



Configuring Charging on the GGSN

This chapter describes how to configure the charging function on the GGSN. Charging processing is enabled by default on the GGSN. There are several ways to customize communication with a charging gateway. Many of the default values for the charging options will provide a satisfactory configuration until you become more familiar with your network and decide to customize the charging interface.

For a complete description of the GPRS commands in this chapter, refer to the *Cisco IOS Mobile Wireless Command Reference*. To locate documentation of other commands that appear in this chapter, use the command reference master index or search online.

This chapter includes the following sections:

- [Configuring the Charging Gateway, page 21](#) (Required)
- [Configuring the Transport Protocol for the Charging Gateway, page 22](#) (Optional)
- [Customizing the Charging Gateway, page 23](#) (Optional)
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Configuring the Charging Gateway

To configure the default charging gateway, use the following command in global configuration mode:

Command	Purpose
<pre>router(config)# gprs default charging-gateway {ip-address name} [{ip-address name}]</pre>	<p>Specifies a primary charging gateway (and backup), where:</p> <ul style="list-style-type: none">• <i>ip-address</i>—Specifies the IP address of a charging gateway. The second (optional) <i>ip-address</i> argument specifies the IP address of a secondary charging gateway.• <i>name</i>—Specifies the host name of a charging gateway. The second (optional) <i>name</i> argument specifies the host name of a secondary charging gateway.

Changing the Default Charging Gateway

To change the default charging gateway, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	<code>router(config)# gprs default charging-gateway 10.1.1.1</code>	Specifies a primary charging gateway at IP address 10.1.1.1.
Step 2	<code>router(config)# no gprs default charging-gateway 10.1.1.1</code>	Removes the primary charging gateway at IP address 10.1.1.1.
Step 3	<code>router(config)# gprs default charging-gateway 10.2.2.2</code>	Specifies the new default primary charging gateway at IP address 10.2.2.2.

Configuring the Transport Protocol for the Charging Gateway

You can configure the GGSN to support either Transport Control Protocol (TCP) or User Datagram Protocol (UDP) as the transport path protocol for communication with the charging gateway.

The GPRS default configuration specifies UDP, which is a connectionless protocol that is considered an unreliable transport method but can yield greater performance.

Configuring TCP as the Charging Gateway Path Protocol

TCP is a connection-based protocol that provides reliable transmission through packet acknowledgment. To specify TCP as the transport path protocol, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	<code>router(config)# gprs charging path-protocol tcp</code>	Specifies that the TCP networking protocol is used by the GGSN to transmit and receive charging data.
Step 2	<code>router(config)# gprs charging cg-path-requests 1</code>	Specifies that the GGSN waits 1 minute before retrying a request over the data path to the charging gateway.

Configuring UDP as the Charging Gateway Path Protocol

The GPRS default configuration specifies UDP as the transport path protocol to the charging gateway. If you need to reconfigure the charging gateway for UDP transport, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	<code>router(config)# gprs charging path-protocol udp</code>	Specifies that the UDP networking protocol is used by the GGSN to transmit and receive charging data. The default value is UDP.
Step 2	<code>router(config)# gprs gtp path-echo-interval interval</code>	Specifies the number of seconds that the GGSN waits before sending an echo-request message to check for GTP path failure. The default value is 60 seconds.

Customizing the Charging Gateway

For the GPRS charging options, the default values represent recommended values. Other optional commands also are set to default values, but Cisco Systems recommends modifying these commands to optimize your network as necessary, or according to your router hardware.

Use the following global configuration commands to fine-tune charging processing on the GGSN:

Command	Purpose
<code>router(config)# gprs charging cdr-aggregation-limit <i>CDR_limit</i></code>	Specifies the maximum number of CDRs that the GGSN aggregates in a charging data transfer message to a charging gateway.
<code>router(config)# gprs charging cdr-option local-record-sequence-number</code>	Enables the GGSN to use the local record sequence number field in G-CDRs.
<code>router(config)# gprs charging cdr-option node-id</code>	Enables the GGSN to specify the node that generated the CDR in the node ID field in G-CDRs.
<code>router(config)# gprs charging cdr-option no-partial-cdr-generation</code>	Disables the GGSN from creating non-primary partial G-CDRs.
<code>router(config)# gprs charging cdr-option packet-count</code>	Enables the GGSN to provide uplink and downlink packet counts in the optional record extension field in G-CDRs.
<code>router(config)# gprs charging cdr-option served-msisdn</code>	Enables the GGSN to provide the MSISDN number from the create PDP context request in G-CDRs.
<code>router(config)# gprs charging cg-path-requests <i>minutes</i></code>	Specifies the number of minutes that the GGSN waits before trying to establish the TCP path to the charging gateway when TCP is the specified path protocol.
<code>router(config)# gprs charging container volume-threshold <i>threshold_value</i></code>	Specifies the maximum number of bytes that the GGSN maintains in a user's charging container before closing it and updating the CDR.
<code>router(config)# gprs charging disable</code>	Disables charging transactions on the GGSN.
<code>router(config)# gprs charging flow-control private-echo</code>	Implements an echo request with private extensions for maintaining flow control on packets transmitted to the charging gateway.
<code>router(config)# gprs charging map data tos <i>tos_value</i></code>	Specifies an IP ToS mapping for GPRS charging packets.
<code>router(config)# gprs charging packet-queue-size <i>queue_size</i></code>	Specifies the maximum number of unacknowledged charging data transfer requests that the GGSN maintains in its queue.
<code>router(config)# gprs charging path-protocol {udp tcp}</code>	Specifies the protocol that the GGSN uses to transmit and receive charging data.
<code>router(config)# gprs charging server-switch-timer <i>seconds</i></code>	Specifies a timeout value that determines when the GGSN attempts to find an alternate charging gateway after a destination charging gateway cannot be located or becomes unusable.
<code>router(config)# gprs charging tariff-time <i>time</i></code>	Specifies a time of day when GPRS charging tariffs change.
<code>router(config)# gprs charging transfer interval <i>seconds</i></code>	Specifies the number of seconds that the GGSN waits before it transfers charging data to the charging gateway.

For information about configuring GPRS GTP options, see the [“Customizing the GPRS Configuration” section on page 19](#) in the [“Configuring GGSN Services”](#) chapter.

Disabling Charging Processing



Caution

The **gprs charging disable** command removes charging data processing on the GGSN, which means that the data required to bill customers for network usage is not being collected by the GGSN nor sent to the charging gateway. Cisco Systems, Inc. recommends that you avoid using this command in production GPRS network environments. When necessary to use this command, use it with extreme care and reserve its usage only under non-production network conditions.

You can disable charging on the GGSN only when all open CDRs have been processed and sent to the charging gateway. To clear the current GPRS CDRs, use the **clear gprs charging cdr** privileged EXEC command.

To disable charging processing on the GGSN, use the following command beginning in global configuration mode:

Command	Purpose
<code>router(config)# gprs charging disable</code>	Disables charging transactions on the GGSN.