

GPRS Service Configuration Mode Commands

Command Modes

The GPRS Service Configuration Mode is used within the context configuration mode to define the criteria the SGSN needs to operate within a GPRS network. The GPRS Service works with other services, such as SGSN GPRS Tunneling Protocol (see SGTP Service Configuration Mode Commands) and Mobile Application Part (see MAP Service Configuration Mode Commands), to handle communication parameters required to work with other network entities such as the base station subsystem (BSS).

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

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

- accounting, on page 2
- admin-disconnect-behavior, on page 3
- associate, on page 5
- associate-dscp-template, on page 8
- associate-service, on page 9
- cc profile, on page 10
- check-imei, on page 12
- check-imei-timeout-action, on page 13
- ciphering-algorithm, on page 13
- dns mcc-mnc-encoding, on page 16
- dns israu-mcc-mnc-encoding, on page 17
- do show, on page 18
- end, on page 19
- exit, on page 19
- gmm, on page 19
- llc, on page 25
- network-sharing , on page 29
- nri , on page 30
- paging-policy, on page 33

- peer-nsei, on page 34
- plmn, on page 36
- rai-skip-validation , on page 37
- reporting-action event-record, on page 38
- s4-overcharge-protection, on page 39
- setup-timout, on page 40
- sgsn-context-request, on page 41
- sgsn-number, on page 41
- sm, on page 42
- sndcp, on page 45

accounting

Defines the accounting context name and enables/disables specific types of CDR generation for the accounting in the GPRS service.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
accounting { cdr-types { mcdr | scdr | sms { mo-cdr | mt-cdr }  | lcs {
mt-cdr  | mo-cdr  } | smbmscdr }+ | context  cntx_name  }
default accounting cdr-types
no accounting ( cdr-types | context }
```

default

Returns the system to default CDR generation which includes:

- M-CDR
- S-CDR
- SMS CDRs
- LCS CDRs
- SMBMS CDR

no

Disables all CDR types.

cdr-types { mcdr | scdr | sms { mo-cdr | mt-cdr } | lcs { mt-cdr | mo-cdr }| smbmscdr }

Default: all types enabled.

Defines the types of CDRs to be generated within the specified GPRS service for accounting:

- **mcdr:** Enables generation of M-CDRs.
- **scdr:** Enables generation of S-CDRs.
- **sms:** Enables generation of SMS-type CDRs based on one of the following:
  - **mo-cdr:** SMS CDRs originates from the mobile.
  - **mt-cdr:** SMS CDRs terminates at the mobile.
- **smbmscdr:** This CDR type is currently under development and should not be included in configuration for this release.
- **lcs:** Enables the generation of LCS CDRs, based on:
  - **mt-cdr:** Mobile terminated location request CDR
  - **mo-cdr:** Mobile originated location request CDR

+

This symbol indicates that more than one keyword can be used and repeated. This enables you to include more than one type of CDR selection in a single command.

context *cntx_name*

Specifies an accounting context to be associated with the GPRS service.

cntx_name: Define a string of 1 to 79 alphanumeric characters.

Usage Guidelines

Use this command to define the type of CDRs to generate for GPRS service. By default all types of CDRs are generated. Note that change of this configuration will be applied to new calls and/or to new PDP contexts only.

By default, the generation of all CDR types is enabled.

Example

The following command configures the system to generate only M-CDRs for accounting in the current GPRS service:

```
accounting cdr-types mcdr
```

admin-disconnect-behavior

This command defines some of the actions the SGSN will take during an Admin-Disconnect procedure.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
admin-disconnect-behavior { clear-subscription | detach-type {
reattach-not-required | reattach-required } }
default admin-disconnect-behavior { clear-subscription | detach-type }
```

clear-subscription

Including this keyword in the configuration instructs the SGSN to clear subscriber contexts and the subscription data database whenever the **clear subscribers all** command is issued (from the Exec mode) for attached subscribers. As well, the SGSN will issue an appropriate Map-Purge-MS-Req to the HLR if needed.

Default: disabled

detach-type

Including this keyword defines which type of detach instruction to include in the Detach-Request message during an Admin-Disconnect procedure. One of the following options must be included when this command is entered:

- **reattach-not-required**
- **reattach-required**

Default: reattach-required

default

Including the **default** keyword in the command, instructs the SGSN to use the default value for the specified parameter.

no

Returns the SGSN to the default where this clear function is disabled

Usage Guidelines

Using he **clear subscribers all** command (in the Exec Mode) clears subscriber contexts and the subscription data database, and if needed, issues an appropriate Map-Purge-MS-Req to the HLR.

Include the **clear-subscription** keyword with this command configuration to ensure that more than attached MM-context and active PDP-contexts are cleared when the clear **subscribers all** command is issued for attached subscribers.

To clear subscription data for detached subscribers, refer to the **sgsn clear-detached-subscriptions** command described in the *Exec* mode chapter.

Including the **detach-type** keyword with this command instructs the SGSN to include either a 'reattach-required' or a 'reattach-no-required' instruction in the Detach-Request message.

Example

Enable the clearing function so that subscription data is cleared from the HLR database:

```
admin-disconnect-behavior
clear-subscription
```

associate

Associates or disassociates supportive services and policies, such as an Evolved GPRS Tunnelling Protocol (eGTP) service or a DSCP marking template with this GPRS service configuration.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

associate { { camel-service *service_name* **[context** *context_name* **] | dscp-template downlink** *dscp_template_name* **| egtp-service** *egtp_svc_name* **[context** *context_name* **] | gs-service** *gs_svc_name* **[context** *context_name* **] | hss-peer-service** *hss_svc_name* **[context** *context_name* **] | location-service** *loc_name* **] | map-service** *map_svc_name* **[context** *context_name* **] | network-global-mme-id-mgmt-db | sgtp-service** *sgtp_svc_name* **[context** *context_name* **] | tai-mgmt-db** *database_name* **}**
no associate { camel-service | dscp-template downlink | egtp-service | gs-service | hss-peer-service | location-service | map-service | network-global-mme-id-mgmt-db | sgtp-service | tai-mgmt-db }

no

Disassociates a previously associated service, DSCP marking template or management database with this GPRS service.

context *ctx_name*

Identifies an existing context name in which the named service is configured. If this keyword is omitted, the named service must exist in the same context as the GPRS service.

ctx_name- Enter an alphanumeric string of 1 through 63 characters.

camel-service *camel_svc_name*

Associates a CAMEL service with this GPRS service.

camel_svc_name specifies the name for a configured CAMEL service to associate with the GPRS service. Enter an alphanumeric string of 1 to 63 characters.

dscp-template downlink *template_name*

Associates a DSCP template with the GPRS service.

template_name specifies a configured DSCP marking template to associate with this GPRS service. Enter an alphanumeric string of 1 to 64 characters.

egtp-service *egtp_svc_name*

Associates an eGTP service with GPRS service.

egtp_svc_name specifies the name for a configured eGTP service to associate with this GPRS service. Enter an alphanumeric string of 1 to 63 characters.

The eGTP service is created with the **egtp-service** command in the *Context Configuration Mode Commands* chapter. The eGTP service provides eGTP-C protocol interface support between the SGSN and EPS nodes. For more information on the eGTP service and the supported interface type(s), refer to the *eGTP Service Configuration Mode Commands* chapter.



Important Only one eGTP service can be associated with a GPRS service. The eGTP service should be configured prior to issuing this command.

gs-service *gs_svc_name*

Associates a GS service with this GPRS service.

gs_svc_name specifies the name for a configured Gs service to associate with the GPRS service. Enter an alphanumeric string of 1 to 63 characters.

The Gs service is created with the **gs-service** command in the *Context Configuration Mode Commands* chapter. The Gs service provides Gs interface support between the SGSN and MSC/VLR nodes. For more information on the Gs service and the supported interface type, refer to the *Gs Service Configuration Mode Commands* chapter.



Important Only one Gs service can be associated with a GPRS service. The Gs service should be configured prior to issuing this command.

hss-peer-service *hss_svc_name*

Associates an HSS peer service with this GPRS service.

hss_svc_name specifies the name for a configured HSS peer service to associate with this GPRS service. Enter an alphanumeric string of 1 to 63 characters.

The HSS peer service provides S6d and S13-prime interface support via the Diameter protocol between the GPRS and an HSS (S6d) or EIR (S13-prime). For more information about the HSS peer service, refer to the **hss-peer-service** command in the *Context Configuration Mode Commands* chapter and the *HSS Peer Service Configuration Mode Commands* chapter.



Important Only one HSS peer service can be associated to a service in this release. The HSS peer service should be configured prior to issuing this command.

location-service *loc_svc_name*

map-service *map_svc_name*

Associates a location service with this GPRS service.

loc_svc_name specifies the name for a pre-configured location service to associate with the GPRS service. Enter an alphanumeric string of 1 to 63 characters.

The location service is created with the **location-service** command in the *Context Configuration Mode Commands* chapter. For more information on the location services, refer to the *Location Services Configuration Mode* section.



Important Only one MAP service can be associated with a GPRS service. The MAP service should be configured prior to issuing this command.

network-global-mme-id-mgmt-db

Associates the configured global MME ID management database with the GPRS service. This enables operators to associate a single custom list of MME Group IDs for use in GPRS to E-UTRAN handovers on the S4-SGSN. The global MME ID management database is configured in the *LTE Policy Configuration Mode* using the **network-global-mme-id-mgmt-db** command.

This command is available only if the *SGSN S4 Interface* license is enabled on the SGSN.

sgtp-service *sgtp_svc_name*

Associates an SGTP service with this GPRS service.

sgtp_svc_name specifies the name for a configured SGTP service to associate with the GPRS service. Enter an alphanumeric string of 1 to 63 characters.

The SGSN GPRS Tunneling Protocol (SGTP) service manages the configuration of the GTP-C and GTP-U related parameters. For more information on the SGTP service, refer to the **sgtp-service** command in the *Context Configuration Mode Commands* chapter and/or the *SGTP Service Configuration Mode Commands* chapter.



Important Only one SGTP service can be associated with a GPRS service. The SGTP service should be configured prior to issuing this command. When co-locating an SGSN and MME, the GPRS Service cannot be associated with the same SGTP service that is used by the MME.

tai-mgmt-db *database_name*

Associates this GPRS service with a pre-configured TAI Management Database.

database_name specifies the name of a pre-configured TAI Management Database to associate with the SGSN service as alphanumeric string of 1 through 64 characters. For more information on subscriber maps, refer to the **tai-mgmt-db** command in the *LTE Policy Configuration Mode Commands* chapter and the *LTE TAI Management Database Configuration Mode Commands* chapter.

This command is available only if the *SGSN S4 Interface* license is enabled on the SGSN.

Usage Guidelines Use this command to associate a pre-configured service and/or DSCP marking template and/or management database with this GPRS service. The command can be repeated as necessary to configure associations for all desired services/templates/databases.



Caution This is a critical configuration. The GPRS service cannot be started without this configuration. Any change to this configuration would lead to restarting the GPRS service. Removing or disabling this configuration will stop the GPRS service.

Example

The following command associates a previously-configured eGTP service called *egtp1* in the *dst_ctx* context to this GPRS service:

```
associate egtp-service egtp1 context dst_ctx
```

The following command disassociates a MAP service called *map1* that was previously associated with this GPRS service:

```
no associate map-service egtp1
```

The following command associates an HSS peer service called *hss1*, previously-configured in the same context as the GPRS service, to this GPRS service:

```
associate hss-peer-service hss1
```

The following command associates a previously-configured DSCP marking template called *dscp-temp1* to this GPRS service:

```
associate dscp-template downlink dscp-temp1
```

associate-dscp-template

Identifies a DSCP template to be associated with the GPRS service.



Important This command is used only in Releases 12.0 and 12.2. For Release 14.0 refer to the **associate** command.



Important This command can be used before the associated DSCP template instance is created and configured but care should be used to match the template names.

Product SGSN

Privilege Security Administrator, Administrator

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

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

associate-dscp-template downlink *template_name*
no associate-dscp-template downlink

no

Removes the template association definition from the configuration.

template_name

Specifies a unique DSCP template to associate with this GPRS service.

template_name must be a string of 1 to 64 alphanumeric characters with dots (.), dashes (-), and forward slashes (/) but with no spaces.

Usage Guidelines

Use this command to associate DSCP templates with this GPRS service. A single template can be associated with multiple GPRS services.

Related commands:

- The**dscp-template** command in the SGSN Global configuration mode creates / deletes an instance of a template. This command also provides access to the mode containing all the configuration commands used to define DSCP settings for the control packets for the Iu interface and the control and data packets for the Gb interface (see the *DSCP Template Configuration Mode Commands* chapter).
- To check the list of DSCP templates configured, use the **show sgsn-mode** command documented in the *Exec Mode Commands* chapters.

Example

The following command associates the template with DSCP settings for traffic going through one of the SGSNs located in the *paris3* mobile network:

associate-dscp-template dscp-template-paris3

associate-service

Identifies services to be associated with the GPRS Service.



Important This command is used only in Releases 12.0 and 12.2. For Release 14.0 refer to the **associate** command.



Important This command can be used before the associated service instance is created and configured but care should be used to match the service names.

Product SGSN

Privilege Security Administrator, Administrator

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

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

Entering the above command sequence results in the following prompt:

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

Syntax Description **[no] associate-service { gs** *name* **| map** *name* **| sgtp** *name* **} [context** *ctxt_name* **]**

no

Removes the service association definition from the configuration.

gs *name*

Specifies the Gs service configuration to associate with this GPRS service.

name must be a string of 1 to 63 alphanumeric characters with no spaces.

map *name*

Specifies the MAP service configuration to associate with this GPRS service.

name must be a string of 1 to 63 alphanumeric characters with no spaces.

sgtp *name*

Specifies the SGTP service configuration to associate with this GPRS service.

name must be a string of 1 to 63 alpha numeric characters with no spaces.

context *ctxt_name*

Defines the context in which the service was created.

ctxt_name must be a string of 1 to 63 alphanumeric characters with no spaces.

Usage Guidelines Use this command to associate other services, that have been or will be configured, to this GPRS service.

Example

The following command associates Gs service *gs1* with this GPRS service.

associate-service gs *gs1* **context** *sgsn2*

cc profile

Configures the charging characteristic (CC) profile index properties.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

[no] cc profile *index* **{ buckets** *number* **| interval** *time* **| tariff time1** *mins hours* **[time2** *mins hours* **[time3** *mins hours* **[time4** *mins hours* **]]] | volume { downlink** *octets* **uplink** *octets* **| total** *octets* **} }**
default cc profile *index*

no

Removes the a specific charging characteristics configuration definition.

default

Resets the charging characteristics to system defaults.

index

Configures a profile index for the parameter to be specified. index can be configured to any integer from 0 to 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 any integer value from 1 through 4.

interval *time*

time is measured in seconds and can be configured to any integer from 60 to 40,000,000.

tariff time1 *mins hours* time2 *mins hours* time3 *mins hours* time4 *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 from 0 to 59.
- *hours*: The hour of the day, an integer 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 a CDR.

vol_down_octets : Measured in octets; can be configured to any integer from 100,000 to 4,000,000,000.

vol_up_octets : Measured in octets; can be configured to any integer from 100,000 to 4,000,000,000.

total_octets : The total traffic volume (up and downlink) measured in octets; can be configured to any integer from 100,000 to 4,000,000,000.

Usage Guidelines

Charging characteristics consist of a profile index and behavior settings. This command configures profile indexes for the SGSN's charging characteristics. The SGSN 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
```

check-imei

Configures the action the SGSN will take if the route towards the Equipment Identity Register (EIR) is down.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
check-imei { gf-failure-action | gf-timeout-action } { continue | reject
 }
default check-imei { gf-failure-action | gf-timeout-action }
```

default

Resets the default function to reject the Attach.

gf-failure-action

Coupled with either **continue** or **reject**, this keyword instructs the SGSN to take action if a valid EIR configuration exists under the MAP service and if the EIR is temporarily unreachable due to associated DPC/SSN inaccessible/out-of-service.

gf-timeout-action

Coupled with either **continue** or **reject**, this keyword instructs the SGSN to take action if a valid EIR configuration exists under the MAP service and the route to the EIR is available, but no response is received from the EIR.

continue

Instructs the SGSN to continue the Attach process.

reject

Instructs the SGSN to reject the Attach process.

Usage Guidelines

Typically, the Attach process will be continued when there is an IMEI check timeout based on the configuration under the SGSN service configuration and/or the GPRS service configuration. But this works only if the route towards the EIR is UP and the IMEI request timer expires. This command configures the SGSN to allow the Attach process to continue in the case the route towards the EIR is down, that is the DPC / SSN is out-of-service.

Example

Use the following command to reset the default and reject Attach:

```
default check-imei gf-failure-action
```

check-imei-timeout-action

This command has been deprecated.

ciphering-algorithm

Configures the priority, ordering, for the use of the GPRS encryption ciphering algorithms.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

ciphering-algorithm { negotiation-failure-action { reject [failure-code *cause_code* **] | use-geo0 } priority** *priority [algorithm]* **}**
default ciphering-algorithm priority *priority*

default

Returns the system ciphering-algorithm priority to the default of GEA0 - which means that no ciphering will be done.

negotiation-failure-action { reject [failure-code *cause_code*] | use-geo0 }

This set of keywords configure the SGSN's action if there is not a match between the MS and SGSN ciphering algorithm configurations.

- **reject**: Instructs the SGSN to reject a call when the ciphering algorithms do not match.
- **failure-code** *cause_code*: Instructs the SGSN to include a GMM cause code in the Reject message. Enter an integer from 2 to 111; default code is 14 (GPRS services not allowed in this PLMN). Refer to the GMM failure cause codes listed below (information has been taken from section 10.5.5.14 of the 3GPP TS 124.008 v7.2.0 R7):
  - 2 - IMSI unknown in HLR
  - 3 - Illegal MS
  - 6 - Illegal ME
  - 7 - GPRS services not allowed
  - 8 - GPRS services and non-GPRS services not allowed
  - 9 - MSID cannot be derived by the network
  - 10 - Implicitly detached
  - 11 - PLMN not allowed
  - 12 - Location Area not allowed
  - 13 - Roaming not allowed in this location area
  - 14 - GPRS services not allowed in this PLMN
  - 15 - No Suitable Cells In Location Area
  - 16 -MSC temporarily not reachable
  - 17 - Network failure
  - 20 - MAC failure
  - 21 - Synch failure
  - 22 - Congestion
  - 23 - GSM authentication unacceptable

- 40 - No PDP context activated
- 48 to 63 - retry upon entry into a new cell
- 95 - Semantically incorrect message
- 96 - Invalid mandatory information
- 97 - Message type non-existent or not implemented
- 98 - Message type not compatible with state
- 99 - Information element non-existent or not implemented
- 100 - Conditional IE error
- 101 - Message not compatible with the protocol state
- 111 - Protocol error, unspecified

- **use-geo0**: Instructs the SGSN to honor the Attach/RAU Request without ciphering (geo0). This is the default action for negotiation failure.

priority *priority algorithm*

Defines the priority, order of use, for the ciphering algorithm.

priority: Must be an integer from 1 to 4.

algorithm

Identifies the algorithm to be matched to the priority. Options include:

- gea0 - No ciphering
- gea1 - GPRS Encryption Algorithm - GEA1
- gea2 - GPRS Encryption Algorithm - GEA2
- gea3 - GPRS Encryption Algorithm - GEA3

Usage Guidelines

Use this command to specify the order (priority) of usage for the GPRS encryption algorithms. All of the GPRS encapsulation algorithms use a 64-bit key derived from a common mechanism: the mobile receives a random challenge, then the SIM calculates an authentication signature and an encryption key.

Also use this command to define the action to be taken if there is not a match between the MS and the SGSN ciphering algorithm configurations.

Example

The following command sets no ciphering to be used after two encryption algorithms have been used:

```
ciphering-algorithm priority 3 gea0
```

The following command configures the SGSN to reject calls if the ciphering algorithm configurations don't match:

```
ciphering-algorithm negotiation-failure-action reject
```

dns mcc-mnc-encoding

Configures the encoding format for the MCC and MNC values in the DNS query.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
dns mcc-mnc-encoding  { apn-fqdn | mmec-fqdn | rai-fqdn| rnc-fqdn|
tai-fqdn }* { a-query | snaptr-query }*  { decimal | hexadecimal }
default dns mcc-mnc-encoding
```

default

Resets the SGSN to send the MCC and MNC values in decimal format for DNS queries.

apn-fqdn

This keyword is used for PGW/GGSN selection during PDP activation.

mmec-fqdn

Selects the Peer MME during MME to SGSN ATTACH/RAU procedure and Suspend procedure.

rai-fqdn

Selects the SGW and peer SGSN during RAU/Attach procedure, Suspend procedure and RIM procedure.

rnc-fqdn

Selects the Peer SGSN during SRNS re-location.

tai-fqdn

Selects the Peer MME during SGSN to MME SRNS re-location and RIM procedure.

a-query

Controls the DNS A/AAAA query MCC/MNC encoding format.

snaptr-query

Controls the DNS SNAPTR query MCC/MNC encoding format.

decimal

Default

Instructs the SGSN to send the MCC and MNC in decimal format in the DNS query.

hexadecimal

Instructs the SGSN to send the MCC and MNC in hexadecimal format in the DNS query.

Usage Guidelines

In order to provide effective control on DNS queries for particular type of procedures, existing CLI commands in GPRS and SGSN services have been deprecated and replaced with new enhanced commands. The command **dns israu-mcc-mnc-encoding [hexadecimal | decimal]** has been deprecated and this new CLI command is introduced. New keyword options **snaptr-query** and **a-Query** are provided to control different types of queries.

Example

Use the following command to configure hexadecimal encoding in the DNS query:

```
dns mcc-mnc-encoding rai-fqdn apn-fqdn mmec-fqdn rnc-fqdn tai-fqdn a-query
 hexadecimal
```

dns israu-mcc-mnc-encoding

Configures either decimal or hexadecimal format for the MCC and MNC values in the DNS query.



Important This command is deprecated from release 16.0 onwards, it is replaced by the **dns mcc-mnc-encoding** command. See the **dns mcc-mnc-encoding** command for more information.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
dns israu-mcc-mnc-encoding { decimal | hexidecimal }
default dns israu-mcc-mnc-encoding
```

default

Resets the SGSN to send the MCC and MNC values in decimal format for DNS queries.

decimal

Default.

Instructs the SGSN to send the MCC and MNC in decimal format in the DNS query.

hexadecimal

Instructs the SGSN to send the MCC and MNC in hexadecimal format in the DNS query.

Usage Guidelines

Use this command to determine the type of encoding for the MCC and MNC to be included in the DNS query. For example:

In decimal, the MNC/MCC in a DNS query would appear like:

```
rac0017.lac42e3.mnc310.mcc722.gprs
```

In hexadecimal, the MNC/MCC in a DNS query would appear like:

```
rac0017.lac42e3.mnc0136.mcc02d2.gprs
```

Example

Use hexadecimal values for the MCC/MNC in the DNS query.

```
dns israu-mcc-mnc-encoding hexadecimal
```

do show

Executes all **show** commands while in Configuration mode.

Product

All

Privilege

Security Administrator, Administrator

Syntax Description

```
do show
```

Usage Guidelines

Use this command to run all Exec mode **show** commands while in Configuration mode. It is not necessary to exit the Config mode to run a **show** command.

The pipe character **|** is only available if the command is valid in the Exec mode.



Caution There are some Exec mode **show** commands which are too resource intensive to run from Config mode. These include: **do show support collection**, **do show support details**, **do show support record** and **do show support summary**. If there is a restriction on a specific **show** command, the following error message is displayed:

```
Failure: Cannot execute 'do show support' command from Config mode.
```

end

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

Product SGSN

Privilege Security Administrator, Administrator

Syntax Description **`end`**

Usage Guidelines Return to the Exec mode.

exit

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

Product SGSN

Privilege Security Administrator, Administrator

Syntax Description **`exit`**

Usage Guidelines Return to the context configuration mode.

gmm

gmm actually provides a set of commands used to define the GPRS mobility management (GMM) parameters for the SGSN service.



Important The **gmm** commands can be repeated as needed to set each timer.

Product SGSN

Privilege Security Administrator, Administrator

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

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

Entering the above command sequence results in the following prompt:

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

Syntax Description **`gmm [ Extended-T3312-timeout { value`** *`exT3312_minutes`* **`| when-subscribed } [ low-priority-ind-ue ] { accept-procedure [ new-tlli | old-tlli ] | attach ptmsi-signature-mismatch send-reject failure-code`** *`cause_code`* **`|`**

ciph-gmm-msg-from-unknown-ms { detach | ignore } | mobile-reachable-timeout *mins* **implicit-detach-timeout** *secs* **| negotiate-t3314-timeout** *secs* **| paging-failure-action downlink-data-lockout-timer** *seconds* **[repeat** *number_repeats* **] | purge-timeout** *mins* **| T3302-timeout** *mins* **| T3312-timeout** *mins* **| T3313-timeout** *secs* **| t3346 min** *minimum* **max** *maximum* **| T3350-timeout** *secs* **| T3360-timeout** *secs* **| T3370-timeout** *secs* **| trau-timeout** *secs* **}**
default gmm { attach ptmsi-signature-mismatch | ciph-gmm-msg-from-unknown-ms | mobile-reachable-timeout | implicit-detach-timeout *secs* **| negotiate-t3314-timeout | purge-timeout | T3302-timeout | T3312-timeout | T3313-timeout | T3350-timeout | T3360-timeout | T3370-timeout | trau-timeout }**
no gmm { Extended-T3312-timeout | negotiate-t3314-timeout | t3346 }

default

Disables the specified function or resets the specified timer to system defaults.

no

Removes the specified GMM definition from the configuration.

Extended-T3312-timeout

This keyword enables the operator to determine how the SGSN handles Extended T3312 timer values in a 2G GPRS network environment.

- **value** : This keyword instructs the SGSN to send the defined Extended T3312 timer value in Attach or RAU Accept messages to the MS if the subscriber has a subscription for the Extended T3312 timer (Subscribed Periodic RAU/TAU Timer in ISD) and indicates support for the extended periodic timer via the MS Network Feature Support.
- *exT3312_minutes* : Enter an integer from 0 to 18600 to identify the number of minutes for the timeout; default is 186 minutes.
- **when-subcribed** : This keyword instructs the SGSN to only send the extended T3312 period RAU timer value in Attach or RAU Accept messages if the SGSN receives the timeout value in an ISD when the MS has indicated support in MS Network Feature Support.
- **low-priority-ind-ue** : This keyword instructs the SGSN to include the extended T3312 timer value only if the Attach/RAU Request messages include a LAPI (low access priority indicator) in the "MS Device Properties".
- **no** : This filter, when used with the command, instructs the SGSN to remove the extended T3312 configuration from the GPRS Service configuration.

accept-procedure [new-tlli | old-tlli]

Default: new-tlli

This keyword enables the use of either a new TLLI (temporary logical link identifier) or an old TLLI for attach-accept or RAU-accept messages sent by the SGSN to the MS during related procedures.

attach ptmsi-signature-mismatch send-reject failure-code *cause_code*

Default: disabled

This keyword enables the SGSN to validate the P-TMSI signature, present in the Attach Request, against the PTMSI-SIGNATURE stored at the SGSN. The SGSN then sends an Attach Reject to the MS if the PTMSI-SIGNATURE does not match.

The P-TMSI signature validation functionality only works if the feature is enabled. But even if it is enabled, the feature does not validate in the following situations:

- when the PTMSI-SIGNATURE is absent from the 2G Attach Request.
- if the first subscriber being in DETACHED state or is purged with FREEZE-PTMSI. In both the scenarios PTMSI-SIGNATURE cannot be validated.
- when the 2G subscriber(MS2) attaches with the same P-TMSI and a different P-TMSI_Signature as previously attached 2G subscriber (MS1), both the subscriber profiles are cleared from the system. This is relevant where the old RAI for MS-2 is the same as the current RAI for MS-1.

Optionally, a GMM failure *cause_code* can be configured to include in the Attach Reject if one is sent. Refer to the GMM failure cause codes listed below (information has been taken from section 10.5.5.14 of the 3GPP TS 124.008 v7.2.0 R7):

- 2 - IMSI unknown in HLR
- 3 - Illegal MS
- 6 - Illegal ME
- 7 - GPRS services not allowed
- 8 - GPRS services and non-GPRS services not allowed
- 9 - MSID cannot be derived by the network
- 10 - Implicitly detached
- 11 - PLMN not allowed
- 12 - Location Area not allowed
- 13 - Roaming not allowed in this location area
- 14 - GPRS services not allowed in this PLMN
- 15 - No Suitable Cells In Location Area
- 16 -MSC temporarily not reachable
- 17 - Network failure
- 20 - MAC failure
- 21 - Synch failure
- 22 - Congestion
- 23 - GSM authentication unacceptable
- 40 - No PDP context activated
- 48 to 63 - retry upon entry into a new cell
- 95 - Semantically incorrect message

- 96 - Invalid mandatory information
- 97 - Message type non-existent or not implemented
- 98 - Message type not compatible with state
- 99 - Information element non-existent or not implemented
- 100 - Conditional IE error
- 101 - Message not compatible with the protocol state
- 111 - Protocol error, unspecified

ciph-gmm-msg-from-unknown-ms { detach | ignore }

Configures how the SGSN will behave when it receives a ciphered GMM message from an unknown MS.

detach - Instructs the SGSN to send a Detach message to the MS.

ignore - Instructs the SGSN to send an Ignore (drop) message to the MS.

Default: **ignore**

implicit-detach-timeout *secs*

Specifies the implicit detach timer (IDT) value for the 2G ISR implicit detach procedure on the network side (see ISR -- *Idle Mode Signaling Reduction on the S4-SGSN* feature chapter in the *SGSN Administration Guide* for additional timer usage details).

The IDT is configurable from release 15.0 onwards and it is only applicable to 2G ISR activated calls. If ISR is not activated on a 2G call then the subscriber is detached soon after expiry of the mobile reachability timer (MNR) timer.

secs must be an integer from 240 to 86400 and the default value is 3600.

mobile-reachable-timeout *mins*

Default: 58 minutes

Specifies the timeout value for the mobile reachability timer (MNR). This timer is used with the IDT timer described above.

mins must be an integer from 4 to 1440.

negotiate-T3314-timeout *secs*

Set the number of seconds for the T3314-timeout ready timer value. Value sent out from SGSN so MS can negotiate ready timer.

secs must be an integer from 0 to 11160. Default is 44 seconds.

- If the MS does not send the ready timer in the Attach/RAU request, then the SGSN sends this T3314-timeout (ready timer) value.
- If the MS sends the requested value of the ready timer in the Attach/RAU Request, and if the requested value is less than or equal to the value of the negotiate-T3314-timeout timer, then the SGSN sends Att/RAU Accept with the requested T3314 value.

- If the MS sends the requested value of the ready timer in the Attach/RAU Request, and if the requested value is greater than the value of the negotiate-T3314-timeout timer, then the SGSN sends Att/RAU Accept with the negotiate-T3314-timeout value.



Important This is the only GMM timer that can be disabled by entering **no** at the beginning of the command syntax: **no gmm negotiate-t3314-timeout** By disabling negotiation of the T3314-timeout value, if the MS sends the requested value of the ready timer in the Att/RAU Request, then the SGSN sends the T3314-timeout value in the Att/RAU Accept.

paging-failure-action downlink-data-lockout-timer *seconds* [repeat *number_repeats*]

Default: 1000 seconds.

Enables and configures the downlink data lockout timer, for the SGSN services, to reduce the frequency of mobile-initiated keep alive messages.

seconds set the number of seconds before timer expire, range of 0 to 10000.

repeat *number_repeats* optionally sets the number of times (1 to 10) that the timer restarts after paging failure. **Note**: If repeat is not configured then paging proceeds endlessly until the MR timer expires.

[default | no] gmm paging-failure-action disables the downlink data lockout timer.

purge-timeout *mins*

Default: 10080 minutes

The purge timer defines the MM-context lifetime, part of the MM-context procedure on the network side. The configured value sets the duration (number of minutes) the SGSN holds the detached subscriber's MM-context profile. If the subscriber does not reattach to the SGSN during this time, then the SGSN purges this detached subscriber's MM-context information from its database and sends a MAP purge request towards the HLR to indicate that the subscribers profile is gracefully purged from SGSN's database.

mins must be an integer from 1 to 20160.

T3302-timeout *mins*

Default: 12 minutes

Defines the number of minutes for timer to send to MS.

mins is an integer from 1 to 186.

T3312-timeout *min*

Default: 54 minutes

Periodic RAU update timer to send to MS.

mins is an integer from 0 to 186.

T3313-timeout *secs*

Default: 5 seconds

Initial page timeout timer for retransmission for Paging Requests.

secs is an integer from 1 to 60.

T3314-timeout *secs*

Default: 44 seconds

Ready Timer for controlling Cell Update Procedure.

secs must be an integer from 0 to 11519.

t3346

This keyword enables the mobility management (MM) T3346 back-off timer for the 2G service. When the SGSN is confronted by a situation involving congestion, the SGSN can assign the back-off timer value to the UEs and requests the UEs not to access the network for a given period of time.

min *minimum*: Enter an integer from 1 to 15 to identify the minimum number of minutes that the timer will run; default is 15 minutes.

max *maximum*: Enter an integer from 1 to 30 to identify the maximum number of minutes the timer can run; default is 30 minutes.

- If an Attach Request or RAU Request or Service Request is rejected due to congestion, then the T3346 value will be included in the reject message with GMM cause code 22 (congestion). The MM back-off timer value sent will be chosen randomly from within the configured T3346 timer value range.
- The timer will be ignored if a Request message is received after congestion has cleared.
- If MM T3346 timer value is configured in a Call-Control Profile then that value will override the back-off timer values defined for this GPRS Service configurations.

T3350-timeout *secs*

Default: 6 seconds

Retransmission timer for Attach Accept/RAU Accept/P-TMSI Realloc Command.

secs must be an integer from 1 to 20.

T3360-timeout *secs*

Default: 6 seconds

Retransmission timer for Authentication Request.

secs must be an integer from 1 to 20.

T3370-timeout *secs*

Default: 6 seconds

Retransmission timer for Identity Request.

secs must be an integer from 1 to 20.

trau-timeout *secs*

Default: 30

Specifies the number of seconds the "old" 3G SGSN waits to purge the MS's data. This timer is started by the "old" SGSN after completion of the inter-SGSN RAU.

secs : Must be an integer from 5 to 60.

Usage Guidelines

Use this command to set GMM timers.

Example

Set the t3370 timer expiration for 15 seconds:

```
gmm t3370-timeout 15
```

llc

Configures the timers that control the data flow for the logical link control (LLC) sub-layer.

Important This command may be repeated as often as necessary to define the needed timers.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
llc { iov-ui-in-xid-reset | n201u-max { sapi11 pkt-size | sapi3 pkt-size |
sapi5 pkt-size | sapi9 pkt-size } | nu-overflow-detection high-watermark
high_num low-watermark low_num increment-oc| pdu-lifetime secs |
random-value-in-iov-ui [ negotiation-failure-action {
fallback-to-default-iovui | reject } ] | reset-vur | t200 sapi1 time |
t200 [ sapi11 time | sapi3 time | sapi5 time | sapi7 time | sapi9 time ] |
uplink-pdu-len-validation }
default llc { iov-ui-in-xid-reset | n201u-max { sapi11 | sapi3 | sapi5 |
 sapi9 } | nu-overflow-detection | pdu-lifetime | random-value-in-iov-ui
 | reset-vur | T200 [ sapi1 | sapi11 | sapi3 | sapi5 | sapi7 | sapi9 ] |
 uplink-pdu-len-validation }
no llc { iov-ui-in-xid-reset | nu-overflow-detection |
random-value-in-iov-ui | reset-vur | uplink-pdu-len-validation }
```

default

Resets the configuration parameter to the default values.

no

Disables a defined configuration parameter and returns to the SGSN default.

iov-ui-in-xid-reset

This keyword makes it possible for the operator to configure whether or not to send IOV-UI in an XID-RESET. This is useful when the MS is not setup to accept IOV-UI (for example, MS sends Attach/RAU Requests with cksn=7) and including IOV-UI in the XID-Reset would result in Attach/RAU failure.

Default: Enabled

n201u-max sapi *n* *pkt_size*

This keyword sets the maximum number of octets, per service access point identifier (SAPI), for the downlink data packets. This is the upper limit that the SGSN will negotiate with the subscriber for packets sent from the SGSN to the BSC.

sapi *n* : Command must identify one of the following SAPI: sapi11, sapi3, sapi5, or sapi9.

pkt_size : Must be an integer from 140 to 1520. Default size is 1520 octets.

nu-overflow-detection high-watermark *high_num* low-watermark *low_num* increment-oc

Enables/disables overflow detection for the N(u) counter and setting overflow high/low thresholds facilitates ciphering synchronization between the MS and SGSN.

high_num: Enter an integer between 1 and 511.

low_num: Enter an integer between 0 and 510.

If the expected value of nu(Vur) is greater than or equal to the configured high-watermark, and the received nu(LFN) is less than or equal to the configured low-watermark, the SGSN increments the overflow counter (VurOC).

The recommended overflow settings are as follows:**llc nu-overflow-detection high-watermark 496 low-watermark 15 increment-oc** While expecting a packet with 496 < nu < 511 and a packet with 0 < nu < 15 is received, overflow is detected and VurOC is incremented.

pdu-lifetime *secs*

Defines LLC layer PDU lifetime at the BSC. .

secs must be an integer from 0 to 90.

Default: 6

random-value-in-iov-ui [negotiation-failure-action { fallback-to-default-iovui | reject }]

Including this keyword enables the SGSN to negotiate the sending of a random value for the IOV-UI in the XID Request sent to the MS. If this keyword is not included, then by default the SGSN sends a zero (0) as the value of the IOV-UI in the XID message.

Including **default** in a command with the **negotiation-failure-action** keyword resets the SGSN configuration so that all calls are rejected whenever the decipering fails due to failure of the XID negotiation for random IOV-UI

If the **negotiation-failure-action fallback-to-default-iovui** option is included in the configuration, then the SGSN will fall back to unencrypted mode whenever tthe XID negotiation for random IOV-UI negotiation fails..

If the **negotiation-failure-action reject** option is included in the configuration to return the SGSN to the default functionality and reject all calls when random IOV-UI negotition fails. This option is typically used only if the **negotiation-failure-action fallback-to-default-iovui** option has previously been part of the configuration.

The **reject** option conditionally causes the SGSN to reject calls , for example, when XID for random IOV-UI negotiation failure occurs during intra-RAU or standalone authentication for SMS, the SGSN moves the subscriber to STANDBY and marks the XID negotiation as a failure.

OR

Despite the **reject** configuration, the SGSN may respond to XID negotiation failure in one of the following mnners according to associated circumstances:

- Initiates XID for new random IOV-UI negotiation:
  - with the MS is in STANDBY state, any uplink packet (in either ciphered or unciphered mode, except Attach / Intra-RAU) from the MS which results in CELL-UPDATE, READY TIMER START and RADIO STATUS READY causes an event indication to the application.
- Initiates Detach:
  - with the MS is in STANDBY state, any uplink activity causes the SGSN to initiate a new XID exchange, which if it fails or aborts due to the reception of SUSPEND, RADIO-STATUS and READY-TIMER expiry, results in the SGSN initiating Detach.
  - when PAGING is ongoing , any Page response from the MS results in the SGSN initiating Detach.
  - during OLD_SGSN ISRAU, when any uplink data comes before T3 tunnel timer expiry then the SGSN initiates Detach.
- Handles Messages:
  - Attach and intra-RAU (from both local and non-local TLLI or from both the same and different RA) will be processed in any state.
- Moves to STANDBY state:
  - MS is moved to STAND-BY state if the XID exchange failed due to any of the following cases suspend, radio status, BVC block, BVC reset, ready timer expiry, no response received for XID exchange during INTRA-RAU/Standalone Authentication for SMS.
  - XID is ongoing in READY state and if the MS moves to either 3G or to the peer-SGSN then the subscriber is moved to STANDBY state.

reset-vur

Enables/disables the mechanism to reset the Vur value maintained at LLC if the intra RAU request is received with N(U) = 0

Default: Disabled

T200 sapi1 *time*

Sets the retransmission timer (in seconds) for sapi1.

time must be an integer of 1 to 10.

Default: 5

T200 sapi11 *time*

Sets the retransmission timer (in seconds) for sapi11.

time must be an integer of 1 to 50.

Default: 40

T200 sapi3 *time*

Sets the retransmission timer (in seconds) for sapi3.

time must be an integer of 1 to 10.

Default: 5

T200 sapi5 *time*

Sets the retransmission timer (in seconds) for sapi5.

time must be an integer of 1 to 20.

Default: 10

T200 sapi7 *time*

Sets the retransmission timer (in seconds) for sapi7.

time must be an integer of 1 to 40.

Default: 20

T200 sapi9 *time*

Sets the retransmission timer (in seconds) for sapi9.

time must be an integer of 1 to 40.

Default: 20

uplink-pdu-len-validation

This feature enables validation of the size of the uplink LLC packets. With validation enabled, the SGSN will drop any uplinked packets that are larger than the negotiated limit.

If the **no** form of the command is used, then this feature is disabled. The SGSN will be more flexible with uplink packet sizes. So if the SGSN and MS have a mismatch and the MS sends packets that are larger than expected, then the SGSN will not drop the packets.

Default: Enabled.

Usage Guidelines

Use the command repeatedly to configure additional timers and features for the LLC sub-layer.

Example

Set the T200 retransmission timer to timeout at 12 seconds for SAPI5:

llc t200 sapi5 12

Use the following command to instruct the SGSN to ignore the N201_U packet size limits for uplink packets from an MS:

no uplink-pdu-len-validation

network-sharing

Enables or disables CS-PS coordination checking for homers (UEs in their home network) or roamers (UEs from outside the home network). The command also sets the failure code that will be sent for GPRS MOCN.

Product

SGSN

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

network-sharing { cs-ps-coordination { failure-code *<gmm-cause>* **| homer | roarmer } | failure-code** *<gmm-cause>*
no network-sharing cs-ps-coordination { homer | roarmer }
default network-sharing cs-ps-coordination

no

Disables CS-PS coordination check for either homers or roamers.

default

Set the CS-PS coordination parameters to default values.

failure-code *<gmm-cause>*

This keyword has two optional functions:

- When used *with* the **cs-ps-coordination** keyword, it sets the GMM cause code that is to be included in the message when the SGSN requests the BSC to provide CS-PS coordination. Default value is 14.
- When used as an independent keyword with the **network-sharing** command, it sets the failure cause that is used by GPRS MOCN if no failure cause is available when the SGSN sends a Reject message. Default value is 7.

<*gmm-cause*> is an integer from 2-111. Valid options include:

- 2 - IMSI unknown in HLR
- 3 - Illegal MS
- 6 - Illegal ME
- 7 - GPRS services not allowed
- 8 - GPRS services and non-GPRS services not allowed

- 9 - MSID cannot be derived by the network
- 10 - Implicitly detached
- 11 - PLMN not allowed
- 12 - Location Area not allowed
- 13 - Roaming not allowed in this location area
- 14 - GPRS services not allowed in this PLMN
- 15 - No Suitable Cells In Location Area
- 16 - MSC temporarily not reachable
- 17 - Network failure
- 20 - MAC failure
- 21 - Synch failure
- 22 - Congestion
- 23 - GSM authentication unacceptable
- 40 - No PDP context activated
- 48 to 63 - retry upon entry into a new cell
- 95 - Semantically incorrect message
- 96 - Invalid mandatory information
- 97 - Message type non-existent or not implemented
- 98 - Message type not compatible with state
- 99 - Information element non-existent or not implemented
- 100 - Conditional IE error
- 101 - Message not compatible with the protocol state
- 111 - Protocol error, unspecified

homer

Enables checking for CS-PS coordination for UEs from inside the home network (homers) only.

roamers

Enables checking for CS-PS coordination for UEs fromanother network (roamers) only.

Usage Guidelines

The operator can use this command to configure CS-PS coordination checking explicitly for homer **or** roamer subscribers and for the failure-code to be sent when the SGSN asks the BSC to perform CS-PS coordination.

Example

Use a command similar to the following to have the SGSN perform CS-PS coordination checking only for all UEs from outside of the home network:

```
network-sharing cs-ps-coordination homer
```

nri

Configures the network resource identifier (NRI) to identify a specific SGSN. The NRI information is stored in the P-TMSI. The SGSN uses a portion of this NRI to set the parameters for Gb flex (SGSN pooling) functionality.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
nri length nri_length { nri-value nri_value | null-nri-value null_nri_value
non-broadcast-lac lac_id rac rac_id [ nri-value value ][ non-pooled-nri-value
 value ] }
default nri
no nri
```

default

A default configuration was made available beginning in Release 14.0.

Using this keyword now resets the nri configuration to **nri length** 6 and **nri-value** 0.

Important Behavior change in Release 14.0 -- it is no longer necessary to configure NRI as default values have been enabled.

no

Important **no nri** command form is deprecated in Release 14.0. To ensure backward compatibility with configuration files created with pre-Release 14.0 builds, the **no nri** configuration will be automatically converted to the Release 14.0 default values of **nri** 6 and 0.

This command removes the configured NRI value and location information in the P-TMSI that would be retrieved by this SGSN.

length *nri_length*

Specifies the number of bits to be used in the P-TMSI, bits 23 to 18 are used to define the network resource identifier (NRI). The NRI length configuration also sets the maximum size of the pool. If not configured, the NRI length will be of zero length.

nri_length : Must be an integer from 1 to 6 to identify the number of bits.

null-nri-value *null_nri_value*

Configures the null NRI value which must be unique across the pool areas. This keyword is used for the offloading procedure for SGSN pooling (enabled with the **sgsn offloading** command, see the *Exec Mode* chapter).

null_nri_value is an integer from 0 (zero) to 63 used to identify the SGSN to be used for the offloading procedure for SGSN pooling. There is no default value for this parameter.

non-broadcast lac *lac_id* rac *rac_id*

Defines the non-broadcast LAC/RAC to be used in combination with the null-NRI for the offloading procedure.

lac_id defines a location area code associated with a BSS. Must be an integer between 1 and 65535.

rac_id defines the remote area code to be associated with a BSS. Must be an integer between 1 and 255.

nri-value *nri_value*

Specifies the MS-assigned value of the NRI to retrieve from the P-TMSI. This value must not exceed the maximum possible value specified by the NRI length. The NRI value must be unique across the pool or across all overlapping pools.

nri_value must be an integer from 1 to 63 to identify a specific SGSN in a pool. Use of 0 (zero) value is not recommended.

Multiple NRI values can be identified by providing multiple nri-values separated by a blank space for example: **nri length** *6* **nri-value** *29 43 61*

The NRIs configured using this keyword will be used only in pooled area if the keyword **non-pooled-nri-value** is configured, else the NRIs configured using the **nri-value** keyword will be used for both pooled and non-pooled areas.

non-pooled-nri-value *value*

If pooling is supported (the **null-nri-value** keyword is configured) use this keyword to configure values of NRIs to be used for non-pooled area. If the NRI CLI is configured as **nri length** *length_value* **nri-value** *values* **non-pooled-nri-value** *values* (null-nri-value is not configured, that is pooling not supported at SGSN) , NRIs will be used from "non-pooled-nri-value" irrespective of RNC/BSC being pooled or non-pooled.



Note The same NRI can be configured using both the keywords **nri-value** and **non-pooled-nri-value**, this implies the NRI can be used either in pooled area or non-pooled area. If an NRI is configured for both pooled and non-pooled areas, then the SGSN re-uses the same NRI when moving from pooled to non-pooled areas and vice versa.

Usage Guidelines

Use this command to add or remove the Gb flex pool configuration for this GPRS service. The command can be repeated to specify different values for any of the keyword parameters. If more than one NRI is configured, the GPRS service will round-robin between the available NRIs when new subscribers (re)connect.

Use this command to retrieve the NRI (identity of an SGSN) stored in in bits 23 to 18 of the packet-temporary mobile subscriber identity (P-TMSI). If more than one NRI value is configured, the GPRS service will round-robin between the available NRIs when new subscribers (re)connect.

Example

The following command specifies the the NRI length as *5* bits, identifies SGSN *23* with LAC *222* and RAC *12* for offloading procedure with NRIs *6* and *41*:

```
nri length 5 null-nri-value 34 non-broadcast lac 222 rac 12 nri-value 6
41
```

paging-policy

Configures the paging parameters for the GPRS service.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
paging-policy { last-known-area { all | bsc | cell | location-area |
routing-area } + | max-retransmissions retran_num }
no paging-policy last-known-area { bsc | cell | location-area |
routing-area }
default paging-policy { last-known-area | max-retransmissions }
```

no

Disables the paging-policy definition for this GPRS service configuration.

default

Resets the defaults for parameters managed by this paging policy.

last-known-area

Select one or more paging areas and enter them in preferred paging order:

- **all** : Pages in the last known BSC.
- **bsc** : Pages in last known BSC.
- **cell** : Pages in last known cell.
- **location-area** : Pages in last known location area.
- **routing-area** : Pages in last known routing area.

By default, paging occurs in the following order:

cell, BSC, routing area, location area.

max-retransmission *retran_num*

Configures the maximum number of retries for a page request per paging area.

retran_num: Enter an integer from 0 to 5.

- 2 : default.
- 0 : disables retransmission for paging request so that the SGSN only sends a single 2G PS-paging request to the BSC with no retransmissions.

+

Keywords can be repeated or combined as needed to complete the paging policy configuration.

Usage Guidelines Use this command to configure the order of preference for retransmitting into specified paging-areas.

Example

Use the following command to instruct the SGSN to page the cell and BSC as the last-known areas :

```
paging-policy last-known-area cell bsc
```

peer-nsei

This command associates a peer (remote) network service entity (NSEI) for a BSS with this GPRS service.

Product SGSN

Privilege Security Administrator, Administrator

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

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
peer-nsei nse_id { associate dscp-template downlink template_name | lac lac_id
 rac rac_id | name peer_nsei_name | pooled }
no peer-nsei nse_id [ associate dscp-template downlink  | lac lac_id rac
rac_id | name | pooled ]
```

no

Removes the specified configuration from this peer-nsei configuration.

Important Deleting the LAC/RAC portion of the configuration will probably result in the loss of subscriber connections.

nse_id

Defines a specific peer NSEI configuration for this GPRS service.

nse_id - enter an integer from 0 to 65535.

associate dscp-template downlink *template_name*

Identifies a specific DSCP marking template to associate with the peer-NSE. The DSCP template must first be created with SGSN Global configuration mode and then defined with the commands in the DSCP Template configuration mode. The template provides a mechanism for differentiated services code point (DSCP) marking of control packets and LLC signaling messages on Gb interfaces. This DSCP marking feature enables the SGSN to perform classifying and managing of network traffic and to determine quality of service (QoS) for the interfaces to an IP network

template_name- enter an alphanumeric string of 1 to 64 characters.

lac *lac_id*

Defines a location area code associated with the NSE BSS.

lac_id must be an integer between 1 and 65535.

rac *rac_id*

Defines the remote area code to be associated with the NSE BSS

rac_id must be an integer between 1 and 255.

name *peer_nsei_name*

Enables identifying a BSC by a name which is stored in SCT.

peer_nsei_name - enter an alphanumeric string of 1 to 64 characters.

pooled

Enables pooling with non-pooled BSCs within the pool area.

Usage Guidelines

Use this command repeatedly to associate one or more LAC/RAC combinations and/or pooling with this peer-GPRS service configuration. Also repeat the command as needed to create an association with a DSCP marking template, to define a name for a BSC, and to enable pooling with non-pooled BSCs.

The Network Service Entity (NSE) at the BSS and the SGSN provides the network management functionality required for the operation of the Gb interface. Each NSE is identified by means of NSE identifier (NSEI).

Example

The following command configures the NSE with identifier as *4114* having location area code *234* and routing area code as *22*:

```
peer-nsei 4114 lac 234 rac 22
```

The following command enables Gb flex (pooling) functionality for NSEI *4414* for this GPRS service:

```
peer-nsei 4114 pooled
```

plmn

This command identifies the Public Land Mobile Network (PLMN) for the GPRS service. It also configures the common PLMN-Id and an optional list of dedicated PLMN-Ids in support of Multi-Operator Core Network (MOCN) operation.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

plmn id mcc *mcc_num* **mnc** *mnc_num* **[network-sharing common-plmn mcc** *mcc_num* **mnc** *mnc_num* **[plmn-list mcc** *mcc_num* **mnc** *mnc_num* **[mcc** *mcc_num* **mnc** *mnc_num* **] +]]**
no plmn id

no

Removes the PLMN information from the configuration for the current SGSN service.

mcc *mcc_num*

Defines the mobile country code (MCC) portion of the PLMN Id.

mnc_num must be a 3-digit integer from 100 to 999. MCC values of 000-099 are Reserved codes.

mnc *mnc_num*

Defines the mobile network code (MNC) portion of the PLMN Id.

mnc_num must be a 2- or 3-digit integer from 00 to 999. MNC value of 000 is reserved.

network-sharing common-plmn

Configures the common PLMN-Id broadcast by a radio network. An MS that does not support network sharing will only see this PLMN-Id. An MS that supports network sharing (MOCN) will see this PLMN-Id and the list of PLMN-Ids configured using the **plmn-id** keyword.

plmn-list

Configures a list of PLMN-Ids that an MS will see when network sharing is enabled.

+

The plus symbol indicates that indicates that more than one more than one set of the keywords, for PLMN-Id, can be entered within a single command.

Usage Guidelines Use this command to set PLMN parameters for the current SGSN service. This command also sets the common PLMN-Id and a list of PLMN-Ids employed in network sharing (MOCN) deployments. There is no limit to the number of PLMN-Ids that can be included in the list.

Example

The following command identifies the PLMN MCC as *200* and the MNC as *10*:

```
plmn id mcc 200 mnc 10
```

rai-skip-validation

Enable or disable if validation checks are done to verify the MCC and MNC fields received in the old RAI IE in Attach/RAU Requests.

Product SGSN

Privilege Security Administrator, Administrator

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

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
[ no ] rai-skip-validation
```

no

Disables skipping the validation of the old RAI MCC/MNC fields and enables the default behavior to validate.

Usage Guidelines This command configures the SGSN to enable or disable rejection of RAU requests with invalid MCC/MNC values in the old RAI field. By default, this configuration is disabled allowing the default behavior to validate the old RAI MCC/MNC fields.

This command also impacts the PTMSI attaches where the old RAI field is invalid. If the OLD RAI field is invalid and if the validation is enabled, the identity of the MS is requested directly from the MS instead of the peer SGSN.

Validation checks are done per 3GPP TS 24.008 for the MCC/MNC fields of the old RAI IE in Attach/RAU Requests. RAU requests with invalid MCC/MNC values in the old RAI field are rejected. For Attach requests with invalid MCC/MNC values in the old RAI field, the identity of the MS is retrieved directly from the MS instead of sending an identity request to the peer Node where the MS identity is derived from the valid old-RAI.

Example

Use this command to configure rejection of RAU requests with invalid MCC/MNC values in the old RAI field:

```
no rai-skip-validation
```

reporting-action event-record

This command enables the SGSN to log GMM/SM events in EDR files for 2G services.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
reporting-action event-record
[ default | no ] reporting-action event-record
```

default

Disables the logging function.

no

Removes the logging function from the configuration file.

Usage Guidelines

This command is one of the steps needed to enable the SGSN to create a log for events such as Attach, RAU, and Activations. The log is an EDR (event data record) in CSV format. For details about how this feature works, refer to the *GMM-SM Event Logging* chapter in the *SGSN Administration Guide*.

Related Commands:

- To enable GMM/SM event logging for 2G services, the **reporting-action event-record** command must be configured in the SGSN service configuration.
- To enable a log to be generated in an EDR file, the **edr-module active-charging-service** command must be enabled in the Context configuration mode.
- To configure parameters for the logging file characteristics and for file transfer, use the commands in the EDR Module Configuration Mode.

Example

Enable GMM/SM event logging for 3G services:

```
reporting-action event-record
```

s4-overcharge-protection

Enables or disables Subscriber Overcharging Protection functionality for the S4-SGSN in the 2G network *and* associates a BSSGP (base station subsystem GPRS protocol) cause code group with the GPRS Service configuration.

Product



Important We recommend that you enable Release Access Bearer, with the **release-access-bearer command** in the Call-Control Profile Configuration mode, *before* this **s4-overcharge-protection** command is used to enable Subscriber Overcharging Protection.

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

s4-overcharge-protection bssgp-cause-code-group *group_name*
no s4-overcharge-protection

no

Disables Subscriber Overcharging Protection functionality for 2G. Disabled is the default.

bssgp-cause-code-group *group_name*

Associates a BSSGP cause code group with the GPRS Service configuration. You can enter a group's name before the cause code group is actually created but the names must match.

group_name: Enter an alphanumeric string up to 16 characters long to identify the cause code group.

Usage Guidelines

The cause code group is created with the **cause-code-group** command in the LTE Policy Configuration mode.

To see the name of the defined cause code group(s) or the configuration of the BSSGP cause code groups, use the **show lte-policy cause-code-group [name | summary]** command in Exec mode.

To see the status of the Subscriber Overcharging Functionality and the associated BSSGP cause code group, use Exec command **show gprs-service name** *service_name*.



Important If Release Access Bearer is enabled and going out of the S4-SGSN, the ARRL (abnormal release of radio link) bit will be included if this CLI is enabled and if LORC (loss of radio coverage) is detected.

Example

Enable Subscriber Overcharging Protection and associated cause code group *ccgp1* with a command similar to the following:

```
s4-overcharge-protection bssgp-cause-code-group ccgp1
```

Disable Subscriber Overcharging Protection and automatically disassociate the cause code group with the GPRS Service configuration by using a command similar to the following:

```
no s4-overcharge-protection
```

setup-timout

Configures the maximum number of seconds allowed for session setup.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

setup-timout *seconds*

default setup-timout

default

Returns the configuration to the default, 60 seconds.

seconds

An integer from 1 to 1000000.

Usage Guidelines

Use this command to set the time allowed for session setup.

Example

The following command sets the maximum session setup time to *300* seconds:

```
setup-timout 300
```

sgsn-context-request

Specifies whether or not the PTMSI signature check should be skipped if the PTMSI signature is not included in the SGSN context request.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

sgsn-context-request ptmsi-signature-absence allowed

default sgsn-context-request ptmsi-signature-absence

no sgsn-context-request ptmsi-signature-absence allowed

default

Returns the configuration to the default action to perform the PTMSI signature check.

no

Removes this definition from the system configuration.

Usage Guidelines

Use this command to skip the PTMSI signature check.

Example

The following command instructs the system to perform the PTMSI signature check.

default sgsn-context-request ptmsi-signature-absence

sgsn-number

Define the SGSN E.164 number to be used when interacting via MAP protocol for this GPRS service.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

sgsn-number *sgsn_number*
no sgsn-number

no

Disables the use of this definition in the system configuration.

sgsn-number

Enter a string of 1 to 16 digits to identify the SGSN's E.164 identification (Country Code+National Destination Code+Subscriber Number).

Usage Guidelines

Use this command to identify the ISDN number for the SGSN associated with this GPRS service.

The SGSN supports multiple SGSN numbers – different numbers in the 2G GPRS service configuration and the the 3G SGSN service configuration. If an HLR-initiated dialog is received, the SGSN will perform a lookup based on the IMSI and find the correct SGSN number with which the MS is associated. Subsequent messaging will use this address.

Example

Disable the E.164 number for this GPRS service.

no sgsn-number

sm

Configures the session management (SM) parameters associated with this particular GPRS service context.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

sm { activate-max-retransmissions *num_retries* **| deactivate-max-retransmissions** *num_retries* **| guard-timer** *guard_seconds* **| ignore-pco-decode-error | modify-max-retransmissions** *num_retries* **| partial-apn-match | radio-priority from-arp** *arp-rp_prof_name*| **requested-apn-from-first-subrec | t3385-timeout** *secs* **| t3386-timeout** *secs* **| t3395-timeout** *secs* **| t3396 min** *minimum* **max** *maximum* **cause** *cause_code* **| trim-trailing-spaces-in-apn }**
default sm { activate-max-retransmissions | deactivate-max-retransmissions | ignore-pco-decode-error | modify-max-retransmissions | t3385-timeout

```
| t3386-timeout | t3395-timeout | trim-trailing-spaces-in-apn }
no sm { ignore-pco-decode-error  | radio-priority from-arp |
partial-apn-match | radio-priority | requested-apn-from-first-subrec |
t3396 | trim-trailing-spaces-in-apn }
```

default

Resets the SM parameters to their defaults.

no

Removes the identified parameter configuration from the GPRS Service configuration.

activate-max-retransmissions *num_retries*

Defines the maximum number of retries to transmit 'activate PDP context request'.

num_retries : Must be an integer from 1 to 10.

Default: 4

deactivate-max-retransmissions *num_retries*

Defines the maximum number of retries to transmit 'deactivate PDP context request'.

num_retries : Must be an integer from 1 to 10.

Default: 4

guard-timer *guard_seconds*

Sets the number of seconds before the session manager resources are cleared.

guard_seconds is an integer from 30 to 150.

Default: 80 seconds

ignore-pco-decode-error

Enables the SGSN to ignore received decode errors that are due to incorrectly encoded PCO IE length in SM Requests.

Default: disabled

modify-max-retransmissions *num_retries*

Defines the maximum number of retries to transmit 'modify PDP context request'.

num_retries: integer from 1 to 10.

Default: 4

partial-apn-match

Enables partial matching of requested APN during APN selection.

Partial APN or APN with trailing spaces may be present in an Activate Request because incorrect information was keyed in by the user. Though it is valid to reject such Activation Requests, it increases the signaling between the MS and the SGSN. This has an impact on the radio resources.

radio-priority from-arp

Associates an ARP-RP Mapping Profile with the GPRS service. The profile is created and configured via the ARP-RP Mapping Profile configuration mode under the SGSN-Global configuration mode.

arp-rp_prof_name - Enter a string of 1 to 64 alphanumeric characters to identify the mapping profile and moves into the ARP-RP mapping profile configuration mode.

Use the **show configuration** command to display the association.

requested-apn-from-first-subrec

Enables use of a 'requested APN' from the first subscription record. When this feature is enabled, the PDP Activation is not rejected during APN Selection; instead, the APN from the first subscription record is used as the requested APN and the SGSN continues with the rest of the APN Selection process.

A requested APN is an optional IE in an Activate PDP Request. To get the requested PDP type, if multiple PDP subscription records exist for the subscriber, then the MS has to include the APN information to choose the PDP subscription record during APN selection. Otherwise, such activations will be rejected during APN selection (per TS 23.060 Appendix A). Though it is valid to reject such activation requests, it increases the signaling between the MS and the SGSN, which impacts the radio resources.

t3385-timeout*secs*

Defines the maximum amount of time for retransmission of 'activate request' messages.

secs : Must be an integer from 1 to 60.

Default: 8

t3386-timeout *secs*

Defines the maximum amount of time for retransmission of 'modify request' messages.

secs : Must be an integer from 1 to 60.

Default: 8 seconds.

t3395-timeout *secs*

Defines the maximum amount of time for retransmission of 'deactivate request' messages.

secs : Must be an integer from 1 to 60.

Default: 8

t3396

Enables the session management (SM) T3396 back-off timer for the 2G service. When the SGSN is confronted by a situation involving congestion, the SGSN can assign the back-off timer value to the UEs and reques the UEs not to access the network for a given period of time.

min *minimum*: Enter an integer from 1 to 15 to identify the minimum number of minutes that the timer will run; default is 15 minutes.

max *maximum*: Enter an integer from 1 to 30 to identify the maximum number of minutes the timer can run; default is 30 minutes.

cause *cause_code*: Enter an integer from 1 to 255 to identify the appropriate rejection cause code. The default is 26. During congestion, the configured value is ignored and 26 is sent.

- During congestion, the SGSN randomly chooses a T3396 value from the configured range and sends that timer value to the UE in the Reject message with the cause code #26.
- The command can be repeated to define a maximum of 16 cause codes.

trim-trailing-spaces-in-apn

Enables SGSN to strip off any trailing space(s) in requested APN.

If a requested APN in an Activate PDP Context Request has any trailing spaces, then those trailing spaces will be removed and the length field will be updated.

Usage Guidelines

Repeat this command with different keywords (parameters) to configure the SM (session management) as needed for this GPRS service. Keywords can be used to optimize signaling between the MS and the SGSN to reduce the impact on the radio resources.

Example

Reset the number of retransmission messages for deactivate PDP context request to 5.

```
sm deactivate-max-retransmissions 5
```

sndcp

Defines the sub-network dependent convergence protocol (SNDCP) network packet data unit (N-PDU) reassembly timeout interval associated with this GPRS service.

Product

SGSN

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > GPRS Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

sndcp reassembly-timeout *seconds*

default sndcp reassembly-timeout

default

Resets the timer configuration to the default value of 30 seconds.

seconds

Defines the number of seconds the SGSN waits for all the SNDCP segments to arrive before dropping all the disassembled segments.

seconds: Must be an integer from 1 to 300.

Usage Guidelines

Use this command to modify the SNDCP reassembly timer. This timer starts as soon as the first N-PDU segment is received (either in-order or out-of-order). If all the segments belong to the N-PDU arrive before the timer expires then the segments are reassembled. If all the segments do not arrive before the timer expires, then the stored segments are discarded.

Example

Reset the default for the timer.

```
default sndcp reassembly-timeout
```