



Mobile IP NAT Detect

Network Address Translation (NAT) allows an organization with nonglobally routable addresses to connect to the Internet by translating those addresses into globally routable address space. Traditional Mobile IP tunneling has been incompatible with NAT. The Mobile IP--NAT Detect feature is a new service on the home agent that allows it to tunnel traffic to Mobile IP clients with private IP addresses behind a NAT-enabled device. The home agent is now capable of detecting a registration request that has traversed a NAT-enabled device and applying a tunnel to reach the Mobile IP client.

Feature Specifications for the Mobile IP: NAT Detect Feature

Feature History	
Release	Modification
12.2(13)T	This feature was introduced.
Supported Platforms	
See Feature Navigator.	

- [Finding Feature Information, page 2](#)
- [Restrictions for Mobile IP NAT Detect, page 2](#)
- [How to Configure Mobile IP NAT Detect, page 2](#)
- [Configuration Examples for Mobile IP NAT Detect, page 4](#)
- [Additional References, page 5](#)
- [Command Reference, page 7](#)
- [Glossary, page 7](#)

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and 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 table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Restrictions for Mobile IP NAT Detect

This feature is supported for mobile nodes using a collocated care-of address only. Mobile nodes using a foreign agent care-of address behind a NAT gateway cannot be detected by the home agent.

How to Configure Mobile IP NAT Detect

Configuring NAT Detect

To configure NAT detect on the home agent, use the following commands:

SUMMARY STEPS

1. `enable`
2. `configure {terminal | memory | network}`
3. `router mobile`
4. `exit`
5. `ip mobile home-agent [address ip-address][broadcast] [care-of-access access-list] [lifetime number] [nat-detect] [replay seconds] [reverse-tunnel-off] [roam-access access-list] [suppress-unreachable]`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>enable</code> Example: Router> enable	Enables higher privilege levels, such as privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	<code>configure {terminal memory network}</code> Example: Router# configure terminal	Enters global configuration mode.

	Command or Action	Purpose
Step 3	router mobile Example: Router(config)# router mobile	Enables Mobile IP on the router.
Step 4	exit Example: Router(config-router)# exit	Returns to global configuration mode.
Step 5	ip mobile home-agent [address <i>ip-address</i>][broadcast [care-of-access <i>access-list</i>] [lifetime <i>number</i>] [nat-detect [replay <i>seconds</i>] [reverse-tunnel-off] [roam-access <i>access-list</i> [suppress-unreachable] Example: Router(config)# ip mobile home-agent nat-detect	Enables home agent services and NAT detect.

Verifying the NAT Detect Configuration

To verify that the Mobile IP--NAT Detect feature is working, perform the following steps:

SUMMARY STEPS

1. show ip mobile globals
2. show ip mobile binding
3. show ip mobile traffic

DETAILED STEPS

	Command or Action	Purpose
Step 1	show ip mobile globals Example: Router# show ip mobile globals	Displays global information for mobile agents.

	Command or Action	Purpose
Step 2	show ip mobile binding Example: Router# show ip mobile binding	Displays the mobility binding table.
Step 3	show ip mobile traffic Example: Router# show ip mobile traffic	Displays protocol counters. <ul style="list-style-type: none"> • This command will show the number of successful registration requests using NAT detect.

Configuration Examples for Mobile IP NAT Detect

Home Agent with NAT Detect Example

In the following example, the home agent can detect registration requests from a mobile node behind a NAT-enabled router. The mobile node will use the NAT inside address as the collocated care-of address used in its registration requests.

Home Agent

```
ip routing
!
interface ethernet1
 ip address 1.0.0.1 255.0.0.0
!
interface ethernet2
 ip address 2.0.0.1 255.0.0.0
!
router mobile
!
router ospf 100
 redistribute mobile subnets metric 1500
 network 1.0.0.0 0.255.255.255 area 0
 network 2.0.0.0 0.255.255.255 area 0
!
ip mobile home-agent lifetime 65535 nat-detect replay 255
ip mobile virtual-network 65.0.0.0 255.0.0.0
ip mobile host 65.1.1.1 65.1.1.10 virtual-network 65.0.0.0 255.0.0.0
ip mobile secure host 65.1.1.1 65.1.1.10 spi 100 key hex 12345678123456781234567812345678
!
```

Router Configured with NAT

```
ip routing
!
interface ethernet2
 ip address 2.0.0.2 255.0.0.0
 ip nat outside
```

```

!
interface e4
 ip address 4.0.0.1 255.0.0.0
 ip nat outside
!
! Outside address 2.0.0.101 used for any packet coming from inside 4.0.0.101
! 4.0.0.101 is the collocated care-of address used by MN to register
ip nat inside source static 4.0.0.101 2.0.0.101
router mobile
!
router ospf 100
network 2.0.0.0 0.255.255.255 area 0
network 4.0.0.0 0.255.255.255 area 0
!

```

Additional References

For additional information related to the Mobile IP--NAT Detect feature, refer to the following sections:

Related Documents

Related Topic	Document Title
Mobile IP configuration tasks	"Configuring Mobile IP" chapter in the <i>Cisco IOS IP Configuration Guide</i> , Release 12.2.
Mobile IP commands	"Mobile IP Commands" chapter in the <i>Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services</i> , Release 12.2
NAT configuration tasks	"Configuring IP Addressing" chapter in the <i>Cisco IOS IP Configuration Guide</i> , Release 12.2
NAT commands	"IP Addressing Commands" chapter in the <i>Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services</i> , Release 12.2

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

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

<http://tools.cisco.com/ITDIT/MIBS/servlet/index>

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to eco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

<http://www.cisco.com/register>

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
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.	http://www.cisco.com/public/support/tac/home.shtml

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 Mobility Command Reference* at http://www.cisco.com/en/US/docs/ios/ipmobility/command/reference/imo_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* .

- **ip mobile home-agent**
- **show ip mobile binding**
- **show ip mobile globals**
- **show ip mobile traffic**

Glossary

care-of address --The termination point of the tunnel to a mobile node or mobile router. This can be a collocated care-of address, by which the mobile node or mobile router acquires a local address and detunnels its own packets, or a foreign agent care-of address, by which a foreign agent detunnels packets and forwards them to the mobile node or mobile router.

**Note**

Refer to the [Internetworking Terms and Acronyms](#) for terms not included in this glossary.
