IPv6 Ready Certification

Feature History for IPv6-Ready Certification

This table provides release and related information for the feature explained in this module.

This feature is available in all the releases subsequent to the one in which it is introduced in, unless noted otherwise.

Table 1: Feature History for IPv6-Ready Certification

Release	Feature	Feature Information
Cisco IOS XE Bengaluru 17.6.1	IPv6-Ready Certification	This feature is enhanced with the implementation of various IPv6 functionalities that are required to comply with the latest RFC specifications.

IPv6 Ready Certification

Cisco IOS XE Bengaluru, 17.6.1 has implemented various IPv6 functionalities that are required for compliance with the latest RFC specifications for IPv6 Ready Certification. The newly implemented IPv6 functionalities are:

- **Fragment Processing and Reassembly (RFC8200)**: The first fragment must contain the mandatory extension header up to the first upper level protocol (ULP) header as specified in RFC 8200.
- **Handling Atomic Fragments in Neighbor Discovery (RFC6980)**: Fragmented neighbor discovery packets must be dropped.
- **Packet too Big (RFC8201)**: Atomic fragmentation is not supported. Packets failing to meet the IPv6 MTU requirement of 1280 are dropped.

- **Route Information Options (RIO) in IPv6 Router Advertisements (RFC4191)**: A new RIO is added to the IPv6 Router Advertisement message for communicating specific routes from routers to hosts. Explicit route configuration ensures that only necessary routes are advertised to the hosts.
- **IPv6 Hop-by-Hop Processing (RFC 8200)**: This enhancement allows explicit configuration of the nodes, along the delivery path of the packets that require hop-by-hop options header processing.

Configuring IPv6 Route Information

The Route Information Option (RIO) in the IPv6 router advertisement messages helps in communicating specific routes from routers to hosts. This improves a host's ability to pick up an appropriate default router, when the host is multihomed and the routers are on different links. The explicit route configuration ensures that only necessary routes are advertised to the hosts.

Procedure

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 2	**interface** *interface* **Example:** `Device(config)# interface gigabitethernet1.1`	Specifies the interface and enters interface configuration mode.
Step 3	**ipv6 nd ra specific-route** *prefix/length* **lifetime** *lifetime/infinity* [**preference** *preference*] **Example:** `Device(config-if)# ipv6 nd ra specific-route 3::3/116 lifetime 11 preference medium`	Configures RIO in IPv6 router advertisement messages. For more information, see the ipv6 nd ra specific route command.

Verifying IPv6 Route Information

To identify the specific routes that are sent in the router advertisements, use the following command:

```
Device# show ipv6 nd ra specific-route

IPv6 Prefix/Length Lifetime Preference Interface
---------------------------------------- -------- ---------- ---------
1234::12/127 1000 High GigabitEthernet2
```