DataCast
Iris GnGi OHDR

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NETSCOUT Proprietary Information
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Except where otherwise indicated, the information contained in this document represents the planned capabilities and intended functionality offered by the product and version number identified on the front of this document. Screen images depicted in this document are representative and intended to serve as example images only. Wherever possible, actual screen images are included.

Contents

Revision History

The revision history shows the documentation updates for this release. These updates include new features and changes to existing features. They also include changes resulting from documentation requests and issues.

Revision	Description
001	Original from 6.14.1 DC-7630: Streaming Video: Vz FiOS VOD Video Control Plane - CCP Log Support
002	DC-7828: IrisGnGi OHDR guide contains extra text in "UpTransInfo Format"
003	DC-6981: Updated the Call Type values to show the different values related to GTPv1 and GTPv2.
004	F-03789 : Late Arrival phase 2- G10, GeoBlade session_status provided OHDR
005	DC-7662: Updated the description of parameters Last RAI, Last CGI and Last SAI
006	Updated per F-03848 Merge GeoBlade code into mainstream, DC-8553.
007	F-04062: Streaming Video: RTSP Failure Code Enhancements

1 Introduction

1.1 Confidentiality Restrictions

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1.2 Disclaimer

NETSCOUT reserves the right to revise this document for any reason, including but not limited to, conformity with standards promulgated by various agencies, utilization of advances in the state of the technical arts, or the reflection of changes in the design of any equipment, techniques, or procedures described or referred to herein. NETSCOUT is under no obligation to provide any feature listed in this document.

1.3 Purpose

The purpose of this document is to describe the OHDR format for Binary Streaming and Binary and ASCII file output. NETSCOUT created this document for the development of an OHDR receiver in a third part application.

1.4 Scope

The OHDR parameters described in this document are limited to DataCast. The ASCII and Binary outputs described in this document are limited to the OHDR receiver software.

1.5 Content

Structures and parameters described in this document are related to signaling monitored on Gi and Gn interfaces by an Iris probe as defined in the list in parameter: Application Protocol.

1.6 Definitions

Listed below are common definitions for this guide.

xDR	Generic term to indicate Data Records generated by SpIprobes and G10, GeoBlade probes
Iris GnGi	GnGi Detail Record
DR	Data Record. Within this document the term refers to components of a OHDR, resulting from the transformation of individual xDRs
HDR	Hybrid Data Record
OHDR	Output Hybrid Data Record. Output format generated by DataCast by processing xDRs
Blob	Blob is a chunk of binary data a receiver obtains on a TCP/IP socket from a DataCast server.
DNS	Domain Name System
LAC	Location Area Code
RAC	Routing Area Code
SAC	Service Area Code
RAT	Radio Access Technology
NSAPI	Network Service Access Point Identifier
IMSI	International Mobile Subscriber Identity
TMSI	Temporary Mobile Subscriber Identity
P-TMSI	Packet TMSI
IMEI	International Mobile Equipment Identity
IMEISV	International Mobile Equipment Identity and Software Version Number
MSISDN	Mobile Subscriber ISDN Number (ISDN: Integrated Services Digital Network)
MCC	Mobile Country Code
MNC	Mobile Network Code
BSC	Base Station Controller

RNC	Radio Network Controller
GSN	GPRS Support Node
SGSN	Serving GSN
GGSN	Gateway GSN
APN	Access Point Name
HVA	High Value Account
GTP	GPRS Tunnelling Protocol
TEID	Tunnel Endpoint Identifier
LDAP	Lightweight Directory Access Protocol
IMPI	IMS Private User Identity
IMPU	IMS Public User Identity (either a SIP URI or a Tel URI)
IMS	IP Multimedia Subsystem
SIP	Session Initiation Protocol
FE	Front End
URI	Uniform Resource Identifier
NAI	Network Access Identifier
THP	Traffic Handling Priority
QCI	QoS Class Indicator
ARP	Allocation/Retention Priority
UE	User Equipment
GUTI	Globally Unique Temporary UE Identity

2 Defining the DataCast Mediation Platform

The DataCast Mediation platform leverages signaling as a common denominator for hybrid network services, elements, and technologies for the most efficient and flexible process for data collection and distribution. With DataCast, disparate data fields are intelligently combined to raise the level of readily available information and expand mediation beyond legacy billing mediation constraints.

In general, DataCast provides the following capabilities:

- Filtering of data records for specific application needs
- Correlation of data records
- Serves as a single feed to multiple applications

The DataCast system's filtering capabilities enhance the bandwidth efficiency on Local and Wide Area Networks (LAN/WAN) by alleviating the production of duplicated and customized data records from each network information source.

The DR Correlation component within DataCast is responsible for correlating the call records for the same call. This feature allows the system administrator to place the correlated data records in the same OHDR. DR Correlation works with the Programmable OHDR output process which allows for specific parameters taken from each correlated data record to be included within the OHDR. DataCast supports Multi-Leg and Multi-Protocol correlation.

DataCast serves as a single source for processing, correlating, transforming, and transmitting hybrid network data records into OHDRs. DataCast receives Programmable Detail records (xDRs) from the Probes, filters and correlates these input data records and generates OHDRs. An OHDR contains content from one or more xDRs plus additional information. After correlating the xDR into an OHDR, DataCast then broadcasts the OHDRs to multiple applications for business intelligence, planning, and service management (Figure 1 DataCast Distribution)

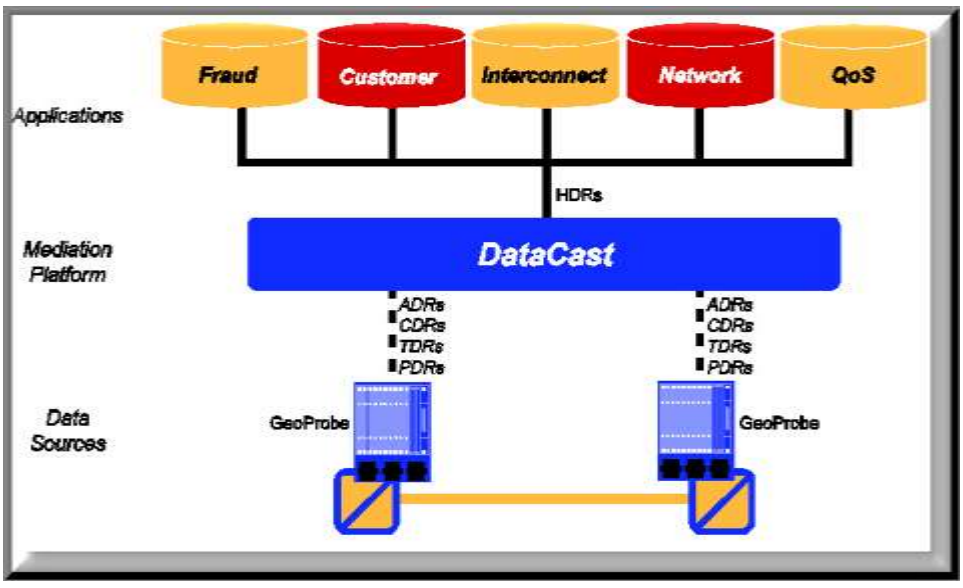


Figure 1 DataCast Distribution

System administrators can use this flexible feature to combine the DataCast filtering capabilities in different ways to provide targeted OHDRs to any downstream application. The information that DataCast generates is mission critical for a variety of applications including:

- Fraud Management
- Customer Management
- Interconnection Management
- Network Service Management
- Quality of Service Management

NOTE: DataCast uses the Sun server family and is independent from the GeoProbe and IrisView™ servers.

3 Working with Binary OHDR Output – TCP/IP Streaming

The DataCast Transmitter component operates as a TCP client and sends the Binary Large Object (BLOB) directly onto the Third Party server which is received instantaneously. The BLOB is used to transmit, encode, and decode data records. There is no special handshake required to activate this process (Figure 2 Blob Transmission).

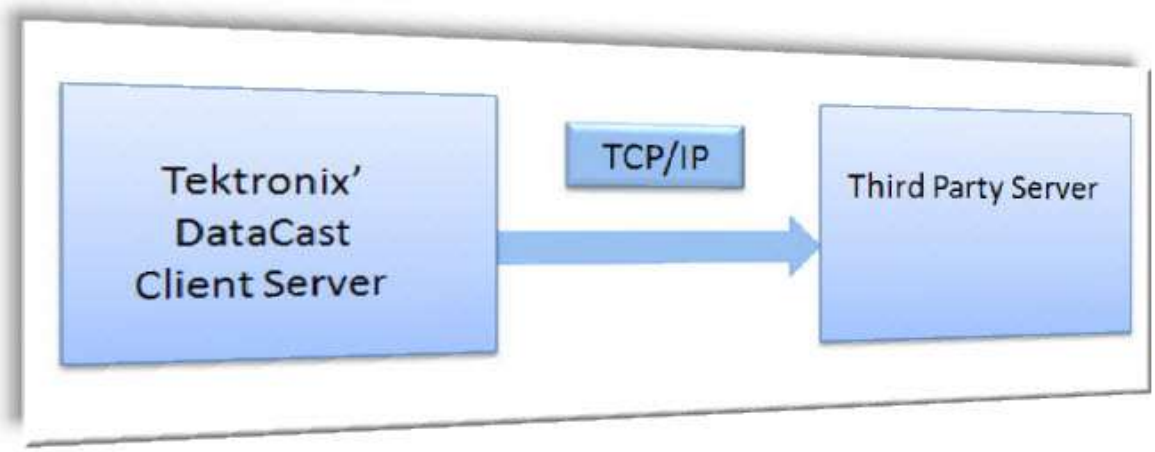


Figure 2 Blob Transmission

3.1 BLOB Structure

The data record is encoded in a BLOB. A BLOB may contain correlated data records and therefore may carry more than one data record, each data record is **word aligned**. The following characteristics applies to a BLOB:

- When one single data record is packed into the BLOB, there might be instances where all three different categories of data (word size, short size, or misc) are to be blobbed or only one category has to be blobbed. Refer to section 4.2 DR Header, Fixed Section.
- The number of element-id masks present in the blob is directly dependent on the number of different categories packed into the BLOB.
- For a DR count that is greater than the value 0, you must read each record according to its specification and move on to the next record. For the purpose of this document, if the DR count is greater than the value 0, one or more data records are present.

The Fields of the OHDR are divided into the following categories based on their sizes (Figure 3 Blob Structure).

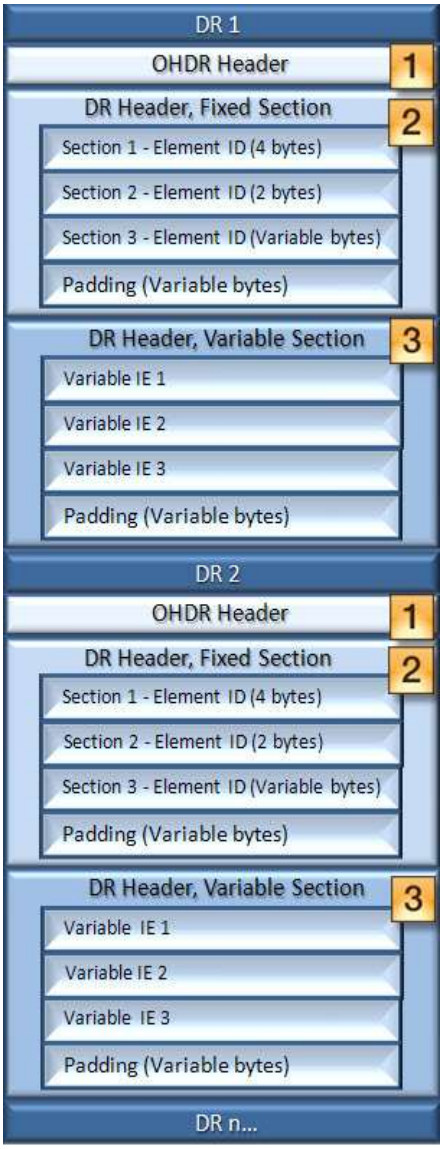


Figure 3 Blob Structure

Blob Structure	Description	Section Reference
1	Defines OHDR Header parameters and size, OHDR Header in this context is common to the Fixed and Variable sections of the data records within the Blob	4.2 OHDR Header

2	Defines DR Header parameters and size, common to fixed and variable section of the data records within the Blob.
	• Also defines the Fixed Section of the Data Records, this section include fields that are always present in the DR but changes per DR type. Apply separate element id mask to each category in the fixed section to indicate the different individual parameters based on the user's choice.
	  • Section 1, Element ID contains four bytes in length; Pack all the 4 bytes **word**-sized parameters together at the beginning
	  • Section 2 Element ID contains two bytes in length, Pack all the 2 byte **short**-sized parameters to follow
	  • Section 3 Element Id is variable in length and can be any length other than four or two bytes. Pack all the **miscellaneous**-sized parameters at the end
		4.3 DR Header, Fixed Section

3	• Defines the Variable Section of the Data Record. Variable section contains information that can be present in the OHDR if the probes have been programmed to include it as an output to the xDRs.	4.7 DR Header, Variable Fields (IEs)

4 G10, GeoBlade GnGi xDR structures

In the context of data correlation for the Gn and Gi interfaces by the G10, GeoBlade probe the GnGi xDR supports two distinct structures:

- Gn/Gi Control Plane Information
- Gi User and Control Plane Information

The Gn/Gi Control Plane structure of the Gn/Gi xDR supports two sessions:

- A Session Level Information Element – A Session Level IE for each session.
- Multiple Transaction Level Information Elements – A Transaction Level IE for each transaction that occurs during the session.

The Gi User and Control Plane structure derives data from flow records.

The Gi User Plane data is present for all protocols and applications as identified by the G10, GeoBlade probe classification engine.

In addition, the Gi Control Plane transaction statistics is present only for protocols that are identified in the GTP tunnel. Refer to section 4.7.1 TekIEPart Variable Field Format.

4.1 OHDR General Notes

Each parameter/IE description will include also the indication of which Release the parameter was first supported in DataCast. Release will indicate also DRUTILS SP in case of back patches.

For Variable length parameters in the fixed part and Variable length fields in TekIE it will be indicated one of the following coding category:

- array of ASCII bytes
- array of BINARY (not ASCII) bytes
- array of DIGIT bytes (ASCII in the range ‘0’-‘9’, converted by DC from probe BCD values)
- array of EXT DIGIT bytes (ASCII in the range ‘0’-‘9’,’A’-‘F’, converted by DC from probe BCD values)

For Fixed length parameters it will be indicated the default value if the data is unavailable from the probe or (when applicable) from other components. Variable length parameters and IEs (see TekIE part) are not sent when data is unavailable from the probe.

4.2 OHDR Header

Parameter	Size (Bytes)	Description
Length of Data Blob	4	The length is not inclusive of this field.
Message Type	1	In the case of a data record, the value is 130.
Data Type	1	This value defines the application ID from the OHDR.format and Transmitter.
Format Type	1	This value defines the FormatID from the OHDR.format and Transmitter.
[Version (4 most sign. bits) – Spare (4 least sign. bits)]	1	Indicates the version of the data type (HDR). The maximum value of the version number is assumed to be 15
DrCount	1	This value defines the total number of DRs. If the value is zero, no data sections appear.
<Internal>	1	Reserved
Reserved	2	This parameter is reserved for future use.

4.3 DR Header, Fixed Section

From each parameter it will be possible to know whether it can be extracted due to additional components or not.

There can be the following cases:

1) A parameter can be extracted from the xDR only from Iris Mediation Device or Iris Xdr Decoder Components (default).

2) A parameter can be extracted as in case 1 or due to additional component(-s) that must be configured in DataCast (“Component optional”).

3) A parameter can be extracted only due to additional component(-s) that must be configured in DataCast (“Component needed”);

For a description of components refer to DataCast OHDR Components Guide.

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Total length of DR	2		This field indicates the length of this DR. The length unit is in number of 4 byte words. The length indicated also includes the size of this field and any word padding at the end of the DR.
Bitmask DR Type (bits 1-3) Number of Element ID Masks (bits 4-6) Reserved (bits 7-8)	1		Extension indicator value: 7 Indicates the number of Element IDs used in the next Fixed Sections (number of sections described below).
Reserved	1		Reserved for future use
DrType	1		Iris GnGi DrType: 8
DrInterface	1		Reserved for future use; Value: 0
Total Length of Element ID Section	2		This value indicates the length of the entire Element ID section. This value is exclusive of the size of this field, but is inclusive of the padding bytes for the Element ID. The length unit shall be in number of (4 byte) words.
Element ID Mask 1	4		This value is the Bitmask for all elements in Section 1. The three most significant bits (32–30) indicate the number of bytes within the parameters from this section. The following values are: **000: Word size (4 bytes)** 001: Short size (2 bytes) 010: Misc. sizes (anything other than 4 or 2 bytes) 100: Extension Misc. sizes

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Call Number	4	4097	This field is present if the Element ID Mask 1 bit location 1 is set. **Detailed Description:** the value is an ID defined by the probe and incremented by one each time a new call starts. If ID > 4.294.967.295 the value will be zero (see Param. 4112, 4113). This number is the unique identifier for the current session on probe/blade/processor basis. The default value when data is unavailable is 0xFFFFFFFF. Release: 12.1 and earlier
Start Time (secs)	4	4098	This field is present if the Element ID Mask 1 bit location 2 is set. **Detailed Description:** this field indicates the GMT time of the start of the GTP session, when the condition indicator indicates that it is a “closure” XDR. When the condition indicator indicates that it is a “periodic” XDR, then the start time is the GMT time of the start of the periodic time interval. The default value when data is unavailable is 0x00000000. Release: 12.1 and earlier
Start Time (micro secs)	4	4099	This field is present if the Element ID Mask 1 bit location 3 is set. **Detailed Description:** the value expresses in microseconds the fractional part of the Start Time The default value when data is unavailable is 0x00000000. Release: 12.1 and earlier
End Time (secs)	4	4100	This field is present if the Element ID Mask 1 bit location 4 is set. **Detailed Description:** this field indicates the GMT time of the end of the GTP session. This is true when the condition indicator indicates that it is a “closure” XDR. When the condition indicator indicates that it is a “periodic” XDR, then the end time is the GMT time of the start of the periodic time interval. The default value when data is unavailable is 0x00000000. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
End Time (micro secs)	4	4101	This field is present if the Element ID Mask 1 bit location 5 is set. **Detailed Description:** the value expresses in microseconds the fractional part of the End Time The default value when data is unavailable is 0x00000000. Release: 12.1 and earlier
Call Type	4	4102	This field is present if the Element ID Mask 1 bit location 6 is set. **Detailed Description:** This field identifies the Call Type as defined by the G10, GeoBlade probe. The values are the following. For GTPv1: 1: Tunnel Management, 2: Path Management, 3: Location Management, 4: Mobility Management , 5: MBMS, 6: MS Information, 7: Relocation, 8: Context. For GTPv2: 1: Tunnel Management, 2: Trace Management, 3: Path Management, 4: Mobility Management , 5: CS Fallback, 6: Non 3GPP Access, 7: Restoration Recovery, 8: Relocation, 9: Context, 10: SRVCC PS to CS. The default value when data is unavailable is 0xFFFFFFFF. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
SGSN_Teid_C	4	4103	This field is present if the Element ID Mask 1 bit location 7 is set. **Detailed Description:** SGSN side TEID_C The default value when data is unavailable is 0xFFFFFFFF. Release: 12.1 and earlier
GGSN_Teid_C	4	4104	This field is present if the Element ID Mask 1 bit location 8 is set. **Detailed Description:** GGSN side TEID_C The default value when data is unavailable is 0xFFFFFFFF. Release: 12.1 and earlier
Primary_SGSN_Teid_U	4	4105	This field is present if the Element ID Mask 1 bit location 9 is set. **Detailed Description:** SGSN primary context TEID_C The default value when data is unavailable is 0xFFFFFFFF. Release: 12.1 and earlier
Primary_GGSN_Teid_U	4	4106	This field is present if the Element ID Mask 1 bit location 10 is set. **Detailed Description:** GGSN primary context TEID_C The default value when data is unavailable is 0xFFFFFFFF. Release: 12.1 and earlier
Teid_U_II	4	4107	This field is present if the Element ID Mask 1 bit location 11 is set **Detailed Description:** Last TEID_U activated The default value when data is unavailable is 0xFFFFFFFF. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
GbIuInterfaceId	4	4108	This field is present if the Element ID Mask 1 bit location 12 is set **Detailed Description:** This field is the Probe database id that identifies the Gb or Iu Interface. The default value when data is unavailable is 0xFFFFFFFF. Component needed: MDM_Component Release: 12.1 and earlier
Old_SGSN_Teid_C	4	4109	This field is present if the Element ID Mask 1 bit location 13 is set **Detailed Description:** primary context TEID_C for previous SGSN The default value when data is unavailable is 0xFFFFFFFF. Release: 12.1 and earlier
Session Status	4	4110	This field is present if the Element ID Mask 1 bit location 14 is set **Detailed Description:** status of the session record, Possible value are described in Appendix - Session Status. The default value when data is unavailable is 0x7FFFFFFF . Release: 12.1 and earlier
Bearer Id	4	4111	This field is present if the Element ID Mask 1 bit location 15 is set **Detailed Description:** Default EPS Bearer Id from GtpV2 session The default value when data is unavailable is 0x7FFFFFFF. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Extended Call Number Low	4	4112	This field is present if the Element ID Mask 1 bit location 16 is set. **Detailed Description:** **G10, GeoBlade probe:** The value is the least significant part of an ID (8 bytes long) defined by the probe and incremented by one each time a new call starts. When data is unavailable this value and Param. 4113 value are populated with 0xFFFFFFFF. Release: 12.1 and earlier
Extended Call Number High	4	4113	This field is present if the Element ID Mask 1 bit location 17 is set. **Detailed Description:** **G10, GeoBlade probe:** The value is the most significant part of an ID (8 bytes long) defined by the probe and incremented by one each time a new call starts. When data is unavailable this value and Param. 4112 value are populated with 0xFFFFFFFF. Release: 12.1 and earlier
Blade Id	4	4114	This field is present if the Element ID Mask 1 bit location 18 is set. **Detailed Description:** BladeId from the probe. The default value when data is unavailable is 0x00000000. Release: 12.1 and earlier
Link Id	4	4115	This field is present if the Element ID Mask 1 bit location 19 is set. **Detailed Description:** ID of one of the links from where the PDUs for this session were seen. The default value when data is unavailable is 0x00000000. Release: 13.1

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Source Node Id	4	4116	This field is present if the Element ID Mask 1 bit location 20 is set. **Detailed Description:** This field contains the node Id related to parameter 6145 (Source Ip Address). The default value when data is unavailable is 0xFFFFFFFF. Release: 13.2.2
Destination Node Id	4	4117	This field is present if the Element ID Mask 1 bit location 21 is set. **Detailed Description:** This field contains the node Id related to parameter 6146 (Destination Ip Address). The default value when data is unavailable is 0xFFFFFFFF. Release: 13.2.2
Media Bandwidth	4	4118	This field is present if the Element ID Mask 1 bit location 22 is set. **Detailed Description:** Data in bps of the bandwidth header in the Setup Response from SRM server The default value when data is unavailable is 0xFFFFFFFF. Release: 13.3.1
Media Duration	4	4119	This field is present if the Element ID Mask 1 bit location 23 is set. **Detailed Description:** X-Duration header of the Setup Response from SRM server, in seconds The default value when data is unavailable is 0xFFFFFFFF. Release: 13.3.1

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Session Status Ext	4	4120	This field is present if the Element ID Mask 1 bit location 24 is set **Detailed Description:** extension of the status of the session record. Possible value are described in Appendix - Session Status Extended. The default value when data is unavailable is 0xFFFFFFFF . Release: 14.2.0
Element ID Mask 2	4		This value is the Bitmask for all elements in Section 2. The three most significant bits (32–30) indicate the number of bytes within the parameters from this section. The following values are: 000: Word size (4 bytes) **001: Short size (2 bytes)** 010: Misc. sizes (anything other than 4 or 2 bytes) 100: Extension Misc. sizes
Equipment Id	2	5121	This field is present if the Element ID Mask 2 bit location 1 is set. **Detailed Description:** The value is the ID of the probe that created the call record, unique in the system. The default value when data is unavailable is 0xFFFF. Release: 12.1 and earlier
Processor Id	2	5122	This field is present if the Element ID Mask 2 bit location 2 is set. **Detailed Description:** The value is the ID of the processing unit that created the call record, unique in the system. The default value when data is unavailable is 0xFFFF. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
XdrOption	2	5123	This field is present if the Element ID Mask 2 bit location 3 is set. **Detailed Description:** this filed specify the reason for the creation of the Call Record. Possible values are: 0: Delivered DR upon call closure 1: Periodically delivered DR 2: Delivered on changes The default value when data is unavailable is 0xFFFF. Release: 12.1 and earlier
NSAPI	2	5124	This field is present if the Element ID Mask 2 bit location 4 is set. **Detailed Description:** This is the NSAPI associated with the primary PDP context The default value when data is unavailable is 0xFFFF. Release: 12.1 and earlier
GtpVersion	2	5125	This field is present if the Element ID Mask 2 bit location 5 is set. **Detailed Description:** This indicates the version of the GTP protocol. Currently supported values are: 0: GTP V0 1: GTP V1 The default value when data is unavailable is 0xFFFF. The G10, GeoBlade doesn't provide this information for GTP V2 and the parameter is set to 0xFFFF. Component optional: TRANSFORM-CP_UP-MAPPER Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Last RAT	2	5126	This field is present if the Element ID Mask 2 bit location 6 is set. **Detailed Description:** This is the value known for RAT at the end time of this OHDR. This field is used to indicate which Radio Access Technology is serving the UE. Supported values include: -1: field not present 0: <reserved> 1: UTRAN 2: GERAN 3: WLAN 4: GAN The default value when data is unavailable is 0xFFFF. Component optional: TRANSFORM-CP_UP-MAPPER Release: 12.1 and earlier
GbIuFlag	2	5127	This field is present if the Element ID Mask 2 bit location 7 is set. **Detailed Description:** This field defines if Mobility info comes from a Gb or a Iu interface; possible values are: 1: Gb 2: Iu The default value when data is unavailable is 0xFFFF. Component Needed**:** MDM_Component set in case CGI (7172) or SAI (7173) is not present in G10, GeoBlade xDR. Component optional**:** TRANSFORM-CP_UP-MAPPER Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Current CellId or Sac	2	5128	This field is present if the Element ID Mask 2 bit location 8 is set. **Detailed Description:** This field indicates: • the last known Cell Identifier for Gb • the SAC for Iu. The default value when data is unavailable is 0xFFFF. Component Needed**:** MDM_Component set in case CGI (7172) or SAI (7173) is not present in G10, GeoBlade xDR Component optional**:** TRANSFORM-CP_UP-MAPPER. Release: 12.1 and earlier
Application Protocol	2	5129	This field is present if the Element ID Mask 2 bit location 9 is set. **Detailed Description:** A unique value as defined by the G10, GeoBlade probe. Supported values include: 21: GTP, GTP-C 264: GTP-U 257: GtpV2 218: RTSP 255: Radius 253: DNS 260: A10/A11 204: XCAP (UP) 246: LDAP 254: DHCP 259: PMIPV6 272: IWSF 283: MLP 284: GtpV0 The default value when data is unavailable is 0xFFFF. Release: 12.1 and earlier
Source Port Number	2	5130	This field is present if the Element ID Mask 2 bit location 10 is set. **Detailed Description:** Port number of the node that initiated the session/transaction The default value when data is unavailable is 0xFFFF. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Destination Port Number	2	5131	This field is present if the Element ID Mask 2 bit location 11 is set. **Detailed Description:** Port number of the node that terminated the session/transaction The default value when data is unavailable is 0xFFFF. Release: 12.1 and earlier
Subscriber Info	2	5132	This field is present if the Element ID Mask 2 bit location 12 is set. **Detailed Description:** this field is composed by SubscriberGroup (1B) + SubscriberType (1B) Subscriber Group: (0-Undefined, 1-National, 2-Foreign Visitor) Subscriber Type: (0-Undefined, 1-Home, 2-Visitor) The default value when data is unavailable is 0x0000. Component needed: TRANSFORM-SUB-INFO Release: 12.1 and earlier
Cgi or Sai From Mapping	2	5133	This field is present if the Element ID Mask 2 bit location 13 is set. **Detailed Description:** possible values are: 0 - the parameter CGI (0x1C04) or SAI (0x1C05) is provided by G10, GeoBlade and the parameters CellID/SAC (0x1408) and GbluFlag (0x1407) are set coherently in xDR decoding 1 - the parameters CellID/SAC (0x1408) and GbluFlag (0x1407) are provided by MDM mapping from IuPS or Gb traffic; the parameter CGI (0x1C04) or SAI (0x1C05) is set by MDM depending from CellID/SAC CGI = MCC + MNC + LAC + CellID SAI = MCC + MNC + LAC + SAC See section CGI and SAI format encoding content. The default value when data is unavailable is 0x0000. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Msip Active	2	5134	This field is present if the Element ID Mask 2 bit location 14 is set. **Detailed Description:** this field is equal to **1** if MSIP is active, **0** if it is not active. The default value when data is unavailable is 0xFFFF. Release: 12.1 and earlier
Splitting Info Mask	2	5135	This field is present if the Element ID Mask 2 bit location 15 is set. **Detailed Description:** this field is equal to: • 0 when the OHDR doesn't depends from split for repeated APN in the original xDR • 0 when the OHDR depends from split of original xDR with xdrOption different from Closure. • 0 when the OHDR is the first in case of split for original xDR with xdrOption Closure. • 1 when the OHDR is the second in case of split for original xDR with xdrOption Closure Default value 0x0000. Release: 12.2
Initial Rat	2	5136	This field is present if the Element ID Mask 2 bit location 16 is set. **Detailed Description:** This is the value known for RAT at the start time of this OHDR The default value when data is unavailable is 0xFFFF. Release: 13.1

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Detach Type	2	5137	This field is present if the Element ID Mask 2 bit location 17 is set. **Detailed Description:** Type of detach carried by the 'Detach Message' as described in 3GPP TS 29.274 v10. Supported values include: -1: Field not present 1: PS Detach 2: Combined PS/CS Detach The default value when data is unavailable is 0xFFFF. Release: 13.1
Source Node Type	2	5138	This field is present if the Element ID Mask 2 bit location 18 is set. **Detailed Description:** This field contains the node type related to parameter 6145 (Source Ip Address). The possible values can be found in 7.3.2 table. The default value when data is unavailable is 0xFFFF. Release: 13.1_SP16
Destination Node Type	2	5139	This field is present if the Element ID Mask 2 bit location 19 is set. **Detailed Description:** This field contains the node type related to parameter 6146 (Destination Ip Address). The possible values can be found in 7.3.2 table. The default value when data is unavailable is 0xFFFF. Release: 13.1_SP16

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Media Client Port	2	5140	This field is present if the Element ID Mask 2 bit location 20 is set. **Detailed Description:** Client Port field of the Transport Header in the RTSP Setup Request. The default value when data is unavailable is 0xFFFF. Release: 13.3.1
Media Server Port	2	5141	This field is present if the Element ID Mask 2 bit location 21 is set. **Detailed Description:** This will be the Port data of the Transport Header in the Setup Response from the CDS Server. The default value when data is unavailable is 0xFFFF. Release: 13.3.1
Element ID Mask 3	4		This value is the Bitmask for all elements in Section 3. The three most significant bits (32–30) indicate the number of bytes within the parameters from this section. The following values are: 000: Word size (4 bytes) 001: Short size (2 bytes) **010: Misc. sizes (anything other than 4 or 2 bytes)** 100: Extension Misc. sizes
Source IP Address	variable	6145	The field is present if the Element ID Mask 3 bit location 1 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** IP address of the node that initiated the session/transaction (both IPV4 and IPV6 shall be supported). Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Destination IP Address	variable	6146	The field is present if the Element ID Mask 3 bit location 2 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** IP address of the node that terminated the session/transaction (both IPV4 and IPV6 shall be supported). Release: 12.1 and earlier
Mobile Station IP Address	variable	6147	The field is present if the Element ID Mask 3 bit location 3 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** The IP address of the mobile subscriber performing the session Release: 12.1 and earlier
Last RAI	variable	6148	The field is present if the Element ID Mask 3 bit location 4 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** This is the last known value for RAI at the creation time of this OHDR. If the G10, GeoBlade probe misses a UPCQ message, then this field continues to report the last known value for RAI, which may differ from what is present in the missed UPCQ message. If the User Location Information (ULI) parameter in the GTP protocol carries the Routing Area Identifier (RAI) parameter, then this is the RAI of the subscriber. Otherwise this is the RAI of the SGSN where the subscriber is registered. The parameter can have the value 0x00, meaning that no valid value is available. Value 0x00 is used only when no RAI value was received from G10, GeoBlade probe. Component optional: TRANSFORM-CP_UP-MAPPER. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
User Agent	variable	6149	The field is present if the Element ID Mask 3 bit location 5 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** UserAgent for RTSP transaction; the field provides the information about the browser being used by the Mobile Release: 12.1 and earlier
IMSI	variable	6150	The field is present if the Element ID Mask 3 bit location 6 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of DIGIT bytes). **Detailed Description:** This field contains the International Mobile Subscriber Identity of the mobile device. Component optional: TRANSFORM-CP_UP-MAPPER. Release: 12.1 and earlier
IMEISV	variable	6151	The field is present if the Element ID Mask 3 bit location 7 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of DIGIT bytes). **Detailed Description:** The field contains the IMEISV of the device. Component optional: TRANSFORM-CP_UP-MAPPER. Component optional: IMSI_Component Component optional: MDM_Component Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
MSISDN	variable	6152	The field is present if the Element ID Mask 3 bit location 8 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of DIGIT bytes). **Detailed Description:** This field contains the Mobile Subscriber ISDN Number Component optional: TRANSFORM-CP_UP-MAPPER Component optional: IMSI_Component Release: 12.1 and earlier
FirstPTMSI	variable	6153	The field is present if the Element ID Mask 3 bit location 9 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of EXT DIGIT bytes). **Detailed Description:** This field contains the first Packet Temporary Mobile Subscriber Identity value. Component optional: TRANSFORM-CP_UP-MAPPER Release: 12.1 and earlier
LastPTMSI	variable	6154	The field is present if the Element ID Mask 3 bit location 10 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of EXT DIGIT bytes). **Detailed Description:** This field contains the last Packet Temporary Mobile Subscriber Identity value. Component optional: TRANSFORM-CP_UP-MAPPER Release: 12.1 and earlier
APN	variable	6155	The field is present if the Element ID Mask 3 bit location 11 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes) **Detailed Description:** This field contains the Access Point Name value. Component optional: TRANSFORM-CP_UP-MAPPER Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Mapped_RequestedQos	variable	6156	The field is present if the Element ID Mask 3 bit location 12 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** RequestedQoS from last Gtp Transaction. The encoding of this parameter is described in section Quality of Service (Qos) format encoding . Component optional: TRANSFORM-CP_UP-MAPPER Component optional: MDM_Component Release: 12.1 and earlier
Mapped_NegotiatedQos	variable	6157	The field is present if the Element ID Mask 3 bit location 13 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** NegotiatedQoS from last Gtp Transaction. The encoding of this parameter is described in section Quality of Service (Qos) format encoding . Component optional: TRANSFORM-CP_UP-MAPPER Component optional: MDM_Component Release: 12.1 and earlier
URL	variable	6158	The field is present if the Element ID Mask 3 bit location 14 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes) **Detailed Description:** URL field extracted from the header for RTSP transaction. Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Bsc or Rnc Name (Gb/Iu)	variable	6159	The field is present if the Element ID Mask 3 bit location 15 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** This field contains the BSC or RNC Name obtained by also monitoring Gb or Iu interface. Component needed: MDM_Component + SQM_MAPPER Release: 12.1 and earlier
SgsnName (Gb/IU)	variable	6160	The field is present if the Element ID Mask 3 bit location 16 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** This field contains the SGSN Name obtained by also monitoring Gb or Iu interface. Component needed: MDM_Component + SQM_MAPPER Release: 12.1 and earlier
UserName	variable	6162	The field is present if the Element ID Mask 3 bit location 18 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** User Name extracted from Radius transaction. Release: 12.1 and earlier
ECGI	variable	6163	The field is present if the Element ID Mask 3 bit location 19 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** E-UTRAN Cell Global Identifier extracted from GtpV2 transaction. Component optional: TRANSFORM-CP_UP-MAPPER Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
GUTI	variable	6164	The field is present if the Element ID Mask 3 bit location 20 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** The field contains the GUTI of the UE. Release: 12.1 and earlier
TAI	variable	6165	The field is present if the Element ID Mask 3 bit location 21 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** Tracking Area Identity extracted from GtpV2 transaction. Component optional: TRANSFORM-CP_UP-MAPPER Release: 12.1 and earlier
Tunnel EndPoint 1	variable	6166	The field is present if the Element ID Mask 3 bit location 22 is set. **Detailed Description:** This field contains the GSN node 1 involved in tunnel creation for mobile subscriber. The first octet indicates the GSN type, see section 4.6. The second octet indicates the length of the endpoint. This is followed by the actual value of the tunnel endpoint ip address (array of BINARY bytes). Release: 12.1 and earlier
Tunnel EndPoint 2	variable	6167	The field is present if the Element ID Mask 3 bit location 23 is set. **Detailed Description:** This field contains the GSN node 2 involved in tunnel creation for mobile subscriber. The first octet indicates the GSN type, see section 4.6. The second octet indicates the length of the endpoint. This is followed by the actual value of the tunnel endpoint ip address (array of BINARY bytes). Release: 12.1 and earlier

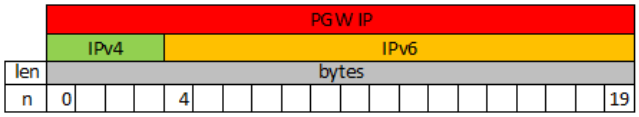
Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Subscriber MccMnc	variable	6168	The field is present if the Element ID Mask 3 bit location 24 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** This field contains the concatenation of Subscriber MCC and Subscriber MNC. Component needed: TRANSFORM_SUB_INFO Release: 12.1 and earlier
UA Profile	variable	6169	This field is present if the Element ID Mask 3 bit location 25 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). Release: 12.1 and earlier
User Agents	variable	6170	This field is present if the Element ID Mask 3 bit location 26 is set. **Detailed Description:** The list of UserAgents is encoded as follows: • Count 1 byte (Total number of UserAgents present) • Len of UserAgent-1 2 bytes • UserAgent-1 <variable> (array of ASCII bytes) • …. …. …. • Len of UserAgent-N 2 bytes • UserAgent-N <variable> Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
EnodeB Ip list	variable	6171	This field is present if the Element ID Mask 3 bit location 27 is set. **Detailed Description:** The list of EnodeB Ips is encoded as follows: • Count 1 byte (Total number of EnodeB Ip present) • Len of EnodeBIp-1 1 byte • EnodeBIp-1 <variable> (array of BINARY bytes). • …. …. …. • Len of EnodeBIp -N 1 byte • EnodeBIp-N <variable> Release: 12.1 and earlier
Element ID Mask 4	4		This value is the Bitmask for all elements in Section 4. The three most significant bits (32–30) indicate the number of bytes within the parameters from this section. The following values are: 000: Word size (4 bytes) 001: Short size (2 bytes) 010: Misc. sizes (anything other than 4 or 2 bytes) **100: Extension Misc. sizes**
Network Interface Type	variable	7171	This field is present if the Element ID Mask 4 bit location 3 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** This field carries the interface type where the xDR comes from. See section 7.2 for details. Components needed**:** IP-MAPPER and TRANSFORM-INTERFACE-TYPE Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Last CGI	variable	7172	The field is present if the Element ID Mask 4 bit location 4 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** This is the last known value of the Cell Global Identifier of the cell where the subscriber is attached at the creation time of the OHDR. If the G10, GeoBlade probe misses a UPCQ message, then this field continues to report the last known value for CGI, which may differ from what is present in the missed UPCQ message. Component optional**:** MDM_Component set in case this item is not present in G10, GeoBlade xDR. Component optional**:** TRANSFORM-CP_UP-MAPPER See also Cgi or Sai From Mapping (5133) See section CGI and SAI format encoding content Release: 12.1 and earlier
Last SAI	variable	7173	The field is present if the Element ID Mask 4 bit location 5 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** This is the last known value of the Service Area Identifier where the subscriber is located at the creation time of the OHDR. If the G10, GeoBlade probe misses a UPCQ message, then this field continues to report the last known value for SAI, which may differ from what is present in the missed UPCQ message. Component optional**:** MDM_Component set in case this item is not present in G10, GeoBlade xDR. Component optional: TRANSFORM-CP_UP-MAPPER See also Cgi or Sai From Mapping (5133) See section CGI and SAI format encoding content Release: 12.1 and earlier

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
IMEI	variable	7174	The field is present if the Element ID Mask 4 bit location 6 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of DIGIT bytes). **Detailed Description:** The field contains the IMEI of the device. Component optional**:** TRANSFORM-CP_UP-MAPPER Component optional**:** IMSI_Component Component optional: MDM_Component Release: 12.1 and earlier
PairedMsip	variable	7175	The field is present if the Element ID Mask 4 bit location 7 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** The second IP address of the mobile subscriber performing the session; it is present in case both IPv4 and IPv6 are assigned to the subscriber Release: 12.2
Initial Rai	variable	7176	The field is present if the Element ID Mask 4 bit location 8 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** This is the value known for RAI at the start time of the OHDR. The param can have the value: 0x00, meaning that no valid value is available Release: 13.1
Initial Cgi	variable	7177	The field is present if the Element ID Mask 4 bit location 9 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** This is the value known for CGI at the start time of the OHDR See CGI and SAI format encoding content. Release: 13.1

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Initial Sai	variable	7178	The field is present if the Element ID Mask 4 bit location 10 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** This is the value known for SAI at the start time of the OHDR See CGI and SAI format encoding content. Release: 13.1
LAI	variable	7179	The field is present if the Element ID Mask 4 bit location 11 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** Location Area Identifier. This includes the MCC (Mobile Country Code) + MNC (Mobile Network Code) + LAC (Location Area Code) as described in 3GPP TS 29.274 v10. Release: 13.1
initial_tunnel_ipv4	variable	7180	The field is present if the Element ID Mask 4 bit location 12 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). Release: 13.2.2
initial_tunnel_ipv6	variable	7181	The field is present if the Element ID Mask 4 bit location 13 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). Release: 13.2.2

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
PGW IP	variable	7182	The field is present if the Element ID Mask 4 bit location 14 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** PGW IP can be IPv4 and/or IPv6. The field may contain only IPv4 (4 bytes), only IPv6 (16 bytes) or both IPv4 and IPv6 (20 bytes). In case both IPv4 and IPv6 are present the IP version order is assured to be first IPv4 and then IPv6 as show in the following picture:  Component optional**:** TRANSFORM-CP_UP-MAPPER Release: 13.1_SP5
Session Id	variable	7183	The field is present if the Element ID Mask 4 bit location 15 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** Session ID of RTSP Session ID is an opaque string. Linear white space must be URL-escaped. A session identifier randomly chosen and it is at least eight octets long. Release: 13.3.1
Control Session Id	variable	7184	The field is present if the Element ID Mask 4 bit location 16 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** Control Session ID of Setup Response from SRM server. It is a proprietary parameters that have to be treated as the Session ID. Release: 13.3.1

Parameter	Size (Bytes)	Parameter Id Used only in ASCII decoding	Description
Media Server Ip	variable	7185	The field is present if the Element ID Mask 4 bit location 17 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of BINARY bytes). **Detailed Description:** This will be the IP address of the TransportHeader in the Setup Response from the CDS Server. Release: 13.3.1
Reason	variable	7186	The field is present if the Element ID Mask 4 bit location 18 is set. The format of the field includes the first byte indicating the length of the field, and is followed by the actual contents (array of ASCII bytes). **Detailed Description:** Teardown message contains text based Reason Release: 13.3.1
Padding	variable		Variable length. Possible values are 1, 2 and 3 bytes. Ensures that the length of the entire Element ID section ends on a word boundary.
Length of variable section	2	This field indicates the length of the entire variable section and includes the size of this field and all the padded bytes. The length unit shall be in number of (4 byte) words.	
Number of variable fields present	2	This field indicates the total number of variable fields packed into the blob for this dr.	
Format Id	2	This field represents the formatId in the FSF file.	
Variable field content	variable	See section **4.7** variable content	
Padding	variable	If you need to use padding for word alignment, this value is defined to end on a four-byte boundary.	

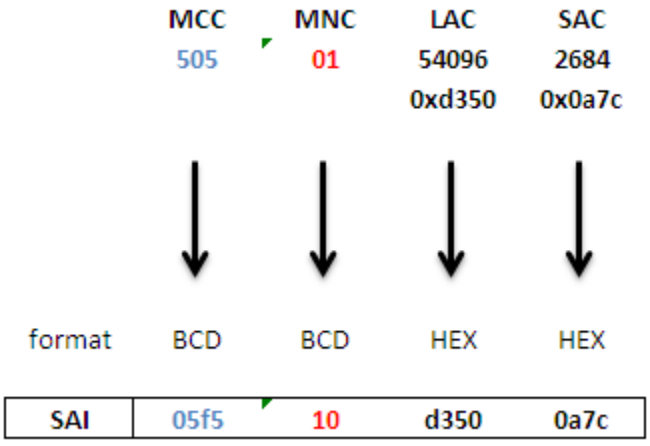
4.4 CGI and SAI format encoding

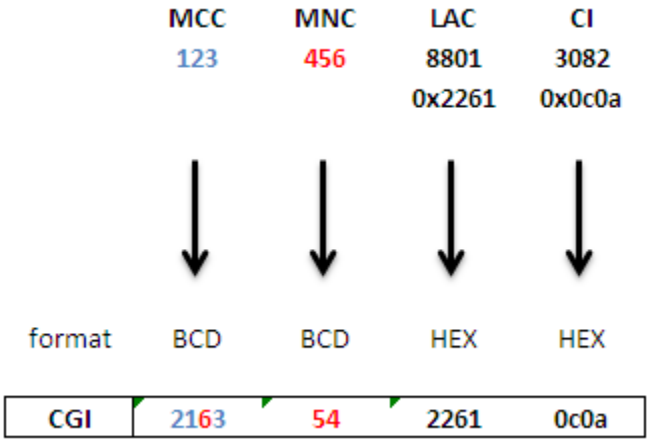
To encode CGI or SAI fields DataCast applies a format in accordance with 3GPP TS 29.274 V9.9.0 (2011-12): Serving Network is coded as depicted in following figure.

	Bits							
Octets	8	7	6	5	4	3	2	1
1	Type = 83 (decimal)							
2 to 3	Length = n							
4	Spare				Instance			
5	MCC digit 2				MCC digit 1			
6	MNC digit 3				MCC digit 3			
7	MNC digit 2				MNC digit 1			
8 to (n+4)	These octet(s) is/are present only if explicitly specified							

If an Administration decides to include only two digits in the MNC, then bits 5 to 8 of octet 6 are coded as "1111".

Two examples of this format are:





Additionally DataCast can set CGI and SAI to the reserved value: 0x00, meaning that no valid value is available.

4.5 Quality of Service (Qos) format encoding

To encode Mapped_requestedQos and Mapped_NegotiatedQos fields DataCast applies a format in accordance with 3GPP TS 29.060 V7.9.0 (2008-03), as described in the following figure.

DATA in OHDR is provided starting from Allocation/Retention Priority field (Octet 4)

	Bits							
Octets	8	7	6	5	4	3	2	1
1	Type = 135 (decimal)							
2 to 3	Length = n							
4	Allocation/Retention Priority							
5-n	QoS Profile Data							

Octet 4 carries the allocation/retention priority octet that is defined in 3GPP TS 23.107. The allocation/retention priority octet encodes each priority level defined in 3GPP TS 23.107 as the binary value of the priority level.

The allocation/retention priority field shall be ignored by the receiver if:

- the QoS profile is pre-Release '99.
- the QoS profile IE is used to encode the Quality of Service Requested (QoS Req) field of the PDP context IE.

Octets 5 – n (QoS Profile Data field) are coded according to 3GPP TS 24.008 [5] Quality of Service IE, octets 3-m. The minimum length of the field QoS Profile Data is 3 octets; the maximum length is 254 octets.

4.6 GSN Type values

The GSN Type field can have the following values:

- Unknown = 0
- Sgsn = 1
- Ggsn = 2
- Rnc = 3
- EnodeB = 4
- Sgw = 5

- PdnGw = 6
- Mme = 7
- Mbms = 8

4.7 DR Header, Variable Fields (IEs)

The Iris variable field DR structure might have zero or more variable fields in the variable field content of the IRIS data record based on user configuration choices. The Iris variable field structure consists of 8 bits.

- Bit 1 through 7 are reserved for future configurable options
- Bit 8 if turned on, indicates the IRIS TEK defined IE is present

Bit: 8	*7*	*6*	*5*	*4*	*3*	*2*	*1*
IRIS TEK IE	*Reserved for future configurable options.*						

Figure 4 - Variable Fields Structure

Parameter	Size (Bytes)	Description
Data ID	2	Identifies the Data ID type.
Bitmask Reserved For future Use (bits 1-7) Iris Tek IE (bit 8)	1	 Bit Value = 0 To option OFF (by default) Bit Value = 1 To option ON If ON indicates the IRIS TEK defined IE is present.
Length of Data Field	1	This field indicates the size of the data field in the number of bytes.
Data Field	Variable	This size is equal to the value in the Length of Data Field parameter. The content of this field is reserved.
OptionalPart	variable	This field is populated based on the Bitmask value (1-7). If no bits are turned on this field is not populated.
TekIEPart	variable	This field is populated based on the status of Bit 8. If Bit 8 is turned ON the value is presented.

4.7.1 TekIEPart Variable Field Format

The Iris variable field currently supports 10 types of TekIE:

- Iris TekIE TransStats (DataId 0xA001)
- Iris TekIE GiUserInfo (DataId 0xA002)
- Iris TekIE DNSEnum (DataId 0xA003)
- Iris TekIE A11SessionSpecific (DataId 0xA004)
- Iris TekIE NetworkInfo (DataId 0xA005)
- Iris TekIE UserTunnel (DataId 0xA006)
- Iris TekIE UpThroughput (DataId 0xA007)
- Iris TekIE LdapSessionSpecific (DataId 0xA008)
- Iris TekIE PageDownloadInfo (DataId 0xA009)
- Iris TekIE UpTransactionInfo (DataId 0xA00A)
- Iris TekIE CompressedQosInfo (DataId 0xA00B)
- Iris TekIE MLPInfo (DataId 0xA00C)
- Irisi TekIE CCPMediaServerInfo (DataId 0xA00D)

Parameter	**Size (Bytes)**	**Description**
Total Length of TekIEContents	2	This field represents the length TekIEContents. The value is exclusive of the size of this field. The length unit shall be in number of byte.
TekBitmask	4	The bitmask field represents the default status of the Bit Options: Bits = 0 option Off (default) Bits = 1 option ON If DataId = 0xA001 (TransStats Iris TekIE)

Parameter	Size (Bytes)	Description
		• Bit 1 – TransactionStatsInfo (will be deprecated soon; please start using TransactionStatsInfoNew) • Bit 2 – GTPTransactinQoS • Bit 3 – TransactionStatsInfoNew • Bit 4 – PmipV6Transaction • Bit 5 – XcapTransaction • Bit 6 – SvTransaction • Bit 7 – RtspTransaction • Bit 8 – GTPTransactionV2Qos • Bit 9 - CpTrafficVolume • Bit 10 – GtpUli • Bit 11 – IwsfTransaction • Bit 12 – DirectTunnelingTransaction • Reserved Bits 13-32 If DataId = 0xA002 (GiUserInfo TekIE) • Bit 1 – GiXdrInfoTime • Bit 2 – GiProtocolInfo • Bit 3 – GiXdrKey • Bit 4 – GiTrafficVolumnInfo • Bit 5 – TcpExtInfo • Bit 6 – HttpInfo (will be deprecated soon; please start using Gi ProtocolInfo) • Bit 7 – GiTransactionInfo (will be deprecated soon; please start using the GiTransactionInfoNew) • Bit 8 – GiTransactionInfoNew • Bit 9 – GiOutOfSequence • Bit 10 – ThroughputSample • Bit 11 – GiFlowDuration Reserved Bits 12-32 If DataId = 0xA003 (DNSEnum TekIE) • Bit 1 – CalledPartyAddr • Bit 2 – DialedPartyAddr • Bit 3 – CallingPartyAddr • Bit 4 – CallingAssertedAddr • Reserved Bits 5-32 If DataId = 0xA004 (A11Session TekIE) • Bit 1 – CareOfAddress

Parameter	Size (Bytes)	Description
		• Bit 2 – HomeAgent If DataId = 0xA005(NetworkInfo TekIE) • Bit 1 - ECGI • Bit 2 – NodeIp • Bit 3 – NodeType • Bit 4 – NodeName • Reserved Bits 5-32 If DataId = 0xA006(UserTunnel TekIE) • Bit 1 – IpAddr and TunnelDirection • Bit 2 – Teid and IsTeidActive • Bit 3 – Node Type • Bit 4 – Node Id • Reserved Bits 5-32 If DataId = 0xA007 (UpThroughput TekIE) • Bit 1 – ApplicationThroughput • Reserved Bits 2-32 If DataId = 0xA008 (LdapSessionSpecific TekIE) • Bit 1 – UserIdentity • Reserved Bits 2-32 If DataId = 0xA009 (PageDownloadInfo TekIE) • Bit 1 – CommonInfo • Bit 2 – TrafficInfo • Reserved Bits 3-32 If DataId = 0xA00A (UpTransactionInfo TekIE) • Bit 1 – UpTransInfo • Reserved Bits 2-32 If DataId = 0xA00B(CompressedQosInfo TekIE) • Bit 1 – Bearer Id • Bit 2 – List of AcceptedQos • Reserved Bits 2-32 If DataId = 0xA00C(MLPInfo TekIE) • Bit 1 – MSID type and value • Reserved Bits 2-32

Parameter	Size (Bytes)	Description
		If DataId = 0xA00D(CCPMediaServerInfo TekIE) • Bit 1 – CCPStreamer Info • Reserved Bits 2-32
TekBitmask	4	The bitmask field represents the default status of the Bit Options: Bits = 0 option Off (default) Bits = 1 option ON If DataId = 0xA001 (TransStats Iris TekIE) • Bit 1 – TransactionStatsInfo (will be deprecated soon; please start using TransactionStatsInfoNew) • Bit 2 – GTPTransactinQoS • Bit 3 – TransactionStatsInfoNew • Bit 4 – PmipV6Transaction • Bit 5 – XcapTransaction • Bit 6 – SvTransaction • Bit 7 – RtspTransaction • Bit 8 – GTPTransactionV2Qos • Bit 9 - CpTrafficVolume • Bit 10 – GtpUli • Bit 11 – IwsfTransaction • Bit 12 – DirectTunnelingTransaction • Reserved Bits 13-32 If DataId = 0xA002 (GiUserInfo TekIE) • Bit 1 – GiXdrInfoTime • Bit 2 – GiProtocolInfo • Bit 3 – GiXdrKey • Bit 4 – GiTrafficVolumnInfo • Bit 5 – TcpExtInfo • Bit 6 – HttpInfo (will be deprecated soon; please start using Gi ProtocolInfo) • Bit 7 – GiTransactionInfo (will be deprecated soon; please start using the GiTransactionInfoNew) • Bit 8 – GiTransactionInfoNew • Bit 9 – GiOutOfSequence • Bit 10 – ThroughputSample • Bit 11 – GiFlowDuration

Parameter	Size (Bytes)	Description
		Reserved Bits 12-32 If DataId = 0xA003 (DNSEnum TekIE) • Bit 1 – CalledPartyAddr • Bit 2 – DialedPartyAddr • Bit 3 – CallingPartyAddr • Bit 4 – CallingAssertedAddr • Reserved Bits 5-32 If DataId = 0xA004 (A11Session TekIE) • Bit 1 – CareOfAddress • Bit 2 – HomeAgent If DataId = 0xA005(NetworkInfo TekIE) • Bit 1 - ECGI • Bit 2 – NodeIp • Bit 3 – NodeType • Bit 4 – NodeName • Reserved Bits 5-32 If DataId = 0xA006(UserTunnel TekIE) • Bit 1 – IpAddr and TunnelDirection • Bit 2 – Teid and IsTeidActive • Bit 3 – Node Type • Bit 4 – Node Id • Reserved Bits 5-32 If DataId = 0xA007 (UpThroughput TekIE) • Bit 1 – ApplicationThroughput • Reserved Bits 2-32 If DataId = 0xA008 (LdapSessionSpecific TekIE) • Bit 1 – UserIdentity • Reserved Bits 2-32 If DataId = 0xA009 (PageDownloadInfo TekIE) • Bit 1 – CommonInfo • Bit 2 – TrafficInfo • Reserved Bits 3-32 If DataId = 0xA00A (UpTransactionInfo TekIE)

Parameter	Size (Bytes)	Description
		• Bit 1 – UpTransInfo • Reserved Bits 2-32 If DataId = 0xA00B(CompressedQosInfo TekIE) • Bit 1 – Bearer Id • Bit 2 – List of AcceptedQos • Reserved Bits 2-32 If DataId = 0xA00C(MLPInfo TekIE) • Bit 1 – MSID type and value • Reserved Bits 2-32 If DataId = 0xA00D(CCPMediaServerInfo TekIE) • Bit 1 – CCPStreamer Info • Reserved Bits 2-32
TekIEContents	variable	The field varies depending on the Tek DataId and the bits turned on in the TekBitMask.

4.7.1.1 TransactionStatsInfoNew Format – Iris TekIE TransStats

The first two bytes indicate the Bitmask of the various fields that are present in this field.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	2
1	Transaction Type Release: 12.1 and earlier	4
2	StartTime Release: 12.1 and earlier	8
3	EndTime Release: 12.1 and earlier	8
4 •	• • CauseCode: Is a repeatable field. The following format applies for CauseCode encoded content: o Number of Repetitions - value (#N), size (1byte) o #N CauseCodes - size (4 bytes each) • • Each CauseCode has the following sub components: o cause value - 2 bytes (less significant) o cause type - 2 bytes (most significant) Release: 12.1 and earlier	variable
5	TransactionStatusBits Release: 12.1 and earlier	4
6	TransactionDirection Value = 0 with exceptions, see note. Release: 12.1 and earlier	1

Bit location in the Bitmask	Parameter	Byte(s)
7	ProtocolId Refer to section 7.1 Appendix – Protocol Identifier Release: 12.1 and earlier	4
8	SourceIpAndPort • SourceIpAndPort is a repeatable field. The following format applies for the encoded content: ○ Number of Repetitions – value (#N), size (1 byte) • For each repetition; ○ Length of source ip: 1 byte ○ Content of source ip: <variable> (array of BINARY bytes) ○ Source port: 4 bytes This field could be filled for GTP and GtpV2 application protocols when TransactionDirection = Visited Network-Initiated Release: 12.1 and earlier (the field could be filled from 13.2.2 release)	variable

Bit location in the Bitmask	Parameter	Byte(s)
9	DestinationIpAndPort • DestinationIpAndPort is a repeatable field. The following format applies for the encoded content: o Number of Repetitions - value (#N), size (1 byte) • For each repetition: o Length of destination ip: 1 byte o Content of destination ip: <variable> (array of BINARY bytes) o Destination port: 4 bytes This field could be filled for GTP and GtpV2 application protocols when TransactionDirection = Home Network-Initiated Release: 12.1 and earlier (the field could be filled from 13.2.2 release)	variable
10	OperationBits Release: 12.2	4
11	Source Node Type This field contains the node type related to parameter SourceIpAndPort. The possible values can be found in 7.3.2 table. If SourceIpAndPort is populated and this field is not present that means that it is equal to parameter = 5138 in fixed session of OHDR. Release 14.1	2

Bit location in the Bitmask	Parameter	Byte(s)
12	Destination Node Type This field contains the node type related to parameter DestinationIpAndPort. The possible values can be found in 7.3.2 table. if DestinationIpAndPort is populated and this field is not present that means that it is equal to parameter = 5139 in fixed session of OHDR. Release 14.1	2

NOTE: For the parameters StartTime and EndTime the format 8 bytes means

- 4 bytes = sec
- 4 bytes = microsec

The parameter OperationBits contains the information sent by the probe.

The expected values are 0 and 1.

Value 0xFFFFFFFF for this field may be set in special cases where the value set by the probe is not an expected value.

The parameter TransactionDirection will have this following values based on the application protocol:

- GTP and GtpV2
  - 0 unknown/not classified
  - 1 SGSN -> GGSN; MME/SGSN->SGW->PGW; ePDG->PGW, named as: Visited Network-Initiated
  - 2 GGSN-> SGSN; PGW->SGW->MME/SGSN, PGW-> ePDG, named as: Home Network-Initiated
- LDAP: Set to 1, meaning "from Server to Client" for the following two transactions:
  - UnsolicitedNotification

- NoticeOfDisconnection
- Other Transactions are all with value 0

- A11: Set to 1, meaning "Core Network Initiated" for the following two transactions:
  - RegistrationUpdate
  - SessionUpdate
  - Other Transactions are all with value 0
- PMIPV6: Set to 1, meaning "Network Initiated" for the following transaction:
  - Proxy Binding Revocation
  - Other Transactions are all with value 0

- The Transaction Types, cause values, and cause types are described in section 8 Appendix B – Protocol Specific for all the different protocols. If cause type is not present, for those protocols, then it should be considered with default value 0. The NumberOfRepetitions can be from 1 to 255.

4.7.1.2 GTPTransactionQos Format – Iris TekIE TransStats(GtpC)

The first one byte indicates the Bitmask of the various fields that are present in this field.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	1
1	Length of Request QoS	1
1	Request QoS (array of BINARY bytes) The encoding of this parameter is described in section Quality of Service (Qos) format encoding . Release: 12.1 and earlier	variable
2	Length of Negotiated QoS	1

Bit location in the Bitmask	Parameter	Byte(s)
2	Negotiated QoS (array of BINARY bytes) The encoding of this parameter is described in section Quality of Service (Qos) format encoding . Release: 12.1 and earlier	variable

4.7.1.3 GTPTransactionV2Qos Format – Iris TekIE TransStats(GtpC)

The first byte indicates the Bitmask of the various fields that are present in this field.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	1
1	Length of cDownLinkTied	1
1	cDownLinkTied (array of BINARY bytes) Release: 12.1 and earlier	variable
2	Length of cUplinkTied	1
2	cUplinkTied (array of BINARY bytes) Release: 12.1 and earlier	variable
3	QosPerBearer – Count (indicates number of Qos Per Transaction (Qos Bearer)	1
3	Multiple instances of QosPerBearer. Release: 12.1 and earlier	variable
4	QosPerBearer – Count (Indicates number of Qos per Transaction (QosPerBearer with "cause" field))	1
4	Multiple instances of QosPerBearer (with "cause" field). Release: 12.2	variable

Each BearerQoS instance is composed by:

Bit location in the Bitmask	Parameter	Byte(s)
	QosPerBearer –Bitmask	1
1 of QosPerBearer - Bitmask	espBearerId Release: 12.1 and earlier	4
2 of QosPerBearer - Bitmask	Length of uDownlinkTied	1
2 of QosPerBearer - Bitmask	uDownlinkTied (array of BINARY bytes) Release: 12.1 and earlier	variable
3 of QosPerBearer - Bitmask	Length of uUpLinkTied	1
3 of QosPerBearer - Bitmask	uUpLinkTied (array of BINARY bytes) Release: 12.1 and earlier	variable
4 of QosPerBearer - Bitmask	Lenght of requestedQos	1
4 of QosPerBearer - Bitmask	requestedQos (array of BINARY bytes) Release: 12.1 and earlier	variable
5 of QosPerBearer - Bitmask	Length of flowQos	1
5 of QosPerBearer - Bitmask	flowQos (array of BINARY bytes) Release: 12.1 and earlier	variable
6 of QosPerBearer - Bitmask	Length of negotiatedQos	1
6 of QosPerBearer - Bitmask	negotiatedQos (array of BINARY bytes) Release: 12.1 and earlier	variable

Bit location in the Bitmask	Parameter	Byte(s)
7 of QosPerBearer - Bitmask	Cause Release: 12.2	4

Notes:

- The “cause” field is populated only if GTPTransactionV2Qos Bitmask =0x08 is set
- The list of values for the “cause” field and the related meaning can be found in 3GPP TS 29.274 V8.11.0, Table 8.4-1: Cause values.
- value 0xFFFFFFFF for the “cause” field may be set in special cases where it was not possible for probe to retrieve the correct value.

4.7.1.4 CpTrafficVolume Format – Iris TekIE TransStats

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Packets_uplink Total number of packets in uplink Release: 13.1	4
2	Packets_downlink Total number of packets in downlink Release: 13.1	4

Bit location in the Bitmask	Parameter	Byte(s)
3	Packets_Unknown Total number of packets in unknown direction Release: 13.1	4
4	Bytes_Uplink Total number of bytes in uplink Release: 13.1	4
5	Bytes_Downlink Total number of bytes in downlink Release: 13.1	4
6	Bytes_Unknown Total number of bytes in unknown direction Release: 13.1	4

NOTE: Uplink and Downlink are determined by the NodeType in the topology. If no node configuration, all stats are pegged as unknown

4.7.1.5 GtpUli Format – Iris TekIE TransStats

This structure store the information about ULI related to a specific GTP transaction.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4

Bit location in the Bitmask	Parameter	Byte(s)
1	RAT Release: 13.1	2
2	Length of RAI	1
2	RAI (array of BINARY bytes) Release: 13.1	variable
3	Length of CGI	1
3	CGI (array of BINARY bytes) Release: 13.1	variable
4	Length of SAI	1
4	SAI (array of BINARY bytes) Release: 13.1	variable

4.7.1.6 PmipV6Transaction Format – Iris TekIE TransStats

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	access technology type Release: 12.1 and earlier	4
2	handoff indicator Release: 12.1 and earlier	4

4.7.1.7 XcapTransaction Format – Iris TekIE TransStats

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Length of Auid	2
1	Auid (array of ASCII bytes) Release: 12.2	Variable
2	Length of NodeSelector	2
2	NodeSelector (array of ASCII bytes) Release: 12.2	Variable

4.7.1.8 SvTransaction Format – Iris TekIE TransStats

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Length of Target RNC ID	1
1	Target RNC ID (array of BINARY bytes) Release: 13.1	Variable
2	Length of Target Cell ID	1
2	Target Cell ID (array of BINARY bytes) Release: 13.1	Variable

4.7.1.9 RtspTransaction Format – Iris TekIE TransStats

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
	Instance Count (Always Present)	1
1	Length of ContentType	1
1	ContentType (array of ASCII bytes) Release: 12.2_SP5	Variable
2	Length of ContentLength	1
2	ContentLength (array of ASCII bytes) Release: 12.2_SP5	Variable
3	Length of X-Notice	1
3	X-Notice content (array of ASCII bytes) Release: 13.3.1	Variable
4	Length of xNotice	1
4	The actual xNotice contents (array of ASCII bytes). Detailed description: RTSP Announce message contains text based x-notice, the format such as: 5402 "Session Terminated by Server" event-date=20150808T011723.650Z Release: 15.2	Variable
5	Length of PidPaidId	1

Bit location in the Bitmask	Parameter	Byte(s)
5	The actual PidPaidId contents (array of ASCII bytes). Detailed description: PidPaid field of the UUData header in RTSP Setup message,the format such as:MUSICCHOICE.COM::MCTL2000000000476722|MUSICCHOICE.COM::MCTL2000000000476722 Release: 15.2	Variable
6	Length of OfferingId	1
6	The actual OfferingId contents (array of ASCII bytes). Detailed description: Derived from the PidPaid or AssetID field of the UUData header in RTSP Setup message. **NOTE:** ID may be blank in some error cases, if string is "AssetID=0|776520;" then place 776520 in the OfferingID field, and if string is "PidPaid=noggin.com:: XPPK0000000000209104| noggin.com:: XPPK0000000000209104;" then place value between first :: and | which is XPPK0000000000209104 in the Offering ID field. Release: 15.2	Variable
7	Length of AppReq	1
7	The actual AppReq contents (array of ASCII bytes). Detailed description: AppReq field of the UUData header in RTSP Setup message. Release: 15.2	Variable
8	Length of SetupNpt	1

Bit location in the Bitmask	Parameter	Byte(s)
8	The actual SetupNpt contents (array of ASCII bytes). Detailed description: Npt field of the X-Bookmark header in RTSP Setup Response message. Release: 15.2	Variable
9	Count of ClientMacs	2
9	The set of ClientMacs contents encoded as follows: • Len of ClientMac1 2 bytes • ClientMac1 <variable> (array of ASCII bytes) • … • Len of ClientMacN 2 bytes • ClientMacN <variable> (array of ASCII bytes) Detailed description: The set of ClientMacs, client mac is part of the client field of the transport header in SRM RTSP Setup message Release: 15.2	Variable

4.7.1.10 GiXdrInfoTime Format – Iris TekIE GiUserInfo

The Bitmask is 2 bytes.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	2
1	StartTime Release: 12.1 and earlier	8

Bit location in the Bitmask	Parameter	Byte(s)
1	EndTime Release: 12.1 and earlier	8

NOTE: For the parameters StartTime and EndTime the format 8 bytes means

4 bytes = sec

4 bytes = microsec

4.7.1.11 GiProtocolInfo Format – Iris TekIE GiUserInfo

The Bitmask is 2 bytes.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	2
1	User Agent Index Release: 12.1 and earlier	2
2	Length of Content Type	1
2	Content Type (array of ASCII bytes) Release: 12.1 and earlier	variable

4.7.1.12 GiXdrKey Format – Iris TekIE GiUserInfo

The Bitmask is 1 byte.

Bit location in the Bitmask	Bit location in the Extended Bitmask	Parameter	Byte(s)
		Bitmask	1
1		ProtocolId See note Release: 12.1 and earlier	4
2		Length of dest_ip	1
2		Content of dest_Ip (array of BINARY bytes) Release: 12.1 and earlier	variable
3		Dest_port Release: 12.1 and earlier	4
4		Src_port Release: 12.1 and earlier	4
5		Length of url_host	1
5		Content of url_host (array of ASCII bytes). Release: 12.1 and earlier	Variable
6		BearerID Release: 12.1 and earlier	4

Bit location in the Bitmask	Bit location in the Extended Bitmask	Parameter	Byte(s)
7		Length of MsIp	1
7		MsIp (array of BINARY bytes). Release: 12.1 and earlier	Variable
8		Extended Bitmask	4
	1	Application Id Release: 12.1 and earlier	4
	2	Transport Proto See note. Release: 12.1 and earlier	4

NOTE:

- For parameter ProtocolId please refer to section 7.1 Appendix – Protocol Identifier
- Parameter Transport Proto can have the following values:
  - TCP 60006
  - UDP 60017
  - SCTP 60132

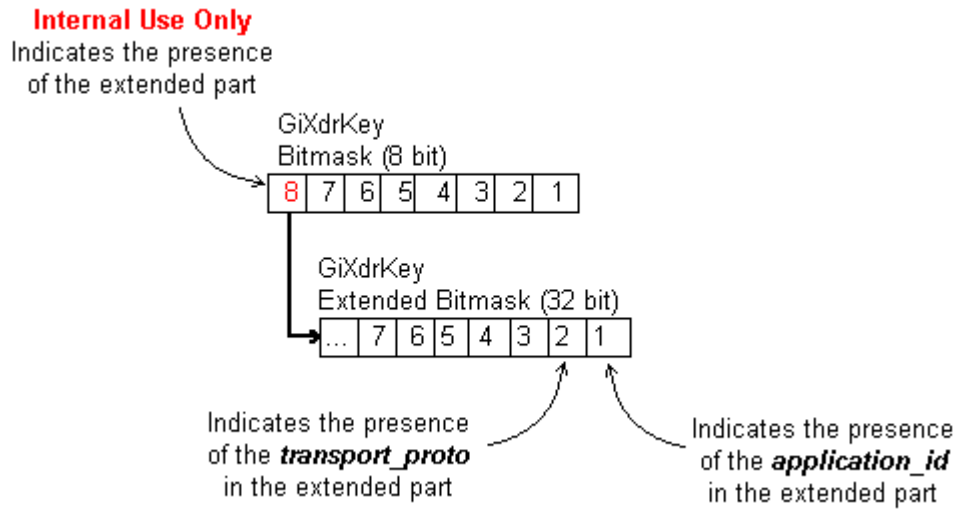


Figure 5 - External Bitmask

The parameters control bitmask is used to define the parameters both in the Bitmask and in the Extended Bitmask:

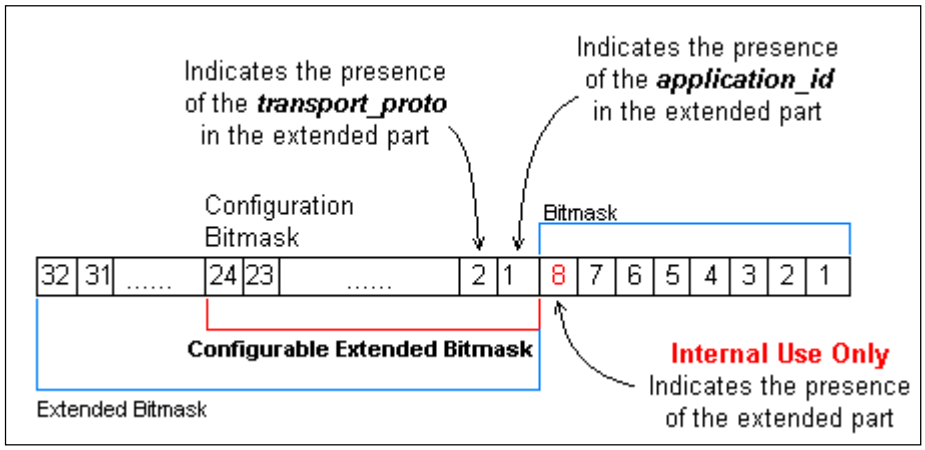


Figure 6 - Configuration Bitmask

Due to the joint use of the configuration bitmask is possible to use only 24 bit of the 32 bit available for the extended bitmask, as shown in Figure 6 - Configuration Bitmask.

4.7.1.13 GiTrafficVolumeInfo Format – Iris TekIE GiUserInfo

The Bitmask is 2 bytes.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	2

Bit location in the Bitmask	Parameter	Byte(s)
1	Packets_Uplink Total number of packets in uplink Release: 12.1 and earlier	4
2	Packet_Downlink Total number of packets in downlink Release: 12.1 and earlier	4
3	Bytes_Uplink Total number of bytes in uplink Release: 12.1 and earlier	4
4	Bytes_Downlink Total number of bytes in downlink Release: 12.1 and earlier	4
5	Response_Time Average application response time in ms Release: 12.1 and earlier	4

Bit location in the Bitmask	Parameter	Byte(s)
6	Server_Roundtrip_Time Average TCP roundtrip time in ms (server) Release: 12.1 and earlier	4
7	Client_Roundtrip_Time Average TCP roundtrip time in ms (client) Release: 12.1 and earlier	4
8	Flow_Duration Total flow duration in ms Release: 12.1 and earlier	4
9	Effective_Uplink Total number of application bytes in uplink (see note) Release: 12.1 and earlier	4

Bit location in the Bitmask	Parameter	Byte(s)
10	Effective_Downlink Total number of application bytes in downlink (see note) Release: 12.1 and earlier	4
11	Tunnel_Uplink Total number of tunnel uplink bytes (see note) Release: 12.1 and earlier	4
12	Tunnel_Downlink Total number of tunnel downlink bytes (see note) Release: 12.1 and earlier	4
13	Number_Of_Flows Total number of unique flows Release: 12.1 and earlier	4

NOTE: For the parameters Response_Time, Server_RoundTrip_Time, Client_RoundTrip_Time and Flow_Duration the format 4 bytes means

4 bytes = microsec

For the parameters Effective_Uplink, Effective_Downlink: the two fields only count the application level bytes, e.g. one PDU has protocol stack: ether-> ip -> udp -> GTP-U -> IP -> TCP -> SIP, only the bytes of SIP are counted

For the parameters Tunnel_Uplink, Tunnel_Downlink: The tunnel bytes are counted from the beginning of the Ethernet frame up to the encapsulated IP header., e.g. one PDU has protocol stack: ether-> ip -> udp -> GTP-U -> IP -> TCP -> SIP, the bytes of ether-> ip -> udp -> GTP-U are counted.

4.7.1.14 TcpExtensionInfo Format – Iris TekIE GiUserInfo

The Bitmask is 1 byte.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	1
1	Retransmitted_packets_uplink Total number of re-transmitted packets in uplink Release: 12.1 and earlier	4
2	Retransmitted_packets_downlink Total number of re-transmitted packets in downlink Release: 12.1 and earlier	4
3	Retransmitted_bytes_uplink Total number of re-transmitted bytes in uplink Release: 12.1 and earlier	4
4	Retransmitted bytes_downlink Total number of re-transmitted bytes in downlink Release: 12.1 and earlier	4

Bit location in the Bitmask	Parameter	Byte(s)
5	Successful_TCP_Flows Total number of successful Tcp Flows Release: 12.1 and earlier	4
6	Failure_TCP_Flows Total number of failed Tcp Flows Release: 12.1 and earlier	4

4.7.1.15 GiTransactionInfoNew Format – Iris TekIE GiUserInfo

The counter is 1 byte indicating the number of Gi Transactions.

Bit location in the Bitmask	Parameter	Byte(s)
	Gi Transaction Counter	1
	Multiple instances of Gi Transactions Release: 12.1 and earlier	variable

For each of the Gi Transactions, the following blob will be repeated:

The Bitmask is 2 bytes.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	2
1	Transtype Release: 12.1 and earlier	4

Bit location in the Bitmask	Parameter	Byte(s)
1	Cause code Release: 12.1 and earlier	4
1	Status bit Release: 12.1 and earlier	4
1	Attempts Release: 12.1 and earlier	4
1	Latency Release: 12.1 and earlier	4
2	Timestamp Release: 12.1 and earlier	8
3	Protocol This parameter is filled only if different from ProtocolId see section: GiXdrKey Format – Iris TekIE GiUserInfo. Release: 12.1 and earlier	4
4	First Transfer Time Release: 12.1 and earlier	4

NOTE: For the parameter Latency the format 4 bytes means:

4 bytes = microsec

The Transaction Types, cause values, and cause types are described in section 8 Appendix B – Protocol Specific for all the different protocols, with the exception of XCAP protocol. If cause type is not present, for those protocols, then it should be considered with default value 0. The NumberOfRepetitions can be from 1 to 255.

For parameter ProtocolId please refer to section 7.1 Appendix – Protocol Identifier

4.7.1.16 GiOutOfSequence Format – Iris TekIE GiUserInfo

The Bitmask is 4 bytes.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	TCP OOS Packets Up Total number of out-of-sequence packets in uplink Release: 13.1	4
2	TCP OOS Packets Down Total number of out-of-sequence packets in downlink Release: 13.1	4

4.7.1.17 GiThroughputSample Format – Iris TekIE GiUserInfo

Contains the total number of payload bytes per protocol and transaction_type and related transfer time.

The counter is 1 byte indicating the number of GiThroughputSample instances.

Parameter	Byte(s)
Reserved (*)	1
GiThroughputSample Counter	1
Multiple instances of GiThroughputSample Release: 13.1	variable

(*) Reserved byte currently is always zero. In future it could be used to extend GiThroughputSample counter which is currently limited to 255.

For each of the GiThroughputSample, the following blob will be repeated:

The Bitmask is 4 bytes.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	transfer_time Transfer time in ms Release: 13.1	8

Bit location in the Bitmask	Parameter	Byte(s)
2	payload_bytes Number of bytes in (es. HTTP) payload (excluding header) Release: 13.1	8
3	Protocol Related protocol Release: 13.1	4
4	transaction_type Related transaction Release: 13.1	4

NOTE: The Transaction Types, cause values, and cause types are described in section 8 Appendix B – Protocol Specific for all the different protocols, with the exception of XCAP protocol. If cause type is not present, for those protocols, then it should be considered with default value 0. The NumberOfRepetitions can be from 1 to 255.

For parameter ProtocolId please refer to section 7.1 Appendix – Protocol Identifier

4.7.1.18 GiFlowDuration Format - Iris TekIE GiUserInfo

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Flow_duration_uplink Flow duration in uplink in microseconds Release: 13.1	8
2	Flow_duration_downlink Flow duration in downlink in microseconds Release: 13.1	8

NOTE: Flow_duration_uplink and Flow_duration_downlink are measured in microseconds.

4.7.1.19 A11Session Format - Iris TekIE A11SessionSpecific

Parameter	Size (Bytes)	Description
Total Length of TekIEContents	2	This field represents the length TekIEContents. The value is exclusive of the size of this field and the size of the TekBitmask. The length unit shall be in number of byte.
TekBitmask	4	The bitmask field represents the status of the Bit Options Bits = 0 option Off (default) Bits = 1 option ON If DataId = 0xA004 (A11SessionSpecific TekIE) • Bit 1 – A11Sess • Reserved Bits 1-32
TekIEContents	variable	The field content varies depending on the Tek DataId and the bits set in the TekBitMask

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	length of next field	1
1	care of address (array of BINARY bytes) Release: 12.1 and earlier	variable
2	length of next field	1
2	home agent (array of BINARY bytes) Release: 12.1 and earlier	variable

4.7.1.20 NetworkInfo Format - Iris TekIE NetworkInfo

This TekIE is provided by DataCast; it requires to configure a MF-Component (IP Mapper) to first map source and destination IP over NodeType and NodeName, and then a NetworkInfo Mapper to collect all the related information and to encode the IE.

NodeType(s) and NodeName(s) are provisioned to DataCast over so called iris probe provisioning files.

NodeType supported values are reported in paragraph 6.4 of this document.

All nodes which are traversed by a call (sharing the same MSIP+APN) will be assembled in a unique NetworkInfo TekIe, whether they are provisioned nodes (i.e. present inside provisioning files) or not.

As for unprovisioned nodes, i.e. those which are not present in iris probe provisioning files, the following applies:

- When NodeType is unprovisioned, NetworkInfo TekIe will contain string “<not exist>" for that NodeType.
- When NodeName is unprovisioned, NetworkInfo TekIe will contain string “<not exist>" for that NodeName.

This TekIE collects Network Information from the following DRs:

- GnGi
- Sip
- Rtp

Parameter	Byte(s)	If…
ECGI len	1	Bit 1 of the TekBitmask is turned on.
ECGI (array of BINARY bytes)	variable	Bit 1 of the TekBitmask is turned on. Release: 12.1 and earlier
Node Count	1	Always present, can be 0 Release: 12.1 and earlier
length of NodeIp-1	1	Bit 2 of the TekBitmask is turned on.

Parameter	Byte(s)	If…
NodeIp-1 Address (array of BINARY bytes)	variable	Bit 2 of the TekBitmask is turned on. Release: 12.1 and earlier
length of NodeType-1	1	Bit 3 of the TekBitmask is turned on.
NodeIp-1 Type	variable	Bit 3 of the TekBitmask is turned on. Release: 12.1 and earlier
length of NodeName-1	1	Bit 4 of the TekBitmask is turned on.
NodeIp-1 Name	variable	Bit 4 of the TekBitmask is turned on. Release: 12.1 and earlier
… …		
length of NodeIp-N	1	Bit 2 of the TekBitmask is turned on.
NodeIp-N Address	variable	Bit 2 of the TekBitmask is turned on. Release: 12.1 and earlier
length of NodeType-N	1	Bit 3 of the TekBitmask is turned on.
NodeIp-N Type	variable	Bit 3 of the TekBitmask is turned on. Release: 12.1 and earlier
length of NodeName-N	1	Bit 4 of the TekBitmask is turned on.
NodeIp-N Name	variable	Bit 4 of the TekBitmask is turned on. Release: 12.1 and earlier

NOTE: This Tek-IE support only one level of mask; each bit in the TekBitmask will work on all the instances of the masked field.

Example:

- if Bit 2 of the TekBitmask is turned on, for each node the IP is reported
- if Bit 4 of the TekBitmask is turned off, for each node the name is not reported

4.7.1.21 DNSEnum Format - Iris TekIE DNSEnum

Parameter	Byte(s)	If…
Length of CalledPartyAddr	1	Bit 1 of the TekBitmask is turned on.
CalledPartyAddr (array of DIGIT bytes)	variable	Bit 1 of the TekBitmask turned on. Release: 12.1 and earlier
Length of DialedPartyAddr	1	Bit 2 of the TekBitmask is turned on.
DialedPartyAddr (array of DIGIT bytes)	variable	Bit 2 of the TekBitmask is turned on. Release: 12.1 and earlier
Length of CallingPartyAddr	1	Bit 3 of the TekBitmask is turned on.
CallingPartyAddr (array of DIGIT bytes)	variable	Bit 3 of the TekBitmask is turned on. Release: 12.1 and earlier
Length of CallingAssertedAddr	1	Bit 4 of the TekBitmask is turned on.
CallingAssertedAddr (array of DIGIT bytes)	variable	Bit 4 of the TekBitmask is turned on. Release: 12.1 and earlier

NOTE: This Tek-IE supports only one level of mask.

4.7.1.22 UserTunnel Format - Iris TekIE UserTunnel

Parameter	Byte(s)	If…	Further information
TunnelInfo Count	2	Always present	Number of TunnelInfo instances (N)
Length of TunnelInfo IpAddr-1	1	Bit 1 of the TekBitmask is turned on.	
TunnelInfo-1 IpAddr (array of BINARY bytes)	variable	Bit 1 of the TekBitmask is turned on. Release: 12.1 and earlier	
TunnelInfo-1 Tunnel Direction	1	Bit 1 of the TekBitmask is turned on. Release: 12.1 and earlier	Direction of IpAddr (see note below) 0 = UnknownDirection 1 = Uplink 2 = Downlink
TunnelInfo-1 Teid	4	Bit 2 of the TekBitmask is turned on. Release: 12.1 and earlier	
TunnelInfo-1 isTeidActive	1	Bit 2 of the TekBitmask is turned on. Release: 12.1 and earlier	
TunnelInfo-1 NodeType	2	Bit 3 of the TekBitmask is turned on. Release: 13.2.2	This field contains the node type(see Node Type Values) related to the parameters *TunnelInfo-1 IpAddr* and *TunnelInfo-1 Tunnel Direction* .
TunnelInfo-1 NodeId	4	Bit 4 of the TekBitmask is turned on. Release: 13.2.2	This field contains the node id related to the parameters *TunnelInfo-1 IpAddr* and *TunnelInfo-1 Tunnel Direction* .
… …			

Parameter	Byte(s)	If…	Further information
Length of TunnelInfo IpAddr-N	1	Bit 1 of the TekBitmask is turned on.	
TunnelInfo-N IpAddr	variable	Bit 1 of the TekBitmask is turned on. Release: 12.1 and earlier	
TunnelInfo-N Tunnel Direction	1	Bit 1 of the TekBitmask is turned on. Release: 12.1 and earlier	Direction of IpAddr (see note below): 0 = UnknownDirection 1 = Uplink 2 = Downlink
TunnelInfo-N Teid	4	Bit 2 of the TekBitmask is turned on. Release: 12.1 and earlier	
TunnelInfo-N isTeidActive	1	Bit 2 of the TekBitmask is turned on. Release: 12.1 and earlier	
TunnelInfo-N NodeType	2	Bit 3 of the TekBitmask is turned on. Release: 13.2.2	This field contains the node type(see Node Type Values) related to the parameters TunnelInfo-N IpAddr and TunnelInfo-N Tunnel Direction .
TunnelInfo-N NodeId	4	Bit 4 of the TekBitmask is turned on. Release: 13.2.2	This field contains the node id related to the parameters TunnelInfo-N IpAddr and TunnelInfo-N Tunnel Direction .

NOTE: This Tek-IE support only one level of mask; each bit in the TekBitmask will work on all TunnelInfo instances of the masked field.

Example:

if Bit 1 of the TekBitmask is turned on, for each TunnelInfo the IpAddr and Tunnel Direction is reported.
if Bit 2 of the TekBitmask is turned off, for each TunnelInfo the Teid and isTeidActive is not reported.
if Bit 3 of the TekBitmask is turned on, for each TunnelInfo the Node Type is reported.
if Bit 4 of the TekBitmask is turned on, for each TunnelInfo the Node Id is reported.

In each instance a field may be reported but not populated

- Tunnel Direction not populated: value = 0xFF
- Teid not populated: value = 0xFFFFFFFF
- IsTeidActive not populated: value = 0xFF
- NodeType not populated: value = 0xFFFF
- NodeId not populated: value = 0xFFFFFFFF

4.7.1.23 ApplicationThroughput Format - Iris TekIE UpThroughput

The Bitmask is 4 bytes.

Bit location in the Bitmask	Parameter	Byte(s)	Encoding
	Bitmask	4	
1	Application ApplicationId Release: 13.1	4	Int
2	Ul Avg Effective Throughput average uplink effective throughput, It is sum of average effective throughput in all sampling periods/sample_count Release: 13.1	4	Float
3	Ul Avg Total Throughput average uplink total throughput, It is sum of average total effective throughput in all sampling periods/sample_count Release: 13.1	4	Float

Bit location in the Bitmask	Parameter	Byte(s)	Encoding
4	Ul Sample Count uplink sample count, only count if effective throughput in that sample period is greater than the configured threshold Release: 13.1	4	Int
5	Dl Avg Effective Throughput average downlink effective throughput, It is sum of average effective throughput in all sampling periods/sample_count Release: 13.1	4	Float
6	Dl Avg Total Throughput average downlink total throughput, It is sum of total effective throughput in all sampling periods/sample_count Release: 13.1	4	Float
7	Dl Sample Count downlink sample count, only count if effective throughput in that sample period is greater than the configured threshold Release: 13.1	4	Int

Bit location in the Bitmask	Parameter	Byte(s)	Encoding
8	Ul Peak Effective Throughput peak effective throughput of all uplink sampling periods Release: 13.1	4	Float
9	Ul Peak Total Throughput peak total throughput of all uplink sampling periods Release: 13.1	4	Float
10	Dl Peak Effective Throughput peak effectve throughput of all downlink sampling periods Release: 13.1	4	Float
11	Dl Peak Total Throughput peak total throughput of all downlink sampling periods Release: 13.1	4	Float

4.7.1.24 UserIdentity Format - Iris TekIE LdapSessionSpecific

The first 4 bytes indicate the Bitmask of the various fields that are present in the UserIdentity info.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Impu • Impu is a repeatable field. The following format applies for the encoded content: o Number of repetitions – value (#N), size (2 bytes) • For each repetition: o Impu length: 2 bytes o Content of Impu: <variable> (array of ASCII bytes) Release: 13.1	variable

Bit location in the Bitmask	Parameter	Byte(s)
2	Impi • Impi is a repeatable field. The following format applies for the encoded content: o Number of repetitions – value (#N), size (2 bytes) • For each repetition: o Impi length: 2 bytes o Content of Impi: <variable> (array of ASCII bytes) Release: 13.1	variable
3	FE Identifier length	2
3	FE Identifier content (array of ASCII bytes) Release: 13.1	variable
4	FE Cluster Identifier length	2
4	FE Cluster Identifier content (array of ASCII bytes) Release: 13.1	variable

NOTE: The **Number of repetitions** field is 2-byte long but currently the **maximum combined number** of IMPUs + IMPIs is limited to **100** for performance reasons.

The **length** fields are all 2-byte long but currently the **maximum length** for any of the four new fields is limited to **255** bytes for performance reasons.

4.7.1.25 CommonInfo Format - Iris TekIE PageDownloadInfo

The first 4 bytes indicate the Bitmask of the various fields that are present in the CommonInfo.

For optional fields that have no value, they are not sent at all, meaning this field will be non-existent in the XDR and so in OHDR.

Bit location in the Bitmask	**Parameter**	**Byte(s)**
	Bitmask	4
1	Url length The **Url length** field is 2-byte long but currently the **maximum length** for the Url is limited to **255** bytes for performance reasons.	2
1	Url content (array of ASCII bytes) Release: 13.2.2	variable
2	Start Time (secs) Release: 13.2.2	4
2	Start Time (micro secs) Release: 13.2.2	4
3	Duration In milliseconds Release: 13.2.2	4

Bit location in the Bitmask	Parameter	Byte(s)
4	Status Defines the reason for a page download closure. Possible values: Page closure unknown = 0 Page closure due to timeout = 1 Page closure due to end-of-page marker detected = 2 Page closure due to page collision = 3 Page closure due to maximum timeout = 4 Page closure due to page redirection = 5 Page closure due to HTTP failure = 6 Release: 13.2.2	4
5	Cause Code Cause code in server response, 200, 300, etc.as per **RFC 2616.** Release: 13.2.2	4
6	Hosts Number of unique hosts accessed during page download. Release: 13.2.2	4
7	Objects Number of objects requested by mobile during page download. Release: 13.2.2	4
8	Downlink Tunnel Ip length	1

Bit location in the Bitmask	Parameter	Byte(s)
8	Downlink Tunnel Ip content (array of BINARY bytes) IP address of the downlink tunnel IP (see User Tunnel TekIe 0xA006). Release: 13.2.2	Variable
9	Uplink Tunnel Ip length	1
9	Uplink Tunnel Ip content (array of BINARY bytes). IP address of the downlink tunnel IP (see User Tunnel TekIe 0xA006). Release: 13.2.2	Variable
10	User Agent Index Index to the user agents that is present in FixedMobile message of the GPB coming from G10, GeoBlade probe (see "DR Header, Fixed section" paragraph in this document). Release: 13.2.2	4
11	User Location Count	1

Bit location in the Bitmask	Parameter	Byte(s)
11	User Location List. The **User Location** field is defined in 3GPP TS 29.274 (GTPv2) and 3GPP TS 29.060 (GTPv1). It has a maximum length of 7 bytes. For this reason DataCast will encode only not empty User Location fields having length not longer than 7 bytes (an error log is produced when an incorrect length in the incoming xDR is found). The number of items in the list is specified by the value of the 'User Location Count' field above. For each element in the list, the following format applies: • User Location Type: 1 byte • User Location Value length: 1 byte • User Location Value content: variable (array of BINARY bytes) User Location Types: UliTypeCGI = 0; UliTypeSAI = 1; UliTypeRAI = 2; UliTypeTAI = 3; UliTypeECGI = 4; UliTypeLAI = 5; Release: 13.2.2	variable

4.7.1.26 TrafficInfo Format - Iris TekIE PageDownloadInfo

The first 4 bytes indicate the Bitmask of the various fields that are present in the TrafficInfo.

For optional fields that have no value, they are not sent at all, meaning this field will be non-existent in the

XDR and so in OHDR.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Uplink Bytes Total number of bytes in the uplink direction Release: 13.2.2	4
2	Downlink Bytes Total number of bytes in the downlink direction Release: 13.2.2	4
3	Uplink Effective Bytes Total number of effective bytes in the uplink direction Release: 13.2.2	4
4	Downlink Effective Bytes Total number of effective bytes in the downlink direction Release: 13.2.2	4
5	Uplink Retransmission Bytes Total number of retransmission bytes in the uplink direction. Release: 13.2.2	4
6	Downlink Retransmission Bytes Total number of retransmission bytes in the downlink direction. Release: 13.2.2	4

Bit location in the Bitmask	Parameter	Byte(s)
7	THP QCI 3G Traffic Handling Priority (GPP TS 29.208) or 4G QoS Class Indicator. See also TS 29.274 for a description of Gtpv2 QOS (qci/ARP). Unsigned integer. Release: 13.2.2	4
8	ARP 4G Resource Allocation Priority. See 3GPP TS 29.212. See also TS 29.274 for a description of Gtpv2 QOS (qci/ARP). Unsigned integer. Release: 13.2.2	4
9	Uplink Guaranteed Bit Rate Release: 13.2.2	8
10	Downlink Guaranteed Bit Rate Release: 13.2.2	8
11	Uplink Maximum Bit Rate Release: 13.2.2	8

Bit location in the Bitmask	Parameter	Byte(s)
12	Downlink Maximum Bit Rate Release: 13.2.2	8
13	RAT length	1

<table>
<tr><th>Bit location in the Bitmask</th><th>Parameter</th><th>Byte(s)</th></tr>
<tr><td>13</td><td>RAT content (array of BINARY bytes)
Radio Access Type when page download started.
The RAT field is defined in 3GPP TS 29.274 (GTPv2) and 3GPP TS 29.060 (GTPv1) as a 1-byte long field. For this reason DataCast will encode only RAT fields having length of 1 byte (an error log is produced when an incorrect length in the incoming xDR is found).
Values:
GTPV1: 0 reserved, 1-7 valid range, 8-255 spare
GTPV2: 0 reserved, 1-5 valid range, 6-255 spare

3GPP TS 29.060 Rel.10 (GTPv1) - RAT Type values
<table><tr><th>RAT Type values</th><th>Value(s) (Decimal)</th></tr><tr><td><reserved></td><td>0</td></tr><tr><td>UTRAN</td><td>1</td></tr><tr><td>GERAN</td><td>2</td></tr><tr><td>WLAN</td><td>3</td></tr><tr><td>GAN</td><td>4</td></tr><tr><td>HSPA Evolution</td><td>5</td></tr><tr><td><spare></td><td>6-255</td></tr></table>
3GPP TS 29274 Rel. 10 (GTPv2) - RAT Type values
<table><tr><th>RAT Types</th><th>Values (Decimal)</th></tr><tr><td><reserved></td><td>0</td></tr><tr><td>UTRAN</td><td>1</td></tr><tr><td>GERAN</td><td>2</td></tr><tr><td>WLAN</td><td>3</td></tr><tr><td>GAN</td><td>4</td></tr><tr><td>HSPA Evolution</td><td>5</td></tr><tr><td>EUTRAN</td><td>6</td></tr><tr><td>Virtual</td><td>7</td></tr><tr><td><spare></td><td>8-255</td></tr></table>
Release: 13.2.2</td><td>variable</td></tr>
</table>

Bit location in the Bitmask	Parameter	Byte(s)
14	TCP Flows Total number of successful tcp flows. Release: 13.2.2	4
15	Client to Server (C2S) RTT Client to server round trip delay for the first object. In microseconds. Release: 13.2.2	4
16	Server to Client (S2C) RTT Server to client round trip delay for the first object. In microseconds. Release: 13.2.2	4
17	TCP Setup Time From first SYN to the first HTTP request. In milliseconds. Release: 13.2.2	4
18	Application Response Time Application response time (HTTP transaction latency minus Client to Server RTT) for all successful flows. In microseconds. Release: 13.2.2	4

Bit location in the Bitmask	Parameter	Byte(s)
19	Time to First Object (TTFO) With transaction tracking, TTFO = GET transaction start time + latency - flow record start time. In milliseconds. Release: 13.2.2	4
20	Round Trip Delay Round trip delay for all successful flows. This is the C2S+S2C round trip delays, accumulated for all flow records. It is in microseconds. Release: 13.2.2	4

Backward Compatibility

The data type of the following fields has been changed by G10, GeoBlade probe. DataCast cannot maintain the backward compatibility on the content of these fields.
Applications may have to take care of these changes.

Old	New
string url_host in GiXdrKey	bytes url_host in GiXdrKey
string ua_profile in HttpInfo	bytes ua_profile in HttpInfo
string user_agent in HttpInfo	bytes user_agent in HttpInfo

4.7.1.27 TransactionStatsInfo Format - Iris TekIE TransStats

NOTE: The support for the TransactionStatsInfor Format will be deprecated soon. Please start using the TrasactionStatInfoNew Format as soon as possible.

The Bitmask is 1 byte.

Parameter	Byte(s)	If…
Bitmask	1	
Transaction Type	4	Bit 1 of the TransactionStatsInfo Bitmask is turned on. Release: 12.1 and earlier
Start Time	8	Bit 2 of the TransactionStatsInfo Bitmask is turned on. Release: 12.1 and earlier
End Time	8	Bit 3 of the TransactionStatsInfo Bitmask is turned on. Release: 12.1 and earlier

CauseCode
• CauseCode is a repeatable field. The following format applies for CauseCode encoded content:
  ○ Number of Repetitions: value (#N) size (1byte)
  ○ #N CauseCodes: size (4 bytes each)
• Each CauseCode has the following sub components:
  ○ cause value -2 bytes (less significant)
  ○ cause type -2 bytes (most significant)
	variable	Bit 4 of the TransactionStatsInfo Bitmask is turned on.
		
		Release: 12.1 and earlier

Parameter	Byte(s)	If…
Transaction Status Bits	4	Bit 5 of the TransactionStatsInfo Bitmask is turned on. Release: 12.1 and earlier
Transaction Direction	1	Bit 6 of the TransactionStatsInfo Bitmask is turned on. Release: 12.1 and earlier

NOTE: For the parameters StartTime and EndTime the format 8 bytes means

- 4 bytes = sec
- 4 bytes = microsec

The Transaction Types, cause values, and cause types are described in Appendix B for the different protocols. If cause type is not present, for a protocol, then it should be considered with default value 0. The NumberOfRepetitions can be from 1 to 255.

For parameter ProtocolId please refer to section 7.1 Appendix – Protocol Identifier

4.7.1.28 GiTransactionInfo Format - Iris TekIE GiUserInfo

NOTE: The support for the Gi TransactionInfo Format will be deprecated soon. Please start using the Gi TransctionInfoNew Format as soon as possible.

The counter is 1 byte indicating the number of Gi Transactions.

Bit location in the Bitmask	Parameter	Byte(s)
	Gi Transaction Counter	1
	Multiple instances of Gi Transactions Release: 12.1 and earlier	variable

For each of the Gi Transaction Info, the following blob will be repeated.

Bit location in the Bitmask	Parameter	Byte(s)
	Trans type Release: 12.1 and earlier	4
	Cause code Release: 12.1 and earlier	4
	Status bit Release: 12.1 and earlier	4
	Attempts Release: 12.1 and earlier	4

Bit location in the Bitmask	Parameter	Byte(s)
	Latency Release: 12.1 and earlier	4

NOTE: For this format no bitmask is implemented; if a field doesn't have a valid value it is filled by 0xFF

For the parameter Latency the format 4 bytes means

4 bytes = microsec

- The Transaction Types, cause values, and cause types are described in section 8 Appendix B – Protocol Specific for all the different protocols, with the exception of XCAP protocol. If cause type is not present, for those protocols, then it should be considered with default value 0. The NumberOfRepetitions can be from 1 to 255.

4.7.1.29 HTTP Info Format – Iris TekIE GiUserInfo

The support for the Gi HttpInfo section will be deprecated soon. Please start using the Gi ProtocolInfo Format as soon as possible. The G10, GeoBlade probe has discontinued support for the HttpInfo section in GnGi xDR.

NOTE: For the HttpInfo section.

- The fields url_count and download_time will be sent with default values, zero(0), to preserve backward compatibility. These fields are not supported by G10, GeoBlade anymore.
- The ua_profile has been moved out of the HttpInfo section into the Fixed section in the new GnGi xDR format. The ua_profile from the Fixed section will be sent in HttpInfo and the same ua_profile will be sent for every iteration of HttpInfo.
- An http Info section will be sent, when requested, for every GiProtocolInfo section available in GnGi xDR.

The Bitmask is 1 byte.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	1
1	URL_Count Release: 12.1 and earlier	4
2	Download_Time Release: 12.1 and earlier	4
3	Length of UA_Profile	1
3	Content of UA_Profile (array of ASCII bytes) Release: 12.1 and earlier	variable
4	Length of User_Agent	1

Bit location in the Bitmask	Parameter	Byte(s)
4	Content of User_Agent (array of ASCII bytes) Release: 12.1 and earlier	variable

NOTE: For the parameter Download_Time the format 4 bytes means

4 bytes = microsec

4.7.1.30 IwsfTransaction Format – Iris TekIE IwsfTransaction

The first 4 bytes indicate the Bitmask of the various fields that are present in the IwsfTransaction

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Length of iMPI	2
1	iMPI (array of ASCII bytes) Release: 13.2.2	variable
2	Length of iMPU	2
2	iMPU (array of ASCII bytes) Release: 13.2.2	variable
3	Length of SFQDN	2
3	SFQDN (array of ASCII bytes) Release: 13.2.2	variable
4	Length of e911Locations	2

Bit location in the Bitmask	Parameter	Byte(s)
4	e911Locations (array of ASCII bytes) Release: 13.2.2	variable

4.7.1.31 DirectTunnelingTransaction Format – Iris TekIE DirectTunnelingTransaction

The first 4 bytes indicate the Bitmask of the various fields that are present in the DirectTunnelingTransaction

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	is_direct_tunnel Release: 13.2.2	1
2	Length of tunnel_ipv4	1
2	tunnel_ipv4 (array of BINARY bytes) Release: 13.2.2	Variable
3	Length of tunnel_ipv6	1
3	tunnel_ipv6 (array of BINARY bytes) Release: 13.2.2	variable

NOTE: For the parameter is_direct_tunnel , the available value is 0,1.

4.7.1.32 UpTransInfo Format - Iris TekIE UpTransactionInfo

The first 4 bytes indicate the Bitmask of the various fields that are present in the UpTransInfo.

For optional fields that have no value, they are not sent at all, meaning this field will be non-existent in the XDR and so in OHDR.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Transaction type. Release: 13.3.1	4
2	Cause code (see notes below). See RTSP/STUN Protocol – Cause Codes Each CauseCode has the following sub components: • cause value - 2 bytes (less significant) • cause type - 2 bytes (most significant) The default value when data is unavailable is 0xFFFFFFFF. Release: 13.3.1	4
3	Status Bit (see notes below). Transaction status bit Release: 13.3.1	4
4	Attempts Count of total transactions [valid range: 0 .. 4294967295] Release: 13.3.1	4
5	Latency (sec) Sum of all STUN transactions.	4

	Latency/attempts is the average latency for STUN transactions in ms. The delay from RTSP to first STUN can be derived from RTSP session start time and the timestamp in UpTransactionInfo for STUN. [valid range: 0 .. 4294967295] Release: 13.3.1	
6	Timestamp-Start Time (secs) Release: 13.3.1	4
6	Timestamp-Start Time (micro secs) Release: 13.3.1	4
7	Protocol STUN protocol (3478) Release: 13.3.1	4
8	Tran Id length	1
8	Tran Id content (array of BINARY bytes) STUN Transaction id field. For Stun, is of Binding Request from the stun server Release: 13.3.1	Variable

NOTE: The Transaction Types, cause values, and cause types are described in section 8 Appendix B – Protocol Specific for all the different protocols.

4.7.1.33 AcceptedQosInfo Format - Iris TekIE CompressedQosInfo

The first 4 bytes indicate the Bitmask of the various fields that are present in the AcceptedQosInfo.

For optional fields that have no value, they are not sent at all, meaning this field will be non-existent in the XDR and so in OHDR.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	Timestamp Release: 14.1	4
2	Requested_compressed_qos length + Requested_compressed_qos value Release: 14.1	1+ variable
3	Negotiated_compressed_qos length + Negotiated_compressed_qos value Release: 14.1	1+ variable

4.7.1.34 MLPInfo Format - Iris TekIE MLPInfo

The first 4 bytes indicate the Bitmask of the various fields that are present in the MLPInfo.

For optional fields that have no value, they are not sent at all, meaning this field will be non-existent in the XDR and so in OHDR.

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	MSID.Type Release: 14.2	1
1	MSID.Value Length + value	1+ variable

Bit location in the Bitmask	Parameter	Byte(s)
	Release: 14.2	

4.7.1.35 CCPStreamer Info Format – Iris TekIE CCPMediaServerInfo

The counter is 4 byte indicating the total number of following CCP Streamer Info structures

Bit location in the Bitmask	Parameter	Byte(s)
	CCP Streamer Counter	4
	Multiple instances of CCPStreamerInfo Release: 14.2	variable

For each of the CCPStreamerInfo, the following structure will be repeated:

Bit location in the Bitmask	Parameter	Byte(s)
	Bitmask	4
1	StreamerIp len Release: 14.2	1
1	StreamerIp Release: 14.2	variable

Bit location in the Bitmask	Parameter	Byte(s)
2	Timestamp (sec) Release: 14.2	4
2	Timestamp (usec) Release: 14.2	4

Original information are provided by G10, GeoBlade probe by monitoring CCP RTSP

The maximum amount of CCPStreamerInfo structure is currently limited to 255

StreamerIP is encoded in binary format
"Timestamp (sec)" is encoded as Unix time
"Timestamp (usec)" is the microsecond part of the timestamp

5 ASCII OHDR Output – File Based

In case a DataCast data record feed needs to be delivered in file format instead of as TCP data stream, the Data Record Receiver (drRcvr) standalone application is deployed. In this instance, the drRcvr is set up to receive OHDRs in Binary format and records them in a Binary or ASCII file depending on the defined configuration parameters.

This section details the command usage and configuration parameters use to implement an ASCII HDR output.

5.1 Command Usage

The following text displays the command usage for DataCast ASCII OHDR output:

drRcvr [-hdr_port <value>] [-output_dir <value>] [-timeout_interval <value>] [-write_binary <value>]

Configuration Parameters

The following table displays the configuration parameters for the OHDR ASCII format.

Parameter	Name	Default Value	Possible Values	Description
Hdr Port Number—TCP/IP Listening port resource number	hdr_port	9171	Any available port resource number of the machine.	This parameter describes a port number, which is used to accept connections from the DataCast servers.
Output Directory Path—output directory path name	output_dir	$HOME/dr	output directory path name, path can contain environment variable	The path where the received data to be stored.
Timeout Interval—timer for generating log and statistics data.	timeout_interval	300	300, 600, 900, 1200, and 3600	This parameter is defined by the seconds of the timer.
Write Binary	write_binary	no	yes and no	Use this parameter only for the received HDRs that are dumped in either binary format or ASCII format.

ASCII Output Format Structure

The drRcvr decodes the OHDR and records it in the ASCII format associating the data record syntax tag to the relevant ASCII parameter value. In the following example,

The information in upper case letters appears as it is in the data record

The information in lower case letters is replaced by the actual content of the HDR, DR, First Section, and Second Section of the data record

The general ASCII syntax of the drRcvr appears below:

```
BEGIN_HDR_CONTENT|hdr_header|
BEGIN_DR_CONTENT|dr_name;
BEGIN_DR_FIRST_SECTION;fixed_section_data;END_DR_FIRST_SECTION;
BEGIN_DR_SECOND_SECTION;variable_section_data;END_DR_SECOND_SECTION;
END_DR_CONTENT|
-----
-----
END_HDR_CONTENT
```

The first section of the ASCII syntax corresponds to the fixed section of the data record and it is coded as a list of couples (tag values) that are separated by a comma.

The second section of the ASCII syntax corresponds to the variable section of the data record.

NOTE: After tag or label END_HDR_CONTENT there is a single space character followed by a single newline character (both not shown in above example).

6 ASCII Formats

6.1 FIRST_SECTION – ASCII format

The following table displays the Parameters that can be present in the first section of an ASCII format represented by the corresponding Field Identifier.

The DATA_ID of the Parameters that can be present in the first section of an ASCII format are listed in section **4.3** under the column “Parameter Id Used only in ASCII decoding”.

FIRST_SECTION - Example

BEGIN_HDR_CONTENT|1;0;2;1;0|BEGIN_DR_CONTENT|IRIS_INTERFACE;BEGIN_DR_FIRST_SECTION;4097:4191388680;4098:1287583652;4099:329;4100:1287583712;4101:313799;4102:1;4103:4294967295;4104:4294967295;4105:4294967295;4106:4294967295;4107:4294967295;4108:4294967295;4109:4294967295;4110:512;4111:5;5121:4097;5122:4;5123:1;5124:65535;5125:65535;5126:6;5127:65535;5128:65535;**5129:257**;5130:34305;5131:2123;5132:0;6145:4,0a 0a 61 03;6146:4,0a 0a 61 05;6147:4,ac 19 03 16;**6150:15,311280001001054;**6152:15,311280001001054;6155:29,61 69 72 63 6f 6d 2e 63 6f 6d 2e 6d 6e 63 30 32 38 2e 6d 63 63 33 31 31 2e 67 70 72 73;6163:7,13 f1 82 00 00 d7 d7;6165:5,13 f1 82 00 01;END_DR_FIRST_SECTION;BEGIN_DR_SECOND_SECTION;2;0;40961,[00 00 00 03],[00 00 00 81 7f 00 00 00 03 4c be f7 a4 00 00 01 49 4c be f7 a4 00 00 24 56 01 00 00 00 10 00 00 00 00 00 07 09 8a 13 73 1b 52 0a 0a 61 03 09 8b 02 90 0a e8 0a 0a 61 05 01 0d 00 00 00 05 09 81 04 59 48 00 0a 0a 61 02 16 48 05 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00];40961,[00 00 00 07],[00 00 00 81 7f 00 00 00 07 4c be f7 a4 00 02 b4 8b 4c be f7 a4 00 02 b4 ce 01 00 00 00 10 00 00 00 00 00 01 09 8a 13 73 1b 52 0a 0a 61 03];END_DR_SECOND_SECTION;END_DR_CONTENT|END_HDR_CONTENT

Here are two examples of how such format should be decoded:

Field Identifier	Represents
5129:257	Application Protocol = GTPv2
5129	Identifier Application Protocol
257	GTPv2

Field Identifier	Represents
6150:15,311280001001054	IMSI = 311280001001054
6150	Identifier IMSI
15	IMSI length
311280001001054	IMSI value

6.2 SECOND_SECTION – ASCII format

The second section (variable part) follows the same structure defined in **4.7**. In the ASCII format its generic structure is:

```
BEGIN_DR_SECOND_SECTION;    (NOTE: Stat section for Variable Part parameter)
Numbers of IEs
Format Id used by Probe)
IE description
Data Id,[Value of Parameter],[Tek IE content];
END_DR_SECOND_SECTION;
```

SECOND_SECTION – Example

```
BEGIN_DR_SECOND_SECTION;
2;
0;
40961,[00 00 00 03],[00 00 00 81 7f 00 00 00 03 4c be f7 a4 00 00 01 49 4c be f7 a4 00
00 24 56 01 00 00 00 10 00 00 00 00 00 07 09 8a 13 73 1b 52 0a 0a 61 03 09 8b 02 90
0a e8 0a 0a 61 05 01 0d 00 00 00 05 09 81 04 59 48 00 0a 0a 61 02 16 48 05 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00];
40961,[00 00 00 07],[00 00 00 81 7f 00 00 00 07 4c be f7 a4 00 02 b4 8b 4c be f7 a4 00
02 b4 ce 01 00 00 00 10 00 00 00 00 00 01 09 8a 13 73 1b 52 0a 0a 61 03]
END_DR_SECOND_SECTION;
```

NOTE: Where all fields are decimal but the value of the parameter is a list of bytes in hexadecimal format and the timestamp reports a 0 if these fields are not configured in the option bit mask of the IE in the FSF file.

7 Appendix A

This Appendix contains sections describing the possible values and their meanings for specific fields/information elements

7.1 Appendix – Protocol Identifier

The possible values for the ProtocolId field are listed in the following table.

Protocol	Name	Iris ID
3COM-TSMUX	3COM-TSMUX Protocol	106
914CG	914C/G Termhal	211
A10	CDMA2000 A10	61006
A11'	3GPP2 A11' Protocol	699
ACAS	ACA Services	62
ACI	Application Comms Interface	187
ACR-NEMA	ACR-NEMA Digital Imaging	104
ActiveSync	ActiveSync Notifications	1034
AED 512	AED 512 Emulation	149
AFP	Apple Filing Protocol	548
A-Interface	GSM Signal Interface between BSC and MSC	NA
Alias	Alias Service	1187
ANSA Nofity	ANSA REX Notify	116
ANSA Trader	ANSA REX Trader	124
Apple Share	Apple Share	311
AppleTalk IP	AppleTalk over IP	201
ARCISDMS	ARCISDMS	262

Protocol	Name	Iris ID
Ariel	Ariel for Widows	419
ARNS	Remote Network Server System	384
ASA	ASA Message Router Object	386
ATEXSSTR	ATEXSSTR	212
ATG Live Help	ATG Live Help Services	1336
Audit	Unisys Audit SITP	182
Audit Daemon	Linux Audit Daemon	48
Aurora	Aurora CMGR	364
AURP	AppleTalk Update-Based Routing Protocol	387
Avocent Proxy	Avocent Proxy Protocol	1078
Battle.net	Battle.net Gaming	1119
BFTP	Background File Transfer Program	152
BGMP	Border Gateway Multicast Protocol	264
BGP	Border Gateway Protocol	179
BH611	BH611	354
BHEVENT	BHEVENT	357
BHFHS	BHFHS	248
BHMDS	BHMDS	310
Blackjack	Network Blackjack	1025
Blaze FS	Blaze File Server	1150
BLIDM	Britton-Lee Database Manager	142
Bnet	Unisys Bnet	415
Cableport A/X	Cableport A/X	282
CAILIC	CA Intl License Server	216

Protocol	Name	Iris ID
CAP	Calendar Access Protocol	1026
CDC	Certificate Distribution Center	223
CDRP	Cisco Director Response Protocol	1974
CFDPTKT	Coherent File Distribution Protocol	120
CGDP	Cisco Gateway Discovery Protocol	1997
CHARGEN	Character Generator Service	19
Cisco FNA	Cisco FNATIVE	130
Cisco SYS	Cisco SYSMAINT	131
Cisco TNA	Cisco TNATIVE	132
Citric IMA	Citrix Independent Management Architecture	2512
Citrix CGP	Citrix Common Gateway Protocol	2598
Citrix ICA	Citrix Independent Computing Architecture	1494
Citrix Jedi	Citrix Jedi	8200
Citrix LIC	Citrix Licensing Procotol	7279
Citrix RTMP	Citrix Real Time Messaging Protocol	2897
Citrix SLGW	Citrix Storage Link Gateway	24754
CL/1	Network Innovations CL/1	172
Clearcase	Clearcase SCM Protocol	371
Cloanto	Cloanto Network Services	356
CMAC	Commercial Mobel Alert for C-Interface	61031
CMASCAP	CMAS Common Alerting Protocol	61032
CMIP	Common Mgmt Information Protocol	163
CNAM	Calling Name Delivery	61009
Coda Auth	Coda Authentication Service	370

Protocol	Name	Iris ID
CommVault	CommVault Data Backup	1164
ComressNET	CompressNET Protocol	2
COMSCM	COMSCM	437
CORBA	CORBA Internet Inter-ORB Protocol	683
Corerjd	Corerjd Service	284
Covia CI	Covia Communications Integrator	64
CSI-SGWP	Cabletron Management Protocol	348
CSLA	Cisco SLA	1167
CSNET NS	CSNET Mailbox Nameserver	105
CTF	Common Trace Facility	84
CVC-HOSTD	CVS-HOSTD Service	442
DASP	Datagram Authenticated Session Protocol	439
DATEX-ASN	DATEX-ASN	355
Daytime	Daytime Protocol	13
dBase	dBase Database Mgmt System	217
DCAP	Data Link Switching Client Access Protocol	1973
DCE/RPC	DCE Remote Procedure Calls	61019
DCP	Device Control Protocol	93
DEC Auth	DEC Authentication Service	316
DEC Debug	DEC Debugger	410
DEC VMS	DEC VMS System Management	441
DEOS	Distributed External Object Store	76
DHCP	Dynamic Host Configuration Protocol	67
DHCPv6	Dynamic Host Configuration Protocol v6	546

Protocol	Name	Iris ID
DIAME^R	DIAMETER Protocol	3868
Direct	Direct Protocol	242
DISCARD	Discard Protocol	9
Dixie	Dixie Directory Assistance Protocol	96
DLS	Directory Location Service	197
DNA-CML	DNA-CML	436
DNS	Domain Name Service	53
DNSIX	DNSIX	90
DPSI	Desktop Paging Software Inc	315
DSFGW	DSFGW	438
DSP	Display Support Protocol	33
DSP3270	Display Systems Protocol	246
DSS1	Digital Subscriber Signaling System #1	61026
DTAG	DTAG	352
DTK	Deception Toolkit	365
EAP	Extensible Authentication Protocol	61014
ECHO	Echo Protocol	7
EMBL NDT	EMBL Nucleic Data Transfer	394
EMFIS	EMFIS Data and Control Service	140
Entrust Time	Entrust Time Protocol	309
EPMAP	Microsoft Endpoint Mapper	135
EPS-NAS	EPS Non-Access Stratum Protocol	61003
ERPC	Encore Expedited Remote Procedure Call	121
ESRO	Efficient Short Remote Operations	259

Protocol	Name	Iris ID
ETOS	DEC ETOS Service	377
FASP	Fast and Secure Protocol	33001
Fatmen	Fatmen Server	347
FileMaker	FileMaker Database	5003
Finger	Finger User Information	79
FinTS	Financial Transaction Services (HBCI)	61030
FIX	Financial Information Exchange Protocol	61044
FTP-CTRL	File Transfer Protocol (Control)	21
FTP-DATA	File Transfer Protocol (Data)	20
FTPS-CTRL	File Transfer Protocol over TLS/SSL (Control)	990
FTPS-DATA	File Transfer Protocol over TLS/SSL (Data)	989
FXP	File eXchange Protocol	286
GACP	Gateway Access Control Protocol	190
Gb Interface	Link between the GPRS core network and the BSS	NA
Genie	Genie Protocol	402
GENRAD-MUX	GENRAD-MUX	176
GIST	General Internet Signaling Transport	270
Gopher	Gopher Protocol	70
GPFS	General Parallel File System	1191
GPPITNP	Genesis PPP Trans Net	103
Graphics	Graphics Protocol	41
Groupwise	Novell Groupwise	1677
GSI FTP	GSI File Transfer Protocol	2811
GSS License	GSS Licence Protocol	128

Protocol	Name	Iris ID
GTP-C	GPRS Tunneling Protocol (Control Plane)	2123
GTP-Prime	GPRS Tunneling Protocol (Charging Gateway)	3386
GTPv1-U	GPRS Tunneling Protocol (User Plane)	2152
GTPvO	GPRS Tunneling Protocol vO	
GTPv1-C	GPRS Tunelling Protocol v1	
GTPv2-C	GPRS Tunneling Protocol v2 (Control Plane)	61002
H.248	H.248 (MEGACO) Protocol	2944
H.323CS	H.323 Call Signaling Protocol	1720
Hassle	Hassle Networking	375
HDAP	HDAP Service	263
HEMS	HEMS Protocol	151
HiveStor	HiveStor File System	4884
HL7	Health L7 Info Exchange	2575
Hostname	NIC Hostname Server	101
HP Perf	HP Performance Data Collector	381
HP VMM	HP Virtual Machine Manager	1124
HSRP	Cisco Hot Standby Router Protocol	1985
HTTP	Hypertext Transfer Protocol	80
HTTP MGMT	HTTP Management Service	280
HTTP-S	HyperText Transfer Protocol over TLS/SSL	443
Hyper-G	Hyper-G Hypertext Protocol	418
IASD	IASD Service	432
IBM APP	IBM Application	385
IBM OPC	IBM OPC	423

Protocol	Name	Iris ID
ICAD	ICAD	425
ICP	Intelligent Communication Protocol	1112
Ident	Identification Protocol	113
IMAP	Internet Message Access Protocol	143
IMAP-S	Internet Message Access Protocol over TLS/SSL	993
IMGames	IMGames Gaming Network	1077
IMP	NetMotion Internet Mobility Protocol	5008
IMSP	Interactive Mail Support Protocol	406
InBusiness	Dayna Communications InBusiness	244
InfoSeek	InfoSeek	414
IngresNET	IngresNET Service	134
IPsec-NAT	IP Security for NAT Traversal	4500
IRC	Internet Relay Chat	194
IS-99	TIA/EIA/IS-99 Modem	379
ISAIC	Improved Service Announcement and Information Collection Protocol	61013
ISAKMP	Internet Security and Key Management Protocol	500
ISI-GL	ISI Graphics Language	55
ISO-IP0	ISO Internetworking Protocol IP0	146
ISO-TSAP	ISO Transport Service Access Point	102
ISUP	ISDN User Part	61010
IuCS Interface	Interface that carries circuit switched messages between the Radio Network; Controller (RNC) and Mobile Switching Center (MSC)	NA
IuPS Interface	Interface that carries packet switched messages between the RNC and SGSN	NA

Protocol	Name	Iris ID
IVPIP	Citel VoIP Protocol	2698
Jabber/XMPP	Extensible Messaging and Presence Protocol	5222
Jargon	Jargon Protocol	148
JavaRMI	Java RMI Service	1098
Kazaa	Kazaa P2P Protocol	1214
K-Block	K-Block Service	287
Kerberos	Kerberos Protocol v5	88
KFTP-CTRL	Kerberos FTP Protocol Control Plane	6621
KFTP-DATA	Kerberos FTP Protocol User Plane	6620
KIS	KIS Protocol	186
KNET-CMP	KNET-CMP Protocol	157
Kryptolan	Kryptolan	398
KTelnet	Kerberos Telnet Protocol	6623
KVM	KVM Via IP Service	1132
KWDB	KWDB Service	1127
L2TP	Layer 2 Trunneling Protocol	1701
LA-Maint	Logical Address Maintenance Protocol	51
LDAP	Lightweight Directory Access Protocol	389
LDAP-S	Lightweight Directory Access Protocol over TLS/SSL	636
Legent	Legent Protocol	373
LINK	LINK Service	245
ListProc	List Processor Agent	372
LLMNR	Link-Local Multicast Name Resolution	5355

Protocol	Name	Iris ID
LNP	Local Number Portability	61007
Locus CON	Locus Conn Server	127
Locus MAP	Locus Net Map Service	125
Lotus **Note**s	Lotus **Note**s Service	1352
Magenta Logic	Magenta Logic Service	313
MAILQ	MAILQ Service	174
MANET	Mobile Ad-Hoc Network Protocol	269
MasqDialer	MasqDialer Protocol	224
MATIP	MATIP Service	350
MaxDB	MaxDB Database	61045
MCFTP	Multicast FTP Protocol	6622
MCIDAS	MCI Data Access System	112
MDNS	Multicast Domain Name System	5353
MeetMaker	Meeting Maker	2271
Meta5	Meta5 Service	393
Metagram	Metagram Relay	99
MF Cobol	MF Cobol Drectory Service	86
MFTP	Multisource File Transfer Protocol	349
MGCP	Media Gateway Control Protocol	2427
MiniSQL	MiniSQL Database	1114
MIT ML	MIT ML Device	83
MIT Spooler	MIT Spooler	91
MMS	Multimedia Messaging Service	61000
MobileIP	Mobile IP Protocol	434

Protocol	Name	Iris ID
MODBUS/TCP	Modbus Serial Communication Protocol	502
MortgageWare	MortgageWare Service	367
MPM	Internet Message Protocol	44
MPP	Netix Message Posting Protocol	218
^TN	Multi-Protocol Trans Net	397
MS BITS	Microsoft BITS Service	2178
MS CRS	Microsoft Content Replication System	507
MS OCS	Microsoft Office Communications Server	428
MS OLAP	Microsoft OLAP	2382
MS SQL	Microsoft SQL Server	1433
MSG-AUTH	MSG Authentication	31
MSG-ICP	MSG ICP	29
MSMQ	Microsoft Message Queue	1801
MSP	Message Send Protocol	18
MSRP	Message Session Relay Protocol	2855
Multplex	NI Multiplex Service	171
MUMPS	Plus Five's MUMPS Service	188
MySQL	MySQL Database System	3306
NAME	Host Name Server Protocol	42
NAMP	Neighbor Aware Multicast Routing Protocol	167
NCED	NCED Service	404
NCLD	NCLD Service	405
NCP	NetWare Core Protocol	524
NDSAuth	NDS Authentication Service	353

Protocol	Name	Iris ID
NetBIOS	NetBIOS Protocol	137
NetInfo	Apple NetInfo Database	1033
NETRJS	Remote Job Service	71
NETSC	NETSC Service	154
NetScout	NetScout Service	395
NetWare	Novell NetWare	396
NextStep	NextStep Window Server	178
NFA	Network File Access Protocol	1155
NFS	Network Filesystem Protocol	2049
NI FTP	Network Independent File Transfer Program	47
NI Mail	Network Independent Mail Service	61
NIP	Network Inquiry Protocol	376
NNSP	NNSP Protocol	433
NNTP	Network News Transfer Protocol	119
NNTP-S	Network News Transfer Protocol over TLS/SSL	563
Nova Backup	Nova Backup Service	308
Novell IPX	Novell IPX Protocol	213
NPP	Network Printing Protocol	92
NS IIOPS	IIOP Name Service over TLS/SSL	261
NSRMP	Network Security Risk Management Protocol	359
NSSRP	NSS Routing Protocol	159
NSSTP	Nebula Secure Segment Transfer Protocol	1036
NSW-FE	NSW User System FE	27
NTP	Network Time Protocol	123

Protocol	Name	Iris ID
NXEdit	NXEdit Protocol	126
OCBinder	OCBinder Service	183
OCServer	OCServer Service	184
ODMR	On-Demand Mail Relay	366
OFTP	Odette FTP	3305
OFTP-S	Odette FTP over TLS/SSL	6619
Onmux	Onmux Service	417
Opalis	Opalis Robot	314
Openport	Openport Protocol	260
OpenVPN	OpenVPN	1194
Oracle	Oracle Database Applications	1525
OSU NMS	OSU Network Monitorhg System	192
PAW	Performance Analysis Workbench Server	345
PCMail	PCMail Server	158
PCoIP	PC-over-IP Protocol	4172
PDAP	Prospero Data Access Protocol	344
PersonalLink	PersonalLink Service	281
PFTP	Port FTP Protocol	662
PIP	Presence Information Protocol	321
PKIX TS	PKIX Timestamp	318
POP2	Post Office Protocol v2	109
POP3	Post Office Protocol v3	110
POP3-S	Post Office Protocol v3 over TLS/SSL	995
PostgreSQL	PostgreSQL Database System	5432

Protocol	Name	Iris ID
PPP CCP	PPP Compression Control Protocol	61018
PPP LCP	PPP Link Control Protocol	61015
PPTP	Point-To-Point Tunneling Protocol	1723
PRINTER	Printer Services	35
PrintSrv	Network PostScript Service	170
PROFILE	PROFILE Naming System	136
Prospero	Prospero Directory Service	191
PTPv2	Precision Time Protocol	319
PwdGen	Password Generator Protocol	129
Qbik	Qbik GDP	368
QFT	Queued File Transport	189
QMTP	Quick Mail Transfer Protocol	209
QOTD	Quote of the Day	17
QuickTime	QuickTime	458
RADIUS	RADIUS Authentication Protocol	1812
RAP	Route Access Protocol	38
RDESK	Remote Desktop Protocol	3389
ReMail	Remote Mail Checking Protocol	50
ResCap	ResCap Resolution Protocol	283
RFILE	Remote File Service	34
RIP	Routing Information Protocol	520
RIPng	Routing Information Protocol Next Generation	521
RIS	Relational Interface System	180
RJE	Remote Job Entry	5

Protocol	Name	Iris ID
RLOGIN	Remote Login Protocol	513
RLP	Resource Location Protocol	39
RMT	Remote MT Protocol	411
RPC to PMAP	RPC to Port Map Service	369
RRP	Registry Registrar Protocol	648
RSH	Remote Shell Protocol	514
RSVD	RSVD Protocol	168
RSVP	Resource Reservation Protocol	3455
RSVP Tunnel	RSVP Tunnel Protocol	363
RSYNC	Remote File Synchronization Protocol	873
RTCP	Real Time Control Protocol	5005
RTelnet	Remote Telnet	107
RTP	Real Time Transport Protocol	5004
RT3P	Real Time Streaming Protocol	554
RTSP-S	Real Time Streaming Protocol over TLS/SSL	322
S1AP	S1 Application Part	36412
SAP HCA	SAP Host Control Agent	1128
SCCP	Signaling Connection Control Part	61012
SCOI2DLG	SCOI2DLG	360
SCSI-ST	SCSI on ST Service	266
SecurSight	SecurSight Certificate Valifation Service	2477
Semantix	Semantix Service	361
SEND	Secure Neighbor Discovery Protocol	169
SET	Secure Electronic Transaction Protocol	257

Protocol	Name	Iris ID
SFTP	SSH File Transfer Protocol	61020
SGCP	Simple Gateway Control Protocol	440
SGMP	Simple Gateway Monitoring Protocol	153
SGsAP	SGs Application Part	29118
Shockwave	Shockwave Multimedia	1257
Shrinkwrap	Shrikwrap Service	358
SilverPlatter	SilverPlatter Protocol	416
SIP	Session Initiation Protocol	5060
SIP-S	Session Initiation Protocol over TLS/SSL	5061
SLP	Server Location Protocol	427
SmakyNet	SmakyNet Protocol	122
Smart SDP	Smart SDP Protocol	426
SMB	Server Message Block Protocol	445
SMPP	Short Message Peer-To-Peer	2775
SMPP	Short Message Peer-To-Peer	NA
SMPP-S	Short Message Peer-To-Peer over TLS/SSL	3550
SMPP-S	Short Message Peer-To-Peer over TLS/SSL	NA
S^TE	SMPTE Protocol	420
SMSP	Storage Management Services Protocol	413
SMTP	Simple Mail Transfer Protocol	25
SMTP-S	Simple Mail Transfer Protocol over TLS/SSL	465
SNA Gateway	SNA Gateway Access Server	108
SNET	Sirius System Network	166
SNMP	Simple Network Management Protocol	161

Protocol	Name	Iris ID
SNM MUX	SNMP Multiplexing Protocol	199
SNPP	Simple Network Paging Protocol	444
SOCKS	SOCKS Protocol	1080
SoftPC	Insignia Solutions SoftPC	215
SQL NET	Oracle SQL NET	66
SQL SERV	SQL Services	156
SRC	IBM System Resource Controller	200
SRMP	Spider Remote Monitoring Protocol	193
SRS Send	SRS Send Service	362
SSDP	Simple Service Discovery Protocol	1900
SSH	Secure Shell Protocol	22
StatServ	Statistics Service	133
STUN	Session Traversal Utilities for NAT	3478
SU/MIT	SU/MIT Telenet Gateway	89
SUBNTBCST	SUBNTBCST TFTP	247
SunRPC	Sun Remote Procedure Call	111
SUPDUP	SUPDUP Remote Access	95
SUR-MEAS	Survey Measurement Protocol	243
Swift RVFP	Swift Remote Virtual File Protocol	97
Sybase SQL	Sybase SQL	1498
SynOptics	SynOptics Services	391
Syslog	Syslog Service	61022
Systat	Active Users Service	11
T.38	T.38 Fax over IP	6004

Protocol	Name	Iris ID
TAC News	TAC News Service	98
TACACS	TACACS Login Host Protocol	49
TCP MUX	TCP Port Multiplexing	1
TDP	Cisco Tag Distribution Protocol	711
TDS	Tabular Data Stream Protocol	61043
TELNET	Telnet Protocol	23
Teredo	Teredo Tunneling	61025
Texar	Texar Security Port	333
TFTP	Trivial File Transfer Protocol	69
TFTP-S	Trivial File Transfer Protocol over TLS/SSL	3713
Timbuktu	Timbuktu Remote Control	407
TIME	Time Protocol	37
Tivoli	Tivoli Object Request Broker	94
TLS/SSL	Transport Layer Security Protocol	61021
Tobit	Tobit David Service Layer	267
TollFree	Toll Free Protocol	61008
Tor	The Onion Router	61023
TripWire	TripWire	1169
UAAC	UAAC Protocol	145
UARPS	Unisys ARPs Protocol	219
UIS	UIS Protocol	390
Unidata LDM	Unidata Local Data Manager	388
Unify	Unify Service	181
UNIMA	Universal Management Architecture	144

Protocol	Name	Iris ID
Unknown	Unknown Protocol	65534
UPS	Uninteruptible Power Supply	401
UTMP	UTMP Service	430
UUCP	Unix-to-Unix Copy	117
VChat	VChat Conference Service	1168
VETTCP	VETTCP Protocol	78
VM PWSCS	VM PWSCS Network	214
VMNET	VMNET Service	175
VSLMP	VSLMP Protocol	312
VSNCP	Vendor Specific Network Control Protocol	61017
VSNP	Vendor Specific Network Protocol	61016
WAN Scaler	Citrix WAN Scaler	2312
WAPv1	Wireless Access Protocol v1	
WCCP	Web Cache Communication Protocol	2048
WebDAV	Web Distributed Authoring and Versioning	61024
WebFilter	WebFilter Remote Monitor	1046
WHOIS	WhoIs Protocol	43
WHOIS++	WhoIs++ Protocol	63
WSP	Wireless Session Protocol	9200
WTLS	Wireless Transport Layer Security	9202
WTP	Wireless Transport Protocol	9201
X2AP	X2 Application Protocol	36422
X-Bone	X-Bone Consol System	265
Xbox LIVE	Xbox Live Protocol	3074

Protocol	Name	Iris ID
XCAP	Extensible Markup Language (XML) Configuration Access Protocol (XCAP) over the Ut Interface	
XDMCP	X Display Manager Control Protocol	177
Xfer	Xfer Utility	82
XNS	Xerox Network Services	165
XNS-AUTH	XNS Authentication Protocol	56
XNS-CH	XNS Clearinghouse Protocol	54
XNS-MAIL	XNS Mail Protocol	58
XNS-TP	XNS Time Protocol	52
Xyplex	Xyplex Service	173
Z39.50	ANSI Z39.50	210
ZanNet	ZanNet Protocol	317
Zebra	Zebra	346
050 Plus	050 Plus	62324
4Shared	4Shared File Sharing	62028
56.com	56.com Streaming Media	62240
About	About.com Web Services	62241
AccuWeather	AccuWeather Web Service	62301
ActiveDir	Active Directory	62120
AD Backup	Active Directory Backup	62121
AD DSAOP	Active Directory DSAOP	62123
AD DSROL	Active Directory DSROL	62124
AD LSA	Active Directory Local Security Authority	62129
AD Name Service	Active Directory Name Service	62125

Protocol	Name	Iris ID
AD Replication	Active Directory Replication	62122
AD Restore	Active Directory Restore	62126
AD SAMGR	Active Directory Security Account Mgr	62130
AD Setup	Active Directory Services Setup	62128
AD XDS	Active Directory XDS	62127
Adf.ly	Adf.ly URL Service	62242
Admeld Ads	Admeld Ads Service	62298
Adobe	Adobe	62029
Adrive	Adrive Cloud Storage	62203
Adult Web	Adult Content Web Services	62233
AdXpose	AdXpose Ads Sercvice	62297
AIM	AOL Instant Messenger	62030
Akamai	Akamai Cloud Web Services	62234
Alibaba	Alibaba Online Marketplace	62243
Aliwangwang	Aliwangwang Messaging	62292
Amazon	Amazon Online Store	62031
Amazon WS	Amazon Could Web Services	62235
Android	Android Web Services	62230
Android C2DM	Android Cloud To Device Messaging	62177
Answers	Answers.com Web Services	62244
AOL Ads	AOL Ads Service	62265
Apple	Apple Web Services	62179
Apple Maps	Apple Maps	62204
Apple PNS	Apple Push Notification Service	62178

Protocol	Name	Iris ID
Apple Update	Apple Software Update	62032
AppleJuice	AppleJuice P2P Network	62163
AppNexus	AppNexus Ads Service	62236
Ares	Ares	62205
Ask	Ask.com Web Search Services	62266
AstraWeb	AstraWeb Usenet Service	62135
Atlas Ads	Atlas Solutions Ads Service	62282
Atom	Atom Web Syndication	62033
AVG	AVG Antivirus	62034
Avira	Avira Antivirus	62035
Avoidr	Avoidr Mobile Service	62267
Babylon	Babylon Translation Service	62245
Backblaze	Backblaze Online Backup	62036
Badoo	Badoo Social Network	62268
Baidu	Baidu Web Services	62191
BBC	BBC News	62260
Bebo	Bebo Social Network	62038
BigUpload	BigUpload file Sharing	62182
Bing	Bing Search Engine	62039
Bingbot	Bing Web Crawler	62040
BitDefender	BitDefender Antivirus	62037
BitTorrent	BitTorrent P2P Network	62042
BlackBerry	BlackBerry	62153
Blogger	Blogger Publishing	62041

Protocol	Name	Iris ID
Bloomberg	Bloomberg Web	62322
Booking	Booking.com Web Services	62269
CBS	CBS Web Services	62246
ChartBeat	ChartBeat Ads Service	62270
China.com	China.com Web Services	62206
Citrix Online	Citrix Online	62044
Classmates	Classmates Network	62183
CNET	CNET	62184
CNN	CNN News	62247
CNZZ	CNZZ Ads Service	62271
Conduit	Conduit Web Services	62248
Craigslist	Craigslist	62043
Dailymotion	Dailymotion Video	62046
DepositFiles	DepositFiles File Service	62193
DeviantART	DeviantART Artwork Web	62272
DirectConnect	DirectConnect	62174
Docstoc	Docstoc Document Storage	62047
Dropbox	Dropbox File Hosting	62048
DynGate	DynGate	62170
eBay	eBay Auctions	62049
eBuddy	eBuddy Messenger	62227
eDonkey	eDonkey P2P Network	62045
eHow	eHow Web Services	62273
Eset	Eset Antivirus	62050

Protocol	Name	Iris ID
ESPN	ESPN Sports Network	62262
Evernote	Evernote Web Service	62291
Facebook	Facebook	62003
Facebook Apps	Facebook Applications	62119
FaceTime	FaceTime	62180
Farmville	Farmville Gaming	62051
Filer.cx	Filer.cx File Hosting	62052
FileServe	FileServe File Hosting	62197
Filesonic	Filesonic File Hosting	62198
FilesTube	FilesTube Search Engine	62053
Flickr	Flickr Media Hosting	62054
Flixster	Flixster	62055
Fogbugz	Fogbugz Project Management	62056
Forbes	Forbes Buisiness Web	62249
Foursquare	Foursquare	62207
FOX News	Fox News Network	62251
FOX Sports	Fox Sports Network	62250
F-Prot	F-Prot Antivirus	62057
FreeeTV	FreeeTV Live Streaming	62199
Freegate	Freegate Proxy	62314
Freelancer	Freelancer Web Services	62274
FriendFeed	FriendFeed	62058
Friendster	Friendster Social Network	62059

Protocol	Name	Iris ID
Fring	Fring Social Network	62208
Funshion	Finshion Web Services	62209
GigaNews	GigaNews Usenet Service	62132
GlypeProxy	Glype Web Proxy	62192
Gmail	Google Mail	62014
Gnutella	Gnutella P2P Network	62060
Goal.com	Goal.com Sports Network	62275
Google	Google Web Services	62001
Google Ads	Google Ads Services	62166
Google AE	Google App Engine	62017
Google Analytics	Google Analytics	62015
Google APIs	Google APIs	62016
Google Calendar	Google Calendar	62018
Google Desktop	Google Desktop	62019
Google Drive	Google Drive	62020
Google Earth	Google Earth	62021
Google Maps	Google Maps	62027
Google Play	Google Play Store	62231
Google Safe	Google Safe Browsing	62023
Google Talk	Google Talk	62026
Google Video	Google Video	62025
Google Xlate	Google Translation Service	62024

Protocol	Name	Iris ID
Google+	Google+ Social Network	62161
Googlebot	Googlebot Web Crawler	62022
GoToMeeting	GoToMeeting Conferencing	62061
GoToMyPC	Citrix GoToMyPC Remote Session	62316
GoToTraining	Citrix GoToTraining Services	62317
GoToWebinar	Citrix GoToWebinar Services	62318
Grooveshark	Grooveshark	62062
Groupon	Groupon Web Services	62210
Guardian	Guardian News	62276
Hamachi	Hamachi VPN	62175
HootSuite	HootSuite Social Network	62277
Hopster	Hopster Tunneling	62063
Hotfile	Hotfile File Sharing	62064
Hotmail	Hotmail Email	62065
HTTP Audio	Audio over HTTP	62009
HTTP Video	Video over HTTP	62010
Huff Post	Huffington Post News	62261
Hulu	Hulu Video Streaming	62066
iCall	iCall	62229
iCloud	iCloud	62181
ICQ	ICQ Instant Messaging	62067
IMDB	IMDB Web Service	62278
iMesh	iMesh	62068
Imgur	Imgur Photo Sharing	62069

Protocol	Name	Iris ID
IMO	Imo.im Instant Messaging	62200
In.com	In.com Web Services	62211
Instagram	Instagram Photo Hosting	62279
IsoHunt	IsoHunt Web	62185
iTunes	Apple iTunes	62002
Kaspersky	Kaspersky Antivirus	62070
Kugou	Kugou Media Streaming	62315
Last.fm	Last.fm Music Streaming	62071
Leboncoin	Leboncoin.fr Online Marketplace	62252
L'Equipe	L'Equipe Sports Web	62328
Letitbit	Letitbit File Hosting	62225
LimeLight	LimeLight Cloud Web Service	62237
LINE	LINE	62296
Line2	Line2	62172
LinkedIn	LinkedIn Business Network	62072
Live365	Live365 Internet Radio	62201
LiveJournal	LiveJournal	62073
LiveMeeting	LiveMeeting	62074
LogMein	LogMein Remote Access	62075
Lync	Lync	62294
MafiaWars	MafiaWars Gaming	62076
MagicJack	MagicJack Voice over IP	62137
Manolito	Manolito P2P Network	62077
McAfee	McAfee Antivirus	62078

Protocol	Name	Iris ID
MediaFire	MediaFire File Sharing	62079
Mediamind	Mediamind Ads Service	62264
Meebo	Meebo Messaging	62080
MegaShares	MegaShares File Sharing	62186
MegaUpload	MegaUpload File Sharing	62081
Metacafe	Metacafe Video Sharing	62082
Microsoft IM	Microsoft Instant Messenger	62167
Movie2k	Movie2k Video Streaming	62254
Mozilla	Mozilla	62253
MS Exchange	Microsoft Exchange Services	62131
MS Info Store	Microsoft Exchange Information Store	62136
MS MAPI	Messaging Application Programming Interface	62138
MS MTA	Microsoft Exchange Mail Transfer Agent	62139
MS Online	Microsoft Online	62085
MS RFI	Microsoft Exchange Referral Interface	62140
MS Store Admin	Microsoft Exchange Store Admin	62141
MS Sys Att	Microsoft Exchange System Attendant	62142
MSDN	Microsoft Developer Network	62083
MSN	Microsoft Web Network	62084
MSN2Go	MSN2Go Web Messaging	62194
MultiUpload	MultiUpload File Sharing	62190
MUTE-net	MUTE Peer-to-Peer Network	62169
MySpace	MySpace	62006

Protocol	Name	Iris ID
MyWebSearch	MyWebSearch Web Services	62255
Naverisk	Naverisk IT Services	62212
NetEase	NetEase Web Services	62280
NetFlix	Netflix web site	62007
NetFlix Video	NetFlix Video Stream	62013
NetLogon	Microsoft Net Logon Service	62143
NetMeeting	Microsoft Net Meeting	62144
NetWeaver	SAP NetWeaver	62327
NicoNico	NicoNico Video Sharing	62293
Nielsen	Nielsen Tracking Service	62299
Nimbuzz	Nimbuzz Messaging	62319
Nimbuzz MMS	Nimbizz Multimedia Services	62320
Nimbuzz World	Nimbuzz N-World Shopping	62321
Nokia Maps	Nokia Maps	62304
Nokia Msg	Nokia Messaging	62305
Nokia Music	Nokia Music	62306
Nokia Store	Nokia Store	62307
Nokia Sync	Nokia Mobile Sync	62308
Nokia Web	Nokia Web Services	62303
NYTimes	New York Times News	62263
OCSP	Online Certificate Status Protocol	62232
Open Webmail	Open Webmail	62187
Optimax	Optimax Ads Service	62281

Protocol	Name	Iris ID
Orkut	Google Orkut	62086
Paltalk Chat	Paltalk IM Chat	62156
Paltalk Files	Paltalk IM File Transfer	62157
Paltalk IM	Paltalk Instant Messenger	62155
Paltalk Video	Paltalk IM Video Chat	62158
Paltalk Voice	Paltalk IM Voice Chat	62159
Panda	Panda Antivirus	62087
Pando	Pando P2P Network	62088
Pandora	Pandora Radio Service	62008
PandoraTV	Pandora Video Sharing	62202
PhotoBucket	PhotoBucket Media Hosting	62089
Picasa	Picasa Image Hosting	62090
Pinger	Pinger	62171
Pinterest	Pinterest Social Network	62256
Plaxo	Plaxo Social Network	62091
PPStream	PPS.tv Streaming Media	62213
PPTV	PPTV Streaming Media	62214
PPTV P2P	PPTV Peer to Peer	62215
Privax	Privax Network	62162
Qik	Quik Video Streaming	62226
QQ	QQ Instant Messenger	62092
Quantcast	Quantcast Ads Service	62300
RapidShare	RapidShare File Sharing	62011
Reddit	Reddit News Service	62093

Protocol	Name	Iris ID
RSS	Real Simple Syndication	62145
RTMP	Real-Time Messaging Protocol	62329
Salesforce	Salesforce	62094
SAP	SAP Business Suite Applications	62325
SAP BO	SAP BusinessOjects Intelligence Suite	62326
SCCM	System Center Configuration Manager	62173
ScoreCard	ScoreCard Research	62196
Share P2P	Share P2P Network	62150
Sharepoint	Microsoft Sharepoint	62095
SHOUTcast	SHOUTcast Streaming	62149
ShowMyPC	ShowMyPC Remote Session	62223
Shutterfly	Shutterfly Photo Hosting	62238
Sina.com	Sina Web Services	62216
SkyDrive	Skydrive Online Storage	62096
Skype	Skype	62097
Skype Auth	Skype Authentication	62098
Skype Out	Skype Out Calls	62099
Skype P2P	Skype Peer-to-Peer Traffic	62100
Skype Probe	Skype Probe	62101
SlideShare	SlideShare Online Hosting	62257
Smart Ads	Smart AdServer Advertising	62323
Sogou	Sogou Web Services	62217
Sohu	Sohu Web Services	62283
SopCast	SopCast Media Streaming	62312

Protocol	Name	Iris ID
SoundCloud	SoundCloud	62219
SourceForge	SourceForge Web Services	62258
SpeedTest.net	SpeedTest.net	62152
Spotify	Spotify	62295
Squidoo	Squidoo Social Network	62218
StatCounter	StatCounter Analytics Service	62284
Steam	Steam Gaming	62176
StumbleUpon	StumbleUpon Plugin	62102
SuperNews	SuperNews Usenet Service	62133
Tango	Tango Social Network	62222
TaoBao	TaoBao Web Services	62220
TeamViewer	TeamViewer Remote Access	62148
Telegraph	The Telegraph News	62285
Tmall.com	Tmall Web Services	62221
T-Mobile	T-Mobile VoIP Service	62151
Tokbox	Tokbox Video Chat	62228
Torrentz	Torrentz Web Service	62188
Tumblr	Tumblr Blogging	62103
TwitPic	TwitPic	62164
Twitter	Twitter	62004
Ultrasurf	Ultrasurf Proxy	62313
USA Today	USA Today News	62259
Usenet	Usenet Service	62134
Ustream	Ustream Live TV	62104

Protocol	Name	Iris ID
Viber	Viber	62224
VideoBB	VideoBB	62189
VKontakte	VKontakte Social Network	62309
Vonage	Vonage Voice over IP	62147
Weather	Weather.com Web Service	62286
WebEx	WebEx Conferencing	62105
WeChat	WeChat Instant Messaging	62302
WhatsApp	WhatsApp	62165
Wikia	Wikia Web Service	62287
Wikipedia	Wikipedia	62106
Wikispaces	Wikispaces Web Service	62288
Windows Live	Windows Live Services	62107
Windows Media	Windows Media	62108
Windows Update	Windows Update	62160
WinMX	WinMX Peer-to-Peer	62109
Winny	Winny P2P Network	62146
WinPhone	Windows Phone Website	62310
Wordpress	Wordpress Blogging	62110
Wyse TCX	Wyse TCX Virtual Computing	62195
Xanga	Xanga Social Network	62111
Xaxis	Xaxis Analytics Service	62289
XBox Web	Xbox Live Web Services	62311
XML	XML Documents	62154

Protocol	Name	Iris ID
Xunlei	Xunlei Download Manager	62168
Yahoo	Yahoo Web Services	62012
Yahoo Messenger	Yahoo Messenger	62114
Yahoo Msg Files	Yahoo Messenger File Transfer	62115
Yahoo Slurp	Yahoo Web Crawler	62113
Yelp	Yelp Social Network	62112
YieldManager	YieldManager Ads Service	62239
Youku	Youku Video Hosting	62290
YouSendIt	YouSendIt File Delivery	62116
YouTube	YouTube	62005
Zoho	Zoho Office Apps	62117
Zynga	Zynga Gaming	62118
AARP	Apple Talk Address Resolution Protocol	60263
AppleTalk	Apple Talk Protocol	60265
ARP	Address Resolution Protocol	60258
ATAoE	ATA Over Ethernet	60278
ATM FATE	Frame-based ATM over Ethernet	60275
ATM MPOA	ATM Multi-Protocol Over Ethernet	60276
CBT	Core Based Trees Routing Protocol	60007
CDP	Cisco Discovery Protocol	60273
CobraNet	CobraNet	60272
DGP	Dissimilar Gateway Protocol	60086
DSR	Dynamic Source Routing Protocol	60048

Protocol	Name	Iris ID
EGP	Exterior Gateway Protocol	60008
EIGRP	Enhanced Interior Gateway Routing Protocol	60088
EtherIP	Ethernet Tunneling over IP	60097
Ethernet	Ethernet Protocol	60257
GGP	Gateway-To-Gateway Protocol	60003
ICMP	Internet Control Message Protocol v4	60001
ICMPv6	Internet Control Message Protocol v6	60058
IDPR	Inter-Domain Policy Routing Protocol	60035
IDRP	Inter-Domain Routing Protocol	60045
IGMP	Internet Group Management Protocol	60002
IGP	Interior Gateway Protocol	60009
IPcomp	IP Payload Compression Protocol	60108
IPv4	Internet Protocol v4	60004
IPv6	Internet Protocol v6	60041
IPX	Internetwork Packet Exchange	60262
IPX-IP	Internetwork Packet Exchange over IP	60111
LARP	Locus Address Resolution Protocol	60091
LLC/SNAP	Logical Link Control	60267
LLDP	Link Layer Discovery Protocol	60277
LOOP	Loopback Protocol	60270
MACCTRL	MAC Control	60271
MPLS	Multiprotocol Label Switching	60266
NARP	NBMA Address Resolution Protocol	60054
NON-IP	Non-IP Based Protocols	60256

Protocol	Name	Iris ID
OSPF	Open Shortest Path First	60089
PPP	Point-To-Point Protocol	60269
PPPoE	Point-To-Point Protocol Over Ethernet	60268
RARP	Reverse Address Resolution Protocol	60264
SDRP	Source Demand Routing Protocol	60042
SLOW	IEEE Slow Protocols	60274
STP	Spanning Tree Protocol	60259
VRRP	Virtual Router Redundancy Protocol	60112
XNS-IDP	Xerox Intenet Datagram Protocol	60022
3PC	Third Party Connect Protocol	60034
A/N	Active Networks	60107
ARGUS	ARGUS	60013
ARIS	ARIS	60104
AX.25	AX.25 Protocol	60093
BBN-RCC-MON	BBN RCC Monitoring Protocol	60010
BNA	BNA	60049
BR-SAT-MON	Backroom SATNET Monitoring	60076
CFTP	CFTP	60062
CHAOS	CHAOS	60016
COMPAQ-PEER	Compaq Peer Protocol	60110
CPHP	Computer Protocol Heart Beat	60073
CPNX	Computer Protocol Network Executive	60072
CRTP	Combat Radio Transport Protocol	60126

Protocol	Name	Iris ID
CRUDP	Combat Radio User Datagram	60127
DCCP	Datagram Congestion Control Protocol	60033
DCN-MEAS	DCN Measurement Subsystems	60019
DDP	Datagram Delivery Protocol	60037
DDX	D-II Data Exchange	60116
EMCON	EMCON	60014
FC	Fibre Channel	60133
FIRE	FIRE	60125
GMTP	General Mail Transfer Protocol	60100
GRE	Generic Routing Encapsulation	60047
HIP	Host Identity Protocol	60139
HMP	Host Monitoring Protocol	60020
IATP	Interactive Agent Transfer Protocol	60117
IDPR-CMTP	IDPR Control Message Transport Protocol	60038
IFMP	Ipsilon Flow Management Protocol	60101
IL	IL Transport Protocol	60040
I-NLSP	Integrated Net Layer Security Protocol	60052
IP/OTHER	IP/OTHER	60255
IPCU	Intenet Packet Core Utility	60071
IPLT	IPLT	60129
IPPC	Internet Pluribus Packet Core	60067
IPsec AH	IP Security Authentication Header Protocol	60051
IPsec BEET	IP Security Bound End-To-End Tunnel	60094
IPsec ESP	IP Encap Security Payload Protocol	60050

Protocol	Name	Iris ID
IRTP	Internet Reliable Transaction Protocol	60028
IS-IS	Inetrmediate System to Intermediate System Protocol	60124
ISO-IP	ISO Internetworking Protocol	60080
ISO-TP4	ISO Transport Protocol Class 4	60029
IUA	ISDN User Adaptation Layer	14002
SUA	SS7 SCCP User Adaptation Layer	14001
M3UA	MTP3 User Adaptation Layer	2905
ISTP	Internet Stream Protocol	60005
KRYPTOLAN-IP	Kryptolan over IP	60065
L2TP/IP	Layer 2 Trunneling Protocol	60115
LEAF-1	LEAF-1 Protocol	60025
LEAF-2	LEAF-2 Protocol	60026
MANET/IP	Mobile Ad-Hoc Network Protocol over IP	60138
MERIT-INP	MERIT Internodal Protocol	60032
MFE-NSP	MFE Network Services Protocol	60031
MICP	Mobile Internetworking Control Protocol	60095
MIPv6	Mobile IPv6 Protocol	60135
MOBILE	IP Mobility	60055
MTP-IP	Multicast Transport Protocol over IP	60092
MUX	Multiplexing Protocol	60018
NETBLT	Bulk Data Transport Protocol	60030
NSFNET-IGP	NSFNET-IGP	60085
NVP-II	Network Voice Protocol	60011

Protocol	Name	Iris ID
PERFTP	Performance Transparency Protocol	60123
PMIPv6	Proxy Mobile IPv6 Protocol	61005
PGM	PGM Reliable Transport Protocol	60113
PIM	Protocol Independent Multicast	60103
PNNI	PNNI over IP	60102
PRM	Packet Radio Measurement	60021
PUP	Xerox PARC Universal Packet	60012
PVP	Packet Video Protocol	60075
QNX	QNX	60106
RDP	Reliable Datagram Protocol	60027
ROHC	Robust Header Compression	60142
RSVP-E2EI	Resource Reservation Protocol (E2E IGNORE)	60134
RSVP-IP	Resource Reservation Protocol	60046
RVD	MIT Remote Virtual Disk Protocol	60066
SAT-EXPAC	SATNET and Backroom EXPAK	60064
SAT-MON	SATNET Monitoring	60069
SCC-SP	Semaphore Communications Secure Protocol	60096
SCPS	Space Communications Protocol Standard	60105
SCTP	Stream Control Transmission Protocol	60132
Shim6	Level 3 Multihoming Shim for IPv6	60140
SKIP	Simple Key Management for Internet Protocol	60057
SM	SM	60122
SMP	Simple Message Protocol	60121
SNP	Sitara Networks Protocol	60109

Protocol	Name	Iris ID
SPRITE-RPC	Sprite RPC Protocol	60090
SPS	Secure Packet Shield	60130
SRP	SpectraLink Radio Protocol	60119
SSCOP-MCE	SSCOP-MCE	60128
SUN-ND	SUN ND Protocol	60077
SWIPE	swIPe IP Security Protocol	60053
SXFER	Scheduled Transfer Protocol	60118
TCF	TCF	60087
TCP	Transmission Control Protocol	60006
TLSP	Transport Layer Security Protocol	60056
TP++	TP++ Transport Protocol	60039
TRUNK-1	TRUNK-1	60023
TRUNK-2	TRUNK-2	60024
TTP	TTP	60084
UDP	User Datagram Protocol	60017
UDPLite	UDP Lite	60136
UTI	UTI	60120
VINES	VINES	60083
VISA	VISA Protocol	60070
VMTP	Versatile Message Transaction Protocol	60081
VMTP-S	Secure Versatile Message Transaction Protocol	60082
WB-EXPAK	Wideband EXPAK	60079
WB-MON	Wideband Monitoring	60078
WESP	Wrapped Encapsulating Security Payload	60141

Protocol	Name	Iris ID
WSN	Wang Span Network	60074
XNET	Cross Net Debugger	60015
XTP	Xpress Transport Protocol	60036

7.2 Appendix - Network Interface Type

Network Interface Type is a string field; possible values are:

- S11
- S5_S8
- S10
- SGi
- S2a
- A10_A11
- Gn
- Gi
- Gp
- S3
- S4
- S1-U
- S16
- S2b
- Sv

Network Interface Type definitions are in DataCast configuration file node-if-type-mapping.conf-example under directory $BIA_SERVER_HOME/etc/config.

Definition of Network Interface Type relies on the mapping of source and destination IP over Node Type;

7.3 Appendix - Node Type

7.3.1 Node Type Possible Values - Topology

Node Type possible values as defined by G10, GeoBlade topology:

AAA
AF
AS
BBERF
DNS
EIR
eNodeB
ePCF
ePDG
GGSN
HSGW
HSS
I-CSCF
IP Node
IT Server
MGC
MGW
MME
MMS
MSC
NodeB
P-CSCF
PCEF
PCRF
PDN-GW
RNC
S-CSCF
SBC
SGSN
SGW
SPGW
SIP-EP
SIP-P
SIP-R

7.3.2 Node Type Possible Values - Probes

Node Type possible values as defined by G10, GeoBlade probe.

Node Name	NodeTypeId
UNKNOWN	0
IT_SERVER	1
IP_NODE	2
DNS	3
GGSN	4

Node Name	NodeTypeId
SGSN	5
MME	6
ENODEB	7
MGW	8
HSS	9
SGW	10
PDN_GW	11
EIR	12
RNC	13
NODEB	14
MGC	15
SBC	16
SIP_EP	17
SIP_P	18
SIP_R	19
P_CSCF	20
I_CSCF	21
S_CSCF	22
AS	23
AAA	24
AF	25
PCEF	26
PCRF	27
BBERF	28
MMS	29
HSGW	30
EPCF	31
GENERIC_ON_DEMAND	32
CDF	33
OCS	34
SCP	35
SSP	36

Node Name	NodeTypeId
STP	37
STP_SSP	38
MSC	39
BSC	40
BSS	41
GSN_NETWORK	42
THREEG_MSC	43
HNB_GW	44
ISDN	45
IP_CLOUD	46
SIGTRAN_NODE	47
TRANSPARENT_NETWORK	48
PDF	49
MSRP	50
TPF	51
CRF	52
CTF	53
OCF	54
MRFC	55
MRFP	56
MRF	57
SPGW	58
DRA	59
EPDG	60
UDR	61
SONUS_GSX	63
GMLC	64
DBE	65
IWSF	66
TrGW	69
ATGW	70
STREAMING_MEDIA_SERVER	71

Node Name	NodeTypeId
STUN_SERVER	72
VSO	73
MEDIA_RESOURCE_MANAGER	74
MEDIA_CONTROL_SERVER	75
BHR	76
STB	77

7.4 Appendix - Session Status

The following table describes the possible bits describing the common status of the current session.

NOTE: StatusBits mask is 32bits long with the following format:

Bti (31 – 10)	Bit (9 – 0)
Protocol Specific	Common

7.4.1 Appendix - Session Status Common

Bit (0 - 31)	Hex Value	Description
Common Bits		
1	0x00000002	Error SU
2	0x00000004	Sequence Error
3	0x00000008	Retransmission
4	0x00000010	Incomplete
5	0x00000020	Session Timeout
6	0x00000040	Truncated
7	0x00000080	ForcedClosed
8	0x00000100	Failed

7.4.2 Appendix - Session Status Protocol Specific

For Protocol Specific Status Bits Tables please look at section 8 Appendix B – Protocol Specific for the desired protocol

7.5 Appendix - Session Status Extended

Bit (0 - 31)	Hex Value	Description
0	0x00000001	Idle TimedOut

7.6 Appendix - Transaction Status

The following table describes the possible bits describing the status of the current session.

NOTE: All the bits which are not mentioned are reserved.

Bit (0 - 31)	Hex Value	Description
0	0x00000001	Retransmission
1	0x00000002	Out of Sequence
2	0x00000004	Procedure Timeout
3	0x00000008	Incomplete
4	0x00000010	Failed Response

8 Appendix B – Protocol Specific

8.1 Appendix - XCAP Protocol

Status Bits from XCAP Layer's

Bit (0 - 31)	Hex Value	Description
No specific additional status bits defined for this protocol.		

Transaction Type from XCAP Layer's

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	GET	Get
5	PUT	Put
6	POST	Post
10	RESPONSE	Response

Code Type from XCAP Layer's

Code Type (integer)	Code (string)	Description (string)
1	HTTPCS	HTTP Cause
2	ErrCod	Error Code

HTTPCs Cause Type – Cause Codes: see section 8.7 Appendix - HTTP Protocol

ErrorCode Cause Type – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
1	NtWellFrmd	Not Well Formed
2	NtXMLFlg	Not XML Flag
3	NoPrnt	No Parent
4	SchmValdErr	Schema Validatin Error
5	NtXMLAttrVal	Not XML Attribute Value
6	CntIns	Cannot Insert
7	CntDlt	Cannot Delete
8	UniqFail	Uniqueness Failure
9	CnstrFail	Constraint Failure

Cause Value (integer)	Cause Code (string)	Cause Description (string)
10	Extension	Extension
11	NtUTF8	Not UTF8

8.2 Appendix - A11 Protocol

A11 Protocol – Status Bits

Bit (0 - 31)	Hex Value	Description
No specific additional status bits defined for this protocol.		

A11 Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	RegistrationRequest	Registration Request
2	RegistrationUpdate	Registration Update
3	SessionUpdate	Session Update
4	CapabilitiesInfo	Capabilities Information

A11 Protocol – Return Code Types

Type ID (integer)	Type (string)	Type Description (string)
1	Code	Code
2	Status	Status

A11 Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
0	Accepted	Registration Accepted
128	Unspecified	Registration Denied - reason unspecified
129	AdminProhibited	Registration Denied - Administratively prohibited
130	InsufficientResources	Registration Denied - Insufficient resources
131	ePCFAuthFailed	Registration Denied - ePCF failed authentication
133	IdMismatch	Registration Denied - identification mismatch
134	BadForm	Registration Denied - poorly formed request
136	UnknownPDSN	Registration Denied - Unknown PDSN address
137	RevTunnelUnavailable	Registration Denied - Requested reverse tunnel unavailable
138	TBitNotSet	Registration Denied - Reverse tunnel is mandatory and T bit not set
139	UnsupportedOption	Registration Denied - Service option not supported
140	NoCIDAvailable	Registration Denied - No CID available
141	UnsupportedVendor	Registration Denied - unsupported vendor ID or application type
142	NonexistFlow	Registration Denied - nonexistent A10 or IP flow

A11 Protocol – Status Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
1	PartialQoSUpdated	Partial QoS updated
128	Unspecified	Update Denied - reason unspecified
131	AuthFailed	Update Denied - sending node failed authentication
133	IdMismatch	Update Denied - identification mismatch
134	BadForm	Update Denied - poorly formed Registration Update
201	ParamNotUpdated	Update Denied - Session parameters not updated
202	PMK-NotRequested	Update Denied - PMK not requested
253	BadQoSProfileIId	Update Denied - QoS profileID not supported
254	InsufficientResources	Update Denied - insufficient resources
255	HandoffInProgress	Update Denied - Handoff in progress

8.3 Appendix – DHCP Protocol

DHCP Protocol – Status Bits

Bit (0 - 31)	Hex Value	Description
No specific additional status bits defined for this protocol.		

DHCP Protocol – Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	Discover	Discover
2	Request	Request
3	Inform	Inform
4	Decline	Decline
5	Release	Release
6	Response	Response

8.4 Appendix – DNS Protocol

DNS Protocol – Status Bits

Bit (0 - 31)	Hex Value	Description
No specific additional status bits defined for this protocol.		

DNS Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
0	QUERY	Standard Query
1	IQUERY	Inverse Query
2	STATUS	Server Status Procedure
4	NOTIFY	Notify Procedure
5	UPDATE	Update Procedure

DNS Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
0	NoErr	No Error
1	FmtErr	Format Error
2	SrvFail	Server Failure
3	NameErr	Name Error
4	NotImpl	Query Not Implemented
5	Refused	Operation Refused
6	YXDomain	Name Exists
7	YXRRSet	RR Set Exists
8	NXRRSet	RR Set Does Not Exist
9	NotAuth	Server Not Authoritative for Zone
10	NotZone	Name Not Contained in Zone

8.5 Appendix - GTP V1 Protocol

GTPV1 Protocol - StatusBits

Bit (0 - 31)	Hex Value	Description
Protocol Specific Bits		
9	0x000000200	Direct Tunnel
10	0x000000400	Suspend
11	0x000000800	MBMSSupport
12	0x000001000	Handover

GTP V1 Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	PDP-C	Create PDP Context
2	PDP-U	Update PDP Context
3	PDP-D	Delete PDP Context
4	ErrInd	Error Indication
5	PduNotify	Pdu Notification
6	PduNotifyRej	Pdu Notification Reject
7	InitPDPAct	Init PDP Activation
8	Echo	Echo
9	BadVers	Version Not Supported
10	SupportExtHdr	Support Ext Headers
11	SendRI	Send Routing Info
12	FailRep	Failure Report
13	MsGPRSPres	**Note** MsGPRS Present
14	MsID	Ms Identification
15	SGSNCtxt	SGSN Context
16	FwdReloc	Forward Relocation
17	FwdRelocComp	Forward Relocation Complete
18	RelocCancel	Relocation Cancel
19	FwdSRNCCtx	Forward SRNC Context
20	RanInfoRelay	RAN Information Relay
21	MsInfoChange	Ms Info Change

GTP V1 Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
128	Accept	Request Accepted
192	NonEx	Non-Existent
193	InvMsg	Invalid Message Format
194	UnkIMSI	Unknown IMSI
195	MSDetach	MS is GPRS Detached
196	MSRespond	MS is not GPRS Responding
197	MSRefuse	MS Refuses
198	BadVers	Version Not Supported
199	NoRes	No Resources Available
200	NotSupp	Service Not Supported
201	BadMIE	Mandatory IE Incorrect
202	MissMIE	Mandatory IE Missing
203	BadOIE	Optional IE Incorrect
204	SysFail	System Failure
205	RoamRestrict	Roaming Restriction
206	BadPTMSI	P-TMSI Signature Mismatch
207	ConnSuspend	GPRS Connection Suspended
208	AuthFail	Authentication Failure
209	UAuthFail	User Authentication Failure
210	NoCtxt	Context Not Found
211	NoAddr	All Dynamic PDP Addresses are Occupied
212	NoMem	No Memory Is Available
213	RelocFail	Relocation Failure
214	BadExt	Unknonwn Mandatory Extension Header
215	TFTSemErr	Semantic Error in TFT Operation
216	TFTSynErr	Syntactic Error in TFT Operation
217	PktSemErr	Semantic Errors in Packet Filter(s)
218	PktSynErr	Syntactic Errors in Packet Filter(s)
219	BadAPN	Missing or Unknown APN
220	BadPDP	Unknown PDP Address or PDP Type
221	PDPActive	PDP Context Without TFT Already Activated
222	NoAccess	APN Access Denied - No Subscription
223	APNIncompat	APN Restriction Incompatible with PDP Contexts
224	MBMSCap	MS MBMS Capabilities Insufficient
225	BadCID	Invalid Correlation-ID
226	MBMSCtxt	MBMS Bearer Context Superceded
227	BrrCtrlViol	Bearer Control Mode Violation
129	NewPDPType_NT	New PDP type due to network preference
130	NewPDPType_SingleBrr	New PDP type due to single address bearer only

Cause Value (integer)	Cause Code (string)	Cause Description (string)
228	NTReqCollision	Collision with network initiated request

8.6 Appendix - GTP V2 Protocol

GTPV2 Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
Protocol Specific Bits		
9	0x000000200	Direct Tunnel
10	0x000000400	Handover
11	0x000000800	Piggyback
12	0x000001000	CS Inidicator
13	0x000002000	SMS Inidicator

GTPV2 Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	Echo	Echo
2	BadVers	Version Not Supported
3	CrSess	Create Session
4	CrBrr	Create Bearer
5	BrrResCmd	Bearer Resource Command
6	BrrRecFail	Bearer Resource Failure Indication
7	ModBrr	Modify Bearer
8	DelSess	Delete Session
9	DelBrr	Delete Bearer
10	DLData	DL Data Notification
11	DLDataFail	DL Data Notification Failure Indication
12	CrIndDataFwd	Create Indirect Data Forwarding
13	DelIndDataFwd	Delete Indirect Data Forwarding
14	ModBrrCmd	Modify Bearer Command
15	ModBrrFailInd	Modify Bearer Failure Indication
16	UpdBrr	Update Bearer
17	DelBrrCmd	Delete Bearer Command
18	DelBrrFail	Delete Bearer Failure Indication
19	RelAccBrr	Release Access Bearer
20	StopPag	Stop Paging Indication
21	FwdRel	Forward Relocation
22	FwdRelComp	Forward Relocation Complete
23	RelCancel	Relocation Cancel

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
24	Context	Context
25	Id	Identification
26	FwdAccCtxt	Forward Access Context
27	Detach	Detach
28	ChngNotify	Change Notification
29	ConfXfer	Config Transfer Tunnel
30	RANInfo	RAN Information Relay
31	TraceAct	Trace Session Activation
32	TraceDeact	Trace Session Deactivation
33	Suspend	Suspend
34	Resume	Resume
35	CSPage	CS Paging
36	CrFwdTunnel	Create Forwarding Tunnel
37	UpdPDN	Update PDN Connection Set
38	DelPDN	Delete PDN Connection Set
43	SRVCCRequest	SRVCC PS to CS Request
44	SRVCCComplete	SRVCC PS to CS Complete
45	SRVCCCancel	SRVCC PS to CS Cancel

GTPV2 Protocol – Cause Codes

When protocol is GTPv2 and cause type = 0, Cause Code refers to GTPv2 protocols

When protocol is GTPv2 and cause type = 1, Cause Code refers to SRVCC protocols

Cause Code for GTPv2:

Cause Value (integer)	Cause Code (string)	Cause Description (string)
4	RATChange	RAT Changed from 3GPP to Non-3GPP
16	Accept	Request Accepted
17	Accept	Request Partially Accepted
18	NewPDN	New PDN Type (Network Preference)
19	NewPDN	New PDN Type (Single Address Bearer)
64	NoCtxt	Context Not Found
65	InvMsgFormat	Invalid Message Format
66	UnsupVers	Version Not Supported
67	InvLen	Invalid Length
68	UnsupSrvs	Service Not Supported
69	BadIE	Mandatory IE Incorrect
70	MissIE	Mandatory IE Missing
72	SysFail	System Failure
73	NoResource	No Resources Available
74	SemErrTFT	Semantic Error in TFT Operation
75	SynErrTFT	Syntactic Error in TFT Operation
76	SemErrFilt	Semantic Error in Packet Filter
77	SynErrFilt	Syntactic Error in Packet Filter
78	BadAPN	Missing or Unknown APN
79	UnexpIE	Unexpected Repeated IE
80	BadGREKey	GRE Key Not Found
81	RelocFail	Relocation Failure
82	DenyRAT	Denied in RAT
83	UnsupPDM	Preferred PDN Type Not Supported
84	NoDynAddr	All Dynamic Addresses Are Occupied
85	UECtxtActiv	UE Context Without TFT Already Activated
86	BadProtoType	Protocol Type Not Supported
87	UENoResp	UE Not Responding
88	UERefuse	UE Refuses
89	SrvDenied	Service Denied
90	UnablePage	Unable to Page UE
91	NoMem	No Memory Available
92	AuthFail	User Authentication Failed
93	APNAccess	APN Access Denied - No Subscription
94	ReqReject	Request Rejected
95	PTMSISig	P-TMSI Signature Mismatch
96	UnkIMSI	IMSI Not Known
97	SemErrTAD	Semantic Error in TAD Operation
98	SynErrTAD	Syntactic Error in TAD Operation
99	RsrvMsg	Reserved Message Value Received

Cause Value (integer)	Cause Code (string)	Cause Description (string)
100	NoResp	Remote Peer Not Responding
101	Collision	Collision With Network Initiated Request
102	UnablePage	Unable to Page UE Due to Suspension
103	MissIE	Conditional IE Missing
104	IncompatAPN	APN Restriction Type Incompatible With PDN Connection
105	BadMsgLen	Invalid Overall Length of Triggered Response and Piggybacked Init Msg
106	DataFwd	Data Forwarding Not Supported
107	BadReply	Ivalid Reply From Remote Peer
108	FlbkToGTPv1	Fallback To GTPv1
109	InvPeer	Invalid Peer
110	TmpRejHdvrProc	Temporarily Rejected - Handover Procedure In Progress
111	ModNtLmtToS1UBrr	Modifications Not Limited To S1-U Bearers
112	ReqRejPMIPv6Rsn	Request Rejected for a PMIPv6 reason
113	APNCong	APN Congestion
114	BrrHdlNtSprt	Bearer Handling Not Supported
115	UEReatch	UE Already Re-attached
116	MultiPDNConnNtAlw	Multiple PDN Connections for a Given APN Not Allowed

Cause Code for SRVCC:

Cause Value (integer)	Cause Code (string)	Cause Description (string)
0	Reserved	Reserved
1	Unspecified	Unspecified
2	HOCancelled	Handover/Relocation cancelled by source system
3	HOTargFail	Handover/Relocation Failure with Target system
4	HOTargNotAllow	Handover/Relocation Target not allowed
5	UnkTargID	Unknown Target ID
6	NoTargCell	Target Cell not available
7	NoRadioRes	No Radio Resources Available in Target Cell
8	RadioFail	Failure in Radio Interface Procedure
9	PermLegErr	Permanent session leg establishment error
10	TempLegErr	Temporary session leg establishment error

8.7 Appendix - HTTP Protocol

HTTP Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
No Protocol Specific Bits		

HTTP Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	GET	GET
2	POST	POST
3	OPTIONS	OPTIONS
4	HEAD	HEAD
5	PUT	PUT
6	DELETE	DELETE
7	TRACE	TRACE
8	CONNECT	CONNECT

HTTP Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
100	100	Continue
101	101	Switching Protocol
102	102	Processing
200	200/OK	OK
201	201	Created
202	202	Accepted
203	203	Non-Authoritative Information
204	204	No Content
205	205	Reset Content
206	206	Partial Content
207	207	Multi-Status
300	300	Multiple Choices
301	301	Moved Permanently
302	302	Found
303	303	See Other
304	304	Not Modified
305	305	Use Proxy
306	306	Switch Proxy

Cause Value (integer)	Cause Code (string)	Cause Description (string)
307	307	Temporary Redirect
400	400	Bad Request
401	401	Unauthorized
402	402	Payment Required
403	403	Forbidden
404	404	Not Found
405	405	Method Not Alowed
406	406	Not Acceptable
407	407	Proxy Authentication Required
408	408	Request Timeout
409	409	Conflict
410	410	Gone
411	411	Length Required
412	412	Precondition Failed
413	413	Request Entity Too Large
414	414	Request-URI Too Long
415	415	Unsupported Media Type
416	416	Requested Range Not Satisfiable
417	417	Expectation Failed
418	418	I'm a Teapot
422	422	Unprocessable Entity
423	423	Locked
424	424	Failed Dependency
425	425	Unordered Collection
426	426	Upgrade Required
449	449	Retry With
500	500	Internal Server Error
501	501	Not Implemented
502	502	Bad Gateway
503	503	Service Unavailable
504	504	Gateway Timeout
505	505	HTTP Version Not Supported
506	506	Variant Also Negotiates
507	507	Insufficient Storage
509	509	Bandwidth Limit Exceeded
510	510	Not Extended
511	511	Internal Error

8.8 Appendix - POP3 Protocol

POP3 Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
No Protocol Specific Bits		

POP3 Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	USER	USER
2	PASS	PASS
3	QUIT	QUIT
4	STAT	STAT
5	LIST	LIST
6	RETR	RETR
7	DELE	DELE
8	NOOP	NOOP
9	RSET	RSET
10	APOP	APOP
11	TOP	TOP
12	UIDL	UIDL
13	AUTH	AUTH
14	CAPA	CAPA
15	STLS	STLS

POP3 Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
1	+OK	+OK
2	-ERR	-ERR

8.9 Appendix - RADIUS Protocol

RADIUS Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
Protocol Specific Bits		
9	0x000000100	Reject
10	0x000000200	Challenge
11	0x000000400	DisconnectNak

RADIUS Protocol - Transactions

Transaction Type	Transaction Code	Transaction Description
1	Access	Access
2	AccntStart	Accounting Start
3	AccntStop	Accounting Stop
4	AccntUpdate	Accounting Interim Update
5	AccntDisc	Accounting Disconnect
6	AccntOn	Accounting On
7	AccntOff	Accounting Off
8	Accnt	Accounting

RADIUS Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
1	UserReq	User Request
2	LostCarr	Lost Carrier
3	LostServ	Lost Service
4	IdleTO	Idle Timeout
5	SessTO	Session Timeout
6	AdmReset	Admin Reset
7	AdmReboot	Admin Reboot
8	PortErr	Port Error
9	NASErr	NAS Error
10	NASReq	NAS Request
11	NASReboot	NAS Reboot
12	PortUnneed	Port Unneeded

Cause Value (integer)	Cause Code (string)	Cause Description (string)
13	PortPreempt	Port Preempted
14	PortSusp	Port Suspended
15	ServUnavail	Service Unavailable
16	Callback	Callback
17	UserErr	User Error
18	HostReq	Host Request
201	CtxtRemove	Residual Session Context Removed
202	InvalidEAP	Invalid EAP Packet (Ignored)
401	UnsuppAttr	Unsupported Attribute
402	MissAttr	Missing Attribute
403	BadNASId	NAS Identification Mismatch
404	BadReq	Invalid Request
405	UnsuppServ	Unsupported Service
406	UnsuppExt	Unsupported Extension
501	Prohibit	Administratively Prohibited
502	NonRout	Request Not Routable (Proxy)
503	NoCtxt	Session Context Not Found
504	CtxtNotRem	Session Context Not Removable
505	ProxyErr	Other Proxy Processing Error
506	ResUnavail	Resources Unavailable
507	ReqInit	Request Initiated

8.10 Appendix - RTSP Protocol

RTSP Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
Protocol Specific Bits		
9	0x000000100	ClientError
10	0x000000200	ServerError
11	0x000000400	Redirect

RTSP Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	ANN	Announce
2	DESC	Describe
3	EXT	Extension
4	GET	Get Parameter
5	OPT	Options
6	PAUSE	Pause
7	PLAY	Play
8	REC	Record
9	REDIR	Redirect
10	SET	Set Parameter
11	SETUP	Setup
12	TEARD	Teardown
13	RESP	Response With No Request

RTSP Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
100	Continue	Continue
200	OK	OK
201	Created	Created
250	250	Low on Storage Space
300	300	Multiple Choices
301	301	Moved Permanently
302	302	Moved Temporarily
303	303	See Other
304	304	Not Modified
305	305	Use Proxy
400	400	Bad Request
401	401	Unauthorized
402	402	Payment Required
403	403	Forbidden
404	404	Not Found
405	405	Method Not Allowed
406	406	Not Acceptable
407	407	Proxy Authentication Required
408	408	Request Timeout
410	410	Gone
411	411	Length Required
412	412	Precondition Failed
413	413	Request Entity Too Large
414	414	Request-URI Too Large
415	415	Unsupported Media Type
451	451	Parameter Not Understood
452	452	Conference Not Found
453	453	Not Enough Bandwidth
454	454	Session Not Found
455	455	Method Not Valid in This State
456	456	Header Field Not Valid for Resource
457	457	Invalid Range
458	458	Parameter Is Read-Only
459	459	Aggregate Operation Not Allowed
460	460	Only Aggregate Operation Allowed
461	461	Unsupported Transport
462	462	Destination Unreachable
463	463	Destination Prohibited
464	464	Data Transport Not Ready Yet
465	465	Notification Reason Unknown

Cause Value (integer)	Cause Code (string)	Cause Description (string)
466	466	Key Management Error
470	470	Connection Authorization Required
471	471	Connection Credentials Not Accepted
472	472	Failure To Establish Secure Connection
500	500	Internal Server Error
501	501	Not Implemented
502	502	Bad Gateway
503	503	Service Unavailable
504	504	Gateway Timeout
505	505	RTSP Version Not Supported
551	551	Option Not Supported

RTSP/STUN Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
Protocol Specific Bits		
1	0x00000001	Success
2	0x00000002	Failed Response
1 and 2	0x00000003	Incomplete
3	0x00000004	Procedure Time Out

RTSP/STUN Protocol - Transactions

Transaction Type (integer)	Transaction Code (integer)	Transaction Description (string)
21	21	Binding
22	22	Binding Indication

RTSP/STUN Protocol – Cause Codes

Cause Type (G10, GeoBlade) (integer)	Cause Code (G10, GeoBlade) (integer)	UpTransactionInfo:CauseCode (integer)	Cause Description (string)
1 (Error Code)	300	65836	Try Alternate
1 (Error Code)	400	65936	Bad Request

Cause Type (G10, GeoBlade) (integer)	Cause Code (G10, GeoBlade) (integer)	UpTransactionInfo:CauseCode (integer)	Cause Description (string)
1 (Error Code)	401	65937	Unauthorized
1 (Error Code)	420	65956	Unknown Attribute
1 (Error Code)	438	65974	Stale Nonce
1 (Error Code)	500	66036	Server Error

8.11 Appendix - SMTP Protocol

SMTP Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
No Protocol Specific Bits		

SMTP Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	HELO	HELO
2	EHLO	EHLO
3	AUTH	AUTH
4	MAIL	MAIL
5	RCPT	RCPT
6	DATA	DATA
7	RSET	RSET
8	SEND	SEND
9	SOML	SOML
10	SAML	SAML
11	VRFY	VRFY
12	EXPN	EXPN
13	HELP	HELP
14	NOOP	NOOP
15	QUIT	QUIT
16	TURN	TURN

SMTP Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
200	200	Nonstandard Success Response
211	211	System Status, or System Help Reply

Cause Value (integer)	Cause Code (string)	Cause Description (string)
214	214	Help Message
220	220	Service Ready
221	221	QUIT Reply Service Closed
235	235	AUTH Reply Succeeded
250	250	Requested Mail Action OK
251	251	User Not Local, Forwarded
252	252	Cannot VRFY User But Delivery Attempted
334	334	AUTH Update
354	354	Start Mail Input
421	421	Service Not Available
450	450	Mailbox Unavailable
451	451	Local Error in Processing
452	452	Insufficient System Storage
455	455	Server Unable to Accommodate Parameters
500	500	Syntax Error, Command Unrecognised
501	501	Syntax Error in Parameters or Arguments
502	502	Command Not Implemented
503	503	Bad Sequence of Commands
504	504	Command Parameter Not Implemented
521	521	Domain Does Not Accept Mail
530	530	Access Denied
550	550	Mailbox Unavailable
551	551	User Not Local
552	552	Exceeded Storage Allocation
553	553	Mailbox Name Not Allowed
554	554	Transaction Failed
555	555	MAIL FROM/RCPT TO Parameters Not Recognized or Not Implemented

8.12 Appendix - WSP/WAP Protocol

WSP/WAP Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
No Protocol Specific Bits		

WSP/WAP Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	CONN	CONNECT
2	DISCONN	DISCONNECT
3	PUSH	PUSH
4	CONFPUSH	CONFIRMEDPUSH
5	SUS	SUSPEND
6	RES	RESUME
7	GET	GET
8	OPT	OPTIONS
9	HEAD	HEAD
10	DEL	DELETE
11	TRACE	TRACE
12	POST	POST
13	PUT	PUT

WSP/WAP Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
16	Cont	Continue
17	Switch	Switching Protocols
32	OK	OK, Success
33	Created	Created
34	Accepted	Accepted
35	NonAuth	Non-Authoritative Information
36	NoCont	No Content
37	RstCont	Reset Content
38	PartCont	Partial Content
48	Mult	Multiple Choices
49	MovedPerm	Moved Permanently
50	MovedTemp	Moved Temporarily
51	SeeOther	See Other
52	NotMod	Not Modified
53	UseProxy	Use Proxy
54	Resrv	Reserved

Cause Value (integer)	Cause Code (string)	Cause Description (string)
55	TempRedir	Temporary Redirect
64	BadReq	Bad Request
65	Unauth	Unauthorized
66	PayReq	Payment Required
67	Forbid	Forbidden
68	NotFound	Not Found
69	BadMeth	Method Not Alowed
70	Unacc	Not Acceptable
71	ProxyAuth	Proxy Authentication Required
72	TO	Request Timeout
73	Conflict	Conflict
74	Gone	Gone
75	LenReq	Length Required
76	PrecFail	Precondition Failed
77	TooLarge	Request Entity Too Large
78	LongURI	Request-URI Too Long
79	UnsuppMedia	Unsupported Media Type
80	BadRange	Requested Range Not Satisfiable
81	ExpectFail	Expectation Failed
96	ServErr	Internal Server Error
97	NotImpl	Not Implemented
98	BadGw	Bad Gateway
99	ServUnavail	Service Unavailable
100	GwTO	Gateway Timeout
101	UnsuppHTTP	HTTP Version Not Supported

WSP/WAP Protocol – Response Codes

Response Code Types:

Type ID (integer)	Type (string)	Type Description (string)
0	Type 0	WSP Status
1	Type 1	Provider Cause
2	Type 2	

Response Code Types (integer)	**Response Codes ID (integer)**	**Response Codes Description (string)**
0	16	Continue
0	17	Switching Protocols
0	32	OK
0	33	Created

Response Code Types (integer)	Response Codes ID (integer)	Response Codes Description (string)
0	34	Accepted
0	35	Non-Authoritative Information
0	36	No Content
0	37	Reset Content
0	38	Partial Content
0	48	Multiple Choices
0	49	Moved Permanently
0	50	Moved Temporarily
0	51	See Other
0	52	Not Modified
0	53	Use Proxy
0	54	Reserved
0	55	Temporary Redirect
0	64	Bad Request
0	65	Unauthorized
0	66	Payment Required
0	67	Forbidden
0	68	Not Found
0	69	Method Not Allowed
0	70	Not Acceptable
0	71	Proxy Authentication Required
0	72	Request Timeout
0	73	Conflict
0	74	Gone
0	75	Length Required
0	76	Precondition Failed
0	77	Request Entity Too Large
0	78	Request-URI Too Long
0	79	Unsupported Media Type
0	80	Requested Range Not Satisfiable
0	81	Expectation Failed
0	96	Internal Server Error
0	97	Not Implemented
0	98	Bad Gateway
0	99	Service Unavailable
0	100	Gateway Timeout
0	101	HTTP Version Not Supported
1	0	Unknown
1	1	Protocol Error
1	2	Invalid TID
1	3	Not Implemented Class 2

Response Code Types (integer)	Response Codes ID (integer)	Response Codes Description (string)
1	4	Not Implemented SAR
1	5	Not Implemented User Acknowledgement
1	6	WTP Version One
1	7	Capacity Temporarily Exceeded
1	8	No Response
1	9	Message Too Large
1	10	Not Implemented Extended SAR
2	224	Protocol Error
2	225	Session Has Been Disconnected
2	226	Session Has Been Suspended
2	227	Session Has Been Resumed
2	228	Peer Is Congested
2	229	Session Connect Failed
2	230	Maximum Receive Unit Was Exceeded
2	231	Maximum Outstanding Requests Was Exceeded
2	232	Peer Request
2	233	Network Error
2	234	User Request
2	235	User Refuse Push Message
2	236	Push Message Cannot Delivered to Intended Destination
2	237	Push Message Discarded Due to Resource Shortage
2	238	Content Type of Push Cannot Be Processed

8.13 Appendix - MMS Protocol

SMTP Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
No Protocol Specific Bits		

MMS Protocol – Response Codes

Response Code Types:

Type ID (integer)1	Type (string)	Type Description (string)
1	Type 1	X-Mms-Response-Status
2	Type 2	X-Mms-Status
3	Type 3	X-Mms-Retrieve-Status
4	Type 4	X-Mms-Read-Status
5	Type 5	X-Mms-Store-Status
6	Type 6	X-Mms-Cancel-Status

7	Type 7	Provider Cause i.e. WTP abort reason
8	Type 8	User Cause i.e. WSP abort reason

Response Code Types (integer)	Response Codes ID (integer)	Response Codes Description (string)
0	0	No Response Code
1	128	Response Status OK
1	136	Response Unsupported Message
1	192	Response Transient Failure
1	193	Response Transient Sending Address Unresolved
1	194	Response Transient Message Not Found
1	195	Response Transient Network Problem
1	196	Response Transient Partial Success
1	224	Response Permanent Failure
1	225	Response Permanent Service Denied
1	226	Response Permanent Message Format Corrupt
1	227	Response Permanent Sending Address Unresolved
1	228	Response Permanent Message Not Found
1	229	Response Permanent Content Not Accepted
1	230	Response Permanent Reply Charging Limit Not Met
1	231	Response Permanent Reply Charging Request Not Accepted
1	232	Response Permanent Reply Charging Forwarding Denied
1	233	Response Permanent Reply Charging Not Supported
1	234	Response Permanent Address Hiding Not Supported
1	235	Response Permanent Lack of Prepaid
2	128	Status Expired
2	129	Status Retrieved
2	130	Status Rejected
2	131	Status Deferred
2	132	Status Unrecognized
2	133	Status Indeterminate
2	134	Status Forwarded
2	135	Status Unreachable
3	128	Retrieve Status OK
3	192	Retrieve Transient Failure
3	193	Retrieve Transient Message Not Found
3	194	Retrieve Transient Network Problem
3	224	Retrieve Permanent Failure
3	225	Retrieve Permanent Service Denied
3	226	Retrieve Permanent Message Not Found
3	227	Retrieve Permanent Content Not Supported

Response Code Types (integer)	Response Codes ID (integer)	Response Codes Description (string)
4	128	Read Status is Read
4	129	Read Status is Deleted Without Being Read
5	128	Store Status is Success
5	192	Store Transient Failure
5	193	Store Transient Network Problem
5	224	Store Permanent Failure
5	225	Store Permanent Service Denied
5	226	Store Permanent Message Format Corrupt
5	227	Store Permanent Message Not Found
5	228	Store Permanent MMbox Full
6	128	Cancel Status is Success
6	129	Cancel Request Corrupted
7	0	Unknown
7	1	Protocol Error
7	2	Invalid TID
7	3	Not Implemented Class 2
7	4	Not Implemented SAR
7	5	Not Implemented User Acknowledgement
7	6	WTP Version One
7	7	Capacity Temporarily Exceeded
7	8	No Response
7	9	Message Too Large
7	10	Not Implemented Extended SAR
8	224	Protocol Error
8	225	Session Has Been Disconnected
8	226	Session Has Been Suspended
8	227	Session Has Been Resumed
8	228	Peer Is Congested
8	229	Session Cannot Failed
8	230	Maximum Receive Unit Was Exceeded
8	231	Maximum Outstanding Requests Was Exceeded
8	232	Peer Request
8	233	Network Error
8	234	User Request
8	235	User Refuse Push Message
8	236	Push Message Cannot Delivered to Intended Destination
8	237	Push Message Discarded Due to Resource Shortage
8	238	Content Type of Push Cannot Be Processed

8.14 Appendix - IWSF Protocol

IWSF Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
No Protocol Specific Bits		

IWSF Protocol - Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	ReserveImpi	Reserve IMPI request & response
2	ComputeChallenge	User credentials request & response
3	GetSubscriber	Get Subscriber request & response
4	ReleaseImpi	Release IMPI request & response
5	AddNewE911Address	Add New e911 Address request & response
6	Response	If HTTP request message been lost

For IWSF protocol the parameter Cause Type can have the following values:

Cause type = 1 means HTTP response cause;

Cause type = 2, means IWSF response cause.

The range of cause value for HTTP is: 100-511; see section 8.7 Appendix - HTTP Protocol

IWSF Cause Type – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
101	No Header	Cannot extract MSISDN from a header or no header
102	Processing Error	LDAP processing Error
103	Subscriber not Found	LDAP Record not found
104	Too many Active Sessions	No available IMPI – all assigned
105	Processing Error	DS is unresponsive
106	Authentication Data Not Found	Cannot extract RAND, AUTN from a message body
107	Network Authentication Failure	Network validation failure
108	Credentials Data Not Found	Cannot extract IMPI, IMPU from a message body
109	E911 Address Data Not Found	Cannot extract address from the payload

8.15 Appendix - LDAP Protocol

LDAP Protocol – Status Bits

Bit (0 - 31)	Hex Value	Description
No specific additional status bits defined for this protocol.		

LDAP Protocol – Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	Bind	Bind
2	Unbind	Unbind
3	Search	Search
4	Modify	Modify
5	Add	Add
6	Delete	Delete
7	ModifyDN	Modify DN
8	Compare	Compare
9	Abandon	Abandon
10	Extended	Extended
11	Intermediate	Intermediate
12	UnsolicNotif	Unsolicited Notification
13	StartTLS	Start TLS
14	NoticeOfDisconn	Notice Of Disconnection
15	Cancel	Cancel

LDAP Protocol – Cause Codes

Cause Value (integer)	Cause Code (string)	Cause Description (string)
0	Success	Success
1	OperationsErr	Operations Error
2	ProtocolErr	Protocol Error
3	TimeLimitExceed	Time Limit Exceeded
4	SizeLimitExceed	Size Limit Exceeded
5	CompareFalse	Compare False
6	CompareTrue	Compare True
7	AuthMethNotSupp	Auth Method Not Supported
8	StrongAuthReq	Stronger Auth Required
9	ReferV2	Referral V2
10	Referral	Referral

Cause Value (integer)	Cause Code (string)	Cause Description (string)
11	AdmLimitExceed	Admin Limit Exceeded
12	UnavailCriticExt	Unavailable Critical
13	ConfidentReq	Confidentiality Required
14	SaslBindInProg	Sasl Bind in Progress
16	NoSuchAttr	No Such Attribute
17	UndefAttrType	Undefined Attribute
18	InappropMatch	Inappropriate Matching
19	ConstraintViolat	Constraint Violation
20	AttrOrValExist	Attribute or Value Exists
21	InvalAttrSyn	Invalid Attribute Syntax
32	NoSuchObject	No Such Object
33	AliasProblem	Alias Problem
34	InvalidDNSyn	Invalid DN Syntax
35	IsLeaf	Is Leaf
36	AliasDerefProb	Alias Dereferencing Problem
48	InappropAuth	Inappropriate Authentication
49	InvalCredential	Invalid Credentials
50	InsuffAccessRight	Insufficient Access Rights
51	Busy	Busy
52	Unavailable	Unavailable
53	UnwillToPerf	Unwilling to Perform
54	LoopDetect	Loop Detect
64	NamingViolat	Naming Violation
65	ObjClassViolat	Object Class Violation
66	NotAllowOnNonleaf	Not Allowed on Nonleaf
67	NotAllowOnRDN	Not Allowed on RDN
68	EntryAlrdyExist	Entry Already Exists
69	ObjClassModsProh	Object Class Mods Prohibited
70	ResTooLarge	Results Too Large
71	AffectMultiDSA	Affects Multiple DSAs
80	Other	Other
81	ServerDown	Server Down
82	LocalError	Local Error
83	EncodingErr	Encoding Error
84	DecodingErr	Decoding Error
85	TimeOut	Time Out
86	AuthUnknown	Auth Unknown
87	FilterError	Filter Error
88	UserCancelled	UserCancelled
89	ParamError	Param Error
90	NoMemory	No Memory

Cause Value (integer)	Cause Code (string)	Cause Description (string)
91	ConnectError	Connect Error
92	NotSupported	Not Supported
93	CtrlNotSupp	Control Not Supported
94	NoResultsRet	No Results Returned
95	MoreResToRet	More Results to Return
96	ClientLoop	Client Loop
97	ReferLimitExceed	Referral Limit Exceeded
118	Canceled	Canceled
119	NoSuchOper	No Such Operation
120	TooLate	Too Late
121	CannotCancel	Cannot Cancel

8.16 Appendix – PMIPV6 Protocol

PMIPV6 Protocol – StatusBits

Bit (0 - 31)	Hex Value	Description
No Protocol Specific Bits		

PMIPV6 Protocol – Transactions

Transaction Type (integer)	Transaction Code (string)	Transaction Description (string)
1	PrxBndUpdt	Proxy Binding Update
2	PrxBndRvoc	Proxy Binding Revocation

PMIPV6 Protocol – Response Codes

Response Code Types:

Type ID (integer)	Type (string)	Type Description (string)
1	PBAStatus	PBA Status (Binding Update Acknowledgement status
2	BRAStatus	BRA Status (Binding Revocation Acknowledgement status)

PMIPV6 Protocol – Response Code Id

Response Code Types = PBAStatus

Cause Value (integer)	Cause Code (string)	Cause Description (string)
0	PrxBndUpdtAcpt	Proxy Binding Update Accepted
1	AcptPrfxDscvNcss	Accepted but Prefix Discovery Necessary
128	RsnUnspec	Reason Unspecified
129	AdminProh	Administratively Prohibited
130	InsufRsrc	Insufficient Resources
131	HmRegNtSprt	Home Registration Not Supported
132	NtHmSubnet	Not Home Sub-Network
133	NtHmAgt	Not Home Agent for this Mobile Node
134	DupAddrDtctFail	Duplicate Address Detection Failed
135	SeqNumOoW	Sequence Number Out of Window
136	ExpHmNI	Expired Home Nonce Index
137	ExpCNI	Expired Care-of Nonce Index
138	ExpNnc	Expired Nonces
139	RegTyChgNtAlw	Registration Type Change Not Allowed
151	SrvcAuthrFail	Service Authorization Failed
152	PrxRegDsab	Proxy Registration Not Enabled
153	NotLMA	Not LMA for this Mobile Node
154	MAGNtAuthrPrxReg	MAG Not Authorized for Proxy Registration
155	NtAuthrPrfx	Not Authorized for Home Network Prefix
156	Tmstp Msmch	Timestamp Mismatch
157	LwrTmstp	Timestamp Lower than Previous Accepted
158	HmNetPrfxMiss	Missing Home Network Prefix Option
159	BCE-PBUPrfxSetNtMch	BCE PBU Prefix Set Not Match
160	MissMNIdfOpt	Missing MN Identifier Option
161	MissHOIndOpt	Missing Handoff Indicator Option
162	MissAcsTechTy	Missing Access Tech Type Option

Response Code Types = BRAStatus

Cause Value (integer)	Cause Code (string)	Cause Description (string)
0	Success	Success
1	PrtlSucc	Partial Success
2	BndNtXst	Binding Does Not Exist
3	IPv4HoABndNtXst	IPv4 HoA Binding Does Not Exist
4	GlobRvocNtAuthr	Global Revocation Not Authorized
5	CntIdfBnd	Cannot Identify Binding
6	RvocFailMNAtch	Revocation Failed MN Is Attached
128	BndNtXst	Binding Does Not Exist
129	IPv4AddrOptReqr	IPv4 Home Address Option Required
130	GlobRvocNtAuthr	Global Revocation Not Authorized

Cause Value (integer)	Cause Code (string)	Cause Description (string)
131	RvkMN-IDReqr	Revoked Mobile Nodes ID Required
132	RvocFailMNAtch	Revocation Failed MN Is Attached
133	RvocTrigNtSprt	Revocation Trigger Not Supported
134	RvocFuncNtSprt	Revocation Function Not Supported
135	PrxBndRvocNtSprt	Proxy Binding Revocation Not Supported