



BGP Support for Named Extended Community Lists

The BGP Support for Named Extended Community Lists feature introduces the ability to configure extended community lists using names in addition to the existing numbered format.

Feature History for the BGP Support for Named Extended Community Lists feature

Release	Modification
12.2(25)S	This feature was introduced.
12.3(11)T	This feature was integrated into Cisco IOS Release 12.3(11)T.
12.2(27)SBC	This feature was integrated into Cisco IOS Release 12.2(27)SBC.

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Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at <http://www.cisco.com/go/fn>. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

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Corporate Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

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How to Configure Named Extended Community Lists

This section contains the following tasks:

- [Configuring Named Extended CommunityLists, page 2](#)
- [Verifying Named Extended Community-list Configuration, page 3](#)

Configuring Named Extended CommunityLists

Perform this task to configure a named extended community list.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip extcommunity-list** *expanded-list-number* [**expanded** *list-name* {**permit** | **deny**} [*regular-expression*] | *standard-list-number* | **standard** *list-name* {**permit** | **deny**} [**rt** *extcom-value*] [**soo** *extcom-value*]
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none">• Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	ip extcommunity-list <i>expanded-list-number</i> [expanded <i>list-name</i> { permit deny } [<i>regular-expression</i>] <i>standard-list-number</i> standard <i>list-name</i> { permit deny } [rt <i>extcom-value</i>] [soo <i>extcom-value</i>] Example: Router(config)# ip extcommunity-list standard NAMED_LIST permit rt 64512:10	Creates an extended community-list and controls access to it. <ul style="list-style-type: none">• The example creates a standard named extended community list.
Step 4	end Example: Router(config)# end	Exits global configuration mode and enters privileged EXEC mode.

Verifying Named Extended Community-list Configuration

Perform this task to verify the configuration of a named extended community list.

SUMMARY STEPS

1. `show ip extcommunity-list [list-number | list-name]`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>show ip extcommunity-list [list-number list-name]</code>	Displays routes that are permitted by an extended community list.
	Example: Router# <code>show ip extcommunity-list</code>	

Configuration Examples for Named Extended Community Lists

The following examples show how to configure and verify this feature:

- [Named Extended Community-list Configuration: Example, page 3](#)
- [Named Extended Community-list Verification: Example, page 3](#)

Named Extended Community-list Configuration: Example

The following example creates and configures a named extended community list that will permit routes only from route target 64512:10 and will implicitly deny all other routes:

```
Router(config)# ip extcommunity-list standard NAMED_LIST permit rt 64512:10
```

Named Extended Community-list Verification: Example

The following example uses the `show ip extcommunity-list EXEC` command to display routes that are locally permitted by a named extended community list:

```
Router# show ip extcommunity-list
```

```
Standard extended community-list NAMED_LIST
 10 deny RT:64512:10
```

Additional References

The following sections provide references related to the BGP Support for Named Extended Community Lists feature.

Related Documents

Related Topic	Document Title
BGP commands	<i>Cisco IOS IP Command Reference, Volume 2 of 4: Routing Protocols</i> , Release 12.3T
BGP configuration tasks	<i>Cisco IOS IP Configuration Guide</i> , Release 12.3
Regular Expressions	“Regular Expressions” appendix of the <i>Cisco IOS Terminal Services Configuration Guide</i>

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIBs	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL: http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing standards has not been modified by this feature.	—

Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, tools, and lots more. Registered Cisco.com users can log in from this page to access even more content.	TAC Home Page: http://www.cisco.com/public/support/tac/home.shtml BGP Support Page: http://www.cisco.com/cgi-bin/Support/browse/psp_view.pl?p=Inter networking:BGP

Command Reference

This section documents modified commands.

- [ip extcommunity-list](#)
- [show ip extcommunity-list](#)

ip extcommunity-list

To create an extended community list to configure Virtual Private Network (VPN) route filtering, use the **ip extcommunity-list** command in global configuration mode. To delete the extended community list, use the **no** form of this command.

Global Configuration Mode CLI

ip extcommunity-list *expanded-list* | **expanded** *list-name* { **permit** | **deny** } [*regular-expression*] | *standard-list* | **standard** *list-name* { **permit** | **deny** } [**rt** *value*] [**soo** *value*]

no ip extcommunity-list *expanded-list* | **expanded** *list-name* | *standard-list* | **standard** *list-name*

To enter IP Extended community-list configuration mode to create or configure an extended community-list, use the **ip extcommunity-list** command in global configuration mode. To delete the entire extended community list, use the **no** form of this command. To delete a single entry, use the **no** form in IP Extended community-list configuration mode.

ip extcommunity-list *expanded-list* | **expanded** *list-name* | *standard-list* | **standard** *list-name*

no ip extcommunity-list *expanded-list* | **expanded** *list-name* | *standard-list* | **standard** *list-name*

Expanded IP Extended Community-List Configuration Mode CLI

[*sequence-number*] **deny** [*regular-expression*] | **exit** | **permit** [*regular-expression*] | **resequence** [*starting-sequence*] [*sequence-increment*]

default { *sequence-number* | **deny** [*regular-expression*] | **exit** | **permit** [*regular-expression*] | **resequence** [*starting-sequence*] [*sequence-increment*] }

no { *sequence-number* | **deny** [*regular-expression*] | **permit** [*regular-expression*] | **resequence** [*starting-sequence*] [*sequence-increment*] }

Standard IP Extended Community-List Configuration Mode CLI

[*sequence-number*] **deny** [**rt** *value*] [**soo** *value*] | **exit** | **permit** [**rt** *value*] [**soo** *value*] | **resequence** [*starting-sequence*] [*sequence-increment*]

default { *sequence-number* | **deny** [**rt** *value*] [**soo** *value*] | **exit** | **permit** [**rt** *value*] [**soo** *value*] | **resequence** [*starting-sequence*] [*sequence-increment*] }

no { *sequence-number* | **deny** [**rt** *value*] [**soo** *value*] | **permit** [**rt** *value*] [**soo** *value*] | **resequence** [*starting-sequence*] [*sequence-increment*] }

Syntax Description

<i>expanded-list</i>	An expanded list number from 100 to 500 that identifies one or more permit or deny groups of extended communities.
<i>standard-list</i>	A standard list number from 1 to 99 that identifies one or more permit or deny groups of extended communities.
expanded <i>list-name</i>	Creates an expanded named extended community list and enters IP Extended community-list configuration mode.
standard <i>list-name</i>	Creates a standard named extended community list and enters IP Extended community-list configuration mode.

permit	Permits access for a matching condition.
deny	Denies access for a matching condition.
<i>regular-expression</i>	(Optional) An input string pattern to match against.
rt	(Optional) Specifies the route target (RT) extended community attribute. The rt keyword can be configured only with standard extended community lists and not expanded community lists.
soo	(Optional) Specifies the site of origin (SOO) extended community attribute. The soo keyword can be configured only with standard extended community lists and not expanded community lists.
<i>value</i>	Specifies the route target or site of origin extended community value. This value can be entered in one of the following formats: <ul style="list-style-type: none"> autonomous-system-number : network-number ip-address : network-number
<i>sequence-number</i>	(Optional) The sequence number of a named or numbered extended community list. This value can be a number from 1 to 2147483647.
default	(Optional) Sets a keyword or argument to default behavior or value.
exit	(Optional) Exits from IP Extended community-list configuration mode.
resequence	(Optional) Changes the sequences of extended community list entries to the default sequence numbering or to the specified sequence numbering. Extended community entries are sequenced by ten number increments by default.
<i>starting-sequence</i>	(Optional) Specifies the number for the first entry in an extended community list.
<i>sequence-increment</i>	(Optional) Specifies the increment range for each subsequent extended community entry.

Defaults

Extended community exchange is not enabled by default. It is enabled on a per-neighbor basis with the **neighbor send-community** command.

Once a permit value has been configured to match a given set of extended communities, the extended community list defaults to an implicit deny for all other values.

Extended community list entries start with the number 10 and increment by ten for each subsequent entry when no sequence number is specified, when default behavior is configured, and when an extended community list is resequenced without specifying the first entry number or the increment range for subsequent entries.

Command Modes

Global configuration
IP Extended community-list configuration

Command History

Release	Modification
12.1	This command was introduced.
12.0(22)S	The maximum number of expanded community list numbers was increased from 199 to 500.

Release	Modification
12.2(15)T	The maximum number of expanded community list numbers was increased from 199 to 500.
12.2(25)S	Support for the following was added in Cisco IOS Release 12.2(25)S: <ul style="list-style-type: none"> • Extended community-list sequencing • IP Extended community configuration mode • Named extended community lists
12.3(11)T	Support for the following was added in Cisco IOS Release 12.3(11)T: <ul style="list-style-type: none"> • Extended community-list sequencing • IP Extended community configuration mode • Named extended community lists
12.2(27)SBC	This command was integrated into the Cisco IOS Release 12.2(27)SBC.

Usage Guidelines

The **ip extcommunity-list** command is used to configure named or numbered extended community lists. Extended community attributes are used to filter routes for VPN routing and forwarding instances (VRFs) and Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs). All of the standard rules of access lists apply to the configuration of extended community lists. The route target (RT) and site of origin (SOO) extended community attributes are supported by the standard range of extended community lists. Regular expressions are supported in expanded extended community lists. For information about configuring regular expressions, see the *Regular Expressions* appendix of the *Cisco IOS Terminal Services Configuration Guide*.

Route Target Extended Community Attribute

The route target (RT) extended community attribute is configured with the **rt** keyword. This attribute is used to identify a set of sites and VRFs that may receive routes that are tagged with the configured route target. Configuring the route target extended attribute with a route allows that route to be placed in the per-site forwarding tables that are used for routing traffic that is received from corresponding sites.

Site of Origin Extended Community Attribute

The site of origin (SOO) extended community attribute is configured with the **soo** keyword. This attribute uniquely identifies the site from which the provider edge (PE) router learned the route. All routes learned from a particular site must be assigned the same site of origin extended community attribute, regardless if a site is connected to a single PE router or multiple PE routers. Configuring this attribute prevents routing loops from occurring when a site is multihomed. The SOO extended community attribute is configured on the interface and is propagated into BGP through redistribution. The SOO should not be configured for stub sites or sites that are not multihomed.

IP Extended Community-List Configuration Mode

Named and numbered extended community lists can be configured in IP Extended community-list configuration mode. To enter IP Extended community-list configuration mode, enter the **ip extcommunity-list** command with either the **expanded** or **standard** keyword followed by the extended community list name. This configuration mode supports all of the functions that are available in global configuration mode. In addition, you can perform the following operations:

- Configure sequence numbers for extended community list entries
- Resequence existing sequence numbers for extended community list entries

- Configure an extended community list to use default values

Extended Community List Processing

When multiple values are configured in the same extended community list statement, a logical AND condition is created. All extended community values must match to satisfy an AND condition. When multiple values are configured in separate extended community list statements, a logical OR condition is created. The first list that matches a condition is processed.

Examples

Standard Extended Community-List Configuration Example

In the following example, an extended community list is configured that permits routes from route target 64512:10 and site of origin 65400:20 and denies routes from route target 65424:30 and site of origin 64524:40. List 1 shows a logical OR condition; the first match is processed. List 2 shows a logical AND condition; all community values must match in order for list 2 to be processed.

```
Router(config)# ip extcommunity-list 1 permit rt 64512:10
Router(config)# ip extcommunity-list 1 permit soo 65400:20
Router(config)# ip extcommunity-list 2 deny rt 65424:30 soo 64524:40
```

Expanded Extended Community-List Configuration Example

In the following example, an expanded extended community list is configured to deny advertisements from any path through or from autonomous system 65534 from being advertised to the 192.168.1.2 neighbor:

```
Router(config)# ip extcommunity-list 500 deny _65412_
Router(config)# router bgp 50000
Router(config-router)# address-family vpnv4
Router(config-router-af)# neighbor 172.16.1.1 remote-as 65412
Router(config-router-af)# neighbor 172.16.1.1 neighbor send-community extended
Router(config-router-af)# neighbor 192.168.1.2 remote-as 65534
Router(config-router-af)# neighbor 192.168.1.2 neighbor send-community extended
Router(config-router-af)# end
```

Named Extended Community-List Configuration Example

In the following example, a named extended community list is configured that will permit routes only from route target 65505:50. All other routes are implicitly denied.

```
Router(config)# ip extcommunity-list standard NAMED_LIST permit rt 65505:50
```

IP Extended Community-List Configuration Mode Example

In the following example, an expanded named extended community list is configured in IP Extended community-list configuration mode. A list entry is created with a sequence number 10 that will permit a route target or route origin pattern that matches any network number extended community from autonomous system 65412.

```
Router(config)# ip extcommunity-list RED
Router(config-extcom-list)# 10 permit 65412:[0-9][0-9][0-9][0-9][0-9]_
Router(config-extcom-list)# exit
```

Extended Community-List Resequencing Example

In the following example, the first list entry is resequenced to the number 50 and each subsequent entry is configured to increment by 100:

```
Router(config)# ip extcommunity-list BLUE
Router(config-extcom-list)# resequence 50 100
Router(config-extcom-list)# exit
```

Related Commands

Command	Description
export map	Configures an export route map for a VRF.
match extcommunity	Matches a BGP VPN extended community list.
set extcommunity	Sets BGP extended community attributes.
show ip extcommunity-list	Displays routes that are permitted by the extended community list.
show route-map	Displays configured route maps.

show ip extcommunity-list

To display routes that are permitted by an extended community list, use the **show ip extcommunity-list** command in EXEC mode.

show ip extcommunity-list [*list-number* | *list-name*]

Syntax Description	
<i>list-number</i>	(Optional) Specifies an extended community list number from 1 to 500. A standard extended community list number is from 1 to 99. An expanded extended list is from 100 to 500.
<i>list-name</i>	(Optional) Specifies an extended community list name.

Defaults If a specific extended community list number is not specified when the **show ip extcommunity-list** command is entered, all locally configured extended community lists will be displayed by default.

Command Modes EXEC

Command History	Release	Modification
	12.1	This command was introduced.
	12.2(25)S 12.3(11)T	Support for named extended community lists was added. Minor formatting changes were made to the output.
	12.2(27)SBC	This command was integrated into the Cisco IOS Release 12.2(27)SBC.

Examples The following is sample output from the **show ip extcommunity-list** command in EXEC mode:

```
Router# show ip extcommunity-list
Standard extended community-list 1
  10 permit RT:64512:10
  20 permit SoO:65400:20
  30 deny RT:65424:30 SoO:64524:40
Standard extended community-list 99
  10 permit RT:65504:40 SoO:65505:50
  20 deny RT:65406:60 SoO:65307:70
Expanded extended community-list LIST_NAME
  10 permit 0-9* A-Z* a-z*
```

[Table 1](#) describes the significant fields shown in the display.

Table 1 *show ip extcommunity-list Field Descriptions*

Field	Description
... extended community-list....	The type of extended community-list (standard or expanded), and the name or number of the extended community list.
10	The sequence number of the extended community list entry. 10 is the lowest default sequence number. Extended community lists increment by 10 when default values are configured.
permit/deny	Indicates a permit or deny sequence entry.
RT/SoO	Indicates the route target or the site of origin used in a standard extended community list.
0-9* A-Z* a-z*	Regular expression used in an expanded extended community list.

Related Commands

Command	Description
show route-map	Displays configured route maps.

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