



## ePDG CDR Field Reference

This chapter provides a reference for CDR fields supported by the system for use in ePDG-CDRs.

A complete list and descriptions of supported CDR fields is provided in the *ePDG CDR Field Descriptions* chapter of this reference.



### Important

This reference document contains information only on standard GTPP dictionaries. For information on custom dictionaries, contact your Cisco account representative.

The category column in all tables use keys described in the following table.

**Table 1: Dictionary Table Key**

Abbreviation	Meaning	Description
M	Mandatory	A field that must be present in the CDR.
C	Conditional	A field that must be present in a CDR if certain conditions are met.
OM	Operator Provisionable: Mandatory	A field that an operator has provisioned and must be included in the CDR for all conditions.
OC	Operator Provisionable: Conditional	A field that an operator has provisioned and must be included in the CDR if certain conditions are met.

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## CDR Fields Supported in ePDG-CDRs

The table in this section lists the ePDG-CDR fields present in the available GTPP dictionary.

## custom24 Dictionary

ePDG-CDR fields in this dictionary are compliant to 3GPP TS 32.298 v12.6.0.

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
Record Type	0	M	ePDG IP CAN bearer record.	Integer	1	0x80
Served IMSI	3	M	IMSI of the served party.	BCD encoded octet string	3-8	0x83
ePDG Address Used	4	M	The control plane IP address of the S-GW used.	Choice	6 (IPv4) or 18 (IPv6)	0xa4
ePDG BINARY IPV4 ADDRESS	4-0	M	The octet string includes the Gn address of the GGSN service in binary coding.	Octet string	4	0x80
ePDG BINARY IPV6 ADDRESS	4-0	M	The octet string included in the field described includes the Gn address of the GGSN service in binary coding.	Octet string	16	0x81
Charging ID	5	M	IP CAN bearer identifier used to identify IP CAN bearer in different records created by PCNs.	Integer	1-5	0x85

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
Access Point Name Network Identifier	7	M	The logical name of the connected access point to the external packet data network (network identifier part of APN).	IA5 string	1-63	0x87
PDP/PDN Type	8	M	This field indicates PDN type (i.e IPv4, IPv6 or IPv4v6).	Octet string	2	0x88
Served PDP/PDN Address	9	M	IP address allocated for the PDP context / PDN connection, if available, i.e. IPv4 when PDN Type is IPv4 or IPv6 when PDN Type is IPv6 or IPv4v6.	Choice	8 (IPv4) or 20 (IPv6)	0xa9
PDP IP Address	9-0	M	This field contains the IP address for the PDP context.	Choice	6 (IPv4) or 18 (IPv6)	0xa0
PDP IPV4 Address	9-0-0	M	The octet string included in the field described above includes the IPv4 address assigned to the subscriber by the S-GW in binary coding.	Octet string	4	0x80

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
PDP IPV6 Address	9-0-0	M	The octet string included in the field described above includes the IPv6 address assigned to the subscriber by the S-GW in binary coding.	Octet string	16	0x81
Dynamic Address Flag	11	O	Indicates whether served PDP/PDN address is dynamic, which is allocated during IP CAN bearer activation, initial attach (E-UTRAN or over S2x) and UE requested PDN connectivity. This field is missing if address is static.	Boolean	1	0x8b

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
List of Traffic Data Volumes	12	M	A list of changes in charging conditions for this QCI/ARP pair, each change is time stamped. Charging conditions are used to categorize traffic volumes, such as per tariff period. Initial and subsequently changed QoS and corresponding data values are also listed.	Sequence		0xac
Change of charging condition	12-0	M	Each traffic volume container contains details related to a charging condition. A new container is usually created for a QoS change and for tariff changes.	Sequence		0x30

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
Data Volume GPRS Uplink	12-0-3	M	The Data Volume GPRS Uplink field is a part of the <del>ChgChCm</del> element in the List of Traffic Volumes. It includes the number of octets received in the uplink direction during the timeframe specified by the container. For each new container, the counter is reset and does not accumulate.	Integer	1-5	0x83

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
Data Volume GPRS Downlink	12-0-4	M	The Data Volume GPRS Downlink field is a part of the <del>ChangeCondition</del> element in the List of Traffic Volumes. It includes the number of octets transmitted in the downlink direction during the timeframe specified by the container. For each new container, the counter is reset and does not accumulate.	Integer	1-5	0x84
Change Condition	12-0-5	M	The Change Condition field is part of the <del>ChangeCondition</del> element in the List of Traffic Volumes. It defines the reason for closing the container.	Enumerated	1	0x85

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
Change Time	12-0-6	M	The Change Time field is part of the <del>ChangeTime</del> element in the List of Traffic Volumes. It provides the local time when a change condition (e.g. record closure) occurred and the container was closed.	BCD encoded octet string	9	0x86
Record Opening Time	13	M	Time stamp when IP CAN bearer is activated in this S-GW or record opening time on subsequent partial records.	BCD encoded octet string	9	0x8d
Duration	14	M	This field contains the duration in seconds for the record.	Integer	1-5	0x8e
Cause for Record Closing	15	M	This field contains a reason for the closure of the CDR.	Integer	1	0x8f
Record Sequence Number	17	O	Partial record sequence number, only present in case of partial records.	Integer	1-5	0x91



Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
Node ID	18	O	Name of the recording entity.	IA5 string	5-20	0x92
Local Record Sequence Number	20	O	Consecutive record number created by this node. The number is allocated sequentially including all CDR types.	Integer	1-5	0x94
APN Selection Mode	21	M	An index indicating how the APN was selected.	Enumerated	1	0x95
Served MSISDN	22	O	The primary MSISDN of the subscriber.	Integer	1-9	0x96
Charging Characteristics	23	M	The Charging Characteristics applied to the IP CAN bearer.	Hex Value Octet string	2	0x97
Charging Characteristics Selection Mode	24	O	Holds information about how Charging Characteristics were selected.	Enumerated	1	0x98
RAT Type	30	O	This field indicates the Radio Access Technology (RAT) type currently used by the Mobile Station, when available.	Integer	1	9e

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
P-GW Address Used	36	M	This field is the P-GW IP Address for the Control Plane.	Choice	6 (IPv4) or 18 (IPv6)	bf24
P-GW Binary IPV4 Address	36-0	M	The octet string included in the field described above includes the IPv4 address assigned to the subscriber by of the P-GW in binary coding.	Octet String	4	0x80
P-GW Binary IPV6 Address	36-0	M	The octet string included in the field described above includes the IPv6 address assigned to the subscriber by of the P-GW in binary coding.	Octet String	16	0x81
P-GW PLMN Identifier	37	O		Octet string	3	9f25
Start Time	38	O	This field holds the time when User IP-CAN session starts, available in the CDR for the first bearer in an IP-CAN session.	BCD encoded octet string	9	9f26

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
Stop Time	39	O	This field holds the time when User IP-CAN session is terminated, available in the CDR for the last bearer in an IP-CAN session.	BCD encoded octet string	9	9f27
PDN Connection ID	40	O	This field holds the PDN connection (IP-CAN session) identifier to identify different records belonging to same PDN connection.	Integer	1-5	9f28
Served PDP PDN Address Extension	43	O	This field contains the IPv4 address for the PDN connection (PDP context, IP-CAN bearer) when dual-stack IPv4 IPv6 is used, and the IPv6 address is included in Served PDP Address or Served PDP/PDN Address.	Choice	8 (IPv4)	bf2b
PDP IP Address	43-0	M	This field contains the IP address for the PDP context.	Choice	6 (IPv4)	0xa0

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
PDP IPv4 Address	43-0-0	M	The octet string included in the field described above includes the IPv4 address assigned to the subscriber by S-GW in binary coding.	Octet String	4 (IPv4)	0x80
Dynamic IPv4 Address	47	O	This field indicates whether served IPv4 PDP/PDN address is dynamic, which is allocated during IP CAN bearer activation, initial attach (E-UTRAN or over S2x) and UE requested PDN connectivity with PDP/PDN type IPv4v6. This field is missing if IPv4 address is static.	Boolean	1	9f2f
ePDG IPv6 Address	48	O	The control plane IPv6 address, in case of IPv4v6 dual stack, of the ePDG.	Choice	18 (IPv6)	bf 30

Field Name	Tag Number	Category	Description	Format	Size (in bytes)	ASN1 code
ePDG BINARY IPV6 ADDRESS	48-0	O	The octet string in this field includes the Gn address of the GGSN service in binary coding.	Octet string	16 (IPv6)	0x81

Notes:

- All IP addresses are encoded in binary format.

## ASN.1 Definition for Fields in custom24

The following section provides the complete ASN.1 definition of all ePDG-CDR related fields in this dictionary.

```

-----
--
--      GPRS RECORDS
--
-----

GPRSRecord ::= CHOICE
--
-- Record values 20, 22..27 are specific
-- Record values 76..77 are MBMS specific
-- Record values 78..79 are EPC specific
{
    ePDGRecord[96] EPDGRecord
}

EPDGRecord ::= SET
{
    recordType                [0] RecordType,
    servedIMSI                [3] IMSI OPTIONAL,
    ePDGAddressUsed           [4] GSNAddress,
    chargingID                 [5] ChargingID,
    accessPointNameNI         [7] AccessPointNameNI OPTIONAL,
    pdpPDNType                [8] PDPTYPE OPTIONAL,
    servedPDPAddress          [9] PDPAddress OPTIONAL,
    dynamicAddressFlag         [11] DynamicAddressFlag OPTIONAL,
    listOfTrafficVolumes      [12] SEQUENCE OF ChangeOfCharCondition OPTIONAL,

    recordOpeningTime         [13] TimeStamp,
    duration                  [14] CallDuration,
    causeForRecClosing        [15] CauseForRecClosing,
    recordSequenceNumber      [17] INTEGER OPTIONAL,
    nodeID                    [18] NodeID OPTIONAL,
    localSequenceNumber       [20] LocalSequenceNumber OPTIONAL,
    apnSelectionMode          [21] APNSelectionMode OPTIONAL,
    servedMSISDN              [22] MSISDN OPTIONAL,
    chargingCharacteristics    [23] ChargingCharacteristics,
    chChSelectionMode         [24] ChChSelectionMode OPTIONAL,
    rATType                   [30] RATType OPTIONAL,
    p-GWAddressUsed           [36] GSNAddress OPTIONAL,
    p-GWPLMNIdentifier         [37] PLMN-Id OPTIONAL,
    startTime                  [38] TimeStamp OPTIONAL,
}

```

```

    stopTime [39] TimeStamp OPTIONAL,
    pDNConnectionChargingID [40] ChargingID OPTIONAL,
    servedPDPPDNAddressExt [43] PDPAddress OPTIONAL,
    dynamicAddressFlagExt [47] DynamicAddressFlag OPTIONAL,
    ePDGiPv6AddressUsed [48] GSNAddress OPTIONAL,
    ueTunnelInfo [103] UETunnelInfo OPTIONAL,
    macAddressOfAP [104] MACAddress OPTIONAL
}
--
-- Note: ueTunnelInfo & macAddressOfAP are available only in custom38 dictionary.
--

AccessPointNameNI ::= IA5String (SIZE(1..63))
--
-- Network Identifier part of APN in dot representation.
-- For example, if the complete APN is 'apn1a.apn1b.apn1c.mnc022.mcc111.gprs'
-- NI is 'apn1a.apn1b.apn1c' and is presented in this form in the CDR.

APNSelectionMode ::= ENUMERATED
--
-- See Information Elements TS 29.060, TS 29.274 or TS 29.275
--
{
    mSorNetworkProvidedSubscriptionVerified (0),
    mSProvidedSubscriptionNotVerified (1),
    networkProvidedSubscriptionNotVerified (2)
}

CauseForRecClosing ::= INTEGER
--
-- In PGW-CDR and SGW-CDR the value servingNodeChange is used for partial record
-- generation due to Serving Node Address list Overflow
-- In SGSN servingNodeChange indicates the SGSN change
--
-- sWGChange value is used in both the S-GW and ePDG for inter serving node change
--
-- LCS related causes belong to the MAP error causes acc. TS 29.002
--
-- cause codes 0 to 15 are defined 'CauseForTerm' (cause for termination)
--
{
    normalRelease (0),
    abnormalRelease (4),
    cAMELInitCallRelease (5),
    volumeLimit (16),
    timeLimit (17),
    servingNodeChange (18),
    maxChangeCond (19),
    managementIntervention (20),
    intraSGSNIntersystemChange (21),
    rATChange (22),
    mSTimeZoneChange (23),
    sGSNPLMNIDChange (24),
    sGWChange (25),
    aPNAMBRChange (26),
    unauthorizedRequestingNetwork (52),
    unauthorizedLCSCClient (53),
    positionMethodFailure (54),
    unknownOrUnreachableLCSCClient (58),
    listOfDownstreamNodeChange (59)
}

ChangeCondition ::= ENUMERATED
{

```

```

    qosChange                (0),
    tariffTime               (1),
    recordClosure            (2),
    cgi-SAICChange           (6), -- bearer modification. "CGI-SAI Change"
    rAIChange                (7), -- bearer modification. "RAI Change"
    dT-Establishment        (8),
    dT-Removal               (9),
    ecgiChange              (10), -- bearer modification. "ECGI Change"
    tAIChange               (11), -- bearer modification. "TAI Change"
    userLocationChange       (12) -- bearer modification. "User Location Change"
    userCSGInformationChange (13) -- bearer modification. "User CGI info Change"
}

ChangeOfCharCondition ::= SEQUENCE
--
-- qosRequested and qosNegotiated are used in S-CDR only
-- ePCQoSInformation used in SGW-CDR ,PGW-CDR, IPE-CDR and ePDG only
-- userLocationInformation is used only in S-CDR, SGW-CDR and PGW-CDR
-- chargingID used in PGW-CDR only when Charging per IP-CAN session is active
--
{
    qosRequested                [1] QoSInformation OPTIONAL,
    qosNegotiated              [2] QoSInformation OPTIONAL,
    dataVolumeGPRSUplink        [3] DataVolumeGPRS OPTIONAL,
    dataVolumeGPRSDownlink      [4] DataVolumeGPRS OPTIONAL,
    changeCondition             [5] ChangeCondition,
    changeTime                  [6] TimeStamp,
    userLocationInformation      [8] OCTET STRING OPTIONAL,
    ePCQoSInformation           [9] EPCQoSInformation OPTIONAL,
    chargingID                  [10] ChargingID OPTIONAL,
    presenceReportingAreaStatus [11] PresenceReportingAreaStatus OPTIONAL,
    userCSGInformation           [12] UserCSGInformation OPTIONAL
}

CallDuration ::= INTEGER
--
-- The call duration is counted in seconds.
-- For successful calls /sessions / PDP contexts, this is the chargeable duration.
-- For call attempts this is the call holding time.
--

ChargingCharacteristics ::= OCTET STRING (SIZE(2))

ChargingID ::= INTEGER (0..4294967295)
--
-- Generated in P-GW, part of IP CAN bearer
-- 0..4294967295 is equivalent to 0..2**32-1
--

ChChSelectionMode ::= ENUMERATED
{
    servingNodeSupplied        (0), -- For S-GW/P-GW
    subscriptionSpecific        (1), -- For SGSN only
    aPNSpecific                 (2), -- For SGSN only
    homeDefault                 (3), -- For SGSN, S-GW, P-GW, TDF and IP-Edge
    roamingDefault              (4), -- For SGSN, S-GW, P-GW, TDF and IP-Edge
    visitingDefault             (5), -- For SGSN, S-GW, P-GW, TDF and IP-Edge
    fixedDefault                (6) -- For TDF and IP-Edge
}

DataVolumeGPRS ::= INTEGER
--
-- The volume of data transferred in octets.

```

```

--

Diagnostics ::= CHOICE
{
    gsm0408Cause                               [0] INTEGER,
    ---- See TS 24.008
    gsm0902MapErrorValue                       [1] INTEGER,
    ----
    ---- Note: The value to be stored here corresponds to the local values defined in the
MAP-Errors
    ---- and MAP-DialogueInformation modules, for full details see TS 29.002.
    ----
    itu-tQ767Cause                             [2] INTEGER,
    ---- See Q.767
    networkSpecificCause                       [3] ManagementExtension,

    ---- To be defined by network operator
    manufacturerSpecificCause                 [4] ManagementExtension,
    ---- To be defined by manufacturer
    positionMethodFailureCause               [5]
PositionMethodFailure-Diagnostic,
    ---- see TS 29.002
    unauthorizedLCSCClientCause              [6]
UnauthorizedLCSCClient-Diagnostic,
    ---- see TS 29.002
    diameterResultCodeAndExperimentalResult [7] INTEGER
    ---- See TS 29.338, TS 29.337
}

DynamicAddressFlag ::= BOOLEAN

EPCQoSInformation ::= SEQUENCE
{
    --
    -- See TS 29.212 for more information
    --
    qCI                                         [1] INTEGER,
    maxRequestedBandwidthUL                    [2] INTEGER OPTIONAL,
    maxRequestedBandwidthDL                    [3] INTEGER OPTIONAL,
    guaranteedBitrateUL                       [4] INTEGER OPTIONAL,
    guaranteedBitrateDL                       [5] INTEGER OPTIONAL,
    aRP                                         [6] INTEGER OPTIONAL,
    aPNAggregateMaxBitrateUL                  [7] INTEGER OPTIONAL,
    aPNAggregateMaxBitrateDL                  [8] INTEGER OPTIONAL
}

ETSIAddress ::= AddressString
--
-- First octet for nature of address, and numbering plan indicator (3 for X.121)
-- Other octets TBCD
-- See TS 29.002
--

GSNAddress ::= IPAddress

IA5String ::= OCTET STRING

MSNetworkCapability ::= OCTET STRING (SIZE(1..8))
-- see TS 24.008

NetworkInitiatedPDPContext ::= BOOLEAN
--
-- Set to true if PDP context was initiated from network side
--

```



```

NodeID ::= IA5String (SIZE(1..20))

PDPAddress ::= CHOICE
{
    ipAddress          [0] IPAddress,
    eTSIAddress        [1] ETSIAddress

    -- has only been used in earlier releases for X.121 format
}

PDPType ::= OCTET STRING (SIZE(2))
--
-- OCTET 1: PDP Type Organization
-- OCTET 2: PDP/PDN Type Number
-- See See TS 29.060 for encoding details.
--

PLMN-Id ::= OCTET STRING (SIZE (3))
--
-- This is in the same format as octets 2,3,and 4 of the Routing Area Identity (RAI) IE
specified
-- in TS 29.060

QoSInformation ::= OCTET STRING (SIZE (4..255))
--
-- This octet string
-- is a 1:1 copy of the contents (i.e. starting with octet 5) of the "Bearer Quality of
-- Service" information element specified in TS 29.274
--

RATType ::= INTEGER (0..255)
--
-- This integer is 1:1 copy of the RAT type value as defined in TS 29.061
--

RecordType ::= INTEGER
--
-- Record values 0..17 and 87,89 are CS specific. The contents are defined in TS 32.250
--

{
    ePDGRecord          (96)
}

SGWChange ::= BOOLEAN
--
-- present if first record after inter S-GW change
--

IPAddress ::= CHOICE
{
    ipBinaryAddress          IPBinaryAddress,
    ipTextRepresentedAddress IPTextRepresentedAddress
}

IPBinaryAddress ::= CHOICE
{
    ipBinV4Address [0] OCTET STRING (SIZE(4)),
    ipBinV6Address [1] OCTET STRING (SIZE(16))
}

IPTextRepresentedAddress ::= CHOICE
{
    --

```

```

-- IP address in the familiar "dot" notation
--
  iPTextV4Address    [2] IA5String (SIZE(7..15)),
  iPTextV6Address    [3] IA5String (SIZE(15..45))
}

LocalSequenceNumber ::= INTEGER (0..4294967295)
--
-- Sequence number of the record in this node
-- 0.. 4294967295 is equivalent to 0..2**32-1, unsigned integer in four octets

MSISDN ::= ISDN-AddressString
--
-- See TS 23.003
--

MSTimeZone ::= OCTET STRING (SIZE (2))
--
-- 1.Octet: Time Zone and 2. Octet: Daylight saving time, see TS 29.060
--

TimeStamp ::= OCTET STRING (SIZE(9))
--
-- The contents of this field are a compact form of the UTCTime format
-- containing local time plus an offset to universal time. Binary coded
-- decimal encoding is employed for the digits to reduce the storage and
-- transmission overhead
-- e.g. YMMDDhhmmssShhmm
-- where
-- YY      =          Year 00 to 99          BCD encoded
-- MM      =          Month 01 to 12        BCD encoded
-- DD      =          Day 01 to 31          BCD encoded
-- hh      =          hour 00 to 23         BCD encoded
-- mm      =          minute 00 to 59       BCD encoded
-- ss      =          second 00 to 59       BCD encoded
-- S       =          Sign 0 = "+", "-"     ASCII encoded
-- hh      =          hour 00 to 23         BCD encoded
-- mm      =          minute 00 to 59       BCD encoded
--

UETunnelInfo ::= SET
{
  ueTunnelIpAddress    [0] GSNAddress,
  ueTunnelPort         [1] Port,
  epdgTunnelIpAddress [2] GSNAddress,
  epdgTunnelPort       [3] Port
}
Port ::= OCTET STRING (SIZE(2))
MACAddress ::= OCTET STRING (SIZE(6))

TBCDSTRING ::= OCTET STRING
ISDN-AddressString ::= OCTET STRING
IMEI ::= TBCDSTRING (SIZE(8))
IMSI ::= TBCDSTRING (SIZE(3..8))
maxAddressLength INTEGER ::= 20
AddressString ::= OCTET STRING (SIZE (1..maxAddressLength))
END

```