.0.10 vpnv4 unicast out
ZebOS# clear ip bgp 3ffe::8/8 unicast in
```

Related Commands

clear ip bgp ASN

Use this command to reset a BGP connection for all peers in a specified Autonomous System.

Command Syntax

```
clear ip bgp ASN ([in (prefix-filter)]|out|SOFT|)

clear ip bgp ASN ipv4 [unicast|multicast] [[in (prefix-filter)]|out|SOFT]

clear ip bgp ASN vpnv4 unicast [in|out|SOFT]
```

`ASN <1-65535>`= Specifies the AS Number for which all routes will be cleared

`ipv4` = clears all IPv4 address family peers

`vpnv4` = clears all VPNv4 address family peers

`in` = Indicates that incoming advertised routes will be cleared

`prefix-filter` = Pushes out prefix-list ORF and does inbound soft reconfiguration

`out` = Indicates that outgoing advertised routes will be cleared.

`SOFT = soft (in|out)` Indicates that both incoming and outgoing routes will be cleared

`unicast` = address family modifier

`multicast` = address family modifier

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear ip bgp 100
ZebOS# clear ip bgp 200 ipv4 unicast in prefix-filter
ZebOS# clear ip bgp 500 vpnv4 unicast in
```
Related Commands

clear ip bgp external

Use this command to reset a BGP connection for all external peers.

Command Syntax

```
clear ip bgp external ([in (prefix-filter)]|out|SOFT|)

clear ip bgp external ipv4 [unicast|multicast] [[in (prefix-filter)]|out|SOFT]
```
> `external` Clears all external peers
>
> `ipv4` = clears all IPv4 address family peers
>
> `in` = Indicates that incoming advertised routes will be cleared
>
> `prefix-filter` = Pushes out prefix-list ORF and does inbound soft reconfiguration
>
> `out` =   Indicates that outgoing advertised routes will be cleared.
>
> `SOFT = soft (in|out)` Indicates that both incoming and outgoing routes will be cleared
>
> `unicast` = address family modifier
>
> `multicast` = address family modifier

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear ip bgp external out
ZebOS# clear ip bgp external ipv4 unicast in prefix-filter
```
Related Commands

clear ip bgp peer-group

Use this command to reset a BGP connection for all members of a peer group.

Command Syntax

```
clear ip bgp peer-group WORD([in (prefix-filter)]|out|SOFT|)

clear ip bgp peer-group WORD ipv4 [unicast|multicast] [[in (prefix-filter)]|out|SOFT]
```
> `peer-group` Clears all members of a peer group
>
> `WORD` = Specifies the name of the peer group for which all members will be cleared.

`ipv4` = clears all IPv4 address family peers

`in` = Indicates that incoming advertised routes will be cleared

`prefix-filter` = Pushes out prefix-list ORF and does inbound soft reconfiguration

`out` = Indicates that outgoing advertised routes will be cleared.

`SOFT = soft (in|out)` Indicates that both incoming and outgoing routes will be cleared

`unicast` = address family modifier

`multicast` = address family modifier

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear ip bgp peer-group Peer1 out
ZebOS# clear ip bgp peer-group mypeer ipv4 unicast in prefix-filter
```
Related Commands

clear ip bgp view

Use this command to reset a BGP IPv4 connection, as well as, to reset the bgp instance for a specified view (`WORD`); use the `clear ip bgp` command to reset the default instance.

Command Syntax

```
clear ip bgp view WORD * ([in prefix-filter]|SOFT|)

clear ip bgp view WORD * ipv4 [unicast|multicast] [[in prefix-filter]|SOFT]
```

      `view` Specifies BGP view

      `WORD` Specifies the name of the view for which all routes will be cleared

      * = Clears all peers

      `ipv4` = clears all IPv4 address family peers

      `in` = Indicates that incoming advertised routes will be cleared

      `prefix-filter` = Pushes out prefix-list ORF and does inbound soft reconfiguration

      `out` = Indicates that outgoing advertised routes will be cleared.

      `SOFT = soft (in|out)` Indicates that both incoming and outgoing routes will be cleared

      `unicast` = address family modifier

      `multicast` = address family modifier

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# clear ip bgp view I4 * in prefix-filter
ZebOS# clear ip bgp view I2 ipv4 unicast soft in
```
Related Commands

clear ip bgp vrf

Use this command to reset the specified VPN Routing /Fowarding Instance for BGP connections.

Command Syntax

```
clear ip bgp (A.B.C.D)|*) vrf WORD (out|in|SOFT)
```

   `WORD` Specifies the name of the VRF

   `A.B.C.D` Specifies the IPv4 address of the BGP route to be cleared

   * Clears all peers

   `in` Performs soft reconfiguration in

   `out` Performs soft reconfiguration out

   `SOFT = soft in|soft out|soft`

      `soft in` Performs soft reconfiguration in

      `soft out` Performs soft reconfiguration out

      `soft` Performs soft reconfiguration in and out

Command Mode

Privileged Exec mode

Usage

If the neighbor address is specified with this command it clears the specified connection. If no address is specified this command clears all the BGP routes.

Example

```
ZebOS# clear ip bgp 3.3.3.3 vrf VRF1 soft in
```

Related Commands

debug bgp

Use this command to enable all BGP troubleshooting functions.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
      debug bgp (events|filters|fsm|keepalives|UPDATES)
   no debug all bgp
   no debug bgp (events|filters|fsm|keepalives|UPDATES)
```

   `all` Used with the no form exclusively; turns off all debugging for BGP

   `events` Specifies debugging for BGP events

   `filters` Specifies debugging for BGP filters

   `fsm` Specifies debugging for BGP Finite State Machine (FSM)

   `keepalives` Specifies debugging for BGP keepalives

   `UPDATES = updates (in|out)` Specifies debugging for BGP updates

      `in` Inbound updates

      `out` Outbound updates

Command Mode

Privileged Exec mode

Usage

This command without any parameters turns on normal bgp debug information.

Examples

```
ZebOS# debug bgp
ZebOS# debug bgp events
```

Related Commands

distance

Use this command to define an administrative distance.

Use the `no` parameter with this command to remove an administrative distance.

Command Syntax

```
(no) distance ADMINDISTANCE | BGPDISTANCE
```

ADMINDISTANCE= `<1-255> A.B.C.D/M (LISTNAME)` Specifies the administrative distance.

   `1-255` the administrative distance

   `A.B.C.D/m` the IP source prefix

   `LISTNAME` the name of the access list to be applied to the administrative distance to selected routes.

BGPDISTANCE = `bgp EXT INT LOCAL` Specifies the IP address and subnet mask.

   `EXT = <1-255>` Specifies the administrative distance for BGP external routes. The default distance for external routes is 20.

   `INT = <1-255>` Specifies the administrative distance for BGP internal routes. The default distance for internal routes in 200.

   `LOCAL = <1-255>` Specifies the administrative distance for BGP local routes. The default distance for local routes is 200.

Command Mode

Router mode

Usage

Use this command to set the administrative distance for BGP. This distance is a rating of trustworthiness of a router. The higher the distance the lower the trust rating.

The administrative distance can be set for external, internal and local routes. External paths are routes learned from a neighbor out of the AS. The internal routes are routes learned from another router within the same AS. Local routes are for the router that is being redistributed from another process.

If the administrative distance is changed, it could create inconsistency in the routing table and obstruct routing.

Examples

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) distance 34 10.10.0.0/24 mylist
```

```
ZebOS# configure terminal
ZebOS(config) router bgp 100
ZebOS(config-router) distance bgp 34 23 15
```

Related Commands

exit-address-family

Use this command to exit the `address family` mode.

Command Syntax

```
exit-address-family
```

Command Mode

Address Family mode

Usage

Examples

The following example shows the use of `exit-address-family` command and the change in the prompt after using this command.

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# address-family ipv4 multicast
ZebOS(config-router-af)# exit-address-family
ZebOS(config-router)#
```

Related Commands

address family

ip as-path access-list

Use this command to define a BGP Autonomous System (AS) path access list.

Use the no parameter with this command to disable use of the access list.

Command Syntax

```
(no) ip as-path access-list LISTNAME (deny|permit) .LINE
```

> `LISTNAME` Specifies the name of the access list.
> `deny` (Optional) Denies access to matching conditions.
> `permit` (Optional) Permits access to matching conditions.
> `.LINE` Specifies a regular expression to match the BGP AS paths.

Command Mode

Configure mode

Usage

Named community list is a filter based on regular expressions. If the regular expression matches the specified string representing the AS path of the route, then the permit or deny condition applies. Use this command to define the BGP access list globally, use the neighbor router configuration comamnd to apply a specific access list.

Examples

```
ZebOS# configure terminal
ZebOS(config)#ip as-path access-list mylist deny This list is of secure routers.
```

Related Commands

ip community-list

Use this command to add a community list entry.

Use the `no` parameter with this command to delete the community list entry.

Command Syntax

```
(no) ip community-list LISTNAME deny|permit .COMMUNITY
```

> LISTNAME Specifies the community listname.
>
> deny Specifies the community to reject.
>
> permit Specifies the community to accept.
>
> COMMUNITY = AS:VAL|local-AS|no-advertise|no-export
>
>> AS:VAL Specifies the valid value for the community number. This format represents the 32 bit communities value, where AS is the high order 16 bits and VAL is the low order 16 bits in digit format.
>>
>> local-AS Specifies routes not to be advertised to external BGP peers.
>>
>> no-advertise Specifies routes not to be advertised to other BGP peers.
>>
>> no-export Specifies routes not to be advertised outside of Autonomous System boundary.

Command Mode

Configure mode

Usage

Use the community-lists to specify BGP community attributes. The community attribute is used for implementing policy routing. It is an optional, transitive attribute and facilitates transfer of local policies through different autonomous systems. It includes community values that are 32 bits long.

There are two kinds of community-lists: the expanded and standard. The `standard community-list` defines the community attributes in a specified format and not with regular expressions. The `expanded community-list` defines the communities attributes with regular expressions.

Examples

```
ZebOS# configure terminal
ZebOS(config)# ip community-list mylist permit 7675:80 7675:90
```

Related Commands

ip community-list standard, ip community-list expanded

ip community-list expanded

Use this command to add a community list entry.

Use the `no` parameter with this command to delete the community list entry.

Command Syntax

```
(no) ip community-list EXPANDED deny|permit .LINE
    EXPANDED = <100-199>|(expanded WORD)
       <100-199> Expanded community list number.
       expanded  Specifies an expanded community list.
       WORD  Expanded community list number
    deny  Specifies community to reject.
    permit Specifies community to accept.
    LINE Specifies community attributes with regular expression.
```

Command Mode

Configure mode

Usage

Use the community-lists to specify BGP community attributes. The community attribute is used for implementing policy routing. It is an optional, transitive attribute and facilitates transfer of local policies through different autonomous systems. It includes community values that are 32 bits long.

There are two kinds of community-lists--the expanded and standard. The standard community-list defines the community attributes in a specified format and not with regular expressions. The expanded community-list defines the communities attributes with regular expressions.

Examples

```
ZebOS# configure terminal
ZebOS(config)# ip community-list 125 permit 6789906
ZebOS(config)# ip community-list expanded CLIST permit .*
```

Related Commands

ip community-list, ip community-list standard

ip community-list standard

Use this command to add a standard community-list entry.

Use the `no` parameter with this command to delete the standard community-list entry.

Command Syntax

```
(no) ip community-list STANDARD deny|permit .COMMUNITY
    STANDARD = <1-99>|(standard WORD) Specifies the community listname.
       <1-99> Standard community list number.
       standard  Specifies a standard community list.
       WORD  Standard community list number
```

`deny` Specifies community to reject.

`permit` Specifies community to accept.

`COMMUNITY = AS:VAL|local-AS|no-advertise|no-export`

`AS:VAL` Specifies the valid value for the community number. This format represents the 32 bit communities value, where `AS` is the high order 16 bits and `VAL` is the low order 16 bits in digit format.

`local-AS` Specifies routes not to be advertised to external BGP peers.

`no-advertise` Specifies routes not to be advertised to other BGP peers.

`no-export` Specifies routes not to be advertised outside of the Autonomous System boundary.

Command Mode

Configure mode

Usage

Use the community-lists to specify BGP community attributes. The community attribute is used for implementing policy routing. It is an optional, transitive attribute and facilitates transfer of local policies through different autonomous systems. It includes community values that are 32 bits long.

There are two kinds of community-lists--the expanded and standard. The standard community-list defines the community attributes in a specified format without regular expressions. The expanded community-list defines the communities attributes with regular expressions.

Use the `ip community-list standard` command to add a standard community-list entry. The standard community-list is compiled into binary format and is directly compared with the BGP communities attribute in the BGP updates. The comparison is faster than the expanded community-list. Any community value that does not match the standard community value is automatically treated as expanded.

Examples

```
ZebOS# configure terminal
ZebOS(config)# ip community-list standard CLIST permit 7675:80 7675:90 no-export
ZebOS(config)# ip community-list 34 permit 5675:50 no-advertise
```

Related Commands

ip community-list, ip community-list expanded

---

ip extcommunity-list expanded

Use this command to create or delete an expanded extended community list.

Use the `no` parameter with this command to delete the extended community-list entry.

Command Syntax

`(no) ip extcommunity-list EXPANDED deny|permit .LINE`

`no ip extcommunity-list <100-199>`

`no ip extcommunity-list expanded WORD`

`EXPANDED = <100-199>|(standard WORD)`

`<100-199>` Expanded extcommunity list number

`expanded` Specifies an expanded extcommunity list

`WORD` Expanded extcommunity list name

> `deny` Specifies the extcommunity to reject
>
> `permit` Specifies the extcommunity to accept
>
> `LINE` Specifies extcommunity attributes with regular expression

Command Mode

Configure mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# ip extcommunity-list 125 permit 4567335
ZebOS(config)# ip extcommunity-list expanded CLIST permit .*
```

Related Commands

ip extcommunity-list standard

---

ip extcommunity-list standard

Use this command to create and delete a standard extended community list.

Use the `no` parameter with this command to delete the extended community-list entry.

Command Syntax

```
(no) ip extcommunity-list STANDARD deny|permit .AA:NN
```

```
no ip extcommunity-list <1-99>
```

```
no ip extcommunity-list standard WORD
```

> `STANDARD = <1-99>|(standard WORD)`
>
> > `<1-99>` Standard extcommunity list number
> >
> > `standard` Specifies a standard extcommunity list
> >
> > `WORD` Standard extcommunity list name
>
> `deny` Specifies the extcommunity to reject
>
> `permit` Specifies the extcommunity to accept
>
> `AA:NN` Specifies the valid value for an extcommunity number. This format represents the 32 bit extcommunities value, where AA is the high order 16 bits and NN is the low order 16 bits in digit format.

Command Mode

Configure mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# ip extcommunity-list 36 permit 5675:50
ZebOS(config)# ip extcommunity-list standard CLIST permit 7645:70
```

Related Commands

ip extcommunity-list expanded, show ip extcommunity-list

---

mpls-resolution

Use this command to allow BGP to query the NSM for preexisting LSPs (from RSVP or LDP) enabling BGP to map prefixes to these LSPs.

Use the `no` parameter with this command to reset all peer information in BGP.

Command Syntax

```
(no) mpls-resolution
```

Command Mode

Router mode

Usage

For example, BGP peer (5.5.5.5/32) advertises a prefix 10.10.10.10/32 to the current BGP daemon. If `mpls-resolution` is enabled, BGP queries NSM to confirm if there is an LSP from current router to 5.5.5.5/32. If yes, BGP installs this IP route into the NSM, and also creates an FTN entry in the NSM. NSM subsequently installs this in the MPLS Forwarder and uses the `outgoing label`, `ifindex` and `nexthop` data of the LSP. This allows IP packets destined for 10.10.10.10/32 to be `mapped` onto a preexisting MPLS LSP.

If the LSP is already up, the mapping is done while BGP is installing IP routes to the NSM. If the LSP is removed after BGP has already mapped a prefix to an LSP, the mapping is withdrawn from the NSM.

The `no mpls-resolution` resets all peer information in BGP, and BGP needs to set up connections with its peers again. Since the `mpls-resolution` flag is not set, no mapping takes place.

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# mpls-resolution
```

Related Commands

neighbor activate

Use this command to enable the exchange of the specified AF routes with a neighboring router.

Use the `no` parameter with this command to disable exchange of information with a neighbor.

Command Syntax

```
(no) neighbor NEIGHBORID activate
     NEIGHBORID = A.B.C.D|X:X::X:X|TAG .
        A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
        TAG Name of the peer-group
```

Command Mode

Address Family mode and Router mode

Usage

After the TCP connection is opened with the neighbor, this command is used to enable or disable the exchange of the specified AF information with a neighboring router.

To enable the exchange of multicast and VPNv4 address prefix types, neighbors are activated using the `neighbor activate` command in address family mode.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 1.2.3.4 activate
```

Related Commands

neighbor remote-as

neighbor advertisement-interval

Use this command to set the minimum interval between sending the BGP routing updates.

Use the no parameter with this command to set the interval time to default.

Command Syntax

```
(no) neighbor IPADDRESS advertise-interval TIME
      IPADDRESS=A.B.C.D|X:X::X:X  Specifies the address of the BGP neighbor in IPv4 or IPv6 format.
      TIME <0-600> Adevertise -interval value in seconds
```

Command Mode

Router mode

Usage

Use this command to set the minimum interval between the sending of BGP routing updates. To reduce the flapping of routes to internet, a minimum advertisement interval is set, so that the BGP routing updates are sent only per interval seconds. BGP dampening can also be used to control the effects of flapping routes.

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.3 advertisement-interval 45
```

Related Commands

neighbor attribute-unchanged

Use this command to advertise unchanged BGP attributes to the specified neighbor.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) neighbor NEIGHBORID attribute-unchanged (as-path)(next-hop)(med)
      NEIGHBORID = A.B.C.D|X:X::X:X|TAG .
         A.B.C.D|X:X::X:X  Specifies the address of the BGP neighbor in IPv4 or IPv6 format
         TAG Name of the peer-group
      as-path AS path attribute
```

next-hop Next hop attribute

med Multi Exit Discriminator

Command Mode

Router mode and Address Family mode

Usage

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.75 attribute-unchanged as-path med
```

Related Commands

neighbor capability dynamic

Use this command to enable the dynamic capability for a specific peer.

Use the `no` parameter with this command to disable the dynamic capability.

Command Syntax

```
(no) neighbor NEIGHBORID capability dynamic
```

NEIGHBORID = A.B.C.D|X:X::X:X|TAG

A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

TAG Name of the peer-group

Default

Disabled

Command Mode

Router mode

Usage

This command allows a BGP speaker to advertise or withdraw an address family capability to a peer in a non-disruptive manner.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.10.1 capability dynamic
```

Related Commands

neighbor capability graceful-restart

Use this command to configure the router to advertise the Graceful Restart Capability to the neighbors.

Use the `no` parameter with this command to configure router so it does not advertise the Graceful Restart Capability to its neighbor.

Command Syntax

```
(no) neighbor (A.B.C.D|X:X::X:X|TAG) capability graceful-restart
```

Default

Disabled

Command Mode

Router mode and Address Family mode

Usage

This configuration only indicates BGP speaker has the ability to preserve its forwarding state for some address family when BGP restarts.

Use the `neighbor capability graceful-restart` command to advertise to the neighbor routers the capability of graceful restart. First specify neighbors `remote-as` identification number assigned by the neighbor router.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 65000
ZebOS(config-router)# neighbor 10.10.10.50 remote-as 50
ZebOS(config-router)# neighbor 10.10.10.50 capability graceful-restart
ZebOS(config-router)# neighbor 10.10.10.30 remote-as 30
ZebOS(config-router)# neighbor 10.10.10.30 capability graceful-restart
```

Related Commands

enable graceful-restart bgp

neighbor capability orf prefix-list

Use this command to advertise ORF capability to neighbors.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) neighbor NEIGHBORID capability orf prefix-list (both|receive|send)
```

> NEIGHBORID = A.B.C.D|X:X::X:X|TAG .
>
> > A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
> >
> > TAG Neighbor tag
>
> orf Advertises ORF capability to its neighbors
>
> Both Indicates that the local router can send ORF entries to its peer as well as receive ORF entries from its peer.
>
> Receive Indicates that the local router is willing to receive ORF entries from its peer
>
> Send Indicates that the local router is willing to send ORF entries to its peer

Command Mode

Router mode and Address Family mode

Usage

Outbound Route Filters (ORFs) send and receive capabilities to lessen the number of updates exchanged between neighbors. By filtering updates, this option minimizes generating and processing of updates.

The local router advertises the ORF capability in `send` mode and the remote router receives the ORF capability in `receive` mode applying the filter as outbound policy. The two routers exchange updates to maintain the ORF for each router. Only an individual router or a peer-group can be configured to be in `receive` or `send mode`. A peer-group member cannot be configured to be in `receive` or `send` mode.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.5 capability orf prefix-list both
ZebOS(config-router)# neighbor effe:2897::0003:3ed5 capability orf prefix-list
receive
```

neighbor capability route-refresh

Use this command to advertise route-refresh capability to the specified neighbors.

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) neighbor NEIGHBORID  capability route-refresh

  NEIGHBORID = A.B.C.D|X:X::X:X|TAG .

     A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

     TAG Name of the peer-group
```

Command Mode

Router mode

Usage

Use this command to advertise to peer about route refresh capability support. If route refresh capability is supported, then router can dynamically request that the peer readvertises its Adj-RIB-Out.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.10.1 capability route-refresh
```

Related Commands

neighbor default-originate

Use this command to allow a BGP local router to send the default route 0.0.0.0 to a neighbor for use as a default route.

Use the `no` parameter with this command to send no route as a default.

Command Syntax

```
(no) neighbor IPADDRESS default-originate (ROUTEMAP)
```

IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.

ROUTEMAP **=** route-map WORD

route-map The route-map to specify criteria to originate default routes

WORD Route-map name

Command Mode

Router mode and Address Family mode

Usage

The neighbor default-originate command can be used with standard or extended access lists.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.10.1 default-originate route-map myroute
```

Related Commands

neighbor description

Use this command to associate a description with a neighbor.

Use the no parameter with this command to remove the description.

Command Syntax

```
(no) neighbor NEIGHBORID description .LINE
```

NEIGHBORID = A.B.C.D|X:X::X:X|TAG

A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

TAG Name of the peer-group

LINE **=** Up to 80 characters of text describing the neighbor.

Command Mode

Router mode and Address Family ipv4 vrf mode (if BGP/VPN is supported)

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 1.2.3.4 description Backup router for sales.
```

Related Commands

neighbor distribute-list

Use this command to filter route update from a particular BGP neighbor.

Use the no parameter with this command to remove an entry.

Command Syntax

```
(no) neighbor NEIGHBORID distribute-list ACCESSLISTID in|out
```

 NEIGHBORID = A.B.C.D|X:X::X:X|TAG

  A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

  TAG Name of the peer-group

 ACCESSLISTID = WORD|<1-199>|<1300-2699>

  WORD The name of IP access-list

  <1-199> The IP access-list number

  <1300-2699> The IP access-list number (expanded range)

 in Indicates that incoming advertised routes will be filtered.

 out Indicates that outgoing advertised routes will be filtered.

Command Mode

Router mode and Address Family mode

Usage

Use only one distribute-list per BGP neighbor.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 1.2.3.4 distribute-list mylist out
```

Related Commands

neighbor dont-capability-negotiate

Use this command to disable capability negotiation.

Use the no parameter with this command too enable capability negotiation.

Command Syntax

```
(no) neighbor NEIGHBORID dont-capability-negotiate
```

 NEIGHBORID = A.B.C.D|X:X::X:X|TAG

  A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

  TAG Name of the peer-group

Command Mode

Router mode

Usage

The capability negotiation is performed by default. This command is used to allow compatibility with older BGP versions that have no capability parameters used in open messages between peers.

Examples

```
ZebOS# configure terminal
```

```
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.34 dont-capability-negotiate
```

Related Commands

neighbor ebgp-multihop

Use this command to accept and attempt BGP connections to external peers on indirectly connected networks.

Use the `no` parameter with this command to return to the default.

Command Syntax

```
(no) neighbor NEIGHBORID ebgp-multihop (COUNT)
    NEIGHBORID = A.B.C.D|X:X::X:X|TAG
        A.B.C.D|X:X::X:X  Specifies the address of the BGP neighbor in IPv4 or IPv6 format
        TAG  Name of the peer-group
    COUNT Maximum hop count. If the maimum hop count is not set the hop count is 255.
```

Command Mode

Router mode

Usage

Multihop is not established if the only route to the multihop peer is a default route. This avoids loop formation.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.10.34 remote-as 20
ZebOS(config-router)# neighbor 10.10.10.34 ebgp-multihop 5
```

Related Commands

neighbor enforce-multihop

Use this command to turn on the enforcement of eBGP neighbors perform multihop.

Use the `no` parameter with this command to turn off this feature.

Command Syntax

```
(no) neighbor NEIGHBORID enforce-multihop
    NEIGHBORID = A.B.C.D|X:X::X:X|TAG
        A.B.C.D|X:X::X:X  Specifies the address of the BGP neighbor in IPv4 or IPv6 format
        TAG  Name of the peer-group
```

Command Mode

Router mode

Usage

Examples
```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.34 remote-as 20
ZebOS(config-router)# neighbor 10.10.0.34 enforce-multihop
```

Related Commands

neighbor filter-list

Use this command to set up a BGP filter.

Use the `no` parameter with this command to disable this function.

Command Syntax
```
(no) neighbor NEIGHBORID filter-list LISTNAME in|out
```
> `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`
>> `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format
>>
>> `TAG` Name of the peer-group
>
> `LISTNAME` The name of an autonomous system path access list.
>
> `in` Indicates that incoming advertised routes will be filtered.
>
> `out` Indicates that outgoing advertised routes will be filtered.

Command Mode

Router mode and Address Family mode

Usage

This command specifies an access list filter on updates based on the BGP autonomous system paths. Each filter is an access list based on regular expressions.

Examples
```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.34 filter-list out
```

Related Commands

neighbor interface

Use this command to configure the interface name of a BGP-speaking neighbor.

Use the `no` parameter with this command too disable this function

Command Syntax
```
(no) neighbor IPADDRESS interface IFNAME
```
> `IPADDRESS=A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format.
>
> `IFNAME` Specifies the interface name of BGP neighbor.

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 interface myinterface
```

Related Commands

neighbor 3fix

Use this command to control the number of prefixes that can be received from a neighbor.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) neighbor IPADDRESS maximum-prefix MAXIMUM
```

    `IPADDRESS = A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format.

    `MAXIMUM =` `<1-4294967295> (warning-only)`

      `<1-4294967295>` Specifies the maximum number of prefixes permitted.

      `warning-only` Only gives a warning message when the limit is exceeded.

Command Mode

Router mode and Address Family mode

Usage

The `neighbor maximum-prefix` command allows the configuration of a specified number of prefixes that a BGP router is allowed to receive from a neighbor. When the `warning-only` option is not used, if any extra prefixes are received, the router ends the peering. A terminated peer, stays down until the `clear ip bgp command` is used.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 maximum-prefix 1244 warning-only
```

Related Commands

neighbor next-hop-self

Use this command to configure the router as the next hop for a BGP-speaking neighbor or peer group.

Use the `no` parameter with this command to disable this feature.

Command Syntax

```
(no) neighbor NEIGHBORID next-hop-self
```

    `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`

`A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

`TAG` Name of the peer-group

Command Mode

Router mode and Address Family mode

Usage

This command allows a BGP router to change the nexthop information that is sent to the iBGP peer. The nexthop information is set to the IP address of the interface used to communicate with the neighbor.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 remote-as 100
ZebOS(config-router)# neighbor 10.10.0.72 next-hop-self
```

Related Commands

neighbor override-capability

Use this command to override a capability negotiation result.

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) neighbor NEIGHBORID override-capability
```

    `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`

        `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

        `TAG` Name of the peer-group

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 override-capability
```

Related Commands

neighbor passive

Use this command to set a BGP neighbor as passive.

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) neighbor NEIGHBORID passive
```

```
                NEIGHBORID = A.B.C.D|X:X::X:X|TAG
                    A.B.C.D|X:X::X:X  Specifies the address of the BGP neighbor in IPv4 or IPv6 format
                    TAG Name of the peer-group
```

Command Mode

Router mode

Usage

Examples

```
    ZebOS# configure terminal
    ZebOS(config)# router bgp 12
    ZebOS(config-router)# neighbor 10.10.10.10 passive
```

Related Commands

---

neighbor password

Use this command to enable MD5 authentication on a TCP connection between BGP neighbors.

Use the `no` parameter with this command to disable this function.

Note: To enable MD5 authentication on TCP/IP, a kernel patch and a few libraries are required. For detailed information on these libraries and on how to apply the patch, refer to the *ZebOS Installation Guide*.

Command Syntax

```
    (no) neighbor NEIGHBORID password <0-7> LINE
```

> NEIGHBORID = A.B.C.D|X:X::X:X|TAG
>
> > A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
> >
> > TAG Name of the peer-group
>
> <0-7> Specify the encryption type. Where 0 is for disabling encryption and 7 for proprietary encryption type.
>
> LINE An alphanumeric string of characters to be used as password.

Command Mode

Router mode

Usage

Examples

```
    ZebOS# configure terminal
    ZebOS(config)# router bgp 1
    ZebOS(config-router)# neighbor 1.1.1.1 password 3 ipi
```

Related Commands

---

neighbor peer-group add

Use this command to add a neighbor to an existing peer-group.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no)neighbor IPADDRESS peer-group TAG
```

> IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.
>
> TAG Name of the peer-group

Command Mode

Router mode

Usage

Use this command to Neighbors with the same update policies are grouped into peer groups. This facilitates the updates of various policies, such as, distribute and filter lists. The peer-group is then configured easily with any of the neighbor commands. Any changes made to the peer group affect all members.

To create a peer-group use the neighbor peer-group create command and then use this command to add neighbors to the group.

Example

This example shows a new peer-group group1 and the adding of a neighbor 10.10.0.63 to the group.

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor group1 peer-group
ZebOS(config-router)# neighbor 10.10.0.63 peer-group group1
```

Related Commands

---

neighbor peer-group create

Use this command to create a peer-group.

Use the no parameter with this command to disable this function

Command Syntax

```
(no)neighbor TAG peer-group
```

> TAG Name of the peer-group

Command Mode

Router mode

Usage

Neighbors with the same update policies are grouped into peer groups. This facilitates the updates of various policies, such as, distribute and filter lists. The peer-group is then configured easily with any of the neighbor commands. Any changes made to the peer group affect all members.Use this command to create a peer-group.

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor group1 peer-group
```

neighbor port

Use this command to specify the BGP port of a neighbor.

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) neighbor IPADDRESS port PORTNUM
```

> IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.
>
> PORTNUM= <0-65535> Specifies the TCP port number.

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 port 643
```

Related Commands

neighbor prefix-list

Use this command to distribute BGP neighbor information as specified in a prefix list.

Use the `no` parameter with this command to remove an entry.

Command Syntax

```
(no) neighbor NEIGHBORID prefix-list LISTNAME in|out
```

> NEIGHBORID = A.B.C.D|X:X::X:X|TAG
>
> > A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
> >
> > TAG Name of the peer-group
>
> LISTNAME The number of an AS-path access list.
>
> in Specifies that the access list applies to incoming advertisements.
>
> out Specifies that the access list applies to outgoing advertisements.

Command Mode

Router mode and Address Family mode

Usage

Use this command to specify a prefix list for filtering BGP advertisements. Filtering by prefix list matches the prefixes of routes with those listed in the prefix list. If there is a match, the route is used. An empty prefix list permits all prefixes. If a given prefix does not match any entries of a prefix list, the route is denied access. When multiple entries of a prefix list match a prefix, the entry with the smallest sequence number is considered to be a real match.

The router begins the search at the top of the prefix list, with the sequence number 1. Once a match or deny occurs, the router does not need to go through the rest of the prefix list. For efficiency the most common matches or denies are listed at the top.

The `neighbor distribute-list` command is an alternative to the `neighbor prefix-list` command and only one of them can be used for filtering to the same neighbor in any direction.

Examples
```
ZebOS# configure terminal
ZebOS(config)# ip prefix-list list1 deny 30.0.0.0/24
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 prefix-list list1 in
```

Related Commands

ip prefix-list (refer to the *NSM Command Reference*)

neighbor remote-as

Use this command to configure an internal or external BGP (iBGP or eBGP) TCP session with another router.

Command Syntax
```
neighbor NEIGHBORID remote-as ASNUM
```
      `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`

          `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

          `TAG` Name of the peer-group

      `ASNUM <1-65535>` Neighbor's autonomous system number

Command Mode

Router mode

Usage

This command is used to configure iBGP and eBGP sessions with other neighbors. A peer-group support of this command is configured only after creating a specific peer-group.

Example
```
ZebOS# configure terminal
ZebOS(config)# router bgp 11
ZebOS(config-router)# neighbor 10.10.0.73 remote-as 345
```

Related Commands

neighbor remove-private-AS

Use this command to remove the private Autonomous System (AS) number from outbound updates.

Use the `no` parameter with this command too revert to default.

Command Syntax
```
(no)neighbor NEIGHBORID remove-private-AS
```
      `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`

`A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

`TAG` Name of the peer-group

Default

Disabled

Command Mode

Router mode and Address Family (ipv4 unicast | ipv4 multicast | ipv6 | vpnv4 unicast) mode

Usage

The private AS numbers range from <64512-65535>. Private AS numbers are not advertised to the Internet. This command is used with external BGP peers only. The router removes the AS numbers only if the update includes private AS numbers. If the update includes both private and public AS numbers, the system treats it as an error.

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.63 remove-private-AS
```

Related Commands

neighbor retain-stale time

Use this command to set the upper bound of time (in seconds) that a router retains the stale routes for neighbor inside bgp.

Use the `no` parameter with this command to disable this feature.

Command syntax

```
neighbor A.B.C.D|X:X::X:X retain-stale TIME
```

      `TIME = time <0-65535>` The time value of retaining the stale routes. The default value is 200 seconds

Command Mode

Router mode

Usage

Examples

```
neighbor 10.10.0.5 retain-stale time 127
```

Related Command

neighbor route-map

Use this command to apply a route map to incoming or outgoing routes.

Use the `no` parameter with this command to a route map.

Command Syntax

```
(no) neighbor NEIGHBORID route-map MAPNAME in|out
```

```
NEIGHBORID = A.B.C.D|X:X::X:X|TAG
```

> `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format
>
> `TAG` Name of the peer-group

`MAPNAME` Specifies name of the route-map.

`in` Specifies that the access list applies to incoming advertisements.

`out` Specifies that the access list applies to outgoing advertisements.

Command Mode

Router mode and Address Family mode

Usage

Use `neighbor route map` command to filter updates and modify attributes. A route map is applied to inbound or outbound updates. Only the routes that pass the route map are sent or accepted in updates.

Examples

The following example shows the configuration of the route-map name `rmap2` and then the use of this map name in the `neighbor route-map` command.

```
ZebOS# configure terminal
ZebOS(config)# route-map rmap2 permit 6
ZebOS(config-route-map)# match origin incomplete
ZebOS(config-route-map)# set metric 100
ZebOS(config-route-map)#exit
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 route-map rmap2 in
```

Related Commands

neighbor route-reflector-client

Use this command to configure the router as a BGP route reflector and configure the specified neighbor as its client.

Use the `no` parameter with this command to to indicate that the neighbor is not a client.

Command Syntax

```
(no) neighbor NEIGHBORID route-reflector-client
```

> `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`
>
> > `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format
> >
> > `TAG` Name of the peer-group

Command Mode

Router mode and Address Family mode

Usage

Route reflectors are a solution for the explosion of iBGP peering within an autonomous system. By route reflection the number of iBGP peers within an AS is reduced. Use the `neighbor route-reflector-client` command to configure the local router as the route reflector and specify neighbors as its client.

An AS can have more than one route reflector. One route reflector treats the other route reflector as another iBGP speaker.

In the following configuration, Router1 is the route reflector for clients 3.3.3.3 and 2.2.2.2; it also has a non-client peer 6.6.6.6.

```
Router1#
router bgp 200
neighbor 3.3.3.3 remote-as 200
neighbor 3.3.3.3 route-reflector-client
neighbor 2.2.2.2 remote-as 200
neighbor 2.2.2.2 route-reflector-client
neighbor 6.6.6.6 remote-as 200
```

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 route-reflector-client
```

Related Commands

neighbor route-server-client

Use this command to specify the peer as route server client.

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) neighbor NEIGHBORID route-server-client
```
    NEIGHBORID = A.B.C.D|X:X::X:X|TAG

      A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

      TAG Name of the peer-group

Command Mode

Router mode and Address Family mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 route-server-client
```

Related Commands

neighbor send-community

Use this command to specify that a community attribute should be sent to a BGP neighbor.

Use the `no` parameter with this command to remove the entry.

Command Syntax

```
(no) neighbor NEIGHBORID send-community (both|extended|standard)
```
    NEIGHBORID = A.B.C.D|X:X::X:X|TAG

`A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

`TAG` Name of the peer-group

`both` = Sends Standard and Extended Community attributes

`extended` = Sends Extended Community attributes

`standard` = Sends Standard Community attributes

Default

Send-community is the default behavior.

Command Mode

Router mode and Address Family mode

Usage

This command is used to specify a community attribute to be sent to a neighbor. The community attribute groups destinations in a certain community and applies routing decisions according to those communities.

By default, on receiving the communities attribute the router reannounces them to the neighbor. Only when the `no` parameter is used with this command the community attributes are not reannounced to the neighbor.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 send-community extended
```

Related Commands

neighbor shutdown

Use this command to disable a neighbor.

Use the `no` parameter with this command to re-enable the neighbor.

Command Syntax

```
(no) neighbor NEIGHBORID shutdown
```

    `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`

        `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

        `TAG` Name of the peer-group

Command Mode

Router mode

Usage

This command shuts down any active session for the specified neighbor and clears all related routing data.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 shutdown
```

Related Commands

neighbor soft-reconfiguration inbound

Use this command to configure the ZebOS software to start storing updates.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) neighbor NEIGHBORID soft-recognition inbound
    NEIGHBORID = A.B.C.D|X:X::X:X|TAG
        A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
        TAG Name of the peer-group
```

Command Mode

Router mode and Address Family mode

Usage

Use this command to store updates for inbound soft reconfiguration. To use soft reconfiguration, both BGP neighbors must support the soft route refresh capability advertised in the open messages sent when a BGP session is set. To determine if a BGP router supports soft route refresh capability use the `show ip bgp neighbors` command. Soft reset using the route refresh capability neither requires pre-configuration nor additional memory.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 soft-reconfiguration inbound
```

Related Commands

neighbor strict-capability-match

Use this command to close the BGP connection if capability value does not completely match to remote peer.

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) neighbor IPADDRESS strict-capability-match
    IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.
```

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 strict-capability-match
```

Related Commands

neighbor timers

Use this command to set the timers for a specific BGP neighbor.

Use the `no` parameter with this command to clear the timers for a specific BGP neighbor

Command Syntax

```
(no) neighbor NEIGHBORID timers KEEPALIVE|CONNECT
```

NEIGHBORID = A.B.C.D|X:X::X:X|TAG

A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

TAG Name of the peer-group

KEEPALIVE= <0-65535> holdtime Frequency (in seconds) at which a router sends keepalive messages to its neighbor. The default is 60 seconds.

holdtime= <0-65535> Interval (in seconds) after which, on not receiving a keepalive message, the router declares a neighbor dead. The default is 180 seconds.

CONNECT= connect <0-65535> Specifies the connect timer in seconds.

Command Mode

Router mode

Usage

Keepalive messages are sent by a router to inform another router that the BGP connection between the two is still active. The keepalive interval is the period of time between each keepalive message sent by the router. The holdtime interval is the time the router waits to receive a keepalive message and if it does not receive a message for this period it declares the neighbor dead.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 timers 60 120
ZebOS(config-router)# neighbor 10.10.10.10 timers connect 10
```

Related Commands

neighbor transparent-as

Use this command to specify not to append your AS path number even if the peer is an eBGP peer.

Command Syntax

```
neighbor IPADDRESS transparent-as
```

IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 transparent-as
```

Related Commands

neighbor transparent-nexthop

Use this command to keep the nexthop value of the route even if the peer is an eBGP peer.

Command Syntax

```
neighbor IPADDRESS transparent-nexthop
```

      `IPADDRESS=A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format.

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 transparent-nexthop
```

Related Commands

neighbor unsuppress-map

Use this command to selectively leak more-specific routes to a particular neighbor.

Command Syntax

```
(no)neighbor NEIGHBORID unsuppress-map WORD
```

    `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`

      `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

      `TAG` Name of the peer-group

    `WORD` The name of the route-map used to select routes to be unsuppressed.

Command Mode

Router mode and Address Family (ipv4 unicast | ipv4 multicast | ipv6) mode

Usage

When the `aggregate-address` command is used with the `summary-only` option, the more-specific routes of the aggregate are suppressed to all neighbors. Use the `unsuppress-map` command to selectively leak more-specific routes to a particular neighbor.

Example
```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router) neighbor 10.10.0.73 unsuppress-map mymap

ZebOS#configure terminal
ZebOS(config)#router bgp 10
ZebOS(config-router)address-family ipv4 unicast
ZebOS(config-router-af)neighbor 10.10.0.70 unsuppress-map mymap
```

Related Commands

---

neighbor update-source

Use this command to allow internal BGP sessions to use any operational interface for TCP connections.

Use the `no` parameter with this command to restore the interface assignment to the closest interface.

Command Syntax
```
(no) neighbor NEIGHBORID update-source IFNAME
```
> NEIGHBORID = A.B.C.D|X:X::X:X|TAG
>> A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
>> TAG Name of the peer-group
> IFNAME= Specifies the loopback interface.

Command Mode
Router mode

Usage
Use this command in conjunction with any specified interface on the router. The loopback interface is the interface that is most commonly used with this command. The use of loopback interface eliminates a dependency and BGP does not have to rely on the availability of a particular interface for making TCP connections.

Examples
```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 update-source myif
```

Related Commands

---

neighbor version

Use this command to configure the ZebOS software to accept only a particular BGP version.

Use the `no` parameter with this command to use the default version level of a neighbor.

Command Syntax
```
(no) neighbor IPADDRESS version VERSION
```
> IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.
> VERSION= 4 | 4– Specifies the BGP version number.

4 Border Gateway Protocol 4

4- Multi-protocol Extensions for BGP-4 (Old Draft)

Command Mode

Router mode

Usage

By default, the system uses BGP version 4 and on request dynamically negotiates down to version 2. Using this command disables the router's version-negotiation capability and forces the router to use only a specified version with the neighbor.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 version 4
```

Related Commands

neighbor weight

Use this command to set default weights for routes from this neighbor.

Use the `no` parameter with this command to remove a weight assignment.

Command Syntax

```
(no) neighbor NEIGHBORID weight WEIGHT
```

NEIGHBORID = A.B.C.D|X:X::X:X|TAG

A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

TAG Name of the peer-group

WEIGHT= <0-65535> Specifies the weight this command assigns to the route.

Command Mode

Router mode

Usage

Use this command to specify a weight value to all routes learned from a neighbor. The route with the highest weight gets preference when there are other routes on the network.

Unlike the local-preference attribute, the weight attribute is relevant only to the local router.

The weights assigned using the `set weight` command overrides the weights assigned using this command.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 weight 60
```

Related Commands

network and network backdoor

Use this command to specify the networks to be advertised by the BGP routing process. Use the `backdoor` parameter to specify a backdoor route to a BGP border router that will provide better information about the network.

Use the `no` parameter with this command to remove an entry.

Command Syntax

```
(no) network A.B.C.D/M
(no) network IPADDRESS/M (backdoor)
```
> IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.
> /M Specifies the address mask.
> backdoor Specify a BGP backdoor route.

Command Mode

Router mode and Address Family mode

Usage

For data to be advertised by BGP, its routing table must include a route to the specified network. This command specifies the networks to be advertised. The network command works if the network being advertised is known to the router. In the following configuration Router1 will generate a network entry for 172.26.0.0/ 16.

```
Router1#
network 172.26.0.0/16
```

The `backdoor` parameter enables a route to be the preferred route even if it has a greater distance. A network that is specified as a backdoor network is not sourced by the local router but is learned from the external routers. In the following example, 172.10.0.0 is treated as a local entry but is advertised differently. If Router1 receives updates from 172.10.0.0 via two routing protocols RIP (distance 120) and eBGP (distance 20). Router1 will chose the route with a shorter distance. Using the `backdoor` parameter will allow Router1 to learn about 172.10.0.0 via RIP.

```
Router1#
router rip
network 172.10.0.0
router bgp 200
neighbor 3.3.3.3 remote-as 500
network 172.10.0.0 backdoor
```

The backdoor parameter applies to IPv4 unicast and IPv6 unicast address family only.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)#network 3.3.3.0/24

ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)#network 3.3.3.0/24 backdoor
```

Related Commands

no auto-summary

Use this command to disable automatic network number summarization.

Command Syntax

```
no auto-summary
```

Default

This command is enabled

Command Mode

Router mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 11
ZebOS(config-router)# no auto-summary
```

Related Commands

no synchronization

Use this command to disable the IGP synchronization in BGP.

Command Syntax

```
no sychronization
```

Default

IGP synchronization is disabled but nexthop reachability is checked.

Command Mode

Router mode

Usage

Synchronization in BGP is when a BGP router does not advertise external destinations learned from iBGP unless those destinations are also learned from an IGP. If synchronization is enabled, an iBGP peer does not advertise an external destination learned from another iBGP peer , unless it is also learned from the IGP (OSPF). The `no synchronization` command is used when some routers in the AS are non BGP routers.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 11
ZebOS(config-router)# no synchronization
```

Related Commands

redistribute route-map

Use this command to inject routes from one routing process into another.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) redistribute [ospf|rip|connected|static|kernel|isis](MAPNAME)
```
    `connected` Specifies the redistribution of connected routes.

    `kernel` Specifies the redistribution of Kernel routes

    `osfp` Specifies the redistribution of OSFP information.

    `rip` Specifies the redistribution of RIP.

    `static` Specifies the redistribution of Static routes.

    isis Specifies the redistribution of ISIS routes.

    `MAPNAME = route-map WORD` Route map reference

        `WORD` Pointer to route-map entries.

Command Mode

Router mode and Address Family IPv6 mode

Usage

Redistribution is used by routing protocols to advertise routes that are learned by some other means, such as by another routing protocol or by static routes. Since all internal routes are dumped into BGP, careful filtering is applied to make sure that only routes to be advertised reach the internet, not everything. This command allows redistribution by injecting prefixes from one routing protocol into another routing protocol.

Examples

The following example shows the configuration of the route-map name `rmap1` and then the use of this map name in the `redistribute route-map` command.

```
ZebOS# configure terminal
ZebOS(config)# route-map rmap1 permit 1
ZebOS(config-route-map)# match origin incomplete
ZebOS(config-route-map)# set metric 100
ZebOS(config-route-map)#exit
ZebOS(config)# router bgp 12
ZebOS(config-router)# redistribute ospf route-map rmap1
```

Related Commands

restart bgp graceful

Use this command to enable BGP-speaker router for graceful restart.

Command Syntax

```
restart bgp graceful
```

Command Mode

Privileged Exec mode

Usage

This command stops the whole BGP process and makes ZebOS retain the BGP routes and mark them as stale. Receiving BGP speakers, retain and mark as stale all BGP routes received from the restarting speaker for all the address families received in the Graceful Restart Capability exchange.

Examples

```
ZebOS# restart bgp graceful
```

Related Commands

neighbor capability graceful-restart

router bgp

Use this command to configure a BGP routing process.

Use the `no` parameter with this command to disable a routing process.

Command Syntax

```
(no) router bgp ASID (VIEW)
```

      `ASID` Specifies the Autonomous System (AS) number.

      `VIEW = view WORD` Specifies the BGP view

         `WORD` Name of the view

Command Mode

Configure mode

Usage

 The `router bgp` command enables a BGP routing process.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)#
```

Related Commands

show bgp view summary

Use this command to view the summary data of the given IPv6 instance.

Command Syntax

```
show bgp view WORD summary
```

```
show bgp view WORD ipv6 summary
```

      `WORD` the name of the instance to display data for.

ipv6 Specifies the connections are IPv6 connections.

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# show bgp view TEST1 summary
```

Related Commands

show ip bgp neighbors

show debugging bgp

Use this command to display the BGP debugging option set.

Command Syntax

```
show debugging bgp
```

Command Mode

Privileged Exec mode

Usage

This is a sample output from the show debugging bgp command.

```
ZebOS# show debugging bgp
BGP debugging status:
  BGP debugging is on
  BGP events debugging is on
  BGP updates debugging is on
  BGP fsm debugging is on
```

Examples

```
ZebOS# show debugging bgp
```

Related Commands

show ip bgp

Use this command to display BGP network information.

```
show ip bgp (IPADDRESS)
```

IPADDRESS=A.B.C.D|A.B.C.D/M Specifies the address and length.

Command Mode

Privileged Exec mode

Usage

This is a sample output from the `show ip bgp` command displaying BGP network information.

```
ZebOS# show ip bg 10.10.10.50
BGP routing table entry for 10.10.10.0/24
Paths: (2 available, best #2, table Default-IP-Routing-Table)
  Advertised to non peer-group peers:
  10.10.10.50
  50
    10.10.10.50 from 10.10.10.50 (10.10.11.50)
      Origin IGP, localpref 100, valid, external
      Last update: Tue Jul 23 17:56:36 2002

  Local
    0.0.0.0 from 0.0.0.0 (10.10.11.10)
      Origin IGP, localpref 100, weight 32768, valid, sourced, local, best
      Last update: Tue Jul 23 17:36:52 2002
```

Examples

```
ZebOS# show ip bgp 10.10.1.34/24
```

Related Commands

show ip bgp attribute-info

Use this command to show internal attribute hash information.

Command Syntax

```
show ip bgp attribute-info
```

Command Mode

Privileged Exec mode

Usage

This is a sample output from the `show ip bgp attribute-info` command displaying internal attribute information.

```
ZebOS# show ip bgp attribute-info
attr[1] nexthop 0.0.0.0
attr[1] nexthop 10.10.10.10
attr[1] nexthop 10.10.10.50
```

Examples

```
ZebOS# show ip bgp attribute-info
```

Related Commands

show ip bgp cidr-only

Use this command to display routes with nonnatural network masks.

Command Syntax

```
show ip bgp cidr-only
```

Command Mode

Privileged Exec mode

Usage

This is a sample output from the `show ip bgp cidr-only` command.

```
ZebOS# show ip bgp cidr-only
BGP table version is 0, local router ID is 10.10.10.50
Status codes: s suppressed, d damped, h history, p stale, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete

  Network          Next Hop          Metric LocPrf Weight Path
*> 3.3.3.0/24       10.10.10.10                         0 11 i
*> 6.6.6.0/24       0.0.0.0                         32768 i

Total number of prefixes 2
```

Examples

```
ZebOS# show ip bgp cidr-only
```

Related Commands

---

show ip bgp community

Use this command to display routes matching the communities.

Command Syntax

```
show ip bgp community ((AA:NN|LOCAL|ADVERTISE|EXPORT) (exact-match))
```
    AA:NN
    LOCAL= `local-AS` Do not send outside local AS (well-known community)
    ADVERTISE= `no-advertise` Do not advertise to any peer (well-known community)
    EXPORT= `no-export` Do not export to next AS (well-known community)
    `exact-match` Specifies that ZebOS display the exact match of the communities

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# show ip bgp community 10:23 exact-match
```

Related Commands

show ip bgp community

show ip bgp community-info

Use this command to list all BGP community information.

Command Syntax

```
show ip bgp community-info
```

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# show ip bgp community-info
```

Related Commands

show ip bgp community-list

Use this command to display routes matching the community-list.

Command Syntax

```
show ip bgp community-list LISTNAME (exact-match)
```

    `LISTNAME` Specifies the community list name.

    `exact-match` Displays only routes that have exactly the same specified communities

Command Mode

Privileged Exec mode

Usage

Examples

```
ZebOS# show ip bgp community-list mylist exact-match
```

Related Commands

show ip bgp dampened-paths

Use this command to display the dampened prefixes of a local BGP routing table.

Command Syntax

```
show ip bgp dampened-paths
show ipv6 bgp dampened-paths
```

Command Mode

Exec mode and Privileged Exec mode

Usage

Enable BGP dampening to maintain dampened-path information in memory.

Examples

```
ZebOS# show ip bgp dampened-paths
```

Related Commands

show ip bgp filter-list

Use this command to display routes conforming to the filter-list.

Command Syntax

```
show ip bgp filter-list LISTNAME
```
       `LISTNAME` Specifies the regular expression access list name

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp filter-list mylist
```

Related Commands

show ip bgp flap-statistics

Use this command to display the contents of the local BGP routing table for flapping prefixes.

Command Syntax

```
show ip bgp flap-statistics
show ipv6 bgp flap-statistics
```

Command Mode

Privileged Exec mode and Exec mode

Usage

The following is a sample output for the show ip bgp flap-statistics command displaying the flapped prefix, the advertised peer, the number of times the prefix has flapped, the time since the first flap, the time until the prefix is undampened and the list of AS paths.

```
ZebOS# show ip bgp flap-statistics
BGP table version is 0, local router ID is 10.20.0.4
Status codes: s suppressed, d damped, h history, p stale, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network          From                  Flaps  Duration  Reuse   Path
 d 201.10.10.0      10.20.0.1                 3  00:03:24  00:28:44  201 i
```

Example

```
ZebOS# show ip bgp flap-statistics
```

Related Commands

show ip bgp ipv4 cidr-only

Use this command to display routes with unnatural network masks.

Command Syntax

```
show ip bgp ipv4 unicast|multicast cidr-only
```
      `unicast` Specifies unicast prefixes.
      `multicast` Specifies multicast prefixes.

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp ipv4 unicast cidr-only
```

Related Commands

show ip bgp ipv4 community

Use this command to display routes matching the communities.

Command Syntax

```
show ip bgp ipv4 unicast|multicast community
   (AA:NN|LOCAL|ADVERTISE|EXPORT (exact-match))
```
      `unicast` unicast prefixes.
      `multicast` Specifies multicast prefixes.

        `AA:NN`

        `LOCAL= local-AS` Do not send outside local AS (well-known community)

        `ADVERTISE= no-advertise` Do not advertise to any peer (well-known community)

        `EXPORT= no-export` Do not export to next AS (well-known community)

        `exact-match` Specifies that ZebOS display the exact match of the communities

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples (note some examples show abbreviated parameters)

```
ZebOS# show ip bgp ipv4 multicast community local-AS no-advertise exact-match
ZebOS# show ip bgp ipv4 multicast community local-AS no-ad no-ex exact-match
```

Note: Include as many of the optional parameters in this command (up to all four) as needed.

Related Commands

show ip bgp ipv4 community-list

Use this command to display BGP routes matching the community-list..

Command Syntax

```
show ip bgp ipv4 unicast|multicast community-list LISTNAME (exact-match)
```

> `unicast` unicast prefixes.
>
> `multicast` Specifies multicast prefixes.
>
> `LISTNAME` Community list name.
>
> `exact-match` Exact match of the communities

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp ipv4 unicast community-list mylist exact-match
```

Related Commands

show ip bgp ipv4 filter-list

Use this command to display routes conforming to the filter list.

Command Syntax

```
show ip bgp ipv4 unicast|multicast filter-list LISTNAME
```

> `unicast` unicast prefixes.
>
> `multicast` Specifies multicast prefixes.
>
> `LISTNAME` Filter list name.

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp ipv4 unicast filter-list mylist
```

Related Commands

show ip bgp ipv4 neighbors

Use this command to display detailed information on TCP and BGP neighbor connections.

Command Syntax

```
show ip bgp ipv4 unicast|multicast neighbors (IPADDRESS
   ([ADVERTISED|RECEIVED|RECEIVEDROUTES|ROUTES]))
```

> `unicast` unicast prefixes.
>
> `multicast` Specifies multicast prefixes.
>
> `IPADDRESS=A.B.C.D|X:X::X:X` Specifies the IP address.
>
> > `A.B.C.D` Specifies an IPv4 address.
> >
> > `X:X::X:X` Specifies an IPv6 address
>
> `ADVERTISED= advertised-routes` Displays the routes advertised to a BGP neighbor.
>
> `RECEIVED = received prefix-filter` Displays all received routes, both accepted and rejected.
>
> > `prefix-filter` Displays the prefix-list filter.
>
> `RECEIVEDROUTES = received-routes` Displays the received routes from neighbor. To display all the received routes from the neighbor, configure the BGP soft reconfigure first.
>
> `ROUTES = routes` Displays all accepted routes learned from neighbors.

Command Mode

Privileged Exec mode

Usage

This is a sample output from the `show ip bgp ipv4 neighbor` command displaying detailed information on two neighbors.

```
ZebOS# show ip bgp ipv4 unicast neighbors
BGP neighbor is 10.10.10.15, remote AS 11, local AS 11, internal link
  BGP version 4, remote router ID 0.0.0.0
  BGP state = Connect
  Last read 00:10:03, hold time is 180, keepalive interval is 60 seconds
  Received 2 messages, 0 notifications, 0 in queue
  Sent 8 messages, 0 notifications, 0 in queue
  Route refresh request: received 0, sent 0
  Minimum time between advertisement runs is 5 seconds

 For address family: IPv4 Unicast
  Community attribute sent to this neighbor
  0 accepted prefixes
  0 announced prefixes

  Connections established 2; dropped 2
Next connect timer due in 31 seconds
Read thread: on  Write thread: on

BGP neighbor is 10.10.10.20, remote AS 11, local AS 11, internal link
  BGP version 4, remote router ID 0.0.0.0
  BGP state = Connect
  Last read 00:18:19, hold time is 180, keepalive interval is 60 seconds
  Received 0 messages, 0 notifications, 0 in queue
  Sent 0 messages, 0 notifications, 0 in queue
  Route refresh request: received 0, sent 0
```

```
 Minimum time between advertisement runs is 5 seconds

 For address family: IPv4 Unicast
  Community attribute sent to this neighbor
  0 accepted prefixes
  0 announced prefixes

  Connections established 0; dropped 0
Next connect timer due in 106 seconds
Read thread: on  Write thread: on
```

Examples

```
    ZebOS# show ip bgp ipv4 unicast neighbors 10.10.0.74 advertised-routes
    ZebOS# show ip bgp ipv4 unicast neighbors 10.10.0.34 received prefix-filter
```

Related Commands

show ip bgp ipv4 paths

Use this command to display address family path information.

Command Syntax

```
    show ip bgp ipv4 unicast|multicast paths
```

> unicast unicast prefixes.
>
> multicast Specifies multicast prefixes.

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
    ZebOS# show ip bgp ipv4 multicast paths
```

Related Commands

show ip bgp ipv4 prefix-list

Use this command to display routes matching the prefix-list.

Command Syntax

```
    show ip bgp ipv4 unicast|multicast prefix-list WORD
```

> unicast unicast prefixes.
>
> multicast Specifies multicast prefixes.
>
> prefix-list Displays routes matching the prefix list
>
> WORD Specifies IP prefix-list name

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp ipv4 unicast prefix-only
```

Related Commands

ip prefix-list (refer to the *NSM Command Reference*)

show ip bgp ipv4 regexp

Use this command to display routes matching the AS path regular expression.

Command Syntax

```
show ip bgp ipv4 unicast|multicast regexp .LINE
```

       `regexp` Displays routes matching the AS path regular expression

       `LINE` Specifies a regular-expression to match the BGP AS paths

Command Mode

Privileged Exec mode and Exec mode

Examples

```
ZebOS# show ip bgp ipv4 unicast|multicast regexp
```

Related Commands

show ip bgp ipv4 summary

Use this command to display a summary of BGP neighbor status.

Command Syntax

```
show ip bgp ipv4 unicast|multicast summary
```

Command Mode

Privileged Exec mode and Exec mode

Usage

```
ZebOS# show ip bgp ipv4 unicast summary
BGP router identifier 192.168.5.4, local AS number 100
0 BGP AS-PATH entries
0 BGP community entries

Neighbor        V     AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
10.10.10.50     4     11      51     603        0    0    0 00:01:44 Active
10.10.11.50     4    100      13     571        0    0    0 00:00:40 Active
```

```
Total number of neighbors 2
```

Examples

```
ZebOS# show ip bgp ipv4 multicast summary
```

Related Commands

---

show ip bgp longer-prefixes

Use this command to display the route of the local BGP routing table for a specific prefix with a specific mask or for any prefix having a longer mask than the one specified.

Command Syntax

```
show ip bgp A.B.C.D/M longer-prefixes
show ip bgp ipv4 (unicast|multicast) A.B.C.D/M longer-prefixes
show ipv6 bgp X:X::X:X/M longer-prefixes
     ipv4 (unicast|multicast) ipv4 unicast or ipv4 multicast address family
     (A.B.C.D)|X:X::X:X/M) Neighbor's IP address
```

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp 10.10.0.10/24 longer-prefixes
ZebOS# show ip bgp ipv4 multicast 3.3.3.3/16 longer-prefixes
ZebOS# show ipv6 bgp 3ffe::8/8 longer-prefixes
```

Related Commands

---

show ip bgp neighbors

Use this command to display detailed information on TCP and BGP neighbor connections.

Command Syntax

```
show ip bgp neighbors (IPADDRESS
  ([ADVERTISED|RECEIVED|RECEIVEDROUTES|ROUTES]))
```

    `IPADDRESS=A.B.C.D|X:X::X:X` Specifies the IP address.

      `A.B.C.D` Specifies an IPv4 address.

      `X:X::X:X` Specifies an IPv6 address

    `ADVERTISED= advertised-routes` Displays the routes advertised to a BGP neighbor.

    `RECEIVED = received prefix-filter` Displays all received routes, both accepted and rejected.

      `prefix-filter` Displays the prefix-list filter.

    `RECEIVEDROUTES = received-routes` Displays the received routes from neighbor. To display all the received routes from the neighbor, configure the BGP soft reconfigure first.

    `ROUTES = routes` Displays all accepted routes learned from neighbors.

Command Mode

Privileged Exec mode and Exec mode

Usage

This is a sample output from the `show ip bgp neighbors` command displaying information about the specified neighbor.

```
ZebOS# show ip bgp neighbors 10.10.10.50 routes
BGP table version is 0, local router ID is 10.10.10.10
Status codes: s suppressed, d damped, h history, p stale, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf Weight Path
*> 6.6.6.0/24       10.10.10.50                          0 12 i

Total number of prefixes 1
```

Examples

```
ZebOS# show ip bgp neighbors 1.2.3.4 received-routes
```

Related Commands

show ip bgp paths

Use this command to display BGP path information.

Command Syntax

```
show ip bgp paths
```

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp paths
```

Related Commands

show ip bgp prefix-list

Use this command to display routes matching the prefix-list.

Command Syntax

```
show ip bgp prefix-list LIST
```

       `LIST` Specifies the name of the IP prefix list.

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp prefix-list mylist
```

Related Commands

---

show ip bgp regexp

Use this command to display routes matching the AS path regular expression.

Command Syntax

```
show ip bgp regexp .LINE
```

> regexp Displays routes matching the AS path regular expression
>
> LINE Specifies a regular-expression to match the BGP AS paths

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
ZebOS# show ip bgp regexp myexpression
```

Related Commands

---

show ip bgp scan

Use this command to display BGP scan status.

Command Syntax

```
show ip bgp scan
```

Command Mode

Privileged Exec mode and Exec mode

Usage

```
BGP scan is running
BGP scan interval is 60
BGP instance : AS is 11,DEFAULT
Current BGP nexthop cache:
BGP connected route:
 10.10.10.0/24
 10.10.11.0/24
```

Examples

```
ZebOS# show ip bgp scan
```

Related Commands

show ip bgp summary

Use this command to display a summary of BGP neighbor status.

Command Syntax

```
show ip bgp summary
```

Command Mode

Privileged Exec mode and Exec mode

Usage

This is a sample output from the `show ip bgp summary` command displaying a summary of BGP neighbor status.

```
ZebOS# show ip bgp summary
BGP router identifier 10.10.15.50, local AS number 65000
1 BGP AS-PATH entries
0 BGP community entries


Neighbor        V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd10.10.9.50
4 65000    460     595        0    0     0 00:17:48          3
10.10.14.51     4   100      93    120       0    0     0 00:42:16          0

Total number of neighbors 2
```

Examples

ZebOS# show ip bgp summary

Related Commands

show ip bgp view route

Use this command to view the neighbors of the given instance.

Command Syntax

```
show ip bgp <1-65535> view WORD (A.B.C.D(/M))
```

> `<1-65535>` The id of the instance
>
> `WORD` the name of the instance to display data for.
>
> `A.B.C.D` IPv4 or IPv6 address
>
> `/M` The mask

Command Mode

Privileged Exec mode and Exec mode

Usage

```
ZebOS# show ip bgp view I2
BGP table version is 0, local router ID is 10.10.10.50
```

```
Status codes: s suppressed, d damped, h history, p stale, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete


   Network          Next Hop            Metric LocPrf Weight Path
*>i100.156.70.0/24  10.10.10.52                     0      0 i
*>i100.156.71.0/24  10.10.10.52                     0      0 i
*>i100.156.72.0/24  10.10.10.52                     0      0 i
*>i100.156.73.0/24  10.10.10.52                     0      0 i
*>i100.156.74.0/24  10.10.10.52                     0      0 i


Total number of prefixes 5
```

Examples

```
    ZebOS# show ip bgp 128 view instance1 10.10.10.0/24
```

Related Commands

show ip bgp neighbors

show ip bgp view neighbors

Use this command to view the neighbors of the given instance.

Command Syntax

```
    show ip bgp <1-65535> view WORD neighbors
    show ip bgp <1-65535> view WORD neighbors (A.B.C.D|X:X::X:X)
```

> <1-65535> The id of the instance
>
> WORD the name of the instance to display data for.
>
> A.B.C.D|X:X::X:X The IPv4 and IPv6 address of the neighbor

Command Mode

Privileged Exec mode and Exec mode

Usage

```
ZebOS# show ip bgp view I2 neighbors
BGP neighbor is 10.10.10.52, remote AS 10, local AS 10, internal link
  BGP version 4, remote router ID 10.10.10.52
  BGP state = Established, up for 00:03:22
  Last read 00:00:13, hold time is 90, keepalive interval is 30 seconds
  Neighbor capabilities:
    Route refresh: advertised
    Address family IPv4 Unicast: advertised
  Received 8 messages, 0 notifications, 0 in queue
  Sent 8 messages, 0 notifications, 0 in queue
  Route refresh request: received 0, sent 0
  Minimum time between advertisement runs is 5 seconds

 For address family: IPv4 Unicast
  Community attribute sent to this neighbor (both)
  5 accepted prefixes
```

```
 0 announced prefixes


 Connections established 1; dropped 0
Local host: 10.10.10.50, Local port: 179
Foreign host: 10.10.10.52, Foreign port: 36950
Nexthop: 10.10.10.50
Nexthop global: fe80::280:c8ff:feb9:d268
Nexthop local: ::
BGP connection: non shared network
Read thread: on  Write thread: off
```

Examples

```
    ZebOS# show ip bgp 128 view instance1 neighbors 10.10.10.5
```

Related Commands

show ip bgp neighbors

show ip bgp view summary

Use this command to view the summary data of neighbors of the given instance.

Command Syntax

```
    show ip bgp <1-65535> view WORD summary
    show ip bgp <1-65535> view WORD ipv4 (unicast|multicast) summary
```

   <1-65535> The id of the instance

   WORD the name of the instance to display data for.

   unicast Specifies unicast prefixes.

   multicast Specifies multicast prefixes.

Command Mode

Privileged Exec mode and Exec mode

Usage

The following example shows the summary data of instance named I2.

```
ZebOS# show ip bgp view I2 summary
BGP router identifier 10.10.10.50, local AS number 10
1 BGP AS-PATH entries
0 BGP community entries


Neighbor        V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
10.10.10.52     4    10       1       2        0    0    0 00:00:07          5


Total number of neighbors 1
```

Examples

```
    ZebOS# show ip bgp 128 view instance1 neighbor 10.10.10.5
```

Related Commands

show ip bgp neighbors

show ip bgp vpnv4

Use this command to display VPNv4 NLRI specific information.

Command Syntax

```
show ip bgp vpnv4 all [network|neighbors|summary|tags]
```
  `all` Displays information about all VPNv4 NLRIs

  `neighbors` Displays information about all VPNv4 NLRIs.

  `tags` BGP Specifies tags for prefixes.

  `summary` Displays summary of the BGP neighbor status.

  `network` Network for which information will be displayed in the BGP routing table.

Command Mode

Privileged Exec mode and Exec mode

Usage

This is a sample output from the `show ip bgp vpnv4` command displaying VPNv4 specific information

```
ZebOS# show ip bgp vpnv4 all
   Network          Next Hop          Metric LocPrf Weight Path
Route Distinguisher: 100:1 (VRF1)
* i 10.10.9.0/24     10.10.0.1                  0    141      0 65000 ?
*>  10.10.9.0/24     10.10.14.50                0             0 65000 ?
*>  10.10.10.0/24    10.10.14.50                              0 65000 ?
* i 10.10.10.0/24    10.10.0.1                  0    141      0 65000 ?
*>  10.10.11.0/24    10.10.14.50                              0 65000 ?
* i 10.10.11.0/24    10.10.0.1                  0    141      0 65000 ?
* i 10.10.14.0/24    10.10.0.1                       141      0 65000 ?
*>  10.10.14.0/24    10.10.14.50                0             0 65000 ?
* i 10.10.15.0/24    10.10.0.1                       141      0 65000 ?
*>  10.10.15.0/24    10.10.14.50                0             0 65000 ?
```

Examples

  ZebOS# show ip bgp vpnv4 all summary

Related Commands

show ip extcommunity-list

Use this command to display a configured extcommunity-list.

Command Syntax

```
show ip extcommunity-list (<1-199>|WORD)
```
  `<1-199>` Extcommunity-list number

  `WORD` Extcommunity-list name

Command Mode

Exec mode and Privileged Exec mode

Usage

Examples

```
ZebOS# show ip extcommunity-list 33
```

Related Commands

show ip protocols

Use this command to display BGP process parameters and statistics.

Note: This command is unavailable to ZebOS Server Routing Suite (SRS) customers and to ZebOS Advanced Routing Suite (ARS) customers using the VTY Shell for CLI management.

Command Syntax

```
show ip protocols
```

Command Mode

Privileged Exec mode and Exec mode

Usage

This is an example of the output from the show ip protocols command:

```
ZebOS# show ip protocols
Routing Protocol is "bgp 100"
Sending updates every 30 seconds with +/-50%, next due in 12 seconds
Timeout after 180 seconds, garbage collect after 120 seconds
Outgoing update filter list for all interface is not set
Incoming update filter list for all interface is not set
Default redistribution metric is 1
Redistributing: connected static
Default version control: send version 2, receive version 2
Interface        Send  Recv   Key-chain
   eth0                   2     2
Routing for Networks:
  10.10.0.0/24
Routing Information Sources:
  Gateway          BadPackets BadRoutes  Distance Last Update
 Distance: (default is 120
```

Examples

```
ZebOS# show ip protocols
```

Related Commands

show memory bgp

Use this command to to display memory statics for the BGP.

Command Syntax

```
show memory bgp
```

Command Mode

Privileged Exec mode and Exec mode

Usage

```
ZebOS# show memory bgp
Memory type                      : Alloc count    Alloc memory
=========================================================
BGP structure                    :           1             692
BGP peer                         :           1            2348
BGP peer conf                    :           0               0
BGP table                        :          31             124
BGP RIB                          :           0               0
BGP node                         :           3             180
BGP network                      :           0               0
BGP aggregate                    :           0               0
BGP MP capability                :           0               0
-------------------------------------------------
BGP adjacency                    :           0               0
BGP advertise                    :           0               0
BGP advertise attr               :           0               0
BGP adj_in                       :           0               0
-------------------------------------------------
BGP attribute                    :           0               0
BGP aspath                       :           0               0
BGP aspath seg                   :           0               0
BGP aspath str                   :           0               0
Community                        :           0               0
Community val                    :           0               0
Ext community                    :           0               0
Ext community val                :           0               0
Cluster                          :           0               0
Cluster val                      :           0               0
BGP transit attr                 :           0               0
BGP transit val                  :           0               0
-------------------------------------------------
BGP as list                      :           0               0
BGP as filter                    :           0               0
BGP as filter str                :           0               0
Community list                   :           0               0
Community list ent               :           0               0
```

```
Confederation list           :             0              0
------------------------------------------------
BGP distance                 :             0              0
BGP nexthop cache            :             0              0
BGP damp info                :             0              0
BGP decay array              :             0              0
BGP reuse index              :             0              0
BGP reuse list               :             0              0
```

Examples

```
ZebOS# show memory bgp
```

Related Commands

timers

Use this command sets the BGP keepalive timer and holdtime timer values.

Use the `no` parameter with this command to reset timers to default value.

Command Syntax

```
timers bgp KEEPALIVE HOLDTIME

no timers bgp
```

> KEEPALIVE <0-65535> The frequency with which the keepalive messages are sent to the neighbors. The default value is 60 seconds.

> HOLDTIME <0-65535> The interval after which the neighbor is considered dead if keepalive messages are not received. The default holdtime value is 180 seconds.

Command Mode

Router mode

Usage

This command is used globally to set or unset the keepalive and holdtime values for all the neighbors.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# timers bgp 40 120
```

Related Commands

CHAPTER 3   BGP4+ Commands

---

aggregate-address

Use this command to configure BGP aggregate entries.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) aggregate-address IPADDRESS (as-set)(summary-only)
```
> `IPADDRESS = X:X::X:X/M` Specifies the aggregate IPv6 prefix.
> `summary-only` Filters more specific routes from updates.
> `as-set` Generates AS set path information.

Default

Disabled

Command Mode

Address Family mode

Usage

Aggregates are used to minimize the size of routing tables. Aggregation combines the characteristics of several different routes and advertises a single route.The `aggregate-address` command creates an aggregate entry in the BGP routing table if any more-specific BGP routes are available in the specified range. Using the `summary-only` parameter advertises the prefix only, suppressing the more-specific routes to all neighbors. In the following example Router1 will propagate network 172.0.0.0 and suppresses the more specific route 172.10.0.0.

```
Router1#
aggregate-address 172.0.0.0/ 8 summary-only
```

The `as-set` parameter creates an aggregate entry advertising the path for this route, consisting of all elements contained in all paths being summarized. Use the `as-set` parameter to reduce the size of path information by listing the AS number only once, even if it was included in multiple paths that were aggregated. The `as-set` parameter is useful when aggregation of information results in an incomplete path information. In the following configuration Router1 has set the as-set parameter. When sending aggregate information to Router2 this indicates that 172.0.0.0 belongs to a set 100 and 200. Without the `as-set` parameter Router2 would receive path information indicating that the information was originating from AS 300 and have no knowledge that it was coming from two different autonomous systems. This might create loops.

```
Router1#
   router bgp 300
   neighbor 2.2.2.2 remote-as 100
   neighbor 3.3.3.3 remote-as 200
   aggregate-address 172.0.0.0/8 summary-only as-set
```

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# address family ipv6
ZebOS(config-router-af)# aggregate-address 3ffe::/32 as-set summary-only
```

Related Commands

---

neighbor activate

Use this commandd to enable the exchange of the specified AF routes with a neighboring router.

Use the `no` parameter with this command to disable exchange of information with a neighbor.

Command Syntax

```
(no) neighbor NEIGHBORID activate
    NEIGHBORID = A.B.C.D|X:X::X:X|TAG .
        A.B.C.D|X:X::X:X
```
Specifies the address of the BGP neighbor in IPv4 or IPv6 format

`TAG` Name of the peer-group

Command Mode

Address Family mode and Router mode

Usage

After the TCP connection is opened with the neighbor, this command is used to enable or disable the exchange of the specified AF information with a neighboring router.

To enable the exchange of multicast and VPNv4 address prefix types, neighbors are activated using the `neighbor activate` command in address family mode.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 1.2.3.4 activate
```

Related Commands

neighbor remote-as

---

neighbor attribute-unchanged

Use this command to advertise unchanged BGP attributes to the specified neighbor.

Command Syntax

```
(no) neighbor NEIGHBORID attribute-unchanged (as-path)(next-hop)(med)
    NEIGHBORID = A.B.C.D|X:X::X:X|TAG .
        A.B.C.D|X:X::X:X
```
Specifies the address of the BGP neighbor in IPv4 or IPv6 format

`TAG` Name of the peer-group

`as-path` AS path attribute

`next-hop` Next hop attribute

`med` Multi Exit Discriminator

Command Mode

Router mode and Address Family mode

Usage

Example
```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.75 attribute-unchanged as-path med
```

Related Commands

neighbor capability orf prefix-list

Use this command to advertise ORF capability to neighbors.

Command Syntax
```
(no) neighbor NEIGHBORID capability orf prefix-list (both|receive|send)
```
> NEIGHBORID = A.B.C.D|X:X::X:X|TAG .
>> A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
>>
>> TAG Neighbor tag
>
> orf Advertises ORF capability to its neighbors
>
> Both Indicates that the local router can send ORF entries to its peer as well as receive ORF entries from its peer.
>
> Receive Indicates that the local router is willing to receive ORF entries from its peer
>
> Send Indicates that the local router is willing to send ORF entries to its peer

Command Mode

Router mode and Address Family mode

Usage

Outbound Route Filters (ORFs) send and receive capabilities to lessen the number of updates exchanged between neighbors. By filtering updates, this option minimizes generating and processing of updates.

The local router advertises the ORF capability in send mode and the remote router receives the ORF capability in receive mode applying the filter as outbound policy. The two routers exchange updates to maintain the ORF for each router. Only an individual router or a peer-group can be configured to be in receive or send mode. A peer-group member cannot be configured to be in receive or send mode.

Examples
```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.5 capability orf prefix-list both
ZebOS(config-router)# neighbor effe:2897::0003:3ed5 capability orf prefix-list
receive
```

neighbor default-originate

Use this command to allow a BGP local router to send the default route 0.0.0.0 to a neighbor for use as a default route.

Use the no parameter with this command to send no route as a default.

Command Syntax

```
(no) neighbor IPADDRESS default-originate (ROUTEMAP)
```

IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.

ROUTEMAP = route-map WORD

route-map The route-map to specify criteria to originate default routes

WORD Route-map name

Command Mode

Router mode and Address Family mode

Usage

The neighbor default-originate command can be used with standard or extended access lists.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.10.1 default-originate route-map myroute
```

Related Commands

neighbor distribute-list

Use this command to filter route update from a particular BGP neighbor.

Use the `no` parameter with this command to remove an entry.

Command Syntax

```
(no) neighbor NEIGHBORID distribute-list ACCESSLISTID in|out
```

NEIGHBORID = A.B.C.D|X:X::X:X|TAG

A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

TAG Name of the peer-group

ACCESSLISTID = WORD|<1-199>|<1300-2699>

WORD The name of IP access-list

<1-199> The IP access-list number

<1300-2699> The IP access-list number (expanded range)

in Indicates that incoming advertised routes will be filtered.

out Indicates that outgoing advertised routes will be filtered.

Command Mode

Router mode and Address Family mode

Usage

Use only one distribute-list per BGP neighbor.

Examples

```
ZebOS# configure terminal
```

```
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 1.2.3.4 distribute-list mylist out
```

Related Commands

neighbor filter-list

Use this command to set up a BGP filter.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) neighbor NEIGHBORID filter-list LISTNAME in|out
```

    `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`

      `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

      `TAG` Name of the peer-group

    `LISTNAME` The name of an autonomous system path access list.

    `in` Indicates that incoming advertised routes will be filtered.

    `out` Indicates that outgoing advertised routes will be filtered.

Command Mode

Router mode and Address Family mode

Usage

This command specifies an access list filter on updates based on the BGP autonomous system paths. Each filter is an access list based on regular expressions.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.34 filter-list out
```

Related Commands

neighbor maximum-prefix

Use this command to control the number of prefixes that can be received from a neighbor.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) neighbor IPADDRESS maximum-prefix MAXIMUM
```

    `IPADDRESS = A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format.

    `MAXIMUM = <1-4294967295> (warning-only)`

      `<1-4294967295>` Specifies the maximum number of prefixes permitted.

      `warning-only` Only gives a warning message when the limit is exceeded.

Command Mode

Router mode and Address Family mode

Usage

The `neighbor maximum-prefix` command allows the configuration of a specified number of prefixes that a BGP router is allowed to receive from a neighbor. When the `warning-only` option is not used, if any extra prefixes are received, the router ends the peering. A terminated peer, stays down until the `clear ip bgp command` is used.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 maximum-prefix 1244 warning-only
```

Related Commands

neighbor next-hop-self

Use this command to configure the router as the next hop for a BGP-speaking neighbor or peer group.

Use the `no` parameter with this command to disable this feature.

Command Syntax

```
(no) neighbor NEIGHBORID next-hop-self
```

    `NEIGHBORID = A.B.C.D|X:X::X:X|TAG`

        `A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format

        `TAG` Name of the peer-group

Command Mode

Router mode and Address Family mode

Usage

This command allows a BGP router to change the nexthop information that is sent to the iBGP peer. The nexthop information is set to the IP address of the interface used to communicate with the neighbor.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 remote-as 100
ZebOS(config-router)# neighbor 10.10.0.72 next-hop-self
```

Related Commands

neighbor peer-group

Use this command to add a neighbor to an existing peer-group.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no)neighbor IPADDRESS peer-group TAG
```

> IPADDRESS=A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format.
>
> TAG Name of the peer-group

Command Mode

Router mode

Usage

Use this command to Neighbors with the same update policies are grouped into peer groups. This facilitates the updates of various policies, such as, distribute and filter lists. The peer-group is then configured easily with any of the neighbor commands. Any changes made to the peer group affect all members.

To create a peer-group use the neighbor peer-group create command and then use this command to add neighbors to the group.

Example

This example shows a new peer-group `group1` and the adding of a neighbor `10.10.0.63` to the group.

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor group1 peer-group
ZebOS(config-router)# neighbor 10.10.0.63 peer-group group1
```

Related Commands

neighbor prefix-list

Use this command to distribute BGP neighbor information as specified in a prefix list.

Use the `no` parameter with this command to remove an entry.

Command Syntax

```
(no) neighbor NEIGHBORID prefix-list LISTNAME in|out
```

> NEIGHBORID = A.B.C.D|X:X::X:X|TAG
>
> > A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
> >
> > TAG Name of the peer-group
>
> LISTNAME The number of an AS-path access list.
>
> in Specifies that the access list applies to incoming advertisements.
>
> out Specifies that the access list applies to outgoing advertisements.

Command Mode

Router mode and Address Family mode

Usage

Use this command to specify a prefix list for filtering BGP advertisements. Filtering by prefix list matches the prefixes of routes with those listed in the prefix list. If there is a match, the route is used. An empty prefix list permits all prefixes. If a given prefix does not match any entries of a prefix list, the route is denied access. When multiple entries of a prefix list match a prefix, the entry with the smallest sequence number is considered to be a real match.

The router begins the search at the top of the prefix list, with the sequence number 1. Once a match or deny occurs, the router does not need to go through the rest of the prefix list. For efficiency the most common matches or denies are listed at the top.

The `neighbor distribute-list` command is an alternative to the `neighbor prefix-list` command and only one of them can be used for filtering to the same neighbor in any direction.

Examples

```
ZebOS# configure terminal
ZebOS(config)# ip prefix-list list1 deny 30.0.0.0/24
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 prefix-list list1 in
```

Related Commands

ip prefix-list (refer to the *NSM Command Reference*)

neighbor remove-private-AS

Use this command to remove the private Autonomous System (AS) number from outbound updates.

Use the `no` parameter with this command to revert to default.

Command Syntax

```
(no)neighbor NEIGHBORID remove-private-AS
     NEIGHBORID = A.B.C.D|X:X::X:X|TAG
        A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
        TAG Name of the peer-group
```

Default

Disabled

Command Mode

Router mode and Address Family (ipv4 unicast | ipv4 multicast | ipv6 | vpnv4 unicast) mode

Usage

The private AS numbers range from <64512-65535>. Private AS numbers are not advertised to the Internet. This command is used with external BGP peers only. The router removes the AS numbers only if the update includes private AS numbers. If the update includes both private and public AS numbers, the system treats it as an error.

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.63 remove-private-AS
```

Related Commands

neighbor route-map

Use this command to apply a route map to incoming or outgoing routes.

Use the `no` parameter with this command to a route map.

Command Syntax

> (no) neighbor NEIGHBORID route-map MAPNAME in|out
>
> > NEIGHBORID = A.B.C.D|X:X::X:X|TAG
> >
> > > A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
> > >
> > > TAG Name of the peer-group
> >
> > MAPNAME Specifies name of the route-map.
> >
> > in Specifies that the access list applies to incoming advertisements.
> >
> > out Specifies that the access list applies to outgoing advertisements.

Command Mode

Router mode and Address Family mode

Usage

Use neighbor route map command to filter updates and modify attributes. A route map is applied to inbound or outbound updates. Only the routes that pass the route map are sent or accepted in updates.

Examples

The following example shows the configuration of the route-map name rmap2 and then the use of this map name in the neighbor route-map command.

```
ZebOS# configure terminal
ZebOS(config)# route-map rmap2 permit 6
ZebOS(config-route-map)# match origin incomplete
ZebOS(config-route-map)# set metric 100
ZebOS(config-route-map)#exit
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 route-map rmap2 in
```

Related Commands

neighbor route-reflector-client

Use this command to configure the router as a BGP route reflector and configure the specified neighbor as its client.

Use the no parameter with this command to indicate that the neighbor is not a client.

Command Syntax

> (no) neighbor NEIGHBORID route-reflector-client
>
> > NEIGHBORID = A.B.C.D|X:X::X:X|TAG
> >
> > > A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format
> > >
> > > TAG Name of the peer-group

Command Mode

Router mode and Address Family mode

Usage

Route reflectors are a solution for the explosion of iBGP peering within an autonomous system. By route reflection the number of iBGP peers within an AS is reduced. Use the `neighbor route-reflector-client` command to configure the local router as the route reflector and specify neighbors as its client.

An AS can have more than one route reflector. One route reflector treats the other route reflector as another iBGP speaker.

In the following configuration, Router1 is the route reflector for clients 3.3.3.3 and 2.2.2.2; it also has a non-client peer 6.6.6.6.

```
Router1#
router bgp 200
neighbor 3.3.3.3 remote-as 200
neighbor 3.3.3.3 route-reflector-client
neighbor 2.2.2.2 remote-as 200
neighbor 2.2.2.2 route-reflector-client
neighbor 6.6.6.6 remote-as 200
```

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 route-reflector-client
```

Related Commands

neighbor route-server-client

Use this command to specify the peer as route server client.

Use the `no` parameter with this command to disable this function

Command Syntax

```
(no) neighbor NEIGHBORID route-server-client
```

       NEIGHBORID = A.B.C.D|X:X::X:X|TAG

          A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

          TAG Name of the peer-group

Command Mode

Router mode and Address Family mode

Usage

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 route-server-client
```

Related Commands

neighbor send-community

Use this command to specify that a community attribute should be sent to a BGP neighbor.

Use the `no` parameter with this command to remove the entry.

Command Syntax

```
(no) neighbor NEIGHBORID send-community (both|extended|standard)

    NEIGHBORID = A.B.C.D|X:X::X:X|TAG

        A.B.C.D|X:X::X:X  Specifies the address of the BGP neighbor in IPv4 or IPv6 format

        TAG Name of the peer-group

    both = Sends Standard and Extended Community attributes

    extended = Sends Extended Community attributes

    standard = Sends Standard Community attributes
```

Default

Send-community is the default behavior.

Command Mode

Router mode and Address Family mode

Usage

This command is used to specify a community attribute to be sent to a neighbor. The community attribute groups destinations in a certain community and applies routing decisions according to those communities.

By default, on receiving the communities attribute the router reannounces them to the neighbor. Only when the `no` parameter is used with this command the community attributes are not reannounced to the neighbor.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router)# neighbor 10.10.0.72 send-community extended
```

Related Commands

neighbor soft-reconfiguration inbound

Use this command to configure the ZebOS software to start storing updates.

Use the `no` parameter with this command too disable this function.

Command Syntax

```
(no) neighbor NEIGHBORID soft-recognition inbound

    NEIGHBORID = A.B.C.D|X:X::X:X|TAG

        A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

        TAG Name of the peer-group
```

Command Mode

Router mode and Address Family mode

Usage

Use this command to store updates for inbound soft reconfiguration. To use soft reconfiguration, both BGP neighbors must support the soft route refresh capability advertised in the open messages sent when a BGP session is set. To determine if a BGP router supports soft route refresh capability use the `show ip bgp neighbors` command. Soft reset using the route refresh capability neither requires pre-configuration nor additional memory.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)# neighbor 10.10.10.10 soft-reconfiguration inbound
```

Related Commands

---

neighbor unsuppress-map

Use this command to selectively leak more-specific routes to a particular neighbor.

Command Syntax

```
(no)neighbor NEIGHBORID unsuppress-map WORD
```

NEIGHBORID = A.B.C.D|X:X::X:X|TAG

A.B.C.D|X:X::X:X Specifies the address of the BGP neighbor in IPv4 or IPv6 format

TAG Name of the peer-group

WORD The name of the route-map used to select routes to be unsuppressed.

Command Mode

Router mode and Address Family (ipv4 unicast | ipv4 multicast | ipv6) mode

Usage

When the `aggregate-address` command is used with the `summary-only` option, the more-specific routes of the aggregate are suppressed to all neighbors. Use the `unsuppress-map` command to selectively leak more-specific routes to a particular neighbor.

Example

```
ZebOS# configure terminal
ZebOS(config)# router bgp 10
ZebOS(config-router) neighbor 10.10.0.73 unsuppress-map mymap

ZebOS#configure terminal
ZebOS(config)#router bgp 10
ZebOS(config-router)address-family ipv4 unicast
ZebOS(config-router-af)neighbor 10.10.0.70 unsuppress-map mymap
```

Related Commands

---

network and network backdoor

Use this command to specify the networks to be advertised by the BGP routing process. Use the `backdoor` parameter to specify a backdoor route to a BGP border router that will provide better information about the network.

Use the `no` parameter with this command to remove an entry.

Command Syntax

```
(no) network A.B.C.D/M

(no) network IPADDRESS/M (backdoor)
```

      `IPADDRESS=A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format.

      `/M` Specifies the address mask.

      `backdoor` Specify a BGP backdoor route.

Command Mode

Router mode and Address Family mode

Usage

For data to be advertised by BGP, its routing table must include a route to the specified network. This command specifies the networks to be advertised. The network command works if the network being advertised is known to the router. In the following configuration Router1 will generate a network entry for 172.26.0.0/ 16.

```
Router1#
network 172.26.0.0/16
```

The `backdoor` parameter enables a route to be the preferred route even if it has a greater distance. A network that is specified as a backdoor network is not sourced by the local router but is learned from the external routers. In the following example, 172.10.0.0 is treated as a local entry but is advertised differently. If Router1 receives updates from 172.10.0.0 via two routing protocols RIP (distance 120) and eBGP (distance 20). Router1 will chose the route with a shorter distance. Using the `backdoor` parameter will allow Router1 to learn about 172.10.0.0 via RIP.

```
Router1#
router rip
network 172.10.0.0
router bgp 200
neighbor 3.3.3.3 remote-as 500
network 172.10.0.0 backdoor
```

The backdoor parameter applies to IPv4 unicast and IPv6 unicast address family only.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)#network 3.3.3.0/24

ZebOS# configure terminal
ZebOS(config)# router bgp 12
ZebOS(config-router)#network 3.3.3.0/24 backdoor
```

Related Commands

redistribute route-map

Use this command to inject routes from one routing process into another.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) redistribute [ospf|rip|connected|static|kernel|isis](MAPNAME)
```

       `connected` Specifies the redistribution of connected routes.

       `kernel` Specifies the redistribution of Kernel routes

       `osfp` Specifies the redistribution of OSFP information.

       `rip` Specifies the redistribution of RIP.

       `static` Specifies the redistribution of Static routes.

       isis Specifies the redistribution of ISIS routes.

       `MAPNAME = route-map WORD` Route map reference

          `WORD` Pointer to route-map entries.

Command Mode

Router mode and Address Family IPv6 mode

Usage

Redistribution is used by routing protocols to advertise routes that are learned by some other means, such as by another routing protocol or by static routes. Since all internal routes are dumped into BGP, careful filtering is applied to make sure that only routes to be advertised reach the internet, not everything. This command allows redistribution by injecting prefixes from one routing protocol into another routing protocol.

Examples

The following example shows the configuration of the route-map name `rmap1` and then the use of this map name in the `redistribute route-map` command.

```
ZebOS# configure terminal
ZebOS(config)# route-map rmap1 permit 1
ZebOS(config-route-map)# match origin incomplete
ZebOS(config-route-map)# set metric 100
ZebOS(config-route-map)#exit
ZebOS(config)# router bgp 12
ZebOS(config-router)# redistribute ospf route-map rmap1
```

Related Commands

---

show ipv6 bgp

Use this command to display BGP network information.

```
show ipv6 bgp (IPADDRESS)
```

       `IPADDRESS = X:X::X:X | X:X::X:X/M` Specifies the address and length.

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
show ipv6 bgp
show ipv6 bgp 3ffe::8/8
```

Related Commands

show ipv6 bgp community

Use this command to display routes matching the communities.

Command Syntax

```
show ipv6 bgp community [(AA:NN|LOCAL|ADVERTISE|EXPORT) (exact-match)]
   AA:NN
   LOCAL= local-AS  Do not send outside local AS (well-known community)
   ADVERTISE= no-advertise Do not advertise to any peer (well-known community)
   EXPORT= no-export Do not export to next AS (well-known community)
   exact-match Specifies that ZebOS display the exact match of the communities
```

Command Mode

Privileged Exec mode

Usage

Examples

```
show ipv6 bgp community local
```

Related Commands

show ip bgp community

show ipv6 bgp community-list

Use this command to display routes matching the community-list.

Command Syntax

```
show ipv6 bgp community-list COMMUNITYLISTNAME (exact-match)
   COMMUNITYLISTNAME Specifies the community list name.
   exact-match Displays only routes that have exactly the same specified communities.
```

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
show ipv6 bgp community-list mylist exact-match
```

Related Commands

show ipv6 bgp filter-list

Use this command to display routes conforming to the filter-list.

Command Syntax

```
show ipv6 bgp filter-list LISTNAME
```

> LISTNAME Specifies the regular expression access list name

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
show ipv6 bgp filter-list mylist
```

Related Commands

---

show ipv6 bgp neighbors

Use this command to display detailed information on TCP and BGP neighbor connections.

Command Syntax

```
show ipv6 bgp neighbors (IPADDRESS [ADVERTISED|RECEIVED|ROUTES])
```

> IPADDRESS=X:X::X:X Specifies the IP address.

> ADVERTISED= advertised-routes Displays the routes advertised to a BGP neighbor.

> RECEIVEDROUTES = received-routes Displays the received routes from neighbor. To display all the received routes from the neighbor, configure the BGP soft reconfigure first.

> ROUTES = routes Displays all accepted routes learned from neighbors.

Command Mode

Privileged Exec mode and Exec mode

Usage

The following is an output from the `show ipv6 bgp neighbors` command displaying detailed information about the neighbor.

```
ZebOS# show ip bgp neighbors
BGP neighbor is fe80::203:47ff:feb0:d72b, remote AS 10, local AS 10, internal link
  BGP version 4, remote router ID 10.10.10.50
  BGP state = Established, up for 00:02:01
  Last read 00:00:01, hold time is 180, keepalive interval is 60 seconds
  Neighbor capabilities:
    Route refresh: advertised and received (old and new)
    Address family IPv4 Unicast: advertised and received
    Address family IPv6 Unicast: advertised and received
  Received 3 messages, 0 notifications, 0 in queue
  Sent 5 messages, 0 notifications, 0 in queue
  Route refresh request: received 0, sent 0
  Minimum time between advertisement runs is 5 seconds

 For address family: IPv4 Unicast
  Community attribute sent to this neighbor (both)
```

```
 0 accepted prefixes
 0 announced prefixes

For address family: IPv6 Unicast
 Community attribute sent to this neighbor (both)
 0 accepted prefixes
 0 announced prefixes

 Connections established 1; dropped 0
Local host: fe80::280:c8ff:feb9:d267, Local port: 179
Foreign host: fe80::203:47ff:feb0:d72b, Foreign port: 2346
Nexthop: 10.10.10.10
Nexthop global: fe80::280:c8ff:feb9:d267
Nexthop local: ::
BGP connection: shared network
Read thread: on  Write thread: off
```

Examples

```
show ipv6 bgp neighbors 3ffe::1
```

Related Commands

---

show ipv6 bgp prefix-list

Use this command to display routes matching the prefix-list.

Command Syntax

```
show ipv6 bgp prefix-list LIST
```

      `LIST` Specifies the name of the IP prefix list.

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
show ipv6 bgp prefix-list mylist
```

Related Commands

---

show ipv6 bgp regexp

Use this command to display routes matching the AS path regular expression.

Command Syntax

```
show ip bgp regexp EXPRESSION
```

      `EXPRESSION` Specifies a regular-expression to match the BGP AS paths

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
show ipv6 bgp regexp myexpression
```

Related Commands

show ipv6 bgp summary

Use this command to display a summary of BGP neighbor status.

Command Syntax

```
show ipv6 bgp summary
```

Command Mode

Privileged Exec mode and Exec mode

Usage

Examples

```
show ipv6 bgp summary
```

Related Commands

BGP VPN Commands

This chapter provides an alphabetized reference for each of the BGP VPN Commands.

address-family ipv4 vrf

Use this command to enable the exchanging of VRF routing information and switches command mode to address family-vrf mode.

Command Syntax

```
address-family ipv4 (multicast|unicast|VRF)
      multicast Address Family modifier
      unicast Address Family modifier
      VRF vrf VRF-NAME For MPLS-VPN
         VRF-NAME A name used to identify a VRF
```

Command Mode

Router mode

Usage

Use address-family ipv4 vrf command to configure routing exchange between Provider Edge (PE) and Customer Edge (CE) devices. The BGP sessions between PE routers can carry different types of routes (VPN-IPv4, IPv4, VPN-IPv4 and IPv4 routes). Address families are used to control the type of BGP session. Configure a BGP address family for each VRF configured on the PE router and a separate address family to carry VPN-IPv4 routes between PE routers. All non VPN BGP neighbors are defined using the `Router` mode. All VPN BGP neighbors are defined under its associated `Address Family` mode. The BGP process with no address-family specified, is the default address-family where any sessions are configured that either are not associated with a VRF or are used to carry IPv4 routes.

Examples

The following example places the router in address family configuration mode and specifies vrf1 as the name of the VRF instance to associate with subsequent IP Version 4 address family configuration mode commands:

```
ZebOS(config)# router bgp 100
ZebOS(config-router)# address-family ipv4 vrf IPI
ZebOS(config-router-af)#
```

Related Commands

address-family vpnv4 unicast

address-family vpnv4

Use this command to enable the exchanging of VPNv4 routing information among ISP PE-routers and switches command mode to address-family-vpnv4 mode.

Command Syntax

```
address-family vpnv4 unicast
```

> `unicast` Address Family modifier

Default

Disabled

Command Mode

Router mode

Usage

Use this command to enter the address family configuration mode. The address family mode allows the configuration of routing sessions that use VPN version 4 address prefixes. Use the `exit-address-family` command to go back to `router` mode.

Examples

In the following example note that the prompt changed to `config-router-af` after using the `address-family` command.

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# address-family vpnv4 unicast
```

Related Commands

address-family ipv4 vrf, exit-address-family, neighbor active

bgp inbound-route-filter

Use this command to control the installation of routing information into the BGP table.

Use the `no` parameter with this command to install all of the routing information into the BGP table.

Command Syntax

```
(no) bgp inbound-route-filter
```

Default

Enabled, the router performs the routing distinguisher value check, by default.

Command Mode

Router mode

Usage

When a router runs MPLS VPN/BGP PE, it exchanges routing information with a routing distinguisher. By default, ZebOS does not install routing information that does not match the configured routing distinguisher value. When the local box has two VRFs where for example, each routing distinguisher value is 10:100 and 20:200, routing information with routing distinguisher 10:200 is not installed into BGP table.

BGP inbound-route-filter command can control this behavior. When `no bgp inbound-route-filter` is configured, all of routing information is installed into the BGP table.

Examples

```
ZebOS# configure terminal
ZebOS(config)# router bgp 100
ZebOS(config-router)# bgp inbound-route-filter
```

Related Commands

clear ip bgp vpnv4

Use this command to reset (clear) a VPNv4 BGP connection using BGP soft reconfiguration.

command syntax

```
clear ip bgp vpnv4 (ASTERISK|NUMBER|ADDRESS)
```

  ASTERISK= * (SOFT)|(VPNv4) Clears all peers

  NUMBER = <1-65535> (SOFT)|(VPNv4) Clears all peers with AS number

  ADDRESS= [A.B.C.D (SOFT)|(VPNv4)]|X:X::X:X Specifies BGP neighbor to clear

  A.B.C.D Specifies the IPv4 address of the BGP route to be cleared.

  X:X::X:X Specifies the IPv6 address of the BGP route to be cleared.

  VPNV4= vpnv4 unicast SOFTINOUT

    vpnv4 VPNV4 address family

    unicast description

  SOFT = in|out|soft

    in Indicates that incoming advertised routes will be cleared.

    out Indicates that outgoing advertised routes will be cleared.

    soft Indicates that both incoming and outgoing routes will be cleared.

Command Mode

Privileged Exec mode

Usage

The `clear ip bgp` command clears the BGP connection and resets inbound routing table dynamically. Freeing up additional memory, which would be required for storing the updates to generate new updates.

Examples

```
ZebOS# clear ip bgp vpnv4 * in
```

Related Commands

clear ip bgp view, show ip bgp neighbors

debug bgp mpls

Use this command to enable the display of MPLS related information.

Use the `no` parameter with this command to disable this function.

Note: This command is available only when `vrf` option is enabled.

Command Syntax

```
(no) debug bgp mpls
```

Default

Disabled

Command Mode

Privileged Exec mode

Usage

Examples

```
debug bgp mpls
```

Related Commands

---

exit-address-family

Use this command to exit address-family-vrf or address-family-vpnv4 mode.

Command Syntax

```
exit-address-family
```

Command Mode

Address Family-vrf and Address Family-vpnv4 mode.

Usage

Examples

The following example shows the change in prompt after using the `exit-address-family` command to exit the `address-family` mode.

```
ZebOS(config)# router bgp 100
ZebOS(config-router)# address-family vpnv4 unicast
ZebOS(config-router-af)# exit-address-family
ZebOS(config-router)#
```

Related Commands

address-family vpnv4 unicast

---

import map

Use this command to assign a route-map to the VRF. This map is applied for routing information imported from another PE or VRF.

Command Syntax

```
 import map WORD
no import map
```

WORD A pointer to route-map entries.

Command Mode

VRF mode

Usage

Use `import map` command when an application requires finer control over the routes imported into a VRF than provided by the import and export extended communities.This command associates a route-map with the specified VRF. You can filter routes that are eligible for import into a VRF through the use of a route-map.The route-map might deny access to selected routes from a community that is on the import list.

Examples

```
ZebOS(config)# ip vrf IPI
ZebOS(config-vrf)# import map set-pref
```

Related Commands

route-map, ip vrf

neighbor activate

Use this command to enable the exchange of routing information with a peer router.

Use the `no` parameter with this command to disable this function.

Command Syntax

```
(no) neighbor NEIGHBORADDRESS activate
```

NEIGHBORADDRESS neighbor IP address. Use A.B.C.D form.

Default

Neighbor activation is enabled only under address-family ipv4.

Command Mode

Address Family-vpnv4 mode

Usage

Neighbor under address-family ipv4 is by default activated. For all other address-family, use this command to enable neighbor in order to exchange routing information of specific address-family with neighbor.

Examples

```
ZebOS(config)# router bgp 100
ZebOS(config-router)# neighbor 10.10.20.1 remote-as 100
ZebOS(config-router)# address-family vpnv4 unicast
ZebOS(config-router-af)# neighbor 10.10.20.1 activate
```

Related Commands

address-family

---

neighbor allowas-in

Use this command to configure PE routers to allow re-advertisement of all prefixes containing duplicate Autonomous System Numbers (ASNs).

Use the `no` parameter with this command to disable the readvertisement of a PE router's ASN.

Command Syntax

```
neighbor NEIGHBORADDRESS allowas-in (NUMBER)

(no) neighbor NEIGHBORADDRESS allowas-in
```

      NEIGHBORADDRESS neighbor IP address. Use A.B.C.D form.

      NUMBER <1-10> Number of occurances of AS number

Default

Disabled

Command Mode

Router mode and Address Family mode

Usage

In a hub and spoke configuration, a PE router re-advertises all prefixes containing duplicate ASNs. Use the `neighbor allowas-in` command to configure two VRFs on each PE router to receive and re-advertise prefixes. One of the VRFs receives prefixes with ASNs from all PE routers and then advertises them to neighboring PE routers. The other VRF receives prefixes with ASNs from the CE router and re-advertises them to all PE routers in the hub and spoke configuration.

Control the number of times an ASN is advertised, by specifying a number from 1 to 10.

Examples

```
ZebOS(config-router)# address-family ipv4 vrf VRF_A
ZebOS(config-router-af)# neighbor 10.10.0.1 allowas-in 3
```

Related Commands

---

neighbor as-override

Use this command to configure a PE router to override the Autonomous System Number (ASN) of a site with the ASN of a provider.

Use the `no` parameter with this command to remove VPN IPv4 prefixes from a specified router.

Command Syntax

```
(no) neighbor NEIGHBORADDRESS as-override
```

      NEIGHBORADDRESS neighbor IP address. Use A.B.C.D form.

Default

Disabled

Command Mode

Address Family-vrf mode

Usage

BGP normally ignores the routes from the same AS. This command is used to override the customer's ASN in BGP, so that the customer CE accepts and installs routes from the same AS.

Examples

```
ZebOS(config-router)# address-family ipv4 vrf VRF_A
ZebOS(config-router-af)# neighbor 10.10.0.1 as-override
```

Related Commands

address family ipv4 vrf, neighbor remote-as

neighbor description

Use this command to associate a description with a neighbor.

Use the `no` parameter with this command to remove the description.

Command Syntax

```
(no) neighbor IPADDRESS description .LINE
```
      `IPADDRESS = A.B.C.D|X:X::X:X` Specifies the address of the BGP neighbor in IPv4 or IPv6 format.

      `LINE` = 80-character text that describes the neighbor.

Command Mode

Router mode and Address Family-vrf mode

Usage

This command helps in identifying a neighbor quickly. It is useful for an ISP that has multiple neighbor relationships

Examples

```
ZebOS(config)#router bgp 100
ZebOS(config-router)#address-family ipv4 vrf VRF_A
ZebOS(config-router-af)#neighbor 10.10.0.1 description Bank of America
```

Related Commands

address-family, neighbor remote-as

neighbor remote-as

Use this command to establish BGP peering with customer edge router.

Use the `no` parameter with this command to delete this peering.

Command Syntax

```
(no) neighbor NEIGHBORADDRESS remote-as ASN
```
      `NEIGHBORADDRESS` neighbor IP address. Use A.B.C.D form.

      `ASN <1-65535>` AS number of the customer's site

Command Mode

Address Family-vrf mode

Usage

Use this command to specify a neighbor's autonomous system number. If the specified ASN matches the ASN number specified in the router bgp global configuration, the neighbor is identified as internal, if not (ASN does not match) then external, to the local AS. The specified neighbor exchanges only unicast address prefixes, unless the neighbor is also activated using the `neighbor activate` command which allows the exchange of other routing information.

Examples

```
ZebOS(config-router)# address-family ipv4 vrf VRF_A
ZebOS(config-router-af)# neighbor 10.10.0.1 remote-as 65000
```

Related Commands

address-family ipv4 vrf

neighbor send-community

Use this command to send the extended-community attribute to a customer edge router.

Command Syntax

```
(no) neighbor NEIGHBORADDRESS send-community (both|extended|standard)
```

    `NEIGHBORADDRESS` neighbor IP address. Use A.B.C.D form

    `both` Sends both extended and standard community attributes

    `extended` Sends extended community attributes

    `standard` Sends standard community attributes

Default

Disabled. No extended-community attribute is send to a customer router.

Command Mode

Router mode and Address Family mode

Usage

In VPN, route-distinguisher and route-target are encoded in BGP extended-community. This command enables sending of bgp routes with extended community to a neighbor.

Examples

```
ZebOS(config)#router bgp 100
ZebOS(config-router)#address-family ipv4 vrf VRF_A
ZebOS(config-router-af)#neighbor 10.10.0.1 send-community extended
```

Related Commands

neighbor shutdown

Use this command to disable a neighbor administratively.

Use the `no` parameter with this command to re-enable a neighbor.

Command Syntax

```
(no) neighbor NEIGHBORADDRESS shutdown
```

    NEIGHBORADDRESS neighbor IP address. Use A.B.C.D form.

Command Mode

Address Family-vrf mode

Usage

Use this command to terminates any active session for a specified neighbor and clears all related routing information. In case a peer group is specified for shutdown, a large number of peering sessions could be terminated. The show ip bgp summary command displays the summary of BGP neighbors and their connections.

Examples

```
ZebOS(config-router)# address-family ipv4 vrf VRF_A
ZebOS(config-router-af)# neighbor 10.10.0.1 shutdown
```

Related Commands

address-family ipv4 vrf, neighbor remote-as

neighbor soo

Use this command to enable site-of-origin feature.

Use the `no` parameter with this command to disable this feature.

Command Syntax

```
 neighbor NEIGHBORADDRESS soo SOO-VAL
no neighbor NEIGHBORADDRESS soo
```

    NEIGHBORADDRESS neighbor IP address. Use A.B.C.D form.

    SOO-VAL = ASN|IPID

        ASN = AS Number:NN Specifies a 16-bit AS number and an arbitrary number (for example 100:1)

        IPID = A.B.C.D|NN Specifies a 32-bit IP address and an arbitrary number (for example 192.34.23.1:1)

Command Mode

Address Family-vrf mode

Usage

If the customer AS is multi-homed to ISP, this command ensures that PE does not advertise the routes back to same AS.

Examples

```
ZebOS(config-router)# address-family ipv4 vrf VRF_A
ZebOS(config-router-af)# neighbor 10.10.0.1 soo 100:1
```

Related Commands

address-family ipv4 vrf, neighbor remote-as

redistribute

Use this command to redistribute routes between routing domains.

Command Syntax

```
(no) redistribute static|connected (route-map WORD)
```

> `static` redistribute static routes in the VRF
>
> `connected` redistribute connected routes in the VRF
>
> `WORD` A pointer to route-map entries.

Command Mode

Address Family-vrf mode

Usage

Examples

```
ZebOS(config-router)# address-family ipv4 vrf VRF_A
ZebOS(config-router-af)# redistribute static
```

Related Commands

route distinguisher

Use this command to assign a route distinguisher (RD) for the VRF. The route distinguisher value must be a unique value on the router.

Command Syntax

```
rd RD-VALUE
```

> `RD-VALUE` = ASN|IPID
>
>> `ASN` = `ASN:NN` 16-bit Specifies a AS number and an arbitrary number (for example- 100:1)
>>
>> `IPID` = `A.B.C.D|NN` Specifies a 32-bit IP address and an arbitrary number (for example- 192.16.10.1:1)

Command Mode

VRF mode

Usage

Use the `route distinguisher` command to create routing and forwarding tables and to specify the default RD for a VPN. The RD is added to the customer's IPv4 prefixes, changing them into globally unique VPN-IPv4 prefixes.

Examples

```
ZebOS(config)# ip vrf VRF_A
ZebOS(config-vrf)# rd 100:1
```

Related Commands

ip vrf, route-target

route-target

Use this command to add a list of import and export route-target extended communities to the VRF.

Use the `no` parameter with this command to delete a route target.

Command Syntax

> (no) route-target [export|import|both] RT-VALUE
>
> `export` add route-target to the exporting routing information from the VRF
>
> `import` import routing information which have this route-target
>
> `both` Specify both import and export
>
> `RT-VALUE` = ASN|IPID
>
> `RT-VALUE` = ASN|IPID
>
> > `ASN` = `ASN:NN` 16-bit Specifies a AS number and an arbitrary number (for example- 100:1).
> >
> > `IPID` = `A.B.C.D|NN` Specifies a 32-bit IP address and an arbitrary number (for example- 192.16.10.1:1)

Command Mode

VRF mode

Usage

The `route-target` command creates lists of import and export route-target extended communities for the VRF. It specifies a target VPN extended community. Execute the command once for each community. All routes with the specific route-target extended community are imported into all VRFs with the same extended community as an import route-target.

Examples

```
ZebOS(config)# ip vrf VRF_A
ZebOS(config-vrf)# route-target both 100:10

ZebOS(config)# ip vrf VRF_A
ZebOS(config-vrf)# route-target import 100:20
```

Related Commands

ip vrf, route distinguisher

set vpnv4 next-hop

Use this command to set the IP address of the VPNv4 next hop router.

Use the `no` parameter with this command to disable this feature.

Command Syntax

```
(no) set vpnv4 next-hop A.B.C.D
no set vpnv4 next-hop (A.B.C.D)
```
> `A.B.C.D` The address of the next hop.

Command Mode

Route-map mode

Usage

Examples

```
ZebOS(config)#route-map vpn1 permit 10
ZebOS(config-route-map)#set vpn4 nexthop 10.10.0.5
```

Related Commands

route-map

show ip bgp vpnv4

Use this command to display all VPNv4 routing data, routing data for a VRF or a route-distinguisher.

Command Syntax

```
show ip bgp vpnv4 all [network|neighbors|summary|tags]

show ip bgp vpvn4 vrf VRFNAME [network|tags]

show ip bgp vpvn4 rd RDVALUE [network|neighbors|summary|tags]
```

> VRFNAME a name used to identify a VRF.
>
> network A.B.C.D Network for which information will be displayed in the BGP routing table.
>
> tag Shows label information for the route
>
> neighbor Shows neighbor information for the route
>
> summary Shows summary information for the route
>
> RDVALUE = route-distinguisher either ASN: 16bits-number or A.B.C.D: 32bits-number form

Command Mode

Privileged Exec mode

Usage

```
ZebOS@vpc1# show ip bgp vpnv4 all
   Network          Next Hop          Metric LocPrf Weight Path
Route Distinguisher: 100:1 (VRF_A)
*>i 10.20.1.0/24    10.20.0.1                  0    100      0 ?
*>  10.10.1.0/24    10.10.0.1                  0             0 65000 ?

ZebOS@vpc1# show ip bgp vpnv4 all tags
   Network          Next Hop      In tag/Out tag
Route Distinguisher: 100:1 (VRF_A)
*>i 10.20.1.0/24    10.20.0.1     notag/16
*>  10.10.1.0/24    10.10.0.1     16(eth1)/aggregate(VRF_A)
```

Examples

Related Commands

show ip route vrf

show ip vrf

Use this command to display the routing information of the VRF.

Command Syntax

```
show ip vrf (VRF-NAME)
     VRF-NAME a name used to identify a VRF.
```

Command Mode

Privileged Exec mode and Exec mode

Usage

This command shows VRF related information, such as interface, Route Distinguisher, Route-target, etc.

Examples

```
ZebOS# show ip vrf VRF_A
VRF VRF_A; (table=1)
```

Related Commands

show ip route vrf

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