



Meter Pulse Messages Support

Document Release History

Publication Date	Comments
06/02/03	Initial version of the document.

Feature History

Release	Modification
9.5(2)	This feature was introduced in the Cisco Media Gateway Controller (MGC) Software Release 9.5(2).

The Metering Pulse Messages (MPM) Support Feature is described in the following sections:


- [Feature Overview, page 1](#)
- [Supported Platforms, page 4](#)
- [Prerequisites, page 4](#)
- [Configuration Tasks, page 4](#)
- [Charging Data Structures, page 4](#)
- [Provisioning Examples, page 12](#)
- [Command Reference, page 13](#)
- [Reference Information, page 15](#)
- [Glossary, page 17](#)

Feature Overview

The Metering Pulse Feature enables the handling of meter pulse message pass through, modification, and generation. Billing information is derived from and provided to the billing mediator using Call Detail Records (CDRs).

Table 1 lists the new CDR tags used by this feature:

Table 1 CDR Tags

Tag Number	Name	Description
4213	Meter Pulses Received	Contains the total number of meter pulses received at the terminating side of the call. (rename of tag 4030). Includes meter pulses contained in suppressed MPMs in replaceCharge or freeOfCharge modes.
4214	Meter Pulses Sent	Contains the total number of meter pulses sent to the originating side of the call. Includes both meter pulses generated internally and those transitted in addOnCharge mode. A maximum of 15 pulses can be presented in a single MPM. If more than 15 pulses are indicated by the tariff data entry (255 can be provisioned for any single instance) then multiple MPMs are sent out consecutively until the required number of pulses is transmitted.
4215	Charge Tariff Info	Contains charging tariff information that has been sent or received in MPM messages. It contains the following data items: <ul style="list-style-type: none"> • tariff type sent • tariff type received (includes tariff type for suppressed MPMs) • tariff id (timestamped)(may be repeated up to six occurrences)
4216	Advice of Charge Indicator	Records the status of the AOC field of the charging information sent in MPM messages. Indicates whether the charge data is used by the receiving switch for charging purposes or for Advice of Charge. Populates the backward MPM and is not acted on by the PGW. Valid values are 0 (call charge data) and 1 (AOC only). <div style="text-align: right;">  Note MPMs marked as AoC are not counted by the Pulses Sent counter. </div>
4218	Charge Limit Exceeded	Indicates that a call has exceeded the maximum duration permitted (specified in the tariff table) and has been cleared.

This feature enhances the following two main functional areas of the PGW:

- Additional charging requirements—The PGW uses one or more of the following criteria to calculate charge tariff determination:
 - Incoming trunk group
 - Calling party number (also referred to as A-Number)

- Called party number (also referred to as B-Number)
- Calling Party Category (CPC)
- Transmission Medium Requirement (TMR)

Charging information in the form of meter pulse messages (MPMs) is sent to the PSTN at call answer and/or periodically thereafter, depending on the tariff data provisioned in the PGW. The sent MPMs are also recorded in a CDR.

MPM can be received over outgoing ISUP trunks. Data contained in them must be analyzed and stored in a CDR. These messages can also be transmitted back over the incoming ISUP trunk.

Charging tariff data can be received from an SCP during a call. This data overrides the data provisioned in the PGW charge tables.

The Charge/No-Charge indicator in the ISUP BCI parameter of the ACM/CPG/ANM messages sent to the network by the PGW must be set appropriately based on either provisioned data in the PGW or data received from the SCP.

- Additional INAP requirements

New Functionality

Generation of Metering Pulse Information

PGW 2200 can be used to generate Metering Pulse Messages as a basis for charging.



Note

Metering information is checkpointed from the active to standby PGW 2200 system every 15 minutes.

Transmission and Receiving of Metering Pulse Information

MPM charging messages can be received using an outgoing ISUP trunk. Data is analyzed and stored in a CDR. Messages can be retransmitted using an incoming ISUP trunk.

Charging Information from SCP

Charging tariff data can be received from an SCP during a call. This data overrides the data provisioned in the PGW 2200 charge tables.

Charge/No Charge Indicator

The Charge/No Charge indicator in the ISUP BCI parameter of the ACM/CPG/ANM messages sent to the network by the PGW 2200 is set appropriately based on either provisioned data in the PGW 2200 or data received from the SCP. This setting can be overridden by SCP interaction.

Related Documents

This document contains information that is related strictly to the Metering Pulse Feature. The documents that contain additional information related to the Cisco Media Gateway Controller (MGC) are listed below:

- Release Notes for Cisco Media Gateway Controller Software Release 9.5(1)
- Cisco Media Gateway Controller Software Release 9 Installation and Configuration Guide
- Cisco Media Gateway Controller Software Release 9 Provisioning Guide

- Cisco Media Gateway Controller Software Release 9 Dial Plan Guide
- Cisco Media Gateway Controller Software Release 9MML Command Reference Guide
- Cisco Media Gateway Controller Software Release 9 Messages Reference Guide
- Cisco Media Gateway Controller Software Release 9 Billing Interface Guide
- Cisco Media Gateway Controller Software Release 9 Operations, Maintenance, and Troubleshooting Guide
- Cisco Billing and Measurements Server (BAMS) Release 3.2
- Cisco MNM User's Guide, Version 2.5(1)
- Cisco MNM-PT User's Guide, Version 2.5(1)

Supported Platforms

The hardware platforms supported for the Cisco MGC software are described in the *Cisco Media Gateway Controller Software Release 9 Installation and Configuration Guide*.

Prerequisites

There are no prerequisites associated with the feature.

Configuration Tasks

Migration scripts must be modified to migrate the new trunk group property, new system parameters, and new .dat table defined for this feature.

Charging Data Structures

Charge Table

The charge table can be accessed using three keys:

- charge origin
- charge destination
- day of the week

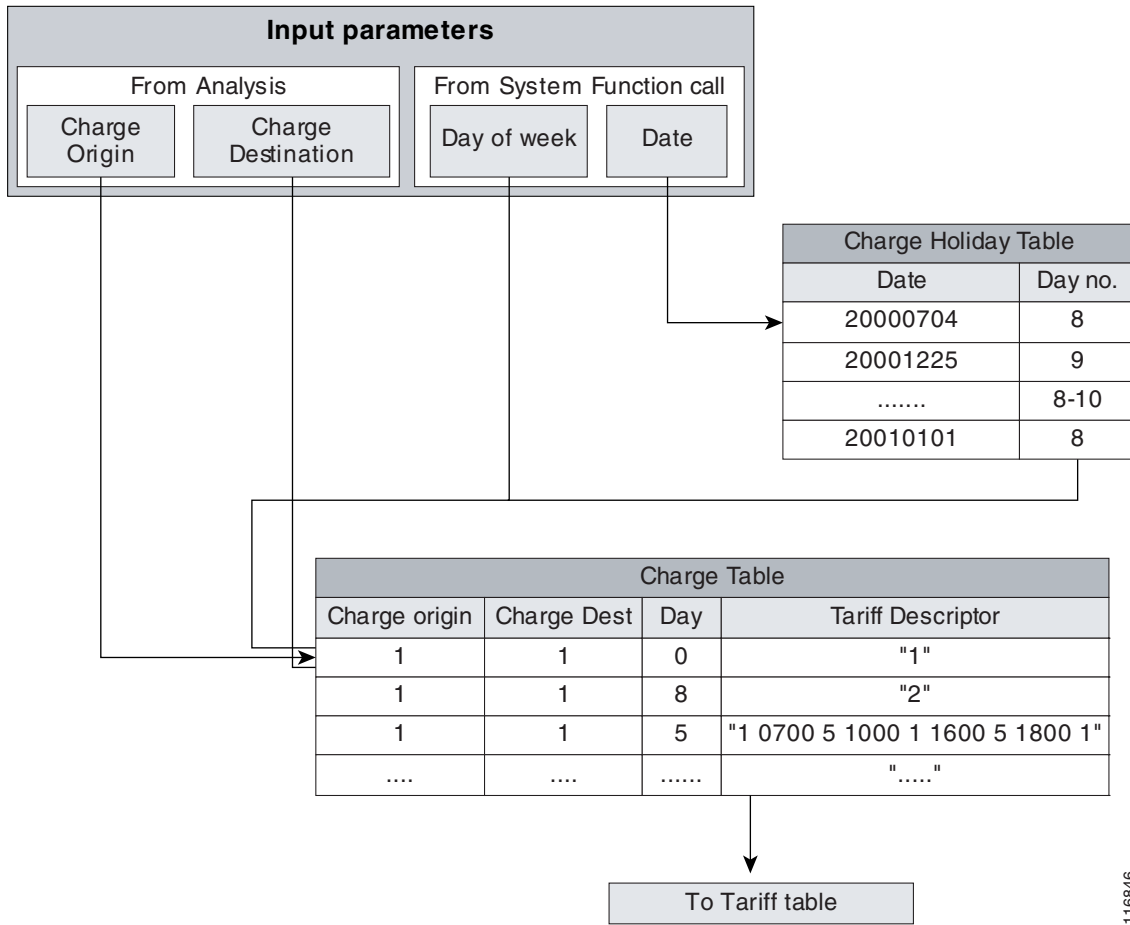
The charge table contains the tariff descriptors that are to be applied. The resultant tariff descriptor is in string format and may contain a single tariff id to be applied for the entire day or a list of different tariffs and the time at which they are applied (delimited by spaces).

If the resultant tariff descriptor is a list of different tariffs and the time at which they are applied, the initial entry is a tariff rate to be applied from 0000 hours until the next specified time period, at which point the tariff id following the switch time is applied. A maximum of five (5) tariff changes is allowed for a given day, for example, a day may contain six (6) different tariff rates.

A tariff descriptor time period value of 0000 indicates the end of time dependent tariff data and the previous (last) found tariff id continues until midnight.

The charge origin may be defaulted (0) when the charging tariff rates are not origin dependent. The day of the week may be defaulted (0) by the craft when the same tariff rate is to be applied to more than one day of the week.

The holiday table allows you to select specific days of the year to be charged differently from the actual day of the week that a holiday occurs on.



116846

Figure 1 Charge Table Access

In the sample Charge Table (shown in Figure 1), the origin/dest charge combination has three entries: '1,1,0', '1,1,8', and '1,1,5'. The entry 1,1,8 defines a holiday tariff and 1,1,5 defines a split day tariff for day 5 (Friday). The default entry, '1,1,0', defines the tariff to be applied for all other days (Monday through Wednesday, Saturday, Sunday, and the remaining holiday days 9 and 10).

The split day tariff (refer to Charge Table) is interpreted as follows:

- Apply tariff 1 from 0000 - 0700 hours
- Apply tariff 5 from 0700 - 1000 hours
- Apply tariff 1 from 1000 - 1600 hours
- Apply tariff 5 from 1600 - 1800 hours

Apply tariff 1 from 1800 - 2400 hours

Metering Pulse Tariff Table

The new Meter Pulse Tariff Table is indexed using the tariff identifier retrieved from the charge table. The tariff table supports a minimum of 512 (values from 0 to 511) distinct tariffs with user-definable tariff identifiers. [Table 2](#) lists the Meter Pulse Tariff Table fields and descriptors.

Table 2 Meter Pulse Tariff Table Fields


Field	Description
Tariff Identifier	Independently definable integer.
Number of Pulses on Answer	Valid values are 0–15; a value of 0 indicates that no pulses are generated on receipt of the answer signal.
Timing Interval Between Periodic Pulses	Valid values are 500–3 600 000 (milliseconds). The minimum interval between consecutive MPMs is 0,5 seconds. A value of 0 indicates that no periodic charge is applied.
Number of Periodic Pulses	Indicates how many pulses should be sent when the timing interval period expires. Valid values are 0–255;
Periodic Charge Application	At timer expiration, the associated pulses are sent and then the normal periodic interval timer is initiated. Valid values are 0 (synchronous) and 1 (asynchronous). The synchronous method applies the timing interval provisioned immediately upon answer and repeatedly thereafter. The associated meter pulses are transmitted at the end of each timing interval. The asynchronous method (also referred to as Karlsson) starts at the first timing interval at a random value r , where r is in the range of $0-t$, where t is the associated timing interval.
AOC Indicator	Indicates whether the charge data is used by the receiving switch for charging purposes or for advice of charge. Used to populate the backward MPM and is not acted upon by the PGW 2200. Valid values are 0 (call charge data) and 1 (AOC only) data.  Note MPMs marked as AoC must not be counted by the Pulses Sent counter.
Max Call Length	Represents the number of call minutes that the call can last. A value of 0 indicates no call limit. Valid values are 0–240.
Tariff Type	Only tariff type 0000 (tariff type not indicated) is used.

Table 3 Sample Tariff Table

Tariff Identifier	Number of Pulses on Answer	Timing Interval Between Periodic Pulses	Number of Periodic Pulses	Periodic Charge Application	AOC Indicator	Max Call Length	Tariff Type
1	0	100	7	0	0	0	0000
2	5	250	5	0	1	30	0000
3	7	0	3	1	0	0	0000
...
512

CLI Charge Origin Table

The CLI charge origin table is accessed during analysis. It is referenced after A number digit tree analysis when AOC is enabled against the incoming trunk group/sigpath. Valid CLI charge origin table values are 1–9999.

Table 4 Sample CLI Charge Origin Table

CLI Key	Charge Origin
02087568791	2
01711234567	2
0403123456	3
...	...

Provisioning Tasks

Provisioning Meter Pulse

AOC provisioning is accomplished in the following stages:

- Defining charge origins—Can be assigned to trunk groups/signaling paths, area codes (in the A-digit trees), or in a CLI charge origin table.
- Defining charge destinations in B-number tables.
- Defining customer-specific holidays using the holiday table.
- Creation of the charge table and population of the required tariff ids for the identified charge origin/destination/day of week combination.
- Population of tariff rates within the Metering Pulse Tariff table.
- Enabling AOC against ingress trunk groups/signaling paths.

What to Provision

Charge Origins (Optional)

Charge origins are integer values (1–9999). They can be assigned as a property against the trunk group or signaling path, a result type in the A-number analysis, or an entry in the CLI charge origin table. These numbers can be assigned incrementally when planning the data build or you can choose to use any valid value at any time.

Trunk Group/Signaling Path Property

The **ChargeOrigin** property has been created for AOC. It resides in the properties.dat file and can be assigned to either trunk group or signaling paths. For example, **TG-2.ChargeOrigin=123**.

A-Number Result

The **ChargeOrigin** result type has been created for AOC. Only the first data word is significant (carries the charge origin value). This result type is assignable against the ADIGTREE component only and is treated as an intermediate result (digit analysis can continue past this result type).

CLI Charge Origin Table

Dialplan component **ACHGORIGIN** has been created. This component is provisionable using the generic format of the MML dial plan commands:

```
NUMAN-<verb>:ACHORIGIN:CUSTGRPID=<customer group id>, CLI=<cli>,CORIGIN=<charge origin>
```

Charge Destinations

Charge Result Type

The Charge result type has the option of returning a charging destination for the metering pulse tariff table. This is achieved by the addition of a value of five (5) in the ChargeDataDiscriminator field. The Charge result type is assignable against the BDIGTREE component only and is treated as an intermediate result. The format of the accompanying data is:

Table 5 Data Values for the B-Number Charge Result Type

Data Word	Data Description	Values
1	Tariff Rate or Charge Destination	meter pulse destinations—range is 1–9999
2	Scale Factor	Always set to 1 for metering pulses
3	Charge Data Discriminator	Determines the type of data in data word 1. 1–Tariff Rate 2–Charge Destination 3–Charge Band 4–Charge Unit 5–Meter Pulse
4	Charge Type	Charge Type 1–AOC

Charge Mode Indicator Result Type

The Charge Mode Indicator (CHARGE_MOD_IND) result type indicates how the metering pulses generated by the PGW are applied in relation to possible other metering pulses (generated by some other node). The CHARGE_MOD_IND result type is assignable against the ADIGTREE or BDIGTREE component and it is treated as an intermediate result. The format of the accompanying data is:

Table 6 Data Values for the Charge Mode Indicator Result Type

Data Word	Data Description	Values
1	Charge Mode Indicator	Charge Mode Indicator 1–Add on charge 2–Replace charge 3–Free of charge

Charge Indication Result Type

The Charge indication result type indicator (CHARGE_IND) indicates whether the PGW should change the value of the charge indicator. The CHARGE_IND result type is assignable against the ADIGTREE or BDIGTREE component and it is treated as an intermediate result. The format of the accompanying data is:

Table 7 Data Values for the Charge Indicator Result Type

Data Word	Data Description	Values
1	Charge Indicator	Charge Indicator 0–Leave as it is (default) 1–Charge 2–No charge

Holiday Table (Optional)

You can create a holiday table. Additionally, you can add, edit, and delete rows within the holiday table. The commands PROV-ADD, PROV-RTRV, etc., can be used to access these tables. Each row is referenced by the DATE (STRING value), decomposed into three integers that represent the year, month, and day of week (yy.mm.dd). The corresponding holiday (HDAY) row entry is HOL1, HOL2 or HOL3.

An example adding a holiday for December 25, 2003:

```
PROV-ADD:HOLIDAY:DATE = "031225", HDAY = "HOL1"
```

Charge Table

You can create a charge table. Additionally, you can add, edit, and delete rows within the charge table. The commands PROV-ADD, PROV-RTRV, etc., are used to access these tables. Each row is referenced using three keys:

- charge origin—range 1–9999
- charge destination—range 1–9999
- day of the week—1–0 (Monday through Sunday, holiday1, holiday2, and holiday3)

**Note**

Charge destination is the only mandatory key. Charge origin and day of the week are set to zero in the table row entry, if they are not used.

Table 8 Charge Table Examples

Charge Table Example	Command
Add Charge Table (fixed daily tariff)	PROV-ADD:CHARGE: CHORIG=1, CHDEST=1, DOW=MONDAY, TARIFFDESC = "1"
Add Charge Table (variable daily tariff)	PROV-ADD:CHARGE: CHORIG=1, CHDEST=1, DOW=MONDAY, TARIFFDESC = "1 0700 2 1000 1 1600 3 1900 1"
Add Charge Table (all charge origins and days)	PROV-ADD:CHARGE:CHDEST=1, TARIFFDESC = "1"

**Note**

If the charge origin is not used, the entered rows refer to all origins for that destination (unless explicitly entered in another row). Similarly, if the day of the week is not used, it refers to all days of the week which are not otherwise explicitly entered.

Metering Pulse Tariff Table

You can create a metering pulse tariff table. The commands PROV-ADD, PROV-RTRV, etc., are used to access this table. Each row is referenced by a tariff id that call processing obtains from the charge table. The retrieved row entry contains the tariff rate followed and the scale factor.

Metering pulse tariff table example:

```
PROV-ADD: METERTARIFF:TARIFFID=1, PULSEONANS=1,
INTERVAL=10, NUMPULSES=2, CHARGEAPP=0, AOCIND=0, MAXCALLEN=100, TARIFFTYPE=0
```

Metering Pulse/AOC Activation

The metering pulse (and AOC) functionality is controlled by the AOCEnabled property in the properties.dat file (1–enabled, 0–disabled).

**Note**

To reduce the number of alarms received when provisioning AOC (due to charging information pointing to unpopulated tables), disable AOC on the relevant trunk groups until the charge table has been correctly updated.

The following table provides information on the data fields used for metering pulse AOC implementation:

Table 9 Charging Parameter Field Definitions

Name	Use	Type	Range
Charge Origin	Trunk group/Sig Path property A-Number digit tree result CLI charge origin table Charge table	Integer	1-9999
Charge Destination	B-Number digit tree result Charge table	Integer	1-9999
Date	Holiday table	String	yy.mm.dd where: yy=00-99 mm=01-12 dd=01-31
Holiday value	Holiday table	Integer	8-10
Day of week	Charge table Holiday table	Integer	1-10 Values must be entered as MONDAY-SUNDAY (1-7), HOL1(8), HOL2(9), and HOL3(10)
Tariff Descriptor	Charge table	String	Format is provided below.*
Tariff Id	Tariff table	Integer	1-9999
Tariff Rate	Tariff table	Integer	1-999999
Scale Factor	Tariff table	Integer	Always set this value to 1 for metering pulses.

* String format of the tariff descriptor:

```
<tariff descriptor> ::= <tariff id> [<" "> <tariff time switch list>]
<tariff time switch list> ::= <tariff start time> <" "> <tariff rate> {<tariff time switch list>}
<tariff start time> ::= "<0..2><0..9><0..5><0..9>"
<tariff id> ::= "1.."9999"
```

When To Provision

Charging data should be defined during installation (after the creation of each customer dialplan). Additional charging data can be added at any time.

The following suggestions can be followed to avoid alarms being generated because of inconsistent data for calls in progress while charging data is being added or modified:

- provision the charge and holiday tables before making changes to the dialplan that references them.
- disable meter pulsing/AOC for all the trunk groups/ sig paths that use the dialplan that references the data to be changed until all updates have been completed.

Provisioning Examples

Step 1 (Optional)—Create Charge Holiday Data

```
PROV-ADD: HOLIDAY: DATE="00.07.04",HDAY="HOL1"
PROV-ADD: HOLIDAY: DATE="00.12.25",HDAY="HOL2"
PROV-ADD: HOLIDAY: DATE="00.05.01",HDAY="HOL3"
```

Step 2 (Optional)—Define Charge Origins

The following example assigns charge origins from the newly introduced CLI charge origin table:

```
NUMAN-ADD: ACHORIGIN: CUSTGRPID=" PSTN"
NUMAN-ADD: ACHORIGIN: CUSTGRPID=" PSTN", CLI="91234567", CORIGIN=1
NUMAN-ADD: ACHORIGIN: CUSTGRPID=" PSTN", CLI="501234567", CORIGIN=2
```

Step 3 (Mandatory)—Create Charge Data

```
PROV-ADD: CHARGE: CHORIG=1, CHDEST=1, TARIFFDESC="3 0700 4 1800 3"
PROV-ADD: CHARGE: CHORIG=1, CHDEST=1, DOW=SATURDAY, TARIFFDESC="3"
PROV-ADD: CHARGE: CHORIG=1, CHDEST=1, DOW=SUNDAY, TARIFFDESC="3"
PROV-ADD: CHARGE: CHORIG=1, CHDEST=1, DOW=HOL1, TARIFFDESC="1"
PROV-ADD: CHARGE: CHORIG=1, CHDEST=1, DOW=HOL2, TARIFFDESC="2"
PROV-ADD: CHARGE: CHDEST=1, TARIFFDESC="4"
```

In this example:

- calls from charge origin 1 to charge destination 1 use a tariff id of 3 from 000-0700, 4 from 0700-1800 and 3 from 1800 to 2400 from Monday to Friday
- Saturday and Sunday are charged at a fixed rate using tariff id 3
- The 4th July and 1st of May receive a fixed charge with a tariff id of 1 and the 25th of December is charged using tariff id 2
- All other calls to this charge destination (i.e. charge origin <> 0) are charged at a flat rate using tariff id 4

Step 4 (Mandatory)—Define Meter Tariff Table Data

```
PROV-ADD: METERTARIFF: TARIFFID=1, PULSEONANS=5,
INTERVAL=10, NUMPULSES=5, CHARGEAPP=0, AOCIND=0, MAXCALLEN=100, TARIFFTYPE=0

PROV-ADD: METERTARIFF: TARIFFID=2, PULSEONANS=0,
INTERVAL=60, NUMPULSES=1, CHARGEAPP=0, AOCIND=0, MAXCALLEN=100, TARIFFTYPE=0
PROV-ADD: METERTARIFF: TARIFFID=3, PULSEONANS=5,
INTERVAL=120, NUMPULSES=1, CHARGEAPP=0, AOCIND=0, MAXCALLEN=100, TARIFFTYPE=0
```

Step 5 (Mandatory)—Define Charge Resulttype

```
NUMAN-ADD: RESULTTABLE: CUSTGRPID=" PSTN", NAME="MPMCHARGE1", RESULTTYPE="CHARGE", DW1="1",
DW2="0", DW3="5", SETNAME="PSTNVOIPCALL"
```

Step 6 (Optional)—Set Charge Mode Indicator

```
NUMAN-ADD: RESULTTABLE: CUSTGRPID=" PSTN", NAME="MPMMODIND", RESULTTYPE=" CHARGE_MODE_IND",
DW1="1", SETNAME="PSTNVOIPCALL"
```

Step 7 (Optional)—Set Charge Indicator

```
NUMAN-ADD: RESULTTABLE: CUSTGRPID=" PSTN", NAME="MPMCHGIND", RESULTTYPE=" CHARGE_IND",
DW1="1", SETNAME="PSTNVOIPCALL"
```

Command Reference

This section documents new, modified, or deleted Man-Machine Language (MML) commands. All other commands are documented in the *Cisco Media Gateway Controller Software Release x MML Command Reference Guide*.

New MML Commands

The following MML commands are used to provision the Meter Pulse Tariff Table:

Purpose: Populates the meterTariff table.

Syntax: `prov-add:meterTariff:tariffid=<0-511>,pulseOnAns=<0-15>,interval=<0-3600>,numPulses=<0-255>,chargeApp=<0/1>,aocInd=<0/1>,MaxCallLen=<0-240>,tariffType=<0-15>`

Input Description: Parameter and command keyword descriptions:

- *tariffid*—Independently definable integer (0-511).
- *pulseOnAns*—Number of pulses on Answer.
- *interval*—Interval between consecutive MPMs.
- *numPulses*—Number of periodic pulses that are sent when the timing interval expires.
- *chargeApp*—At timer expiration, the associated pulses are sent and then the normal periodic interval timer is initiated.
- *aocInd*—Indicates whether the charge data is used by the receiving switch for charging purposes or for advice of charge. This parameter is used to populate the backward MPM and is not acted upon by the PGW 2200.
- *MaxCallLen*—Represents the number of call minutes the call can last.
- *tariffType*—Tariff type. Only tariff type 0000 (tariff type not indicated) is used.

Example: `prov-add:metertariff:traiffid="1",pulseOnAns="5",interval="10",numPulses="5",chargeApp="1",aocInd="1",MaxCallLen="100",tariffType="0"`

Purpose: Edits the meterTariff table.

Syntax: `prov-ed:meterTariff:tariffid=<id>,pulseOnAns=<>,interval=<>,numPulses=<>,chargeApp=<>,aocInd=<>,MaxCallLen=<>,tariffType=<>`

- Input Description: Parameter and command keyword descriptions:
- *tariffid*—Independently definable integer (0-511).
 - *pulseOnAns*—Number of pulses on Answer.
 - *interval*—Interval between consecutive MPMs.
 - *numPulses*—Number of periodic pulses that are sent when the timing interval expires.
 - *chargApp*—At timer expiration, the associated pulses are sent and then the normal periodic interval timer is initiated.
 - *aocInd*—Indicates whether the charge data is used by the receiving switch for charging purposes or for advice of charge. This parameter is used to populate the backward MPM and is not acted upon by the PGW 2200.
 - *MaxCallen*—Represents the number of call minutes the call can last.
 - *tariffType*—Tariff type. Only tariff type 0000 (tariff type not indicated) is used.

Example: `prov-ed:metertariff:traiffid="1", pulseOnAns="5", interval="10", numPulses="5", chargeApp="1", aocInd="1", MaxCallen="100", tariffType="0"`

Purpose: Deletes a specific entry from the meterTariff table.

Syntax: `prov-dlt:meterTariff:tariffid=<id>`

- Input Description: • *tariffid*—Independently definable integer (0-511).

Example: `prov-dlt:meterTariff:tariffid="1"`

Purpose: Retrieves all entries in the meterTariff table.

Syntax: `prov-rtrv:metertariff:"all"`

- Input Description: • *tariffid*—Independently definable integer (0-511).

Example: `prov-rtrv:metertariff:"all"`

`prov-rtrv:metertariff:tariffid=<id>`

Purpose: Retrieves a specific entry in the meterTariff table.

Syntax: `prov-rtrv:metertariff:tariffid=<id>`

Input Description: • *tariffid*—Independently definable integer (0-511).

Example: `prov-rtrv:metertariff:tariffid="1"`

Reference Information

The following sections contain reference material related to this feature. Information is included on the following areas:

- [XECfgParm.dat Parameters, page 15](#)
- [Alarms, page 16](#)
- [Measurements, page 16](#)
- [Properties, page 16](#)
- [Result Type Definitions, page 17](#)

XECfgParm.dat Parameters

The XECfgParm.dat file configuration parameters added for this feature are in the table below.

Configuration Parameter	Definition
*.disablemultiplecdrs	<p>Allows you to disable the multiple-CDRs-per-call (for example, multiple occurrences of Answer and Release CDB messages) for situations where the downstream billing system does not support this feature. This parameter is not dynamically reconfigurable.</p> <p>Default: 1</p> <p>Valid values are: 0 (multi CDRs enabled) and 1 (multi CDRs disabled).</p>
*.chargingtarifftype	<p>Allows you to specify which type of tariff table (Meter Pulse or Tariff-Rate/Scale-Factor) is to be accessed in the absence of a tariff table identifier in the charge result. This parameter is not dynamically reconfigurable.</p> <p>Default: 0</p> <p>Valid values are: 0 (tariff-rate/scale-factor) (default) and 1 (meter pulse).</p>
*.chargingmode	<p>Allows you to specify the charging mode for non-IN calls which determines the treatment of received MPMs. This parameter is not dynamically reconfigurable.</p> <p>Default: 1</p> <p>Valid values are: 1 (AddOnCharge), 2 (ReplaceCharge), and 3 (FreeOfCharge).</p>

Configuration Parameter	Definition
*.shortdurationcallperiod	<p>Allows you to specify the period used to determine a short duration call. Calls with a duration less than the specified value are recorded as a short duration call in the CDR. This parameter is not dynamically reconfigurable.</p> <p>Default: 0</p> <p>Valid values are: 0—30. A setting of 0 indicates that this parameter is disabled. Short duration calls are not recorded in the CDR when this parameter is disabled.</p>
*.actiononchargetableaccessfailure	<p>Allows you to specify the action to take when there is a failure to access the meter pulse tariff table. This parameter is not dynamically reconfigurable.</p> <p>Default: 0</p> <p>Valid values are: 0 (Continue Call) and 1 (Release Call).</p>

For information on the other XECfgParm.dat parameters, refer to the *Cisco Media Gateway Controller Software Release 9 Installation and Configuration Guide*.

Alarms

No new alarms were added to support this feature. The existing alarm, TariffTableAccessFail, is set if the system fails to access the Meter Pulse Tariff Table.

Measurements

No new system measurements were added to support this feature. Use of the following existing sigPath measurements have been extended to this feature:

- pulses sent—this counter is incremented (by the number of pulses) by the originating protocol, each time an MPM is sent.
- pulses received—this counter is incremented (by the number of pulses) by the terminating protocol, each time an MPM is received.

Properties

The following property was added for this feature.

Table 10 *New Trunk Group Property*

Parameter	Description
MidCallCheckpointInterval	<p>Allows you to enable/disable mid-call checkpointing. When enabled, you can specify the interval between checkpointing events in the connected state. Valid values 0 (disabled) (default)—60 minutes.</p> <p>This property is dynamically reconfigurable.</p>

For information on other properties for the Cisco MGC software, refer to the *Cisco Media Gateway Controller Software Release 9 Provisioning Guide*.

Result Type Definitions

The following result type data word definition was modified:

- CHARGE(10)—new value 5 indicates that the meter pulse table should be read instead of the tariff table with the tariff descriptor value obtained from Charge table reading.

The following new result types were created:

- CHARGE_MODE_IND(62)—valid values for DW1 are 1(addOnCharge), 2 (replaceCharge), and 3 (freeOfCharge)
- CHARGE_IND(63)—valid values for DW1 are 0 (leave as it is)(default), 1 (charge), and 2 (noCharge)

For information on other result type definitions for the Cisco MGC software, refer to the *Cisco Media Gateway Controller Software Release 9 Provisioning Guide*.

Glossary

Table x [Figure 1](#)[Figure 1](#)[Figure 1](#) contains definitions of acronyms and technical terms used in this feature module.

Table 11 Acronyms and Definitions

Acronym	Definition
CDR	Call Detail Record
INAP	Intelligent Network Application Protocol
MGC	Media Gateway Controller
MPM	Metered Pulse Message
SCP	Service Control Point

