



IPv6 Generic Prefix

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The IPv6 generic prefix feature simplifies network renumbering and allows for automated prefix definition. An IPv6 generic (or general) prefix (for example, /48) holds a short prefix, based on which a number of longer, more-specific prefixes (for example, /64) can be defined. When the general prefix is changed, all of the more-specific prefixes based on it will change, too.

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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.

Information About IPv6 Generic Prefix

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IPv6 General Prefixes

The upper 64 bits of an IPv6 address are composed from a global routing prefix plus a subnet ID, as defined in RFC 3513. A general prefix (for example, /48) holds a short prefix, based on which a number of longer, more-specific prefixes (for example, /64) can be defined. When the general prefix is changed, all of the more-specific prefixes based on it will change, too. This function greatly simplifies network renumbering and allows for automated prefix definition.



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For example, a general prefix might be 48 bits long (“/48”) and the more specific prefixes generated from it might be 64 bits long (“/64”). In the following example, the leftmost 48 bits of all the specific prefixes will be the same, and they are the same as the general prefix itself. The next 16 bits are all different.

```
General prefix: 2001:DB8:2222::/48
Specific prefix: 2001:DB8:2222:0000::/64
Specific prefix: 2001:DB8:2222:0001::/64
Specific prefix: 2001:DB8:2222:4321::/64
Specific prefix: 2001:DB8:2222:7744::/64
```

General prefixes can be defined in several ways:

- Manually
- Based on a 6to4 interface
- Dynamically, from a prefix received by a Dynamic Host Configuration Protocol (DHCP) for IPv6 prefix delegation client

More specific prefixes, based on a general prefix, can be used when configuring IPv6 on an interface.

How to Configure IPv6 Generic Prefix

- [Defining a General Prefix Manually, page 2](#)
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Defining a General Prefix Manually

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 general-prefix** *prefix-name {ipv6-prefix/prefix-length | 6to4 interface-type interface-number}*

DETAILED STEPS

Command or Action	Purpose
Step 1 enable Example: Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2 configure terminal Example: Device# configure terminal	Enters global configuration mode.

Command or Action	Purpose
<p>Step 3 <code>ipv6 general-prefix prefix-name {ipv6-prefix/prefix-length 6to4 interface-type interface-number}</code></p> <p>Example:</p> <pre>Device(config)# ipv6 general-prefix my-prefix 2001:DB8:2222::/48</pre>	Defines a general prefix for an IPv6 address.

Defining a General Prefix Based on a 6to4 Interface

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `ipv6 general-prefix prefix-name {ipv6-prefix/prefix-length | 6to4 interface-type interface-number}`

DETAILED STEPS

Command or Action	Purpose
<p>Step 1 <code>enable</code></p> <p>Example:</p> <pre>Device> enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> • Enter your password if prompted.
<p>Step 2 <code>configure terminal</code></p> <p>Example:</p> <pre>Device# configure terminal</pre>	Enters global configuration mode.
<p>Step 3 <code>ipv6 general-prefix prefix-name {ipv6-prefix/prefix-length 6to4 interface-type interface-number}</code></p> <p>Example:</p> <pre>Device(config)# ipv6 general-prefix my-prefix 6to4 ethernet 0</pre>	Defines a general prefix for a 6to4 address.

Using a General Prefix in IPv6

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **ipv6 address** { *ipv6-address/prefix-length* | *prefix-name sub-bits/prefix-length* }

DETAILED STEPS

Command or Action	Purpose
<p>Step 1 enable</p> <p>Example:</p> <pre>Device> enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> • Enter your password if prompted.
<p>Step 2 configure terminal</p> <p>Example:</p> <pre>Device# configure terminal</pre>	<p>Enters global configuration mode.</p>
<p>Step 3 interface <i>type number</i></p> <p>Example:</p> <pre>Device(config)# interface ethernet 0/0</pre>	<p>Specifies an interface type and number, and places the device in interface configuration mode.</p>
<p>Step 4 ipv6 address { <i>ipv6-address/prefix-length</i> <i>prefix-name sub-bits/prefix-length</i> }</p> <p>Example:</p> <pre>Device(config-if) ipv6 address my-prefix 2001:DB8:0:7272::/64</pre>	<p>Configures an IPv6 prefix name for an IPv6 address and enables IPv6 processing on the interface.</p>

Additional References

Related Documents

Related Topic	Document Title
IPv6 addressing and connectivity	<i>IPv6 Configuration Guide</i>
DHCP configuration	<i>IP Addressing: DHCP Configuration Guide</i>
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
IPv6 commands	<i>Cisco IOS IPv6 Command Reference</i>
Cisco IOS IPv6 features	Cisco IOS IPv6 Feature Mapping

Standards and RFCs

Standard/RFC	Title
RFCs for IPv6	<i>IPv6 RFCs</i>

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

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for IPv6 Generic Prefix

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software

release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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.

Table 1 **Feature Information for**

Feature Name	Releases	Feature Information
IPv6 Generic Prefix	12.3(4)T	<p>The upper 64 bits of an IPv6 address are composed from a global routing prefix plus a subnet ID. A general prefix (for example, /48) holds a short prefix, based on which a number of longer, more-specific, prefixes (for example, /64) can be defined.</p> <p>The following commands were introduced or modified: ipv6 address, ipv6 general-prefix.</p>

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