



OSPF Inbound Filtering Using Route Maps with a Distribute List

The OSPF Inbound Filtering Using Route Maps with a Distribute List feature allows users to define a route map to prevent Open Shortest Path First (OSPF) routes from being added to the routing table. In the route map, the user can match on any attribute of the OSPF route.

History for the OSPF Inbound Filtering Using Route Maps with a Distribute List Feature

Release	Modification
12.0(24)S	This feature was introduced.
12.2(15)T	This feature was integrated into Cisco IOS Release 12.2(15)T.
12.2(18)S	This feature was integrated into Cisco IOS Release 12.2(18)S.
12.2(27)SBC	This feature was integrated into Cisco IOS Release 12.2(27)SBC.

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Prerequisites OSPF Inbound Filtering Using Route Maps with a Distribute List

It is presumed that you have OSPF configured in your network.

Information About OSPF Inbound Filtering Using Route Maps with a Distribute List

Before you configure filtering based on an OSPF route map, you should understand the concept described in this section.

- [Benefits of OSPF Route-Map-Based-Filtering, page 2](#)

Benefits of OSPF Route-Map-Based-Filtering

Users can define a route map to prevent OSPF routes from being added to the routing table. This filtering happens at the moment when OSPF is installing the route in the routing table. This feature has no effect on LSA flooding. In the route map, the user can match on any attribute of the OSPF route. That is, the route map could be based on the following **match** options:

- **match interface**
- **match ip address**
- **match ip next-hop**
- **match ip route-source**
- **match metric**
- **match route-type**
- **match tag**

This feature can be useful during redistribution if the user tags prefixes when they get redistributed on ASBRs and later uses the tag to filter the prefixes from being installed in the routing table on other routers.

Filtering Based on Route Tag

Users can assign tags to external routes when they are redistributed to OSPF. Then the user can deny or permit those routes in the OSPF domain by identifying that tag in the **route-map** and **distribute-list in** commands.

Filtering Based on Route Type

In OSPF, the external routes could be Type 1 or Type 2. Users can create route maps to match either Type 1 or Type 2 and then use the **distribute-list in** command to filter certain prefixes. Also, route maps can identify internal routes (interarea and intra-area) and then those routes can be filtered.

Filtering Based on Route Source

When a match is done on the route source, the route source represents the OSPF Router ID of the LSA originator of the LSA in which the prefix is advertised.

Filtering Based on Interface

When a match is done on the interface, the interface represents the outgoing interface for the route that OSPF is trying to install in the routing table.

Filtering Based on Next-Hop

When a match is done on the next hop, the next hop represents the next hop for the route that OSPF is trying to install in the routing table.

How to Configure OSPF Inbound Filtering Using Route Maps

This section describes enabling OSPF filtering based on a route map.

- [Configuring OSPF Route- Map-Based Filtering, page 3](#)

Configuring OSPF Route-Map-Based Filtering

This section describes how to configure OSPF route map-based filtering. Step 4 is simply an example of a route map; other **match** commands could be used.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **route-map** *map-tag* [**permit** | **deny**] [*sequence-number*]
4. **match tag** *tag-name*
or other **match** commands.
5. Repeat Steps 3 and 4 with other **route-map** and **match** commands if you choose.
6. **exit**
7. **router ospf** *process-id*
8. **distribute-list route-map** *map-tag in*
9. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.

	Command or Action	Purpose
Step 3	<code>route-map map-tag [permit deny] [sequence-number]</code> Example: Router(config)# route-map tag-filter deny 10	Defines a route map to control filtering.
Step 4	<code>match tag tag-name</code> or other match command(s) Example: Router(config-router)# match tag 777	Matches routes with a specified name, to be used as the route map is referenced. <ul style="list-style-type: none"> At least one match command is required, but it need not be this match command. This is just an example. The list of match commands available to be used in this type of route map appears on the distribute-list in command reference page. This type of route map will have no set commands.
Step 5	Repeat Steps 3 and 4 with other route-map and match commands if you choose.	Optional.
Step 6	<code>exit</code> Example: Router(config-router)# exit	Exits router configuration mode.
Step 7	<code>router ospf process-id</code> Example: Router(config)# router ospf 1	Configures an OSPF routing process.
Step 8	<code>distribute-list route-map map-tag in</code> Example: Router(config-router)# distribute-list route-map tag-filter in	Enables filtering based on an OSPF route map.
Step 9	<code>end</code> Example: Router(config-router)# end	Exits router configuration mode.

Configuration Examples for OSPF Inbound Filtering Using Route Maps with a Distribute List

This section contains an example of filtering based on an OSPF route map.

- [OSPF Route-Map-Based Filtering: Example, page 5](#)

OSPF Route-Map-Based Filtering: Example

In this example, OSPF external LSAs have a tag. The value of the tag is examined before the prefix is installed in the routing table. All OSPF external prefixes that have the tag value of 777 are filtered (prevented from being installed in the routing table). The permit statement with sequence number 20 has no match conditions, and there are no other route-map statements after sequence number 20, so all other conditions are permitted.

```
route-map tag-filter deny 10
  match tag 777
route-map tag-filter permit 20
!
router ospf 1
  router-id 10.0.0.2
  log-adjacency-changes
  network 172.16.2.1 0.0.0.255 area 0
  distribute-list route-map tag-filter in
```

Additional References

The following sections provide references related to configuring the OSPF Inbound Filtering Using Route Maps with a Distribute List feature.

Related Documents

Related Topic	Document Title
OSPF commands	Cisco IOS IP Routing Protocols Command Reference

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
None	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

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

Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport

Command Reference

The following commands are introduced or modified in the feature or features documented in this module. For information about these commands, see the *Cisco IOS IP Routing Protocols Command Reference* at http://www.cisco.com/en/US/docs/ios/iproute/command/reference/irp_book.html. For information about all Cisco IOS commands, go to the Command Lookup Tool at <http://tools.cisco.com/Support/CLILookup> or to the *Cisco IOS Master Commands List*.

- **distribute-list in (IP)**

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