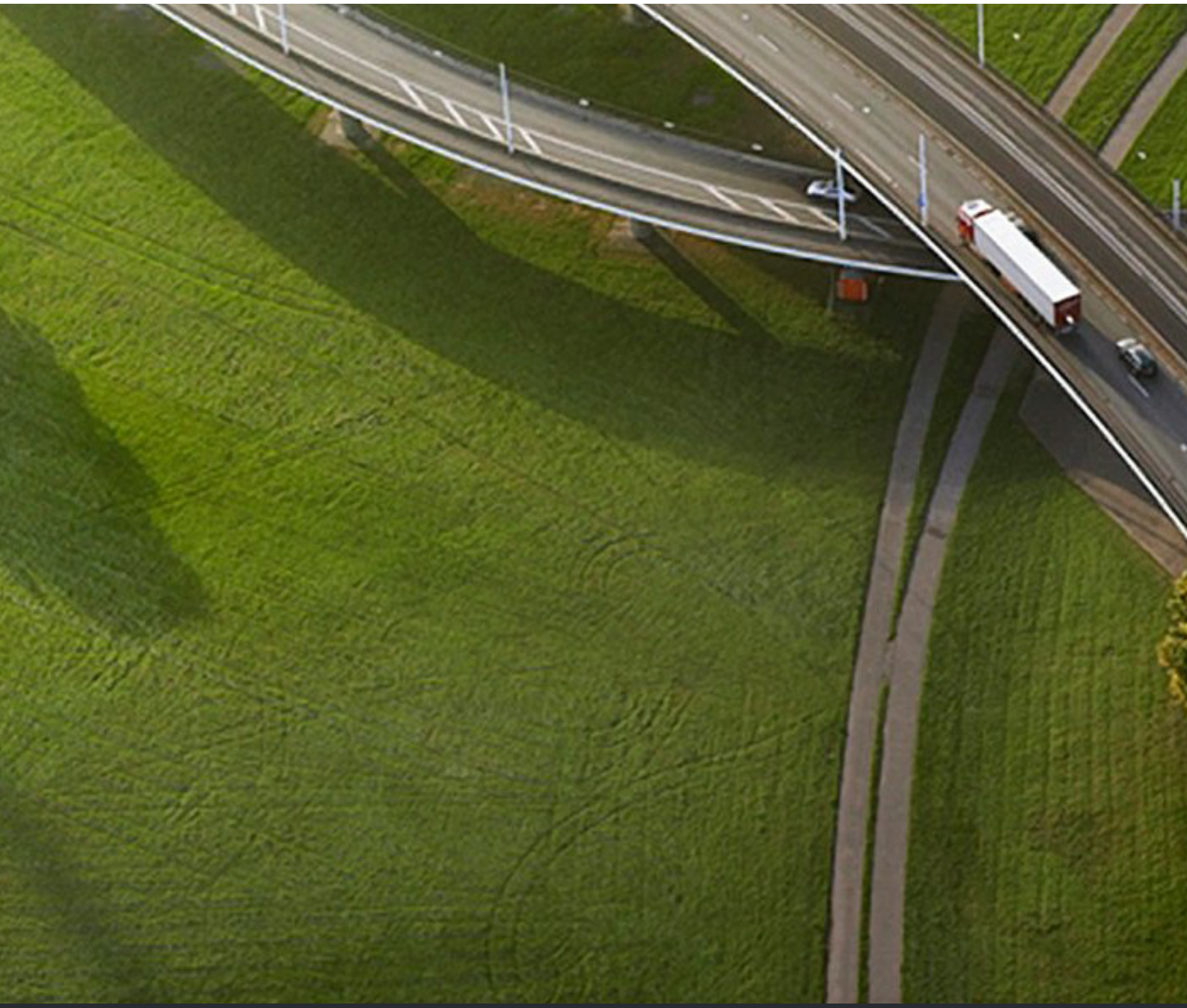

OpenScape Voice V9
Interface Manual Volume 1, CDR Interface

Description

A31003-H8090-T104-04-7618

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Reference No.: A31003-H8090-T104-04-7618

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History of Changes

Issue	Date	Changes
4	02/2018	• Chapter **CDR Record Types** has been updated with a new record type **QoS CDR**. • Two new chapters, **Quality of Service CDR** and **QoS CDR Field Sizes**, have been added.
3	11/2016	• Table *Standard CDR Record Format* has been updated with a new value **Precedence level of call**. • Table *CDR Field Sizes for Standard/Intermediate CDR Records* has been updated with a new value **Precedence level of call**.
2	07/2016	The size of field **BG Department Name** has been changed from 20 to 60 bytes in all respective tables.
1	11/2015	New version V9 created

1 CDR Overview

This chapter provides an overview of Call Detail Recording (CDR), its function and its features.

1.1 What is a CDR?

A Call Detail Record (CDR) is a collection of information for each call that is processed by OpenScape Voice. More complex call scenarios such as transfer, conference, networking, and other OpenScape Voice features may produce multiple CDRs. This information is collected in order to:

- Track bill-back accounting (for extension, department, division, or company)
- Track and identify special common carrier services (track telephone numbers and call duration to specific locations)
- Track client or user identification (for example, account numbers)
- Track system traffic for analysis (call patterns and other routing information)
- Track and identify call abuse (unauthorized calls)
- Track calls for different states (answered, unanswered, rejected) and call scenarios (transfer, call forward, callback, and so on).

1.2 When is a CDR Created?

The CDR is created when OpenScape Voice receives a request for a new call and is closed and written on disk when the call is released, or every 30 minutes (intermediate CDR).

1.3 Where are the CDRs Stored?

The CDRs are first stored on the local hard drive and are then pushed to or pulled from a billing server (for example, HiPath Accounting Management or third party billing application) which post-processes the CDRs. After push/pull, the CDRs may either be deleted from local hard drive or stored there for a certain period.

1.4 How are the CDRs Processed?

Each CDR is an RTP ticket. The CDR client uses the RTP ticket manager collector to write the ticket (CDR) in a ticket file on local disk (/software/twlocal) in binary format. Ticket files are node-specific; their file name includes the node ID, which means they are unique cluster-wide. When certain conditions are met (for example, every 5 minutes, or every 5000 records, or every 5600256 bytes, configurable, refer to Chapter 2, “CDR Options and Parameters”), the ticket manager collector closes the ticket file and all subsequent ticket data is written to a new ticket file. The ticket manager distributor then copies the ticket file to a ticket pool located on a local node-specific directory (/tpa/CDR). Using the 'remote copy' function of the operating system, the ticket manager synchronizer also copies the ticket file to the other cluster node ticket pool directory (backup). This procedure guarantees that all ticket data is stored on both cluster nodes at any time. The ticket pools provide storage of “primary” billing data, that is, data not yet sent to an external billing collection system.

The ticket manager distributor then notifies the active CDR handler that a ticket file is available for processing in the ticket pool. The CDR handler also periodically audits the DB to see if any ticket files exist in the ticket pool for a notification that may have been missed.

The CDR handler then converts the binary ticket file to an ASCII CDR billing file (.BF), assigns to it a cluster-wide file sequence number. The billing file is now ready to be transferred to/from the billing collection system.

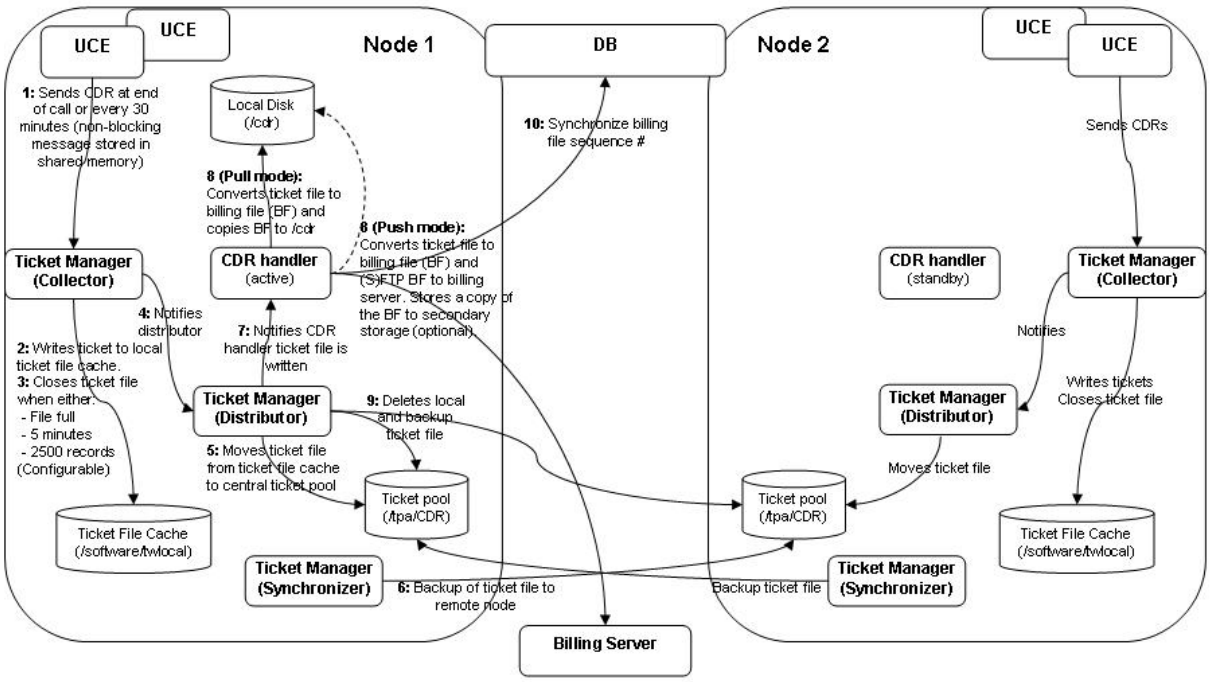

Figure 1 CDR Processing flow

1.5 CDR File Transfer Mechanism

OpenScape Voice supports two methods of CDR file delivery:

- Push method (refer to Section 1.5.1, “The CDR Push Method”)
- Pull method (refer to Section 1.5.2, “The CDR Pull Method”)

1.5.1 The CDR Push Method

In the CDR push method, as soon as the CDR handler converts the binary ticket file to an ASCII CDR billing file, it attempts to transfer the billing file to the provisioned primary billing server (or the backup if not available). If the transfer is successful the CDR handler notifies the RTP ticket manager distributor to delete the ticket file from the ticket pools.

How the CDR handler handles FTP failure is described in Section 1.6.3, “FTP Failure”.

If the secondary storage option is provisioned, the CDR handler can also store a copy of the billing file (“secondary” billing data) on local disk (/cdr). To avoid the exhaustion of secondary billing data storage space, OpenScape Voice offers an option to automatically delete CDR files from secondary storage after a configurable retention period. For more details please refer to Chapter 2, “CDR Options and Parameters”.

1.5.1.1 SFTP File Delivery

The CDR push method allows either FTP or SFTP for delivery of the CDR file to an external billing server. CDR files transferred via SFTP will be encrypted by SSH. As the SFTP client in the push mode, the OpenScape Voice server will initiate a negotiation with the SFTP server for the encryption algorithm to be used, based on an ordered list of encryption algorithms supported by the OpenScape Voice OpenSSH client. This list is configured during OpenScape Voice installation to ensure that the OpenScape Voice encryption algorithms are aligned with those supported by the SFTP server in the customer’s billing system.

SFTP must be enabled in the OpenScape Voice server via either the HiPath Assistant (CDR settings and options configuration screen) or the CLI (CDR system configuration parameters menu). The port number to be used can also be changed from the default port number 22. For authentication, SFTP requires either a combination of user and password or user and shared RSA keys.

1.5.2 The CDR Pull Method

In the CDR Pull method, the billing files are not transferred to the billing collection system using FTP, instead they are stored locally on the OpenScape Voice disk (/cdr). It is the customer's billing collection system responsibility to periodically retrieve the accumulated CDR files using FTP or SFTP from OpenScape Voice. For each external billing server that pulls the CDR files from OpenScape Voice, the appropriate packet filter rules must be configured in the system to allow FTP and/or SFTP connections from the billing server(s). For more details on how to configure packet filter rules refer to the *HiPath OpenScape Voice Config/Admin Using CLI Application Level, Administrator Documentation*. As with the secondary storage option in the Push method, OpenScape Voice provides an option to automatically delete stored CDR files after a configurable retention period (Chapter 2, "CDR Options and Parameters").

IMPORTANT NOTE: Since, in general, billing files may be created on both nodes of OpenScape Voice, depending on where the active CDR handler resides at that time, the billing collection system must always retrieve billing files from both nodes. Each billing file, regardless of on which node it was created is unique and stored only on that node; that is, billing files are never duplicated across nodes.

1.6 CDR Behavior During Error Conditions

1.6.1 CDR Handler Stops

If the active CDR handler stops (or crashes), the standby CDR handler on the other node becomes active and takes over. In case of a simplex system or if both CDR handlers stop, then no more binary ticket files are converted to ASCII billing files. The CDRs are not lost however. The RTP ticket manager continues to move the ticket files containing the CDRs to the ticket pool.

If for some reason the CDR handler does not recover, then the maximum allowed number of ticket files stored simultaneously in the ticket pool may be reached. In this case, depending on configuration, the ticket writer either stops writing tickets or overwrites the oldest ticket file. For more details refer to Chapter 2, "CDR Options and Parameters".

1.6.2 RTP Ticket Manager Stops

If the RTP ticket manager is explicitly stopped then this causes a failure in the ticketing service and no further CDRs are written. Tickets that previously were written in a ticket file are not lost but shall be processed upon ticket manager restart. If the RTP ticket manager stops unexpectedly, then the RTP node manager shall restart the ticket manager.

1.6.3 FTP Failure

Both CDR handlers (active and standby) upon process initialization try to connect via FTP first to the primary billing server and if that fails, to the backup billing server. If that fails also, the processes come up without an FTP connection to the billing server. The CDR handlers then periodically check and maintain the status of their FTP connection to the billing servers (CDR audit mechanism).

Each time the active CDR handler processes a CDR file it tries again to connect to one of the billing servers and if that fails it checks whether the standby CDR handler has an FTP connection to one of the billing servers. If so, the active CDR handler restarts so that the standby CDR handler becomes active and takes over.

When the CDR handler finally establishes an FTP connection to either the primary or the backup server, it always uses that FTP connection to send (push) the billing files to the billing server until the connection fails in which case it will try to connect to the other billing server. For each failure to connect to the billing server, OpenScape Voice V9 raises a major alarm. For as long as billing files cannot be transferred to the billing server due to an FTP failure, ticket files shall accumulate in the ticket pool.

1.6.4 Disk Full

If the switch is in CDR push mode then the billing files are off-loaded to the billing server so there is no chance that disk space is used up. If however, one of the failures described above happens which causes the CDRs to accumulate in the ticket pool, then eventually if these conditions do not change, the allocated space (2GB) for the ticket pool is used up. In this case, ticket files start to accumulate on local disk (/software/twlocal, 7.9GB allocated). If all the space under /software/twlocal is used up then the ticket writer stops writing tickets.

1.6.5 Node Failure

In case of a total node failure, the standby processes at the other node take over (CDR handler, ticket writer, ticket manager). CDR handling continues as normal.

1.7 CDR Behavior after Return from Stand-Alone Mode

If the two nodes of OpenScape Voice V9 cannot communicate (no cross-channel communication) they may enter into an operation mode called ‘stand-alone’ with restricted provisioning and call processing functions.

The following steps are taken to ensure that call detail reporting is complete for all calls when the cross-channel becomes available again:

1. The stand-alone-secondary node copies some basic call processing data of all its active calls to its partner, creates intermediate CDRs (see Section 3.4.2, “Intermediate CDR”) for these stable calls and reboots.
2. As part of the reboot, the node joins the cluster and receives the database from its stand-alone-primary partner node.
3. When a call that had been established on the secondary node while in stand-alone mode terminates at the primary node, the OpenScape Voice V9 uses the previously copied basic call processing data to create a ’half-call’ CDR (HCR CDR, see Section 3.4.8, “Half Call Release CDR”).
4. The billing application must combine the intermediate CDRs with the half-call CDRs to produce complete CDRs. See also Section 5.8, “Return from Stand-Alone Mode”, for an example.

2 CDR Options and Parameters

The parameters that can be configured using the CLI and/or OpenScape Voice Assistant are as follows:

- **Number of ticket files** — The maximum number of ticket files which can be stored simultaneously in the ticket pool
- **Ticket file size** — The maximum size (in bytes) of a ticket file. When this maximum size is reached, the ticket file is closed and a new file will be opened. The size of the respective billing file (ascii) is approximately 47% the size of the ticket file (binary).
- **Number of tickets file** — The maximum number of tickets within a ticket file. This is the same with the maximum number of CDRs in a billing file. When the maximum number is reached, the ticket file is closed and a new file will be opened.
- **Ticket file lifetime** — The maximum time a ticket file stays open. After this time the ticket file is closed and made available to the CDR handler. This is approximately the same with the frequency that a billing file is transferred (push mode) to the billing server or made available (pull mode) in the /cdr directory.
- **Ticket file overwrite** — The behavior of the ticket manager when the maximum number of ticket files is reached: the oldest ticket files are to be overwritten or ticket processing for this type is stopped.
- **CDR delivery method** — Push or pull. In push mode CDRs are transferred to an external billing server while in pull mode CDRs are stored on local disk. For more details refer Section 1.5, “CDR File Transfer Mechanism”.
- **Primary Billing Server** — Only applicable in Push mode. Host name/IP, FTP user name, and FTP user password for the primary billing collection system.
- **Backup Billing Server** — Only applicable in Push mode. Host name/IP, FTP user name, and FTP user password for the backup billing collection system.
- **Rename extension** — Only applicable in push mode. Renames the CDR files on the external billing server from xxx.BF to xxx.DAT, after CDR files have been successfully pushed there. The external billing server reads only the xxx.DAT files, thus ensuring that any xxx.BF files that have only been partially transmitted are not processed by the billing server.

- **Secondary storage** — Only applicable in push mode. Enables the secondary storage of CDR files locally in the /cdr directory after they have been successfully pushed to the external billing server. This is to allow for subsequent retrieval of backup data from OpenScape Voice in the event of data loss in the billing collection system.
- **Auto delete** — Only applicable when secondary storage is enabled or in pull mode. Automatically deletes CDR files in the /cdr directory after a specified retention period. The deletion occurs once per day at midnight, whereby all CDR files older than the designated retention period are deleted from the OpenScape Voice disk. This is to avoid using up the allocated disk space under /cdr.
- **Data retention period** — Only applicable when Auto delete is turned on. Number of days to keep the CDR files in the /cdr directory (secondary storage enabled or pull mode) before automatically deleting them.
- **FTP control port** — The FTP control port of the external billing server for push mode. Default value is 21.
- **PISN ID** — The Private Integrated Services Network (PISN) ID uniquely identifies OpenScape Voice within a private network consisting of multiple OpenScape Voice applications and/or legacy PBXs such as OpenScape 4000. It is used to produce unique correlation IDs (Global Call ID, Thread ID) for CDRs generated across the private network.

2.1 RTP Tickets Configuration

The RTP ticket configuration is only possible using CLI.

To display the current RTP ticket parameters values, from the CLI main menu select **5 (System Management)**, **3 (Tickets)**, **5 (getAttributes)**. Type **CDR** at the prompt.

To change the existing RTP ticket parameters values from the CLI main menu, select **5** (**System Management)**, **3 (Tickets)**, **2 (modifyFileSet)**. Type **CDR** at the prompt. The following parameters may be configured:

numberOfFiles — The maximum number of ticket files which can be stored simultaneously in the ticket pool

Default value=378
Minimum value= 4 for simplex, 8 for cluster
Max value=~2100000000

numberOfBytes The maximum size (in bytes) of a ticket file. When this maximum size is reached, the ticket file is closed and a new file will be opened.

Default value=5600256
Minimum value= 100000
Max value=20971520

Note: The size of the respective billing file (ascii) is approximately 0,47 times the size of the ticket file (binary)

numberOfTickets The maximum number of tickets within a ticket file. When the maximum number is reached, the ticket file is closed and a new file will be opened.

Default value=5000
Minimum value= 64
Max value=~2150000000

lifetime The maximum time (in minutes) a ticket file can be open before it is closed and made available to post-processing.

default value=RTP_TIC_5MIN (2)
possible values=RTP_TIC_1MIN (1), RTP_TIC_5MIN (2), RTP_TIC_15MIN (3), RTP_TIC_1HOUR (4), RTP_TIC_3HOUR (5), RTP_TIC_6HOUR (6), RTP_TIC_12HOUR (7), RTP_TIC_1DAY (8)

overWrite The behavior of the ticket manager when the maximum number of ticket files is reached: the oldest ticket files are to be overwritten or ticket processing for this type is stopped.

default value= RTP_TIC_STOPPED (2)
possible values=RTP_TIC_OVERWRITE(1), RTP_TIC_STOPPED(2)

securityLevel Specifies how tickets are written to ticket files.

Default value=RTP_TIC_NOSYNC (1)
possible values=
RTP_TIC_NOSYNC (1) write tickets to OS buffer cache,
RTP_TIC_SYNC (2) write tickets directly to disk (safe tickets)
RTP_TIC_NSYNC (3) sync ticket file to disk every n minutes

syncInterval Time period in minutes after which all ticket data are written to the OS buffer and synchronized to disk.

Default value=5
Minimum value= 1
Max value=60

2.2 CDR Configuration

2.2.1 Configuring CDR Using OpenScape Voice Assistant

To configure the CDR settings via OpenScape Voice Assistant go to **OpenScape Voice** -> **Administration** -> **General Settings** -> **CDR Settings**. For more details refer to *OpenScape Voice, Configuration, Administrator Documentation*.

3 CDR Data Format

3.1 Billing Files

OpenScape Voice outputs ASCII call data records (CDRs) to billing files that use the formatting and file naming conventions described in the following sections.

Note: The CDR file sequence number is assigned cluster-wide within OpenScape Voice, rather than separately within each node of the cluster. Therefore, in the case of a switchover of the active CDR handler from one OpenScape Voice node to another, the newly active CDR handler resumes the CDR file sequence numbering from the point where the previously active CDR handler left off.

3.1.1 Billing File Name

OpenScape Voice billing (CDR) files use the following filename format:

<System Hostname>-<YYYYMMDDTHHMMSS-/+HHMM><File Sequence Number>.BF

where

- **<System Hostname>** is the name configured in the node.cfg file. This consists of a customer-assigned hostname of up to 14 characters. This supports the use of Telcordia-assigned Common Language Location Identifier (CLLI) codes as switch hostnames for identifying each OpenScape Voice.
- **<YYYYMMDDTHHMMSS-/+HHMM>** consists of a 20-character date/time stamp, indicating the date and time OpenScape Voice created the billing file. This time format conforms to the Universal Time Coordinated (UTC) standard.
- **<File Sequence Number>** consists of a six-digit integer that increments with each new file OpenScape Voice generates.

3.1.2 Billing File Format

OpenScape Voice billing (CDR) files are formatted with header and trailer information and can contain call, audit, and feature activation / deactivation records.

Figure 2 shows the basic format of an OpenScape Voice billing file. To see an example of actual billing record output from OpenScape Voice, refer to Section 3.6, “CDR Sample”.

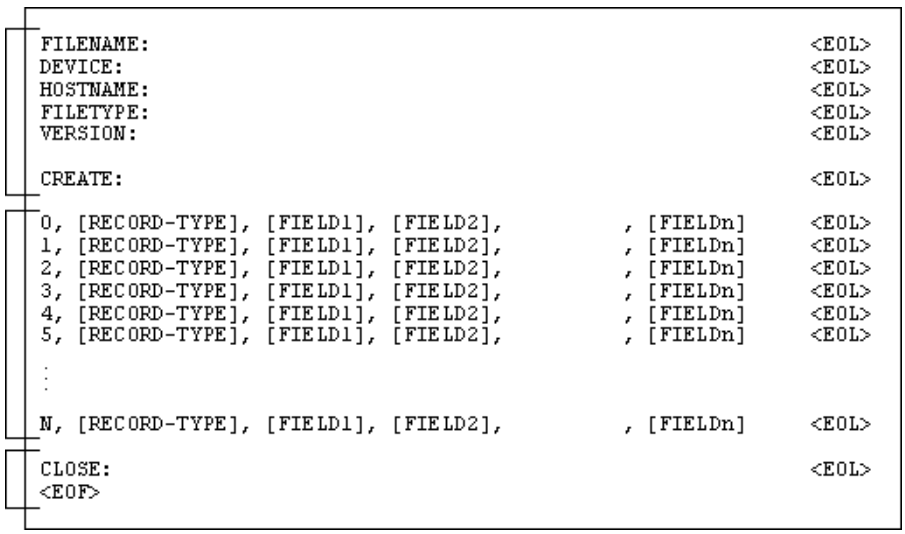

Figure 2 Billing File Format

Table 1 defines the elements that make up the header and trailer used in OpenScape Voice billing files. These fields and format must exist inside the ASCII files. All fields must be followed by the “<NL>” character.

Field	Description
Header	
FILENAME	This field displays the name of this billing file at the time of its creation. **NOTE:** The name of the billing file may have been changed subsequently by an adjunct processor.
DEVICE	This field displays the device that created this billing file.
HOSTNAME	This field displays the configured IP hostname of the device that created this billing file.
FILETYPE	This field displays the type of this file (that is, Billing).
VERSION	This field displays the version of the billing file format this billing file uses.
<NL>	An extra new line is inserted.
CREATE	This field displays a date/time stamp representing the date and time this billing file was created. Additionally, this field indicates the start of the call record information in this file. **NOTE:** Unless changed, the date/time stamp in this field should mirror the date/time stamp in the filename.
<NL>	An extra new line is inserted.
	Individual CDRs numbered sequentially and separated by <NL> are located between the CREATE and CLOSE tags. Each CDR consists of a number of fields in an ASCII comma-delimited format.
<NL>	An extra new line is inserted.
Trailer	
CLOSE	This field displays a date/time stamp representing the date and time this billing file was closed. Additionally, this field indicates the end of the call record information in this file.

Table 1 Billing File Header and Trailer Fields

3.2 CDR Record Types

The following CDR types are supported by OpenScape Voice:

- **Standard CDR record** — The standard CDR, produced at the end of each call.
- **Intermediate CDR record** — Intermediate CDRs are by default generated every 30 minutes of active and established call time. The Intermediate CDR is configurable. Intermediate CDRs are generated in addition to the standard CDR.
- **Long Call (Duration) record** — A long call audit CDR is generated for a call whose duration is longer than two consecutive midnights. The record itself is generated at the 2nd midnight and each midnight thereafter. Long call CDRs are generated in additional to the standard CDR.
- **Queue record** — When a call is queued (e.g., in hunt group scenarios), a queue CDR containing information about the time and duration of queuing is generated in addition to the standard CDR.
- **Call Forwarding CDR record** — When a call is forwarded, a call forwarding CDR is generated for each call forwarding leg, up to a maximum of 5, in addition to the standard CDR.
- **Feature Activation/ Deactivation record** — Feature activation / deactivation records are produced when a user activates or deactivates certain call features. See Section 3.4.7, “Feature Activation / Deactivation CDR” for a list of applicable features.
- **Change of Software Audit record** — A change of software audit record is generated when software modifications have been made to OpenScape Voice; for example, a patch installation.

  Note: This is generated only during rolling upgrades, not for new installations.

- **Half Call Release record** — The half call release CDR (HCR CDR) is generated for each endpoint device release after a new software installation (split mode upgrade) on OpenScape Voice for calls that were initiated before the software upgrades
- **QoS CDR** — The QoS CDR contains QoS statistics reported by clients at the end of a call. One QoS CDR per client and per media type (video, audio) is generated when the call is released in addition to the standard CDR. The standard CDR can be correlated with any associated QoS CDRs by means of the 32-character numerical sequence part of the "Record ID" and "Switch ID" fields, which always have the same values across these CDRs. To enable the generation of the QoS CDRs, the CDR administration option **Enable QoS CDRs** must be checked. For detailed information, please refer to *OpenScape Voice, Configuration, Administrator Documentation*.

3.3 CDR Field Types

Table 2 defines the information elements (data types) used in OpenScape Voice CDRs.

Data Type	Size (in bytes)	Description		
DATE	26	This data type is an ASCII string representing a date/time stamp. DATE has the following format: YYYY-DD-MMThh:mm:ss.s-/+HHMM The time portion is in 24-hour format and assumes Greenwich Mean Time. The DATE data type consists of the following components		
		YYYY	Year	1999, 2000, 2001, ... 9999
		DD	Day	01, 02, 03, ... 31
		MM	Month	01, 02, 03, ... 12, representing the months of the year in order: January, February, March, ... December
		T		A field delimiter separating the date and time fields, as specified in ISO8601.
		hh	Hour	Hour of day: 00, 01, 02, ... 23
		mm	Minutes	Minute of hour: 00, 01, 02, ... 59
		ss.s	Seconds. Tenths-of-Seconds	00.0, 00.1, 00.2, ... 59.9
		+/-		Either the prefix “+” or “-,” indicating either leading or trailing time from UTC.
		HH	Hour	Hours before / after UTC.
		MM	Minutes	Minutes before / after UTC.
INT	4	A data type that can take any value from 0 to 2^{32} - 1.		
ENUM	4	A data type that can take a limited number of defined values.		
BITWISE ENUM	Varies	A data type for which a flag (bit position) is set for each condition that applies.		
STRING	Varies	An ASCII string (not zero terminated). The length of the string varies by use.		
DIGITS	Varies	A variable length ASCII string of characters representing either the calling party or the digits collected for the called party or service. The called number may include operator services, service access codes, or easily recognized codes.		

Table 2 Data Types Used in Call Data Records

3.4 CDR Field Definition

Billing files are output from OpenScape Voice in an ASCII comma-delimited format. The record type (field 2) defines the basic structure for a CDR. The layout for each type is presented in this section.

Note: If no statistics are available for a particular field, or if a field does not apply to your application, it displays a default of either zero (0) or NULL (, ,).

- Standard CDR
- Intermediate CDR
- Queue CDR
- Call Forwarding CDR
- Long Call Audit CDR
- Change of Software Audit CDR
- Feature Activation / Deactivation CDR
- Half Call Release CDR

3.4.1 Standard CDR

Table 3 defines the fields and format of standard OpenScape Voice call detail records. For additional information about the data types (3rd column), refer to Section 3.3, “CDR Field Types”.

The following fields are not being used and are empty in the Standard and Intermediate CDR:

- 8, 10, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 46, 47, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 68, 69, 70, 71, 72, 73, 74, 75, 76, 78, 79, 80, 81, 82, 83, 84, 85, 86, 97, 98, 112, 113, 114, 115, 116, 117, 118, 119, 120

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field displays the sequential number of the call record within the file.
2	Record Type	ENUM	This field displays the type of record. The value for a Standard Call record is shown in bold: • **00000000 = Standard Call Record** • 00000001 = Intermediate Call Record • 00000004 = Queue Record • 00000005 = Call Forwarding Record • 10000001 = Long Call Audit Record • 10000010 = Change of Software Audit Record • 10000100 = Feature Activation / Deactivation Record • 10000101 = Half Call Release Record • 10000111 = QoS Record For a full list of possible values, refer to Appendix A, “Not Applicable Standard CDR Values”
3	Start Time	DATE	This field displays the call setup start date/time stamp to the nearest tenth of a second.
4	Duration of Call	INT	This field displays the subscriber call connect time in tenths of seconds. For long call duration records, this field provides total subscriber call connect time upon record generation. (An INT value supports call durations in excess of 13.6 years.) This field is zero if the call was not completed (that is, attempts other than answer).
5	Switch ID	STRING	This field displays a 16-character string that identifies the OpenScape Voice system by hostname. Default value is no character (NULL).
6	Record ID	STRING	This field displays the DATE, plus an incrementing 32-character numerical sequence that uniquely identifies each record and, in combination with the switch ID, allows troubleshooting even after CDRs are normalized and combined with data from other devices.

Table 3 Standard CDR Record Format (Page 1 of 15)

No.	Field	Data Type	Description
7	Customer Name/Number	STRING	This field displays a string of up to 16 characters in length that associates the initiator of the call with the provisioned (assigned) customer number or name. Since keysets allow multiple line appearances of BGLs, this field indicates the physical BGL from where the call originated, while field 12 indicates the actual line appearance DN. When a BGL's keyset use is 'None', the value is NULL. This field is applicable only for keyset prime lines and does not apply to multiple address appearances (MAA). In case of an emergency call and if the 'Transport LIN instead of CPN' option is selected, then this field shall contain the actual calling party number, the 'calling party' field shall contain the LIN, and the 'Per Call Feature Extension field shall contain the 'E911 call' flag.
9	Call Segment Duration	INT	This field displays the time elapsed, in tenths of a second, since the last record generated for this particular call (for example, for long call duration records and other calls with multiple records). For conventional CDRs, the value of this field is identical to the value delivered in the Duration of Call field (field 4). For long call duration records, the value is the time elapsed since the immediately preceding long call duration record.
11	Terminating Number / Called Party	DIGITS	This field displays a string of up to 128 characters, which associates the recipient of a call with the provisioned (assigned) customer number. This field represents the number of the user to whom the call is directed. For a toll-free 800 call, this field contains the translated 800 number returned from the service control point (SCP). The default value is no character (NULL).
12	Originating Number / Calling Party	DIGITS	This field displays a string of up to 128 characters that represents the number of the user who initiated the call. If the calling party is an OpenScape Voice subscriber then this field contains the provisioned (assigned) subscriber number. For keyset devices that make a call, this field contains the DN of the line appearance used to make the call. The default value is no character (NULL). In case of an emergency call and if the 'Transport LIN instead of CPN' option is selected, then this field shall contain the LIN, the 'customer name/number' field shall contain the actual calling party number, and the 'Per Call Feature Extension field shall contain the 'E911 call' flag.
13	Paying Party	DIGITS	This field displays a string of up to 16 characters that associates the paying party of a call with the provisioned (assigned) subscriber number. This field represents the number of the user who is responsible for the cost of the call. The default value is no character (NULL).

Table 3 Standard CDR Record Format (Page 2 of 15)

No.	Field	Data Type	Description
18	Attempt Indicator	ENUM	This field displays the result of the call attempt. Possible values are: • 0 = Call was completed • 1 = Call was not completed due to called party busy • 2 = Call was not completed due to invalid dialed number • 3 = Call was not completed due to lack of available lines / trunks to complete the call • 4 = Call was not completed due to calling party aborting the call prior to answer • 5 = Call was not completed due to called party not answering the call • 6 = Call was not completed due to a network problem • 7 = Call was not completed due to unknown reasons • 8 = Call was not completed due to no subscriber account • 9 = Call was not completed due to unauthorized subscriber • 10=LNP Query on Response • 11=Call was not completed due to LNP, ported out subscriber not found • 12 = Call was not completed due to Automatic Collect Call Blocking The default value is no character (NULL).
19	Release Cause/Completion Indicator	ENUM	This field displays the cause for call release. The most commonly used values, taken directly from the signaling message field, are: • 001 = Unassigned (unallocated) number • 016 = Normal call clearing • 017 = User busy • 018 = No user responding • 019 = User alerting, no answer • 020 = Subscriber absent • 021 = Call rejected • 023 = Redirect to new destination • 025 = Exchange routing error • 028 = Invalid number format (incomplete number) • 031 = Normal, unspecified • 034 = no circuit/channel available • 041 = Temporary failure • 079 = Service or option not implemented, unspecified • 086 = Call having the requested call identity has been cleared • 102 = Recovery on time expiry • 128 = Session Timer Expired Default value is no character (NULL). For a full list of possible values, refer to Appendix A, “Not Applicable Standard CDR Values”
40	Originating Party Identifier	ENUM	This field displays the originating party identifier. Possible values are: • 900 = Originating Side Endpoint on OpenScape Voice (Originating) • 901 = Originating Side Endpoint **not** on OpenScape Voice (Incoming) • 902 = Terminating Side Endpoint on OpenScape Voice (Terminating) • 903 = Terminating Side Endpoint **not** on OpenScape Voice (Outgoing) • 999 = Unknown

Table 3 Standard CDR Record Format (Page 3 of 15)

No.	Field	Data Type	Description
41	Terminating Party Identifier	ENUM	This field displays the terminating party identifier. Possible values are: • 900 = Originating Side Endpoint on OpenScape Voice (Originating) • 901 = Originating Side Endpoint **not** on OpenScape Voice (Incoming) • 902 = Terminating Side Endpoint on OpenScape Voice (Terminating) • 903 = Terminating Side Endpoint **not** on OpenScape Voice (Outgoing) • 999 = Unknown
48	Call Answer Time	DATE	This field displays the call answer time to the nearest tenth of a second. The default value is no character (NULL).
49	Call Release Time	DATE	This field displays the call release time to the nearest tenth of a second. The default value is no character (NULL).
50	Incoming Leg Connect Time	DATE	This field displays the incoming call connect time of the incoming call leg to the nearest tenth of a second. The default value is no character (NULL).
51	Incoming Leg Release Time	DATE	This field displays the incoming call release time of the incoming call leg to the nearest tenth of a second. The default value is no character (NULL).
52	Outgoing Leg Connect Time	DATE	This field displays the call connect time of the outgoing call leg to the nearest tenth of a second. The default value is no character (NULL).
53	Outgoing Leg Release Time	DATE	This field displays the call release time of the outgoing call leg to the nearest tenth of a second. The default value is no character (NULL).

Table 3 Standard CDR Record Format (Page 4 of 15)

No.	Field	Data Type	Description
64	Per Call Feature	BITWISE ENUM	This field describes the 'per call feature' activation and the features usage in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. • 0 = no feature • 1 = Anonymous Call Rejection Treatment • 2 = Call Forward Busy Line / Call Forward on Busy • 4 = Call Forward Don't Answer / Call Forward on No Answer • 8 = Call Forward Variable / Call Forward Unconditional • 16 = Calling Number Delivery Blocking / Calling Line Identity Restriction • 32 = Calling Name Delivery Blocking • 64 = Calling ID Delivery and Suppression • 128 = Calling Number Delivery to Called / Calling Line Identity Presentation • 256 = Calling Name Delivery to Called • 512 = Private/OOA Delivery to CND • 1,024 = Private/OOA Delivery to CNAM • 2,048 = Both Name and Number Delivered • 4,096 = Both Name and Number not Delivered • 8,192 = Calling Number but not Name Delivered • 16,384 = Calling Name but not Number Delivered • 32,768 = Enhanced Call Forwarding / Selective Call Forwarding (**Note 1**) • 65,536 = Remote Activation Call Forwarding • 131,072 = Remote Call Forwarding / Permanent Call Forwarding • 262,144 = Selective Call Forwarding (**Note 2**) • 524,288 = Distinctive Ringing / Call Waiting • 1,048,576 = Malicious Call Trace / Malicious Caller ID • 2,097,152 = Selective Call Rejection • 4,194,304 = Selective Call Acceptance • 33,554,432 = Call Forwarding Override • 67,108,864 = One Way Speaker Broadcast • 134,217,728 = Alternative Call Identity • 17,592,186,044,416 = Call Transfer • 70,368,744,177,664 = Speed Calling • 281,474,976,710,656 = Toll Restriction • 36,028,797,018,963,968 = Completion of Calls on Busy Subscriber • 72,057,594,037,927,936 = Completion of Calls on No Reply • 144,115,188,075,855,872 = Last Outgoing Number Redial • 288,230,376,151,711,744 = Last Incoming Number Redial **Note 1**: Enhanced call forwarding provides CF on a time-of-day basis. In some markets, the name 'selective call forwarding' is used for time-of-day CF. **Note 2**: This selective call forwarding feature is the CLASS feature used in the North American market.
65	Forwarding party	STRING	A string of up to 16 characters that represents the provisioned (assigned) subscriber number of the user who forwarded the call. In the case of multiple (chain) forwarding, this field contains the last forwarding party. When set, this field must be used as the paying party for this call, instead of the calling party. The default value is no character (NULL).

Table 3 Standard CDR Record Format (Page 5 of 15)

No.	Field	Data Type	Description
66	Intermediate Indicator	STRING	This field indicates whether an intermediate CDR is used. It is set only if the current CDR is an “Intermediate Call Record” CDR. • 1 = Intermediate CDR The default value is no character (NULL).
67	Originating Side: Codec Negotiated	BITWISE ENUM	This field displays the codecs negotiated in a call. Audio codecs are added in ascending order and video codecs in descending order. The default value is no character (NULL). Possible values are: • 1 = G.711 64 k PCM a-law compression • 2 = G.711 56 k PCM a-law compression • 4 = G.711 64 k PCM u-law compression • 8 = G.711 56 k PCM u-law compression • 16 = G.722 compression to 64 Kbps • 32 = G.722 compression to 56 Kbps • 64 = G.722 compression to 48 Kbps • 128 = G.723 voice coding with compression • 256 = G.728 • 512 = G.729 • 1024 = G.729 Annex A • 2,048 = is11172 capability • 4,096 = is13818 capability • 8,192 = G.729 Annex B • 16,384 = G.729 Annex A and B • 32,768 = G.723.1 Annex capability • 65,536 = GSM full rate • 131,072 = GSM half rate • 262,144 = GSM enhanced full rate • 524,288 = G.726 40 Kbps • 1,048,576 = G.726 32 Kbps • 2,097,152 = G.726 24 Kbps • 4,194,304 = G.726 16kbps • 8,388,608 = G.729E • 16,777,216 = T.38_Loose/T.38_Fax • 33,554,432 = ILBC • 67,108,864=BV16 • 134,217,728=T.38_Image • 268,435,456 = Telephone_Event • 536,870,912 = Clearmode 64K Unrestricted • 1,073,741,824=AMR_NB • 2,147,483,648 = AMR_WB **Continued on next page...**

Table 3 Standard CDR Record Format (Page 6 of 15)

No.	Field	Data Type	Description
67	Originating Side: Codec Negotiated (continued)	BITWISE ENUM	• 4,294,967,296 = AAC_LC • 8,589,934,592 = G7221_24 • 17,179,869,184 = G7221_32 • 34,359,738,368 = G7221_48 • • Spare Codec Values • • 9,007,199,254,740,992 = H263_2000 (video) • 18,014,398,509,481,984 = H263_1998 (video) • 36,028,797,018,963,968 = MP2T (video) • 72,057,594,037,927,936 = MPV (video) • 144,115,188,075,855,872 = H261 (video) • 288,230,376,151,711,744 = NV (video) • 576,460,752,303,423,488 = JPEG (video) • 1,152,921,504,606,846,976 = CE1B (video) • 2,305,843,009,213,693,952 = MPEG4 (video) • 4,611,686,018,427,387,904 = H264 (video) • 9,223,372,036,854,775,808 = H263 (video) Default value is no character (NULL)
77	Terminating Side: Codec Negotiated	BITWISE ENUM	This field displays the codec negotiated on the terminating side. Possible values are: • 1 = G.711 64 k PCM a-law compression • 2 = G.711 56 k PCM a-law compression • 4 = G.711 64 k PCM u-law compression • 8 = G.711 56 k PCM u-law compression • 16 = G.722 compression to 64 Kbps • 32 = G.722 compression to 56 Kbps • 64 = G.722 compression to 48 Kbps • 128 = G.723 voice coding with compression • 256 = G.728 • 512 = G.729 • 1,024 = G.729 Annex A • 2,048 = is11172 capability • 4,096 = is13818 capability • 8,192 = G.729 Annex B • 16,384 = G.729 Annex A and B • 32,768 = G.723.1 Annex capability • 65,536 = GSM full rate • 131,072 = GSM half rate • 262,144 = GSM enhanced full rate • 524,288 = G.726 40kbps • 1,048,576 = G.726 32kbps • 2,097,152 = G./726 kbps • 4,194,304=G.726 16kbps • 8,388,608=G.729E • 16,777,216=T.38_Loose/T.38_Fax • 33,554,432=ILBC • 67,108,864=BV16 • 134,217,728=T.38_Image • 268,435,456=Telephone_Event • 536,870,912 = Clearmode 64K Unrestricted **Continued on next page...**

Table 3 Standard CDR Record Format (Page 7 of 15)

No.	Field	Data Type	Description
77	Terminating Side: Codec Negotiated (Continued)	BITWISE ENUM	• 1,073,741,824=AMR_NB • 2,147,483,648 = AMR_WB • 4,294,967,296 = AAC_LC • 8,599,934,592 = G7221_24 • 17,179,869,184 = G7221_32 • 34,359,738,368 = G7221_48 • • Spare Codec Values • • 9,007,199,254,740,992 = H263_2000 (video) • 18,014,398,509,481,984 = H263_1998 (video) • 36,028,797,018,963,968 = MP2T (video) • 72,057,594,037,927,936 = MPV (video) • 144,115,188,075,855,872 = H261 (video) • 288,230,376,151,711,744 = NV (video) • 576,460,752,303,423,488 =J PEG (video) • 1,152,921,504,606,846,976 = CE1B (video) • 2,305,843,009,213,693,952 = MPEG4 (video) • 4,611,686,018,427,387,904 = H264 (video) • 9,223,372,036,854,775,808 = H263 (video) The default value is no character (NULL).
87	BG Orig. MDR Customer ID	STRING	**General Note:** For this business group field and all other business group-related data fields that follow: Some or all of the business group-related data fields supported in the current release are populated when either one or both endpoint sides in the call is a BG facility and the BG MDR capability is turned on. This field displays the originating business group MDR customer ID (up to 10 numeric-only digits). The default value is no character (NULL).
88	BG Term. MDR Customer ID	STRING	This field displays the terminating business group MDR customer ID (up to 10-numeric only digits). The default value is no character (NULL).
89	BG Authorization Code	STRING	Identifies the Authorization code digits employed in the Originating Business Group call. If the 'Private'/'Business' call feature is used then the authorization code (PIN) is replaced with ***. If desired, it is possible to turn of the hiding of the PIN (see Section 4.2.2.2, "Determining the Paying Party") Default value is no character (NULL).
90	BG Account Code	STRING	This field displays the account code digits employed in the originating business group or residential call. In order for this field to be populated for business group calls, the business group MDR capability must be enabled. The default value is no character (NULL).

Table 3 Standard CDR Record Format (Page 8 of 15)

No.	Field	Data Type	Description
91	BG Orig. Facility Type	ENUM	This field displays the originating business group facility type. Possible values are: • 0 = Default None • 1 = BG Co-located Line • 2 = BG Co-located Attendant • 3 = BG Trunk Physical Private Facility • 4 = BG Trunk Virtual Private Facility • 5 = Non-BG Collocated Line • 6 = Non-BG Trunk Public Network Facility • 7 = BG FX • 8 = Other BG Facility • 9 = Other Non-BG Facility The default value is no character (NULL). **NOTE**: Values 3, 4, 7, 8 and 9 are not currently supported and are not populated.
92	BG Term. Facility Type	ENUM	This field displays the terminating business group facility type. Possible values are: • 0 = Default None • 1 = BG Co-located Line • 2 = BG Co-located Attendant • 3 = BG Trunk Physical Private Facility • 4 = BG Trunk Virtual Private Facility • 5 = Non-BG Co-located Line • 6 = Non-BG Trunk Public Network Facility • 7 = BG FX • 8 = Other BG Facility • 9 = Other Non-BG Facility The default value is no character (NULL). **Note 1**: Values 3, 4, 7, 8 and 9 are not currently supported and are not populated. **Note 2**: This field has a value of 5 if the originating BG facility call (originating BG has MDR capability turned on) terminates to a non-BG residential line or to a different BG line with MDR capability turned off.
93	BG Orig. Station Facility ID	STRING	This field displays the seven-digit (NXX-XXXX) DN for an originating business group subscriber. The default value is no character (NULL).
94	BG Term. Station Facility ID	STRING	This field displays the seven-digit (NXX-XXXX) DN for a terminating business group subscriber. The default value is no character (NULL).s

Table 3 Standard CDR Record Format (Page 9 of 15)

No.	Field	Data Type	Description
95	BG Call Completion Code	ENUM	This field displays the call completion code for an originating business group call. Possible values are: • 0 = Completed: Call Connected without having been queued at this switch (normal case) • 1 = Completed: Call Connected after having been queued at this switch • 2 = Not Completed: Invalid Office or Area Code • 3 = Not Completed: Invalid Auth Code • 4 = Not Completed: Insufficient FRL • 5 = Not Completed: All facility busy or call failure at this switch • 6 = Not Completed: Call abandoned from queue or abandoned before being put in queue • 7 = Not Completed: Call timed out of queue • 8 = Not Completed/Unconnected: Non-queued call abandoned after a trunk or line is seized (normal case) • 9 = Not Completed/Unconnected: Queued call abandoned after a trunk or line is seized The default value is no character (NULL). **NOTE**: Values 1, 4, 6, 7 and 9 are not currently supported and are not populated.
95	BG Call Completion Code (continued)	ENUM	• 9 = Not Completed/Unconnected: Queued call abandoned after a trunk or line is seized The default value is no character (NULL). **NOTE**: Values 1, 4, 6, 7 and 9 are not currently supported and are not populated.
96	BG Business Feature Code	ENUM	This field displays the originating business group call feature code. Possible values are: • 0 = Default None • 1 = Attendant Handled • 2 = Call Forward • 3 = Toll Diverted (not supported in this release) The default value is no character (NULL).
99	BG Access Code	STRING	This field displays the business group dialing prefix access code dialed by the originating business group facility. This field is populated only when the dialed prefix access code is an on-net or off-net prefix access code type (that is, this field does not get populated for BG extension dialing, vertical service code dialing or, obviously, if the orig. BG MDR capability is turned off). The default value is no character (NULL).
100	Additional CDRs	BITWISE ENUM	• 0 = Default, Default value is no character (NULL) • 2 = Queue Record; one or more queue records are generated • 8 = Call Forwarding Record; one or more call forwarding records are generated

Table 3 Standard CDR Record Format (Page 10 of 15)

No.	Field	Data Type	Description
101	Original Dialed Digits	DIGITS	Up to a 128-digit string identifying the original digits dialed by the originating endpoint. For a BG endpoint, if the BG MDR control flag is turned on, the BG prefix on-net or off-net access code (if dialed) is stripped and the field is populated with the remaining original dialed digits. Otherwise, the field is populated with the original dialed digits. Default value is no character (NULL). **Note**: In the following cases, the pattern is the same as the terminating number/called party (field 11): • The final translated terminating number is the number dialed. • Calls with a service vertical code dialed for feature activation. If the 'Private'/'Business' call feature is used (see Section 4.2.2.2, "Determining the Paying Party") then the authorization code (PIN) is replaced with ***. Display of the PIN can be enabled if desired.
102	BG Department Name	STRING	Up to a 60-character string identifying the business group department name that the originating business group endpoint belongs to. This field is output regardless of whether the BG MDR control is turned on.
103	Number of Fax Pages Sent/ Received	INT	This field is valid when the media type is 'Image'. This field indicates the total number of fax pages sent and received for a fax setup. **Note:** This field is populated only if the gateway device supports the T.38 fax capability; otherwise, it defaults to NULL or 0 (assuming the media type is 'Image'.
104	Media Type	BITWISE ENUM	The field identifies the media types used during a call. • 1 = Audio • 2 = Video • 4 = IM (Instant Messaging) • 8 = Image (for example, Fax) The default value is no character (NULL).
105	Incoming Phone Context	STRING	A max. of 10-character alphanumeric string representing the incoming phone context, for example, country code. The default is no character (NULL).

Table 3 Standard CDR Record Format (Page 11 of 15)

No.	Field	Data Type	Description
106	Per Call Feature Extension	BITWISE ENUM	This field describes the usage of "per call features" in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. This field shows usage of features beyond those covered by the Per Call Feature field. • 1 = Large Conference Initiation • 2 = Large Conference Participant Addition • 4 = Set Top Box Caller ID • 8 = Executive Override • 16 = Call Forward Do Not Disturb • 32 = Call Forwarding Dependable • 64 = Call Forward to Voicemail • 128 = One number Service Device (OND) Calling Party (preliminary) • 256 = One Number Service Device (OND) Called Party (preliminary) • 512 = Keyset Bridged to Call • 1,024 = Call to MLHG • 2,048 = Call Pickup • 4,096 = Directed Call Pickup • 8,192 = E911 Call • 16,384 = Silent Monitor • 32,768=Call Fwd Invalid Destination • 65,536 = Server Call Park • 131,072 = Server Call Park Retrieval • 262,144 = Class of Service Switch Over • 524,288 = Collect (Reverse Charge) Call • 1,048,576 = Private Call • 2,097,152 = Business Call The default value is NULL.

Table 3 Standard CDR Record Format (Page 12 of 15)

No.	Field	Data Type	Description
107	Call Event Indicator	BITWISE ENUM	This field describes general switch attribute conditions or events that takes place during a call setup. Values: • NULL= none (default) • 1=LG Conf Port Allocation per Business Group Exceeded. • 2=ENUM Query Occurred on this call. • 4 = Non-priority Subscriber • 8 = Priority 1 Subscriber • 16 = Switch-wide Catastrophe Service Restriction Level 1 • 32 = Switch-wide Catastrophe Service Restriction Level 2 • 64 = Subscriber Rerouted Call due to CAC Restriction • 128 = MLHG Advance No Answer • 256 = MLHG Overflow • 512 = MLHG Night Service • 1,024 = Forwarded from MLHG • 2,048 = Held Party Hung Up • 4,096 = Holding Party Hung Up • 8,192 = Call was Picked Up • 16,384 = Subscriber Rerouted Call due to WAN Outage • 32,768 = Split Mode Upgrade • 65,536 = CSTA Deflect • 131,072 = Advanced Subscriber Rerouted Call due to CAC Restriction • 262,144 = Call Transfer Recall • 524,288=E911 LIN Transported and Not CPN • 1,048,576= Feature Activation/Deactivation **Note** for values 4, 8, 16, and 32: When a call is blocked as a result of a declared switch-wide catastrophe, either value 4 or 8 (not both) is set to indicate the provisioned preference category of the originating subscriber, and either value 16 and 32 (not both) is set to indicate the level of the catastrophe. For calls not blocked due to a declared switch-wide catastrophe, none of these 4 values are set.
108	Secure RTP Indicator	ENUM	This field indicates if secure RTP is used for the bearer channel. When this information is unknown, this field defaults to NULL. • NULL = Unknown (default) • 1 = RTP used • 2 = Secure RTP used
109	Originating Domain	STRING	Up to 64 alphanumeric character string representing originating domain. Default value is no character (NULL).
110	Terminating Domain	STRING	Up to 64 alphanumeric character string representing terminating domain. Default value is no character (NULL).
111	Traffic Type ID	INT	The ID of the traffic type associated with the destination code or code index of the dialed destination. Possible values are 1 - 128. Default value is NULL.
121	Global Call ID - Node	STRING	Identifies the node that created the global call ID. This field has a maximum value of 10 characters in the format 11-222-333. The default value is NULL.
122	Global Call ID - Sequence	INT	Identifies the sequence number of the global call ID. The default value is NULL.

Table 3 Standard CDR Record Format (Page 13 of 15)

No.	Field	Data Type	Description
123	Transferred from DN	STRING	Identifies the DN that transferred its call in a call transfer scenario. This field can have up to 16 digits if a call is transferred and is NULL for non-transferred calls.
124	Global Thread ID - Node	STRING	Identifies the node that created the global thread ID. This field has a maximum value of 10 characters in the format 11-222-333. The default value is NULL.
125	Global Thread ID - Sequence	INT	Identifies the sequence number of the global thread ID.
126	Ingress SIP Endpoint Address	STRING	Depending on how the endpoint is provisioned, this field records either the IP address (up to 15 characters) or the first 40 characters of the fully qualified domain name for the subscriber or non-subscriber SIP endpoint on the A-side of the call. Alternatively, if the SIP endpoint is hidden behind a session border controller (SBC) and the SBC signals the endpoint's private and public IP addresses (or FQDNs) to OpenScape Voice, then up to 48 characters can be recorded. The default value is NULL.
127	Egress SIP Endpoint Address	STRING	Depending on how the endpoint is provisioned, this field records either the IP address (up to 15 characters) or the first 40 characters of the fully qualified domain name of the subscriber or non-subscriber SIP endpoint on the B-side of the call. Alternatively, if the SIP endpoint is hidden behind an SBC and the SBC signals the endpoint's private and public IP addresses (or FQDNs) to OpenScape Voice, then up to 48 characters can be recorded. The default value is NULL.
128	Destination Party Number	DIGITS	An up to 128-character string that represents the new destination for a call if different from the terminating number/called party (field 11). If the destination of a call changes during a call, then this field is updated with the number of the new destination. This field is currently used in MLHG (to record the member number, the overflow DN, or the deflect-to DN in the controlled hunt application) and in Call Pickup (to record the connected party number). In all other cases, this field is either left empty or contains the same value as field 11, "Terminating Number/Called Party". Default value is no character (NULL).
129	Total Hold Time	INT	This field contains the total time the call was on hold in tenths of seconds. A call is on hold when one or both parties put the call on hold. This field applies only to SIP-phone-initiated hold and includes consultation hold, manual hold, CSTA-initiated hold, call transfer, etc.
130	BG Additional MDR customer ID	STRING	Identifies the Business Group MDR Customer ID (up to 10 numeric only digits) of the 'Paying Party', or the 'Forwarded from DN, or the 'Transferred from DN', in this order of precedence if at least one of the above fields is set. Default value is no character (NULL)

Table 3 Standard CDR Record Format (Page 14 of 15)

No.	Field	Data Type	Description
131	Precedence level of call	INT	This field contains the precedence level of the call with the higher priority. The new field supports the following numeric values (in ascending order of priority): • 0 (ROUTINE) (Default) • 2 (PRIORITY) • 4 (IMMEDIATE) • 6 (FLASH) • 8 (FLASH OVERRIDE)

Table 3 Standard CDR Record Format (Page 15 of 15)

3.4.2 Intermediate CDR

By default, intermediate CDRs are generated every 30 minutes of active and established call time. This generation period is configurable. The layout is the same as the standard CDR, except that field 2 has a different record type value and field 66 has value = 1, as shown in Table 4 below. For the layout and definitions of all remaining fields, refer to Section 3.4.1, “Standard CDR”.

The standard CDR can be correlated with any associated intermediate CDR(s) by means of the 32-character numerical sequence part of the “Record ID” and “Switch ID” fields, which always have the same values across these CDRs.

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field displays the sequential number of the call record within the file.
2	Record Type	ENUM	This field displays the type of record. The value for an Intermediate Call record is shown in bold: • 00000000 = Standard Call Record • **00000001 = Intermediate Call Record** • 00000004 = Queue Record • 00000005 = Call Forwarding Record • 10000001 = Long Call Audit Record • 10000010 = Change of Software Audit Record • 10000100 = Feature Activation / Deactivation Record • 10000101 = Half Call Release Record • 10000111 = QoS Record For a full list of possible values refer to Appendix A, “Not Applicable Standard CDR Values”
66	Intermediate Indicator	STRING	This field indicates whether an intermediate CDR is used. It is set only if the current CDR is an intermediate call record. • 1 = Intermediate CDR The default value is no character (NULL).

Table 4 Intermediate CDR Record Format

3.4.3 Queue CDR

For a call that involves queuing, a queue CDR is generated in addition to the standard CDR. In this case, field 100 in the standard CDR field (’Additional CDRs’) will show the value ‘2’, indicating that the call involved queuing.

The standard CDR can be correlated with any associated queue CDRs are correlated to the same call setup by means of the 32-character numerical sequence part of the “Record ID” and “Switch ID” fields, which always have the same values across these CDRs.

Table 5 describes the fields contained in a queue CDR.

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field displays the sequential number of the call record within the file.
2	Record Type	ENUM	This field displays the type of record. The value for a Queue record is shown in bold: • 00000000 = Standard Call Record • 00000001 = Intermediate Call Record • **00000004 = Queue Record** • 00000005 = Call Forwarding Record • 10000001 = Long Call Audit Record • 10000010 = Change of Software Audit Record • 10000100 = Feature Activation / Deactivation Record • 10000101 = Half Call Release Record • 10000111 = QoS Record For a full list of possible values refer to Appendix A, “Not Applicable Standard CDR Values”
3	Start Time	DATE	This field indicates the call setup start date/time stamp (queue CDR is instantiated upon entering the queue) to the nearest tenth of a second.
4	Switch ID	STRING	This field displays a 16-character string that identifies the OpenScape Voice system by hostname.
5	Record ID	STRING	This field displays the DATE, plus an incrementing 32-character numerical sequence that uniquely identifies each record and, in combination with the switch ID, allows troubleshooting even after CDRs are normalized and combined with data from other devices.
6	Spare	INT	Not used; value is no character (NULL).
7	Queue Identification	DIGITS	This field contains a max. 20-digit string that identifies the multiline hunt group pilot DN number the call was queued to.
8	Queue Start Time	DATE	This field indicates the start time to the nearest tenth of a second of when the call entered the queue.

Table 5 Queue CDR Record Format (Page 1 of 2)

No.	Field	Data Type	Description
9	Queue End Time	DATE	This field indicates the end time to the nearest tenth of a second of when the call was de-queued or abandoned the queue.
10	Queue Elapsed Time	INT	This field indicates the length of time, in tenths of seconds, the call was in the queue before it was de-queued or abandoned.
11	Disposition of Queued Call	ENUM	This field indicates the disposition of the queued call. Possible values are: • 1 = Queued Call De-queued • 2 = Queued Call Abandoned
12	Queued Call Presented to Party Number	STRING	Up to a 16-character string that identifies the multiline hunt group member DN or any other party DN the call is presented to for a de-queued call disposition. The default value is no character (NULL).

Table 5 Queue CDR Record Format (Page 2 of 2)

3.4.4 Call Forwarding CDR

For a call that involves call forwarding, one call forwarding CDR is generated for each call forwarding leg, up to a maximum of 5, in addition to the standard CDR record. The standard CDR field “Additional CDR” is formatted with a value of ‘8’ to indicate that the call involved call forwarding.

The standard CDR can be correlated with any associated call forwarding CDR(s) by means of the 32 character numerical sequence part of the “Record ID” and “Switch ID” fields, which always have the same values across these CDRs. An RTP configuration parameter is available that, if set, causes call forwarding CDRs to be generated with intermediate CDRs, in addition to being generated with standard CDRs. The default value of this parameter (Srx/Main/SendCFCDRWithICDR) is “RtpFalse” (not set) and can be configured from the CLI menu by selecting **1 (Configuration Management)**, **1 (Configuration Parameters)**, **3 (modifyParameter)**.

Table 6 describes the fields contained in a call forwarding CDR.

Note: All business group data applies to the forwarding party.

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field provides the sequential number of the call record within the file.
2	Record Type	ENUM	This field displays the type of record. The value for a Call Forwarding record is shown in bold: • 00000000 = Standard Call Record • 00000001 = Intermediate Call Record • 00000004 = Queue Record • **00000005 = Call Forwarding Record** • 10000001 = Long Call Audit Record • 10000010 = Change of Software Audit Record • 10000100 = Feature Activation/Deactivation Record • 10000101 = Half Call Release Record • 10000111 = QoS Record For a full list of possible values refer to Appendix A, “Not Applicable Standard CDR Values”
3	Start Time	DATE	This field provides the call forwarding setup start date/time stamp (call forwarding CDR is instantiated when service is invoked) to the nearest 1/10 of a second.

Table 6 Call Forwarding CDR Record Format (Page 1 of 5)

No.	Field	Data Type	Description
4	Switch ID	STRING	This field displays a 16-character string identifying the OpenScape Voice system by hostname. Default value is no character (NULL).
5	Record ID	STRING	Call reference number. This value is the same for all call forwarding records and the standard CDR associated with a call.
6	Forwarded to Party	DIGITS	A string of up to 128 characters identifying the number of the user to whom the call is forwarded. If the forwarded-to party is an OpenScape Voice subscriber, then this field contains the provisioned (assigned) subscriber number. If the 'Private'/'Business' call feature is used then the authorization code (PIN) is replaced with ***. If desired, it is possible to turn of the hiding of the PIN (see Section 4.2.2.2, "Determining the Paying Party"). The default value is no character (NULL).
7	Forwarding Party	DIGITS	A string of up to 16 characters string identifying the provisioned (assigned) number of the forwarding party. The default value is no character (NULL).
8	Call Type	ENUM	This field specifies the type of call attempt: • 0 = Voice call • 1 = Data call • 5 = International Call The default value is no character (NULL).
9	Per Call Feature	BITWISE ENUM	This field describes the per call feature activation and the features usage in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. • 0 = no feature • 1 = Anonymous Call Rejection Treatment • 2 = Call Forward Busy Line / Call Forward on Busy • 4 = Call Forward Don't Answer / Call Forward on No Answer • 8 = Call Forward Variable / Call Forward Unconditional • 16 = Calling Number Delivery Blocking / Calling Line Identity Restriction • 32 = Calling Name Delivery Blocking • 64 = Calling ID Delivery and Suppression • 128 = Calling Number Delivery to Called / Calling Line Identity Presentation • 256 = Calling Name Delivery to Called • 512 = Private/OOA Delivery to CND • 1,024 = Private/OOA Delivery to CNAM • 2,048 = Both Name and Number Delivered • 4,096 = Both Name and Number not Delivered • 8,192 = Calling Number but not Name Delivered • 16,384 = Calling Name but not Number Delivered • 32,768 = Enhanced Call Forwarding / Selective Call Forwarding (**Note 1**) • 65,536 = Remote Activation Call Forwarding • 131,072 = Remote Call Forwarding / Permanent Call Forwarding

Table 6 Call Forwarding CDR Record Format (Page 2 of 5)

No.	Field	Data Type	Description
9	Per Call Feature (continued)	BITWISE ENUM	• 262,144 = Selective Call Forwarding (**Note 2**) • 524,288 = Distinctive Ringing / Call Waiting • 1,048,576 = Malicious Call Trace / Malicious Caller ID • 2,097,152 = Selective Call Rejection • 4,194,304 = Selective Call Acceptance • 33,554,432 = Call Forwarding Override • 67,108,864 = One Way Speaker Broadcast • 134,217,728 = Alternative Call Identity • 17,592,186,044,416 = Call Transfer • 70,368,744,177,664 = Speed Calling • 281,474,976,710,656 = Toll Restriction • 36,028,797,018,963,968 = Completion of Calls on Busy Subscriber • 72,057,594,037,927,936 = Completion of Calls on No Reply • 144,115,188,075,855,872 = Last Outgoing Number Redial • 288,230,376,151,711,744 = Last Incoming Number Redial **Note 1**: Enhanced call forwarding provides CF on a time-of-day basis. In some markets, the name selective call forwarding is used for time-of-day CF. **Note 2**: This selective call forwarding feature is the CLASS feature used in the North American market.
10	BG Orig. MDR Customer ID	STRING	**Note:** For this business group field and all other business group-related data fields that follow, some or all of the business group-related data fields supported in the current release are populated when one of the endpoints in the call is a business group facility and the business group MDR capability is turned on. This field displays the originating business group MDR customer ID (up to 10 numeric-only digits). The default value is no character (NULL).
11	BG Term. MDR Customer ID	STRING	This field identifies the terminating business group MDR customer ID. Default value is no character (NULL).
12	BG Authorization Code	STRING	This field identifies the authorization code digits employed in the originating business group call. Default value is no character (NULL).
13	BG Account Code	STRING	This field identifies the account code digits employed in the originating business group call. Default value is no character (NULL).
14	BG Orig. Facility Type	ENUM	This field identifies the originating business group facility type. • 0 = Default None • 1 = BG Co-located Line • 2 = BG Co-located Attendant • 3 = BG Trunk Physical Private Facility • 4 = BG Trunk Virtual Private Facility • 5 = Non-BG Co-located Line • 6 = Non-BG Trunk Public Network Facility • 7 = BG FX • 8 = Other BG Facility • 9 = Other Non-BG Facility Default value is no character (NULL). **Note:** Values 3, 4, 7, 8, and 9 are not supported and are not populated in the current release.

Table 6 Call Forwarding CDR Record Format (Page 3 of 5)

No.	Field	Data Type	Description
15	BG Term. Facility Type	ENUM	This field identifies the terminating business group facility type. • 0 = Default None • 1 = BG Co-located Line • 2 = BG Co-located Attendant • 3 = BG Trunk Physical Private Facility • 4 = BG Trunk Virtual Private Facility • 5 = Non-BG Co-located Line • 6 = Non-BG Trunk Public Network Facility • 7 = BG FX • 8 = Other BG Facility • 9 = Other Non-BG Facility Default value is no character (NULL). **Note1**: Values 3, 4, 7, 8 and 9 are not supported and are not populated in the current release **Note 2**: This field has a value of 5 if the originating BG facility (originating BG has MDR capability turned on) call terminates to a non-BG residential line or to a different BG line whose MDR capability is turned off.
16	BG Orig. Station Facility ID	STRING	This field identifies the seven digit (NXX-XXXX) DN for an originating business group subscriber. The default value is no character (NULL).
17	BG Term. Station Facility ID	STRING	This field identifies the seven digit (NXX-XXXX) DN for a terminating business group subscriber. The default value is no character (NULL).
18	BG Call Completion Code	ENUM	This field identifies the call completion code for an originating business group call. • 0 = Completed: Call Connected without having been queued at this switch (normal case) • 1 = Completed: Call Connected after having been queued at this switch • 2 = Not Completed: Invalid Office or Area Code • 3 = Not Completed: Invalid Auth Code • 4 = Not Completed: Insufficient FRL • 5 = Not Completed: All facility busy or call failure at this switch • 6 = Not Completed: Call abandoned from queue or abandoned before being put in queue • 7 = Not Completed: Call timed out of queue • 8 = Not Completed/Unconnected: Non-queued call abandoned after a trunk or line is seized (normal case) • 9 = Not Completed/Unconnected: Queued call abandoned after a trunk or line is seized The default value is no character (NULL). **Note**: Values 1, 4, 6, 7 and 9 are not supported and are not populated in the current release.
22	BG Access Code	STRING	This field identifies the business group dialing prefix access code dialed by the originating business group facility. This field is populated only when the dialed prefix access code is an on-net or off-net prefix access code type (that is, this field does is not populated for BG extension dialing or for vertical service code dialing, or obviously if the orig. BG MDR capability is turned off). The default value is no character (NULL).

Table 6 Call Forwarding CDR Record Format (Page 4 of 5)

No.	Field	Data Type	Description
23	BG Department Name	STRING	This field displays an up to 60-character string identifying the BG department name that the originating BG endpoint belongs to. This field is output regardless of whether the BG MDR control is turned on.
24	Number of Fax Pages Sent/ Received	INT	This field is valid when the media type is 'Image'. This field represents the sum number of fax pages sent and received for a fax setup. **Note**: The field's population is dependent on the gateway devices supporting the T.38 fax capability. If the media type is Image the default value = 0. For other media types, this field is Null.
25	Call Forward CDR Sequence Number	INT	This field is the sequence number of this CDR record within the sequence of call forwarding CDRs having the same switch ID and record ID (fields 4 and 5). Along with field 26, this field provides a means for the billing mediation server to verify that it has processed all the call forwarding records for one call.
26	Total Call Forward CDRs	INT	This field represents the total number of call forwarding CDRs in the sequence of call forwarding CDRs having the same switch ID and record ID (fields 4 and 5).
27	Per Call Feature Extension	BITWISE ENUM	This field describes the per call feature activation and the features usage in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. • 1 = Large Conference Initiation • 2 = Large Conference Participant Addition • 4 = Set Top Box Caller ID • 8 = Executive Override • 16 = Call Forward Do Not Disturb • 32 = Call Forwarding Dependable • 64 = Call Forward to Voicemail • 128 = One number Service Device (OND) Calling Party (preliminary) • 256 = One Number Service Device (OND) Called Party (preliminary) • 512 = Keyset Bridged to Call • 1,024 = Call to MLHG • 2,048 = Call Pickup • 4,096 = Directed Call Pickup • 8,192 = E911 Call • 16,384 = Silent Monitor • 32,768=Call Fwd Invalid Destination • 65,536 = Server Call Park • 131,072 = Server Call Park Retrieval • 262,144 = Class of Service Switch Over • 524,288 = Collect (Reverse Charge) Call • 1,048,576 = 'Private call' • 2,097,152 = 'Business call' The default value is no character (NULL).

Table 6 Call Forwarding CDR Record Format (Page 5 of 5)

3.4.5 Long Call Audit CDR

A long call audit CDR is generated for a call whose duration is longer than two consecutive midnights. The record itself is generated at the 2nd midnight and each midnight thereafter. A standard CDR is generated when the call is released, and field 4 contains the total overall call duration.

Although long call audit records contain essentially the same information as standard CDR records (refer to Table 3, "Standard CDR Record Format"), **the following fields, including comma delimiters, are not part of the long duration audit record:**

- Attempt Indicator (field 18 in the standard CDR)
- Release Cause / Completion Indicator (field 19 in the standard CDR)
- Call Release Time (field 49 in the standard CDR)
- Incoming Carrier Release Time (field 51 in the standard CDR)
- Outgoing Carrier Release Time (field 53 in the standard CDR)
- IC / INC Call Event Status (field 61 in the standard CDR)

For this reason, the field numbers in the long call audit record do not match the field numbers in the standard call record (for example, ‘Additional CDRs’ is field 94 in the long call audit record, while it is field 100 in the standard CDR).

The following fields are not being used and are empty in the Long Call Audit CDR:

- 8, 10, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 42, 43, 44, 45, 49, 50, 51, 52, 53, 54, 55, 56, 57, 60, 62, 63, 64, 65, 66, 67, 68, 69, 70, 72, 73, 74, 75, 76, 77, 78, 79, 80, 91, 92, 106, 107, 108, 109, 110, 111, 112, 113, 114

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field displays the sequential number of the call record within the file.

Table 7 Long Call Audit Record Format (Page 1 of 11)

No.	Field	Data Type	Description
2	Record Type	ENUM	This field displays the type of record. The value for a Long Call Audit record is shown in bold: • 00000000=Standard Call Record • 00000001=Intermediate Call Record • 00000004=Queue Record • 00000005=Call Forwarding Record • **10000001=Long Call Audit Record** • 10000010=Change of Software Audit Record • 10000100=Feature Activation/Deactivation Record • 10000101 = Half Call Release Record • 10000111 = QoS Record For a full list of possible values refer to Appendix A, “Not Applicable Standard CDR Values”
3	Start Time	DATE	This field provides the call setup start date/time stamp to the nearest tenth of a second.
4	Duration of call	INT	This field provides subscriber call connect time in tenths of seconds. For long call duration records, this field provides total subscriber call connect time upon record generation. (An INT value supports call duration in excess of 13.6 years).
5	Switch ID	STRING	This field displays a 16-character string which identifies OpenScape Voice system by Host Name.
6	Record ID	STRING	This field displays the DATE plus a 32 character numerical number which uniquely identifies each record and, in combination with switch ID, allows troubleshooting even after CDR(s) are normalized and combined with data from other devices.
7	Keyset Prime Line (formerly Customer Name/Number)	STRING	This field displays a string of up to 16 characters in length that associates the initiator of the call with the provisioned (assigned) customer number or name. Since keysets allow multiple line appearances of BGLs, this field indicates the physical BGL from where the call originated, while field 12 indicates the actual line appearance DN. When a BGL’s keyset use is ’None’, the value is NULL. This field is applicable only for keyset prime lines and does not apply to multiple address appearances (MAA). In case of an emergency call and if the 'Transport LIN instead of CPN' option is selected then this field shall contain the actual calling party number, the 'calling party' field shall contain the LIN, and the 'Per Call Feature Extension field shall contain the 'E911 call' flag..
9	Call Segment Duration	INT	This field provides the time elapsed, in tenths of seconds, since the last record generated for this particular call (for example, for long call duration records and other calls with multiple records). For conventional CDR(s), the value of this field is identical to that delivered in Duration of Call Field 4. For long call duration records, the value is the time elapsed since the immediately preceding long call duration record.

Table 7 Long Call Audit Record Format (Page 2 of 11)

No.	Field	Data Type	Description
11	Terminating Number/Called Party	DIGITS	An up to 128-characters string that represents the number of the user to whom the call is directed. If the called party is an OpenScape Voice **subscriber** then this field contains the provisioned (assigned) subscriber number. The default value is no character (NULL).
12	Originating Number/Calling Party	DIGITS	An up to 128 characters string that represents the number of the user who initiated the call. If the calling party is an OpenScape Voice subscriber then this field contains the provisioned (assigned) subscriber number. For keyset devices that make a call, this field contains the DN of the line appearance used to make the call. The default value is no character (NULL). In case of an emergency call and if the 'Transport LIN instead of CPN' option is selected then this field shall contain the LIN, the 'customer name/number' field shall contain the actual calling party number, and the 'Per Call Feature Extension field shall contain the 'E911 call' flag.
13	Paying Party	DIGITS	This field displays a string of up to 16 characters that associates the paying party of a call with the provisioned (assigned) subscriber number. This field represents the number of the user who is responsible for the cost of the call. The default value is no character (NULL).
38	Originating Party Identifier	ENUM	This field identifies the originating party identifier. Possible values are: • 900=Originating Side Endpoint on OpenScape Voice (Originating) • 901=Originating Side Endpoint not on OpenScape Voice (Incoming) • 902=Terminating Side Endpoint on OpenScape Voice (Terminating) • 903=Terminating Side Endpoint not on OpenScape Voice (Outgoing) • 999=Unknown
39	Terminating Party Identifier	ENUM	This field identifies the terminating party identifier. Possible values are: • 900=Originating Side Endpoint on OpenScape Voice (Originating) • 901=Originating Side Endpoint not on OpenScape Voice (Incoming) • 902=Terminating Side Endpoint on OpenScape Voice (Terminating) • 903=Terminating Side Endpoint not on OpenScape Voice (Outgoing) • 999=Unknown
46	Call Answer Time	DATE	Call Answer Time to nearest 1/10th second. Default value is no character (NULL).
47	Incoming Leg Connect Time	DATE	This field displays the call connect time to nearest tenth of a second of the incoming call leg. Default value is no character (NULL).4
48	Outgoing Leg Connect Time	DATE	This field displays the call connect time to nearest tenth of a second of the outgoing call leg. Default value is no character (NULL).

Table 7 Long Call Audit Record Format (Page 3 of 11)

No.	Field	Data Type	Description
58	Per Call Feature	BITWISE ENUM	This field describes the “per call feature” activation and the feature(s) usage in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. • 0=no feature • 1=Anonymous Call Rejection Treatment • 2=Call Forward Busy Line / Call Forward on Busy • 4=Call Forward Don’t Answer / Call Forward on No Answer • 8=Call Forward Variable / Call Forward Unconditional • 16=Calling Number Delivery Blocking / Calling Line Identity Restriction • 32=Calling Name Delivery Blocking • 64=Calling ID Delivery and Suppression • 128=Calling Number Delivery to Called / Calling Line Identity Presentation • 256=Calling Name Delivery to Called • 512=Private/OOA Delivery to CND • 1,024= Private/OOA Delivery to CNAM • 2,048=Both Name and Number Delivered • 4,096=Both Name and Number not Delivered • 8,192=Calling Number but not Name Delivered • 16,384=Calling Name but not Number Delivered • 32,768=Enhanced Call Forwarding / Selective Call Forwarding (Note 1) • 65,536=Remote Activation Call Forwarding • 131,072=Remote Call Forwarding / Permanent Call Forwarding • 262,144=Selective Call Forwarding (Note 2) • 524,288=Distinctive Ringing / Call Waiting • 1,048,576=Malicious Call Trace / Malicious Caller ID • 2,097,152=Selective Call Rejection • 4,194,304=Selective Call Acceptance • 33,554,432 = Call Forwarding Override • 67,108,864 = One Way Speaker Broadcast • 134,217,728 = Alternative Call Identity • 17,592,186,044,416=Call Transfer • 70,368,744,177,664=Speed Calling • 281,474,976,710,656=Toll Restriction • 36,028,797,018,963,968=Completion of Calls on Busy Subscriber • 72,057,594,037,927,936=Completion of Calls on No Reply • 144,115,188,075,855,872=Last Outgoing Number Redial • 288,230,376,151,711,744=Last Incoming Number Redial **Note 1**: Enhanced Call Forwarding provides CF on a time-of-day basis. In some markets, the name Selective Call Forwarding is used for time-of-day CF. **Note 2**: This Selective Call Forwarding feature is the CLASS feature used in the North American market.
59	Forwarding party	STRING	A string of up to 16 characters that represents the provisioned (assigned) subscriber number of the user who forwarded the call. In the case of multiple (chain) forwarding, this field shall contain the last forwarding party. When set, this field must be used as the paying party for this call, instead of the calling party. The default value is no character (NULL).

Table 7 Long Call Audit Record Format (Page 4 of 11)

No.	Field	Data Type	Description
61	Originating Side: Codec Negotiated	BITWISE ENUM	This field identifies the Codec(s) used and negotiated in a call. The Audio Codec(s) are added in ascending order and Video Codec(s) are added in a descending order. • 1 = G.711 64k PCM a-law compression • 2 = G.711 56k PCM a-law compression • 4 = G.711 64k PCM u-law compression • 8 = G.711 56k PCM u-law compression • 16 = G.722 compression to 64kbps • 32 = G.722 compression to 56kbps • 64 = G.722 compression to 48kbps • 128 = G.723 voice coding with compression • 256 = G.728 • 512 = G.729 • 1,024 = G.729 Annex A • 2,048 = is11172 capability • 4,096 = is13818 capability • 8,192 = G.729 Annex B • 16,384 = G.729 Annex A & B • 32,768 = G.723.1 Annex capability • 65,536 = GSM full rate • 131,072 = GSM half rate • 262,144 = GSM enhanced full rate • 524,288 = G.726 40kbps • 1,048,576 = G.726 32kbps • 2,097,152 = G.726 24kbps • 4,194,304 = G.726 16kbps • 8,388,608 = G.729E • 16,777,216 = T.38_Loose/T.38_Fax • 33,554,432 = ILBC • 67,108,864 = BV16 • 134,217,728 = T.38_Image • 268,435,456 = Telephone_Event • 536,870,912 = Clearmode 64K Unrestricted • 1,073,741,824 = AMR_NB • 2,147,483,648 = AMR_WB • 4,294,967,296 = AAC_LC • 8,599,934,592 = G7221_24 • 17,179,869,184 = G7221_32 • 34,359,738,368 = G7221_48 • • Spare Codec Values • • 9,007,199,254,740,992 = H263_2000 (video) • 18,014,398,509,481,984 = H263_1998 (video) • 36,028,797,018,963,968 = MP2T (video) • 72,057,594,037,927,936 = MPV (video) • 144,115,188,075,855,872 = H261 (video) • 288,230,376,151,711,744 = NV (video) • 576,460,752,303,423,488 = JPEG (video) • 1,152,921,504,606,846,976 = CE1B (video) • 2,305,843,009,213,693,952 = MPEG4 (video) • 4,611,686,018,427,387,904 = H264 (video) • 9,223,372,036,854,775,808 = H263 (video) The default value is no character (NULL).

Table 7 Long Call Audit Record Format (Page 5 of 11)

No.	Field	Data Type	Description
70	Terminating Side: Codec Negotiated	BITWISE ENUM	This field identifies the Codec(s) used and negotiated in a call. The Audio Codec(s) are added in ascending order and Video Codec(s) are added in a descending order. • 1 = G.711 64k PCM a-law compression • 2 = G.711 56k PCM a-law compression • 4 = G.711 64k PCM u-law compression • 8 = G.711 56k PCM u-law compression • 16 = G.722 compression to 64kbps • 32 = G.722 compression to 56kbps • 64 = G.722 compression to 48kbps • 128 = G.723 voice coding with compression • 256 = G.728 • 512 = G.729 • 1,024 = G.729 Annex A • 2,048 = is11172 capability • 4,096 = is13818 capability • 8,192 = G.729 Annex B • 16,384 = G.729 Annex A & B • 32,768 = G.723.1 Annex capability • 65,536 = GSM full rate • 131,072 = GSM half rate • 262,144 = GSM enhanced full rate • 524,288 = G.726 40kbps • 1048,576 = G.726 32kbps • 2,097,152 = G.726 24kbps • 4,194,304 = G.726 16kbps • 8,388,608 = G.729E • 16,777,216 = T.38_Loose/T.38_Fax • 33,554,432 = ILBC • 67,108,864 = BV16 • 134,217,728 = T.38_Image • 268,435,456 = Telephone_Event • 536,870,912 = Clearmode 64K Unrestricted • 1,073,741,824 = AMR_NB • 2,147,483,648 = AMR_WB • 4,294,967,296 = AAC_LC • 8,599,934,592 = G7221_24 • 17,179,869,184 = G7221_32 • 34,359,738,368 = G7221_48 • • Spare Codec Values • • 9,007,199,254,740,992 = H263_2000 (video) • 18,014,398,509,481,984 = H263_1998 (video) • 36,028,797,018,963,968 = MP2T (video) • 72,057,594,037,927,936 = MPV (video) • 144,115,188,075,855,872 = H261 (video) • 288,230,376,151,711,744 = NV (video) • 576,460,752,303,423,488 = JPEG (video) • 1,152,921,504,606,846,976 = CE1B (video) • 2,305,843,009,213,693,952 = MPEG4 (video) • 4,611,686,018,427,387,904 = H264 (video) • 9,223,372,036,854,775,808 = H263 (video) Default value is no character (NULL).

Table 7 Long Call Audit Record Format (Page 6 of 11)

No.	Field	Data Type	Description
81	BG Orig. MDR Customer ID	STRING	**Note:** For this business group field and all other business group-related data fields that follow, some or all of the business group-related data fields supported in the current release are populated when one of the endpoints in the call is a business group facility and the business group MDR capability is turned on. This field displays the originating business group MDR customer ID (up to 10 numeric-only digits). The default value is no character (NULL).
82	BG Term. MDR Customer ID	STRING	This field identifies the terminating business group MDR Customer ID (up to 10 numeric only digits. Default value is no character (NULL).
83	BG Authorization Code	STRING	Identifies the Authorization code digits employed in the Originating Business Group call. It is not set when the 'Private'/'Business' call feature is used (see Section 4.2.2.2, "Determining the Paying Party") Default value is no character (NULL).
84	BG Account Code	STRING	This field identifies the Account code digits employed in the originating business group call. Default value is no character (NULL).
85	BG Orig. Facility Type	ENUM	This field identifies the originating business group Facility type. • 0 = Default None • 1 = BG Collocated Line • 2 = BG Collocated Attendant • 3 = BG Trunk Physical Private Facility • 4 = BG Trunk Virtual Private Facility • 5 = Non-BG Collocated Line • 6 = Non-BG Trunk Public Network Facility • 7 = BG FX • 8 = Other BG Facility • 9 = Other Non-BG Facility Default value is no character (NULL). **Note**: values 3, 4, 7, 8 and 9 are not supported and are not populated in current release.
86	BG Term. Facility Type	ENUM	**Note1**: values 3, 4, 7, 8 and 9 are not supported and are not populated in current release **Note2**: This field will have a value of '5' if the originating BG facility (originating BG has MDR Capability turned on) call terminates to a non-BG residential line or to a different BG line whose MDR Capability is turned off.
87	BG Orig. Station Facility ID	STRING	This field identifies the seven digit (NXX-XXXX) DN for an originating business group Subscriber. The default value is no character (NULL).
88	BG Term. Station Facility ID	STRING	This field identifies the seven digit (NXX-XXXX). DN for a terminating business group Subscriber. The default value is no character (NULL).

Table 7 Long Call Audit Record Format (Page 7 of 11)

No.	Field	Data Type	Description
89	BG Call Completion Code	ENUM	This field identifies the call completion code for an originating business group call. • 0 = Completed: Call Connected without having been queued at this switch (normal case) • 1 = Completed: Call Connected after having been queued at this switch • 2 = Not Completed: Invalid Office or Area Code • 3 = Not Completed: Invalid Auth Code • 4 = Not Completed: Insufficient FRL • 5 = Not Completed: All facility busy or call failure at this switch • 6 = Not Completed: Call abandoned from queue or abandoned before being put in queue • 7 = Not Completed: Call timed out of queue • 8 = Not Completed/Unconnected: Non-queued call abandoned after a trunk or line is seized (normal case) • 9 = Not Completed/Unconnected: Queued call abandoned after a trunk or line is seized Default value is no character (NULL). **Note**: values 1, 4, 6, 7 and 9 are not supported and are not populated in current release.
90	BG Business Feature Code	ENUM	This field identifies the originating business group call feature code. • 0 = Default None • 1 = Attendant Handled • 2 = Call Forward • 3 = Toll Diverted (not supported in current release) Default value is no character (NULL).
93	BG Access Code	STRING	This field identifies the business group dialing prefix access code dialed by the originating business group facility. This field is populated only when the dialed prefix access code is an on-net or off-net prefix access code type (i.e. this field does not get populated for BG extension dialing, vertical service code dialing or obviously if the Orig. BG MDR capability is turned off). The default value is no character (NULL).
94	Additional CDR(s)	BITWISE ENUM	This field indicates the additional Record(s) that are generated besides the Standard Call Record. • 0 = Default, Default value is no character (NULL). • 2 = Queue Record; One or more Queue records are generated • 8 = Call Forward Record: One or more Call Forward records are generated.
95	Original Dialed Digits	DIGITS	This field displays an up to 128-character string, this field identifies the original digits dialed by the originating endpoint. For a BG endpoint and if the BG MDR Control flag is turned on, the BG prefix on-net or off-net access code (if dialed) is stripped and the field is populated with the remaining original dialed digits. Otherwise, the field is populated with the original dialed digits. Default value is no character (NULL). **Note**: In some cases, the pattern will be the same as the Terminating Number/Called Party (field #11) for the following cases: - The final translated terminating number is the number dialed. - Calls involving Service Vertical Code dialed for feature activation.

Table 7 Long Call Audit Record Format (Page 8 of 11)

No.	Field	Data Type	Description
96	BG Department Name	STRING	This field displays an up to 60-character string, this field identifies the BG Department Name that the originating BG endpoint belongs to. This field is output regardless of whether the BG MDR Control is turned on or not. The default is no character (NULL).
97	Number of Fax Pages Sent/ Received	INT	This field is valid when the Media Type is Image. This field represents the sum number of Fax pages sent and Fax pages received for a Fax setup. **Note**: The field's population is dependent on the gateway devices supporting the T.38 Fax capability. If media type is Image the default value=0. For other media types this field will be Null.
98	Media Type	BITWISE ENUM	The field identifies the media type(s) used during a call. • 1 = Audio • 2 = Video • 4 = IM (Instant Messaging) • 8 = Image (for example, Fax) The default value is no character (NULL).
99	Incoming phone-context	STRING	Up to 10 character alphanumeric string representing incoming phone-context e.g. country code. The default value is no character (NULL).
100	Per Call Feature Extension	BITWISE ENUM	This field describes the 'per call feature' feature(s) usage in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. This field shows usage of features beyond those covered by the field "Per Call Feature". • 1 = Large Conference Initiation • 2 = Large Conference Participant Addition • 4 = Set Top Box Caller ID • 8 = Executive Override • 16 = Call Forward Do Not Disturb • 32 = Call Forwarding Dependable • 64 = Call Forward to Voicemail • 128 = One Number Service (OND) Calling Party (preliminary) • 256 = One Number Service Device (OND) Called Party (preliminary) • 512 = Keyset Bridged to Call • 1,024 = Call to MLHG • 2,048 = Call Pickup • 4,096 = Directed Call Pickup • 8,192 = E911 Call • 16,384 = Silent Monitor • 32,768=Call Fwd Invalid Destination • 65,536 = Server Call Park • 131,072 = Server Call Park Retrieval • 262,144 = Class of Service Switch Over • 524,288=Collect (Reverse Charge) Call • 1,048,576 = 'Private call' • 2,097,152 = 'Business call' The default value is NULL.

Table 7 Long Call Audit Record Format (Page 9 of 11)

No.	Field	Data Type	Description
101	Call Event Indicator	BITWISE ENUM	This field describes general switch attribute conditions or events that took place during a call setup. Values: • NULL= none (default) • 1=LG Conf Port Allocation per Business Group Exceeded. • 2= ENUM Query Occurred on This Call • 4=Non-priority Subscriber • 8=Priority 1 Subscriber • 16=Switch-wide Catastrophe Service Restriction Level 1 • 32=Switch-wide Catastrophe Service Restriction Level 2 • 64 = Subscriber Rerouted Call due to CAC Restriction • 128 = MLHG Advance No Answer • 256 = MLHG Overflow • 512 = MLHG Night Service • 1,024 = Forwarded from MLHG • 2,048 = Held Party Hung Up • 4,096 = Holding Party Hung Up • 8,192 = Call was Picked Up • 16,384 = Subscriber Rerouted Call due to WAN Outage • 32,768 = Split Mode Upgrade • 65,536 = CSTA Deflect • 131,072 = Advanced Subscriber Rerouted Call due to CAC Restriction • 262,144 = Call Transfer Recall • 524,288=E911 LIN Transported and Not CPN • 1,048,576= Feature Activation/Deactivation **Note** for values 4, 8, 16, 32: When a call is blocked as a result of a declared switch-wide catastrophe. either value 4 or 8 (not both) is set to indicate the provisioned preference category of the originating subscriber, and either value 16 or 32 (not both) is set to indicate the level of the catastrophe. For calls not blocked due to a declared switch-wide catastrophe, none of these 4 values is set.
102	Secure RTP Indicator	ENUM	This field indicates if Secure RTP is used for the bearer channel. If this information is unknown it will default to NULL. NULL=Unknown (default) • 1 = RTP used • 2 = Secure RTP used
111	Traffic Type ID	INT	The ID of the traffic type associated with the destination code or code index of the dialed destination. Possible values are 1 - 128. Default value is NULL.
113	Originating Domain	STRING	Up tp 64 alphanumeric character string representing the originating domain. Default value is no character (i.e. NULL).
114	Terminating Domain	STRING	Up tp 64 alphanumeric character string representing the terminating domain. Default value is no character (i.e. NULL).
115	Global Call ID - Node	STRING	Identifies the Node that created the Global Call ID. This field has a maximum value of 10 characters in the format 11-222-333. The default value is NULL.

Table 7 Long Call Audit Record Format (Page 10 of 11)

No.	Field	Data Type	Description
116	Global Call ID - Sequence	NULL	Identifies the sequence number of the Global Call ID. The default value is NULL.
117	Transferred from DN	STRING	Identifies the DN that transferred its call in a call transfer scenario. This field can have up to 16 digits if a call is transferred and is NULL for non-transferred calls.
118	Global Thread ID - Node	STRING	Identifies the Node that created the Global Thread ID. This field has a maximum value of 10 characters in the format 11-222-333. The default value is NULL.
119	Global Thread ID - Sequence	INT	Identifies the sequence number of the Global Thread ID. The default value is NULL.
120	Ingress SIP Endpoint Address	STRING	Depending on how the endpoint is provisioned, this field records the IP address (up to 15 characters), or the first 40 characters of the Fully Qualified Domain Name, of the subscriber or non-subscriber SIP endpoint on the A-side of the call. Alternatively, if the SIP endpoint is hidden behind a Session Border Controller and the SBC signals the endpoint's private and public IP Addresses (or FQDN's) to OpenScape Voice, then up to 48 characters can be recorded. The default value is NULL.
121	Egress SIP Endpoint Address	STRING	Depending on how the endpoint is provisioned, this field records the IP address (up to 15 characters), or the first 40 characters of the Fully Qualified Domain Name, of the subscriber or non-subscriber SIP endpoint on the B-side of the call. Alternatively, if the SIP endpoint is hidden behind a Session Border Controller and the SBC signals the endpoint's private and public IP Addresses (or FQDN's) to OpenScape Voice, then up to 48 characters can be recorded. The default value is NULL.
122	Destination Party Number	DIGITS	An up to 128-character string that represents the new destination for a call if different from the "Terminating Number/Called Party" (field 11). If the destination of a call changes during a call, then this field is updated with the number of the new destination. This field is currently used in MLHG (to record the member number, the overflow DN, or the deflect-to DN in the controlled hunt application) and in Call Pickup (to record the connected party number). In all other cases, this field is either left empty or contains the same value as field 11, "Terminating Number/Called Party". Default value is no character (NULL).
123	Total Hold Time	INT	This field contains the total time the call was on hold in tenths of seconds. A call is on hold when one or both parties put the call on hold. This field applies only to SIP-phone-initiated hold and includes consultation hold, manual hold, CSTA-initiated hold, call transfer, etc.
124	BG Additional MDR customer ID	STRING	Identifies the Business Group MDR Customer ID (up to 10 numeric only digits) of the 'Paying Party', or the 'Forwarded from DN, or the 'Transferred from DN', in this order of precedence if at least one of the above fields is set. Default value is no character (NULL)

Table 7 Long Call Audit Record Format (Page 11 of 11)

3.4.6 Change of Software Audit CDR

A change of software audit record is generated when software modifications are made on a particular switch (i.e., rolling upgrades, not new installations). Table 8 describes the fields contained in a change of software audit record.

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field displays the sequential number of the call record within the file.
2	Record Type	ENUM	This field displays the type of record. The value for a Change of Software Audit record is shown in bold: • 00000000 = Standard Call Record • 00000001 = Intermediate Call Record • 00000004 = Queue Record • 00000005 = Call Forwarding Record • 10000001 = Long Call (Duration) Audit Record • **10000010 = Change of Software Audit Record** • 10000100 = Feature Activation / Deactivation Record • 10000101 = Half Call Release Record • 10000111 = QoS Record For a full list of possible values refer to Appendix A, “Not Applicable Standard CDR Values”
3	Previous Software Version	STRING	This string identifies the software in service prior to the software change.
4	Current Software Version	STRING	This string identifies the software in service after the software change.
5	Time	DATE	This field provides the date/time stamp of the SW change to the nearest 1/10 of a second.
6	Administrator	STRING	This field provides the user name of the user that modified the software.
7	Switch ID	STRING	This field contains the ID of the switch on which the software was changed.

Table 8 Change of Software Audit Record Format

3.4.7 Feature Activation / Deactivation CDR

Feature activation / deactivation records are generated when a user activates or deactivates a call feature using an access code. Features that trigger a feature activation / deactivation record are:

- Anonymous call rejection
- Automatic callback
- Automatic recall
- Call completion on No Reply
- Call completion on busy subscriber
- Call forwarding—variable
- Call forwarding—busy line
- Call forwarding—do not answer
- Call forwarding—selective
- Call Forwarding Override
- Call hold
- Call waiting - terminating
- CoS (Class of Service) Switchover
- Distinctive ringing/call waiting
- Do not disturb
- Enhanced anonymous call rejection
- Last incoming number redial
- Last outgoing number redial
- Outgoing call barring
- Selective call acceptance
- Selective call rejection

Table 9 describes the fields contained in a feature activation / deactivation record.

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field displays the sequential number of the call record within the file.
2	Record Type	ENUM	This field displays the type of record. The value for a Feature Activation/ Deactivation record is shown in bold: • 00000000 = Standard Call Record • 00000001 = Intermediate Call Record • 00000004 = Queue Record • 00000005 = Call Forwarding Record • 10000001 = Long Call Audit (Duration) Record • 10000010 = Change of Software Audit Record • **10000100 = Feature Activation / Deactivation Record** • 10000101 = Half Call Release Record • 10000111=QoS Record For a full list of possible values refer to Appendix A, “Not Applicable Standard CDR Values”
3	Time	DATE	This field displays a date/time stamp of the feature activation / deactivation to the nearest tenth of a second.

Table 9 Feature Activation / Deactivation Record Format (Page 1 of 4)

No.	Field	Data Type	Description
4	Feature	BITWISE ENUM	This field displays the "per call feature" activation and the feature usage in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. Possible values are: • 0 = No feature • 1 = Anonymous call rejection treatment • 2 = Call forward busy line / Call forward on busy • 4 = Call forward don't answer / Call forward on no answer • 8 = Call forward variable / Call forward unconditional • 16 = Calling number delivery blocking / Calling line identity restriction • 32 = Calling name delivery blocking • 64 = Calling ID delivery and suppression • 128 = Calling number delivery to called / Calling line identity presentation • 256 = Calling name delivery to called • 512 = Private / OOA delivery to CND • 1,024 = Private / OOA delivery to CNAM • 2,048 = Both name and number delivered • 4,096 = Both name and number not delivered • 8,192 = Calling number but not name delivered • 16,384 = Calling name but not number delivered • 32,768 = Enhanced Call Forwarding / Selective Call Forwarding (**Note 1**) • 65,536 = Remote Activation Call Forwarding • 131,072 = Remote Call Forwarding / Permanent Call Forwarding • 262,144 = Selective Call Forwarding (**Note 2**) • 524,288 = Distinctive Ringing / Call Waiting • 1,048,576 = Malicious Call Trace / Malicious Caller ID • 2,097,152 = Selective Call Rejection • 4,194,304 = Selective Call Acceptance • 33,554,432 = Call Forwarding Override • 67,108,864 = One Way Speaker Broadcast • 134,217,728 = Alternative Call Identity • 17,592,186,044,416 = Call Transfer • 70,368,744,177,664 = Speed Calling • 281,474,976,710,656 = Toll Restriction • 36,028,797,018,963,968 = Completion of Calls on Busy Subscriber • 72,057,594,037,927,936 = Completion of Calls on No Reply • 144,115,188,075,855,872 = Last Outgoing Number Redial • 288,230,376,151,711,744 = Last Incoming Number Redial **Note 1**: Enhanced call forwarding provides CF on a time-of-day basis. In some markets, the name selective call forwarding is used for time-of-day CF. **Note 2**: This selective call forwarding feature is the CLASS feature used in the North American market.

Table 9 Feature Activation / Deactivation Record Format (Page 2 of 4)

No.	Field	Data Type	Description
5	Action	ENUM	This field indicates the feature activation/deactivation status. Possible values are: • 0 = Feature deactivated • 1 = Feature activated • 2 = Feature remains in current status • 3 = Unsuccessful activation • 4 = Unsuccessful deactivation
6	Subscriber DN	DIGITS	An up to 16-characters string that represents the directory number of subscriber activating or deactivating the feature. In the case of Class of Service Switchover feature, the DN may be followed by a '#' followed by the PIN index used by the subscriber to activate/deactivate the feature. This may occur when there are many subscribers using the same terminal. The default value is no character (NULL).
7	Secondary DN	DIGITS	An up to 128-characters string that represents the forwarded to DN or far-end DN, depending on the feature. If the 'Private'/'Business' call feature is used then the authorization code (PIN) is replaced with ***. If desired, it is possible to turn of the hiding of the PIN (see Section 4.2.2.2, "Determining the Paying Party"). The default value is no character (NULL).
8	SLE List Status	ENUM	This field displays the status of this record on the SLE list. Possible values are: • 0 = no list • 1 = deleted from SLE list • 2 = created on SLE list • 3 = edited on SLE list
9	SLE List Size	INT	This field displays the size of the SLE list.
10	Original Time	DATE	If this record indicates a feature deactivation, this field displays the date and time the feature was originally activated. If this record indicates a feature activation, this field is NULL.
11	Auto Recall/CallBack Activation Outcome	ENUM	This field displays the outcome of an auto recall/callback feature activation. Possible values are: • 0 = feature not used • 1 = immediate processing resulted in call attempt • 2 = delayed, resulting in call attempt • 3 = delayed, resulting in busy or announcement • 4 = delayed, resulting in process ending by system deactivation • 5 = delayed, resulting in process ending by user deactivation or extended by reactivation
12	Auto Recall/CallBack Re-Activation Outcome	ENUM	This field displays the outcome of an auto recall/callback feature re-activation. Possible values are: • 0 = feature not used • 1 = delayed, resulting in call attempt • 2 = delayed, resulting in busy or announcement • 3 = delayed, resulting in process ending by system deactivation • 4 = delayed, resulting in process ending by user deactivation or extended by reactivation

Table 9 Feature Activation / Deactivation Record Format (Page 3 of 4)

No.	Field	Data Type	Description
13	Feature Extension	BITWISE ENUM	This field describes the "per call feature" activation and the feature(s) usage in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. • NULL= none (default) • 1 = Large Conference Initiation • 2 = Large Conference Participant Addition • 4 = Set Top Box Caller ID • 8 =Executive Override • 16 =Call Forward Do Not Disturb • 32 =Call Forwarding Dependable • 64 =Call Forward to Voicemail • 128 =One Number Service Device (OND) Calling Party • 256 =One Number Service Device (OND) Called Party • 512 =Keyset Bridged to Call • 1,024 =Call to MLHG • 2,048 =Call Pickup • 4,096 =Directed Call Pickup • 8,192 =E911 Call • 16,384 =Silent Monitor • 32,768 =Call Fwd Invalid Destination • 65,536 =Server Call Park • 131,072 =Server Call Park Retrieval • 262,144 = Class of Service Switch Over • 524,288 = Collect (Reverse Charge) Call The default value is NULL.

Table 9 Feature Activation / Deactivation Record Format (Page 4 of 4)

3.4.8 Half Call Release CDR

A half call release CDR (HCR CDR) is generated for each endpoint device release at the primary node after return from Stand-Alone mode on OpenScape Voice V9 for calls that were initiated on the secondary node while in Stand-Alone mode (see Section 1.7, “CDR Behavior after Return from Stand-Alone Mode”). The HCR CDR contains the call release time, while the remaining call information is contained in an intermediate CDR generated for this call just before the secondary node reboots in order to join the cluster. The two CDRs can be linked together via the ’context ID’, which is the 32-character hexadecimal part of the ’Record ID’ field in the CDR. In most cases, there will be two half call release CDRs for each call (one per endpoint device release) and either one of the two can be used.

Table 10 describes the fields contained in an HCR CDR.

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field displays the sequential number of the call record within the file.
2	Record Type	ENUM	This field displays the type of record. The value for a Half Call Release record is shown in bold: • 00000000 = Standard Call Record • 00000001 = Intermediate Call Record • 00000004 = Queue Record • 00000005 = Call Forwarding Record • 10000001 = Long Call Audit (Duration) Record • 10000010 = Change of Software Audit Record • 10000100 = Feature Activation / Deactivation Record • **10000101 = Half Call Release Record** • 10000111 = QoS Record For a full list of possible values refer to Appendix A, “Not Applicable Standard CDR Values”
3	Start Time	DATE	This field provides the object instantiation date/time stamp to the nearest 1/10 of a second. Note: This is not the start time of the call, but rather the time at which the record was created.
4	Switch ID	STRING	This field contains the ID of the switch on which the software was changed.
5	Record ID	STRING	This field displays the DATE, plus an incrementing 32-character numerical sequence that uniquely identifies each record and, in combination with the switch ID, allows troubleshooting even after CDRs are normalized and combined with data from other devices. The default value is no character (NULL). **Valid only if the endpoint is a SIP.**

Table 10 Half Call Release CDR (HCR CDR) Format (Page 1 of 2)

No.	Field	Data Type	Description
6	Half Call Release Timestamp	DATE	This field provides the date/time stamp for the release of the call by the endpoint device to the nearest 1/10 of a second. The default value is no character (NULL).
7	Releasing Party Number	DIGITS	An up to 16-characters string, which associates the initiator of the call release with the endpoint device involved in the call. The default value is no character (NULL).
8	Trunk Group ID of Releasing Endpoint	STRING	Identifies the Trunk Group of the released endpoint involved in the call. Default value is no character (NULL). Note: this is only valid if the endpoint is an ISUP trunk.
9	Trunk Group Member ID of Releasing Endpoint	INT	Identifies the Trunk Group member number of the released endpoint involved in the call. Default value is no character (NULL). Note: this is only valid if the endpoint is an ISUP trunk.

Table 10 Half Call Release CDR (HCR CDR) Format (Page 2 of 2)

3.4.9 Quality of Service CDR

The QoS CDR contains QoS statistics reported by clients at the end of a call. One QoS CDR per client and per media type (video, audio) is generated when the call is released in addition to the standard CDR. The standard CDR can be correlated with any associated QoS CDRs by means of the 32-character numerical sequence part of the "Record ID" and "Switch ID" fields, which always have the same values across these CDRs. To enable the generation of the QoS CDRs, the CDR administration option Enable QoS CDRs must be checked. For detailed information, please refer to *OpenScape Voice, Configuration, Administrator Documentation*.

Table 11 describes the fields contained in a QoS CDR

No.	Field	Data Type	Description
1	Sequential Record Number	INT	This field displays the sequential number of the call record within the file.
2	Record Type	ENUM	This field displays the type of record. The value for a Standard Call record is shown in bold: • 00000000 = Standard Call Record • 00000001 = Intermediate Call Record • 00000004 = Queue Record • 00000005 = Call Forwarding Record • 10000001 = Long Call Audit Record • 10000010 = Change of Software Audit Record • 10000100 = Feature Activation / Deactivation Record • 10000101 = Half Call Release Record • **10000111 = QoS Record** For a full list of possible values, refer to Appendix A, “Not Applicable Standard CDR Values”

Table 11 Quality of Service (QoS) CDR Record Format

No.	Field	Data Type	Description
3	Switch ID	STRING	This field displays a 16-character string that identifies the OpenScape Voice system by hostname. Default value is no character (NULL).
4	Record ID	STRING	DATE plus a 32 character hexadecimal number which uniquely identifies each record and, in combination with Switch ID, allows troubleshooting even after CDR(s) are normalized and combined with data from other devices.
5	Subscriber DN	DIGITS	An up to 16-character string representing the directory number of the subscriber reporting the QoS data. Default value is no character (NULL).
6	Protocol	INT	The protocol that was used to send the QoS data. 0 = SIP 1 = MGCP
7	Media Type (MT)	INT	The media type of the following RTP/RTCP parameters 0 = audio 1 = video 2 = text 3 = application 4 = message
8	Date and Time of the beginning of the report period (TB)	DATE	The QoS reporting start date/timestamp to the nearest 1/10 of a second.
9	Date and Time of the end of the report period (TE)	DATE	The QoS reporting end date/timestamp to the nearest 1/10 of a second.
10	IP Address, local (IPL)	STRING	The IP address of the entity sending the BYE request or BYE response.
11	Port #, local (PTL)	INT	The port at which the RTP stream was received.
12	IP Address, remote (IPR)	STRING	The IP address of the entity sending the RTP stream
13	Port #, remote (PTR)	INT	The port at which the RTP stream was send.
14	SSRC sending (own system) (SRCS)	INT	The SRCS parameter (Source Synchronization Identifier) of the RTP stream that is sent by the reporting system
15	SSRC receiving (of reported stream) (SRCR)	INT	The SRCR parameter of the RTP stream that is received by the reporting system. This is the SSRC that is assigned to the stream from which the report is send.
16	Encoding Payload Type (EN)	INT	Encoding codec per RFC3551
17	Decoding Payload Type (DE)	INT	Decoding codec per RFC3551
18	Media Subtype (ST)	STRING	The media subtype in case of dynamic payload types (EN / DE > 95) per RFC3551 e.g. H263-1998
19	Silence Suppression (SS)	INT	The number of silence suppression activations seen in the received RTP stream.
20	Count of good packets (PR)	INT	The number of count good packets seen in the received RTP stream.
21	Maximum jitter (JI)	INT	The maximum jitter in ms in the received RTP stream per RFC3550.

Table 11 Quality of Service (QoS) CDR Record Format

No.	Field	Data Type	Description
22	Average round trip delay (LA)	INT	The average round trip delay value in ms over the reporting period. For each RTCP packet (not for each RTP packet) the delay is calculated. The average value is taken and truncated to milliseconds.
23	Count of lost packets (PL)	INT	The number of lost packets during the last report period before end of call in the received RTP stream.
24	Count of discarded packets (PD)	INT	The number of discarded packets in the received RTP stream.
25	Consecutive Packet Loss (CPL)	STRING	A statistic of consecutive lost packets in the received RTP stream e.g. `30.2.1`
26	Consecutive Good packets (CGP)	STRING	A statistic of consecutive good packets in the received RTP stream e.g. `0.0.2.1.6.15329.23`
27	Packets send (PS)	INT	The number of packets that were sent in the received RTP stream.
28	Octets send (OS)	INT	The number of octets that were sent in the received RTP stream.
29	Octets received (OR)	INT	The number of octets Number of all good octets received on the connection in the report period
30	Equipment Impairment Factor (IE)	INT	The impairments from low-bit codecs and packet loss
31	Weighted Terminal Coupling Loss (TCLW)	INT	Indicates how well the telephone attenuates it's echo signal. TCLW is expressed in dB
32	Service Set Identifier (SSID)	STRING	The identification of the wireless network of the entity sending the BYE request or BYE response.
33	User Metric (UM)	STRING	The subjective quality rating of the call by the user
34	User Device (UD)	STRING	User Device
35	User Device Type (UDT)	STRING	User Device Type
36	User Device Manufacturer (UDM)	STRING	User Device Manufacturer
37	User Carrier Type (UCT)	STRING	User Carrier Type
38	User Info (INFO)	STRING	Placeholder for additional end device info.
39	Global Call ID - Node	STRING	This field is for use in the Enterprise configuration to identify the Node that created the Global Call ID. This field has a maximum value of 10 characters in the format 11-222-333. The default value is NULL.
40	Global Call ID - Sequence	INT	This field is for use in the Enterprise configuration to identify the sequence number of the Global Call ID. The default value is NULL.
41	Global Thread ID - Node	STRING	This field is for use in the Enterprise configuration to identify the Node that created the Global Thread ID. This field has a maximum value of 10 characters in the format 11-222-333. The default value is NULL.
42	Global Thread ID - Sequence	INT	This field is for use in the Enterprise configuration to identify the sequence number of the Global Thread ID. The default value is NULL.

Table 11 Quality of Service (QoS) CDR Record Format

3.5 CDR Field Sizes

This section provides the CDR field sizes for the different CDR record types in OpenScape Voice V9.

3.5.1 Standard/Intermediate CDR Field Sizes

Table 12 shows the field numbers, names, and length data for the standard and intermediate CDR records.

The following fields are not being used and are empty in the standard and intermediate CDR:

- 8, 10, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 46, 47, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 68, 69, 70, 71, 72, 73, 74, 75, 76, 78, 79, 80, 81, 82, 83, 84, 85, 86, 97, 98, 112, 113, 114, 115, 116, 117, 118, 119, 120.

Field Number	Field Name	Min ASCII	Max ASCII
1	Sequential Record Number	1	6
2	Record Type	8	8
3	Start Time	26	26
4	Duration	1	10
5	Switch ID	1	16
6	Record ID	59	59
7	Keyset Prime line Name (formerly Customer Name)	0	16
9	Call Segment Duration	1	10
11	Terminating Number/Called Party	0	128
12	Originating Number/Calling Party	0	128
13	Paying Party	0	16
18	Attempt Indicator	0	2
19	Release Indicator	0	3
40	Originating Party Identifier	3	3
41	Terminating Party Identifier	3	3
48	Call Answer Time	0	26
49	Call Release Time	0	26
50	Incoming Leg Connect Time	0	26
51	Incoming Leg Release Time	0	26
52	Outgoing Leg Connect Time	0	26
53	Outgoing Leg Release Time	0	26

Table 12 CDR Field Sizes for Standard/Intermediate CDR Records (Page 1 of 3)

Field Number	Field Name	Min ASCII	Max ASCII
64	Per Call Feature	1	20
65	Forwarding party	0	16
66	Intermediate Indicator	0	1
67	Originating Side - Codec Negotiated	0	20
77	Terminating Side - Codec Negotiated	0	20
87	BG Originating MDR Customer ID	0	10
88	BG Terminating MDR Customer ID	0	10
89	BG Auth Code	0	15
90	BG Account Code	0	16
91	BG Originating Facility Type	0	1
92	BG Terminating Facility Type	0	1
93	BG Originating Station Facility ID	0	7
94	BG Terminating Station Facility ID	0	7
95	BG Call Completion Code	0	1
96	BG Business Feature Code	0	1
99	BG Access Code	0	15
100	Additional CDR(s)	0	2
101	Original Dialed Digits	0	128
102	BG Department Name	0	60
103	Number of Fax Pages Sent/Received	0	4
104	Media Type	0	2
105	Incoming Phone Context	0	10
106	Per Call Feature Extension	0	20
107	Call Event Indicator	0	10
108	Secure RTP Indicator	0	1
109	Originating Domain	0	64
110	Terminating Domain	0	64
111	Traffic Type	0	3
121	Global Call ID - Source	0	10
122	Global Call ID - Sequence	0	10
123	Transferred from DN	0	16
124	Global Thread ID - Node	0	10
125	Global Thread ID - Sequence	0	10
126	Ingress SIP Endpoint ID	0	48
127	Egress SIP Endpoint ID	0	48
128	Destination Party	0	128
129	Total Hold Time	0	10

Table 12 CDR Field Sizes for Standard/Intermediate CDR Records (Page 2 of 3)

Field Number	Field Name	Min ASCII	Max ASCII
130	BG Additional MDR customer ID	0	10
131	Precedence level of call	0	5
	All Fields summed	**104**	**1384**
	Number of commas per CDR	130	130
	Total CDR	**234**	**1514**

Table 12 CDR Field Sizes for Standard/Intermediate CDR Records (Page 3 of 3)

3.5.2 Queue CDR Field Sizes

Table 13 shows the field numbers, names, and length data for queue CDR records.

Field Number	Field Name	Min ASCII	Max ASCII
1	Sequential Record Number	1	6
2	Record Type	8	8
3	Start Time	26	26
4	Switch ID	1	16
5	Record ID	59	59
6	Spare	0	0
7	Queue Identification	0	20
8	Queue Start Time	26	26
9	Queue End Time	26	26
10	Queue Elapsed Time	1	10
11	Disposition of Queued Call	1	1
12	Queued Call Presented to Party Number	0	16
	All Fields summed	**149**	**214**
	Number of commas per CDR	11	11
	Total CDR	**160**	**225**

Table 13 CDR Field Sizes for Queue CDR Records

3.5.3 Call Forwarding CDR Field Sizes

Table 14 shows the field numbers, names, and length data for call forwarding CDR records.

Field Number	Field Name	Min ASCII	Max ASCII
1	Sequential Record Number	1	6
2	Record Type	8	8
3	Start Time	26	26
4	Switch ID	1	16
5	Record ID	59	59
6	Call Forwarding Remote DN	0	128
7	Call Forwarding Base DN	0	16
8	Call Type	0	3
9	Per Call Feature	1	20
10	BG Orig. MDR Customer ID	0	10
11	BG Term. MDR Customer ID	0	10
12	BG Authorization Code	0	15
13	BG Account Code	0	16
14	BG Orig. Facility Type	0	1
15	BG Term. Facility Type	0	1
16	BG Orig. Station Facility ID	0	7
17	BG Term. Station Facility ID	0	7
18	BG Call Completion Code	0	1
19	BG Business Feature Code	0	1
20	BG ARS Pattern Group	0	0
21	BG FRL	0	0
22	BG Access Code	0	15
23	BG Department Name	0	60
24	Number of Fax Pages Sent/Received	0	4
25	Call Forward CDR Sequence Number	1	1
26	Total Call Forward CDR(s)	1	1
27	Per Call Feature Extension	0	20
	All Fields summed	**98**	**412**
	Number of commas per CDR	26	26
	Total CDR	**124**	**438**

Table 14 CDR Field Sizes for Call Forwarding CDR Records

3.5.4 Long Call Audit CDR Field Sizes

Table 15 shows the field numbers, names, and length data for long call audit CDR records.

The following fields are not being used and are empty in the Long Call Audit CDR:

- 8, 10, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 42, 43, 44, 45, 49, 50, 51, 52, 53, 54, 55, 56, 57, 61, 62, 63, 64, 65, 66, 67, 68, 69, 71, 72, 73, 74, 75, 76, 77, 78, 79, 90, 91, 105, 106, 107, 108, 109, 110, 111, 112, 113, 123

Field Number	Field Name	Min ASCII	Max ASCII
1	Sequential Record Number	1	6
2	Record Type	8	8
3	Start Time	26	26
4	Duration of call	1	10
5	Switch ID	1	16
6	Record ID	59	59
7	Keyset Prime Line (formerly Customer Name/Number)	0	16
9	Call Segment Duration	1	10
11	Terminating Number/Called Party	0	128
12	Originating Number/Calling Party	0	128
13	Paying Party	0	16
38	Originating Party Identifier	3	3
39	Terminating Party Identifier	3	3
46	Call Answer Time	0	26
47	Incoming Leg Connect Time	0	26
48	Outgoing Leg Connect Time	0	26
58	Per Call Feature	1	20
59	Forwarded From DN	0	16
61	Originating Side - Codec Negotiated	0	20
71	Terminating Side - Codec Negotiated	0	20
81	BG Originating MDR Customer ID	0	10
82	BG Terminating MDR Customer ID	0	10
83	BG Auth Code	0	15
84	BG Account Code	0	16
85	BG Orig. Facility Type	0	1
86	BG Term. Facility Type	0	1
87	BG Orig. Station Facility ID	0	7

Table 15 CDR Field Sizes for Long Call Audit CDR Records (Page 1 of 2)

Field Number	Field Name	Min ASCII	Max ASCII
88	BG Term. Station Facility ID	0	7
89	BG Call Completion Code	0	1
90	BG Business Feature Code	0	1
93	BG Access Code	0	15
94	Additional CDR(s)	0	2
95	Original Dialed Digits	0	128
96	BG Department Name	0	60
97	Number of Fax Pages Sent/Received	0	4
98	Media Type	0	2
99	Incoming Phone Context	0	10
100	Per Call Feature Extension	0	20
101	Call Event Indicator	0	10
102	Secure RTP Indicator	0	1
111	Traffic Type	0	3
113	Originating Domain	0	64
114	Terminating Domain	0	64
115	Global Call ID - Node	0	10
116	Global Call ID - Sequence	0	10
117	Transferred from DN	0	16
118	Global Thread ID - Node	0	10
119	Global Thread ID - Sequence	0	10
120	Ingress SIP Endpoint Name	0	48
121	Egress SIP Endpoint Name	0	48
122	Destination Party	0	128
123	Total Hold Time	0	10
124	BG Additional MDR customer ID	0	10
	All Fields summed	**104**	**1295**
	Number of commas per CDR	123	123
	Total CDR	**227**	**1418**

Table 15 CDR Field Sizes for Long Call Audit CDR Records (Page 2 of 2)

3.5.5 Change of Software Audit CDR Field Sizes

Table 16 shows the field numbers, names, and length data for change of software audit CDR records.

Field Number	Field Name	Min ASCII	Max ASCII
1	Sequential Record Number	1	6
2	Record Type	8	8
3	Previous Software Version	1	128
4	Current Software Version	1	128
5	Time	26	26
6	Administrator	1	128
7	Switch ID	1	16
	All Fields summed	**39**	**440**
	Number of commas per CDR	6	6
	Total CDR	**45**	**446**

Table 16 CDR Field Sizes for Change of Software Audit CDR Records

3.5.6 Feature Activation/Deactivation CDR Field Sizes

Table 17 shows the field numbers, names, and length data for feature activation / deactivation CDR records.

Field Number	Field Name	Min ASCII	Max ASCII
1	Sequential Record Number	1	6
2	Record Type	8	8
3	Time	26	26
4	Feature	1	20
5	Action	1	1
6	Subscriber DN	0	16
7	Secondary DN	0	128
8	SLE List Status	1	1
9	SLE List Size	1	5
10	Original Time	0	26
11	Auto Recall/CallBack Activation Outcome	1	1
12	Auto Recall/Callback Re-Activation Outcome	1	1
13	Feature Extension	1	16
	All Fields summed	**42**	**251**
	Number of commas per CDR	12	12
	Total CDR	**54**	**263**

Table 17 CDR Field Sizes for Feature Activation/Deactivation CDR Records

3.5.7 Half Call Release CDR Field Sizes

Table 18 shows the field numbers, names, and length data for half call release CDR (HCR CDR) records.

Field Number	Field Name	Min ASCII	Max ASCII
1	Sequential Record Number	1	6
2	Record Type	8	8
3	Start Time	26	26
4	Switch ID	1	16
5	Record ID	59	59
6	Half Call Release Timestamp	26	26
7	Releasing Party Number	0	16
8	Trunk Group ID of Releasing Endpoint	0	16
9	Trunk Group Member ID of Releasing Endpoint	0	10
	All Fields summed	**121**	**183**
	Number of commas per CDR	8	8
	Total CDR	**129**	**191**

Table 18 CDR Field Sizes for Half Call Release CDR (HCR CDR) Records

3.5.8 QoS CDR Field Sizes

Table 19 shows the field numbers, names, and length data for QoS CDR records.

Field Number	Field Name	Min ASCII	Max ASCII
1	Sequential Record Number	1	6
2	Record Type	8	8
3	Start Time	26	26
4	Switch ID	1	16
5	Record ID	59	59
6	Protocol	1	1
7	Media Type (MT)	1	1
8	Date and Time of the begin of the report period (TB)	0	26
9	Date and Time of the end of the report period (TE)	0	26
10	IP Address, local (IPL)	0	48
11	Port #, local (PTL)	0	5
12	IP Address, remote (IPR)	0	48
13	Port #, remote (PTR)	0	5

Table 19 CDR Field Sizes for QoS CDR Records

Field Number	Field Name	Min ASCII	Max ASCII
14	SSRC sending (own system) (SRCS)	0	10
15	SSRC receiving (of reported stream) (SRCR)	0	10
16	Encoding Payload Type (EN)	3	3
17	Decoding Payload Type (DE)	0	16
18	Media Subtype (ST)	0	127
19	Silence Suppression (SS)	0	3
20	Count of good packets (PR)	1	10
21	Maximum jitter (JI)	1	10
22	Average round trip delay (LA)	1	10
23	Count of lost packets (PL)	1	10
24	Count of discarded packets (PD)	0	10
25	Consecutive Packet Loss (CPL)	0	48
26	Consecutive good packets (CGP)	0	48
27	Packets send (PS)	1	10
28	Octets send (OS)	1	10
29	Octets received (OR)	1	10
30	Equipment Impairment Factor (IE)	0	3
31	Weighted Terminal Coupling Loss (TCLW)	0	3
32	Service Set Identifier (SSID)	0	43
33	User Metric (UM)	0	7
34	User Device (UD)	0	32
35	User Device Type (UDT)	0	32
36	User Device Manufacturer (UDM)	0	32
37	User Carrier Type (UCT)	0	32
38	User Info (INFO)	0	32
39	Global Call ID - Node	0	10
40	Global Call ID - Sequence	0	10
41	Global Thread ID - Node	0	10
42	Global Thread ID - Sequence	0	10
	All Fields summed	**110**	**863**
	Number of commas per CDR	41	41
	Total CDR	**151**	**904**

Table 19 CDR Field Sizes for QoS CDR Records

3.6 CDR Sample

The example below shows a billing file (*.BF) consisting of two records (record 0 and record 1). For an explanation of the file name and format, refer to Section 3.1.1, “Billing File Name” and Section 3.1.2, “Billing File Format”.

```
FILENAME: node1vml76-20080201T134705-0500000728.BF
DEVICE: OpenScape Voice
HOSTNAME: node1vml76
FILETYPE: BILLING
VERSION: 12.00.01

CREATE: 2008-01-02T13:47:05.7-0500

0,00000000,2008-01-02T13:44:11.9-0500,73,node1vml76,2008-01-
02T13:44:11.9-
0500:FF000100000000002B22A347C0000000,,,73,,15615762009,15615762
010,,,,0,64000,0,16,0,,,0,,,0,,,0,17,17,,,,,,,5,5,900,902,5,5,,,
9,9,2008-01-02T13:44:16.0-0500,2008-01-02T13:44:23.3-0500,2008-
01-02T13:44:11.9-0500,2008-01-02T13:44:23.5-0500,2008-01-
02T13:44:12.1-0500,2008-01-02T13:44:23.4-
0500,0,2,1,1,1,1,,10,,0,2448,,,533,0,0,0,0,0,0,0,0,0,533,0,0,0,0
,0,0,0,0,0,2,2,,,1,1,5762010,5762009,0,,,,,,2009,,,1,,,,1,,,,,,,
,,,,,,0-0-0,817,,0-0-0,819,10.152.7.175,10.152.7.211,,,
1,00000000,2008-01-02T13:44:37.8-0500,247,node1vml76,2008-01-
02T13:44:37.8-
0500:FF000100000000004522A347C2000000,,,247,,15615762010,1561576
2008,,,,0,64000,0,16,0,,,0,,,0,,,0,17,17,,,,,,,5,5,900,902,5,5,,
,9,9,2008-01-02T13:44:40.6-0500,2008-01-02T13:45:05.3-0500,2008-
01-02T13:44:37.8-0500,2008-01-02T13:45:05.4-0500,2008-01-
02T13:44:38.1-0500,2008-01-02T13:45:05.3-
0500,0,2,1,1,1,1,,10,,0,2448,,,533,0,0,0,0,0,0,0,0,0,533,0,0,0,0
,0,0,0,0,0,2,2,,,1,1,5762008,5762010,0,,,,,,2010,,,1,,,,1,,,,,,,
,,,,,,0-0-0,825,,0-0-0,827,10.152.7.181,10.152.7.175,,,

CLOSE: 2008-01-02T13:47:05.7-0500
```

3.7 CDR Decoder Tool

The CDR decoder tool (cdrdecode), which can be run from the OpenScape Voice command line, takes a billing file as input and outputs the CDRs contained in the file in a readable format, including the field names and their decoded values.

The example below shows the same billing file (*.BF) from Section 3.6, “CDR Sample” after it has passed through the CDR decoder tool. For a complete listing of fields and their descriptions, refer to Section 3.4.1, “Standard CDR”.

```
FILENAME: node1vml76-20080201T134705-0500000728.BF
DEVICE: OpenScape Voice
HOSTNAME: node1vml76
FILETYPE: BILLING
VERSION: 12.00.01

CREATE: 2008-01-02T13:47:05.7-0500

FILE VERSION OK
---------------

01. Sequential Record Number:0
02. Record Type:00000000 (Standard CDR)
03. Start Time:2008-01-02 T 13:44:11.9-0500
04. Duration of Call (Tenths of seconds):73
05. Switch ID:node1vml76
06. Record ID:2008-01-02T13:44:11.9-
0500:FF000100000000002B22A347C0000000
09. Call Segment Duration (Tenths of seconds):73
11. Term Number/Called Party:15615762009
12. Orig Number/Calling Party:15615762010
16. Call Type:0(Voice Call)
17. Information Transfer Rate:64000
18. Attempt Indicator:0(Completed)
19. Release Cause/Completion Indicator:16(normal call clearing)
20. Bearer Capability Request:0(Circuit mode speech)
23. Operator Indicator:0(Direct Dialed)
26. Originating Nature of Address:0(Voice Call)
29. Route Selection:0(Standard)
30. Ingress Signaling Type:17(SIP)
31. Egress Signaling Type:17(SIP)
38. Incoming Trunk Group Signaling Type:5(Not Provisioned)
```

```
39. Outgoing Trunk Group Signaling Type:5(Not Provisioned)

40. Originating Party Identifier:900(Originating Endpoint on the
OSC Voice)

41. Terminating Party Identifier:902(Terminating Endpoint on the
OSC Voice)

42. JIP Source Indicator:5(Unknown)

43. LRN Source Indicator:5(Unknown)

46. Originating Party Query Status Indicator:9(No query done)

47. Terminating Party Query Status Indicator:9(No query done)

48. Call Answer Time:2008-01-02 T 13:44:16.0-0500

49. Call Release Time:2008-01-02 T 13:44:23.3-0500

50. Incoming Carrier Connect Time:2008-01-02 T 13:44:11.9-0500

51. Incoming Carrier Release Time:2008-01-02 T 13:44:23.5-0500

52. Outgoing Carrier Connect Time:2008-01-02 T 13:44:12.1-0500

53. Outgoing Carrier Release Time:2008-01-02 T 13:44:23.4-0500

54. Dialing and Presubscription Indicator:0(No IC/INC involved
in call)

55. Calling Party Subaddress Delivery:2(Feature used, but not
delivered)

56. Called Party Subaddress Delivery:1(Feature used, presumed
delivered)

57. Low-Layer Compatibility Information Delivery:1(Feature used,
presumed delivered)

58. High-Layer Compatibility Information Delivery:1(Feature
used, presumed delivered)

59. User-to-User Information/Fast Select:1(Feature used,
presumed delivered)

61. IC/INC Call Event Status:10(Call abandoned/released after
ANM received)

63. Service Feature Codes:0(No Services)

64. Per Call Feature:2448(CNDB, CND, CNAMD, CND+CNAMD)

67. Originating Side: Codec Used:533(G.711 64k PCM a-law, G.711
64k PCM u-law, G.722 to 64k, G.729)

68. Originating Side: TOS Used:0

69. Originating Side: Reservation Used:0(Default)

70. Originating: Packets Sent:0

71. Originating: Octets Sent:0

72. Originating: Packets Rcvd:0

73. Originating: Octets Rcvd:0

74. Originating: Packets Lost:0

75. Originating: Inter-arrival Jitter (milliseconds):0

76. Originating: Average Transmission Delay (milliseconds):0
```

```
77. Terminating Side: Codec Used:533(G.711 64k PCM a-law, G.711
64k PCM u-law, G.722 to 64k, G.729)
78. Terminating Side: TOS Used:0
79. Terminating Side: Reservation Used:0(Default)
80. Terminating: Packets Sent:0
81. Terminating: Octets Sent:0
82. Terminating: Packets Rcvd:0
83. Terminating: Octets Rcvd:0
84. Terminating: Packets Lost:0
85. Terminating: Inter-arrival Jitter (milliseconds):0
86. Terminating: Average Transmission Delay (milliseconds):0
87. BG Orig MDR Cust ID:2
88. BG Term MDR Cust ID:2
91. BG Orig Facility Type:1(BG Co-loc Line)
92. BG Term Facility Type:1(BG Co-loc Line)
93. BG Orig Station Facility ID:5762010
94. BG Term Station Facility ID:5762009
95. BG Call Completion Code:0(Completed: no queue)
101.Original Dialed Digits:2009
104.Media Type:1(Audio)
108.Secure RTP Indicator:  1(Normal RTP)
121.GCID Node:     0-0-0
122.GCID Number:     817
124.GTID Node:     0-0-0
125.GTID Number:     819
126.Ingress SIP Endpoint Address:    10.152.7.175
127.Egress SIP Endpoint Address:     10.152.7.211
```

```
01. Sequential Record Number:1
02. Record Type:00000000 (Standard CDR)
03. Start Time:2008-01-02 T 13:44:37.8-0500
04. Duration of Call (Tenths of seconds):247
05. Switch ID:node1vml76
06. Record ID:2008-01-02T13:44:37.8-
0500:FF000100000000004522A347C2000000
09. Call Segment Duration (Tenths of seconds):247
11. Term Number/Called Party:15615762010
12. Orig Number/Calling Party:15615762008
16. Call Type:0(Voice Call)
17. Information Transfer Rate:64000
18. Attempt Indicator:0(Completed)
19. Release Cause/Completion Indicator:16(normal call clearing)
20. Bearer Capability Request:0(Circuit mode speech)
23. Operator Indicator:0(Direct Dialed)
26. Originating Nature of Address:0(Voice Call)
29. Route Selection:0(Standard)
30. Ingress Signaling Type:17(SIP)
31. Egress Signaling Type:17(SIP)
38. Incoming Trunk Group Signaling Type:5(Not Provisioned)
39. Outgoing Trunk Group Signaling Type:5(Not Provisioned)
40. Originating Party Identifier:900(Originating Endpoint on the
OSC Voice)
41. Terminating Party Identifier:902(Terminating Endpoint on the
OSC Voice)
42. JIP Source Indicator:5(Unknown)
43. LRN Source Indicator:5(Unknown)
46. Originating Party Query Status Indicator:9(No query done)
47. Terminating Party Query Status Indicator:9(No query done)
48. Call Answer Time:2008-01-02 T 13:44:40.6-0500
49. Call Release Time:2008-01-02 T 13:45:05.3-0500
50. Incoming Carrier Connect Time:2008-01-02 T 13:44:37.8-0500
51. Incoming Carrier Release Time:2008-01-02 T 13:45:05.4-0500
52. Outgoing Carrier Connect Time:2008-01-02 T 13:44:38.1-0500
53. Outgoing Carrier Release Time:2008-01-02 T 13:45:05.3-0500
54. Dialing and Presubscription Indicator:0(No IC/INC involved
in call)
55. Calling Party Subaddress Delivery:2(Feature used, but not
delivered)
```

```
56. Called Party Subaddress Delivery:1(Feature used, presumed
delivered)

57. Low-Layer Compatibility Information Delivery:1(Feature used,
presumed delivered)

58. High-Layer Compatibility Information Delivery:1(Feature
used, presumed delivered)

59. User-to-User Information/Fast Select:1(Feature used,
presumed delivered)

61. IC/INC Call Event Status:10(Call abandoned/released after
ANM received)

63. Service Feature Codes:0(No Services)

64. Per Call Feature:2448(CNDB, CND, CNAMD, CND+CNAMD)

67. Originating Side: Codec Used:533(G.711 64k PCM a-law, G.711
64k PCM u-law, G.722 to 64k, G.729)

68. Originating Side: TOS Used:0

69. Originating Side: Reservation Used:0(Default)

70. Originating: Packets Sent:0

71. Originating: Octets Sent:0

72. Originating: Packets Rcvd:0

73. Originating: Octets Rcvd:0

74. Originating: Packets Lost:0

75. Originating: Inter-arrival Jitter (milliseconds):0

76. Originating: Average Transmission Delay (milliseconds):0

77. Terminating Side: Codec Used:533(G.711 64k PCM a-law, G.711
64k PCM u-law, G.722 to 64k, G.729)

78. Terminating Side: TOS Used:0

79. Terminating Side: Reservation Used:0(Default)

80. Terminating: Packets Sent:0

81. Terminating: Octets Sent:0

82. Terminating: Packets Rcvd:0

83. Terminating: Octets Rcvd:0

84. Terminating: Packets Lost:0

85. Terminating: Inter-arrival Jitter (milliseconds):0

86. Terminating: Average Transmission Delay (milliseconds):0

87. BG Orig MDR Cust ID:2

88. BG Term MDR Cust ID:2

91. BG Orig Facility Type:1(BG Co-loc Line)

92. BG Term Facility Type:1(BG Co-loc Line)

93. BG Orig Station Facility ID:5762008

94. BG Term Station Facility ID:5762010

95. BG Call Completion Code:0(Completed: no queue)

101.Original Dialed Digits:2010
```

```
104.Media Type:1(Audio)
108.Secure RTP Indicator:  1(Normal RTP)
121.GCID Node:     0-0-0
122.GCID Number:     825
124.GTID Node:     0-0-0
125.GTID Number:     827
126.Ingress SIP Endpoint Address:    10.152.7.181
127.Egress SIP Endpoint Address:     10.152.7.175

CLOSE: 2008-01-02T13:47:05.7-0500
```

4 CDR Guide for Billing Applications

4.1 Definitions

4.1.1 Calling/Called Party Location

The calling party location and the called party location indicate whether the party initiated or received a call and where the party is in relation to the switch.

Internal Party		A party residing on a switch (OpenScape Voice, OpenScape 4000, HiPath 3000, etc.) on the corporate network.
External Party		A party residing on the PSTN. An external party can be external-inc or external-out.
	External-Inc Party	A party residing on the PSTN that has initiated a call to an internal party.
	External-Out Party	A party residing on the PSTN that has received a call from an internal party.

Table 20 Calling and Called Party Locations

4.1.2 Call Type

The call type identifies the call direction (internal, incoming, outgoing, trunk-to-trunk).

Internal call	A call in which both parties are internal.
Incoming call	A call in which one of parties is external-inc and the other is internal.
Outgoing call	A call in which one of parties is external-out and the other is internal.
Trunk-to-Trunk (T2T) call	A call in which both parties are external.

Table 21 Call Types

4.1.3 Assigned-to Party

The assigned-to party is the internal party to whom the call is assigned, or in other words, the internal party who is responsible for the call.

4.1.4 Paying Party

The paying party is the internal party who is responsible for the costs of a call. The paying party is not necessarily the same as the assigned-to party (see Section 4.2.2.1, “Determining the Assigned-to Party” for more details)

4.1.5 Break-out Gateway

The break-out gateway is the gateway where an outgoing call leaves the corporate network and enters the PSTN.

4.1.6 Break-in Gateway

The break-in gateway is the gateway where an incoming call leaves the PSTN and enters the corporate network.

4.1.7 Global Call ID (GID)

The Global Call ID is a network-wide unique identifier for a call. For example, if a single call traverses more than one OpenScape Voice and/or OpenScape 4000, the CDRs created at each switch have the same Global Call ID, as shown in Figure 3.

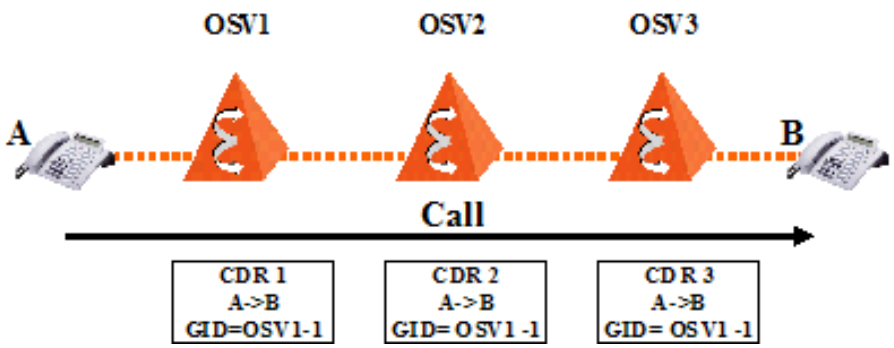

Figure 3 Multiple CDRs for a Single Call Have the Same Global Call ID (GID)

The Global Call ID consists of two parts, the Global Call ID-Node (CDR field 121) which is the PISN ID of the switch that created the Global Call ID e.g. 1-10-100 (see also chapter 2, CDR options and parameters) and the Global Call ID-Sequence (CDR field 122) which is a sequence number.

4.1.8 Thread ID (TID)

The Thread ID is a network-wide unique identifier for a complex call. A complex call consists of distinct calls that are related. For example, in a call transfer scenario with consultation, the CDRs created for the original call, the consultation call and the transferred call have the same Thread ID as shown in Figure 4.

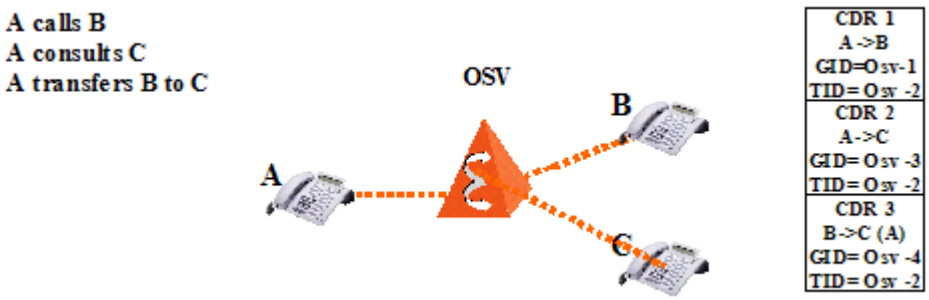

Figure 4 Different CDRs for a Complex Call Have the Same Thread ID (TID)

The Thread ID consists of two parts, Thread ID-Node (CDR field 124) which is the PISN ID of the switch that created the Thread ID e.g. 1-10-100 (see also chapter 2, CDR options and parameters) and the Thread ID-Sequence (CDR field 125) which is a sequence number.

For V8 the following features have Thread ID support:

- Call transfer (1874)
- Multi-line hunt groups (2447)
- Call pickup (2447)
- Executive/Assistant functionality (directed call pickup) (3157)
- Park to server (3293)
- One number service (2663).

4.2 Basic Accounting

In order to perform some basic call accounting using the OpenScape Voice CDRs the following must be determined:

1. What is the call type?
2. Who is responsible for the call?
3. What is the cost of the call?

4.2.1 Determining the Call Type

The call types are defined in Section 4.1.2, “Call Type”. The following table describes the rules on how to determine the call type:

<table>
<tr><th colspan="2" rowspan="2">Call type</th><th colspan="4">Called Party Location</th></tr>
<tr><th>Internal</th><th>External-inc</th><th>External-out</th><th>Unknown</th></tr>
<tr><td rowspan="4">Calling Party Location</td><td>Internal</td><td>Internal</td><td>Incoming</td><td>Outgoing</td><td rowspan="3">Unknown</td></tr>
<tr><td>External-inc</td><td>Incoming</td><td colspan="2" rowspan="2">T2T</td></tr>
<tr><td>External-out</td><td>Outgoing</td></tr>
<tr><td>Unknown</td><td colspan="4">Unknown</td></tr>
</table>

Table 22 Rules for Determining the Call Type

Obviously, in order to determine the call type, the calling and called parties' location (see Section 4.1.1, “Calling/Called Party Location”) must be determined first. The following four fields in the CDR are used for this purpose:

1. Originating (calling) Party ID (field 40)
2. Terminating (called) Party ID (field 41)
3. Ingress SIP endpoint address (field 126)
4. Egress SIP endpoint address (field 127)

4.2.1.1 Originating/Terminating Party ID Fields

The Originating (calling) and Terminating (called) Party ID fields (40, 41) in the CDR provide information about the location (as defined in Section 4.1.1, “Calling/Called Party Location”) of the calling and called parties respectively and can take the following values:

- Originating (900)
- Incoming (901)
- Terminating (902)
- Outgoing (903)
- Unknown (999)

The following field/value combinations are only possible after a call transfer. See Section 5.1, “Call Transfer” for more details.

- Originating Party ID = Terminating
- Originating Party ID = Outgoing

- Terminating Party ID = Originating
- Terminating Party ID = Incoming

Originating or Terminating	If the Originating Party ID field has value 'Originating' or 'Terminating' then this indicates that the calling party resides in the OpenScape Voice and either initiated or received a call and therefore the calling party is internal. Similarly, if the Terminating Party ID field has value 'Originating' or 'Terminating' then this indicates that the called party resides in the OpenScape Voice and either initiated or received a call and therefore the calling party is internal.
Incoming or Outgoing	If the Originating Party ID field has value 'Incoming' or 'Outgoing' then this indicates the direction of the ingress side of the call but alone does not provide sufficient information to determine whether the calling party is internal or external. In this case, in order to determine whether the calling party is internal or external, information in the Originating Party ID field has to be combined with information in the Ingress SIP Endpoint Address field. Similarly, if the Terminating Party ID field has value 'Incoming' or 'Outgoing' then this indicates the direction of the egress side of the call but alone does not provide sufficient information to determine whether the called party is internal or external. In this case, in order to determine whether the called party is internal or external, information in the Terminating Party ID field has to be combined with information in the Egress SIP Endpoint Address field.
Unknown	The ‘Unknown’ value (999) appears mainly in the Terminating Party ID; most of the time indicates that a wrong number was dialed and therefore the call could not get routed. It also occurs when a feature activation using a prefix access code (e.g. 78*) was dialed. If either the Terminating party ID or the Originating party ID is ‘Unknown’ then the calling or called party respectively may be considered to be ‘Unknown’. If either the calling or the called party is ‘Unknown’ then the call type is also considered to be ‘Unknown’. The billing application may ignore all calls that have type ‘Unknown’.

Table 23 Originating/Terminating Party ID values

4.2.1.2 Ingress/Egress SIP Endpoint Address Fields

OpenScape Voice is a native SIP-based softswitch and therefore SIP clients, other OpenScape Voice servers, OpenScape 4000s, PSTN gateways and applications connected to it are all 'SIP endpoints'. OpenScape Voice connects to SIP endpoints using their IP address or FQDN. In the OpenScape Voice landscape, trunk group/member IDs, PRIs, DS0 IDs etc., have no relevance. Instead, for each call, OpenScape Voice stores the IP/FQDN of the SIP endpoint at the Ingress and Egress side of the call in the Ingress and Egress SIP endpoint address fields (126,127) respectively.

From the IP/FQDN stored in the Ingress/Egress SIP endpoint address fields and the SIP endpoints table described in Section 4.2.5, the billing application can determine the SIP endpoint type (OpenScape Voice, OpenScape 4000, PSTN gateway or other).

4.2.1.3 Determining the Calling Party Location

As was mentioned in Section 4.2.1.1, if the Originating Party ID field has value 'Originating' or 'Terminating' then the calling party is internal. Values 'Incoming' or 'Outgoing' have to be combined with information in the Ingress SIP Endpoint Address field in order to determine whether the calling party is internal or external.

If the Originating Party ID field has value 'Incoming' and the Ingress SIP endpoint address field contains the IP/FQDN of a PSTN gateway then this means that the calling resides on the PSTN, has initiated a call to an internal party, and therefore the calling party's location is external-inc, unless the call is a 'collect' call where reverse call charging applies, in which case the calling party's location is external-out. 'Collect' call is identified via the 'Collect Reverse Charge Call' flag (524,288) in field 106 (Per Call Feature Extension).

If the Originating Party ID field has value 'Outgoing' and the Ingress SIP endpoint address field contains the IP/FQDN of a PSTN gateway, then this means that the calling resides on the PSTN, has received a call from an internal party, and therefore the calling party's location is external-out.

If the Originating Party ID field has value 'Incoming' or 'Outgoing' and the Ingress SIP endpoint address field contains the IP/FQDN of another OpenScape Voice or a OpenScape 4000, then there is not enough information to determine whether the calling party is internal or external. In this case the billing application must find the CDR that was created for this call at the other OpenScape Voice or OpenScape 4000 using the global call ID (see Section 4.1.3, “Assigned-to Party”) and use that CDR to determine the calling party's location.

If the Originating Party ID field has value 'Incoming' or 'Outgoing' and the Ingress SIP endpoint address field contains the IP/FQDN of a SIP endpoint that is not a PSTN gateway, OpenScape Voice or OpenScape 4000, then the billing application can safely assume that the calling party's location is internal. For example, calls to/from voice mail fall into this category.

The following table summarizes the rules to determine the calling party's location:

Calling Party Location		Ingress SIP Endpoint Address (field 126)		
		PSTN Gateway	**OpenScape Voice / OpenScape 4000**	**Other**
Originating Party ID (field 40)	**Originating**	Internal		
	Terminating			
	Incoming	• External-inc (normal call) • External-out (collect call)	Incomplete info*	Internal
	Outgoing	External-out	Incomplete info*	Internal
	Unknown	Unknown		

Table 24 Rules for Determining the Calling Party Location

* Look for CDR with same GID

4.2.1.4 Determining the Called Party Location

As was mentioned in Section 4.2.1.1, “Originating/Terminating Party ID Fields”, if the Terminating Party ID field has value 'Originating' or 'Terminating' then the called party is internal. Values 'Incoming' or 'Outgoing' have to be combined with information in the Egress SIP Endpoint Address field in order to determine whether the called party is internal or external.

If the Terminating Party ID field has value 'Incoming' and the Egress SIP endpoint address field contains the IP/FQDN of a PSTN gateway then this means that the called resides on the PSTN, has initiated a call to an internal party and therefore the called party's location is external-inc, unless the call is a 'collect' call where reverse call charging applies in which case the called party's location is external-out. 'Collect' call is identified via the 'Collect Reverse Charge Call' flag (524,288) in field 106 (Per Call Feature Extension).

If the Terminating Party ID field has value 'Outgoing' and the Egress SIP endpoint address field contains the IP/FQDN of a PSTN gateway then this means that the called resides on the PSTN, has received a call from an internal party and therefore the called party's location is external-out.

If the Terminating Party ID field has value 'Incoming' or 'Outgoing' and the Egress SIP endpoint address field contains the IP/FQDN of another OpenScape Voice or a OpenScape 4000 then there is not enough information to determine whether the called party is internal or external. In this case the billing application must find the CDR that was created for this call at the other OpenScape Voice or OpenScape 4000 using the global call ID (see Section 4.1.3, “Assigned-to Party”) and use that CDR to determine the called party's location.

If the Terminating Party ID field has value 'Incoming' or 'Outgoing' and the Egress SIP endpoint address field contains the IP/FQDN of a SIP endpoint that is not a PSTN gateway, OpenScape Voice or OpenScape 4000 then the billing application can safely assume that the called party's location is internal. For example, calls to/from voice mail fall into this category.

The following table summarizes the rules to determine the called party's location:

Called Party Location		Egress SIP Endpoint Address (field 127)		
		PSTN Gateway	**OpenScape Voice / OpenScape 4000**	**Other**
Terminating Party ID (field 41)	**Originating**	Internal		
	Terminating			
	Incoming	• External-inc (normal call) • External-out (collect call)	Incomplete info*	Internal
	Outgoing	External-out	Incomplete info*	Internal
	Unknown	Unknown		

Table 25 Rules for Determining the Called Party Location

* Look for CDR with same GID

4.2.2 Determining who is responsible for the call

After determining the call type the next step is to determine who should be responsible for this call, i.e. the assigned-to party. If the call has a cost that must be allocated to a user, the paying party must also be determined. The paying party is not necessarily the same as the assigned-to party (see Section 4.2.2.1 for more details)

4.2.2.1 Determining the Assigned-to Party

The assigned-to party is the internal party to whom the call is assigned, or in other words, the internal party who is responsible for the call. The assigned-to party is not always the calling party. For example, if an internal party receives an incoming call, although the internal party is the called party, he/she gets assigned this call, since a call cannot be assigned to an external party. Also, the assigned-to party is not necessarily the same as the paying party for the call. For example, in the scenario A (int) calls B (int) gets forwarded to C (ext), the call is assigned to A but the paying party is B. Another example is an incoming call where the call is assigned to the called party but there is no paying party for the call (external party pays).

The following table describes the rules on how to determine the assigned-to party:

Assigned-to Party		Called Party Location		
		Internal	**External-inc**	**External-out**
Calling Party Location	**Internal**	Calling Party (field 12)		
	External-inc	Called Party (field 11)	Transferrring (field 123)	Forwarding (field 65); or Trasferring (field 123); otherwise BG*
	External-out			Transferring (field 123)

Table 26 Rules for determining the party to whom the call is assigned

* The BG scenario should not occur, since it would indicate that routing has been misconfigured to reroute incoming calls from the PSTN back to the PSTN with no internal party held responsible for the call.

4.2.2.2 Determining the Paying Party

If the 'Paying Party' field (13) in the CDR is set, then it must always be the paying party for this call. The paying party is set in the following scenarios:

1. Simultaneous ringing.

   B (int) has simultaneous ringing to C (ext) and D (ext) activated. A calls B, B, C and D ring, C answers. In this case there will be an A->B (Paying Party empty) and A->C (Paying Party=B) CDR.

2. Call Transferred by OpenScape UC.

   In this case, OpenScape UC may specify in the REFER message which party should pay for this call (Application Provided Call Correlation and Billing Information via SIP) which in turn is stored in the 'Paying Party' field.

3. ‘Private’/‘Business’ calls.

   A user that has a ‘private’ and/or ‘business’ authorization code (PIN) may make a ‘private’ or ‘business’ call from any device that has the ’BG authorization code’ feature assigned by activating the BG authorization code feature and entering their ‘private’ or ‘business’ authorization code. In this case home DN of the user will be stored in the ‘Paying Party’ field. In addition the ‘Private call’ flag (value 1,048,576) or ‘Business Call’ flag (value 2,097,152) respectively will be set in the ‘Per Call Feature Extension Field’. For security reasons, the ‘private’ or ‘business’ authorization code used will be replaced by *** in the ‘BG Authorization Code’ and ’Original Dialed digits’

fields of the Standard CDR, in the ’Forwarded to Party’ field of the Call Forwarding CDR, and the ’Secondary DN’ field of the Feature Activation / Deactivation CDR.

Note: It is possible to turn off the hiding of the PIN by setting the RTP parameter **Srx/Service/Auth/AuthHidePinCdr** to *false* in **OSV Assistant > Administration > General Settings > RTP**

‘Private’/’Business’ authorization codes may be assigned to a user via the OSV Assistant. See also Section 4.2.3, “Determining whether a call is ’Private’”

If the 'Paying Party' field is not set, then the following rules must be applied, in the order shown, to determine the paying party for call:

1. If the Forwarding Party (65) is set, then paying party=forwarding party.
2. Otherwise, use the following table:

Paying Party		Called Party Location		
		Internal	**External-inc**	**External-out**
Calling Party Location	**Internal**	Calling Party (field 12)	not applicable	Calling Party (field 12) or Transferring (field 123)*
	External-inc	not applicable	not applicable	Transferring (field 123); otherwise BG**
	External-out	Called (field 11) or Transferring (field 123)*	Transferring (field 123)	Transferring (field 123)

Table 27 Rules for Determining the Paying Party

* Customer's preference on who should pay for a transferred call: the remaining internal party or the transferring party.

** The call is charged to the Transferring Party when set; otherwise the call is charged to the BG.

4.2.2.3 Determining the Caller ID

The caller ID is applicable only for incoming calls and can be determined by using the following table:.

Caller ID		Called Party Location		
		Internal	**External-inc**	**External-out**
Calling Party Location	**Internal**	not applicable	Called (f11)	not applicable
	External-inc	Calling (field 12)	Calling (field 12) & Called (field 11) (2 calls)	not applicable
	External-out	not applicable	not applicable	not applicable

Table 28 Rules for Determining the Caller ID

4.2.3 Determining whether a call is 'Private'

A 'private' or 'personal' call, in contrast to a 'business' call, is a call for which the charges must be allocated personally to the user who made the call. A 'private' call is recognized by the 'Private call' flag (value 1,048,576) set in the 'Per Call Feature Extension Field'. The user's home DN is stored in the 'Paying Party' field. See also Section 4.2.2.2, "Determining the Paying Party".

4.2.4 Determining the Cost of the Call

A call may or may not have costs. Normally, all outgoing calls to the PSTN have costs. Trunk-to-Trunk calls with one or two outgoing call legs also have costs. Incoming and internal calls normally do not have any cost. In order to determine the cost of a call, the following is needed:

- Called Number
- Break-out Gateway location
- Service Provider

The called number and the break-out Gateway location is used to determine the type of the PSTN call, e.g. local, mobile, national or international etc. For example, dialing +302103456789 from a gateway located in Athens is a local call. Dialing the same number from a gateway located in Munich is an international call. The PSTN service provider that terminated the call is used to determine what the cost/minute for this type of call is.

4.2.4.1 Determining the Called Number

The called number can be determined by using the following table:

Called Party		Called Party Location		
		Internal	**External-inc**	**External-out**
Calling Party Location	**Internal**	Called (field 11)	not applicable	Called (field 11)
	External-inc	not applicable	not applicable	Called (field 11)
	External-out	Calling (field 12)	Calling (field 12)	Calling (field 12) & Called (field 11) (2 calls)

Table 29 Rules for Determining the Called Number(s)

4.2.4.2 Determining the IP/FQDN of the break-out PSTN Gateway(s)

The IP/FQDN of the break-out PSTN Gateway for outgoing calls can be determined by using the following table:

IP/FQDN of Break-out PSTN Gateway(s)		Called Party Location		
		Internal	**External-inc**	**External-out**
Called Party Location	**Internal**	not applicable		Egress SIP Address (field 127)
	External-inc			
	External-out	Ingress SIP Address (field 126)		Ingress (field 126) & Egress (field 127) (2 calls)*

Table 30 Rules for Determining the Break-out PSTN Gateway(s)

* In this scenario both the ingress and the egress side of the call are outgoing. This only happens in the following call transfer scenario: A (int) calls B (ext), A consults C (ext), A transfers B to C. The resulting call consists of two distinct outgoing calls, and the paying party should be charged for both calls.

From the IP/FQDN of the break-out PSTN Gateway and the SIP endpoints table described in Section 4.2.5, “SIP Endpoints Table”, the billing application can determine the location of the gateway.

4.2.4.3 Determining the Service Provider

There is no 'Service Provider' field in the OpenScape Voice CDR. If however, an FQDN and not an IP is used when configuring a PSTN gateway then the FQDN can also contain service provider information. Let's take for example how an RG8700 gateway is configured. On the gateway side, each trunk is mapped uniquely to a facility/service which is identified by an FQDN. OpenScape Voice can select a specific service provider for an outgoing call by configuring a different SIP endpoint for each facility/service on the gateway. The SIP endpoint's FQDN

must be the same with the FQDN of the corresponding facility/service on the gateway. This is how calls get routed to the desired service provider as shown in the following figure.

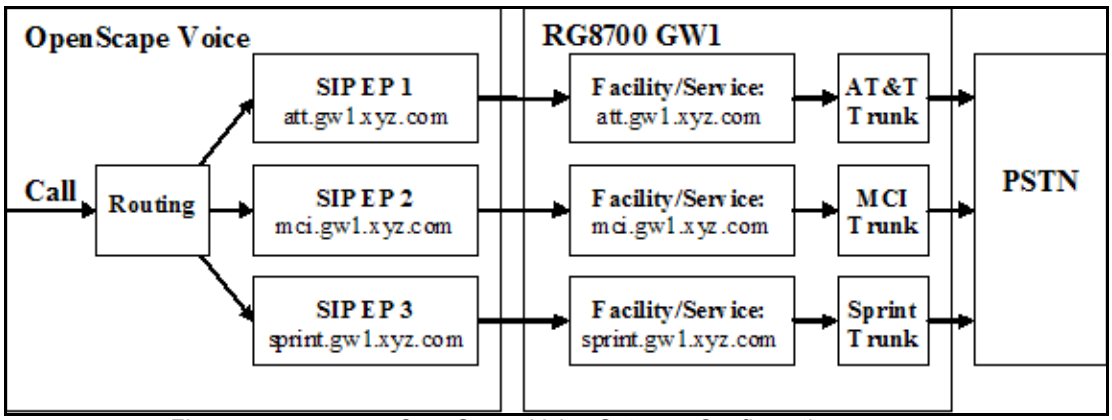

Figure 5 OpenScape Voice Gateway Configuration

Therefore, if the PSTN gateways are configured as shown in the figure above, then the billing application can extract the service provider information from the FQDN. Alternatively, the service provider can be derived from the IP/FQDN of the break-out PSTN Gateway and the SIP endpoints table described in Section 4.2.5, “SIP Endpoints Table”.

4.2.4.4 Determining the IP/FQDN of the break-in PSTN Gateway(s)

The break-in PSTN Gateway is not required to determine costs, but may be useful for other purposes, e.g. call statistics; traffic measurements etc. The IP/FQDN of the break-in PSTN Gateway for incoming calls can be determined by using the following table:

IP/FQDN of Break-in PSTN Gateway(s)		Called Party Location		
		Internal	**External-inc**	**External-out**
Called Party Location	**Internal**	not applicable	Egress SIP Address (field 127)	not applicable
	External-inc	Ingress SIP Address (field 126)	Ingress (field 126) & Egress (field 127) (2 calls)*	Ingress SIP Address (field 126)
	External-out	not applicable	Egress SIP Address (field 127)	not applicable

Table 31 Rules for Determining the Break-in PSTN Gateway(s)

* In this scenario both the ingress and the egress side of the call are incoming. This only happens in the following call transfer scenario: B (ext) calls A (int), C (ext) calls A (int), A joins B and C. The resulting call consists of two distinct incoming calls.

4.2.5 SIP Endpoints Table

As mentioned in Section 4.2.1.2, Section 4.2.4.2 and Section 4.2.4.3, the SIP endpoint type, location and service provider are not provided in the OpenScape Voice CDR. For this reason, the billing application must build and maintain a table similar to the one below which contains information about all the OpenScape Voice Servers, OpenScape 4000s, PSTN gateways and other non-subscriber SIP endpoints in the network.

Name	Type	SIP Endpoint Address	Location	Service Provider
OSV1	OpenScape Voice	141.29.34.102	Boca Raton	n/a
OSV2	OpenScape Voice	141.29.32.102	Boca Raton	n/a
OSV3	OpenScape Voice	OSV3.unify.com	Boca Raton	n/a
4k1	OpenScape 4000	123.23.43.100	Boston	n/a
Gw1att	PSTN Gateway	att.gw1.unify.com	Boca Raton	AT&T
Gw1mci	PSTN Gateway	mci.gw1.unify.com	Boca Raton	MCI
Gw1sprint	PSTN Gateway	sprint.gw1.unify.com	Boca Raton	Sprint
Gw2	PSTN Gateway	172.15.31.102	Lake Mary	AT&T
Gw3	PSTN Gateway	mci.gw3.unify.com	Chelmsford	AT&T
Xpressions	Other	xpressions.unify.com	Boca Raton	n/a

Table 32 Example SIP Endpoints Table

4.2.6 OSV Assistant SIP Endpoints XML File

OpenScape Voice Assistant and each OSV server, can be configured to export all the information for the SIP endpoints of each OSV in an xml file once a day or upon demand. The billing application, before processing the CDRs can import these files and automatically configure the SIP endpoints table. The configuration for each OSV can be done from the OSV Assistant GUI under:

Administration -> General Settings -> CDR -> Synchronization with Accounting Management.
The following options are available:

- **Enabled**: Enable the synchronization with Accounting Management, with the default value being "disabled".

- **Perform synchronization at**: Available only if synchronization is enabled, it is the time of the day that the generation of the XML files for this OSV server shall take place. The default value of the synchronization time is midnight (00:00).
- **Perform synchronization now**: This button triggers an immediate generation of the XML files for this OSV server independently of whether **Synchronization with Accounting Management** is enabled. It is not possible to submit this request, more than once per 5 minutes.

OSV Assistant exports the SIP endpoints XML files to the:
`/opt/siemens/assistant/accounting/sipendpoints`
directory when the OSV Assistant is installed on its own server (offboard - other deployments) and to the:
`/enterprise/assistant/accounting/sipendpoints`
directory when the OSV Assistant is installed on the same server with OSV (onboard - Integrated simplex).

The XML file name has the format OsvName_SipEndpoints_YYYYMMDDhhmmss.xml, where OsvName is the OSV Cluster name as configured in the OSV node.cfg while YYYYMMDDhhmmss is the year, month, day, hour, minutes and seconds when the file was created. OSV Assistant stores the exported XML files for up to 3 days. XML files older than 3 days are deleted.

The billing application can get the XML files via SFTP or SCP using standard password authentication or public/private key authentication. The user name is 'hipatham' and the initial password is 'kH3!fd3a'. The 'hipatham' user can connect to OSV Assistant via ssh in order to change the default password. The following password policy applies:

- At least one upper case character
- At least one lower case character
- At least one digit
- At least one special character
- Must have a minimum length of 8.

The OSV SIP endpoints XML file contains the following information for each non-subscriber endpoint of each OSV:

- OSV Name (as configured in the OSV Assistant DB)
- OSV node1 name (as configured in the OSV node.cfg)
- OSV node2 name (as configured in the OSV node.cfg)
- OSV PISN ID, e.g. 1-10-100
- Endpoint name

- Type (OpenScape Voice, OpenScape 4000, PSTN gateway or Other)
- IP/FQDN
- Location (Name and Code): The geographical location of the endpoint. Code is the PSTN country code + area code of the location.
- Service Provider (PSTN gateways only) (The telecoms provider providing access to the PSTN for this gateway)

4.2.6.1 Example

Let's assume that the network configuration is the following:

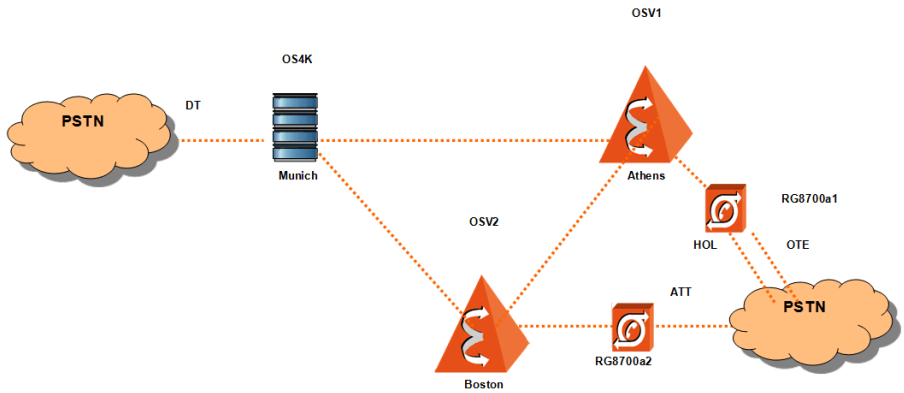

Figure 6 Example Network Configuration

The PISN IDs for the OSVs are the following:

OSV1: 1-10-100

OSV2: 2-20-200

The switch IDs for the OSVs as they appear in the CDR are the following:

OSV1: OSV1n1 and OSV1n2

OSV2: OSV2

The IPs/FQDNs for the SIP connections are the following:

OSV1: 10.152.61.102 and 10.152.61.103

OSV2: 10.152.62.102

OS4K: 10.152.23.102

RG8700a1: ote.rg8700.unify.com and hol.rg8700.unify.com

RG8700a2: 10.152.34.102

The billing IPs (for retrieving CDRs) are the following:

OSV1: 10.152.61.10 and 10.152.61.20

OSV2: 10.152.62.10

The geographical locations/service providers for the PSTN gateways are the following:

RG8700a1 is located at Athens and is connected to two carriers (OTE, HOL)

RG8700a2 is located at Boston and is connected to one carrier (ATT)

Assuming that OSV Assistant generates the OSV SIP endpoints xml files on 2009/04/22 at 00:00, the SIP endpoints xml files will look like this:

OSV1_SipEndpoints_20090422153000.xml

```
<?xml version="1.0" encoding="utf-8"?>
<Name>OSV1</Name>
<Node1Name> OSV1n1</Node1Name>
<Node2Name> OSV1n2</Node2Name>
<PisnID>1-10-100</PisnID>
<ListOfSipEndpoints>
   <SipEndpoint>
      <Name>OSV2</Name>
      <Type>OSV</Type>
      <IpFqdn>10.152.62.102</IpFqdn>
      <Location>
         <Name>Boston</Name>
         <Code>1339</Code>
      </Location>
   </SipEndpoint>
   <SipEndpoint>
      <Name>OS4K</Name>
      <Type>Hipath4000</Type>
      <IpFqdn>10.152.23.102</IpFqdn>
      <Location>
         <Name>Munich</Name>
         <Code>4989</Code>
      </Location>
   </SipEndpoint>
   <SipEndpoint>
      <Name> rg8700a1OTE </Name>
      <Type> Gateway </Type>
      <IpFqdn> ote.rg8700.unify.com </IpFqdn>
      <Location>
         <Name>Athens</Name>
         <Code>30210</Code>
      </Location>
      <ServiceProvider>OTE</ServiceProvider>
   </SipEndpoint>
   <SipEndpoint>
      <Name> rg8700a1HOL </Name>
```

```
      <Type> PSTN gateway </Type>
      <IpFqdn> hol.rg8700.unify.com </IpFqdn>
      <Location>
         <Name>Athens</Name>
         <Code>30210</Code>
      </Location>
      <ServiceProvider>HOL</ServiceProvider>
   </SipEndpoint>
</ListOfSipEndpoints>
```

OSV2_SipEndpoints_20090422153000.xml

```
<?xml version="1.0" encoding="utf-8"?>
<Name>OSV2</Name>
<Node1Name> OSV2</Node1Name>
<PisnID>2-20-200</PisnID>
<ListOfSipEndpoints>
   <SipEndpoint>
      <Name>OSV1</Name>
      <Type>OSV</Type>
      <IpFqdn>10.152.61.102</IpFqdn>
      <Location>
         <Name>Athens</Name>
         <Code>30210</Code>
      </Location>
   </SipEndpoint>
   <SipEndpoint>
      <Name>OS4K</Name>
      <Type>Hipath4000</Type>
      <IpFqdn>10.152.23.102</IpFqdn>
      <Location>
         <Name>Munich</Name>
         <Code>4989</Code>
      </Location>
   </SipEndpoint>
   <SipEndpoint>
      <Name>rg8700a2</Name>
      <Type>PSTN gateway</Type>
      <IpFqdn>10.152.34.10</IpFqdn>
      <Location>
         <Name>Boston</Name>
```

```
            <Code>1339</Code>
        </Location>
        <ServiceProvider>ATT</ServiceProvider>
    </SipEndpoint>
</ListOfSipEndpoints>
```

4.2.7 OSV Assistant CDR FTP Info XML File

Using the same mechanism with the SIP endpoints export, OSV Assistant also exports the CDR FTP info XML file. The purpose of this file is to automatically communicate to the billing application the OSVs billing IPs where to connect via SFTP and get the CDRs (pull mode).

OSV Assistant exports the CDR FTP info XML files in the "/accounting/cdrftpinfo" directory when OSV Assistant is installed on its own server (offboard) and in the "/enterprise/Assistant/accounting/cdrftpinfo" directory when OSV Assistant is installed on the same server with OSV (onboard).

The XML file name has the format OsvName_CdrFtpInfo_YYYYMMDDhhmmss.xml, where OsvName is the OSV Cluster name as configured in the OSV node.cfg while YYYYMMDDhhmmss is the year, month, day, hour, minutes and seconds when the file was created. OSV Assistant stores the exported XML files for up to 3 days. XML files older than 3 days are deleted.

The billing application can get the XML files via SFTP or SCP using standard password authentication or public/private key authentication. The user name is 'hipathcol' and the initial password is 'jO3(fdqA'. The 'hipathcol' user can connect to OSV Assistant via ssh in order to change the default password. The same password policy with the 'hipatham' user applies:

The OpenScape Voice V9 CDR FTP info XML file contains the following information for each OpenScape Voice V9:

- Name (e.g. hipath9, as configured in the OSV Assistant)
- PISN ID, e.g. 1-10-100
- Software version, e.g. V3.1 or 12.00.02.ALL.15_PS0035
- node1 SFTP Billing IP
- node2 SFTP Billing IP (OSV cluster only)

The credentials used for getting CDRs via SFTP from an OpenScape Voice V9 are:

- User Name: **cdr**
- Default Password: **MNY9$dta"**

4.2.7.1 Example

For the configuration of Section 4.2.6, “OSV Assistant SIP Endpoints XML File”, the CDR FTP info xml files will look like this:

OSV1_CdrFtpInfo_20090422153000.xml

```
<?xml version="1.0" encoding="utf-8"?>
<Name>OSV1</Name>
<PisnID>1-10-100</PisnID>
<Version>V3.1</Version>
<Node1BillingIP >10.152.62.34</ Node1BillingIP >
<Node2BillingIP >10.152.62.35</ Node2BillingIP >
```

OSV2_CdrFtpInfo_20090422153000.xml

```
<?xml version="1.0" encoding="utf-8"?>
<Name>OSV2</Name>
<PisnID>2-20-200</PisnID>
<Version>V3.1</Version>
<Node1BillingIP>10.152.62.34</Node1BillingIP >
```

4.3 CDR Examples

4.3.1 Basic Call Scenarios

The following tables show some of the CDR data fields for an internal, an outgoing, and an incoming call.

4.3.1.1 Internal Call

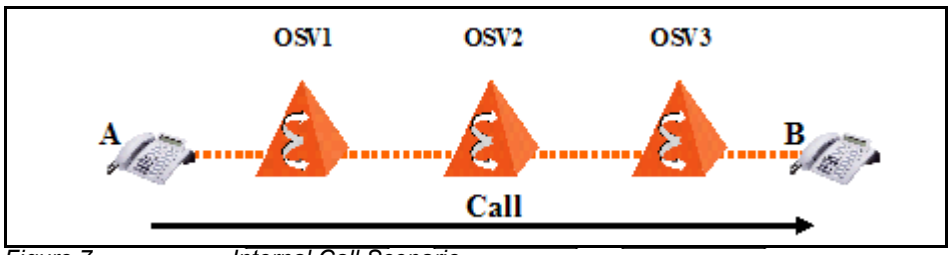

Figure 7 Internal Call Scenario

Assumptions

- Calling Party Location = Internal
- Call Type = Internal
- Paying Party = N/A
- Called Number = B
- Called Party Location = Internal
- Assigned-to Party = A
- Calling Number = A

Example CDRs

Field #	Field Name	CDR 1	CDR 2	CDR 3
5	Switch ID	OSV1	OSV2	OSV3
11	Called party	B	B	B
12	Calling party	A	A	A
40	Originating party ID	900 (Originating)	901 (Incoming)	901 (Incoming)
41	Terminating party ID	903 (Outgoing)	903 (Outgoing)	902 (Terminating)
121	GID-Node	1-1-1	1-1-1	1-1-1
122	GID-Sequence	1	1	1
124	TID-Node	1-1-1	1-1-1	1-1-1
125	TID-Sequence	2	2	2
126	Ingress SIP endpoint	10.152.32.10	OSV1.unify.com	OSV2.unify.com
127	Egress SIP endpoint	OSV2.unify.com	OSV3.unify.com	10.152.32.11

Table 33 Basic Call (Internal) CDRs

4.3.1.2 Outgoing Call

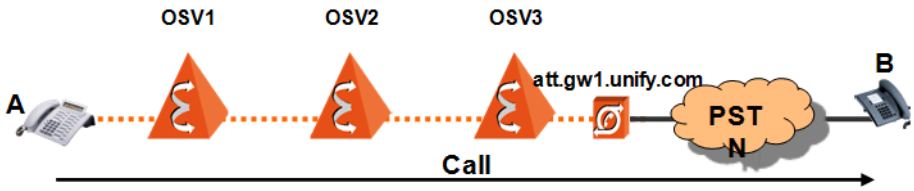

Figure 8 Outgoing Call Scenario

Assumptions

- Calling Party location = Internal
- Call Type = Outgoing
- Paying Party = A
- Called Number = B
- Location of break-out PSTN gateway = Boca Raton (using the Section 4.2.5, “SIP Endpoints Table”)
- Called Party location = External-out
- Assigned-to Party = A
- Calling Number = A
- Address of break-out PSTN gateway = att.gw1.unify.com
- Service Provider of break-out PSTN gateway = AT&T (using the Section 4.2.5, “SIP Endpoints Table”)

Example CDRs

Field #	Field Name	CDR 1	CDR 2	CDR 3
5	**Switch ID**	**OSV1**	**OSV2**	**OSV3**
11	Called Party	B	B	B
12	Calling Party	A	A	A
40	Originating Party ID	900 (Originating)	901 (Incoming)	901 (Incoming)
41	Terminating Party ID	903 (Outgoing)	903 (Outgoing)	903 (Outgoing)
121	GID-Node	1-1-1	1-1-1	1-1-1
122	GID-Sequence	1	1	1
124	TID-Node	1-1-1	1-1-1	1-1-1
125	TID-Sequence	2	2	2
126	Ingress SIP Endpoint	10.152.32.10	OSV1.unify.com	OSV2.unify.com
127	Egress SIP Endpoint	OSV2.unify.com	OSV3.unify.com	att.gw1.unify.com

Table 34 Basic Call (Outgoing) CDRs

4.3.1.3 Incoming Call

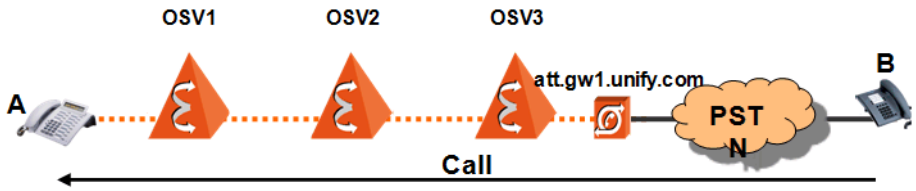

Figure 9 Incoming Call Scenario

Assumptions

- Calling Party location = External-inc
- Call Type = Incoming
- Paying Party = N/A
- Called Number = A
- Location of break-in PSTN gateway = Boca Raton (using the Section 4.2.5, “SIP Endpoints Table”)
- Called Party location = Internal
- Assigned-to Party = A
- Calling Number = B
- Address of break-in PSTN gateway = att.gw1.unify.com
- Service Provider of break-in PSTN gateway = AT&T (using the Section 4.2.5, “SIP Endpoints Table”)

Example CDRs

#	Field	CDR 1	CDR 2	CDR 3
5	Switch ID	OSV1	OSV2	OSV3
11	Called party	A	A	A
12	Calling party	B	B	B
40	Originating party ID	901 (Incoming)	901 (Incoming)	901 (Incoming)
41	Terminating party ID	902 (Terminating)	903 (Outgoing)	903 (Outgoing)
121	GID-Node	3-3-3	3-3-3	3-3-3
122	GID-Sequence	1	1	1
124	TID-Node	3-3-3	3-3-3	3-3-3
125	TID-Sequence	2	2	2
126	Ingress SIP endpoint	OSV2.unify.com	OSV3.unify.com	att.gw1.unify.com
127	Egress SIP endpoint	10.152.32.10	OSV1.unify.com	OSV2.unify.com

Table 35 Basic Call (Incoming) CDRs

4.3.2 Call Transfer Scenarios

The following table shows some of the CDRs' data fields for the call transfer scenario A calls B, A consults C and A transfers B to C.

4.3.2.1 A, B and C internal

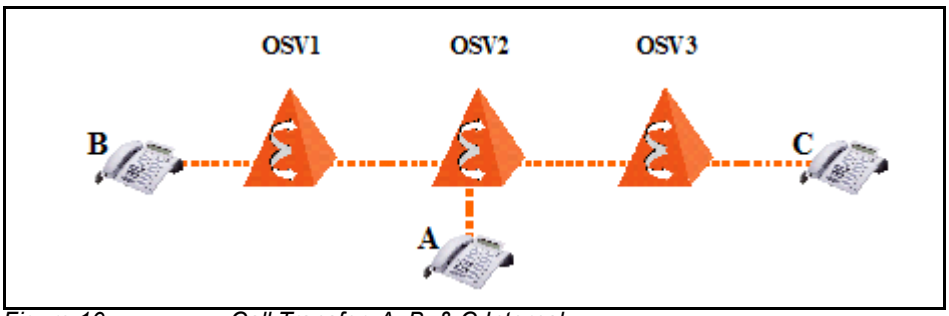

Figure 10 Call Transfer: A, B, & C Internal

A calls B

Assumptions

- Calling Party location = Internal
- Call Type = Internal
- Paying Party = N/A
- Called Number = B
- Called Party location = Internal
- Assigned-to Party = A
- Calling Number = A

Example CDRs

#	Field	CDR 1	CDR 2
5	Switch ID	OSV1	OSV2
11	Called party	B	B
12	Calling party	A	A
40	Originating party ID	901 (Incoming)	900 (Originating)
41	Terminating party ID	902 (Terminating)	903 (Outgoing)
121	GID-Node	2-2-2	2-2-2
122	GID-Sequence	1	1
123	Transferred from DN		
124	TID-Node	2-2-2	2-2-2
125	TID-Sequence	2	2
126	Ingress SIP endpoint	OSV2.unify.com	10.152.32.10
127	Egress SIP endpoint	10.152.32.11	OSV1.unify.com

Table 36 Call Transfer (All Internal), Original Call CDRs

A consults C

Assumptions

- Calling Party location = Internal
- Call Type = Internal
- Paying Party = N/A
- Called Number = C
- Called Party location = Internal
- Assigned-to Party = A
- Calling Number = A

Example CDRs

#	Field	CDR 1	CDR 2
5	Switch ID	OSV2	OSV3
11	Called party	C	C
12	Calling party	A	A
40	Originating party ID	900 (Originating)	901 (Incoming)
41	Terminating party ID	903 (Outgoing)	902 (Terminating)
121	GID-Node	2-2-2	2-2-2
122	GID-Sequence	3	3
123	Transferred from DN		
124	TID-Node	2-2-2	2-2-2
125	TID-Sequence	2	2
126	Ingress SIP endpoint	10.152.32.10	OSV2.unify.com
127	Egress SIP endpoint	OSV3.unify.com	10.152.32.12

Table 37 Call Transfer (All Internal), Consultation Call CDRs

A transfers B to C

Assumptions

- Calling Party location = Internal
- Call Type = Internal
- Paying Party = N/A
- Called Number = C
- Called Party location = Internal
- Assigned-to Party = B
- Calling Number = B

Example CDRs

#	Field	CDR 5	CDR 6	CDR 7
5	Switch ID	OSV1	OSV2	OSV3
11	Called party	C	C	C
12	Calling party	B	B	B
40	Originating party ID	902 (Terminating)	903 (Outgoing)	901 (Incoming)
41	Terminating party ID	901 (Incoming)	903 (Outgoing)	902 (Terminating)
121	GID-Node	2-2-2	2-2-2	2-2-2
122	GID-Sequence	5	5	5
123	Transferred from DN		A	
124	TID-Node	2-2-2	2-2-2	2-2-2
125	TID-Sequence	2	2	2
126	Ingress SIP endpoint	10.152.32.11	OSV1.unify.com	OSV2.unify.com
127	Egress SIP endpoint	OSV2.unify.com	OSV3.unify.com	10.152.32.12

Table 38 Call Transfer (All Internal), Final Call CDRs

4.3.2.2 A and B Internal; C External

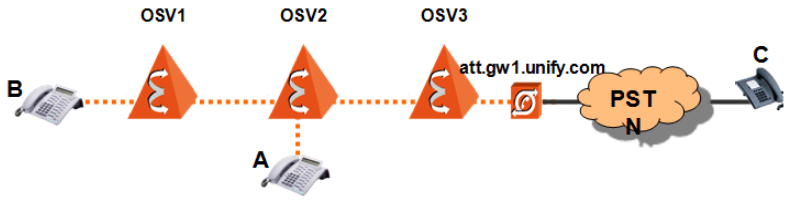

Figure 11 Call Transfer: A and B Internal; C External

A calls B

Assumptions

- Calling Party location = Internal
- Call Type = Internal
- Paying Party = N/A
- Called Number = B
- Called Party location = Internal
- Assigned-to Party = A
- Calling Number = A

Example CDRs

Field #	Field Name	CDR 1	CDR 2
5	Switch ID	OSV1	OSV2
11	Called party	B	B
12	Calling party	A	A
40	Originating party ID	901 (Incoming)	900 (Originating)
41	Terminating party ID	902 (Terminating)	903 (Outgoing)
121	GID-Node	2-2-2	2-2-2
122	GID-Sequence	1	1
123	Transferred from DN		
124	TID-Node	2-2-2	2-2-2
125	TID-Sequence	2	2
126	Ingress SIP endpoint	OSV2.unify.com	10.152.32.10
127	Egress SIP endpoint	10.152.32.11	OSV1.unify.com

Table 39 Call Transfer (C External), Original Call CDRs

A consults C

Assumptions

- Calling Party location = Internal
- Call Type = Outgoing
- Paying Party = A
- Called Number = C
- Location of break-out PSTN gateway = Boca Raton (using the Section 4.2.5, “SIP Endpoints Table”)
- Called Party location = External-out
- Assigned-to Party = A
- Calling Number = A
- Address of break-out PSTN gateway = att.gw1.unify.com
- Service Provider of break-out PSTN gateway = AT&T (using the Section 4.2.5, “SIP Endpoints Table”)

Example CDRs

Field #	Field Name	CDR 3	CDR 4
5	Switch ID	OSV2	OSV3
11	Called party	C	C
12	Calling party	A	A
40	Originating party ID	900 (Originating)	901 (Incoming)
41	Terminating party ID	903 (Outgoing)	903 (Outgoing)
121	GID-Node	2-2-2	2-2-2
122	GID-Sequence	3	3
123	Transferred from DN		
124	TID-Node	2-2-2	2-2-2
125	TID-Sequence	2	2
126	Ingress SIP endpoint	10.152.32.10	OSV2.unify.com
127	Egress SIP endpoint	OSV3.unify.com	att.gw1.unify.com

Table 40 Call Transfer (C External), Consultation Call CDRs

A transfers B to C

Assumptions

- Calling Party location = Internal
- Call Type = Outgoing
- Paying Party = A or B
- Called Number = C
- Location of break-out PSTN gateway = Boca Raton (using the Section 4.2.5, “SIP Endpoints Table”)
- Called Party location = External-out
- Assigned-to Party = B
- Calling Number = B
- Address of break-out PSTN gateway = att.gw1.unify.com
- Service Provider of break-out PSTN gateway = AT&T (using the Section 4.2.5, “SIP Endpoints Table”)

Example CDRs

Field #	Field Name	CDR 5	CDR 6	CDR 7
5	Switch ID	OSV1	OSV2	OSV3
11	Called party	C	C	C
12	Calling party	B	B	B
40	Originating party ID	902 (Terminating)	903 (Outgoing)	901 (Incoming)
41	Terminating party ID	901 (Incoming)	903 (Outgoing)	903 (Outgoing)
121	GID-Node	2-2-2	2-2-2	2-2-2
122	GID-Sequence	5	5	5
123	Transferred from DN		A	
124	TID-Node	2-2-2	2-2-2	2-2-2
125	TID-Sequence	2	2	2
126	Ingress SIP endpoint	10.152.32.11	OSV1.unify.com	OSV2.unify.com
127	Egress SIP endpoint	OSV2.unify.com	OSV3.unify.com	att.gw1.unify.com

Table 41 Call Transfer (C External), Final Call CDRs

4.3.2.3 A Internal; B and C External

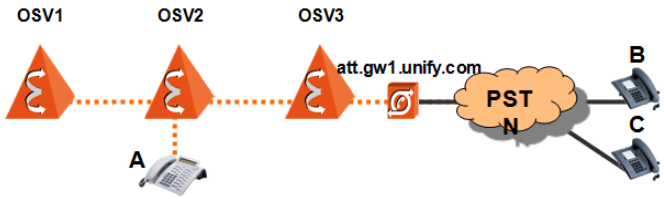

Figure 12 Call Transfer: A Internal; B and C External

A calls B

Assumptions

- Calling Party location = Internal
- Call Type = Outgoing
- Paying Party = A
- Called Number = B
- Location of break-out PSTN gateway = Boca Raton (using the SSection 4.2.5, “SIP Endpoints Table”)
- Called Party location = External-out
- Assigned-to Party = A
- Calling Number = A
- Address of break-out PSTN gateway = att.gw1.unify.com
- Service Provider of break-out PSTN gateway = AT&T (using the Section 4.2.5, “SIP Endpoints Table”)

Example CDRs

Field #	Field Name	CDR 1	CDR 2
5	Switch ID	OSV2	OSV3
11	Called party	B	B
12	Calling party	A	A
40	Originating party ID	900 (Originating)	901 (Incoming)
41	Terminating party ID	903 (Outgoing)	903 (Outgoing)
121	GID-Node	2-2-2	2-2-2
122	GID-Sequence	1	1
123	Transferred from DN	-	-
124	TID-Node	2-2-2	2-2-2
125	TID-Sequence	2	2
126	Ingress SIP endpoint	10.152.32.10	OSV2.unify.com
127	Egress SIP endpoint	OSV3.unify.com	att.gw1.unify.com

Table 42 Call Transfer (A and B External), Original Call CDRs

A consults C

Assumptions

- Calling Party location = Internal
- Call Type = Outgoing
- Paying Party = A
- Called Number = C
- Location of break-out PSTN gateway = Boca Raton (using the Section 4.2.5, “SIP Endpoints Table”)
- Called Party location = External-out
- Assigned-to Party = A
- Calling Number = A
- Address of break-out PSTN gateway = att.gw1.unify.com
- Service Provider of break-out PSTN gateway = AT&T (using the Section 4.2.5, “SIP Endpoints Table”)

Example CDRs

Field #	Field Name	CDR 3	CDR 4
5	Switch ID	OSV2	OSV3
11	Called party	C	C
12	Calling party	A	A
40	Originating party ID	900 (Originating)	901 (Incoming)
41	Terminating party ID	903 (Outgoing)	903 (Outgoing)
121	GID-Node	2-2-2	2-2-2
122	GID-Sequence	3	3
123	Transferred from DN		
124	TID-Node	2-2-2	2-2-2
125	TID-Sequence	2	2
126	Ingress SIP endpoint	10.152.32.10	OSV2.unify.com
127	Egress SIP endpoint	OSV3.unify.com	att.gw1.unify.com

Table 43 Call Transfer (B and C External), Consultation Call CDRs

A transfers B to C

Assumptions

- Calling Party location = External-out
- Call Type = T2T
- Paying Party = A
- Called Number = C
- Location of break-out PSTN gateway (ingress) = Boca Raton (using the Section 4.2.5, “SIP Endpoints Table”)
- Address of break-out PSTN gateway (egress) = att.gw1.unify.com
- Service Provider of break-out PSTN gateway (egress) = AT&T (using the Section 4.2.5, “SIP Endpoints Table”)
- Called Party location = External-out
- Assigned-to Party = A
- Calling Number = B
- Address of break-out PSTN gateway (ingress) = att.gw1.unify.com
- Service Provider of break-out PSTN gateway (ingress) = AT&T (using the Section 4.2.5, “SIP Endpoints Table”)
- Location of break-out PSTN gateway (egress) = Boca Raton (using the Section 4.2.5, “SIP Endpoints Table”)

Example CDRs

Field #	Field Name	CDR 5	CDR 6	CDR 7
5	Switch ID	OSV2	OSV3	OSV3
11	Called party	C	C	C
12	Calling party	B	B	B
40	Originating party ID	903 (Outgoing)	903 (Outgoing)	901 (Incoming)
41	Terminating party ID	903 (Outgoing)	901 (Incoming)	903 (Outgoing)
121	GID-Node	2-2-2	2-2-2	2-2-2
122	GID-Sequence	5	5	5
123	Transferred from DN	A	-	-
124	TID-Node	2-2-2	2-2-2	2-2-2
125	TID-Sequence	2	2	2
126	Ingress SIP endpoint	OSV3.unify.com	att.gw1.unify.com	OSV2.unify.com
127	Egress SIP endpoint	OSV3.unify.com	OSV2.unify.com	att.gw1.unify.com

Table 44 Call Transfer (B and C External), Final Call CDRs

5 Feature-Specific CDR Handling

The following conventions are used throughout this section:

- A always denotes the transferring party
- B always denotes the transferred party
- C always denotes the transferred-to party

5.1 Call Transfer

Three calls are involved in every call transfer scenario.

- The call between the transferring (A) and the transferred party (B)
- The call between the transferring (A) and the transferred-to (C) party
- The resulting call between the transferred (B) and the transferred-to (C) party.

After A completes the transfer, the A-B and the A-C CDR are closed and a new B-C CDR with A as the transferring party is opened which reflects the resulting call between B and C after the transfer. This "call transfer" CDR contains the transferring party (field 123) to distinguish it from the other two CDRs. By default, in the "call transfer" CDR the transferred party (B) always takes the place of the calling party (field 12) and the transferred-to party (C) always takes the place of the called party (field 11). The three CDRs—A-B, A-C, and B-C—have the same thread ID so that they can be linked together offline.

The following figures illustrate the signaling links, media streams, and direction of calls before and after the transfer for various configurations/scenarios.

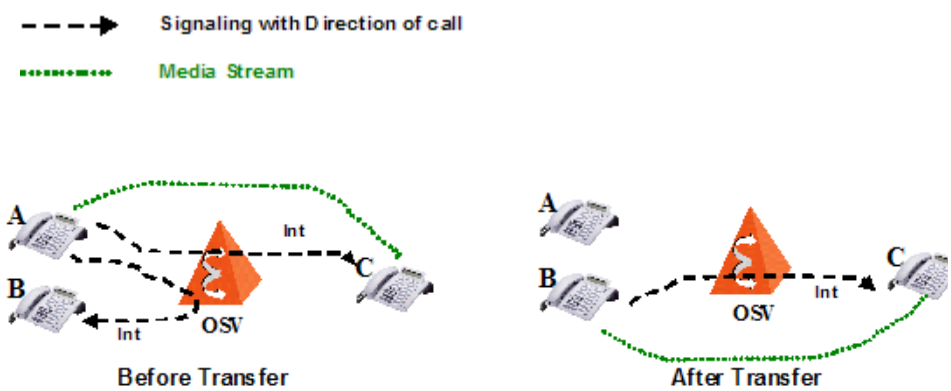

Figure 13 A, B, C int; A calls B, A consults to C, A transfers B to C

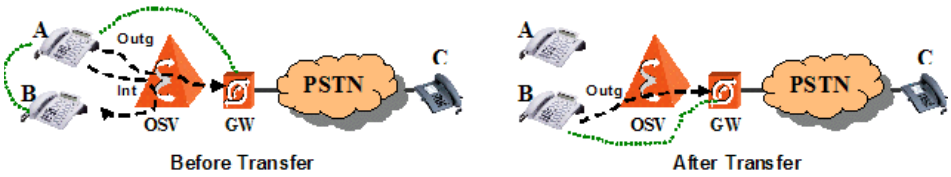

Figure 14 A, B int, C ext; A calls B, A consults to C, A transfers B to C

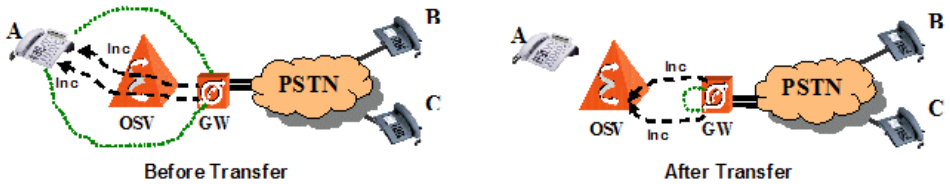

Figure 15 A int, B, C ext; B calls A, C calls A, A answers, A transfers B to C

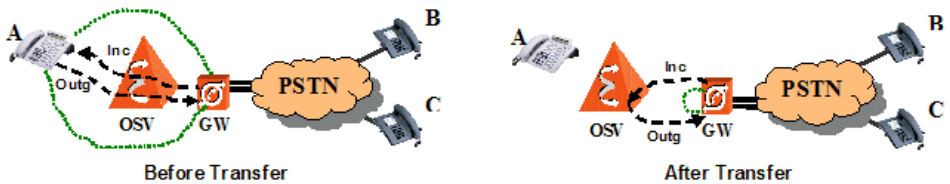

Figure 16 A int, B, C ext; B calls A, A consults to C, A transfers B to C

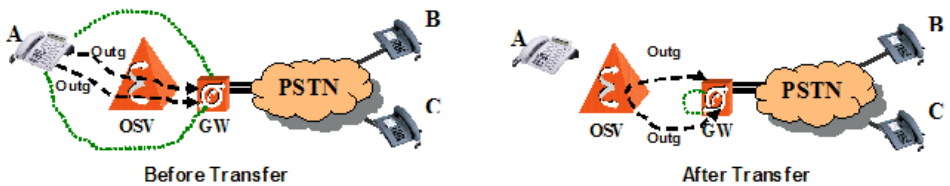

Figure 17 A int, B, C ext; A calls B, A consults to C, A transfers B to C

Figure 17 shows a scenario with two outgoing calls, the A-B and the A-C call. After the transfer, the transferirng party-A hangs up and the A-B and A-C CDRs are closed. The two outgoing calls shall be held by the system until B and C parties hang up, which are recorded in the B-C CDR. The "call transfer" CDR may therefore contain up to two call legs for which charges may apply; the ingress side of the call and the egress side of the call.

The direction of each call leg may be different as shown in Figure 16 where the direction of the A-side call leg is incoming while the direction of the B-side call leg is outgoing, or the direction can be the same as shown in Figure 15 (incoming, incoming) and Figure 17 (outgoing, outgoing).

See Section 4.3.2, “Call Transfer Scenarios” for examples.

5.2 MLHG

5.2.1 MLHG General Rules

The following general rules apply for calls to an MLHG:

- The Called Party field (11) contains the MLHG pilot DN.
- The Destination Party field (128) contains the alerting/answering MLHG member DN.
- The Per Call Feature Extension field (106) contains the 'call to MLHG' flag set.

For example, external party 2108521234 makes a call to MLHG 2106077009. External party 2108521234 waits for 2 seconds (answer time - start time) until the call is answered by agent 2106077001 and talks with the agent for 69 seconds (duration of call).

#	Field	Value
1	Sequential Record Number	0
3	Start Time	14:09:23.3
4	Duration of call	690
11	Called Party	2106077009
12	Calling Party	2108521234
19	Release Cause	16
48	Call Answer Time	14:09:25.3
49	Call Release Time	14:10:34.3
106	Per Call Feature Extension	1024 (call to MLHG)
122	Global Call ID - Sequence	100005
125	Thread ID - Sequence	100007
128	Destination party	210607700

Table 45 Basic MLHG Call CDR

5.2.2 MLHG Advance No Answer

For calls to an MLHG, each time an agent does not answer the call and the call advances to the next agent, an additional CDR with the same thread ID as the original CDR is created. The additional CDR is used to store information about the event of advance no answer.

- The Destination Party field (128) contains the DN of the MLHG member who did not answer the call.

- The Call Event Indicator field (107) has the 'MLHG Advance No Answer' flag set (value 128).
- The value of the Attempt Indicator field (18) is 'Call was not completed due to called party not answering the call' (value 5).
- The value of the Release Cause field (19) is 'Call was not completed due to called party not answering the call' (value 19).
- The Call Release Time field contains the time advance no answer happened.

For example, external party 2108521234 makes a call to MLHG 2106077009. The call is routed to member 2106077001 who doesn't answer the call within 5 seconds (release time - start time), and so the call advances to the next available member 2106077002.

#	Field	Value	Value
1	Sequential Record Number	0	1
3	Start Time	14:09:23.3	14:09:23.3
4	Duration of call	0	640
11	Called Party	2106077009	2106077009
12	Calling Party	2108521234	2108521234
18	Attempt Indicator	5 (User alerting, no answer)	0 (Call was completed)
19	Release Cause	19 (Call was not completed due to called party not answering the call)	16 (normal call clearing)
48	Call Answer Time		14:09:30.9
49	Call Release Time	14:09:28.3	14:10:34.9
106	Per Call Feature Extension	1024 (call to MLHG)	1024 (call to MLHG)
107	Call Event Indicator	128 (MLHG advance no answer)	
122	Global Call ID - Sequence	100009	100005
125	Thread ID - Sequence	100007	100007
128	Destination party	2106077001	2106077002

Table 46 MLHG Advance No Answer CDRs

5.2.3 MLHG Overflow

For calls to an MLHG, each time an overflow happens, an additional CDR with the same thread ID as the original CDR is created. The additional CDR is used to store information about the event of the overflow.

- The Destination Party field (128) contains the overflow DN.

- The Call Event Indicator field (107) has the 'MLHG overflow' flag set (value 256).
- The value of the Attempt Indicator field (18) is 'Call was not completed due to called party busy' (value 1).
- The value of the Release Cause field (19) is 'user busy' (value 17).
- The Call Release Time field contains the time that overflow happened.

In the original CDR:

- The Called Party field (11) contains the overflow DN.
- The Destination Party field (128) contains the overflow DN.
- The Forwarded from DN field (65) contains the MLHG pilot DN from which this call was forwarded from due to overflow.
- The Call Event Indicator field (107) has the 'Forwarded from MLHG' flag set (value 1024).

5.2.3.1 Example: MLHG 1->MLHG 2

Customer with number 2108521234 dials MLHG 1 with pilot number 2106077009. All members are busy and the queue is full so the call overflows to MLHG 2 with pilot number 2106077010. Member 2106077003 of MLHG 2 rings first and answers the call.

#	Field	Value	Value
1	Sequential Record Number	0	1
3	Start Time	14:09:23.3	14:09:23.3
4	Duration of call	0	31
11	Called Party	2106077009	2106077010
12	Calling Party	2108521234	2108521234
18	Attempt Indicator	1 (Call was not completed due to called party busy)	0 (Call was completed)
19	Release Cause	17 (User busy)	16 (normal call clearing)
48	Call Answer Time		14:09:30.9
49	Call Release Time	14:09:23.4	14:09:34.0
65	Forwarded from DN		2106077009
106	Per Call Feature Extension	1024 (call to MLHG)	1024 (call to MLHG)
107	Call Event Indicator	256 (MLHG overflow)	1024 (Forwarded from MLHG)
128	Destination party	2106077010	2106077003
122	Global Call ID - Sequence	100009	100005
125	Thread ID - Sequence	100007	100007

Table 47 MLHG 1->MLHG 2 Overflow CDRs

5.2.3.2 Example: MLHG 1->MLHG 2->DN

Customer with number 2108521234 dials MLHG 1 with pilot number 2106077009. All members are busy and the queue is full so the call overflows to MLHG 2 with pilot number 2106077010. All members of MLHG 2 are also busy and there is no queue configured so the call overflows to DN (not MLHG) 2106077006. 2106077006 answers the call.

#	Field	Value	Value	Value
1	Sequential Record Number	0	1	2
3	Start Time	14:09:23.3	14:09:23.3	14:09:23.3
4	Duration of call	0	0	31
11	Called Party	2106077009	2106077010	2106077006
12	Calling Party	2108521234	2108521234	2108521234
18	Attempt Indicator	1 (Call was not completed due to called party busy)	1 (Call was not completed due to called party busy)	0 (Call was completed)
19	Release Cause	17 (User busy)	17 (User busy)	16 (normal call clearing)
48	Call Answer Time			14:09:30.9
49	Call Release Time	14:09:23.4	14:09:23.5	14:09:34.0
65	Per Call Feature Extension	1024 (call to MLHG)	1024 (call to MLHG)	
106	Forwarded from DN		2106077009	2106077010
107	Call Event Indicator	256 (MLHG overflow)	1280 (Forwarded from MLHG, MLHG overflow)	1024 (Forwarded from MLHG)
122	Global Call ID - Sequence	100009	100011	100005
125	Thread ID - Sequence	100007	100007	100007
128	Destination party	2106077010	2106077006	2106077006

Table 48 MLHG 1->MLHG 2->DN Multiple Overflows CDRs

5.2.3.3 Example: MLHG 1->MLHG 2->MLHG 3 Queued

Customer with number 2108521234 dials MLHG 1 with pilot number 2106077009. All members are busy and the queue is full so the call overflows to MLHG 2 with pilot number 2106077010. All members of MLHG 2 are also busy and there is no queue configured so the call overflows to MLHG 3 with pilot number 2106077011. MLHG 3 has a single member with hunt make busy always activated so the call is queued. The customer listens to the queue message and hangs up.

#	Field	Value	Value	Value
1	Sequential Record Number	0	1	2
3	Start Time	14:09:23.3	14:09:23.4	14:09:23.3
4	Duration of call	0	0	0
11	Called Party	2106077009	2106077010	2106077011
12	Calling Party	2108521234	2108521234	2108521234
18	Attempt Indicator	1 (Call was not completed due to called party busy)	1 (Call was not completed due to called party busy)	0 (Call was completed)
19	Release Cause	17 (User busy)	17 (User busy)	16 (normal call clearing)
48	Call Answer Time			
49	Call Release Time	14:09:23.3	14:09:23.4	14:09:34.3
65	Forwarded from DN		2106077009	2106077010
100	Additional CDR			2 (Queue Record; One or more Queue records are generated)
106	Per Call Feature Extension	1024 (call to MLHG)	1024 (call to MLHG)	1024 (call to MLHG)
107	Call Event Indicator	256 (MLHG overflow)	1280 (Forwarded from MLHG, MLHG overflow)	1024 (Forwarded from MLHG)
122	Global Call ID - Sequence	100009	100011	100005
125	Thread ID - Sequence	100007	100007	100007
128	Destination party	2106077010	2106077011	2106077011

Table 49 MLHG 1->MLHG 2-> MLHG 3 (Queued) Multiple Overflows CDRs

#	Field	Value
1	Sequential Record Number	2
2	Record Type	00000004 (Queue Record)
3	Start Time	14:09:23.3
4	Switch ID	hipath3
6	Spare	
7	Queue Identification	2106077011
8	Queue Start Time	14:09:23.3
9	Queue End Time	14:09:34.3
10	Queue Elapsed Time	110
11	Disposition of Queued Call	2

Table 50 MLHG 1->MLHG 2-> MLHG 3 Queue CDR

5.2.4 MLHG Night Service

For calls to an MLHG that has night service activated, an additional CDR with the same thread ID as the original CDR is created. The additional CDR is used to store information about the event of the night service:

- The Destination Party field (128) contains the night service DN.
- The Call Event Indicator field (107) has the 'MLHG Night Service' flag set (value 512).
- The value of the Attempt indicator field (18) is 'Call was completed' (value 0).
- The value of the Release cause field (19) is 'Redirect to new destination' (value 23).
- The Call Release Time field contains the time that the call was forwarded to the night service DN.

In the original CDR:

- The Called Party field (11) contains the night service DN.
- The Destination Party field (128) contains the night service DN.
- The Forwarded from DN field (65) contains the MLHG pilot DN from which this call was forwarded from due to night service.
- The Call Event Indicator field (107) has the 'Forwarded from MLHG' flag set (value 1024).

For example, customer with number 2108521234 dials MLHG pilot number 2106077009. Night service is activated; the night service DN is 2106077004. 2106077004 answers the call. 2106077004 is not a hunt group member; therefore, this call is not a hunt call anymore and the MLHG flag should be cleared. However, since for statistics purposes there has to be an indication in the CDR that this was originally an MLHG call, a new "MLHG Night Service" flag is set in the in the Call Event Indicator field.

#	Field	Value	Value
1	Sequential Record Number	0	1
3	Start Time	14:09:23.3	14:09:23.3
4	Duration of call	0	31
11	Called Party	2106077009	2106077004
12	Calling Party	2108521234	2108521234
18	Attempt Indicator	0 (Call was completed)	0 (Call was completed)
19	Release Cause	23 (Redirect to new destination)	16 (normal call clearing)
48	Call Answer Time		14:09:30.9
49	Call Release Time	14:09:23.4	14:09:34.0
65	Forwarded from DN		2106077009
106	Per Call Feature Extension	1024 (call to MLHG)	
107	Call Event Indicator	512 (MLHG Night Service)	1024 (Forwarded from MLHG)
122	Global Call ID - Sequence	100009	100005
125	Thread ID - Sequence	100007	100007
128	Destination party	2106077004	2106077004

Table 51 MLHG 1->Night Service DN CDR

5.2.5 MLHG and Call Forwarding Busy

For calls to an MLHG where the pilot is a master and the pilot DN has call forwarding busy activated, which takes precedence over overflow.

- The Call Event Indicator field (107) has the 'Forwarded from MLHG' flag set (value 1024).

For example, external party with number 2108521234 dials MLHG 1 with pilot number 2106077009, which is also the pilot. 2106077009 has call forwarding busy to 2106077006. All members are busy and the queue is full so the call is forwarded to 2106077006. 2106077006 answers the call.

#	Field	Value
1	Sequential Record Number	0
3	Start Time	14:09:23.3
4	Duration of call	31
11	Called Party	2106077006
12	Calling Party	2108521234
18	Attempt Indicator	0 (Call was completed)
19	Release Cause	16 (normal call clearing)
48	Call Answer Time	14:09:30.9
49	Call Release Time	14:09:34.0
65	Forwarded from DN	
106	Per Call Feature Extension	2106077009
107	Call Event Indicator	1024 (Forwarded from MLHG)
128	Destination party	
122	Global Call ID - Sequence	100005
125	Thread ID - Sequence	100007

Table 52 MLHG and Call Forwarding Busy CDR

5.2.6 Application Controlled MLHG

For calls to an MLHG of type manual that are manually deflected (e.g., from a CSTA application), an additional CDR with the same thread ID as the original CDR is created. The additional CDR is used to store information about the CSTA deflect event:

- The Destination Party field (128) contains the deflected-to DN.
- The Call Event Indicator field (107) has the 'CSTA deflect’ flag set (value 65536).
- The value of the Attempt Indicator field (18) is 'Call was completed' (value 0).
- The value of the Release Cause field (19) is 'Redirect to new destination' (value 23).
- The Call Release Time field contains the time of deflection to the deflected-to DN.

In the original CDR:

- The Called Party field (11) contains the deflected-to DN if it is not a member of the MLHG, otherwise it contains the MLHG pilot DN.
- The Destination Party field (128) contains the deflected-to DN.
- The Forwarded from DN field (65) contains the MLHG pilot DN from which this call was forwarded as a result of the CSTA deflect.
- The Call Event Indicator field (107) has the 'Forwarded from MLHG' flag set (value 1024).

The hunt group type is manual and the pilot DN is monitored by the CSTA application. Customer with number 2108521234 dials MLHG with pilot number 2106077009 and the call is queued. The queue CDRs do not change and therefore they are omitted in the following examples.

5.2.6.1 Example: CSTA Deflect to MLHG Member

The CSTA application that monitors the pilot DN deflects the call to member 2106077004, who answers the call.

#	Field	Value	Value
1	Sequential Record Number	0	1
3	Start Time	01:10:29.0	01:10:29.0
4	Duration of call	0	19
11	Called Party	2106077009	2106077009
12	Calling Party	2108521234	2108521234
18	Attempt Indicator	0 (Call was completed)	0 (Call was completed)
19	Release Cause	23 (Redirect to new destination)	16 (normal call clearing)
48	Call Answer Time		01:11:08.6
49	Call Release Time	01:11:02.8	01:11:10.5
65	Forwarded from DN		2106077009
106	Per Call Feature Extension	1024 (call to MLHG)	1024 (call to MLHG)
107	Call Event Indicator	65536 (CSTA deflect)	1024 (Forwarded from MLHG)
128	Destination party	2106077004	2106077004
122	Global Call ID - Sequence	100009	100005
125	Thread ID - Sequence	100007	100007

Table 53 CSTA Deflect to an MLHG Member CDRs

5.2.6.2 Example: CSTA Deflect to Non-MLHG Member

The CSTA application that monitors the pilot DN deflects the call to non-member 2106077008, who answers the call.

#	Field	Value	Value
1	Sequential Record Number	0	1
3	Start Time	01:10:29.0	01:10:29.0
4	Duration of call	0	19
11	Called Party	2106077009	2106077008
12	Calling Party	2108521234	2108521234
18	Attempt Indicator	0 (Call was completed)	0 (Call was completed)
19	Release Cause	23 (Redirect to new destination)	16 (normal call clearing)
48	Call Answer Time		01:11:08.6
49	Call Release Time	01:11:02.8	01:11:10.5
65	Forwarded from DN		2106077009
106	Per Call Feature Extension	1024 (call to MLHG)	
107	Call Event Indicator	65536 (CSTA deflect)	1024 (Forwarded from MLHG)
128	Destination party	2106077008	2106077008
122	Global Call ID - Sequence	100009	100005
125	Thread ID - Sequence	100007	100007

Table 54 CSTA Deflect to a non MLHG member CDRs

5.2.6.3 Example: CSTA Deflect to MLHG 2

The CSTA application that monitors the pilot DN deflects the call to MLHG 2 2106077010. Member 2106077005 of MLHG 2 answers the call.

#	Field	Value	Value
1	Sequential Record Number	0	1
3	Start Time	01:10:29.0	01:10:29.0
4	Duration of call	0	19
11	Called Party	2106077009	2106077010
12	Calling Party	2108521234	2108521234
18	Attempt Indicator	0 (Call was completed)	0 (Call was completed)
19	Release Cause	23 (Redirect to new destination)	16 (normal call clearing)
48	Call Answer Time		01:11:08.6
49	Call Release Time	01:11:02.8	01:11:10.5
65	Forwarded from DN		2106077009
106	Per Call Feature Extension	1024 (call to MLHG)	1024 (call to MLHG)
107	Call Event Indicator	65536 (CSTA deflect)	1024 (Forwarded from MLHG)
128	Destination party	2106077010	2106077005
122	Global Call ID - Sequence	100009	100005
125	Thread ID - Sequence	100007	100007

Table 55 CSTA Deflect to MLHG 2 CDRs

5.3 Call Pickup

When a member of a pickup group picks up a call, or when a subscriber activates directed call pickup to pick up a call, the CDR of the call being picked up shall contain the following additional information:

- The Destination Party field (128) contains the DN of the party picking up the call.
- The Call Event Indicator field (107) has the 'Call was Picked Up' flag set (value 8192).

For example, customer with number 2108521234 dials MLHG pilot number 15619231006. Member 15619231001 of the MLHG rings first. 15619231001 does not answer the call and 15619231002, who belongs to a pickup group with 15619231001, dials *78 and picks up the call.

#	Field	Value
1	Sequential Record Number	0
3	Start Time	16:24:47.4
4	Duration of call	87
5	Switch ID	hipath3
11	Called Party	15619231006
12	Calling Party	2108521234
48	Call Answer Time	16:24:55.4
49	Call Release Time	16:25:04.1
106	Per Call Feature Extension	1024 (call to MLHG)
107	Call Event Indicator	8192 (Call was picked up)
128	Destination party	15619231002
122	Global Call ID - Sequence	100017
125	Thread ID - Sequence	100019

Table 56 Call Pickup CDR

5.4 Directed Call Pickup (Executive/Assistant Functionality)

A calls B, B answers, A puts B on manual (keyset) hold, B receives music on hold. C retrieves the manually held call with directed call pickup. C and B are talking. When C retrieves the manually held call, the A-B CDR closes and a new B-C CDR is opened that reflects the resulting call between B and C after the pickup. In the new CDR:

- The Calling Party field (12) contains the picking up party DN (C).
- The Called Party field (11) contains the picked up party DN (B).

Similarly, if B calls A, B answers, A puts B on manual, etc., then in the new CDR:

- The Calling Party field (12) contains the picked up party DN (B).
- The Called Party field (11) contains the picking up party DN (C).

For example, 2104211006 calls 2104211009 and 2104211009 answers, 2104211006 and 2104211009 talk for 2.9 seconds. 2104211006 puts 2104211009 on manual hold. After 7 seconds, 2104211005 picks up 2104211009 with directed call pickup. 2104211005 and 2104211009 talk for another 4.9 seconds and hang up.

#	Field	Value	Value
1	Sequential Record Number	1	0
3	Start Time	15:12:50.7	15:13:01.1
4	Duration of call	89	49
5	Switch ID	hipath3	hipath3
11	Called Party	2104211009	2104211009
12	Calling Party	2104211006	2104211005
48	Call Answer Time	15:12:52.2	15:13:01.2
49	Call Release Time	15:13:01.1	15:13:06.1
106	Per Call Feature Extension	4096 (Directed Call Pickup)	
122	Global Call ID - Sequence	100021	100017
125	Thread ID - Sequence	100019	100019
126	Ingress SIP endpoint	10.4.211.230	10.4.217.206
127	Egress SIP endpoint	10.4.211.222	10.4.211.222
129	Total Hold Time	70	0

Table 57 Directed Call Pickup CDRs

5.5 Network Call Pickup

B and C are members of the same pickup group. A calls B, B and C ring, C picks up the call. The following CDR shall be generated after A and C hang up:

5.5.1 Example: OSV1-OSV2-OSV3

Figure 18 OSV1-OSV2-OSV3 Scenario

#	Field	CDR 1	CDR 2
5	Switch ID	OSV1	OSV2
11	Called party	B	B
12	Calling party	A	A
40	Originating party ID	900 (Originating)	901 (Incoming)
41	Terminating party ID	903 (Outgoing)	902 (Terminating)
107	Call Event Indicator	8192 (Call was picked up)	8192 (Call was picked up)
121	GID-Node	1-1-1	1-1-1
122	GID-Sequence	1	1
124	TID-Node	1-1-1	1-1-1
125	TID-Sequence	2	2
126	Ingress SIP endpoint	10.152.32.11	OSV1.unify.com
127	Egress SIP endpoint	OSV2.unify.com	10.152.32.12
128	Destination Party	C	C

Table 58 Network Call Pickup CDRs for Example: OSV1-OSV2-OSV3

#	Field	CDR 3	CDR 4
5	Switch ID	OSV2	OSV3
11	Called party	Access Code for OSV2	Access Code for OSV2
12	Calling party	Source Code for OSV3	C
40	Originating party ID	901 (Incoming)	900 (Originating)
41	Terminating party ID	999 (Unknown)	903 (Outgoing)
106	Per Call Feature Extension	2048 (Call pickup)	2048 (Call pickup)
121	GID-Node	3-3-3	3-3-3
122	GID-Sequence	3	3
124	TID-Node	1-1-1	1-1-1
125	TID-Sequence	2	2
126	Ingress SIP endpoint		10.152.32.13
127	Egress SIP endpoint		OSV2.unify.com
128	Destination Party	A	A

Table 59 Network Call Pickup CDRs for Example: OSV1-OSV2-OSV3

CDR 3 and 4 (Per Call Feature Extension=2048 (Call pickup)) should be ignored by the billing application.

5.5.2 Example: OSV1-4K2-OSV3

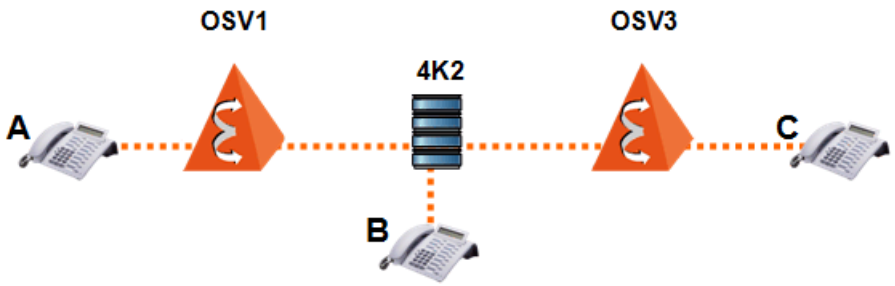

Figure 19 OSV1-4K2-OSV3 Scenario

#	Field	CDR 1	CDR 2
5	Switch ID	OSV1	OSV3
11	Called party	B	Access Code for OSV2
12	Calling party	A	C
40	Originating party ID	900 (Originating)	900 (Originating)
41	Terminating party ID	903 (Outgoing)	903 (Outgoing)
106	Per Call Feature Extension		2048 (Call pickup)
107	Call Event Indicator	8192 (Call was picked up)	
121	GID-Node	1-1-1	3-3-3
122	GID-Sequence	1	3
124	TID-Node	1-1-1	1-1-1
125	TID-Sequence	2	2
126	Ingress SIP endpoint	10.152.32.11	10.152.32.13
127	Egress SIP endpoint	4K2.unify.com	4K2.unify.com
128	Destination Party	C	A

Table 60 Network Call Pickup CDRs for Example: OSV1-4K2-OSV3

5.5.3 Example: 4K1-OSV2-4K3

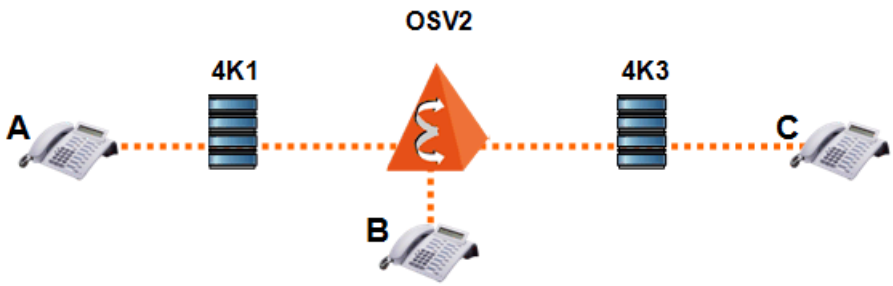

Figure 20 4K1-OSV2-4K3 Scenario

Field	CDR 1	CDR 2	CDR 3
Switch ID	4K1	4K1	4K3
Duration	10	0	10
Calling party	A	A	C
Called party	B	B	Access Code for OSV2
Destination Party	C		A
GID-Node	1-1-1	1-1-1	3-3-3
GID-Sequence	1	1	3
TID-Node	1-1-1	1-1-1	1-1-1
TID-Sequence	2	2	2

Table 61 Network Call Pickup CDRs for Example: 4K1-OSV2-4K3

#	Field	CDR 4	CDR 5
5	Switch ID	OSV2	OSV2
11	Called party	B	Access Code for OSV2
12	Calling party	A	Source Code for 4K3
40	Originating party ID	901 (Incoming)	901 (Incoming)
41	Terminating party ID	902 (Terminating)	999 (Unknown)
106	Per Call Feature Extension		2048 (Call pickup)
107	Call Event Indicator	8192 (Call was picked up)	
121	GID-Node	1-1-1	3-3-3
122	GID-Sequence	1	3
124	TID-Node	1-1-1	1-1-1
125	TID-Sequence	2	2
126	Ingress SIP endpoint	4K2.unify.com	

Table 62 Network Call Pickup CDRs for Example: 4K1-OSV2-4K3

#	Field	CDR 4	CDR 5
127	Egress SIP endpoint	10.152.32.12	
128	Destination Party	C	A

Table 62 Network Call Pickup CDRs for Example: 4K1-OSV2-4K3

CDR 2 (Per Call Feature Extension=2048 (Call pickup)) should be ignored by the billing application.

5.6 Park to Server

A is talking with B, A parks B, B receives music on hold. C retrieves the parked call with call park retrieve. C and B are talking. When user C retrieves the parked call, the A-B CDR closes and a new B-C CDR is opened that reflects the resulting call between B and C after the call park retrieve.

In the new CDR, the parking party (A) is replaced by the retrieving party (C).

For example, 2104211001 calls 2104211006 and 2104211006 answers. 2104211006 and 2104211001 talk for 2.5 seconds. 2104211006 parks 2104211001. After 13.6 seconds, 2104211005 picks up 2104211009 with directed call pickup. 2104211005 and 2104211009 talk for another 4.9 seconds and hang up.

#	Field	Value	Value
1	Sequential Record Number	0	1
3	Start Time	12:28:15.7	12:28:33.6
4	Duration of call	161	21
5	Switch ID	hipath3	hipath3
11	Called Party	2104211006	2104211008
12	Calling Party	2104211001	2104211001
48	Call Answer Time	12:28:17.5	12:28:33.6
49	Call Release Time	12:28:33.6	12:28:35.7
106	Per Call Feature Extension	65536 (Server Call Park)	131072 (Server Call Park Retrieval)
122	Global Call ID - Sequence	100021	100017
125	Thread ID - Sequence	100019	100019
126	Ingress SIP endpoint	10.4.211.225	10.4.211.225
127	Egress SIP endpoint	10.4.211.198	10.4.211.231
129	Total Hold Time	136	0

Table 63 Call Park to Server CDRs

5.7 One Number Service (ONS)

ONS is an OpenScape Voice feature where a user can use any device (internal or external) to make and receive calls. The other party is always presented with the user's default internal number and so is not aware of this. ONS can be originating, terminating or both. ONS-originating is when the calling party only uses another device to initiate a call. ONS-terminating is when the called party only uses another device to accept a call. ONS-both is the two scenarios above combined. For example, A using the OpenScape UC web/desktop client selects A' (e.g., a cell phone) as his or her preferred device and calls B. OpenScape Voice initiates a call to A', after which A' device rings and the user answers the call. B has selected B' (e.g., a home phone) as his or her preferred device and therefore the OpenScape UC Application instructs OpenScape Voice to initiate a call to B'. When B' answers, OpenScape Voice joins the two calls together and A' talks with B'. A is not aware that B is using B' and B is not aware that A is using A'. A is responsible for the costs associated with call towards the A' device and B is responsible for the costs associated with the call towards the B' device. OpenScape Voice reflects this in the CDRs by creating three CDRs for this scenario:

In the CDR associated with Sequential Record Number 2:

- Calling Party field (12) = A
- Called Party field (11) = B

In the CDR associated with Sequential Record Number 1:

- The Calling Party field (12) = A
- The Called Party field (11) = A'
- The Per Call Feature Extension field (106) has the 'One Number Service Device (OND) Calling Party' flag set (value 128)

In the CDR associated with Sequential Record Number 0:

- The Calling Party field (12) = B
- The Called Party field (11) = B'
- The Per Call Feature Extension field (106) has the 'One Number Service Device (OND) Called Party' flag set (value 256)

For example, 2106099001 using external device 2106101001 calls 2106099002, who uses external device 2106101002.

#	Field	Value	Value	Value
1	Sequential Record Number	0	1	2
3	Start Time	12:03:21.6	12:02:53.1	12:03:02.7
4	Duration of call	156	457	156
5	Switch ID	hipath3	hipath3	hipath3
11	Called Party	2106101002	2106101001	2106099002
12	Calling Party	2106099002	2106099001	2106099001
40	Originating party ID	900 (Originating)	900 (Originating)	900 (Originating)
41	Terminating party ID	903 (Outgoing)	903 (Outgoing)	902 (Terminating)
48	Call Answer Time	12:03:32.7	12:03:02.7	12:03:32.7
49	Call Release Time	12:03:48.3	12:03:48.3	12:03:48.3
106	Per Call Feature Extension	256 (OND Called)	128 (OND Calling)	
122	Global Call ID - Sequence	100351	100345	100347
125	Thread ID - Sequence	100349	100349	100349
126	Ingress SIP endpoint	10.4.211.225		
127	Egress SIP endpoint	gateway	gateway	10.4.211.225

Table 64 Basic ONS Call CDRs

5.8 Return from Stand-Alone Mode

Please refer to Section 1.7, “CDR Behavior after Return from Stand-Alone Mode” for a brief description of return from stand-alone mode. In this scenario the intermediate CDR and the two half-call CDRs can be linked together via the second part (shown in bold) of the 'Record ID': "2007-07-12T13:21:29.1+0200:**FF00010000000000D94859472F000000**", which is stored in field 6 in the intermediate CDR and field 5 in the half-call CDR. The billing application can use the actual release time from one of the half-call CDRs to update the release time and the duration in the intermediate CDR and thus make it a complete 'standard' CDR.

Example

3106101000 calls 3106101001 and they talk. Cross-channel communication between the two nodes is lost and nodes go into standalone mode. After a while communication is restored and the nodes return from Stand-Alone, then after some time 3106101000 and 3106101001 hang up. The following CDRs shall be generated:

#	Field	Value
1	Sequential Record Number	0
2	Record Type	00000001 (Intermediate Record)
3	Start Time	2009-26-10T19:20:09.7-0400
4	Duration of call	46773
5	Switch ID	Fsc302
6	Record ID	2009-26-10T19:20:09.7-0400:FF0002000000000069F6E54A01000000
11	Called Party	3106101001
12	Calling Party	3106101000
48	Call Answer Time	2009-26-10T19:20:10.9-0400
49	Call Release Time	
107	Call Event Indicator	32768 (Return from Split)

Table 65 Intermediate CDR after return from Stand-Alone

#	Field	Value
1	Sequential Record Number	0
2	Record Type	10000101 (Half-Call Record)
3	Start Time	2009-26-10T21:00:14.9-0400
4	Switch ID	Fsc301

Table 66 1st Half-Call CDR after return from Stand-Alone

#	Field	Value
5	Record ID	2009-26-10T21:00:14.9-0400:FF0002000000000069F6E54A01000000
6	Half Call Release Timestamp	2009-26-10T21:00:14.9-0400
7	Releasing Party Number	3106101000
8	Trunk Group ID of Releasing Endpoint	0
9	Trunk Group Member ID of Releasing Endpoint	0
Table 5 15:		

Table 66 1st Half-Call CDR after return from Stand-Alone

#	Field	Value
1	Sequential Record Number	1
2	Record Type	10000101 (Half-Call Record)
3	Start Time	2009-26-10T21:20:00.7-0400
4	Switch ID	Fsc301
5	Record ID	2009-26-10T21:20:00.7-0400:FF0002000000000069F6E54A01000000
6	Half Call Release Timestamp	2009-26-10T21:20:00.7-0400
7	Releasing Party Number	3106101001
8	Trunk Group ID of Releasing Endpoint	0
9	Trunk Group Member ID of Releasing Endpoint	0

Table 67 2nd Half-Call CDR after return from Stand-Alone

5.9 One-Way Speaker Broadcast

This feature allows any SIP phone to be used to initiate a one-way broadcast call over the speakers of pre-programmed group(s). It is activated by lifting the handset and pressing a pre-programmed feature key followed by the group number. All subscribers in the group shall have the broadcast call audible over their speakers, except from phones that are in use or in “Do not disturb” mode at the time of the broadcast call. The following fields in the Standard, Intermediate and Long Call CDR are affected by this feature:

- Flag ‘One Way Speaker Broadcast’ shall be set in the ‘Per Call Feature’ field (64) in the CDRs produced for the initiator and the receivers’ calls.
- The Thread ID – Generating Node and Thread ID – Sequence Number fields of the CDRs produced for the receivers’ calls shall have the same values equal to the values of the CDR produced for the initiator’s call corresponding fields.

Example

Initiator with DN: 2108189636 dials the one-way speaker broadcast feature access code (*64) followed by the group ID: 1 with Members: 2108189777, 2108189888 and 2108189999. All members auto answer. The following CDRs shall be produced:

#	Field	Value	Value	Value	
1	Sequential Record Number	0	1	2	3
3	Start Time	16:24:47.4	16:24:47.5	16:24:47.6	16:24:47.7
4	Duration of call	147	147	147	147
11	Called Party	*641	2108189777	2108189888	2108189999
12	Calling Party	2108189636	2108189636	2108189636	2108189636
64	Per Call Feature	67108864 (One Way Speaker Broadcast)	67108864 (One Way Speaker Broadcast)	67108864 (One Way Speaker Broadcast)	67108864 (One Way Speaker Broadcast)
122	Global Call ID - Sequence	100017	100021	100023	100025
125	Thread ID - Sequence	100019	100019	100019	100019

Table 68 One Way Speaker Broadcast CDRs

A Not Applicable Standard CDR Values

No.	Field	Data Type	Description
2	Record Type	ENUM	This field displays the type of record: Possible values are: • 00000002 - AIN Trigger Record • 00000003 = INAP Trigger Record • 00000006 = FMS Record • 00000007 = Web Service Record • 10000000 = Change of Time Audit Record
18	Attempt Indicator	ENUM	This field displays the result of the call attempt. Possible values are: • 10 = LNP Query on Response • 11 = Call was not completed due to LNP, ported out subscriber not found The default value is no character (NULL)>
19	Release Cause / Completion Indicator	ENUM	This field displays the cause for call completion. The enumerated values are taken directly from the signaling message field. These values are PRI Release Cause Codes (CCITT list from Q.931, unless otherwise indicated). Possible values are: • 002 = No route to specified transit network • 003 = No route to destination • 004 = Send special information tone (TR-NWT-1268 lists alternate national-specific cause “vacant code.”) • 005 = Misdialed trunk prefix (no procedure specified for U.S. networks) • 006 = Channel unacceptable • 007 = Call awarded and being delivered in an established channel • 008 = Preemption (TR-NWT-1268 lists alternate national-specific cause “Prefix 0 dialed in error.”) • 009 = Preemption — circuit reserved for reuse (TR-NWT-1268 lists alternate national-specific cause “Prefix 1 dialed in error.”) • 010 = Prefix 1 not dialed (national-specific value, per TR-NWT-1268) • 011 = Excessive digits received, call is proceeding (national-specific value, per TR-NWT-1268) • 014 = Ported Out Subscriber • 22=number changed • 24=unknown business group (ANSI cause, per GR-246-CORE) • 25=exchange routing error (ANSI cause, per GR-246-CORE) • 26=misrouted call to a ported number (ANSI cause, per GR-246-CORE) • 27=destination out of order (GR-246-CORE lists alternate ANSI cause “number portability (NP) query on release (QoR) – number not found”; no procedure specified for U.S. networks) • 28=invalid number format (incomplete number) • 29=facility rejected

Table 69 Not Applicable Standard CDR Values (Page 1 of 3)

No.	Field	Data Type	Description
			• 30=response to status inquiry • 38=network/channel out of order • 42=switching equipment congestion • 43=access information discarded • 44=requested circuit/channel not available • 45=preemption (ANSI cause, per GR-246-CORE) • 46=precedence call blocked • 47=resource unavailable, unspecified • 50=requested facility unsubscribed • 51=call type incompatible with service request (ANSI cause, per GR-246-CORE) • 53=outgoing calls barred within CUG (no procedure specified for U.S. networks) • 54=call blocked due to group restrictions (ANSI cause, per GR-246-CORE) • 55=incoming calls barred within CUG (no procedure specified for U.S. networks) • 57=bearer capability not authorized • 58=bearer capability not presently available • 62=inconsistency in designated outgoing access information and subscriber class • 63=service or option not available, unspecified • 65=bearer capability not implemented • 66=channel type not implemented • 69=requested facility not implemented • 70=only restricted digital information bearer capability is available • 81=invalid call reference value • 82=identified channel does not exist • 83=a suspended call exists, but this call identity does not • 84=call identity in use • 85=no call suspended • 87=user not member of CUG (no procedure specified for U.S. networks) • 88=incompatible destination • 90=non-existent CUG (no procedure specified for U.S. networks) • 91=invalid transit network selection • 95=invalid message, unspecified • 96=mandatory information element is missing • 97=message type non-existent or not implemented • 98=message not compatible with call state or message type non-existent or not implemented • 99=information element non-existent or not implemented • 100=invalid information element contents • 101=protocol error, threshold exceeded (TR-NWT-1268 lists alternate network-specific cause “protocol error, threshold exceeded”) • 103=parameter nonexistent or not implemented – passed on • 110=message with unrecognized parameter • 111=protocol error, unspecified • 112=Ported out subscriber not found • 127=interworking, unspecified

Table 69 Not Applicable Standard CDR Values (Page 2 of 3)

No.	Field	Data Type	Description
64	Per Call Feature	BITWISE ENUM	This field describes the 'per call feature' activation and the features usage in a normal call setup. In cases where a different feature name is commonly used in other markets, the alternate feature name is also shown. • 8,388,608 = Usage Sensitive 3Way Calling (Call Hold) • 16,777,216 = Usage Sensitive 3Way Calling (Conference) • 268,435,456 = Enhanced Anonymous Call Rejection • 536,870,912 = Local Call Park • 1,073,741,824 = Directed Call Park • 2,147,483,648 = Call Park Retrieval • 4,294,967,296 = Usage Sensitive Anonymous Call Rejection • 8,589,934,592 = Usage Sensitive Call Forwarding Variable • 17,179,869,184 = Usage Sensitive Calling Number Delivery • 34,359,738,368 = Usage Sensitive Calling Name Delivery • 68,719,476,736 = Usage Sensitive Distinctive Ringing Call Waiting • 137,438,953,472 = Usage Sensitive Enhanced Anonymous Call Rejection • 274,877,906,944 = Usage Sensitive Malicious Call Trace • 549,755,813,888 = Usage Sensitive Selective Call Acceptance • 1,099,511,627,776 = Usage Sensitive Selective Call Rejection • 2,199,023,255,552 = Usage Sensitive Calling Num and Name Delivery • 4,398,046,511,104 = Cancel Call Waiting • 8,796,093,022,208 = Caller ID on Call Waiting • 35,184,372,088,832 = Call Waiting Terminating / Call Waiting • 70,368,744,177,664=Speed Calling • 140,737,488,355,328 = Teen Line • 562,949,953,421,312 = 3Way Calling (Conference) • 1,125,899,906,842,624 = Usage Sensitive Caller ID Delivery and Suppression • 2,251,799,813,685,248 = Caller Voiceback • 4,503,599,627,370,496 = Busy Line Verify • 9,007,199,254,740,992 = Usage Sensitive Calling Name Delivery Blocking • 18,014,398,509,481,984 = Usage Sensitive Calling Number Delivery Blocking • 576,460,752,303,423,488 = Hot Line • 1,152,921,504,606,846,976 = Warm Line • 2,305,843,009,213,693,952 = Do Not Disturb • 4,611,686,018,427,387,904 = Outgoing Call Barring • 9,223,372,036,854,775,808 = Override Call Barring
100	Additional CDRs	BITWISE ENUM	This fields indicates the additional records that are generated besides the Standard Call Record. • 01 = IN Record; for this value, there is an additional AIN or INAP CDRs generated • 4 = FMC Record; one or more FMC records are generated.8

Table 69 Not Applicable Standard CDR Values (Page 3 of 3)

List of Abbreviations

This table shows some important abbreviations.

Abbreviation	Definition
ACM	Address Complete Message (ISUP)
AIN	Advanced Intelligent Network
AMA	Automatic Message Accounting
ANI	Automatic Number Identification
ANM	Address Complete Message (ISUP)
ANSI:	American National Standards Institute
ARS	Automatic Route Selection
ATM	ATM: Asynchronous Transfer Mode
B2BUA	Back-to-Back User Agent
BCD	Binary-Coded Decimal
BF	Billing Files
BG	Business Group
BGL	Business Group Line
CAC	Call Admission Control
CAS	Channel Associated Signaling
CDR	Call Detail Record
CDR	Call Detail Record
CF	Call Forwarding
CLI	Command Line Interface
CLLI	Common Language Location Identifier
CNAM	Calling Name Delivery
CND	Calling Number Delivery
DN	Directory Number
EOF	End of File
EOL	End of Line
EP	Endpoint
FMC	Fixed to Mobile Convergence
FQDN	Fully Qualified Domain Name
FRL	Facility Restriction Level
FSC	Fujitsu-Siemens Computers

Abbreviation	Definition
FTP	File Transfer Protocol
GID	Global Call ID
GSM	Global System for Mobile communications
GW	Gateway
IAM	Initial Address Message
IC/INC	Interexchange Carrier/International Carrier
ILBC	Internet Low Bit rate Codec
IM	Instant Messaging
INAP	Intelligent Network Application Part
INT	Integer
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
ITU	International Telecommunication Union
JIP	Jurisdiction Information Parameter
LEC	Local Exchange Carrier
LRN	Location Routing Number
LNP	Local Number Portability
MAA	Multiple Address Appearances
MDR	Message Detail Record
MGCP	Media Gateway Control Protocol
NL	New Line character
NOA	Nature of Address
OND	One Number Service Device
ONS	One Number Service
OS	Operating System
OSC	OpenScape
PBX	Private Branch Exchange
PCM	Pulse Code Modulation
PISN	Private Integrated Services Network
PRI	Primary Rate Interface (ISDN)
PSTN	Public Switched Telephone Network
QoR	Query on Release (LNP)
QoS	Quality of Service
RTP	Resilient Telco Platform (FSC)

Abbreviation	Definition
SBC	Session Border Controller
SCP	Service Control Point
SLE	Screening List Entry
SFTP	Secure File Transfer Protocol
SIP	Session Initiation Protocol
SS7	Signalling System #7
TBD	To Be Determined
TCIC	Trunk Circuit Identification Code
TID	Thread ID
TOS	Type of Service
UTC	Universal Time Coordinated

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