



Multiple-Flow Tunnel

A tunnel facilitates bidirectional transport or acts as a conduit for forwarding subscriber traffic. In PMIPv6, subscriber traffic is transported between the MAG and the Local Mobility Anchor (LMA) through the Generic Routing Encapsulation (GRE) tunnel. In the GTP, subscriber traffic is transported between the iWAG and the GGSN through the GTP tunnel. The tunnel information structure is associated with each tunnel and specifies common tunnel attributes, such as source address, destination address, protocol, port, key, tunnel transport VRF, and tunnel mode.

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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 Multiple-Flow Tunnel

Both the GTP and PMIPv6 support multiple flows per tunnel. A multiple-flow tunnel mechanism configures and manages multiple flows of traffic within the same tunnel. Each flow is identified by a flow key. A flow identifier or flow key is a 32-bit integer. The key is globally unique per system for the GTP. However, the key can be unique per tunnel for PMIPv6. The flow key for the GTP is the Tunnel Endpoint Identifier (TEID), and for PMIPv6, it is the GRE key. Each flow has parameters to describe the per-flow attributes.

PMIPv6 uses a multipoint GRE tunnel per LMA, and creates one adjacency per flow. An LMA can support scaling numbers up to 128,000 MAG. From the LMA perspective, only one multipoint GRE tunnel interface is created and 128,000 tunnel endpoints are populated. This scaling level supports the MAG functionality that is implemented on access points or hotspots, from which only one or few PMIPv6 subscribers can be attached. Cisco high-end routing platforms, such as the Cisco ASR 1000 Series Route Processor 2, the Cisco ASR 1000 Series 40-Gbps ESP, and the Cisco ASR 1000 Series 100-Gbps ESP support 128,000 scaling for the LMA.

To support 128,000 scaling, configure the following on the LMA:

```
ip6 mobile pmipv6-lma LMA1 domain D1
  bce maximum 128000
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
iWAG commands	Cisco IOS Intelligent Wireless Access Gateway Command Reference

MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature.	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Multiple-Flow Tunnel

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.

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Table 1: Feature Information for Multiple-Flow Tunnel

Feature Name	Releases	Feature Information
Multiple-Flow Tunnel	Cisco IOS XE Release 3.9S	In Cisco IOS XE Release 3.9S, this feature was implemented on the Cisco ASR 1000 Series Aggregation Services Routers.

