

SLs Service Configuration Mode Commands

The SLs interface is used to convey Location Services Application Protocol (LCS-AP) messages and parameters between the MME to the E-SMLC. It is also used for tunnelling LTE Positioning Protocols (LPP between the E-SMLC and the target UE, LPPa between the E-SMLC and the eNodeB), which are transparent to the MME.

Command Modes

Exec > Global Configuration > Context Configuration > SLs Service Configuration

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

Entering the above command sequence results in the following prompt:

```
[context_name]host_name(config-sls-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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bind

Binds the SLs service to a local SCTP IP address, configures the SCTP port number, and associates an SCTP parameter template. This interface is used by the SLs service to communicate with the E-SMLC.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > SLs Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

bind { ipv4-address *ipv4_address_value1* **[ipv4-address** *ipv4_address_value2* **] | ipv6-address** *ipv6_address_value1* **[ipv6-address** *ipv6_address_value2* **] [port** *port_num* **] } sctp-template** *sctp_param_template_name*
no bind

no

Removes the interface binding from this SLs service.

ipv4-address *ipv4_address_value1* [ipv4-address *ipv4_address_value2*]

Specifies the IPv4 address of an interface in the current context through which communication with the E-SMLC occurs.

A second IPv4 address can be specified for multi-homing purposes with the optional **ipv4-address** keyword.

ipv6-address *ipv6_address_value1* [ipv6-address *ipv6_address_value2*]

Specifies the IPv6 address of an interface in the current context through which communication with the E-SMLC occurs.

A second IPv6 address can be specified for multi-homing purposes with the optional **ipv6-address** keyword.

port *port_num*

Specifies the SCTP port through which communication with the E-SMLC occurs.

port_num must be an integer from 1 through 65535. Default: 9082.

sctp-template *sctp_param_template_name*

Associates an existing SCTP Parameter Template with this SCTP connection.

The SCTP template is mandatory for the SLs Service to start.

Usage Guidelines

Use this command to bind the SLs service to an IP address.

This command is service critical; removing the configuration will stop the SLs service.

Up to 2 IPv4 or 2 IPv6 addresses can be specified for multi homing purposes.

Example

The following command configures 2 IPv4 addresses for the SCTP connection (for multi-homing), assumes the default SCTP port of 9082, and associates this connection with an SCTP parameter template named *sctp_sls*:

```
bind ipv4-address 209.165.200.234 ipv4-address 209.165.200.244
sctp-template sctp_sls
```

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 All

Privilege Security Administrator, Administrator

Syntax Description

```
end
```

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

esmlc

Configures an Evolved Serving Mobile Location Center (E-SMLC) within this SLs service. The E-SMLC provides location information to the MME.

Product MME

Privilege Administrator

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

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

esmlc esmlc-id *esmlc_id_value* **{ ipv4-address** *ipv4_address_value1* **[ipv4-address** *ipv4_address_value2* **] | ipv6-address** *ipv6_address_value1* **[ipv6-address** *ipv6_address_value2* **] } port** *port_num* **weight** *weight-val*
no esmlc-id *esmlc_id_value*

esmlc-id *esmlc_id_value*

Specifies an ID to uniquely identifiy this E-SMLC within this SLs service.

esmlc_id_value must be an integer from 0 through 255.

ipv4-address *ipv4_address_value1* [ipv4-address *ipv4_address_value2*]

Specifies the IPv4 address of the E-SMLC to be used by this SLs service.

A second IPv4 address can be specified for multi-homing purposes with the optional **ipv4-address** keyword.

ipv6-address *ipv6_address_value1* [ipv6-address *ipv6_address_value2*]

Specifies the IPv6 address of the E-SMLC to be used by this SLs service.

A second IPv6 address can be specified for multi-homing purposes with the optional **ipv6-address** keyword.

port *port_num*

Specifies the SCTP port number of the E-SMLC server.

port_num must be an integer from 1 through 65535. Default: 9082.

weight *weight-val*

The MME performs a weighted round robin selection of E-SMLC based on this weight factor.

weight-val must be an integer from 1 through 5, where 1 represents the least available capacity and 5 represents the greatest.

Usage Guidelines

Use this command to configure an E-SMLC within this SLs service. The E-SMLC provides location information to the MME.

Up to 8 E-SMLC entries can be configured per SLs service.

The SLs service is started when the first E-SMLC is configured. The SLs service is stopped when the last E-SMLC is removed.

A single E-SMLC can be configured to serve multiple MMEs or multiple SLs services within the same MME.

Example

The following command creates an E-SMLC entry for this SLs service for an E-SMLC with an IPv6 address, a port value of 9082 (default), and a round robin selection weight value of 5 (highest capacity).

```
esmlc esmlc-id 1 ipv6-address fe80::2e0:b6ff:fe01:3b7a port 9082 weight
5.
```

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.

ip

This command configures the IP parameters on the SLs interface.

Product

MME

Privilege

Security Administrator, Administrator

Command Modes

Exec > Global Configuration > Context Configuration > SLs Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

[no] ip qos-dscp *dscp_value*

no

Removes IP parameter configuration from the SLs service/interface.

qos-dscp *dscp_value*

The **qos-dscp** keyword designates the Quality of Service - Differentiated Services Code Point value to the packet leaving through the SLs interface.

dscp_value is a value assigned to the packet for DSCP marking. The value can be a pre-defined DSCP value or an arbitrary value ranging from 0x01 to 0x3F.

Usage Guidelines

SLs interface allows Differentiated Services Code Point (DSCP) marking functionality. DSCP marking helps in packet traffic management. DSCP marking can be performed on both IPv4 and IPv6 packets leaving the SLs interface.

Either the pre-defined DSCP values can be used for marking, or any arbitrary value ranging from 0x01 to 0x3F can be assigned. The default DSCP value is 0x00 or be (Best Effort). The default DSCP value is automatically set when the configuration is disabled.

Example

The following command shows the IP configuration for DSCP marking on the SLs service.

```
ip qos-dscp ef
```

max-retransmissions

Configures the maximum number of times the MME will resend messages to the E-SMLC.

Product

MME

Privilege

Administrator

Command Modes

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

max-retransmissions reset *retries*
default max-retransmissions reset

default

Resets the command to the default of 0 (zero).

reset

Configures the maximum number of times the MME will resend the RESET REQUEST to the E-SMLC

retries must be an integer from 1 to 5. The default setting is 0.

Usage Guidelines

Use this command to configure the maximum number of times the MME will resend the RESET REQUEST to the E-SMLC.

Refer to the **t-3x02** command to configure the timer settings for resending the Reset Request message to the E-SMLC.

t-3x01

Configures timer settings for "low delay" and "delay tolerant" response times from the E-SMLC.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > SLs Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

`t-3x01 low-delay` *`seconds`* `delay-tolerant` *`seconds`*
`default t-3x01`

default

Resets the timer to the default setting of 20 seconds for both low delay and delay tolerant requests.

low-delay

Indicates the number of seconds within which the MME expects to receive a "low delay" response from the E-SMLC, where fulfillment of the response time requirement takes precedence over fulfillment of the accuracy requirement.

seconds must be an integer from 10 to 30. The default setting is 20 seconds.

delay-tolerant

Indicates the number of seconds within which MME expects to receive a "delay tolerant' response from the E-SMLC, where fulfillment of the accuracy requirement takes precedence over fulfillment of the response time.

seconds must be an integer from 10 to 40. The default setting is 20 seconds.

Usage Guidelines

These timer options can be configured to prioritize location request response times from the E-SMLC. The T-3x01 timer is started by the MME on sending a location-request to the E-SMLC, and is stopped when either the requested is responded, aborted, or reset by either the MME or the E-SMLC.

A location procedure ends after the Delay Tolerant timer expires and no response is received from an E-SMLC.

More details about these settings are available in 3GPP TS 22.071.

Example

The following command configures the low-delay timer for 15 seconds and the delay-tolerant timer for 25 seconds.

```
t-3x01 low-delay 15 delay-tolerant 25
```

t-3x02

Configures timer settings for resending the Reset Request message to the E-SMLC.

Product

MME

Privilege

Administrator

Command Modes

Exec > Global Configuration > Context Configuration > SLs Service Configuration

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

Entering the above command sequence results in the following prompt:

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

Syntax Description

```
t-3x02  seconds
default t-3x02
```

default

Resets the timer to the default setting of 3 seconds.

seconds

seconds must be an integer from 1 to 5. The default setting is 3 seconds.

Usage Guidelines

The T-3x02 timer is started on the MME when the MME sends a RESET REQUEST to the E-SMLC. Once the T3x02 timer expires, the MME can resend the RESET REQUEST to the E-SMLC.

Refer to the **max-retransmissions** command to configure the maximum number of times the MME will resend a RESET REQUEST to the E-SMLC.