



FPG: Endpoint Agnostic Port Allocation

First Published: February 27, 2009

Last Updated: February 27, 2009

When the Endpoint Agnostic Port Allocation feature is configured, an entry is added to the Symmetric Port Database. If the entry is already available, the port listed in the Symmetric Port Database is used and the packet is sent. This feature is only required if you need to configure NAT with pool overload or interface overload. Endpoint Agnostic Port Allocation is also known as Symmetric Port Allocation.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the [“Feature Information for Endpoint Agnostic Port Allocation” section on page 8](#).

Use Cisco Feature Navigator to find information about platform support and Cisco IOS, Catalyst OS, and Cisco IOS XE software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

Contents

- [Information About Endpoint Agnostic Port Allocation, page 2](#)
- [How to Configure Endpoint Agnostic Port Allocation, page 2](#)
- [Configuration Examples for Endpoint Agnostic Port Allocation, page 5](#)
- [Additional References, page 6](#)
- [Command Reference, page 7](#)
- [Feature Information for Endpoint Agnostic Port Allocation, page 8](#)



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

Information About Endpoint Agnostic Port Allocation

When a packet is being transmitted, the Symmetric Port Database is checked to see if the requested port is already allocated. If it has been allocated, it is checked if the source computer entry in the database matches the computer requesting the port. If this is true, the port listed in the Symmetric Port Database is used and the packet is sent.

If the computers do not match or if the requested port is not in the Symmetric Port Database, the feature continues checks to the NAT Port database for an entry matching the requested port. If no entry is found, this means that the port is available. A new entry is added to the NAT Port database, and to the existing NAT database, allocating the port to the requesting computer, and the packet is sent.

If no matching entry in the NAT Port database is found, it means that the port is busy, or otherwise unavailable. The next available port is found, which is allocated to the requesting computer. An entry is added to the NAT Port database with the requesting computer and the available port. An entry is added to the Symmetric Port database, with the requesting computer, the allocated port and the requested port and the packet is sent.

This feature is only required if you need to configure NAT with pool overload or interface overload. This feature is not applicable for other NAT configurations.

How to Configure Endpoint Agnostic Port Allocation

This section contains the following procedures:

- [Configuring Endpoint Agnostic Port Allocation, page 2](#)
- [Verifying Endpoint Agnostic Port Support, page 5](#)

Configuring Endpoint Agnostic Port Allocation

Perform this task to configure NAT to support the Endpoint Agnostic Port Allocation feature.

Restrictions

This feature must be enabled by the user. It should be enabled before NAT is enabled. If it is enabled later, it will not translate the previously established connection. When this feature is disabled, it will not be seen in the output of the **show running-config** command.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *interfacename*
4. **ip nat inside**
5. **exit**

6. **access list 1 permit** *ip address mask*
7. **ip nat inside source list 1 interface** *name*
8. **ip nat service enable-sym-port**
9. **exit**

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	interface <i>interface name</i> Example: Router (config)# interface Ethernet 0/0	Configures the Ethernet 0/0 interface.
Step 4	ip nat inside Example: Router (config-if)# ip nat inside	Enables Network Address Translation (NAT) for the inside address.
Step 5	exit Example: Router (config-if)# exit	Exits interface configuration mode.
Step 6	access list 1 permit <i>ip address mask</i> Example: Router (config)# access list 1 permit 172.18.192.0.0.0.0.255	Creates an access list called 1.
Step 7	ip nat inside source list 1 interface <i>interface name</i> Example: Router (config)# ip nat inside source list 1 interface Ethernet 0/0	Enables NAT for the inside source for access list 1 which is attached to the Ethernet interface.

	Command or Action	Purpose
Step 8	<code>ip nat service enable-sym-port</code> Example: Router (config)# ip nat service enable-sym-port	Enables the symmetric port allocation.
Step 9	<code>exit</code> Router(config)# exit	Exits global configuration mode.

Verifying Endpoint Agnostic Port Support

To verify the Endpoint Agnostic Port Support feature, use the following command.

SUMMARY STEPS

1. `show ip nat translations`

DETAILED STEPS

Step 1 `show ip nat translations`

```
Router# show ip nat translations

NAT Symmetric Port Database: 1 entries
public ipaddr:port [tableid] | port# [refcount][syscount] | localaddr:localport [flags]
172.18.192.69:1024 [0] | 1025 [1] [0] | 172.18.192.69:1024 [0]
:
```

Configuration Examples for Endpoint Agnostic Port Allocation

This section provides the following configuration example

- [Configuring Endpoint Allocation: Example, page 5](#)

Configuring Endpoint Allocation: Example

```
interface Ethernet0/0
  ip nat inside
  exit
access list 1 permit 172.18.192.0.0.0.255
ip nat inside source list 1 interface Ethernet0/0
ip nat service enable-sym-port
end
```

Additional References

The following sections provide references related to the Endpoint Agnostic feature.

Related Documents

Related Topic	Document Title
NAT configuration tasks	“Configuring NAT for IP Address Conservation” module
NAT maintenance	“Monitoring and Maintaining NAT” module
NAT commands: complete command syntax, command mode, command history, usage guidelines, and examples	<i>Cisco IOS IP Addressing Services Command Reference</i>

Standards

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

MIBs

MIB	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 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

RFC	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
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<p>http://www.cisco.com/techsupport</p>

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 Addressing Command Reference* at http://www.cisco.com/en/US/docs/ios/ipaddr/command/reference/ipaddr_book.html. For information about all Cisco IOS commands, use the Command Lookup Tool at <http://tools.cisco.com/Support/CLILookup> or the *Cisco IOS Master Command List, All Releases*, at http://www.cisco.com/en/US/docs/ios/mcl/allreleasemcl/all_book.html.

- **ip nat service enable-sym-port**

Feature Information for Endpoint Agnostic Port Allocation

Table 1 lists the features in this module and provides links to specific configuration information. Only features that were introduced or modified in Cisco IOS Release 12.4(24)T or a later release appear in the table.

Not all commands may be available in your Cisco IOS software release. For release information about a specific command, see the command reference documentation.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS, Catalyst OS, and Cisco IOS XE software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.



Note

Table 1 lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise, subsequent releases of that Cisco IOS software release train also support that feature.

Table 1 Feature Information for NAT Endpoint Agnostic Port Allocation

Feature Name	Releases	Feature Information
FPG: Endpoint Agnostic Port Allocation	12.4(24)T	This feature was introduced.

CCDE, CCENT, Cisco Eos, Cisco HealthPresence, the Cisco logo, Cisco Lumin, Cisco Nexus, Cisco StadiumVision, Cisco TelePresence, Cisco WebEx, DCE, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn and Cisco Store are service marks; and Access Registrar, Aironet, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, EtherFast, EtherSwitch, Event Center, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, iQuick Study, IronPort, the IronPort logo, LightStream, Linksys, MediaTone, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, Network Registrar, PCNow, PIX, PowerPanels, ProConnect, ScriptShare, SenderBase, SMARTnet, Spectrum Expert, StackWise, The Fastest Way to Increase Your Internet Quotient, TransPath, WebEx, and the WebEx logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0812R)

Any Internet Protocol (IP) addresses used in this document are not intended to be actual addresses. Any examples, command display output, and figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses in illustrative content is unintentional and coincidental.

© 2009 Cisco Systems, Inc. All rights reserved.