

2012

Client Confidential

SMS Call Detail Records(CDR)

*Version 2.2.2
December 17, 2014*

Omobio
OPEN MOBILE I/O



1 Table of Contents

1. INTRODUCTION.....	3
1.1. STATISTIC CDR	3
1.1.1. STATISTIC CDR FILED DESCRIPTION	5
2. CDR ANALYZER.....	15
2.1. CDR SEARCH FEATURES	16
2.1.1. PAGING Support	16
2.1.2. DOUBCLICK Zooming Support.....	16
2.1.3. DOWNLOAD Support	16
3. ANNEXURE.....	17
3.1.1. ESM_CLASS VALUES.....	17
3.2. HTTP API ERROR CODES.....	18

1. INTRODUCTION

This guide explains the different types of SMS Broadcast generated CDR types. CDR files are rotated based on configurable file sizes and time durations. In order to reduce space taken for old logs, system can archive and maintain CDRs in Gzip format in the system, until those are discarded after a predefined age.

1.1. STATISTIC CDR

SMS broadcast platform generates Statistic CDR which are in plain text format (CSV) and used for

- *Check the status of SMS*
- *Troubleshooting purposes*
- *SMS Charging*
- *Identify illegal SMS terminating entities*
- *System performance analysis – KPIs*

The system generates 9 types of statistic CDR events;

1. *Alert From HLR*
2. *Short Message Expired*
3. *Status Report*
4. *Not Assign*
5. *Short Message Delivered/SMPP Deliver SM*
6. *Temporary Failure*
7. *Permanent Failure – SMS Discarded*
8. *Submitted/SMPP Submit SM*
9. *Rejected*
10. *Deleted by Operator Request*
11. *Short Message Deleted by Operator Request/SMPP Cancel SM*
50. *SMPP Submit Multi SM Message*
51. *SMPP Replaced SM Message*
52. *SMPP Query SM Message*
53. *SMPP DATA SM Message*
55. *HTTP Delivery*
77. *HTTP Delivery Fail*
88. *HTTP Submitted*
99. *HTTP Rejected*

For all CDR Events, CDR Field order is as follows;

1 - Event, 2 – Time Stamp, 3 – Destination Address, 4 – Origination Address, 5 – Destination Operator Id, 6 – Originator Operator Id, 7 – Destination Group Id, 8 - SMSB Ref, 9 –Source Group Id, 10 – Source Esme/PC, 11 – Destination Esme/PC, 12 – Destination Type, 13 – Source Type, 14– Destination IMSI, 15 - Attempts, 16 – Status/Error, 17 – Service Center, 18 - SRI, 19 – SMS Status, 20 - Udl, 21 - Pid, 21 - Dcs, 23 - Udhi, 24 –SRStatus, 25 – ESM_CLASS, 26 – Message Type, 27 – Charge Amount, 28 – Charge to, 29 – Pay Amount, 30 – Pay To, 31 – Original Destination Address, 32 – Original Origination Address, 33 - Original Source GT, 34 - Original Destination GT

CDR Fields which are not applicable for an event are left blank.

1.1.1. STATISTIC CDR FILED DESCRIPTION

Attributes Name	Type	Description
Event	numeric	<p>This column shows the type of event. There're 24 event types.</p> <p>1 = Alert from HLR</p> <p>2 = Short Message Expired</p> <p>3 = Status Report</p> <p>5 = Short Message Delivered/SMPP Deliver SM</p> <p>6 = Short Message Delivery Temporary Failure</p> <p>7 = Short Message Delivery Failure Message Abandoned</p> <p>8 = Short Message Submitted/Accepted</p> <p>9 = Short Message Rejected</p> <p>11 = Short Message Deleted by Operator Request/SMPP Cancel SM</p> <p>50 = SMPP Submit Multi SM Message</p> <p>51 = SMPP Replaced SM Message</p> <p>52 = SMPP Query SM Message</p> <p>53 = SMPP DATA SM Message</p> <p>55 = HTTP Delivery</p> <p>77 = HTTP Delivery Fail</p> <p>88 = HTTP Submitted</p> <p>99 = HTTP Rejected</p>
Time Stamp	string	<p>The time that the Event occurred. When combined with the destination address of the message, this field can be used to uniquely identify a message. The format is YY/MM/DD HH:MM:SS.</p>

<i>Destination Address</i>	<i>numeric</i>	<i>This field gives the printable format of the Destination Address of the SM. This may be differing from original destination address due to modification in routing response.</i>
<i>Original Destination Address</i>	<i>numeric</i>	<i>This field gives the printable format of the Original Destination Address of the SM.</i>
<i>Origination Address</i>	<i>alpha numeric</i>	<i>This field gives the printable format of the Origination Address of the SM. This field is Alphanumeric. This may be differing from original destination address due to modification in routing response.</i>
<i>Original Origination Address</i>	<i>alpha numeric</i>	<i>This field gives the printable format of the Original Origination Address of the SM. This field is Alphanumeric.</i>
<i>Source GT</i>	<i>numeric</i>	<i>This is the SCCP Calling Address received by the SMSC when the SM is submitted. This is usually the address of the MSC/SGSN that was serving the MS when it submitted the SM. When the SM is not submitted through the PLMN interface, this field is set to blank. This field shows the Global Title part in ISDN (E.164) number.</i>
<i>Destination GT</i>	<i>numeric</i>	<p><i>The network node part of the routing information returned by the HLR and used by the SMSC to deliver the SM. This is the MSC/SGSN address of the serving MSC/SGSN at the time the SM was delivered.</i></p> <p><i>The SMSC reformats the address returned by the HLR to create an SCCP called address for the SM - it is the SCCP address that is logged in this traffic event.</i></p> <p><i>When the SM is not delivered through the PLMN interface, this field is set to blank. This field shows the Global Title part in ISDN (E.164) number.</i></p>
<i>Accept Time</i>	<i>string</i>	<i>The time that the SM was accepted into the SMSB message store. When combined with the destination address of the message, this field can be used to uniquely identify a message. The format is YY/MM/DD HH:MM:SS.</i>
<i>SMSB Ref</i>	<i>numeric</i>	<i>The SME reference number supplied in the Submit SM Invoke.</i>

<i>Expiry Time</i>	<i>string</i>	<i>The time at which the SM is no longer valid. The format is as for Accept Time.</i>
<i>Origination ESME</i>	<i>String</i>	<i>Originating ESME if application originated SMS.</i>
<i>Destination ESME</i>	<i>String</i>	<i>Destination ESME if application originated SMS.</i>
<i>Destination Type</i>	<i>numeric</i>	<i>Describes the type of call used to deliver this message.</i> <i>0 – Unknown</i> <i>1 - for messages delivered via GSM</i> <i>2 - for messages delivered via ESME/SMPP</i> <i>4 - for messages discard</i> <i>5 - for messages delivered via SMSC</i> <i>6 - for messages delivered via HTTP</i>
<i>Source Type</i>	<i>numeric</i>	<i>Describes the type of call used to submit this message.</i> <i>0 - for messages submitted via GSM</i> <i>1 - for messages submitted via ESME/SMPP</i> <i>3 - for messages submitted via Internal SMSC</i> <i>4 - for messages submitted via SMSC/SMPP</i> <i>6 - for messages submitted via HTTP</i>
<i>Destination IMSI</i>	<i>numeric</i>	<i>This field is only populated if the SM to which this traffic event relates is being delivered through the PLMN interface. For messages delivered through other interfaces, it is set to blank. For messages delivered through the PLMN, this field contains the IMSI returned (if any) in the SendRoutingInfoForSM Result sent from the home HLR of the destination MS for this message. If no IMSI is returned, this field is set to blank.</i>
<i>Attempts</i>	<i>numeric</i>	<i>Number of delivery attempts</i>

Status	numeric	<p><i>Internally, the SMSB maps interface specific error codes onto a standard internal set of error classifications; these are called Delivery Failure Reasons.</i></p> <p><i>Delivery Failure Reasons are used to control the way in which the SMSB handles a message after a failed delivery attempt.</i></p> <p><i>In DFR, the SMSB stores the Delivery Failure Reason derived from the error indication returned by the network.</i></p> <p><i>Delivery Failure Reasons for SMSC</i></p> <p><i>0 – No Error</i></p> <p><i>1 - SME interface busy</i></p> <p><i>2 - Other</i></p> <p><i>3 - Unknown subscriber</i></p> <p><i>4 - Teleservice not provisioned</i></p> <p><i>5 - Unknown Relay Node</i></p> <p><i>6 - Call barred</i></p> <p><i>7 - Facility not supported</i></p> <p><i>8 - Absent subscriber (IMSI detach)</i></p> <p><i>9 - SMS not provisioned</i></p> <p><i>10 - Error in MS</i></p> <p><i>11 - System failure.</i></p> <p><i>12 – Invalid Destination</i></p> <p><i>13 - Memory capability exceeded</i></p> <p><i>14 - Unidentified Subscriber</i></p> <p><i>19 - Call barred by user</i></p> <p><i>20 - Data formatting error</i></p>
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		<p>21 - SME database full</p> <p>22 - SME busy</p> <p>23 - Error in transmission</p> <p>24 - Network failure</p> <p>25 - Absent subscriber (paging failure)</p> <p>26 - Absent subscriber (GPRS detached)</p> <p>27 - Absent subscriber (de-registered in HLR)</p> <p>28 - Absent subscriber (roaming restriction)</p> <p>29 - Absent subscriber (MS purged)</p> <p>30 – Failure due to Time out</p> <p>31 – TCAP Abort Error</p> <p>32 – System Resource Limitation</p> <p>33 – TACP Error</p> <p>50 – Routing is not available</p> <p>51 - Destination ESME is unbound</p> <p>52 - Reject by Route</p> <p>53 - Drop by Route</p> <p>54 - Write to File by Route</p> <p>55 - Retry by Route</p> <p>56 - Direct mapping SMSC/SMPP not available</p> <p>57 - System is in blackout stage</p> <p>58 - System is in offline stage</p> <p>59 - Retry save fail</p> <p>60 - Charging fail</p>
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		<p><i>Delivery Failure Reasons From SMPP</i></p> <p><i>88 -Throttle</i></p> <p><i>101/1 - Message Length is invalid</i></p> <p><i>103/3 - Invalid Command ID</i></p> <p><i>104/4 - Incorrect BIND Status for given command</i></p> <p><i>106/6 - Invalid Priority Flag</i></p> <p><i>107/7 - Invalid Registered Delivery Flag</i></p> <p><i>110/10 - Invalid Source Address</i></p> <p><i>111/11 - Invalid Dest Addr</i></p> <p><i>112/12 - Message ID is invalid</i></p> <p><i>120/20 - Message Queue Full</i></p> <p><i>121/21 - Invalid Service Type</i></p> <p><i>151/51 - Invalid destinations number</i></p> <p><i>167/67 - Invalid esm_class field data</i></p> <p><i>169/69 – submit_sm or sumit_sm multi fail</i></p> <p><i>172/72 - Invalid Source address TON</i></p> <p><i>173/73 - Invalid Source address NPI</i></p> <p><i>180/80 - Invalid Destination addr TON</i></p> <p><i>181/81 - Invalid Destination addr NPI</i></p> <p><i>183/83 - Invalid system_type field</i></p> <p><i>197/97 - Invalid Scheduled Delivery Time</i></p> <p><i>198/98 - Invalid message validity period (Expiry time)</i></p> <p><i>355/255 - Esme Unknown Error</i></p> <p><i>360 - Invalid Data Coding Scheme</i></p>
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		<p><i>HTTP Error Codes</i></p> <p><i>All SMPP Error codes are return as HTTP Error codes</i></p> <p><i>Reason for which the SM submission was rejected, comes for CDR reject events (9 = Short Message Rejected).</i></p> <p><i>0 - Unknown</i></p> <p><i>1 - Disk full or other disk error</i></p> <p><i>2 - The SMSC internal queue for the destination address of this message was busy. Typically this means that the destination is receiving in excess of one SM per second for a sustained period</i></p> <p><i>3 - Operation not supported</i></p> <p><i>4 - Data missing</i></p> <p><i>5 - Incorrect data value</i></p> <p><i>6 - A duplicate SM already exists in the message store and duplicate rejection was requested</i></p> <p><i>7 - SM rejected because it specified a value of TP-PID that is not supported at this installation (other than those covered by 7 & 9)</i></p> <p><i>8 - SM rejected because it requested telematic interworking facilities by setting TP-PID. These facilities are not supported at this installation</i></p> <p><i>9 - SM rejected because it specified that the SM is message type 0 by setting TP-PID. Message type 0 is not supported at this installation</i></p> <p><i>10 - The SC has been configured to bar SM submission by the IMSI of the origination MS</i></p> <p><i>11 – The SC has been configured to bar SM submission by the IMSI of the destination MS</i></p> <p><i>12 – Invalid Destination address</i></p> <p><i>13 – Invalid Validity period</i></p> <p><i>14 – Invalid Origination address</i></p>
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		<p>15 – The SC has been configured to bar SM submission by Origination address</p> <p>16 – The SC has been configured to bar SM submission by Destination address</p> <p>17 – Charging failed</p> <p>18 – SRI request failure in Charging Process</p> <p>19 – Invalid SC address</p> <p>20 – Relay Failed</p> <p>21 – Service Center Barred</p> <p>22 – Network Barred</p> <p>108 – ESME System Error</p> <p>188 – ESME Internal Throttle</p>
Service Center	numeric	Service center address of incoming MT which are relayed through the SMS broadcast platform,
SRI	numeric	<p>This field indicates whether a status report was requested for the delivery attempt.</p> <p>0 - No</p> <p>1 - Yes</p>
SMS Status	numeric	<p>The status of the SM to which this Status Report relates at the time the Status Report was generated.</p> <p>0 - No attempt has been made to deliver the message yet, OR the most recent attempt to deliver the message failed with a temporary error.</p> <p>1 - The SMSC was unable to deliver the message. Delivery attempts for this message have been abandoned, OR Request failed/was rejected.</p> <p>2 - Message expired.</p> <p>3 - Message successfully delivered OR request succeeded.</p> <p>4 - Short Message deleted by the owning SME.</p>

		<i>5 - Short Message deleted by the SMSC Operator.</i>
<i>UDL</i>	<i>numeric</i>	<i>The length of the short message in characters. If the message is encoded using the GSM default alphabet, this will be different from the number of octets occupied by the message text. If the message is encoded in 8 bit binary then this field will be equal to the number of octets occupied by the message text. Values are in the range 0-160.</i>
<i>PID</i>	<i>numeric</i>	<i>TP-Protocol-Identifier for the SM, as defined in GSM 03.40. Values are in the range 0-255.</i>
<i>DCS</i>	<i>numeric</i>	<i>This field contains the value of TP-Data-Coding-Scheme for the SM, as described in GSM 03.38. Values are in the range 0-255.</i>
<i>UDHI</i>	<i>numeric</i>	<i>Parameter indicating that the TP-UD field contains a Header.</i>
<i>SRStatus</i>	<i>numeric</i>	<p><i>The status of the Alert SME message.</i></p> <p><i>0 - Alert SME Request (ASR) successfully delivered.</i></p> <p><i>1 - ASR deleted because SME not available (permanent error).</i></p> <p><i>2 - The last attempt to contact the target address ended in a temporary error. SMSC is awaiting an Alert-SC from the PLMN.</i></p> <p><i>3 - The last attempt to contact the target address ended in a temporary error. SMSC will make timed attempts to contact the target address.</i></p> <p><i>4 - An SMSC operator deleted the Alert SME.</i></p> <p><i>5 - The Alert SME expired and was deleted before it could be delivered.</i></p> <p><i>Reason for which the SM submission was rejected, comes for CDR reject events (9 = Short Message Rejected).</i></p> <p><i>Event Replaced SM (51- Replaced SMS) SMS Status</i></p> <p><i>0 - Message Replaced Successfully</i></p> <p><i>1 – Message Replaced Failed</i></p> <p><i>Query SM Status (52) SMS Status</i></p>

		<i>0 - Query is successfully proceed</i> <i>1 – Query is Failed</i>
<i>ESM_CLASS</i>	<i>numeric</i>	<i>ESM_CLASS value of the submit_sm or submit_multi_sm or data_sm SMPP messages.</i> <i>Refer Annexure for relevant values</i>
<i>Message Type</i>	<i>numeric</i>	<i>0 – single Message</i> <i>1 – Concatenate Message</i>
<i>Charge Amount</i>	<i>numeric</i>	<i>Amount to be charge. Default is 0.</i>
<i>Charge To</i>	<i>numeric</i>	<i>Charging Party Id.</i>
<i>Pay Amount</i>	<i>numeric</i>	<i>Amount to be pay. Default is 0.</i>
<i>Pay To</i>	<i>numeric</i>	<i>Paying Party Id</i>

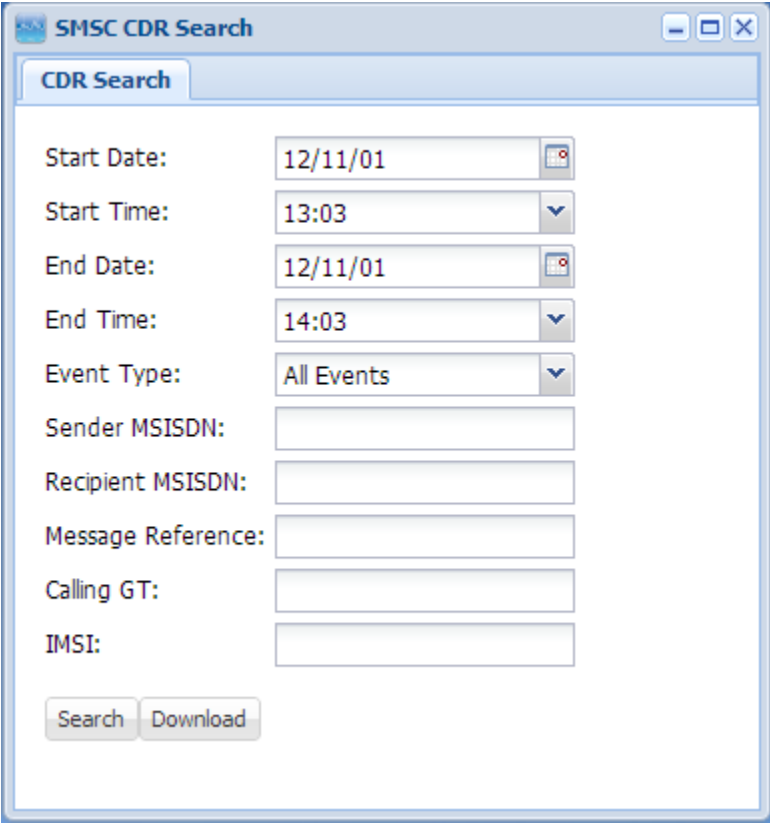
Table 1 – CDR Fields

2. CDR ANALYZER






The administrator can query the status of message delivery to a mobile through the operator network or an ESME Application.

Available searching options are as listed below;

1. Event type – optional
2. Timestamp
3. From Number – optional
4. To Number – optional
5. Message Reference – optional
6. Calling GT– optional
7. IMSI– optional



The screenshot shows a Windows-style application window titled "SMSC CDR Search". Inside the window, there is a tab labeled "CDR Search". Below the tab, there are several input fields and dropdown menus for searching CDR data. The fields are arranged in a list-like format. At the bottom of the form, there are two buttons: "Search" and "Download".

Start Date:	12/11/01	
Start Time:	13:03	
End Date:	12/11/01	
End Time:	14:03	
Event Type:	All Events	
Sender MSISDN:	<input type="text"/>	
Recipient MSISDN:	<input type="text"/>	
Message Reference:	<input type="text"/>	
Calling GT:	<input type="text"/>	
IMSI:	<input type="text"/>	

CDR Search Page

2.1. CDR SEARCH FEATURES

2.1.1. PAGING Support

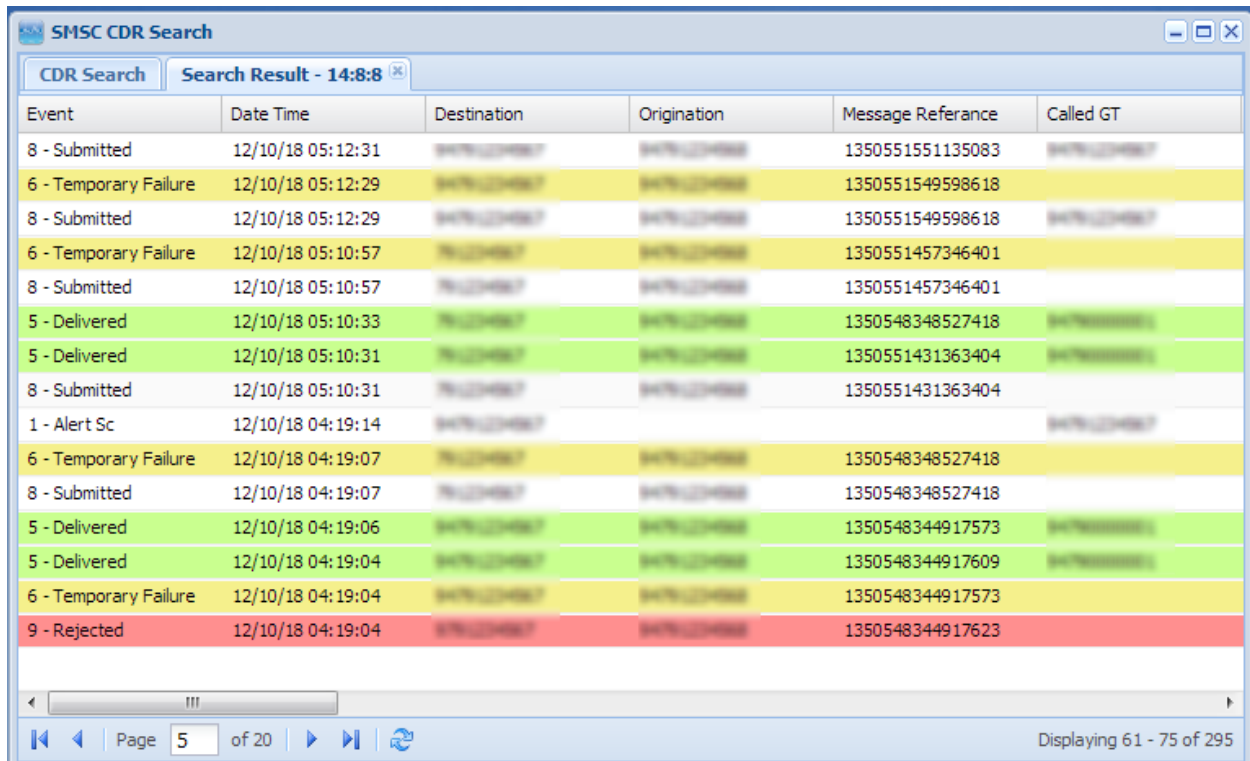
It is an Efficient and Smarter way to travel back and forth through available search result. Searched data comes part by part from server to GUI, as the administrator travels through the pages.

2.1.2. DOUBLECLICK Zooming Support

Double-click on a CDR result row, opens a new window which shows the trace of status of relevant SMS.

2.1.3. DOWNLOAD Support

Additionally search result can be downloaded as a CSV file



The screenshot shows a web application window titled "SMSC CDR Search". It has a tabbed interface with "CDR Search" and "Search Result - 14:8:8". The "Search Result" tab is active, displaying a table with the following columns: Event, Date Time, Destination, Origination, Message Reference, and Called GT. The table contains 20 rows of data, each representing a CDR event. The rows are color-coded: yellow for "Submitted" and "Temporary Failure", green for "Delivered", and red for "Rejected". The bottom of the window features a pagination bar with "Page 5 of 20" and a status bar indicating "Displaying 61 - 75 of 295".

Event	Date Time	Destination	Origination	Message Reference	Called GT
8 - Submitted	12/10/18 05:12:31	94791224867	94791224868	1350551551135083	94791224867
6 - Temporary Failure	12/10/18 05:12:29	94791224867	94791224868	1350551549598618	
8 - Submitted	12/10/18 05:12:29	94791224867	94791224868	1350551549598618	94791224867
6 - Temporary Failure	12/10/18 05:10:57	94791224867	94791224868	1350551457346401	
8 - Submitted	12/10/18 05:10:57	94791224867	94791224868	1350551457346401	
5 - Delivered	12/10/18 05:10:33	94791224867	94791224868	1350548348527418	94791224867
5 - Delivered	12/10/18 05:10:31	94791224867	94791224868	1350551431363404	94791224867
8 - Submitted	12/10/18 05:10:31	94791224867	94791224868	1350551431363404	
1 - Alert Sc	12/10/18 04:19:14	94791224867			94791224867
6 - Temporary Failure	12/10/18 04:19:07	94791224867	94791224868	1350548348527418	
8 - Submitted	12/10/18 04:19:07	94791224867	94791224868	1350548348527418	
5 - Delivered	12/10/18 04:19:06	94791224867	94791224868	1350548344917573	94791224867
5 - Delivered	12/10/18 04:19:04	94791224867	94791224868	1350548344917609	94791224867
6 - Temporary Failure	12/10/18 04:19:04	94791224867	94791224868	1350548344917573	
9 - Rejected	12/10/18 04:19:04	94791224867	94791224868	1350548344917623	

CDR Search Result

3. ANNEXURE

3.1.1. ESM_CLASS VALUES

Bits 7 6 5 4 3 2 1 0 Meaning

Messaging Mode (bits 1-0)

x x x x x 0 0 - Default SMSC Mode (e.g. Store and Forward)

x x x x x 0 1 - Datagram mode

x x x x x 1 0 - Forward (i.e. Transaction) mode

x x x x x 1 1 - Store and Forward mode

Message Type (bits 5-2)

x x 0 0 0 0 x x - Default message Type (i.e. normal message)

x x 0 0 1 0 x x - Short Message contains ESME Delivery Acknowledgement

x x 0 1 0 0 x x - Short Message contains ESME Manual/User Acknowledgement

GSM Network Specific Features (bits 7-6)

0 0 x x x x x x - No specific features selected

0 1 x x x x x x - UDHI Indicator (only relevant for MT short messages)

1 0 x x x x x x - Set Reply Path (only relevant for GSM network)

1 1 x x x x x x - Set UDHI and Reply Path (only relevant for GSM network)

3.2. HTTP API ERROR CODES

Operaton Sucess -> 200, "Operation success: <Message_ID>"

Invalid Source IP -> 403, "Operation fail: Unauthorized Ip"

Invalid User -> 403, "Unauthorized Unauthorized User"

Invalid Password -> 403, "Unauthorized Password"

Parameter Missing -> 400, "Operation fail: Paramter Missing"

Fail Due to other reason -> 200, "Operation fail: <ERROR_CODE>"

ERROR_CODE

8 – System Error - timeout

60 - Charging Fail

69 - submit_sm fail

101 - Message Length is invalid

110 - Invalid Source Address

111 - Invalid Destination Address

360 - Invalid DCS value