



Using 31-Bit Prefixes on IPv4 Point-to-Point Links

This document describes the use of 31-bit prefixes on IP version 4 point-to-point links. It includes the following sections:

- [Feature Overview, page 1](#)
- [Supported Standards, MIBs, and RFCs, page 2](#)
- [Configuration Tasks, page 2](#)
- [Configuration Examples, page 2](#)
- [Command Reference, page 3](#)

Feature History

Release	Modification
12.2(2)T	This feature was introduced.
12.2(28)SB	This feature was integrated into Cisco IOS Release 12.2(28)SB.

Finding Support Information for Platforms and Cisco IOS Software Images

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.

Feature Overview

In order to conserve IP address space on the Internet, a 31-bit prefix length allows the use of only two IP addresses on a point-to-point link. Previously, customers had to use four IP addresses or unnumbered interfaces for point-to-point links.

Using a 31-bit prefix length leaves only two numbering possibilities, 0 and 1. In a point-to-point link with a 31-bit subnet mask, these two addresses must be interpreted as host addresses, and directed broadcast to the link will be eliminated. Limited broadcast must be used for all broadcast traffic on a point-to-point link with a 31-bit mask assigned to it.

Benefits

The use of 31-bit subnet masks reduces by 50 percent the number of IP addresses assigned to point-to-point links.

- The use of 31-bit subnet masks within the core of the internet reduces the number of physical links against which a denial of service (DoS) attack can be launched.

Related Documents

- *Cisco IOS IP Configuration Guide*, Release 12.2
- *Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services*, Release 12.2

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.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB web site on Cisco.com at the following URL:

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

RFCs

RFC 3021, *Using 31-Bit Prefixes on IPv4 Point-to-Point Links*, proposed standard

Configuration Tasks

None

Configuration Examples

This section provides the following configuration example:

- Point-to-Point Link 31-Bit Prefix Configuration Example

Point-to-Point Link 31-Bit Prefix Configuration Example

The following example shows how to configure the 31-bit prefix functionality on a point-to-point link.

```
!  
interface Serial5/1  
ip address 172.16.70.2 255.255.255.254  
no ip directed-broadcast  
!
```

Command Reference

None

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