



# 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
<b>callid</b> <i>call_id</i>	Specifies that the test is executed for a subscriber with a specific call identification number (callid). <i>call_id</i> is the specific call identification number that you wish to test.
<b>ipaddr</b> <i>ip_address</i>	Specifies that the test is executed for a subscriber with a specific IP address. <i>ip_address</i> is the specific IP address that you wish to test.

Keyword/Variable	Description
<b>msid</b> <i>ms_id</i>	Specifies that the test is executed for a subscriber with a specific mobile station identification (MSID) number. <i>ms_id</i> is the specific mobile station identification number that you wish to test.
<b>username</b> <i>subscriber_name</i>	Specifies that the test is executed for a subscriber with a specific username. <i>subscriber_name</i> 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
<b>echo src-address</b> <i>gn_address</i>	Specifies the IP address of a Gn interface configured on the system.  <b>Important</b> The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.
<b>all</b>	Specifies that GTP-C echo requests will be sent to all SGSNs that currently have sessions with the GGSN service.
<b>sgsn-address</b> <i>ip_address</i>	Specifies that GTP-C echo requests will be sent to a specific SGSN. <i>ip_address</i> 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
<b>src-address</b> <i>gn_address</i>	Specifies the IP address of a Gn interface configured on the system.  <b>Important</b> The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.
<b>all</b>	Specifies that GTP-U echo requests will be sent to all SGSNs that currently have sessions with the GGSN service.
<b>sgsn-address</b> <i>ip_address</i>	Specifies that GTP-U echo requests will be sent to a specific SGSN. <i>ip_address</i> 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
<b>src-address</b> <i>gn_address</i>	Specifies the IP address of a Gn interface configured on the system.  <b>Important</b> The IP address of the system's Gn interface must be bound to a configured GGSN service prior to executing this command.
<b>all</b>	Specifies that GTPv0 echo requests will be sent to all SGSNs that currently have sessions with the GGSN service.
<b>sgsn-address</b> <i>ip_address</i>	Specifies that GTPv0 echo requests will be sent to a specific SGSN. <i>ip_address</i> 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
<b>dhcp-service</b> <i>svc_name</i>	The name of the DHCP service. <i>svc_name</i> can be from 1 to 63 alpha and/or numeric characters in length and is case sensitive.
<b>all</b>	Tests DHCP functionality for all servers.
<b>server</b> <i>ip_address</i>	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:

```
gtp test accounting { all | cgf-server ip_address }
```

Keyword/Variable	Description
<b>all</b>	Tests all CGFs configured within the given context.
<b>cgf-server</b> <i>ip_address</i>	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:

```
gtp test storage-server [address ip-address port udp-port]
```

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

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

