

# IP Address Verification for the Cisco uBR7200 Series Cable Router

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## Feature Overview

This feature enables Dynamic Host Control Protocol (DHCP) servers to verify IP addresses of upstream traffic.

This feature enables the uBR7200 to send LEASEQUERIES to the DHCP server to verify unknown source IP addresses when it receives an IP packet from an unknown host behind a cable modem on any upstream interface of a line card.

If the DHCP server responds with an ACK, the uBR7200 must use the returned information to determine if it is a PC behind a different cable modem that is spoofing a legitimate IP address or not. If the DHCP server responds with a NAK, then the host IP address is not active.

## Benefits

Customers of Multiservice Operators (MSOs) will be prevented from using unauthorized, spoofed, or stolen IP addresses.

## Restrictions

You must have a DHCP server that supports the LEASEQUERY message type.

## Related Features and Technologies

Table 1 lists the IOS cable router features released in the IOS 12.0 timeframe.

**Table 1** uBR7200 Series Cable Router Features Available Since 12.0 T

Available With:	Category	Feature
11.3(5)NA & 12.0(3)T	Cable Features	Feature Enhancements
11.3(6)NA		MC16 Modem Card
11.3(8)NA		Access List Support Enhancements
12.0(4)T		Downstream Channel ID Configuration
12.0(4)T		Multiple Service ID Support
12.0(4)T		Cable Modem and Host Subnet Addressing
12.0(5)T		Telephone Return

Available With:	Category	Feature
12.0(5)T		Time Server Functionality
12.0(7)T		Amplitude Averaging Compensation
12.0(7)XR		Cable Interface Bundling
12.0(7)XR		Enhanced Modem Status Display
12.0(7)XR		Show Interface Cable Command Verbose Enhancements
12.0(7)XR		IP Address Verification
12.0(7)XR		Registration Timeout Configuration
12.0(7)XR		Show Cable Modem Command Enhancements
12.0(7)XR		Modem Status Summary Enhancements
12.0(7)XR		Show Controller Command Enhancements
12.0(7)XR		Configuring Concatenation
12.0(7)XR		Virtual Private Network Support
12.0(7)XR		Blind Hopping Support on the MC16S Modem Card
12.0(7)XR		Signal-to-Noise Ratio Data Support
11.3(9)NA and 12.0(4)T	Cable QoS	QoS Profile Enforcement
12.0(4)T		Quality of Service for Voice
11.3(9)NA	Network Management	Upstream Traffic Shaping Feature
12.0(5)T		Enhanced-Spectrum Management
12.0(5)T		Downstream Rate Shaping with TOS bits
12.0(7)XR		Spectrum Management Using the MC16S Modem Card
12.0(7)XR		Downstream Test Signals Configuration
12.0(7)XR	Wireless Features	Point-to-Point Wireless Support

## Related Documents

The uBR7200 series cable router is described in *Voice, Video, and Home Applications Configuration Guide* for Cisco IOS Release 12.0 and in the following online feature modules:

- *Cisco uBR7246 Universal Broadband Router Feature Enhancements*
- *MC16 Modem Card for uBR7200*
- *uBR7200 Series Access List Support Enhancements*
- *QoS Profile Enforcement for the Cisco uBR7200 Series Router*
- *Upstream Traffic Shaping Feature*
- *Configuring Downstream Channel IDs*
- *Telephone Return for the Cisco uBR7200 Series Cable Router*
- *Enhanced-Spectrum Management for the Cisco uBR7200 Series Cable Router*
- *Time Server Functionality*
- *Cable Interface Bundling for the Cisco uBR7200 Series Cable Router*

- *Quality of Service for Voice on the Cisco uBR7200 Series Cable Router*
- *Modem Status Enhancements for the Cisco uBR7200 Series Cable Router*
- *Load Sharing Support*
- *Cable Modem and Host Subnet Addressing*
- *MGX Resource Pool Management Hardware Diagnostics*
- *IP Address Verification for the Cisco uBR7200 Series Cable Router (this feature)*
- *Configuring the Registration Timeout Value for the Cisco uBR7200 Series Cable Router*
- *Spectrum Management Using the MC16S Modem Card on the Cisco uBR7200 Series Cable Router*
- *Configuring Downstream Test Signals for the Cisco uBR7200 Series Cable Router*
- *Configuring Concatenation on the Cisco uBR7200 Series Cable Router*
- *Point-to-Point Wireless Support for the Cisco uBR7200 Series Universal Broadband Router*
- *Blind Hopping Support on the MC16S Modem Card for the Cisco uBR7200 Series Cable Router*
- *Downstream Rate Shaping with TOS bits on the uBR7200 Series Cable Router*
- *Amplitude Averaging Compensation on the Cisco uBR7200 Series Cable Router*

## Supported Platforms

uBR7200 series

## Supported Standards, MIBs, and RFCs

### Standards

No new or modified standards are supported by this feature.

### MIBs

No new or modified MIBs are supported by this feature.

### RFCs

No new or modified RFCs are supported by this feature.

## Configuration Tasks

See the following tasks to verify source IPs.

- *Configuring the DHCP Router (Required)*

## Configuring the DHCP Router

Command	Purpose
<code>Router(config-if)# cable source-verify dhcp</code>	Sends DHCP LEASEQUERRIES packets to verify unknown source IP addresses.

## Verifying Unknown Source IP Addresses

- Step 1** Without enabling the **cable source-verify dhcp** command on the router, move a PC from behind one CM to behind another.
- Step 2** Ping the PC. The ping fails because the new source IP address is not known.
- Step 3** Enable **cable source-verify dhcp** command along with the **ip dhcp relay info option** command<sup>1</sup>. Then move the PC from behind one CM to behind another.
- Step 4** Ping the PC. If the ping is successful, the PC's IP address is verified and accepted.

## Configuration Examples

None

## Command Reference

This section documents the modified **cable source-verify** command. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command reference publications.

<sup>1</sup>Cisco recommends that you use the **ip dhcp relay info option** command for maximum protection.

## cable source-verify

To turn on cable modem upstream verification, use the **cable source-verify** cable interface configuration command. To turn off the display of this information, use the **no** form of this command.

```
cable source-verify [dhcp]
no cable source-verify dhcp
```

### Syntax Description

**dhcp** Specifies that queries will be sent to verify unknown source IP addresses in upstream data packets.

### Default

Disabled

### Command Mode

Cable interface configuration

### Command History

Release	Modification
11.3 XA	This command was introduced.
12.0(7)T	The <b>dhcp</b> keyword was added.

### Usage Guidelines

The router sends DHCP LEASEQUERIES to verify unknown source IP addresses in upstream data packets. For maximum protection, turn on the DHCP relay-agent information option (**ip dhcp relay info option**) on the uBR when using this feature.

### Example

```
router(config-if)# cable source-verify dhcp
router(config-if)# no cable source-verify
```

