GTPv2 Support in the iWAG

Effective from Cisco IOS XE Release 3.10S, the support for GPRS Tunneling Protocol Version 2 (GTPv2) is offered on the Cisco ASR 1000 Series Aggregation Services Routers as an enhancement to the GTPv1 offering in the iWAG solution that was introduced in Cisco IOS XE Release 3.8S. GTPv2 provides support for both the 4G and 3G mobile users, whereas GTPv1 provides support only for 3G mobile users.

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.

Restrictions for GTPv2 of the iWAG

- The same APN name cannot be configured in different APNs, for example:

Note This restriction applies to GTPv1 as well.

```
gtp
  n3-request 7
  interval t3-response 1
  interval echo-request 64
```

```
  information-element rat-type wlan
  interface local GigabitEthernet1/3/0
  apn 1
      apn-name example.com #Same donamin name as apn2356, not supported, should be
different
      ip address ggsn 98.0.7.13
      default-gw 192.168.0.1 prefix-len 16
      dns-server 192.168.255.253
      dhcp-lease 3000
  apn 2356
     apn-name example.com #Same domain name as apn1, not supported, should be different

      ip address ggsn 98.0.7.14
      default-gw 10.254.0.1 prefix-len 16
      dns-server 10.254.255.253
      dhcp-lease 3000
!
```

- The same pool cannot be associated with different APNs. The PGW or GGSN must have different IPs for pools configured on different domains, for example:

```
gtp
  n3-request 7
  interval t3-response 1
  interval echo-request 64
  information-element rat-type wlan
  interface local GigabitEthernet1/3/0
  apn 1
     apn-name example.com
     ip address ggsn 98.0.7.13
    default-gw 192.168.0.1 prefix-len 16 #different domain name but same pool ip; this
 is not supported
     dns-server 192.168.255.253
     dhcp-lease 3000
  apn 2356
     apn-name example.com #Same domain name as apn1, not supported, should be different

      ip address ggsn 98.0.7.14
      default-gw 192.168.0.1 prefix-len 16 #different domain name but same pool ip;
this is not supported
      dns-server 10.254.255.253
      dhcp-lease 3000
!
```

Information About GTPv2 in the iWAG

A GTP session with GTPv2 support uses more memory than a GTP session with GTPv1 support. GTPv2 support does not require any new AAA attributes. However, the new gtpv2 enum value for the Cisco-MPC-Protocol-Interface attribute is necessary to specify the use of GTPv2. The AAA server identifies a subscriber depending upon whether the subscriber profile is sent over GTPv1 tunnel or GTPv2 tunnel from the iWAG back to the Evolved Packet Core (EPC). The GTPv1 and GTPv2 sessions can exist simultaneously on the iWAG.

GTPv2 Configuration

All the configurations required for GTPv1 support are also needed for GTPv2 support.

RADIUS Configuration

The following configurations are required on the RADIUS server to differentiate between a GTPv1 subscriber and a GTPv2 subscriber:

```
subscriber-profile profile1 { # this is a GTPv2 profile
access-accept {
reply-msg "Default profile"
cisco-avpair { "cisco-mn-service=ipv4" }
cisco-avpair { "cisco-mpc-protocol-interface=gtpv2" }
cisco-avpair { "cisco-service-selection=example.com" }
cisco-avpair { "cisco-msisdn=4910000000" }
3gpp {
imsi 406091000000000
}
}
}
subscriber-profile profile2 { # this is a GTPv1 profile
access-accept {
reply-msg "Default profile"
cisco-avpair { "cisco-mn-service=ipv4" }
cisco-avpair { "cisco-mpc-protocol-interface=gtpv1" }
cisco-avpair { "cisco-service-selection=example.com" }
cisco-avpair { "cisco-msisdn=4900000000" }
3gpp {
imsi 406090000000000
}
}
}
sub-grp-mgr sub-grp1 {
control-by round-robin
group-profiles {
subscriber-profile profile1 profile-priority 99
subscriber-profile profile2 profile-priority 98
}
}
```

Intra-iWAG Roaming

Effective from Cisco IOS XE Release 3.10S, both GTPv1 and GTPv2 support connected subscriber roaming across different access interfaces of the iWAG. GTPv1 and GTPv2 preserve and update their existing sessions to allow their data traffic to flow through the new ingress interfaces from the access network.

Configuration for the GTPv1 and GTPv2 Roaming Scenario

The initiator unclassified mac-address command must be configured on every iWAG access interface to support subscriber roaming between these interfaces. As shown in the following configuration, all the access interfaces must be specified under the GTP configuration before bringing up the IP subscriber sessions. If the access interface is not specified under the GTP, a subscriber's roaming option is not enabled for that interface. Also, adding interfaces under the GTP after the sessions bring up fails subscriber roaming.

The following example shows the configuration for GTPv1 and GTPv2 roaming scenario:

```
interface GigabitEthernet0/0/2
description To client facing interface
ip address 192.1.1.1 255.255.0.0
```

```
negotiation auto
service-policy type control ISG_GTP_CONTROL
ip subscriber l2-connected
initiator unclassified mac-address # must for roaming config
initiator dhcp
!
interface GigabitEthernet0/0/3
description To client facing interface
ip address 192.2.1.1 255.255.0.0
negotiation auto
service-policy type control ISG_GTP_CONTROL
ip subscriber l2-connected
initiator unclassified mac-address # must for roaming config
initiator dhcp
!
gtp
  n3-request 3
  interval t3-response 10
  interval echo-request 64
  information-element rat-type wlan
  interface local GigabitEthernet1/3/0
  apn 1200
         apn-name example.com
         ip address ggsn 98.0.7.13
         default-gw 192.168.0.1 prefix-len 16
         dns-server 192.168.255.253
         dhcp-lease 3000
  interface access GigabitEthernet0/0/2
  interface access GigabitEthernet0/0/3
```

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
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. 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. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for GTPv2 Support in the iWAG

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 GTPv2 Support in the iWAG

Feature Name	Releases	Feature Information
GTPv2 Support in the iWAG	Cisco IOS XE Release 3.10	In Cisco IOS XE Release 3.10S, this feature was implemented on the Cisco ASR 1000 Series Aggregation Services Routers.