

**Signaling Server Document**

**Version 0.7**

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Elitecore Solution Proposal (V1.0)

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1. Introduction

This document contains the description of the process, which is expected to run on Mediation system

Distribution of CDR Files

The file will be uploaded on the CEIR system as and when generated at mediation end. CEIR team would create a SFTP account on signalling server. The ftp would happen on the virtual IP. There are 2 CEIR signalling servers. So the file will be copied on the server hosting the virtual IP. There will be process running on the CEIR Servers which will replicate the files to the other server.

1. System Overview

## Objective

This document objective is to list down the requirement and the logic for the downstream data to CEIR system from Mediation System and to specify the CDR file distribution methodology for load balancing.

## CDR Processing

The following document section explains the desired output from the Mediation system for CEIR system.



### Requirement

Mediation system is required to perform the following operations

1. CDR from multiple nodes from an Operator and all operator to be provided in the single format
2. As a deviation, the format for Smart IMS would be different and explained in Annex A along with the processing logic

### Expected CDR file format

CEIR team will create a folder on the CEIR signaling server in following nomenclature when the files are uploaded by Sterlite Mediation System. Therefore, the mechanism would be push where file is pushed to CEIR as and when created on mediation system.

* Mediation / <operator name> / <source type>/ files.
* Source type would be as per table below
* Mediation will share all the 5 fields as input.

File Name Convention : The file name as received from operator would be shared with CEIR.

* Header: The file is expected to have valid pre-defined column names. If the column names are not proper, the process reading the file will throw an error.

### Input

The CEIR system primarily requires capturing the IMEI, IMSI and MSISDN information from the CDR for its data building activity. For this purpose the sample source data provided by Sterlite team was analysed to pick the data from CDR in a way which gives maximum output (i.e. ensure that CEIR system gets the required information most of the time from each record present in the CDR file).

The list of 19 sources is identified out of the 40 sources shared. Please refer to section 2.4 of this document for the same.

2. Populate the CDR files for the identified 19 sources with the specified 5 fields as mentioned below

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| recordType | Identifies the type of service for which the record was created. The expected record type information is highlighted in this section below the table |
| servedIMEI | The calling device IMEI |
| servedIMSI | The IMSI of the calling device |
| servedMSISDN | The number of the calling party |
| systemType | Identifies system type |

Table 1: List of fields required

Please refer to section 2.4 of this document for the expected field name source wise for the above-mentioned fields.

There might be slight change in field name when data is extracted from the CDR. The exact field mapping of CDR with the required field name above is provided in 2.4

3. This is applicable for all sources except IMS node of Smart operator. For this, kindly refer to Annex A

## CDR Files Distribution

The Mediation server can configure FTP server based on the operator name and source. Multiple ftp servers can be configured. For now, only one FTP server will be configured..

SFTP virtual IP Address is 172.24.3.90 and port is 22.

## List of Sources

The current list of identified sources is as follows.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sr #** | **Operator** | **Source** | **IMEI** | **IMSI** | **MSISDN** | **record\_type** | **system\_type** |
| 1 | Smart | sm\_ims | Y | NA | Y | Y | NA |
| 2 | Smart | sm\_msc01 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 3 | Smart | sm\_msc02 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 4 | Smart | sm\_sgsn | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (ratType) |
| 5 | Smart | sm\_SGW | Y (servedIMEISV) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (RatType) |
| 6 | Metfone | mf\_msc10 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 7 | Metfone | mf\_msc11 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 8 | Metfone | mf\_msc14 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 9 | Metfone | mf\_msc15 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 10 | Metfone | mf\_msc16 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 11 | Metfone | mf\_msc09 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 12 | Metfone | mf\_sgsn1 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (ratType) |
| 13 | Seatel | st\_p\_gw | Y (servedIMEISV) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (rattype) |
| 14 | Cellcard | cc\_ggsn | Y (servedIMEISV) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (rattype) |
| 15 | Cellcard | cc\_zmsc71 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 16 | Cellcard | cc\_zmsc72 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 17 | Cellcard | cc\_zmsc73 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 18 | Cellcard | Cc\_msc02 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |
| 19 | Cellcard | Cc\_msc03 | Y (servedIMEI) | Y (servedIMSI) | Y (servedMSISDN) | Y(recordType) | Y (systemType) |

Table 2: List of data-sources

**NOTE:** For SMART IMS source, the fields mapping from the data received from CDR is mentioned in Annex A.

This list is as per discussion and currently availability of sources. When new source from existing operator or new operator is identified, it will be added in the list.

Annex A

For the smart IMS, the header data format would be as follows:

role-of-Node,private-User-Equipment-Info-Type,private-User-Equipment-Info-Value,subscriptionIDType,subscriptionIDData,callingTELURI,calledTELURI,accessNetworkInformation,SIP\_method, serviceType, associatedPartyAddress

Sample record value is as follow:

0,iMEI,86779104-943251-0,eND-USER-IMSI,456061526963222,tel:+85515650177,tel:+85516270550,3GPP-E-UTRAN;utran-cell-id-3gpp=45606000D00E6414;"sbc-domain=sbc.tkkpcscf01.ims.mnc006.mcc456.3gppnetwork.org";"ue-ip=10.24, BYE,,

The interpretation of header value is as follows

|  |  |
| --- | --- |
| **Field Name** | **Description** |
| role-of-Node | 0 signify MO call/sms and 1 signify MT call/sms |
| private-User-Equipment-Info-Type | The value should be imei |
| private-User-Equipment-Info-Value | The value of IMEI. This value contains the dash character ( –) which should be removed |
| subscriptionIDType | The value should be eND-USER-IMSI |
| subscriptionIDData | This parameter contain the IMSI value |
| callingTELURI | This parameter contains the calling numbers in SIP Tel format. |
| calledTELURI | This parameter contains the called numbers in SIP Tel format. |
| accessNetworkInformation | This parameter contain the system type |
| SIP\_method | This parameter contain the SIP method like BYE, INVITE |
| serviceType | This parameter if present may contain multiple # separated values. CEIR is interested in value as 6 which denotes CDIV ( call diversion aka call forwarding service) |
| associatedPartyAddress | If the service Type is 6, then this parameter contain the actual B party address on whose behalf the call is being orginated by MSC |

Rule logic.

* Pick only those record where private-User-Equipment-Info-Value has value as IMEI
* Remove dash (-) in the private-User-Equipment-Info-Value while processing
* If value of subscriptionIDType field is imsi, then only populate imsi field in the CDR
* If the value of role-of-node = 0, then msisdn is populated from callingTELURI field
* If the value of role-of-node = 1, then msisdn is populated from calledTELURI field
* Pick only numeric value in callingTELURI and calledTELURL. Kindly convert into E.164 format number from SIP format number
* The value of system\_type is the first set of character till ;. So in case the value is “3GPP-E-UTRAN;utran-cell-id-3gpp=45606000D00E6414;"sbc-domain=sbc.tkkpcscf01.ims.mnc006.mcc456.3gppnetwork.org";"ue-ip=10.24” the system type is 3GPP-E-UTRAN

