IPv6 Anycast Address

An IPv6 anycast address is an address that is assigned to a set of interfaces that typically belong to different nodes. Anycast addresses are syntactically indistinguishable from unicast addresses, because anycast addresses are allocated from the unicast address space.

- Finding Feature Information, page 1
- Information About IPv6 Anycast Address, page 1
- How to Configure IPv6 Anycast Address, page 2
- Configuration Examples for IPv6 Anycast Address, page 3
- Additional References, page 4
- Feature Information for IPv6 Anycast Address, page 5

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 Anycast Address

IPv6 Address Type: Anycast

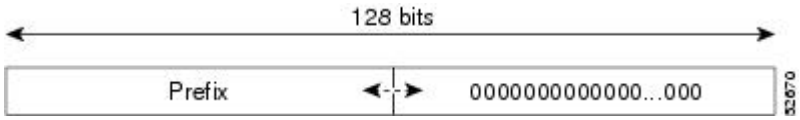
An anycast address is an address that is assigned to a set of interfaces that typically belong to different nodes. A packet sent to an anycast address is delivered to the closest interface (as defined by the routing protocols in use) identified by the anycast address. Anycast addresses are syntactically indistinguishable from unicast addresses, because anycast addresses are allocated from the unicast address space. Assigning a unicast address

to more than one interface makes a unicast address an anycast address. Nodes to which the anycast address is assigned must be explicitly configured to recognize that the address is an anycast address.

Note Anycast addresses can be used only by a device, not a host, and anycast addresses must not be used as the source address of an IPv6 packet.

The figure below shows the format of the subnet device anycast address; the address has a prefix concatenated by a series of zeros (the interface ID). The subnet device anycast address can be used to reach a device on the link that is identified by the prefix in the subnet device anycast address.

Figure 1: Subnet Device Anycast Address Format



How to Configure IPv6 Anycast Address

Configuring IPv6 Anycast Addressing

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **tunnel mode ipv6ip** [**6rd** | **6to4** | **auto-tunnel** | **isatap**]
5. **tunnel source** {*ip address* | *ipv6-address* | *interface-type interface-number*}
6. **ipv6 address** { *ipv6-prefix*/*prefix-length* | *prefix-name sub-bits*/*prefix-length*}
7. **ipv6 address** *ipv6-prefix*/*prefix-length* **anycast**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**interface** *type number* **Example:** `Device(config)# interface tunnel 0`	Specifies an interface type and number, and places the device in interface configuration mode.
Step 4	**tunnel mode ipv6ip** [**6rd** | **6to4** | **auto-tunnel** | **isatap**] **Example:** `Device(config-if)# tunnel mode ipv6ip 6to4`	Configures a static IPv6 tunnel interface.
Step 5	**tunnel source** {*ip address* | *ipv6-address* | *interface-type interface-number*} **Example:** `Device(config-if)# tunnel source Ethernet1`	Sets the source address for a tunnel interface. • The address used here is the one assigned to Ethernet interface 1.
Step 6	**ipv6 address** { *ipv6-prefix*/*prefix-length* | *prefix-name sub-bits*/*prefix-length*} **Example:** `Device(config-if)# ipv6 address 2001:db8:A00:1::1/64`	Configures an IPv6 address and enables IPv6 processing on an interface.
Step 7	**ipv6 address** *ipv6-prefix*/*prefix-length* **anycast** **Example:** `Device(config-if)# ipv6 address 2002:db8:c058::/128 anycast`	Adds an IPv6 anycast address.

Configuration Examples for IPv6 Anycast Address

Example: Configuring IPv6 Anycast Addressing

```
interface tunnel 0
  tunnel mode ipv6ip 6to4
  tunnel source ethernet1
  ipv6 address 2001:0db8:1::1/64
  ipv6 address 2002:0db8:6301::/128 anycast
 !
```

```
interface ethernet 1
 ip address 10.0.0.1 255.255.255.0
 ip address 192.88.99.1 255.255.255.0 secondary
```

Additional References

Related Documents

Related Topic	Document Title
IPv6 addressing and connectivity	*IPv6 Configuration Guide*
IPv4 addressing	*IP Addressing: IPv4 Addressing Configuration Guide*
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
IPv6 commands	*Cisco IOS IPv6 Command Reference*
Cisco IOS IPv6 features	Cisco IOS IPv6 Feature Mapping

Standards and RFCs

Standard/RFC	Title
RFCs for IPv6	*IPv6 RFCs*

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 Anycast Address

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 IPv6 Anycast Address

Feature Name	Releases	Feature Information
IPv6: Anycast Address	12.2(25)SEA 12.2(25)SG 12.2(33)SRA 12.2(33)SXH 12.3(4)T 15.0(2)SG Cisco IOS XE Release 2.1 3.2.0SG	An anycast address is an address that is assigned to a set of interfaces that typically belong to different nodes. Anycast addresses are syntactically indistinguishable from unicast addresses, because anycast addresses are allocated from the unicast address space. The following commands were introduced or modified: **ipv6 address anycast**, **show ipv6 interface**.