

# show gprs access-point

To obtain information about access points on the GGSN, use the **show gprs access-point** privileged EXEC command.

**show gprs access-point** [*access-point-index*] [**address-allocation**] [**all**]

<b>Syntax Description</b>	<i>access-point-index</i>	Index number of an access point. Information about that access point is shown.
	<b>address-allocation</b>	Information about dynamically allocated mobile station (MS) addresses and lease terms for the access point is shown.
	<b>all</b>	Information about all access points on the GGSN is shown.

**Defaults** No default behavior or values.

**Command Modes** Privileged EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.1(1)GA	This command was introduced.
	12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

**Usage Guidelines**

Use the **show gprs access-point** command to obtain information about an individual access point or about all access points.

Use the *access-point-index* argument to specify a particular access point number for which you want to obtain information.

Use the **address-allocation** keyword to obtain information about dynamically allocated MS addresses and lease terms by access point.

Use the **all** keyword to obtain information about all access points in an abbreviated format.

**Examples**

The following is sample output of the **show gprs access-point** command:

```
router# show gprs access-point 1
  apn_index 1          apn_name = gprs.somewhere.com
  apn_type: ip  apn_mode: transparent
  dynamic_address_pool: not configured
  apn_dhcp_server: 10.100.0.3
  apn_dhcp_gateway_addr: 10.0.0.0
  apn_radius_server: 10.0.0.0
  apn_charging_gw: 10.0.0.0
  apn_backup_charging_gw: 10.0.0.0
  subscribe_required = 0
  deactivate_pdp_context_on violation = 0
  network_activation_allowed = 0
  number of ip_address_allocated = 0

Total number of PDP in this APN :4
```

Table 3 describes the fields shown in the display.

**Table 3** *show gprs access-point Field Descriptions*

Field	Description
apn_backup_charging_gw	IP address of the secondary (backup) charging gateway. <b>Note</b> This gateway can not be configured on the GGSN.
apn_charging_gw	IP address of the primary charging gateway. <b>Note</b> This gateway can not be configured on the GGSN.
apn_dhcp_gateway_addr	IP address of the DHCP gateway, if configured.
apn_dhcp_server	IP address of the DHCP server, if configured.
apn_index	Number assigned to this access point.
apn_mode	Indicates whether security is transparent or non-transparent.
apn_name	Access-point number name.
apn_radius_server	IP address of RADIUS server, if configured.
apn_type	Protocol used for this access-point number.
deactivate_pdp_context_on violation	Current setting for the <b>access-violation</b> command: 0 indicates that the default setting is active (user packets are discarded); 1 indicates that the optional setting is active (mobile sessions are terminated when there is an access violation).
dynamic_address_pool	Current setting for the <b>ip-address-pool</b> command.
network_activation_allowed	Not supported in the current release.
number of ip_address_allocated	Number of IP addresses allocated to MS users.
subscribe_required	Current setting for the <b>subscription-required</b> command: 0 indicates no subscription is required; 1 indicates a subscription is required for access-point number users.
Total number of PDP in this APN	Number of PDP contexts active for this access-point number.

**Related Commands**

Command	Description
<a href="#">access-point-name</a>	Specifies the network (or domain) name for a PDN that users can access from the GGSN at a defined access point.

# show gprs charging parameters

To display information about the current GPRS charging configuration, use the **show gprs charging parameters** privileged EXEC command.

## show gprs charging parameters

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)GA	This command was introduced.
	12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

**Usage Guidelines** Use the **show gprs charging parameters** command to display the currently active charging parameters for the GGSN.

**Examples** The following is sample output of the **show gprs charging parameters** command:

```
router# show gprs charging parameters

      GPRS Charging Protocol Parameters
      =====
* Default Charging Gateway Address:      172.23.55.1
* Default Backup Charging Gateway Address: 172.23.56.23
* Current Active Charging Gateway Address: 172.23.55.1
* Current Backup Charging Gateway Address: 172.23.56.23
* Charging Server Switch-Over Timer:     <60> seconds.
* Charging Path Protocol (0:UDP, 1:TCP):  <0>.
* Charging MAP DATA TOS:                 <3>.
* Charging Transfer Interval:             <105> seconds.
* Charging Transfer Threshold:           <1048576> bytes.
* Charging CDR Aggregation Limit:        <255> CDRs per msg.
* Charging Packet Queue Size:            <128> messages.
- NO Tariff Time Changes.
```

Table 4 describes the fields shown in the display.

**Table 4** show gprs charging parameters Field Descriptions

Field	Description
Charging CDR Aggregation Limit	Maximum number of CDRs that the GGSN aggregates in a charging data transfer message to the charging gateway. You can configure this limit using the <b>gprs charging cdr-aggregation-limit</b> command.
Charging MAP DATA TOS	Type of service (ToS) priority currently configured for GPRS charging packets. Value (between 0 and 5) is set in the precedence bits of the IP header of charging packets. You can configure the ToS mapping using the <b>gprs charging map data tos</b> command.
Charging Packet Queue Size	Maximum number of unacknowledged charging data transfer requests that the GGSN maintains in its queue. You can configure the maximum queue size using the <b>gprs charging packet-queue-size</b> command.
Charging Path Protocol (0:UDP, 1:TCP)	Binary value representing the protocol in use between the GGSN and the charging gateway. When 0, UDP is in use; when 1, TCP is in use. You can configure the charging path protocol using the <b>gprs charging path-protocol</b> command.
Charging Server Switch-Over Timer	Amount of time (in seconds) that the GGSN waits before sending charging data to the backup charging gateway, after the active charging gateway fails. You can configure this period of time using the <b>gprs charging server-switch-timer</b> command.
Charging Tariff Time Changes	Time of day when GPRS charging tariffs change. You can configure this time using the <b>gprs charging tariff-time</b> command.
Charging Transfer Interval	Amount of time (in seconds) that the GGSN waits before checking and sending any closed CDRs to the charging gateway. You can configure this period of time using the <b>gprs charging transfer interval</b> command.
Charging Transfer Threshold	Maximum size (in bytes) that the GGSN maintains in a charging container before closing it and updating the CDR. You can configure the container volume using the <b>gprs charging container volume-threshold</b> command.
Current Active Charging Gateway Address	IP address of the charging gateway to which the GGSN is currently sending charging data. You can configure the primary charging gateway using the <b>gprs default charging-gateway</b> command.

**Table 4** *show gprs charging parameters Field Descriptions (continued)*

Field	Description
Current Backup Charging Gateway Address	IP address of the backup charging gateway to which the GGSN will send charging data if the current active charging gateway becomes unavailable.  You can configure the backup charging gateway using the <b>gprs default charging-gateway</b> command.
Default Backup Charging Gateway Address	IP address of the default secondary, or backup, charging gateway.  You can configure the default backup charging gateway using the <b>gprs default charging-gateway</b> command.
Default Charging Gateway Address	IP address of the default primary charging gateway.  You can configure the default primary charging gateway using the <b>gprs default charging-gateway</b> command.

**Related Commands**

Command	Description
<a href="#">show gprs charging statistics</a>	Displays current statistics for the transfer of charging packets between the GGSN and charging gateways.

# show gprs charging statistics

To display current statistics about the transfer of charging packets between the GGSN and charging gateways, use the **show gprs charging statistics** privileged EXEC command.

**show gprs charging statistics** { **tid** *tunnel\_id* | **access-point** *access-point-index* | **all** }

Syntax Description	Parameter	Description
	<b>tid</b> <i>tunnel_id</i>	Specifies a tunnel ID for which you want to display charging statistics.
	<b>access-point</b> <i>access-point-index</i>	Specifies the index of the access point for which you want to display statistics.
	<b>all</b>	Requests display of all charging statistics.

**Defaults** No default behavior or values.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)GA	This command was introduced.
	12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

**Usage Guidelines** Use the **show gprs charging statistics** command to display statistics for the transfer of charging packets between the GGSN and charging gateways.

**Examples** The following is sample output of the **show gprs charging statistics** command:

```
router# show gprs charging statistics all
      GPRS Charging Protocol Statistics
      =====
* Total Number of APNs for Charging:                <1>
* Total Number of CDRs for Charging:                <1>
* Total Number of CLOSED CDRs for Charging:         <0>
* Total Number of Containers for Charging:          <0>
* Total Number of pending unack. CDR_Output_Msgs:  <0>
* Total Number of CDR_Output_Msgs sent:            <7>

-- Charging Gateway Statistics --
* Charging Gateway Down Count:                      <5>
* Last Charging Gateway Down Time                   =      2000/10/3 18:47:22
```

Table 5 describes the fields shown in the display.

**Table 5** *show gprs charging statistics Field Descriptions*

Field	Description
Charging Gateway Down Count	Number of times that the charging gateway has transitioned its state (from up or unknown, to down) since the last startup of the GGSN.
Last Charging Gateway Down Time	Recorded system time when the charging gateway was last in a down state.
Total Number of APNs for Charging	Number of access points for which charging data has been collected since the last startup of the GGSN.
Total Number of CDRs for Charging	Number of currently open and closed G-CDRs on the GGSN.
Total Number of CDR_Output_Msgs sent	Number of G-CDR output messages that the GGSN sent to the charging gateway and received acknowledgment for since the last startup of the GGSN.
Total Number of CLOSED CDRs for Charging	Number of currently closed G-CDRs that the GGSN has not yet sent to the charging gateway.
Total Number of Containers for Charging	Number of all currently open and closed charging containers for all G-CDRs on the GGSN.
Total Number of pending unack. CDR_Output_Msgs	Number of G-CDR output messages sent by the GGSN that are not acknowledged by the charging gateway.

#### Related Commands

Command	Description
<a href="#">show gprs charging parameters</a>	Displays the current GPRS charging parameters.

# show gprs gtp parameters

To display information about the current GPRS Tunneling Protocol (GTP) configuration on the GGSN, use the **show gprs gtp parameters** privileged EXEC command.

**show gprs gtp parameters**

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)GA	This command was introduced.
	12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

**Usage Guidelines** Use the **show gprs gtp parameters** command to display the current GTP parameters configured on the GGSN.

**Examples** The following is sample output of the **show gprs gtp parameters** command:

```
router# show gprs gtp parameters
      GTP path echo interval                = 60
      GTP signal max wait time T3_response  = 1
      GTP max retry N3_request              = 5
      GTP max hold time for old sgsn PDUs T3_tunnel= 20
      GTP buffer size for receiving N3_buffer = 8192
      GTP max pdp context                   = 45000
```

[Table 6](#) describes the fields shown in the display.

**Table 6** *show gprs gtp parameters Field Descriptions*

Field	Description
GTP buffer size for receiving N3_buffer	Current size of the N3 buffer, in bytes.
GTP max hold time for old sgsn PDUs T3_tunnel	Current setting specified by the <b>gprs gtp t3-tunnel</b> command. This command specifies the interval, in seconds, that a GGSN waits to forward a PDU to a requesting SGSN.

**Table 6** show gprs gtp parameters Field Descriptions (continued)

Field	Description
GTP max pdp context	Current setting, specified by <b>gprs maximum-pdp-context-allowed</b> command. This command specifies the maximum number of PDP contexts (mobile sessions) that can be activated on the GGSN.
GTP max retry N3_request	The maximum retry setting for N3 requests.
GTP path echo interval	Interval, in seconds, that the GGSN waits before resending echo responses.
GTP signal max wait time T3_response	Interval, in seconds, that the GGSN waits before responding to a T3 request.

**Related Commands**

Command	Description
<b>gprs gtp n3-buffer-size</b>	Specifies the size of the receive buffer that the GGSN uses to receive GTP signaling messages and packets sent through the tunneling protocol.
<b>gprs gtp n3-requests</b>	Specifies the maximum number of times that the GGSN attempts to send a signaling request.
<b>gprs gtp path-echo-interval</b>	Specifies the interval that the GGSN waits before sending an echo-request message to check for GTP path failure.
<b>gprs gtp t3-response</b>	Specifies the maximum time that the GGSN waits to respond to a signaling request message.
<b>gprs gtp t3-tunnel</b>	Specifies the length of time that the GGSN waits, after receiving a GTP context request message from the SGSN, before forwarding a PDU to the requesting SGSN.
<b>gprs maximum-pdp-context-allowed</b>	Specifies the maximum number of PDP contexts (mobile sessions) that can be activated on the GGSN.

# show gprs gtp path

To display information about one or more GTP paths between the GGSN and other GPRS devices, use the **show gprs gtp path** privileged EXEC command.

**show gprs gtp path** {*ip-address* | **all**}

Syntax Description		
	<i>ip-address</i>	Displays GTP path information for a specified IP address.
	<b>all</b>	Displays information for all GTP paths.

**Defaults** No default behavior or values.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)GA	This command was introduced.
	12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

**Usage Guidelines** Use the **show gprs gtp path** command to display information about one or more GTP paths from the GGSN.

**Examples** The following is sample output of the **show gprs gtp path** command:

```
router# show gprs gtp path all
      Total number of path : 1

path pointer      local address      Remote address
0x616378D0       10.10.10.1         1.1.1.1
```

[Table 7](#) describes the fields shown in the display.

**Table 7** show gprs gtp path Field Descriptions

Field	Description
local address	The local address for the path.
path pointer	The value of the GGSN internal pointer to the GTP path, in hexadecimal.
remote address	Address of the remote end of the path.
total number of paths	Total number of GTP paths.

# show gprs gtp pdp-context

To display a list of the currently active PDP contexts (mobile sessions), use the **show gprs gtp pdp-context** privileged EXEC command.

```
show gprs gtp pdp-context {tid tunnel_id | imsi imsi | path ip-address | access-point
access-point-index | pdp-type ip | qos-precedence {low | normal | high} | all}
```

Syntax Description		
<b>tid</b> <i>tunnel_id</i>		Displays PDP contexts by tunnel ID.
<b>imsi</b> <i>imsi</i>		Displays PDP contexts by International Mobile Subscriber Identity (IMSI).
<b>path</b> <i>ip-address</i>		Displays PDP contexts by IP address.
<b>access-point</b> <i>access-point-index</i>		Displays PDP contexts by access point.
<b>pdp-type</b> <i>ip</i>		Displays PDP contexts that are transmitted via IP.
<b>qos-precedence</b>		Displays PDP contexts for a specified GPRS quality of service precedence type. You can specify the following precedence types: <b>low</b> , <b>normal</b> , or <b>high</b> .
<b>all</b>		Displays all PDP contexts.

**Defaults** No default behavior or values.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)GA	This command was introduced.
	12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.
	12.2(1)	The MS International PSTN/ISDN Number (MSISDN) field was added to the output display.

**Usage Guidelines** Use the **show gprs gtp pdp-context** command to display the currently active PDP contexts on the GGSN. You can display PDP contexts by tunnel ID, by IMSI, by access point, by PDP type, and by GPRS QoS precedence, or you can display all PDP contexts.

### Interpreting the Effective Bandwidth

[Example 2](#) provides sample output from the **show gprs gtp pdp-context tid** command, which includes the field called effective bandwidth (in bps). The effective bandwidth is determined according to the QoS class (high, normal, or best effort) for the PDP context; it does not represent the actual bandwidth in use by the PDP context. The potential number of supported PDP contexts for that class of QoS can then be calculated according to the total amount of bandwidth (GSN resource) available to the GGSN.

For example, the default bandwidth for a PDP context in the best effort QoS class is 10 kbps. (You can configure this value using the **gprs canonical-qos best-effort bandwidth-factor** command.) The value 10 appears in the effective bandwidth field of the **show gprs gtp pdp-context tid** command for a PDP context in the best effort class.

To determine an estimate of the potential number of best effort PDP contexts that can be supported on the GGSN, you can divide the total bandwidth available on the GGSN by the effective bandwidth value. For example, the default bandwidth available on the GGSN is 1048576 kbps. (The total GSN resource available is reported in the total gsn\_resource field in the output of the **show gprs gtp status** command.) Therefore, you can divide 1048576 kbps by 10 kbps to yield support for approximately 104857 best effort PDP contexts.

**Examples**

**Example 1**

The following is sample output of the **show gprs gtp pdp-context all** command:

```

GGSN_1# show gprs gtp pdp-context all
TID                MS_ADDR          dynamic?          SGSN_addr         APN
-----
1111111111111111  10.2.0.1         0                 10.10.10.10      gprs.somewhere.com
3333333333333331  10.10.10.30     1                 10.10.10.10      gprs.somewhere.com
4444444444444441  10.60.0.4       1                 10.10.10.10      xyz.com
5555555555555551  10.2.0.51       0                 10.10.10.10      gprs.somewhere.com
8888888888888881  10.10.10.31    1                 10.10.10.10      gprs.somewhere.com
    
```

Table 8 describes the fields shown in the display.

**Table 8** show gprs gtp pdp-context Field Descriptions

Field	Description
APN	Access-point name for the access point on which the PDP context is active.
dynamic	The method used for address allocation for mobile station sessions; 0 indicates that static IP address mapping is used; 1 indicates dynamic address allocation through DHCP.
MS_ADDR	IP address of the mobile station.
SGSN_addr	IP address of the SGSN that is processing the packets.
TID	Tunnel ID for the PDP context.

**Example 2**

The following is sample output from the **show gprs gtp pdp-context tid** command:

```

router# show gprs gtp pdp-context tid 12F1111103000000
TID                MS_ADDR          dynamic?          SGSN_addr         APN
-----
12F1111103000000  10.1.1.1         0                 10.1.1.68         gprs.cisco.com

      current time :Jan 29 2001 10:30:36
      user_name (IMSI): 211F111130000000      MS address: 10.1.1.1
      MS International PSTN/ISDN Number (MSISDN): 21436587214365
    
```

```

sgsn_addr_signal: 10.1.1.68      ggsn_addr_signal: 10.100.100.1
signal_sequence: 32              seq_tpdu_up: 0
seq_tpdu_down: 0
upstream_signal_flow: 1          upstream_data_flow: 2
downstream_signal_flow: 187      downstream_data_flow: 170
RAupdate_flow: 0
pdp_create_time: Jan 29 2001 10:27:20
last_access_time: Jan 29 2001 10:27:20
mnrflag: 0                       tos mask map: 00
gprs qos_req: 1B021F             canonical Qos class(reg.): 01
gprs qos_neg: 1B031F            canonical Qos class(neg.): 01
effective bandwidth: 10
rcv_byte_count: 0                rcv_pkt_count: 0
send_byte_count: 0               send_pkt_count: 0
fast_up_pkt: 0                   fast_up_byte : 0
fast_down_pkt: 0                 fast_down_byte : 0
fast_drop : 0
charging_id: 1                   pdp reference count : 2

```

Table 9 describes the fields shown in the display:

**Table 9** show gprs gtp pdp-context tid Field Descriptions

Field	Description
APN	Access point name where the PDP context is active.
canonical Qos class (neg.)	Negotiated canonical quality of service class for the PDP context.
canonical Qos class (req.)	Requested canonical quality of service class by the PDP context.
charging_id	Unique 4-octet value generated by the GGSN for the PDP context. The value 0 is reserved.
current time	Date and time of the show command output.
downstream_data_flow	Flow label of downlink G-PDUs.
downstream_signal_flow	Flow label of downlink signaling messages.
dynamic	Method used for MS address allocation, with the following values: <ul style="list-style-type: none"> <li>0—static IP address mapping</li> <li>1—dynamic address allocation using DHCP</li> </ul>
effective bandwidth	Estimated number of bits per second allocated by the GGSN for this PDP context. The effective bandwidth is determined according to the QoS class (high, normal, or best effort) for the PDP context. The potential number of supported PDP contexts for that class of QoS can then be calculated according to the total amount of bandwidth (GSN resource) available to the GGSN. <p><b>Note</b> The effective bandwidth does not represent actual bandwidth usage.</p>
fast_down_byte	Total number of G-PDU bytes fast switched on the downlink, from the GGSN to the SGSN.
fast_down_pkt	Total number of G-PDU packets fast switched on the downlink, from the GGSN to the SGSN.
fast_drop	Total number of G-PDU packets dropped during fast switching.

**Table 9** show gprs gtp pdp-context tid Field Descriptions (continued)

Field	Description
fast_up_byte	Total number of G-PDU bytes fast switched on the uplink, from the SGSN to the GGSN.
fast_up_pkt	Total number of G-PDU packets fast switched on the uplink, from the SGSN to the GGSN.
ggsn_addr_signal	IP address of the GGSN.
gprs_qos_neg	Negotiated quality of service for the PDP context. The field is in the format <i>vwxyz</i> , which represents the following QoS classes (as defined in the GSM specifications for quality of service profiles): <ul style="list-style-type: none"> <li>• <i>v</i>—Delay class</li> <li>• <i>w</i>—Reliability class</li> <li>• <i>x</i>—Peak throughput class</li> <li>• <i>y</i>—Precedence class</li> <li>• <i>zz</i>—Mean throughput class</li> </ul>
gprs_qos_req	Requested quality of service by the PDP context. The field is in the format <i>vwxyz</i> , which represents the following QoS classes (as defined in the GSM specifications for quality of service profiles): <ul style="list-style-type: none"> <li>• <i>v</i>—Delay class</li> <li>• <i>w</i>—Reliability class</li> <li>• <i>x</i>—Peak throughput class</li> <li>• <i>y</i>—Precedence class</li> <li>• <i>zz</i>—Mean throughput class</li> </ul>
last_access_time	Time when the PDP context for this TID was last accessed. The date format is MMM DD YYYY. The time format is hours:minutes:seconds.  When a signaling packet or data packet for a PDP context arrives on the GGSN, the last_access_time is reset to the current date and time. If the last_access_time exceeds the purge timer for idle PDP contexts, then the PDP context is purged by the GGSN.
mnrflag	Mobile not reachable flag, with the following values: <ul style="list-style-type: none"> <li>• 0—flag is off</li> <li>• 1—flag is on, indicating that the MS is not reachable</li> </ul>
MS_ADDR and MS Address	IP address of the mobile station.
MS International PSTN/ISDN Number (MSISDN)	Integrated Services Digital Network (ISDN) number of the mobile station.
pdp_create_time	Time when the PDP context for this TID was created. The date format is MMM DD YYYY. The time format is hours:minutes:seconds.

**Table 9** show gprs gtp pdp-context tid Field Descriptions (continued)

Field	Description
pdp reference count	Number of subsystems on the GGSN that are aware of the PDP context. For example, if both the charging and GTP subsystems are aware of the PDP context, then the PDP reference counter shows a value of 2.
RAupdate_flow	Flow Label Data II information element in GTP header. This IE contains the flow label for data transmission between old and new SGSNs for a particular PDP context. This IE is requested by the new SGSN.
rcv_byte_count	Total number of G-PDU bytes received. For the GGSN, this is the total byte count on the uplink.
rcv_pkt_count	Total packet count of received G-PDUs. For the GGSN, this is the total byte count on the uplink.
send_byte_count	Total number of G-PDU bytes sent by the GGSN.
send_pkt_count	Total number of G-PDU packets sent by the GGSN.
seq_tpdu_down	Last sequence number used in the downlink T-PDU. This number wraps to 0 after 65535.
seq_tpdu_up	Last sequence number used in the uplink T-PDU. This number wraps to 0 after 65535.
SGSN_addr	IP address of the SGSN that is processing the packets.
sgsn_addr_signal	
signal_sequence	Last sequence number used in the GTP signaling message.
TID	Tunnel ID for the PDP context. This value corresponds to the IMSI plus NSAPI.
tos mask map	ToS value in IP header of this PDP context.
upstream_data_flow	Flow label of uplink G-PDUs.
upstream_signal_flow	Flow label of uplink signaling messages.
user_name (IMSI)	International mobile subscriber identity for the PDP context.

**Related Commands**

Command	Description
<a href="#">show gprs access-point</a>	Displays information about access points on the GGSN.

# show gprs gtp statistics

To display the current GPRS Tunneling Protocol (GTP) statistics for the GGSN (such as IE, GTP signaling, and GTP PDU statistics), use the **show gprs gtp statistics** privileged EXEC command.

## show gprs gtp statistics

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)GA	This command was introduced.
	12.1(2)GB	The following fields were added to the output display: <ul style="list-style-type: none"> <li>total created_pdp</li> <li>total deleted_pdp</li> </ul>
	12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

**Usage Guidelines** Use the **show gprs gtp statistics** command to display the GTP statistics for the GGSN. The counter values displayed by this command represent totals accumulated since the last time the statistical counters were cleared using the **clear gprs gtp statistics** command.

**Examples** The following is sample output of the **show gprs gtp statistics** command:

```
router# show gprs gtp statistics
GPRS GTP Statistics:
  version_not_support      0          msg_too_short          0
  unknown_msg              0          unexpected_sig_msg     0
  unexpected_data_msg     12762      mandatory_ie_missing   0
  mandatory_ie_incorrect  0          optional_ie_invalid    0
  ie_unknown               0          ie_out_of_order       0
  ie_unexpected            0          ie_duplicated          0
  optional_ie_incorrect   0          pdp_activation_rejected 0
  path_failure             0          total_dropped          0
  no_resource              0          get_pak_buffer_failure 0
  rcv_signalling_msg      27854     snd_signalling_msg     27854
  rcv_pdu_msg              12762     snd_pdu_msg            0
  rcv_pdu_bytes           1174104   snd_pdu_bytes          0
  total_created_pdp        4          total_deleted_pdp      3
  length_mismatch         0
```

Table 10 describes the fields shown in the display.

**Table 10** *show gprs gtp statistics Field Descriptions*

Field	Description
get_pak_buffer_failure	Number of times the GGSN has failed to obtain a GTP packet.
ie_duplicated	Number of GTP messages received with a duplicated information element (IE).
ie_out_of_order	Number of GTP messages received with an IE out of order.
ie_unexpected	Number of GTP messages received with an IE that is not expected in the GTP message, but is defined in GTP. GTP messages with unexpected IEs are processed as if the IE was not present.
ie_unknown	Number of GTP messages received with an IE of an unknown type.
length_mismatch	Number of GTP messages rejected because the length field of the UDP and GTP headers did not match.
mandatory_ie_incorrect	Number of GTP messages received with an incorrect mandatory IE—for example, with an IE of incorrect length.
mandatory_ie_missing	Number of GTP messages received that are missing a mandatory IE.
msg_too_short	Number of GTP messages received that are too short to hold the GTP header for the supported GTP version.
no_resource	Number of times a resource was not available for transmitting GTP messages. For example, the router may be out of memory.
optional_ie_incorrect	Number of GTP messages received with an incorrect optional IE. This prevents the GGSN from processing the GTP message correctly.
optional_ie_invalid	Number of GTP messages received with an IE containing a value outside the defined range for that IE. GTP messages with invalid optional IEs are processed as if the IE were not present.
path_failure	Number of path failures on the GPRS Support Node (GSN).
pdp_activation_rejected	Number of times a request to activate a PDP context was rejected.
rcv_pdu_bytes	Number of bytes received in protocol data units (PDUs).
rcv_pdu_msg	Number of PDU messages received.
rcv_signaling_msg	Number of GTP signaling messages received.
snd_pdu_bytes	Number of PDU bytes sent.
snd_pdu_msg	Number of PDU messages sent.
snd_signalling_msg	Number of GTP signaling messages sent.
total_dropped	Number of GTP messages dropped.
unexpected_data_msg	Number of GTP PDUs received for nonexistent PDP contexts.
unexpected_sig_msg	Number of unexpected GTP signaling messages received—for example, a message received on the wrong end of the tunnel, or a response message received for a request that was not sent by the GGSN.
unknown_msg	Number of unknown GTP messages received.

**Table 10** *show gprs gtp statistics Field Descriptions (continued)*

Field	Description
version_not_support	Number of GTP messages received from devices running an unsupported version of the GTP.
total created_pdp	Total number of PDP contexts created since system startup (supports Special Mobile Group (SMG)-28 standards level and later).
total deleted_pdp	Total number of PDP contexts deleted since system startup (supports SMG-28 standards level and later).

**Related Commands**

Command	Description
<a href="#">show gprs charging statistics</a>	Displays current statistics for the transfer of charging packets between the GGSN and charging gateways.
<a href="#">show gprs gtp parameters</a>	Displays information about the current GTP configuration on the GGSN.
<a href="#">show gprs gtp path</a>	Displays information about one or more GTP paths between the GGSN and other GPRS devices.
<a href="#">show gprs gtp pdp-context</a>	Displays a list of the currently active PDP contexts (mobile sessions).
<a href="#">show gprs gtp status</a>	Displays information about the current status of GTP on the GGSN.

# show gprs gtp status

To display information about the current status of the GPRS Tunneling Protocol (GTP) on the GGSN (such as activated PDP contexts, throughput, and QoS statistics), use the **show gprs gtp status** privileged EXEC command.

## show gprs gtp status

**Syntax Description** This command has no arguments or keywords.

**Defaults** No default behavior or values.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(1)GA	This command was introduced.
	12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

**Usage Guidelines** Use the **show gprs gtp status** command to display information about the status of the GTP running on the GGSN.

The values displayed by the **show gprs gtp status** command show totals since the GGSN was started. Unlike the values displayed by the **show gprs gtp statistics** command, these values cannot be cleared.

**Examples** The following example shows output from the **show gprs gtp status** command:

```
router# show gprs gtp status
GPRS GTP Status:
  gsn_used_bandwidth      0.0  total_gsn_resource      1048576.0
  activated_pdp           0    mean_throughput_premium  0.0
  mean_throughput_normal  0.0  mean_throughput_besteffort 0.0

  qos_high_pdp            0    qos_normal_pdp          0
  qos_low_pdp             0    qos_premium_mean-throughput-deviation 0.100
```

[Table 11](#) describes the fields shown in the display.

**Table 11** *show gprs gtp status Field Descriptions*

Field	Description
activated_pdp	Number of PDP contexts currently activated.
gsn_resource	Currently available GSN resources.
gsn_used_bandwidth	Currently used bandwidth, in bits per second.

**Table 11** *show gprs gtp status Field Descriptions (continued)*

<b>Field</b>	<b>Description</b>
mean_throughput_besteffort	Total mean throughput for best effort QoS users, in bytes.
mean_throughput_normal	Total mean throughput for normal QoS users, in bytes.
mean_throughput_premium	Total mean throughput for premium QoS users, in bytes.
qos_high_pdp	Current number of PDP contexts that have a high QoS.
qos_low_pdp	Current number of PDP contexts that have a low QoS.
qos_normal_pdp	Current number of PDP contexts that have a normal QoS.
qos premium mean-throughput-deviation	Current mean throughput deviation for QoS.

**Related Commands**

<b>Command</b>	<b>Description</b>
<a href="#">encapsulation gtp</a>	Specifies GTP as the encapsulation type for packets transmitted over the virtual template interface.
<a href="#">show gprs gtp statistics</a>	Displays the current GTP statistics for the GGSN.

# subscription-required

To specify that a subscription is required to access a PDN through a particular access point, use the **subscription-required** access-point configuration command. To restore the default setting (no subscription is required), use the **no** form of the command.

**subscription-required**

**no subscription-required**

## Defaults

No subscription is required

## Command Modes

Access-point configuration.

## Command History

Release	Modification
12.1(1)GA	This command was introduced.
12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

## Usage Guidelines

Use the **subscription-required** command to specify that a subscription is required for user access to PDNs through the current access point. The subscription must be set up by the service provider, and subscription information must be passed with the mobile user's PDP context requests.

## Examples

The following example shows that access-point subscription is required:

```
access-point 1
 access-point-name gprs.somewhere.com
 dhcp-server 125.100.0.3
 subscription-required
 exit
```

# use-interface

To configure the GGSN to use a specific interface for user access at a particular access point, use the **use-interface** access-point configuration command. To deactivate the use of a specific interface, use the **no** form of the command.

```
use-interface interface_name next-hop-address ip_address
```

```
no use-interface interface_name next-hop-address ip_address
```

## Syntax Description

<i>interface_name</i>	Name of an interface on the router to be used by the specified access point.
<i>ip_address</i>	IP address of the gateway device for the virtual private network.

## Defaults

No specific interface is used.

## Command Modes

Access-point configuration

## Command History

Release	Modification
12.1(1)GA	This command was introduced.
12.1(3)T	This command was integrated in Cisco IOS Release 12.1(3)T.

## Usage Guidelines

Use the **use-interface** command to specify a specific router interface to be used with a specified access point. The *interface\_name* argument specifies the name of the interface and the *ip-address* argument specifies the IP address of the Internet gateway device used for the virtual private network.

## Examples

The following example specifies that access-point 1 will use the FastEthernet 4/0 interface on the router:

```
access-point 1
  access-point-name gprs.anywhere.com
  dhcp-server 99.100.0.3
  use-interface FastEthernet4/0 next-hop-address 4.0.0.2
  ip-access-group 101 in
  exit
```