

GGSN Service Configuration Mode Commands

The Gateway GPRS Support Node (GGSN) Configuration Mode is used to create and manage GGSN services within the current context.

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-ggsn-service)#`

Important The commands or keywords/variables that are available are dependent on platform type, product version, and installed license(s).

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accounting

Configures the name of the context configured on the system that processes accounting for PDP contexts handled by this GGSN service.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

accounting context *context_name*
no accounting context

no

Removes a previously configured accounting context.

context_name

Specifies the name of the context to be used for accounting. *context_name* must be an alphanumeric string of 1 through 79 characters that is case sensitive.

Usage Guidelines

By default, the system attempts to use the same context as the one in which the GGSN service is configured for accounting purposes. This command can be used to either change the system's default behavior, or allow GPRS Tunneling Protocol Prime (GTPP) accounting to a charging gateway (CG).

By default when GTPP accounting is used, accounting records will be sent to the accounting servers configured in whichever context the GGSN service is configured. This command may be used to override that default.

Example

The following command configures the GGSN service's accounting context to be plmn1:

```
accounting context plmn1
```

associate gtpu-service

This command associates a previously configured GTP-U service to bind the GGSN service with a peer. A GTP-U service must be configured in Context Configuration mode before using this configuration.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
associate gtpu-service svc_name
no associate gtpu-service
```

no

Removes the associated GTP-U service from this GGSN service configuration.

svc_name

Identifies the name of the GTP-U service preconfigured in Context Configuration mode to associate with a GGSN service. *svc_name* is an alphanumeric string from 1 through 63 characters.

Usage Guidelines

Use this command to configure GTP-U data plan between GGSN service and peer node. The service defined for GTP-U can be configured in Context configuration mode.

Example

Following command associates GTP-U service named *gtpu-hnb1* with specific GGSN service.

```
associate gtpu-service gtpu-hnb1
```

associate peer-map

This command associates a previously configured GGSN peer-map in LTE Policy Configuration mode with GGSN service. A peer-map must be configured before using this configuration.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

associate peer-map *peer_map_name*
no associate peer-map

no

Removes the associated Peer-Map from this GGSN service configuration.

peer_map_name

Identifies the name of the Peer Map preconfigured in LTE-Policy Configuration mode to associate with a GGSN service. *peer_map_name* is an alphanumeric string from 1 through 63 characters.

Usage Guidelines

Use this command to associate Peer Map with GGSN service. The peer-profile associated with peer map can be configured in GGSN Peer-Profile configuration mode.

Important When there is no association of peer-map in any of the service, then "default" peer profile of the corresponding service-interface type shall be applied except for GTP-C parameters. Also GTP-C parameters configuration shall be applied from GG service level configuration for GGSN.

A maximum of 1024 peer map rules can be configured on one system.

Example

Following command associates Peer Map named *ggsn_peer_map1* with specific GGSN service.

```
associate peer-map ggsn_peer_map1
```

associate pgw-service

This command enables a previously configured P-GW service to which handover will be done by the GGSN service. The P-GW service must be configured in Context Configuration mode before using this configuration.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

associate pgw-service *svc_name*
no associate pgw-service

no

Removes the associated P-GW service from this GGSN service configuration.

svc_name

Identifies the name of the P-GW service preconfigured in Context Configuration mode to which handover will be done.

The *svc_name* must be an alphanumeric string from 1 through 63 characters.

Usage Guidelines

Use this command to allow enabling/disabling bearer handover from GGSN to a P-GW service. The service defined for P-GW can be configured in Context configuration mode.

The P-GW's eGTP service should have the same bind address as GGSN service and P-GW and GGSN should share same GTP-U, otherwise handover will fail.

Example

Following command enables P-GW service named *pgw-test* handover with specific GGSN service.

associate pgw-service pgw-test

authorize-with-hss

This command enables or disables subscriber session authorization via a Home Subscriber Server (HSS) over an S6b Diameter interface. This feature is required to support the interworking of GGSN with P-GW and HA.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
authorize-with-hss [ report-ipv6-addr ]
{ default | no } authorize-with-hss
```

default

Disables the default authorization of subscriber over S6b interface. Resets the command to the default setting of "authorize locally" from an internal APN authorization configuration.

no

Disables the default authorization of subscriber over S6b interface. Resets the command to the default setting of "authorize locally" from an internal APN authorization configuration.

report-ipv6-addr

Enables IPv6 address reporting through Authorization-Authentication-Request (AAR) towards the S6b interface.

Usage Guidelines

Use this command to enable/disable the authorization support for subscriber over S6b interface, which is used between GGSN and the 3GPP AAA to exchange the information related to charging, P-CSCF discovery, etc.

Use of this feature allows the GGSN service to interact with HSS over S6b interface through Diameter configuration which is already configured on the system.



Important Diameter configuration must be available before enabling this command. For more information regarding Diameter interface configuration, refer *Diameter Endpoint Configuration Mode Commands* chapter.



Important This command is a license-enabled feature.

Example

The following command enables subscriber authorization via an HSS over an S6b Diameter interface to provide session interoperability between GGSN and P-GW and HA in this GGSN service:

```
authorize-with-hss
```

bind

Binds the GGSN service to a logical IP interface serving as the Gn interface. Specifies the maximum number of subscribers that can access this service over the interface.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description **[no] bind { address** *ipv4_address* **[ipv6-address** *ipv6_address* **] | ipv4-address** *ipv4_address* **[ipv6-address** *ipv6_address* **] | ipv6-address** *ipv6_address* **[ipv4-address** *ipv4_address* **] }**

no

Removes a previously configured binding for the GGSN service.

address *ipv4_address*

Specifies the IP address (address) of the interface configured as the Gn interface. *ipv4_address* is specified in IPv4 dotted-decimal notation.

ipv4-address *ipv4_address*

Specifies the IP address (address) of the interface configured as the Gn interface. *ipv4_address* is specified in IPv4 dotted-decimal notation.

ipv6-address *ipv6_address*

Specifies the IP address (address) of the interface configured as the Gn interface. *ipv6_address* is specified in IPv6 colon-separated hexadecimal notation.

Usage Guidelines Used to associate or tie the GGSN service to a specific logical IP address. The logical IP address or interface takes on the characteristics of a Gn interface. Only one interface can be bound to a service. The interface should be configured prior to issuing this command.

Example

The following command would bind the logical IP interface with the IPv4 address of *209.165.200.224* to the GGSN service:

```
bind ipv4-address 209.165.200.224
```

The following command disables a binding that was previously configured:

```
no bind ipv4-address 209.165.200.224
```

cc behavior

Configures the 3GPP behavior bits associated with the GGSN's charging characteristics (CC).

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
cc behavior no-records nr_value
default cc behavior
no cc behavior no-records
```

default

Restores behavior parameters to default value of 0 (disabled).

no

Removes the previously configured behavior bit.

no-records *nr_value*

Default: 0 (disabled)

Specifies the behavior bit upon which the GGSN ceases sending accounting records to a server.

nr_value can be configured to an integer from 1 through 12 corresponding to the 12 behavior bits – B1 through B12.

Usage Guidelines 3GPP standards after 3GPP R98 included 12 behavior bits as part of GGSN charging characteristics. Like the charging characteristics profile index, the behavior bits are sent by the SGSN to the GGSN in the Create PDP Context request message.

This command configures the behavior bits for each of the conditions described.

Example

The following command configures a behavior bit of 10 for no-records:

```
cc behavior no-records 10
```

cc profile

Configures the charging characteristic (CC) profile index properties.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
cc profile index [ buckets number | interval time [ downlink down_octets uplink
  up_octets | total total_octets ] | prepaid { prohibited |
use-rulebase-configuration } | sgsns num_changes | tariff time1 mins hours [
 time2 mins hours ] [ time3 mins hours ] [ time4 mins hours ] [ time5 mins hours
 ] [ time6 mins hours ] | volume { downlink vol_down_octets uplink vol_up_octets
 | total total_octets } ]
default cc profile index
no cc profile index { buckets | interval | prepaid | sgsns | tariff | volume
 }
```

default

Returns the specified cc profile to the original default system settings. The following defaults are applied:

- buckets: 4
- interval: Disabled
- volume: Disabled
- sgsns: 4
- tariff-time: Disabled

no

Removes a previously configured profile index.

index

Configures a profile index for the parameter to be specified. index can be configured to an integer from 0 through 15.



Important 3GPP standards suggest that profile index values of 1, 2, 4, and 8 be used for hot billing, flat rate billing, prepaid billing and normal billing, respectively. A single charging characteristics profile can contain multiple behavior settings.

buckets *number*

Default: 4

Specifies the number of statistics container changes due to QoS changes or tariff time that can occur before an accounting record should be closed.

number can be configured to an integer from 1 through 4.

interval *time* [downlink *down_octets* uplink *up_octets* | total *total_octets*]

Specifies the normal time duration that must elapse before closing an accounting record provided that any or all of the following conditions occur:

- Downlink traffic volume is reached within the time interval
- Uplink traffic volume is reached within the time interval
- Total traffic volume (up and downlink) is reached within the time interval

time is measured in seconds and can be configured to an integer from 60 through 40000000.

down_octets is the downlink traffic volume measured in octets and can be configured to an integer from 0 through 1000000.

up_octets is the uplink traffic volume measured in octets and can be configured to an integer from 0 through 1000000.

total_octets is the total traffic volume measured in octets and can be configured to an integer from 0 through 1000000.

prepaid { prohibited | use-rulebase-configuration }

This command enables or disables prepaid for the specified profile index.

Default: N/A

prohibited: Disable prepaid for the specified profile index.

use-rulebase-configuration: Use the prepaid configuration in the rulebase.

sgsns *num_changes*

Default: 4

Specifies the number of SGSN changes (such as, inter-SGSN switchovers) resulting in a new RAI (Routing Area Identity) that can occur before closing an accounting record.

num_changes can be configured to an integer from 1 through 15.

tariff time1 *mins hours* time2 *mins hours* time3 *mins hours* time4 *mins hours* time5 *mins hours* time6 *mins hours*

Specifies time-of-day time values to close the current statistics container (but not necessarily the accounting record). Six different tariff times may be specified. If less than six times are required, the same time can be specified multiple times.



Important The system assumes that the billing system uses the day/date to determine if the statistics container represents an actual tariff period.

For each of the different tariff times, the following parameters must be configured:

- *mins*: The minutes of the hour, an integer value from 0 to 59.
- *hours*: The hour of the day, an integer value from 0 to 23.

volume {downlink *vol_down_octets* uplink *vol_up_octets* | total *total_octets* }

Specifies the downlink, uplink, and total volumes that must be met before closing an accounting record.

vol_down_octets is measured in octets and can be configured to an integer from 100000 to 4000000000.

vol_up_octets is measured in octets and can be configured to an integer from 100000 to 4000000000.

total_octets is the total traffic volume (up and downlink) measured in octets and can be configured to an integer from 100000 to 4000000000.

Usage Guidelines

Charging characteristics consist of a profile index and behavior settings. This command configures profile indexes for the GGSN's charging characteristics. The GGSN supports up to 16 profile indexes.

This command works in conjunction with the **cc-sgsn** command located in the APN Configuration Mode that dictates which CCs should be used for subscriber PDP contexts.

Example

The following command configures a profile index of *10* for tariff times of 7:00 AM and 7:30 PM:

```
cc profile 10 tariff time1 0 7 time2 30 19 time3 0 7 time4 30 19
```

default

Sets/restores the default value assigned for the specified parameter.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
[ default ] { cc { behavior | profile index } | echo-interval | gtpu
echo-interval | gtpu reorder { context | sequence-numbers | timeout } |
guard-interval | ip { local-port gtpc-v1 | qos-dscp } | max-retransmissions
 | plmn { unlisted-sgsn } | setup-timeout | timeout }
```

cc { behavior | profile *index* }

Restores the GGSN's charging characteristics parameters to the following default settings:

- **behavior**: Restores all behavior parameters to their default values of 0 (disabled).
- **profile:** For the specified index, the following defaults are applied:
  - buckets: 4
  - interval: Disabled

- volume: Disabled
- sgsns: 4
- tariff-time: Disabled

echo-interval

Restores the GTP echo-interval parameter to its default setting of 60.

gtpu echo-interval

Restores the GTPU echo-interval parameter to its default setting of 60.

gtpu reorder { context | sequence-numbers | timeout }

Restores the gtpu reordering parameters to the following default settings:

- gtpu reorder context: Disabled
- gtpu reorder sequence-numbers: Disabled
- gtpu reorder timeout: 100 milliseconds

gtpu udp-checksum insert

Restores the GGSN gtpu udp-checksum parameter to its default setting of enabled.

guard-interval

Restores the GGSN guard-interval parameter to its default setting of 100.

ip {local-port gtpc-v1 | qos-dscp }

Restores the GGSN ip parameters to the following default setting:

- **local-port gtpc-v1**: 2123
- **qos-dscp**: conversational ef streaming af11 interactive af21 background be

max-retransmissions

Restores the GGSN max-retransmissions parameter to its default setting of 4.

plmn { unlisted-sgsn }

Restores the GGSN plmn unlisted-ggsn parameter to its default setting of reject.

setup-timeout

Restores the GGSN setup-timeout parameter to its default setting of 60.

timeout

Restores the GGSN timeout parameter to its default setting of 5.

Usage Guidelines After the system has been modified from its default values, this command is used to set/restore specific parameters to their default values.

Example

The following command restores the GGSN service's guard interval parameter to its default setting:

```
default guard-interval
```

dns-client

This command defines the context name where a DNS client is configured. It associates an existing DNS client configuration with the GGSN to perform a DNS query for P-CSCF, if a P-CSCF query request in an AAA message is received from the Diameter node.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
dns-client context dns_ctxt_name
{ no | default } dns-client context
```

no

Removes the association of DNS context which was configured to perform DSN query in this GGSN service.

default

Sets the default context for the DNS client.

dns_ctxt_name

Specifies the name of the context in which a DNS client configuration is present. Typically this should be the same context in which this GGSN service is configured.

dns_ctxt_name is a context name and must be alphanumeric string of 1 through 79 characters.

Usage Guidelines Use this command to associate a DNS client configuration to perform DNS query used for the resolution of P-CSCF query received in AAA message from Diameter peer, on the basis of DNS client parameters configured in a context.

A DNS client configuration must be present in the same context as GGSN service before enabling this command to perform DNS query for P-CSCF.

Important This command is a license-enabled feature.

Example

The following command associates a DNS client configuration to perform DNS query for P-CSCF with this GGSN service which is configured in same context as GGSN service:

default dns-client context

echo-interval

Configures the rate at which GPRS Tunneling Protocol (GTP) v1-C Echo packets are sent from the GGSN service to the SGSN.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

[context_name]host_name(config-ggsn-service)#

Syntax Description

echo-interval *seconds* **[dynamic [smooth-factor** *multiplier* **]]**
{ default | no } echo-interval

default

Configures the default value (60 seconds) for echo interval.

no

Disables the sending of GTPv1-C Echo packets.

seconds

Default: 60

Specifies the frequency at which the GGSN service sends GTPv1-C Echo packets to the SGSN(s) it is configured to communicate with.

seconds is measured in seconds and can be configured to an integer from 60 through 3600.

dynamic [smooth-factor *multiplier*]

Enables the dynamic echo timer for the GTP-U service.

smooth-factor *multiplier*: Introduces a muliplier into the dynamic echo timer as an integer from 1 through 5. Default: 2

Usage Guidelines

Use this command to adjust the rate at which the GGSN sends these packets. GTPv1-C Echo packets are used to detect whether SGSNs that the GGSN service is communicating with, has become unresponsive or has rebooted.

The system initiates this protocol for each of the following scenarios:

- Upon system boot
- Upon the configuration of a new SGSN on the system using the **sgsn address** command as described in this chapter
- Upon the execution of the path failure detection policy as described in **path-failure** command of this chapter

The echo-interval command is used in conjunction with the **max-retransmissions** and **retransmission-timeout** commands as described in this chapter.

In addition to receiving an echo response for this echo protocol, if GGSN receives a Node Alive Request message or a Echo Request message from a presumed dead SGSN, it will immediately assume the SGSN is active again.

If the GGSN discovers that an SGSN has become unresponsive, it will terminate all PDP contexts that had been established with the SGSN.

Example

The following command configures the GGSN service to send GTP Echo packets every 120 seconds:

```
echo-interval 120
```

echo-retransmission-timeout

Configures the timeout for GTPv1 echo message retransmissions for this service.

Product

GGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

echo-retransmission-timeout *seconds*
default echo-retransmission-timeout

default

Returns the command to its default setting of 3.

seconds

Default: 5

Configures the echo retransmission timeout, in seconds, for the GTPv1 service as an integer ranging from 1 to 20.

Usage Guidelines Use this command to configure the amount of time, in seconds, before the GTPv1 service transmits another echo request message. The value set in this command is used, as is, for the default echo. If dynamic echo is enabled (**echo-interval dynamic**) the value set in this command serves as the dynamic minimum (if the RTT multiplied by the smooth factor is less than the value set in this command, the service uses this value).

Example

The following command sets the retransmission timeout for echo messages to 2 seconds:

```
echo-retransmission-timeout 2
```

end

Exits the current configuration mode and returns to the Exec mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
end
```

Usage Guidelines Use this command to return to the Exec mode.

exit

Exits the current mode and returns to the parent configuration mode.

Product All

Privilege Security Administrator, Administrator

Syntax Description

```
exit
```

Usage Guidelines Use this command to return to the parent configuration mode.

fqdn

This command defines Fully Qualified Domain Name (FQDN) which would be used for authorization over S6b interface between GGSN and 3GPP AAA/HSS.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-ggsn-service)#`

Syntax Description

`fqdn host` *`host_name`* **`realm`** *`realm_id`*
`{ no | default } fqdn`

no

Removes the configured FQDN host name and realm ID from the GGSN service.

default

Sets the system to default mode for this command and configures the host and realm ID value to NULL.

host *host_name*

Specifies the name of the host to be used for authorization over an S6b interface to a 3GPP AAA server/HSS from the GGSN service.

host_name is a unique node name for authorization over the S6b interface from this GGSN service.

host_name must be an alphanumeric string of 1 through 127 characters. Punctuation marks are allowed.

realm *realm_id*

Specifies the realm as an FQDN to be used for authorization over S6b interface with 3GPP AAA server/HSS from GGSN service. The realm may typically be a company or service name.

realm_id is a unique identifier configured for the authorization over S6b interface from this GGSN service, expressed as an alphanumeric string of 1 through 127 characters. Punctuation marks are allowed.

host_name

Usage Guidelines

Use this command to define host and realm as the FQDN for a 3GPP AAA server/HSS that would be used for authorization over an S6b interface with the GGSN. The realm specified as an FQDN may typically be a company or service name.

By default the FQDN host and realm will be NULL

Important This command is a license-enabled feature.

Example

The following configures the *hss1* as host name and *xyz.com* as realm to support authorization over an S6b from this GGSN service:

```
fqdn host hss1 realm xyz.com
```

gtpc allow-on-congestion

This command enables the prioritized handling for VoLTE/Emergency calls for the current GGSN service. This is a license-controlled feature under the license introduced for VoLTE.

Product

GGSN

Privilege

Administrator, Config Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

`[ no ] gtpc allow-on-congestion { apn-name [ apn_name ] | arp [ priority ] | rel99arp [ priority ] }`

no

Removes the default configuration.

apn-name

Configures the GW to allow calls for this APN even under congestion. *apn_name* is the access point name to be prioritized. It is a string of size 1 to 64.

arp *priority*

Configures the GW to allow calls for this ARP even under congestion. *priority* is the ARP Priority Level, ranging integer 1..15

rel99arp *priority*

Configures the GW to allow calls for the Rel99 ARP under congestion. Rel99arp is ignored in case EARP is received. *priority* is the REL99ARP priority, ranging from integer 1..3

Usage Guidelines

For VoLTE and Emergency calls there are certain scenarios where-in prioritized handling is needed as compared to non-VoLTE calls

When CLI is enabled:

- Under congestion scenarios, emergency calls are given priority and are accepted as much as possible
- Only 3 or less APN and ARP values can be configured for prioritized handling in congestion situation.
- Gn CPCReq calls having the Release 99 bearer parameter ARP(not EARP) are allowed under congestion.

Example

The following command ignores the congestion situation for apn name "intershat":

```
gtpc allow-on-congestion apn intershat
```

gtpc decode-as-hex

This command configures the GGSN to decode the MCC-MNC parameters from the User Location Information (ULI) to hexadecimal digits.

Product

GGSN

Privilege

Administrator, Config Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
[ default | no ] gtpc decode-as-hex
```

default

This CLI is disabled by default. The received MCC-MNC parameters of ULI are decoded assuming that, it contains decimal digits only.

no

Removes the default configuration .

Usage Guidelines

The GTP parameter ULI contains encoded MCC-MNC digits. This new CLI configures GGSN to decode this MCC-MNC into hexadecimal digits. When CLI is disabled, current behavior is in effect - The received MCC-MNC is decoded assuming that, it contains decimal digits only.

When CLI is enabled and if the received MCC-MNC is valid, it is decoded into decimal digits. If the received MCC-MNC is invalid, all digits are decoded into hexadecimal digits, including filler digits, if any. Hexadecimal digits are represented using Upper Case ASCII characters (A, B, C, D, E, F).

Example

The following command decodes MCC-MNC as hexadecimal:

```
gtpc decode-as-hex
```

gtpc handle-collision upc nrupc

This command helps in enabling or disabling collision handling between SGSN initiated UPC and NRUPC request.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
[ no | default ] gtpc handle-collision upc nrupc
```

no

Disables collision handling between SGSN initiated UPC and NRUPC request.

default

Sets default collision handling behavior between SGSN initiated UPC and NRUPC request. By default, collision handling is enabled.

handle-collision upc nrupc

Enables/Disables collision handling between SGSN initiated UPC and network requested UPC. By default, collision handling is enabled.

Usage Guidelines

This command is used to enable or disable collision handling between SGSN initiated UPC and NRUPC request.

Example

The following example disables collision handling between SGSN initiated UPC and NRUPC request.

```
no gtpc handle-collision upc nrupc
```

gtpc map-mbr-ambr

This command maps the Maximum Bit Rate AVP received in Update PDP Context QoS message from SGSN to Aggregate Maximum Bit Rate attribute value (AMBR), if AMBR is not received in Update PDP Context QoS message from SGSN. This command is applicable for Gn-Gp GGSN mode only and not applicable to standalone GGSN. By default this command is disabled.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

`[ default | no ] gtpc map-mbr-ambr`

default

Sets the default mode to map the Maximum Bit Rate AVP received in Update PDP Context QoS message from SGSN to Aggregate Maximum Bit Rate attribute value (AMBR), if AMBR is not received in Update PDP Context QoS message from SGSN.

no

Removes the configured mapping of the MBR AVP received in Update PDP Context message from SGSN to AMBR attribute value.

Usage Guidelines

Use this command to map the Maximum Bit Rate AVP received in Update PDP Context QoS message from SGSN to Aggregate Maximum Bit Rate attribute value (AMBR), if AMBR is not received in Update PDP Context QoS message from SGSN.



Important To use this command event trigger for QoS-Change for session must be provisioned on PCRF.

Example

The following command configures the GGSN service to map the MBR received in Update PDP Context QoS message from SGSN to Aggregate Maximum Bit Rate attribute value (AMBR):

`gtpc map-mbr-ambr`

gtpc nsapi-in-create-pdp-response

This command excludes or includes the optional information element (IE) Network Service Access Point Identifier (NSAPI) within "Create PDP Context Response" messages in GTP-C.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

`[ default | no ] gtpc nsapi-in-create-pdp-response`

default

Sets the default mode for GTP-C messages not to include the NSAPI IE in "Create PDP Context Response" messages.

no

Removes the preconfigured mode for GTP-C messages; the GTP-C message will not include the NSAPI IE in "Create PDP Context Response" messages. By default it is disabled.

Usage Guidelines

Use this command to exclude or include the NSAPI IE in "Create PDP Context Response" GTP-C messages received from the SGSN.

Example

The following command configures the GGSN service to include the optional NSAPI IE in "Create PDP Context Response" messages:

`gtpc nsapi-in-create-pdp-response`

operator-del-cause

Enables or disables the Cause-IE feature for Delete PDP Context Request in GGSN. This CLI is disabled by default.



Important This command is license dependent. For more information please contact your Cisco account representative.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-ggsn-service)#`

Syntax Description

`[ default | no ] gtpc operator-del-cause`

default

Sets the default mode for Operator Cause-IE behavior feature. By default, it is disabled.

no

Disables Operator Cause-IE behavior feature.

operator-del-cause

Enables Operator Cause-IE behavior feature for Delete PDP Context Request sent to delete the last PDP Context of the PDN connection.

Usage Guidelines

This command enables or disables the Cause-IE feature for Delete PDP Context Request in GGSN.

The Cause-IE configuration for Delete PDP Context Request is given in the APN configuration and is also available in the **clear subscribers** CLI command. When this command is enabled, the feature will be applied to GGSN based on the APN configuration or the **clear subscribers** command. This command is disabled by default.

Example

The following command enables the Cause-IE feature.

`gtpc operator-del-cause`

gtpc private-extension

This command includes customer-specific private extensions in GTP-C messages.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-ggsn-service)#`

Syntax Description

```
gtpc private-extension { { focs | odb } access-list acl_name in
disconnect-on-violation | ggsn-preservation-mode | loss-of-radio-coverage
 | none }
default gtpc private-extension
no gtpc private-extension [ focs | ggsn-preservation-mode |
loss-of-radio-coverage ]
```

default

Sets the default mode for GTP-C messages. By default it is disabled.

no

Disables the configured private extensions for GTP-C messages.

{ focs | odb } access-list *acl_name* in disconnect-on-violation

Configures the Free-Of-Charge-Service (FOCS) and Operator Determined Barring (ODB) extensions for all packet-oriented services as defined by operators.

focs: Enables or disables Free of Charge Services for the subscriber who has no credit, and also takes the access-list *acl_name* to be applied for FOCS.

odb: Enables or disables "all packet oriented service barred" for the subscriber, and also takes the access-list *acl_name* to be applied for ODB.

acl_name is the name of a configured access control list (ACL) for this service.

Important These are the customer-specific keywords and need customer-specific license to use them.

ggsn-preservation-mode

Enables the processing of customer-specific private extension in Update PDP Context requests. This extension indicates whether the subscriber is active or idle, and whether RAN resources have been released. It also indicates the desired "type" of preservation mode behavior.

When **ggsn-preservation-mode** is configured, different types of accounting records are generated based on the "type" of mode. To enable the generation of different accounting records, the trigger for preservation mode must be configured for RADIUS or GTPP for that accounting protocol. If that trigger is not configured, there will be no change in the generation of accounting records.

Important This is a customer-specific keyword and needs customer-specific license to use this feature.

loss-of-radio-coverage

Enables the protection against overcharging a subscriber due to loss of radio coverage (LORC) in a GGSN service. It also enables the system to understand the private extension for LORC) in GTP-C Update PDP Context messages from the SGSN.

Important This is a license enabled keyword and need feature-specific license to use it.

none

Removes the private extensions from record which are from GTP-C messages received from the SGSN.

Usage Guidelines

Use this command to configure the processing of private extensions within GTP-C messages received from the SGSN. It also configures the customer specific features, such as preservation mode for GGSN service.

Overcharging protection (LORC) is a solution which provides the ability to accurately bill customers.

This implementation is based on Cisco-specific private extension to GTP messages and/or any co-relation of G-CDRs and S-CDRs. It also does not modify any RANAP messages.

Important This is a license enabled command that requires installation of feature-specific licenses to use this command.

Example

The following command configures the GGSN service to record the private extension for protecting the subscribers from overcharging during loss of radio coverage:

```
gtpc private-extension loss-of-radio-coverage
```

gtpc ran-procedure-ready-delay

This command configures the GGSN to enable the RAN Procedure Ready feature for the particular GGSN service and specify the timeout period for the RAN procedure timer in the GGSN. This timer starts on arrival of every secondary Create PDP Context request.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
gtpc ran-procedure-ready-delay [ timeout dur ]
{ default | no } gtpc ran-procedure-ready-delay
```

default

Sets the default mode of RAN Procedure Ready feature for this GGSN service. By default it is disabled.

no

Disables the RAN Procedure Ready feature for this GGSN service. By default it is disabled.

timeout *dur*

Default: 10

Specifies the timeout duration (in seconds) for the RAN procedure timer. This timer starts on the arrival of every secondary "Create PDP Context Request" message.

This is an optional keyword. If no timeout period is specified, the default value is 10 seconds.

dur must be an integer from 1 through 40.

Usage Guidelines

Use this command to enable the RAN Procedure Ready feature for this GGSN service and specify the timeout period for the RAN procedure timer. This timer starts on the arrival of every secondary "Create PDP Context Request" message.

The GGSN waits until the Radio Access Bearer setup is completed and "Update PDP Context Request" is sent by the SGSN. If any downlink data is received before arrival of the "Update PDP Context Request" or before timer expiry, the downlink packets will be queued or buffered.

If the buffer becomes full (total buffer limit is of 1024 packets), all newly arriving packets are dropped.

The RAN Procedure Ready feature supports the following scenarios when RAB setup timer starts at the GGSN:

- If the GGSN receives the "Update PDP Context Request" before timer expiry, the GGSN stops the timer, sends all the queued/buffered packets in 'first-in first-out' manner and disables buffering of subsequent downlink data.
- If the GGSN receives the "Update PDP Context Request" before the timer expires, it processes the "Update PDP Context Request" as usual, but does not disable the buffering of downlink data. It then waits for another "Update PDP Context Request" to come with the RAN Procedure Ready set, or waits for timer to expire.
- If the GGSN does not receive the "Update PDP Context Request" with RAN Procedure Ready set before timer expiry, the timer is fired and the GGSN starts sending all queued packets and disables buffering of subsequent downlink data (assuming that the corresponding SGSN does not support this feature).
- If the timer has expired and the GGSN receives an "Update PDP Context Request" for a secondary PDP context with or without RAN Procedure Ready bit set, the UPC will be processed normally without buffering the packets.



Important This feature does not affect the Enhanced Charging Service or deep packet inspection (DPI) since the buffering of downlink data is done before sending it to an ACSMgr.



Important During an SGSN handoff scenario all packets are processed normally and the downlink packets are buffered until the timer expires.

Example

The following command configures the GGSN service to enable the RAN Procedure Ready feature and specify the timeout period as *20* seconds for the RAN Procedure timer in GGSN:

```
gtpc ran-procedure-ready-delay timeout 20
```

gtpc support-access-side

This command allows MS to change QoS parameters when Bearer Control Mode (BCM) is set as mixed for Gn-Gp GGSN.



Important This is a customer-specific implementation to meet the 3GPP TS 23.060 (Rel 11) Section 9.2 compliance requirements. For more information please contact your Cisco account representative.

Product

GGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

Syntax Description

```
[ default | no ] gtpc support-access-side { traffic-class { downgrade }
}
```

default

Restores the default setting. That is, for Gn-Gp GGSN, the MS will not be allowed to change the QCI when BCM is set as mixed.

no

Disables the configuration.

support-access-side

Allows the MS to change the QoS for Gn-Gp GGSN when BCM is mixed. This functionality is disabled by default.

traffic-class

Allows Traffic Class to be changed by the MS for Gn-Gp GGSN when BCM is set as mixed. This functionality is disabled by default.

downgrade

Allows Traffic Class to be downgraded by the MS for Gn-Gp GGSN when BCM is set as mixed. This functionality is disabled by default.

Usage Guidelines Use this command to allow MS to change QoS parameters when BCM is set as mixed for Gn-Gp GGSN.

Example

The following example disables the configuration:

```
no gtpc support-access-side traffic-class downgrade
```

gtpc support-earp

Enables Evolved ARP (e-ARP) support for GGSN service on Gn-Gp interface.

Product GGSN

Privilege Administrator

Command Modes Exec > Global Configuration > Context Configuration > GGSN Service Configuration

Syntax Description

```
[ default | no ] gtpc support-earp
```

no

Ignores E-ARP IE received in CPC/UPC Messages.

default

Sets the E-ARP support behavior to default, or disables the support.

Usage Guidelines This command enables Evolved ARP support for GGSN service on Gn-Gp interface. Changing E-ARP support for GGSN service can impact existing bearers. By default E-ARP support is disabled.



Caution Changing the E-ARP support status from "disable" (default) to "enable" will have less or no impact on existing calls; whereas, changing the E-ARP support status from "enable" to "disable" will have more impact on existing calls.

Example

The following example disables the e-ARP support:

```
default gtpc support-earp
```

gtpc suppress-framed-route-timer

This command helps the framed route added in add routing list to be removed when user gets detached from the network.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-ggsn-service)#`

Syntax Description **`[ no | default ] gtpc suppress-framed-route-timer`**

no

Disables the route timer suppression.

suppress-framed-route-timer

Enables quick removal of framed route on receiving delete PDP request.

Usage Guidelines When this command is enabled, the framed route added in add routing list will be removed once user gets detached from the network to suppress-framed-route-timer. By default, this command is disabled.

Example

The following example disables quick removal of framed route on receiving delete PDP request:

`no gtpc suppress-framed-route-timer`

gtpc suppress-nrupc

This command helps enabling as well as disabling the NRUPC suppression.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-ggsn-service)#`

Syntax Description **`[ no ] gtpc suppress-nrupc { cpc | upc } { qos-change }`**

no

Disables the NRUPC suppression.

Usage Guidelines

This command is used to enable or disable the NRUPC suppression caused by QoS change. NRUPC initiated by GGSN/P-GW is not responded to by the SGSNs of some vendors where behavior of SGSN is not compliant to standards. To accommodate SGSN non-compliance, the GGSN/P-GW software has been enhanced with CLI-controlled behavior to suppress sending of the GGSN/P-GW-initiated UPC only if SGSN requested values are less than PCRF authorized bit rates and if the values of the "No QoS Negotiation" and "Upgrade QoS Supported" flags received in the SGSN-initiated Update Request does not allow change/upgrade in QoS values in Update Response. By default, this behavior is disabled and it should be enabled if interoperability issues are seen with the SGSN.

When SGSN informs GGSN that, for a transaction either for Create PDP context Request or Update PDP Context Request. it(SGSN) does not support QoS-Upgrade and/or QoS-Negotiation, and if GGSN has to modify(either upgrade or degrade), QoS, then GGSN sends SGSN a response with unchanged QoS. Followed by the response, GGSN initiates a NRUPC with modified QoS. This is NRUPC for QoS-Change. To honor common flags suppress NRUPC CLIs are introduced.

This command suppress NRUPC (for qos-change) sent from GGSN to SGSN under following condition:

- When SGSN sends Create PDP Context Request with UQS=0. If Upgrade QoS Supported bit of the Common Flags IE is set to 0 or the Common Flags IE is absent then the SGSN does not support QoS upgrade in Response message functionality.
- When SGSN sends Update PDP Context Request with NQN flag = 1.
- When SGSN sends Update PDP Context Request QoS Update Support flag = 0

This suppression feature works with a limited functionality as follows:

- It works only on MBR and def-eps-qos.
- It holds if MBR in CPC/ UPC Request < AMBR authorized by (PCRF/MME).
- AMBR is not related to common flags hence no suppression on modification of AMBR.
- It doesn't hold if MBR in CPC/ UPC Request > AMBR authorized by (PCRF/MME).NRUPC will be generated to equalize the value of MBR to AMBR.

Example

The following example disables the NRUPC suppression using "upc" as GTP procedure:

```
no gtpc suppress-nrupc upc qos-change
```

gtpc update-pdp-resp

This command helps to update PDP Response options.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
[ default | no ] gtpc update-pdp-resp reject { imsi-mismatch | uli-mismatch
 }
```

default

Configures PDP Response option to the default value.

no

Disables the GTPC parameters.

update-pdp-resp reject

Updates the PDP Response reject options.

imsi-mismatch

Sends the Update PDP Response with NON_EXISTENT (CC 192) cause code if IMSI that is received in Update PDP Request does not match with the IMSI of the existing session.

uli-mismatch



Important This keyword is introduced in Release 21.6.13.

Rejects the update PDP request message if the ULI is not part of the home PLMN session.

Usage Guidelines

Use this command to update PDP Response reject options for mismatch in IMSI or ULI. In case of IMSI mismatch, the Update PDP Response appears with NON_EXISTENT (CC 192) cause code. In case of ULI mismatch, the update pdp request message is rejected if the ULI is not part of the home PLMN session.

Example

The following example shows that the PDP request is rejected in case of ULI mismatch:

```
[ default | no ] gtpc update-pdp-resp reject uli-mismatch
```

gtpu echo-interval

This command is obsolete and now available for configuration in GTP-U service configuration mode.

guard-interval

Configures the time period after which a redundant PDP context request received from an SGSN is treated as a new request rather than a re-send of a previous request.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

guard-interval *guard_time*
{ default | no } guard-interval

default

Restores the GGSN guard-interval parameter to its default setting of 100.

no

Disables the guard-interval function for the GGSN service.

guard_time

Default: 100

Specifies the amount of time that must pass before a GGSN service treats a redundant PDP context request as a new request instead of a re-send of a previous request.

guard_time is measured in seconds and can be configured to an integer from 10 through 3600.

Usage Guidelines

The guard interval is used to protect against replay attacks. Without a guard interval configured, information from a valid PDP context request could be used to gain un-authorized network access.

If the GGSN service receives a PDP context request in which the International Mobile Subscriber Identity (IMSI), the Network Service Access Point Identifier (NSAPI), the end user IP address, and the GTP sequence number are identical to those received in a previous request, the GGSN treats the new request as a re-send of the original. Therefore, information from a valid PDP context request could be collected and re-sent at a later time by an un-authorized user to gain network access.

Configuring a guard interval limits the amount of time that the information contained within a PDP context request remains valid.

Example

The following command configures the GGSN service with a guard interval of *60* seconds:

```
guard-interval 60
```

internal-qos data

This command configures internal priority in the QCI-mapping table for the GGSN, GTPv1 P-GW, and SAEGW calls. This command in the GGSN service configuration overrides the behavior of QCI-QOS-mapping for data packets only.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

internal-qos data { dscp-derived | none | qci-derived }

{ no | default } internal-qos data { dscp-derived | none | qci-derived }

no

Disables the specified internal priority in the QCI-mapping table for the GGSN, GTPv1 P-GW, and SAEGW calls.

default

Disables the internal priority in the QCI-mapping table for the GGSN, GTPv1 P-GW, and SAEGW calls.

dscp-derived

Data packets are marked at Layer 2 based on DSCP configured in qci-qos mapping table, then if DSCP is not configured in the qci-qos mapping table then data packets are not marked.

none

Data packets are not marked with Layer 2 (MPLS EXP/802.1P) marking.

qci-derived

Data packets are marked at Layer 2 based on internal-qos-priority configured in qci-qos mapping table. If internal-qos priority is not configured in the qci-qos mapping table, then the data packets are not marked.

Usage Guidelines

This command configures internal priority in the QCI-mapping table for the GGSN, GTPv1 P-GW, and SAEGW calls. It marks the traffic as QCI-derived, DSCP-derived, and None. If the no or default option of the CLI command is used, then the traffic is not marked. When the feature is not enabled, traffic is not marked.

This command overrides the behavior of QCI-QOS-mapping for data packets only.

Example

The following example marks the internal priority in the QCI-mapping table as DSCP-derived.

```
internal-qos data dscp-derived
```

ip local-port

Configures the local User Datagram Protocol (UDP) port for the Gn interfaces' GTP-C socket for GTPv1.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

ip local-port gtpc-v1 *port_number*
default ip local-port gtpc-v1

default

Configures the default value for the local UDP port for GTP Version 1 control messaging for this GGSN service.

gtpc-v1 ***port_number***

Default: 2123

Specifies the UDP port number for GTPv1 GTPC sockets.

port_number can be configured to an integer from 1 through 65535.

Usage Guidelines

By default, the GGSN service attempts to use GTPv1 when communicating with SGSNs. This parameter configures the UDP port over which the GTP control (GTP-C) sockets are sent.

If an SGSN only supports GTPv0, the GGSN service automatically switches to GTPv0 when communicating with this SGSN. In the scenario, the GGSN service communicates with the SGSN on UDP port 3386 and does not have a GTP-C socket.



Important The UDP port setting on the SGSN must match the local-port setting for the GGSN service on the system in order for the two devices to communicate.

Example

The following command configures the GGSN service to use UDP port *2500* for exchanging GTPC sockets with SGSNs when using GTPv1:

```
ip local-port gtpc-v1 2500
```

ip qos-dscp

Configures the quality of service (QoS) differentiated service code point (DSCP) used when sending data packets over the Gn interface.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
ip qos-dscp { gtpc dscp | qci { 1 | 2 | 3 | 4 | 9 dscp } | qci { 5 | 6 | 7
 | 8 { dscp | allocation-retention-priority { 1 | 2 | 3 } dscp } } } +
default ip qos-dscp
no ip qos-dscp { gtpc | qci { 1 | 2 | 3 | 4 | 9  } | qci { 5 | 6 | 7 | 8
 [ allocation-retention-priority { 1 | 2 | 3 } ] } } +
```

default

Restores the GGSN IP parameters to the default settings.

Default GTP-C DSCP: **be**

Default QCI/DSCP:

- 1: ef
- 2: ef
- 3: af11
- 4: af11
- 5: ef
- 6: ef
- 7: af21
- 8: af21
- 9: be

no

Removes a specified QoS setting and returns it to its default setting.

gtpc

Configures the DSCP marking to be used for GTP-C messages. Must be followed by a DSCP marking.

Default GTP-C DSCP: **be**

dscp

Specifies the DSCP for the specified traffic pattern. *dscp* can be configured to any one of the following:

- **af11:** Assured Forwarding 11 per-hop-behavior (PHB)
- **af12:** Assured Forwarding 12 PHB
- **af13:** Assured Forwarding 13 PHB
- **af21:** Assured Forwarding 21 PHB
- **af22:** Assured Forwarding 22 PHB
- **af23:** Assured Forwarding 23 PHB
- **af31:** Assured Forwarding 31 PHB
- **af32:** Assured Forwarding 32 PHB
- **af33:** Assured Forwarding 33 PHB
- **af41:** Assured Forwarding 41 PHB
- **af42:** Assured Forwarding 42 PHB
- **af43:** Assured Forwarding 43 PHB
- **be:** Best effort forwarding PHB
- **cs5:** Class Selector 5 PHB
- **ef:** Expedited forwarding PHB

qci { 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 }

Configures the QoS Class Identifier (QCI) attribute of QoS. Here the QCI value is the QCI for which the negotiate limit is being set; it ranges from 1 to 9.

allocation-retention-priority { 1 | 2 | 3 }

Specifies the DSCP for interactive class if the allocation priority is present in the QoS profile. Priority can be the integer 1, 2, or 3.

DSCP values use the following matrix to map based on traffic handling priority and allocation retention priority if the allocation priority is present in the QoS profile.

The following table shows the DSCP value matrix for **allocation-retention-priority**.

Table 1: Default DSCP Value Matrix

Allocation Priority	1	2	3
Traffic Handling Priority			
1	ef	ef	ef
2	ef	ef	ef

Allocation Priority	1	2	3
3	af21	af21	af21
	af21	af21	af21

+

Indicates that more than one of the keywords can be entered in a single command.

Usage Guidelines

DSCP levels can be assigned to specific traffic patterns in order to ensure that data packets are delivered according to the precedence with which they are tagged. The diffserv markings are applied to the outer IP header of every GTP data packet. The diffserv marking of the inner IP header is not modified.

The traffic patterns are defined by QCI (1 to 9). Data packets falling under the category of each of the traffic patterns are tagged with a DSCP that further indicate their precedence as shown in the following tables:

Table 2: Class structure for assured forwarding (af) levels

Drop Precedence	Class			
	Class 1	Class 2	Class 3	Class 4
Low	af11	af21	af31	af41
Medium	af12	af22	af32	af41
High	af13	af23	af33	af43

Table 3: DSCP Precedence

Precedence (low to high)	DSCP
0	Best Effort (be)
1	Class 1
2	Class 2
3	Class 3
4	Class 4
5	Express Forwarding (ef)

The DSCP level can be configured for multiple traffic patterns within a single instance of this command.

The **no ip qos-dscp** command can be issued to remove a QoS setting and return it to its default setting.

Example

The following command configures the DSCP level for QCI to be Expedited Forwarding, **ef**:

```
ip qos-dscp qci 1 ef
```

max-contexts

Configures the maximum Primary, Secondary per Primary, and PPP context limits for the GGSN service.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

max-contexts { max-primary *max_pri_number* **| max-sec-per-primary** *max_sec_number* **| ppp-pdp-contexts** *context_number* **} +**
default max-contexts

default

Configures the default value for maximum contexts for the GGSN service.

max-primary *max_pri_number*

Configures maximum primary PDP context allowed for this service. This includes PPP contexts also.

max_pri_number can be configured to an integer from 0 through 120000.

max-sec-per-primary *max_sec_number*

Default: 10

Indicates the maximum number of times that GTP control packets are retransmitted.

max_sec_number can be configured to an integer from 0 through 10.

ppp-pdp-contexts *context_number*

Configures maximum PPP pdp context allowed for this service.

context_number can be configured to an integer from 0 through 120000.

+

Indicates that more than one of the keywords can be entered in a single command.

Usage Guidelines

This command is used to limit the number of primary contexts including PPP contexts, number of secondary contexts per primary context, and PPP contexts per GGSN service.

Example

The following command configures the limits for primary, secondary contexts per primary, as well as the PPP contexts for a GGSN service:

```
max-contexts max-primary 40000 max-sec-per-primary 10 ppp-pdp-contexts
50000
```

max-retransmissions

Configures the maximum number of times that GTP control packets are retransmitted to an SGSN before it marks it unreachable.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

max-retransmissions *max_number*
default max-retransmissions

default

Restores the GGSN max-retransmissions parameter to its default setting of 4.

max_number

Default: 4

Indicates the maximum number of times that GTP control packets are retransmitted.

max_number can be configured to an integer from 0 through 15.

Usage Guidelines

This command is used in conjunction with the **timeout** command to control the retransmission of GTP control packets when no response is received from an SGSN. It is equivalent to the N3-REQUESTS parameter discussed in 3GPP TS 29.060.

If no response is received from the SGSN prior to the expiration of the timeout value, the GTP control packets are re-sent by the GGSN. This process occurs as many times as allowed by the configuration of this command.

If the max-retransmissions value is exceeded, the GGSN records a "Path Failure" for that SGSN and releases all PDP contexts associated with it.

Example

The following command configures the maximum number of retransmissions to *8*:

```
max-retransmissions 8
```

mbms policy

This command enables/disables the Multimedia Broadcast Multicast Services (MBMS) user service support for multicast and/or broadcast mode. It also specifies the policy for MBMS user service mode.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-ggsn-service)#`

Syntax Description

mbms policy { multicst broadcast | none }
{ default | no } mbms policy

default

Restores the default mode of MBMS support in this GGSN service.

no

Removes or disables the configured MBMS support for multicast and/or broadcast mode in this GGSN service.

multicst broadcast

Enables the MBMS support and configures the policy for multicast and broadcast of user service.

none

Disables MBMS user service support.

Usage Guidelines

Use this command to enable/disable the MBMS user service support for Multicast and/or Broadcast mode. It also specifies the policy for MBMS user service mode.

Example

The following command enables MBMS support in this GGSN service:

```
mbms policy multicast broadcast
```

newcall

This command enables or disables the new call related behavior of this GGSN service when duplicate sessions with the same IP address request are received. This feature is required to support interworking with P-GW and HA.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
newcall [ duplicate-subscriber-requested-address { accept | reject }  |
duplicate-subscriber-requested-v6-address { accept | reject } ]
default newcall [ duplicate-subscriber-requested-address |
duplicate-subscriber-requested-v6-address { accept | reject } ]
```

default

Restores the default mode for new call session with the same address request received in this GGSN service. It rejects calls with duplicate address requests.

duplicate-subscriber-requested-address

Configures how duplicate sessions with same IP address request are handled.

duplicate-subscriber-requested-v6-address

Configures how duplicate sessions with same IPv6 address request are handled.

accept

Sets the system to "accept" another session using the same IP address for a new call. The new session will be created and the old session will be torn down.

Default: Disabled

reject

Rejects new calls with duplicate address requests. This is the default behavior.

Default: Enabled

Usage Guidelines

Use this command to enable or disable new call connections when the UE is not able to gracefully disconnect from the Enterprise PDN before attempting to reconnect via another access method. When enabled this command tears down the old session in order to accept the new connection with the same IP or IPv6 address assignment.

This feature also allows the GGSN to accept a request for a static subscriber address, even if the address is already used by another session. If this feature is not enabled, a new request with the same IP address for another session will be rejected.



Important This command is a license-enabled feature.

Example

The following command allows the GGSN to accept the duplicate call session request with the same IP address:

```
newcall duplicate-subscriber-requested-address accept
```

path-failure

Determines the GTP path-failure behavior on echo/non-echo messages.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
path-failure detection-policy gtp { echo [ non-echo ] | non-echo [ echo
] }
{ no | default } path-failure detection-policy
```

no

No defined detection policy means path-failures are not detected.

default

Sets the path-failure detection-policy to GTP in echo mode.

detection-policy gtp {echo [non-echo] | non-echo [echo] }

Detection-policy is the policy to be used when path-failure is in active state. GTP messages are either gtp(u) (user) or gtp(c) (control) type, and the gtp keyword takes either echo or non-echo as message type.

echo: gtp(u) or gtp(c) message.

non-echo: a message type other than gtp(u) or gtp(c).

Usage Guidelines

Under current circumstances, a GGSN shuts down the GTP tunnel if the associated SGSN does not respond to multiple retries of an echo or non-echo message from the GGSN. In this way, a single call failure could be responsible for the loss of all active calls in the tunnel.

This is also an issue when echo is disabled, or when there is very little traffic on the SGSN and the GGSN is configured with large echo intervals.

This behavior adversely impacts the user experience because the customer has to reconnect every time this happens with their SGSN.

Example

The following example detects path failures when the SGSN fails to respond to multiple echo message retries:

```
path-failure detection-policy gtp echo
```

The following example turns off path-failure detection. On timeout of gtp(c) message retries, the particular context will be purged:

```
no path-failure detection-policy
```

plmn id

Configures the GGSN's Public Land Mobile Network (PLMN) identifiers used to determine if a mobile station is visiting, roaming, or belongs to a network. Up to 512 PLMN IDs can be configured for each GGSN service.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

plmn id mcc *mcc_value* **[mnc** *mnc_value* **] [primary]**
no plmn id mcc *mcc_value* **[mnc** *mnc_value* **]**

no

Removes a previously configured PLMN identifier for the GGSN service.

mcc *mcc_value*

Specifies the mobile country code (MCC) portion of the PLMN's identifier.

mcc_value is the PLMN MCC identifier and can be configured to an integer between 100 and 999.

mnc *mnc_value*

Specifies the mobile network code (MNC) portion of the PLMN's identifier. This option is optional.

mnc_value is the PLMN MNC identifier and can be configured to any 2- or 3-digit integer from 00 through 999.

primary

When multiple PLMN IDs are configured, the **primary** keyword can be used to designate one of the PLMN IDs to be used for the AAA attribute (3GPP-GGSN-MCC-MNC).

Usage Guidelines

The PLMN identifier is used by the GGSN service to determine whether or not a mobile station is visiting, roaming, or home. Multiple GGSN services can be configured with the same PLMN identifier. Up to 512 PLMN IDs can be configured for each GGSN Service.



Important The number of supported PLMN IDs was increased from 5 to 512 in StarOS Release 17.1. In addition, the MNC portion of the PLMN ID became optional.

If the MNC portion of a PLMN ID is not specified, home PLMN qualification will be done based solely on the MCC value and the MNC portion will be ignored for these particular MCCs.

Example

The following command configures the PLMN identifier with an MCC of *462* and MNC of *2*:

```
plmn id mcc 462 mnc 02
```

plmn unlisted-sgsn

Configures the GGSN's policy for handling communications from SGSNs with which it is not configured to communicate.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
plmn unlisted-sgsn [ foreign [ disable-gtpc-echo | rat-type { GAN | GERAN
 | HSPA | UTRAN | WLAN } | reject-foreign-subscriber ] | home [
disable-gtpc-echo | rat-type { GAN | GERAN | HSPA | UTRAN | WLAN }  ] |
mcc mcc_value mnc mnc_value [ disable-gtpc-echo | rat-type { GAN | GERAN |
HSPA | UTRAN | WLAN } | reject-foreign-subscriber ] | reject ]
default plmn unlisted-sgsn
```

default

Resets configured parameters to their default settings.

foreign

Default: Disabled

Specifies that the GGSN service accepts messages from SGSNs that are not configured within the service using the **sgsn address** command.

This keyword also dictates that unlisted SGSNs are treated as if they belong to a foreign PLMN. Therefore, PDP contexts originating from them are treated as visiting or roaming.

home

Default: Disabled

Specifies that the GGSN service accepts messages from SGSNs that are not configured within the service using the **sgsn address** command.

This keyword also dictates that unlisted SGSNs are treated as if they belong to the GGSN service's home PLMN.

mcc *mcc_value*

Specifies the mobile country code (MCC) portion of the PLMN's identifier.

mcc_value is the PLMN MCC identifier and can be configured to an integer from 100 through 999.

mnc *mnc_value*

Specifies the mobile network code (MNC) portion of the PLMN's identifier.

mnc_value is the PLMN MNC identifier and can be configured to a 2- or 3-digit integer from 00 through 999.

reject

Default: Enabled

Specifies that the GGSN service rejects messages from SGSNs that are not configured within the service using the **sgsn address** command.

When the GGSN service rejects the message(s), it returns a cause code of No Resources 199 (C7H, No resources available).

disable-gtpc-echo

Default: Send GTPC Echo messages to unlisted SGSNs.

When this keyword is specified, GTPC echo messages are not sent to unlisted SGSNs.

rat-type { GAN | GERAN | HSPA | UTRAN | WLAN }

This keyword configures the type of radio access technology.

GAN: Specifies the Generic Access Network type of Radio Access Technology (RAT).

GERAN: Specifies the GSM EDGE Radio Access Network type of RAT.

HSPA: Specifies the High Speed Packet Access type of RAT.

UTRAN: Specifies the UMTS Terrestrial Radio Access Network type of RAT.

WLAN: Specifies the Wireless Local Access Network type of RAT.

reject-foreign-subscriber

Default: Disabled

Specifies that incoming calls from foreign subscribers are rejected.

Usage Guidelines

This command works in conjunction with the **sgsn** command that configures the GGSN service to communicate with specific SGSNs. Any messages received from SGSNs not configured in that list are subject to the rules dictated by the **unlisted-sgsn** policy.

Example

The following command configures the GGSN service to accept messages from unlisted SGSNs and treat the SGSN as if it is on the GGSN's home network:

```
plmn unlisted-sgsn home
```

policy

Specifies the reject code to be used in the "Create PDP Context" response message when a RADIUS server timeouts.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
policy { accounting-server-timeout use-reject-code { system-failure |
no-resources } | authentication-server-timeout use-reject-code {
system-failure | user-authentication-failure } }
default policy { authentication-server-timeout | accounting-server-timeout
 }
```

default

Restores the specified parameter to its default setting.

accounting-server-timeout use-reject-code { system-failure | no-resources }

Default: **no-resources**

Specifies the reject code used by the GGSN if communication with an accounting server times out. The possible reject codes are:

- system-failure (204 (CCH))
- no-resources (199 (C7H))

authentication-server-timeout use-reject-code {system-failure | user-authentication-failure }

Default: user-authentication-failure

Specifies the reject code used by the GGSN if communication with an authentication server times out. The possible reject codes are:

- system-failure (204 (CCH))
- user-authentication-failure (209 (D1H))

Usage Guidelines

This command is used to configure the cause code used by the GGSN if communication with either a RADIUS authentication or accounting server times out.

When this parameter is used in conjunction with Radius accounting servers, the response is only set if a flag is configured in the APN Delay GTP Response, only after getting a response to the Accounting Start.

Example

The following command configures the GGSN response to a RADIUS authentication server timeout to be *system-failure*:

```
policy authentication-server-timeout use-reject-code system-failure
```

retransmission-timeout

Configures the timeout period in between retransmissions of GTP control packets. This timeout configuration is not applicable on Echo Request retransmission.



Important In 17.3 and later releases, this command has been deprecated.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

retransmission-timeout *retransmit_time*
default retransmission-timeout

default

Configures the default time interval that must pass without an SGSN response before the GGSN service retransmits GTP control packets.

retransmit_time

Default: 5

Specifies the amount of time that must pass without an SGSN response before the GGSN service retransmits GTP control packets.

retransmit_time is measured in seconds and can be configured to an integer from 1 through 20.

Usage Guidelines

This command is used in conjunction with the **max-retransmissions** command to control the retransmission of GTP control packets when no response is received from an SGSN.

If no response is received from the SGSN prior to the expiration of the timeout value, the GTP control packets are re-sent by the GGSN. This process occurs as many times as allowed by the configuration of the max-retransmissions command.

If the max-retransmissions value is exceeded within the retransmission-timeout period, the GGSN records a "Path Failure" for that SGSN and releases all PDP contexts associated with it.



Important This retransmission timeout configuration in not applicable for Echo Requests message retransmission. Echo are sent/retransmitted every echo interval, which can be configured separately.

Example

The following command configures a timeout value of *20* seconds:

```
retransmission-timeout 20
```

retransmission-timeout-ms

Configures the timeout period in between retransmissions of GTP control packets. This timeout configuration is not applicable on Echo Request retransmission.

Product

GGSN

Privilege

privilege

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

retransmission-timeout-ms *retransmit_time*
default retransmission-timeout-ms

default

Configures the default time interval that must pass without an SGSN response before the GGSN service retransmits GTP control packets.

retransmit_time

Default: 5000

Specifies the amount of time that must pass without an SGSN response before the GGSN service retransmits GTP control packets.

retransmit_time is measured in milliseconds and can be configured to an integer from 1000 through 20000, with a granularity of 100 milliseconds.

Usage Guidelines

This command is used in conjunction with the **max-retransmissions** command to control the retransmission of GTP control packets when no response is received from an SGSN.

If no response is received from the SGSN prior to the expiration of the timeout value, the GTP control packets are re-sent by the GGSN. This process occurs as many times as allowed by the configuration of the max-retransmissions command.

If the max-retransmissions value is exceeded within the retransmission-timeout period, the GGSN records a "Path Failure" for that SGSN and releases all PDP contexts associated with it.

Important This retransmission timeout configuration in not applicable for Echo Requests message retransmission. Echo are sent/retransmitted every echo interval, which can be configured separately.

Example

The following command configures a timeout value of *2000* milliseconds:

```
retransmission-timeout-ms 2000
```

setup-timeout

Configures the maximum amount of time the GGSN service allows for the setting up of PDP contexts.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

setup-timeout *setup_time*
default setup-timeout

default

Restores the command to its default setting of 60.

setup_time

Default: 60

Specifies the maximum amount of time the GGSN service allows for the setting up of PDP contexts.

setup_time is measured in seconds and can be configured to an integer from 1 through 6000.

Usage Guidelines

Use this command to limit the amount of time allowed for setting up PDP contexts. If the PDP context is not setup within the configured time frame, the GGSN service rejects the PDP context with a cause code of 199 (C7H, No resources available).

Example

The following command allows a maximum of *120* seconds for the setting up of PDP contexts:

setup-timeout 120

sgsn address

Configures the SGSNs that this GGSN service is allowed to communicate with.

Product

GGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

sgsn address { { *ipv4/ipv6_address* | *ipv4/ipv6_address*/*netmask* } [plmn-foreign [reject-foreign-subscriber] | mcc *mcc_code* mnc *mnc_code* [reject-foreign-subscriber]] [rat-type { GAN | GERAN | HSPA | UTRAN | WLAN }] [description *description*] [disable-gtpc-echo]
no sgsn address { *ipv4/ipv6_address* | *ipv4/ipv6_address*/*netmask* }

no

Removes a specific SGSN from the list or all configured SGSNs.

address

Configures the IP address of the SGSN.

ipv4/ipv6_address must be specified in IPv4 dotted-decimal or IPv6 colon-separated-hexadecimal notation and can be followed by the subnetmask of the address.

plmn-foreign

Indicates whether or not the SGSN belongs to a foreign public land mobile network (PLMN).

reject-foreign-subscriber

Default: Disabled

Specifies that incoming calls from foreign subscribers are rejected.

mcc *mcc_code*

Specifies the mobile country code (MCC) portion of the PLMN's identifier.

mcc_code is the PLMN MCC identifier and configured as an integer from 100 through 999.

mnc *mnc_code*

Specifies the mobile network code (MNC) portion of the PLMN's identifier.

mnc_code is the PLMN MNC identifier and configured as a 2- or 3-digit integer from 00 through 999.

rat-type {GAN | GERAN | HSPA | UTRAN | WLAN }

This keyword configures the type of radio access technology.

GAN: Specifies the Generic Access Network type of Radio Access Technology (RAT).

GERAN: Specifies the GSM EDGE Radio Access Network type of RAT.

HSPA: Specifies the High Speed Packet Access type of RAT.

UTRAN: Specifies the UMTS Terrestrial Radio Access Network type of RAT.

WLAN: Specifies the Wireless Local Access Network type of RAT.

description *description*

Add description field to the SGSN entry in GGSN service.

description is an alphanumeric string of 1 through 63 characters.

disable-gtpc-echo

Default: Send GTPC Echo messages to unlisted SGSNs.

When this keyword is specified, GTPC echo messages are not sent to unlisted SGSNs.

Usage Guidelines

Use this command to configure a list of SGSNs that the GGSN service is to communicate with. This command can be entered multiple times to configure multiple SGSNs.



Important The GGSN only communicates with the SGSNs configured using this command unless a plmn-policy is enabled to allow communication with unconfigured SGSNs. PLMN policies are configured using the **plmn unlisted-sgsn** command.

Example

The following command configures the GGSN to communicate with an SGSN on a foreign PLMN with an IP address of *209.165.200.224*:

```
sgsn address 209.165.200.224 plmn-foreign
```

sgsn define-multiple-address-group

This command defines an SGSN Multiple Address Group and enters SGSN Multiple Address Group Configuration mode. Whenever there is a change in the control address in a GTPC UPC message, it is treated as an inter-SGSN handoff because an SGSN is usually identified uniquely by a single IP-address. This command supports a multiple address group feature which allows you to specify a set of addresses that specify a single SGSN. When a UPC handoff is received from any address in the group, it is treated as an intra-SGSN handoff.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
sgsn define-multiple-address-group grp_name [ -noconfirm ]
no sgsn define-multiple-address-group grp_name
```

no

Removes a specific SGSN Multiple Address Group from the list GGSN service configuration.

grp_name

Specifies the name of an SGSN multiple address group to create or configure.

*grp_name*is an alphanumeric string from 1 through 63 characters.

-noconfirm

Specifies that the command must execute without any additional prompt and confirmation from the user.

Usage Guidelines Use this command to create or configure an SGSN Multiple Address Group that the GGSN service is to communicate with. This command can be entered multiple times to configure multiple SGSN Multiple Address Groups.

Example

The following command creates an SGSN Multiple Address Group named *sgsngrp1* and enters SGSN Multiple Address Group Configuration mode:

```
sgsn define-multiple-address-group sgsngrp1
```

sgsn multiple-address-group

Configures the SGSN multiple address groups that this GGSN service is allowed to communicate with.

Product GGSN

Privilege Security Administrator, Administrator

Command Modes Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > **context** *context_name* > **ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

```
sgsn multiple-address-group grp_name [ disable-gtpc-echo ] [ mcc mcc_code
mnc mnc_code [ reject-foreign-subscriber ] ] [ plmn-foreign [
reject-foreign-subscriber ] [ rat-type { GAN | GERAN | HSPA | UTRAN |
WLAN } ] [ description description ]
no sgsn multiple-address-group grp_name
```

no

Removes a specific SGSN multiple address group from the list of configured SGSN multiple address groups.

grp_name

Specifies the name of a configured SGSN multiple address group to use.

disable-gtpc-echo

Default: Send GTPC Echo messages to unlisted SGSNs.

When this keyword is specified, GTPC echo messages are not sent to unlisted SGSNs.

plmn-foreign

Indicates whether or not the SGSN multiple address group belongs to a foreign public land mobile network (PLMN).

reject-foreign-subscriber

Default: Disabled

Specifies that incoming calls from foreign subscribers are rejected.

mcc *mcc_code*

Specifies the mobile country code (MCC) portion of the PLMN's identifier.

mcc_code is the PLMN MCC identifier and can be configured to an integer from 100 through 999.

mnc *mnc_code*

Specifies the mobile network code (MNC) portion of the PLMN's identifier.

mnc_code is the PLMN MNC identifier configured as a 2- or 3-digit integer from 00 through 999.

rat-type { GAN | GERAN | HSPA | UTRAN | WLAN }

This keyword configures the type of radio access technology.

GAN: Specifies the Generic Access Network type of Radio Access Technology (RAT).

GERAN: Specifies the GSM EDGE Radio Access Network type of RAT.

HSPA: Specifies the High Speed Packet Access type of RAT.

UTRAN: Specifies the UMTS Terrestrial Radio Access Network type of RAT.

WLAN: Specifies the Wireless Local Access Network type of RAT.

description *description*

Add a description field to the SGSN multiple address group entry in the GGSN service configuration.

description must be an alphameric string of 1 through 63 characters.

Usage Guidelines

Use this command to configure a list of SGSN multiple address groups with which the GGSN service is to communicate. This command can be entered multiple times to configure multiple SGSN multiple address groups.



Important The GGSN only communicates with the SGSN multiple address groups configured using this command unless a plmn-policy is enabled to allow communication with unconfigured SGSNs. PLMN policies are configured using the **plmn unlisted-sgsn** command.

Example

The following command configures the GGSN to communicate with an SGSN with multiple address that is defined by an SGSN multiple address group named *sgsngrp1* that is on a foreign PLMN:

```
sgsn multiple-address-group sgsngrp1 plmn-foreign
```

sgsn mcc-mnc

This command configures sgsn mcc-mnc for this GGSN service.

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Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

`[context_name]host_name(config-ggsn-service)#`

Syntax Description

```
sgsn mcc-mnc { prefer-rai | prefer-uli }
default sgsn mcc-mnc
```

default

Configures the default option for sgsn mcc-mnc. Default is 'prefer-uli'.

prefer-rai

Configures sgsn mcc-mnc using rai.

prefer-uli

Configures sgsn mcc-mnc using uli.

Usage Guidelines

Use this command to configure the sgsn mcc-mnc.

Example

The following command configures the sgsn mcc-mnc to 'prefer-rai':

```
sgsn mcc-mnc prefer-rai
```

trace-collection-entity

This command configures the trace collection entity IP address. Trace collection entity is the destination node to which trace files are transferred and stored.

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Command Modes

Exec > Global Configuration > Context Configuration > GGSN Service Configuration

configure > context *context_name* **> ggsn-service** *service_name*

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-ggsn-service)#
```

Syntax Description

trace-collection-entity *ipv4_addr*
no trace-collection-entity

no

Removes the configured IPv4 address for trace collection in this GGSN service.

ipv4_addr

Specifies the IP address in IPv4 dotted-decimal notation.

Usage Guidelines

Use this command to configure the trace collection entity IP address. This configuration is required because during signaling session trace activation, CPC REQ and UPC REQ do not provide the IP address for the trace collection entity.

Example

The following command configures the trace collection entity IP address with this GGSN service:

```
trace-collection-entity 209.165.200.230
```