Troubleshooting the Service

This chapter provides information and instructions for using the system command line interface (CLI) for troubleshooting issues that may arise during service operation.

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Test Commands

In the event that an issue was discovered with an installed application or line card, depending on the severity, it may be necessary to take corrective action.

The system provides several redundancy and fail-over mechanisms to address issues with application and line cards in order to minimize system downtime and data loss. These mechanisms are described in the sections that follow.

Using the PPP Echo-Test Command

The system provides a mechanism to verify the Point-to-Point Protocol session of a particular subscriber by sending Link Control Protocol (LCP) packets to the mobile node. This functionality can be extremely useful in determining the quality of the air link and delays that may occur.

The command has the following syntax:

ppp echo-test { **callid** *call_id* | **ipaddr** *ip_address* | **msid** *ms_id* | **username** *subscriber_name* }

Keyword/Variable	Description
callid *call_id*	Specifies that the test is executed for a subscriber with a specific call identification number (callid). *call_id* is the specific call identification number that you wish to test.
ipaddr *ip_address*	Specifies that the test is executed for a subscriber with a specific IP address. ip_address is the specific IP address that you wish to test.

Keyword/Variable	Description
msid *ms_id*	Specifies that the test is executed for a subscriber with a specific mobile station identification (MSID) number. *ms_id* is the specific mobile station identification number that you wish to test.
username *subscriber_name*	Specifies that the test is executed for a subscriber with a specific username. *subscriber_name* is the specific username that you wish to test.

The following figure displays a sample of this command's output showing a successful PPP echo-test to a subscriber named user2aaa.

```
USERNAME: user2aaa   MSID: 0000012345   CALLID: 001e8481
     Tx/Rx 1/0   RTT(min/max/avg) 0/0/0
USERNAME: user2aaa   MSID: 0000012345   CALLID: 001e8481
     Tx/Rx 1/1   RTT(min/max/avg) 77/77/77 (COMPLETE)
```

Using the GTPC Test Echo Command

This command tests the GGSN's ability to exchange GPRS Tunneling Protocol control plane (GTP-C) packets with the specified SGSNs which can be useful troubleshooting and/or monitoring.

The test is performed by the system sending GTP-C echo request messages to the specified SGSN(s) and waiting for a response.

Important This command must be executed from within the context in which at least one GGSN service is configured.

The command has the following syntax:

gtpc test echo src-address *gn_address* **{ all | sgsn-address** *ip_address* **}**

Keyword/Variable	Description
echo src-address *gn_address*	Specifies the IP address of a Gn interface configured on the system. **Important** The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.
all	Specifies that GTP-C echo requests will be sent to all SGSNs that currently have sessions with the GGSN service.
sgsn-address *ip_address*	Specifies that GTP-C echo requests will be sent to a specific SGSN.*ip_address* is the address of the SGSN receiving the requests.

The following example displays a sample of this command's output showing a successful GTPC echo-test from a GGSN service bound to address 192.168.157.32 to an SGSN with an address of 192.168.157.2.

```
GTPC test echo
--------------
SGSN: 192.168.157.2 Tx/Rx: 1/1 RTT(ms): 1 (COMPLETE)Recovery:202 (0xCA)
```

Using the GTPU Test Echo Command

This command tests the GGSN's ability to exchange GPRS Tunneling Protocol user plane (GTP-U) packets with the specified SGSNs which can be useful troubleshooting and/or monitoring.

The test is performed by the system sending GTP-U echo request messages to the specified SGSN(s) and waiting for a response.

Important This command must be executed from within the context in which at least one GGSN service is configured.

The command has the following syntax:

gtpu test echo src-address *gn_address* **{ all | sgsn-address** *ip_address* **}**

Keyword/Variable	Description
src-address *gn_address*	Specifies the IP address of a Gn interface configured on the system. **Important** The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.
all	Specifies that GTP-U echo requests will be sent to all SGSNs that currently have sessions with the GGSN service.
sgsn-address *ip_address*	Specifies that GTP-U echo requests will be sent to a specific SGSN.*ip_address* is the address of the SGSN receiving the requests.

The following figure displays a sample of this command's output showing a successful GTPU echo-test from a GGSN service bound to address 192.168.157.32 to an SGSN with an address of 192.168.157.2.

```
GTPU test echo
--------------
SGSN: 192.168.157.2   Tx/Rx:  1/1  RTT(ms): 24   (COMPLETE)
```

Using the GTPv0 Test Echo Command

This command tests the GGSN's ability to exchange GPRS Tunneling Protocol version 0 (GTPv0) packets with the specified SGSNs which can be useful troubleshooting and/or monitoring.

The test is performed by the system sending GTPv0 echo request messages to the specified SGSN(s) and waiting for a response.

Important This command must be executed from within the context in which at least one GGSN service is configured.

The command has the following syntax:

gtpv0 test echo src-address *gn_address* { **all** | **sgsn-address** *ip_address* }

Keyword/Variable	Description
src-address *gn_address*	Specifies the IP address of a Gn interface configured on the system. **Important** The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.
all	Specifies that GTPv0 echo requests will be sent to all SGSNs that currently have sessions with the GGSN service.
sgsn-address *ip_address*	Specifies that GTPv0 echo requests will be sent to a specific SGSN.*ip_address* is the address of the SGSN to receiving the requests.

The following figure displays a sample of this command's output showing a successful GTPv0 echo-test from a GGSN service bound to address 192.168.157.32 to an SGSN with an address of 192.168.157.2.

```
GTPv0 test echo
--------------
SGSN: 192.168.157.2 Tx/Rx: 1/1 RTT(ms):14 (COMPLETE)Recovery: 210(0xD2)
```

Using the DHCP Test Command

This command tests the system's ability to communicate with a Dynamic Host Control Protocol (DHCP) server. Testing is performed on a per-DHCP service basis for either a specific server or all servers the DHCP service is configured to communicate with. This functionality is useful for troubleshooting and/or monitoring.

Once executed, the test attempts to obtain an IP address from the DHCP server(s) and immediately release it.

Important This command must be executed from within the context in which at least one GGSN service is configured.

The command has the following syntax:

dhcp test dhcp-service *svc_name* [**all** | **server** *ip_address*]

Keyword/Variable	Description
dhcp-service *svc_name*	The name of the DHCP service. *svc_name* can be from 1 to 63 alpha and/or numeric characters in length and is case sensitive.
all	Tests DHCP functionality for all servers.
server *ip_address*	Tests DHCP functionality for the server.

The following figure displays a sample of this command's output showing a successful DHCP test for a DHCP service called DHCP-Gi to a server with an IP address of 192.168.16.2. The IP address provided during the test was 192.168.16.144.

```
DHCP test status for service <DHCP-Gi>:
  Server address: 192.168.16.2            Status: Tested
    Lease address: 192.168.16.144          Lease Duration: 600 secs.
```

Testing GTPP Accounting with a CGF

When used to test a CGF, this tool causes the system to send GTPP echo packets to the specified CGF(s).

Important This tool must be executed from the context in which GTPP functionality is configured.

To execute the GTPP accounting test tool enter the following command:

gtpp test accounting { all | cgf-server *ip_address* **}**

Keyword/Variable	Description
all	Tests all CGFs configured within the given context.
cgf-server*ip_address*	Tests a specific CGF configured within the given context.

The command's response will display whether the CGF is active or unreachable.

Testing GTPP Connectivity with a GSS

When used to test a GTPP Storage Server, this tool causes the system to send GTPP echo packets to the specified GSS for checking connectivity and provide round trip time.

Important This tool must be executed from the context in which GTPP functionality is configured.

To execute the GSS connectivity test tool enter the following command:

gtpp test storage-server [address *ip-address* **port** *udp-port***]**

Keyword/Variable	Description
storage-server	Tests configured GSS within the given context.
address *ip_address* **port** *udp_port*	Tests connectivity with GSS having *ip_address* and *udp_port* before configuring it within the given context.

The command's response will display whether the GSS is active or unreachable.