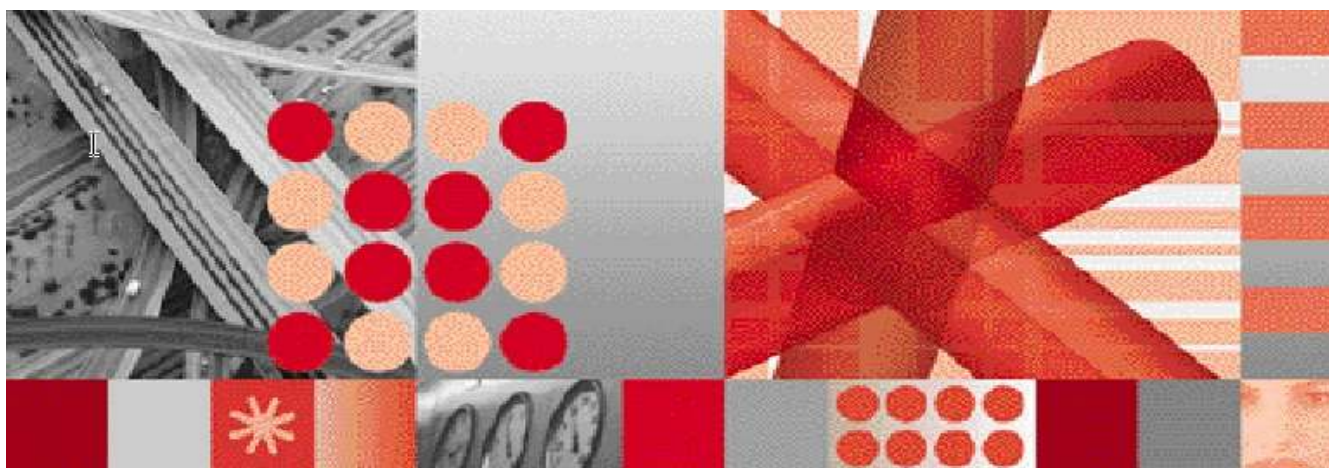




**Version 2.3.1**



**Interface Control Guide**

**Note:** Before using this information and the product it supports, read the information in [“Notices”](#) on page 32.

This edition applies to version 2, release 3, modification 1 of the IBM Tivoli Netcool Service Quality Manager - SMS Active Test, SMS CDR and SMS PM Service Solution and to all subsequent releases and modifications until otherwise indicated in new editions.

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# 1 About this Documentation

The *IBM® Tivoli® Netcool® Service Quality Manager SMS Service Solutions Interface Control Guide* details the SMS Active Test, SMS CDR and SMS PM Service Solution input interface i.e. CSV input files in terms of:

- File naming conventions and upload directory
- Data file format, granularity and latency
- Supported delivery/collection mechanism and frequency

## 1.1 Audience

This guide is intended for parties wishing to provide mediated data to the Tivoli Netcool Service Quality Manager SMS Active Test, SMS CDR and SMS PM Service Solution.

## 1.2 Required Skills and Knowledge

This guide assumes you are familiar with the following:

- General IT Principles
- IP Networking
- Unix® Operating Systems
- SMS Service Solution

### 1.3 Document Conventions

The following command prompts can be seen throughout this document where the user has to enter commands at the command line:

- # (hash): This prompt will be displayed if the user is logged in as user `root`.
- \$ (dollar): This prompt will be displayed if the user is logged in as either the `saserver` or `oracle` user.

Please note the above prompts are not part of commands. All commands must be entered after these prompts.

This document uses the typographical conventions shown in the following table:

**Table 1: General Document Conventions**

<i><b>Format</b></i>	<i><b>Examples</b></i>	<i><b>Description</b></i>
ALL UPPERCASE	GPS NULL MYWEBSERVER	Acronyms, device names, logical operators, registry keys, and some data structures.
<a href="#">Link</a>	See <a href="http://www.sun.com">www.sun.com</a>	For links within a document or to the Internet.
<b>Bold</b>	<b>Note:</b> The busy hour determiner is...	Heading text for Notes, Tips, and Warnings.
SMALL CAPS	The STORED SQL dialog box... ...click VIEW... In the main GUI window, select the FILE menu, point to NEW, and then select TRAFFIC TEMPLATE.	Any text that appears on the GUI.
<i>Italic</i>	<i>A busy hour</i> is... A web server <i>must</i> be installed... See the <i>User Guide</i>	New terms, emphasis, and book titles.
Monospace	<code>./wminstall</code> <code>\$ cd /cdrom/cdrom0</code> <code>/xml/dict</code> <code>addmsc.sh</code> <code>core.spec</code>	Code text, command line text, paths, scripts, and file names. Text written in the body of a paragraph that the user is expected to enter.

	Type OK to continue.	
<b>Monospace Bold</b>	<code>[root] # pkginfo   grep -i perl</code> system Perl5 On-Line Manual Pages system Perl 5.005_03 (POD Documentation) system Perl 5.005_03	For contrast in a code example to show lines the user is expected to enter.
<i>&lt;Monospace italics&gt;</i>	<code># cd &lt;oracle_setup&gt;</code>	Used in code examples: command-line variables that you replace with a real name or value. These are always marked with arrow brackets.
[square bracket]	<code>log-archiver.sh [-i][-w][-t]</code>	Used in code examples: indicates options.

## 1.4 Document Structure

This guide is organized into the following chapters:

**Table 2: Document Structure**

<i>Chapter</i>	<i>Description</i>
Interface Specifications	Provides interface specification and file naming conventions.
Enumerations and Definitions	Describes the call types.
Custom Resource Mapping	Describes the format of the map file.
Glossary	Glossary.

## 1.5 User Publications

The following user publications are provided with the Service Quality Manager SMS Service Solution.

**Table 3: SMS Service Solution Documentation**

<b>Document</b>	<b>Description</b>
<i>Tivoli Netcool Service Quality Manager Service Solution Installation Guide</i>	Details the generic steps required to install any Service Quality Manager Service Solution including SMS CDR, SMS Active Test and SMS PM.
<i>Tivoli Netcool Service Quality Manager SMS CDR Service Solution Overview Guide</i>	Details the functionality and metrics provided by Service Quality Manager SMS CDR Service Solution.
<i>Tivoli Netcool Service Quality Manager SMS Active Test Service Solution Overview Guide</i>	Details the functionality and metrics provided by Service Quality Manager SMS Active Test Service Solution.
<i>Tivoli Netcool Service Quality Manager SMS PM Service Solution Overview Guide</i>	Details the functionality and metrics provided by Service Quality Manager SMS PM Service Solution.
<i>Tivoli Netcool Service Quality Manager SMS Service Solution Interface Control Guide</i>	Details the SMS Service Solution input interface for SMS Active Test, SMS CDR and SMS PM.
<i>Tivoli Netcool Service Quality Manager SMS Service Solution Release Notes</i>	Provides information on Tivoli Netcool Service Quality Manager SMS Service Solution release contents, platform requirements, installation and upgrade procedures, and known issues.

The following user publications are provided with the Service Quality Manager software in Adobe® Portable Document Format (PDF). Online Help is provided in HTML format

**Table 4: Service Quality Manager User Documentation**

<b>Document</b>	<b>Description</b>
<i>Release Notes</i>	Provides information on the Service Quality Manager release contents, platform requirements, installation and upgrade procedures, and known issues.
<i>Configuration Guide</i>	Describes SLA Provisioning (Parties, SLAs, and SLA Templates applications) and Service Quality Manager Provisioning (Services Resources, KQI Models and Service Models applications) in Service Quality Manager.

<b>Document</b>	<b>Description</b>
<i>Monitoring Guide</i>	Describes Monitoring (SLA Monitor, KQI Analyzer, Alarm Monitor, Audit Manager and SLA Web Monitor applications) in Service Quality Manager.
<i>Customer Experience Manager Monitoring Guide</i>	Describes how to use and monitor the Customer Experience Management feature in Service Quality Manager.
<i>Customer Experience Manager Provisioning Guide</i>	Reference Guide containing information for provisioning the Customer Experience Management system.
<i>Solaris Server Installation Guide</i>	Describes how to install the Service Quality Manager Server system on Solaris 10g.
<i>Client Installation Guide</i>	Describes how to install the Service Quality Manager Client.
<i>AIX Server Installation Guide</i>	Describes how to install the Tivoli Netcool Service Quality Manager Server system on AIX® 5.3L.
<i>Solaris System Administration Guide</i>	Provides an overview of the Solaris Service Quality Manager administrative tasks including instructions on how to complete the following tasks: <ul style="list-style-type: none"> <li>- Starting and stopping Service Quality Manager.</li> <li>- Running batch processes such as archiving trace files and log files.</li> <li>- Backing up and restoring the system.</li> </ul>
<i>AIX System Administration Guide</i>	Provides an overview of the AIX Service Quality Manager administrative tasks including instructions on how to complete the following tasks: <ul style="list-style-type: none"> <li>- Starting and stopping Service Quality Manager.</li> <li>- Running batch processes such as archiving trace files and log files.</li> <li>- Backing up and restoring the system.</li> </ul>
<i>Upgrade Guide</i>	Details how to upgrade from one Service Quality Manager version to another.
<i>Business Objects Installation and Configuration Guide</i>	Provides information on the steps required to install and configure the Business Objects Server and Client for use with Service Quality Manager.
<i>Service Quality Manager Core Online Help</i>	Provides information and procedures for using Service Quality Manager client applications.
<i>Customer Experience Manager Online Help</i>	Describes how to use and monitor the Customer Experience Manager feature in Service Quality Manager.
<i>SLA Webview Online Help</i>	Describes how to use and monitor the SLA Webview feature in Service Quality Manager.



## 2 Interface Specifications

This section covers the interface specification between Service Quality Manager and the mediation subsystem. This interface is used to collect raw data.

**Table 5: Interface Specifications Summary**

<b>Service solution version</b>	2.3.1
<b>Data type</b>	ASCII files; Comma (,) separated values; with header row (or predefined field order); optionally compressed using the GZIP utility
	Map file
<b>Collection method</b>	Local directory
<b>Transfer method</b>	Defined by mediation
<b>Mapping files in use Y N?</b>	Yes [see section 4]
<b>File name syntax</b>	<p><b>A&lt;startdate&gt;&lt;starttime&gt;-&lt;enddate&gt;&lt;endtime&gt;[_&lt;Optional&gt;].csv</b></p> <p>The timestamps on the file name are mandatory and identify the collection period. The format is YYYYMMDD.HHMMshhmm where:</p> <p><b>Startdate and Enddate:</b></p> <ul style="list-style-type: none"> <li>• <b>YYYY</b> is the year in four-digit notation;</li> <li>• <b>MM</b> is the month in two-digit notation (01 - 12);</li> <li>• <b>DD</b> is the day in two-digit notation (01 - 31);</li> </ul> <p><b>Starttime and Endtime:</b></p> <ul style="list-style-type: none"> <li>• <b>HH</b> is the two-digit hour of the day (local time), based on 24-hour clock (00 - 23);</li> <li>• <b>MM</b> is the two-digit minute of the hour (local time);</li> <li>• <b>s</b> (optional) is the sign of the local time differential from UTC (+ or -), in case the time differential to UTC is 0 then the sign may be arbitrarily set to "+" or "-";</li> <li>• <b>hh</b> (optional) is the two-digit number of hours of the local time differential from UTC (00-23);</li> <li>• <b>mm</b> (optional) is the two-digit number of minutes of the local time differential from UTC (00-59).</li> </ul> <p>The <b>Optional</b> part of the naming is used to uniquely identify attributes such as:</p> <ul style="list-style-type: none"> <li>• <b>[recommended]</b> The Service Solution e.g. _SMS</li> <li>• The input data source type e.g. _PM</li> <li>• The mediation instance providing the file(s)</li> </ul>

	<p>The file name may have multiple optional tokens e.g. [<i>&lt;Optional 1&gt;</i>][<i>&lt;Optional 2&gt;</i>].</p> <p><b>File name examples:</b></p> <ol style="list-style-type: none"> <li>1. A20050907.1030+0000-20050909.1100+0000_SMS.csv</li> <li>2. A20050907.1030-20050909.1100_SMS_mediation1.csv</li> </ol> <p>Meaning: start of first granularity period 07 September 2005, 10:30 local, end of last granularity period 09 September 2005, 11:00 local, with a time differential of 0 against UTC.</p>
--	---

## 2.1 Data Collection and Transfer

This section defines how, how often, and from where the Service Quality Manager adapter collects its input data for processing. It also defines how the data files are transferred between Service Quality Manager adapter and the Mediation sub-system.

**Table 6: Data collection and Transfer mechanisms for SMS Active Test**

<b>Collection Method</b>	Local directory
<b>Collection Point</b> (default data directory <sup>1</sup> )	/appl/sa/var/adapter/sms_ap_loader
<b>Collection Frequency</b>	15 mins
<b>Distribution Method</b>	Data Push
<b>Distribution Frequency</b>	15 min
<b>Max Delivery Latency<sup>2</sup></b>	30 mins
<b>Compression</b>	Files may be compressed using GZIP utility

**Table 7: Data collection and Transfer mechanisms for SMS CDR**

<b>Collection Method</b>	Local directory
<b>Collection Point</b> (default data directory)	/appl/sa/var/adapter/sms_cdr_loader
<b>Collection Frequency</b>	30 mins
<b>Distribution Method</b>	Data Push
<b>Distribution Frequency</b>	30 min

<sup>1</sup> Default Directory, configured in the Service Quality Manager Adapter

<sup>2</sup> Max Latency, configured in the Service Quality Manager Adapter. Known as **Grace Period**. Data Files that arrive past this time are not processed. Typically configured, by default, to be 2 x the collection interval

<b>Max Delivery Latency</b>	60 mins
<b>Compression</b>	Files may be compressed using GZIP utility

**Table 8: Data collection and Transfer mechanisms for SMS PM**

<b>Collection Method</b>	Local directory
<b>Collection Point</b> (default data directory)	/appl/sa/var/adapter/sms_pm_loader
<b>Collection Frequency</b>	15 mins
<b>Distribution Method</b>	Data Push
<b>Distribution Frequency</b>	15 min
<b>Max Delivery Latency</b>	30 mins
<b>Compression</b>	Files may be compressed using GZIP utility

Data files are collected by the Service Quality Manager adapter or delivered by the mediation. Transfer protocols such as FTP, sFTP, SCP, UUCP, local copy are most often used to data transfer. This transfer protocol is defined by the mediation capabilities or agreed between the Service Quality Manager customer and the party providing the mediation.

Where the Collection mechanism is **Local Directory**, then the mediation must deliver the data files to the defined *collection point* directory. This transfer/distribution mechanism is referred to as *Data Push* i.e. pushed to the adapters.

## 2.2 Data Compression

The interface supports data files compressed by the `gzip` utility. In such cases, the files without time zone offset will look like:

```
20050907.1030-20050909.1100_VoIP_mediation1.gz
```

Such compression may be recommended in some deployments to reduce network bandwidth, improve link latency etc. however this can increase both Disk I/O and CPU load.

The interface also supports archive files i.e. archive containing multiple CSV files.

The following are not presently supported:

- Tar files i.e. extension `.tar`
- Tar files compressed with `gzip`. These are files with extension `tar.gz` or `.tgz`
- Unix compressed files i.e. extension `.z`
- ZIP compressions i.e. extension `.zip`

## 2.3 Data Specification

This section defines the actual content format of the data files.

### 2.3.1 SMS Active Test

**Table 9: Data File Format**

<i>Field Name</i>	<i>Type</i>	<i>Length</i>	<i>Constraints</i>	<i>Field Description</i>	<i>Notes</i>
TEST_ID	String	64	Nullable	This represents a name for the Probe or test scenario. This will be a unique numeric or alphanumeric identifier.	
SMSC_ID	String	64	Nullable	This field is used to capture the SMSC_id, if available. It may be used in reports but will not be used in KQIs.	
ORIG_PROBE_LOCATION	String	64	Not null	The location of the originating probe in the network.	
ORIG_SUBS_TYPE	String	64	Nullable	A 'free text' type field which is used to group the subscribers. Examples include: Prepaid, Postpaid and Roamer.	
ORIG_SMS_TYPE	Integer		Not null	The entity from where the SMS messages originated. The following are the instances: •Mobile Subscriber •Large Account(Premium) (See Table 12: SMS Types)	
ORIG_ID	String	64	Not null	A unique Name or Number identifying the above RT.	
ORIG_HANDSET_TYPE	String	64	Nullable	The handset type of the originating party.	
SUBMISSION_OUTCOME	Integer		Nullable	This indicates the success or failure of the MO attempts to send the message. The success outcome is based on the receipt of a delivery report from the SMSC. (See Table 13: Outcome Types)	
SUBMISSION_TIME	Integer		Not null	The time from the point the MO device sends the message to it being received at the SMSC and indicated by a delivery report.	Decimal Number, $\geq 0$ value in seconds

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SUBMISSION_FAILURE_REASON	String	64	Not null	A free text field which contains the error text or code if available.	
MESSAGE_PRIORITY	Integer		Nullable	Indicates whether a message is HIGH or NORMAL priority (See Table 14: Message Priority Types)	
TERM_PROBE_LOCATION	String	64	Not null	The location of the terminating probe in the network.	
TERM_SUBS_TYPE	String	64	Nullable	A 'free text' type field used to group the subscribers. Examples include Prepaid, Postpaid and Roamer.	
TERM_SMS_TYPE	Integer		Not null	The entity where the SMS messages are terminated to. The following are the instances: •Mobile Subscriber •Large Account(Premium) (See Table 12: SMS Types)	
TERM_ID	String	64	Not null	A unique Name or Number identifying the above RT.	
TERM_HANDSET_TYPE	String	64	Nullable	The handset type of the originating party.	
E_TO_E_DELIVERY_TIME	Integer		Nullable	The total delivery time (in seconds) for the SMS to be sent from the Originating Probe to the Terminating Probe.	Decimal Number, $\geq 0$ value in seconds
E_TO_E_OUTCOME	Integer		Not null (see table 3.4 Outcome types)	SUCCESS, FAILED (See Table 13: Outcome Types)	
E_TO_E_FAILURE_REASON	String	64	Nullable	A free text field which contains the error text or code from the End-2-End transaction if it is available.	
MESSAGE_LENGTH	Integer		Nullable	The message length of the SMS, represented as a count of the characters.	
CONTENT_CORRECTNESS	Integer		Nullable	Indicates whether the content sent matches the content received. If there is any mismatch it is set to	

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				incorrect. (See Table 15: Content Correctness Types)	
NUM_DUPLICATES_RECVD	Integer		Nullable	Indicates the number of duplicate messages received (i.e. sent once but received more than once).	

### **Example:**

```
TEST_ID,SMSC_ID,ORIG_PROBE_LOCATION,ORIG_SUBS_TYPE,ORIG_SMS_TYPE,ORIG_ID,ORIG_HANDSET_TYPE,SUBMISSION_OUTCOME,SUBMISSION_TIME,SUBMISSION_FAILURE_REASON,MESSAGE_PRIORITY,TERM_PROBE_LOCATION,TERM_SUBS_TYPE,TERM_SMS_TYPE,TERM_ID,TERM_HANDSET_TYPE,E_TO_E_DELIVERY_TIME,E_TO_E_OUTCOME,E_TO_E_FAILURE_REASON,MESSAGE_LENGTH,CONTENT_CORRECTNESS,NUM_DUPLICATES_RECVD

Pre-Paid_to_PostPaid,SMSC_1,City Center,PrePaid,1,3538712468263,Nokia E60,1,3,,1,City Center,PostPaid,1,3538745796852,Nokia 6300,5,1,,65,1,0

35,SMSC_1,Cell 1-23-4-53,PostPaid,1,3538712468265,Nokia N95,1,4,,1,Cell 1-23-4-53,PrePaid,1,3538745796881,Samsung xyz,0,2,43,45,0,0
```

### ***Data File Granularity***

The granularity of the file is expected to be such that one CSV row will be specified for all CSV fields which have a single set of the values listed below in common.

- TEST\_ID
- SMSC\_ID
- ORIG\_PROBE\_LOCATION
- ORIG\_SUBS\_TYPE
- ORIG\_SMS\_TYPE
- ORIG\_ID
- ORIG\_HANDSET\_TYPE
- SUBMISSION\_FAILURE\_REASON
- MESSAGE\_PRIORITY
- TERM\_PROBE\_LOCATION
- TERM\_SUBS\_TYPE
- TERM\_SMS\_TYPE
- TERM\_ID

- TERM\_HANDSET\_TYPE
- E\_TO\_E\_FAILURE\_REASON

### 2.3.2 SMS CDR

Table 10: Data File Format

Field Name	Type	Length	Constraints	Field Description	Notes
NE_TYPE	String	64	Not null	This is the type of the network element from where the CDRs are being collected.	For the SMS CDR model this is always set to "SMSC"
NE_NAME	String	64	Not null	The name instance of the above.	
NE_LOCATION	String	64	Not null	The location instance of the NE_TYPE.	
SUBSCRIBER_TYPE	String	64	Not null	The type of SMS subscriber in regard to its subscription service and roaming capabilities. (See Table 16: Subscriber Types)	
SMS_ORIG_TYPE	Integer		Not null	The entity from where the SMS messages originate. (See Table 18: SMS Entity Types)	
SMS_ORIG_ID	String	64	Not null	A unique Name or Number identifying the resource type.	Format could be any of the following: IMSI, MSISDN,LAC ID
SMS_TERM_TYPE	Integer		Not null	The entity where the SMS messages are terminated. (See Table 18: SMS Entity Types)	
SMS_TERM_ID	String	64	Not null	A unique Name or Number identifying the resource type.	Format could be any of the following: IMSI, MSISDN,LAC ID
TRANSACTION_TYPE	Integer		Not null	The type of SMS transaction (message origination type) on which the data collection takes place. (See Table 17: Transaction Types)	

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MESSAGE_STAT US	String	64	Not null	The final outcome of the SMS transaction. (See Table 19: Message Status Types)	
CAUSE_TYPE	Integer		Not null	The protocol on which the transaction is being captured. (See Table 20: Cause Types)	
CAUSE_TYPE_VE RSION	String	64	Not null	The protocol version.	
CAUSE_CODE_ID	Integer		Nullable	A unique error cause code that indicates the reason of message delivery failure. (See Table 20: Cause Types)	
MESSAGE_PRIOR ITY	Integer		Nullable	The priority status of the messages that can be one of two (for GSM): •Normal •High (See Table 14: Message Priority Types)	
TRANSACTION_ COUNT	Integer		Not null	The number of transactions which resulted in one of the above set of cause codes.	
DELIVERY_ATTE MPTS	Integer		Not null.	The number of attempts per transaction until the message is successfully delivered, failed or expired.	
TOTAL_TIME	Integer		Nullable	The aggregated time for messages delivered with a successful outcome. This is actual delivery time (distinguished from latency) which is recorded from the time the message leaves the system until SMSC receives the delivery report in the return direction.	
MAX_TIME	Integer		Nullable	This represents a single transaction with the maximum time to deliver a message.	
MIN_TIME	Integer		Nullable	This represents a single transaction with the minimum time to deliver a message.	
TOTAL_SMSC_M ESSAGES_SUBMI	Integer		Not Null	This represents a total number of messages submitted (originated)	



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TTED				from particular subscriber which resulted in creation of CDR in a given collection period.	
TOTAL_SMSC_MESSAGE_LATENCY	Integer		Nullable	The total time a message spent in the queue from when it arrived at the SMSC until it got sent.	

### **Example:**

```
NE_TYPE,NE_NAME,NE_LOCATION,SUBSCRIBER_TYPE,SMS_ORIG_TYPE,SMS_ORIG_ID,SMS_TERM_TYPE,SM
S_TERM_ID,TRANSACTION_TYPE,MESSAGE_STATUS,CAUSE_TYPE,CAUSE_TYPE_VERSION,CAUSE_CODE_ID,
MESSAGE_PRIORITY,TRANSACTION_COUNT,DELIVERY_ATTEMPTS,TOTAL_TIME,MAX_TIME,MIN_TIME,TOTA
L_SMSC_MESSAGES_SUBMITTED,TOTAL_SMSC_MESSAGE_LATENCY
SMSC,SMSC_CORK_1,Cork,Prepaid,1,3538712345,1,447802092035,1,SUCCESS,1,2+, ,1,3,2,8,8,8,
3,12
SMSC,SMSC_CORK_1,Cork,Prepaid,1,3538712222,1,353862233456,1,SUCCESS,1,2+, ,1,8,1,15,15,
15,8,40
SMSC,SMSC_CORK_1,Cork,Prepaid,1,3538712258,1,353871644578,1,SUCCESS,1,2+, ,1,6,1,17,17,
17,6,30
```

### ***Data File Granularity***

The granularity of the file is expected to be such that one CSV row will be specified for all CSV fields which have a single set of the values listed below in common.

- NE\_TYPE
- NE\_NAME
- NE\_LOCATION
- SUBSCRIBER\_TYPE
- SMS\_ORIG\_TYPE
- SMS\_ORIG\_ID
- SMS\_TERM\_TYPE
- SMS\_TERM\_ID
- TRANSACTION\_TYPE
- MESSAGE\_STATUS
- CAUSE\_TYPE
- CAUSE\_TYPE\_VERSION

### 2.3.3 SMS PM

Table 11: Data File Format

<i>Field Name</i>	<i>Type</i>	<i>Length</i>	<i>Constraints</i>	<i>Field Description</i>	<i>Notes</i>
NE_TYPE	String	64	Not null	The type of network element from where the PM are being collected.	"MSC" or "SGSN"
NE_NAME	String	64	Not Null	The instance name of the MSC or SGSN.	
SMS_ATTEMPTED_MO	Integer		Nullable	The number of mobile originating SMS attempts as measured by the number of times the MSC or SGSN receives a "RP-DATA" message from an MS.	
SMS_SUCCESSFUL_MO	Integer		Nullable	The number of successful mobile originating SMS attempts as measured by the number of times the MSC or SGSN sends an "RP-ACK" message to an MS.	
SMS_ATTEMPTED_MT	Integer		Nullable	The number of mobile terminating SMS attempts as measured by the number of times the MSC or SGSN receives the forwardShortMessage message from the GMSC.	
SMS_SUCCESSFUL_MT	Integer		Nullable	The number of successful mobile terminated SMS attempts as measured by the number of times the MSC or SGSN sends a forwardShortMessage response message, without a failure code, to the GMSC.	
SMS_ATTEMPTED_FIRST_PAGES	Integer		Nullable	The number of times a paging message is sent for the first time.	
SMS_SUCCESSFUL_FIRST_PAGES	Integer		Nullable	The number of times a paging message sent for the first time results in a response from the MS.	
SMS_MO_AUTHENTICATION_FAILURE	Integer		Nullable	The number of mobile originated short messages which fail due to authentication failure.	
SMS_MO_CIPHER_MODE_SETTING	Integer		Nullable	The number of mobile originated short messages which fail due to cipher mode failure.	

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SMS_MO_BARRING	Integer		Nullable	The number of mobile originated short messages which fail due to service barring of originating subscriber.	
SMS_MO_UNKNOWN_SUBSCRIBER	Integer		Nullable	The number of mobile originated short messages which fail due to unknown originating subscriber.	
SMS_MO_FACILITY_NOT_SUPPORTED	Integer		Nullable	The number of mobile originated short messages which fail due to SMS facility not supported.	
SMS_MO_SYSTEM_FAILURE	Integer		Nullable	The number of mobile originated short messages which fail due to system failure.	
SMS_MO_DELIVERY_FAILURE	Integer		Nullable	The number of mobile originated short messages which fail due to delivery failure.	
SMS_MO_PROTOCOL_ERROR	Integer		Nullable	The number of mobile originated short messages which fail due to protocol error.	
SMS_MO_OTHER_FAILURE	Integer		Nullable	The number of mobile originated short messages which fail for any reason other than authentication, barring, unknown subscriber, facility not supported, system failure, delivery failure or protocol error.	
SMS_MT_UNIDENTIFIED_SUBSCRIBER	Integer		Nullable	The number of mobile terminating short messages which fail due to unidentified subscriber error.	
SMS_MT_ABSENT_SUBSCRIBER	Integer		Nullable	The number of mobile terminating short messages which fail due to absent subscriber error.	
SMS_MT_FACILITY_NOT_SUPPORTED	Integer		Nullable	The number of mobile terminated short messages which fail due to SMS facility not supported.	
SMS_MT_ILLEGAL_SUBSCRIBER	Integer		Nullable	The number of mobile terminating short messages which fail due to illegal subscriber error.	
SMS_MT_ILLEGAL_EQUIPMENT	Integer		Nullable	The number of mobile terminating short messages which fail due to illegal equipment error.	

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SMS_MT_SYSTE M_FAILURE	Integer		Nullable	The number of mobile terminating short messages which fail due to system failure.	
SMS_MT_DELIVE RY_FAILURE	Integer		Nullable	The number of mobile terminating short messages which fail due to delivery failure.	
SMS_MT_OTHER _FAILURE	Integer		Nullable	The number of mobile terminating short messages which fail for any reason other than unidentified subscriber, absent subscriber, facility not supported, illegal subscriber, illegal equipment, system failure or delivery failure.	

### **Example:**

```
NE_TYPE,NE_NAME,SMS_ATTEMPTED_MO,SMS_SUCCESSFUL_MO,SMS_ATTEMPTED_MT,SMS_SUCCESSFUL_MT,
SMS_ATTEMPTED_FIRST_PAGES,SMS_SUCCESSFUL_FIRST_PAGES,SMS_MO_AUTHENTICATION_FAILURE,SMS
_MO_CIPHER_MODE_SETTING,SMS_MO_BARRING,SMS_MO_UNKNOWN_SUBSCRIBER,SMS_MO_FACILITY_NOT_S
UPPORTED,SMS_MO_SYSTEM_FAILURE,SMS_MO_DELIVERY_FAILURE,SMS_MO_PROTOCOL_ERROR,SMS_MO_OT
HER_FAILURE,SMS_MT_UNIDENTIFIED_SUBSCRIBER,SMS_MT_ABSENT_SUBSCRIBER,SMS_MT_FACILITY_NO
T_SUPPORTED,SMS_MT_ILLEGAL_SUBSCRIBER,SMS_MT_ILLEGAL_EQUIPMENT,SMS_MT_SYSTEM_FAILURE,S
MS_MT_DELIVERY_FAILURE,SMS_MT_OTHER_FAILURE

MSC,MSC_1,623,543,3890,3544,3854,2925,0,0,28,0,0,17,31,0,0,1,478,0,0,0,141,62,0

SGSN,SGSN_1,609,555,3800,2804,3959,3728,0,0,30,0,0,15,30,0,0,1,483,0,0,0,136,70,0
```

### **Data File Granularity**

The granularity of the file is expected to be such that one CSV row will be specified for all CSV fields which have a single set of the values listed below in common.

- NE\_TYPE
- NE\_NAME

## 3 Enumerations and Definitions

This section defines the enumerations to be used, by the mediation, when creating the data files for the adapter.

### 3.1 SMS Types

The data file must use the following table to identify the `Orig_SMS_Type` and `Term_SMS_Type` types.

**Table 12: SMS Types**

<i>Id</i>	<i>Description</i>
1	Mobile Subscriber
2	Large Account (Premium)

### 3.2 Outcome Types

The data file must use the following table to identify the Submission Outcome and `E_TO_E_OUTCOME` types.

**Table 13: Outcome Types**

<i>Id</i>	<i>Description</i>
1	Success
2	Failure

### 3.3 Message Priority

The data file must use the following table to identify the message priority types.

**Table 14: Message Priority Types**

<i>Id</i>	<i>Description</i>
1	Normal
2	High

### 3.4 Content Correctness Types

The data file must use the following table to identify the content correctness types.

**Table 15: Content Correctness Types**

<i><b>Id</b></i>	<i><b>Description</b></i>
1	Correct
2	Incorrect

### 3.5 Subscriber Types

The data file must use the following table to identify the subscriber types.

**Table 16: Subscriber Types**

<i><b>Id</b></i>	<i><b>Description</b></i>
1	Prepaid
2	Postpaid
3	Roamer
4	Non-Mobile

### 3.6 Transaction Types

The data file must use the following table to identify the transaction types.

**Table 17: Transaction Types**

<i><b>Id</b></i>	<i><b>Description</b></i>
1	MOBILE ORIGINATED
2	NON MOBILE ORIGINATED

### 3.7 SMS Entity Types

The data file must use the following table to identify the SMS entity types.

**Table 18: SMS Entity Types**

<i><b>Id</b></i>	<i><b>Description</b></i>
1	SMS Subscriber
2	Large Account

### 3.8 Message Status Types

The data file must use the following table to identify the message status types.

**Table 19: Message Status Types**

<i><b>Id</b></i>	<i><b>Description</b></i>
1	SUCCESS
2	FAILED
3	EXPIRED
4	DELETED

### 3.9 Cause Types

The data file must use the following table to identify the cause types.

**Table 20: Cause Types**

<i><b>Id</b></i>	<i><b>Description</b></i>
1	MAP
2	SMPP

Transaction termination causes will be identified based on the value of cause type and an appropriate value from the relevant table below.

#### 3.9.1 Map Cause

For MAP cause codes (taken from ETSI Standard "Digital cellular telecommunications system (Phase 2); Mobile Application Part (MAP) specification (GSM 09.02 version 4.19.1)").

**Table 21: Map Cause (Version 2+)**

<i><b>Cause Code (Decimal)</b></i>	<i><b>Cause Description</b></i>
1	UnknownSubscriber
2	UnknownBaseStation
3	UnknownMSC
5	UnidentifiedSubscriber
7	UnknownEquipment
8	RoamingNotAllowed
9	IllegalSubscriber

<b>Cause Code (Decimal)</b>	<b>Cause Description</b>
10	BearerServiceNotProvisioned
11	TeleserviceNotProvisioned
12	IllegalEquipment
13	CallBarred
14	ForwardingViolation
15	CUG-Reject
16	IllegalSS-Operation
17	SS-ErrorStatus
18	SS-NotAvailable
19	SS-SubscriptionViolation
20	SS-Incompatibility
21	FacilityNotSupported
23	InvalidTargetBaseStation
24	NoRadioResourceAvailable
25	NoHandoverNumberAvailable
26	SubsequentHandoverFailure
27	AbsentSubscriber
31	subscriberBusyForMT-SMS
32	SM-DeliveryFailure
33	MessageWaitingListFull
34	SystemFailure
35	DataMissing
36	UnexpectedDataValue
37	PW-RegistrationFailure
38	NegativePW-Check
39	NoRoamingNumberAvailable
40	TracingBufferFull
43	NumberOfPW-AttemptsViolation



<i><b>Cause Code (Decimal)</b></i>	<i><b>Cause Description</b></i>
44	NumberChanged
71	UnknownAlphabet
72	USSD-Busy

### 3.9.2 SMPP Causes

For SMPP cause codes.

**Table 22: SMPP Cause (Version 5)**

<i><b>Cause Code (hex)</b></i>	<i><b>Cause Description</b></i>
0x00000000	ESME_ROK
0x00000001	ESME_RINVMSGLEN
0x00000002	ESME_RINVCMDLEN
0x00000003	ESME_RINVCMDID
0x00000004	ESME_RINVBNDSTS
0x00000005	ESME_RALYBND
0x00000006	ESME_RINVPRTFLG
0x00000007	ESME_RINVREGDLVFLG
0x00000008	ESME_RSYSERR
0x0000000A	ESME_RINVSRCADR
0x0000000B	ESME_RINVDSTADR
0x0000000C	ESME_RINVMSGID
0x0000000D	ESME_RBINDFAIL
0x0000000E	ESME_RINVPASWD
0x0000000F	ESME_RINVSYSID
0x00000011	ESME_RCANCELFAIL
0x00000013	ESME_RREPLACEFAIL
0x00000014	ESME_RMSGQFUL
0x00000015	ESME_RINVSERTYP
0x00000033	ESME_RINVNUMDESTS

<b>Cause Code (hex)</b>	<b>Cause Description</b>
0x00000034	ESME_RINVDLNAME
0x00000040	ESME_RINVDESTFLAG
0x00000042	ESME_RINVSUBREP
0x00000043	ESME_RINVESMCLASS
0x00000044	ESME_RCNTSUBDL
0x00000045	ESME_RSUBMITFAIL
0x00000048	ESME_RINVSRCNPI
0x00000049	ESME_RINVSRCNPI
0x00000050	ESME_RINVDSTTON
0x00000051	ESME_RINVDSTNPI
0x00000053	ESME_RINVSYSTYP
0x00000054	ESME_RINVREPFLAG
0x00000055	ESME_RINVNUMMSG
0x00000058	ESME_RTHROTTLED
0x00000061	ESME_RINVSCHED
0x00000062	ESME_RINVEXPIRY
0x00000063	ESME_RINVDFTMSGID
0x00000064	ESME_RX_T_APPN
0x00000065	ESME_RX_P_APPN
0x00000066	ESME_RX_R_APPN
0x00000067	ESME_RQUERYFAIL
0x000000C0	ESME_RINVTLVSTREAM
0x000000C1	ESME_RTLVNOTALLWD
0x000000C2	ESME_RINVTLVLEN
0x000000C3	ESME_RMISSINGTLV
0x000000C4	ESME_RINVTLVVAL
0x000000FE	ESME_RDELIVERYFAILURE
0x000000FF	ESME_RUNKNOWNERR

<b><i>Cause Code (hex)</i></b>	<b><i>Cause Description</i></b>
0x00000100	ESME_RSERTYPUNAUTH
0x00000101	ESME_RPROHIBITED
0x00000102	ESME_RSERTYPUNAVAIL
0x00000103	ESME_RSERTYPDENIED
0x00000104	ESME_RINVDCS
0x00000105	ESME_RINVSRCADDRSUBUNIT
0x00000106	ESME_RINV DSTADDRSUBUNIT
0x00000107	ESME_RINVBCASTFREQINT
0x00000108	ESME_RINVBCASTALIAS_NAME
0x00000109	ESME_RINVBCASTAREAFMT
0x0000010A	ESME_RINVNUMBCAST_AREAS
0x0000010B	ESME_RINVBCASTCNTTYPE
0x0000010C	ESME_RINVBCASTMSGCLASS
0x0000010D	ESME_RBCASTFAIL
0x0000010E	ESME_RBCASTQUERYFAIL
0x0000010F	ESME_RBCASTCANCELFAIL
0x00000110	ESME_RINVBCAST_REP
0x00000111	ESME_RINVBCASTSRVGRP
0x00000112	ESME_RINVBCASTCHANIND

## 4 Custom Resource Mapping

Tivoli Netcool Service Quality Manager uses mapping files to resolve some fields (keys) from the input data files. For example, the input file may contain an IMSI field, which the map file resolves to an IMSI group or simply provide additional enrichment.

This section describes the format of the map file.

**Table 23: Custom Mapping Files for SMS CDR**

<b>Data Type</b>	ASCII files; Comma (,) separated values; with header row
<b>Default Location</b>	<code>\${SAVARDIR}/adapter/mappings/resources/</code>
<b>File name syntax</b>	<code>sms_subscriber.map</code>

The map file is re-loaded at the beginning of every adapter data interval. This allows for the map file to be updated at any time.

**Example:**

The following is example data showing fields for the Custom Resource Mapping:

```
50202,Company1,
50522,Company1,
50555,Company2,
3538712277,Company2,
3538722355,Company3,
```

## Appendix A Glossary

**Table 24: Glossary of Terms**

<b><i>Acronym</i></b>	<b><i>Description</i></b>
AIX	Advanced Interactive eXecutive
CDR	Call Detail Record
CSV	Comma Separated Values
CPU	Central Processing Unit
CUG	Closed User Group
DBCS	Double Byte Character Set
ESME	External Short Messaging Entity
ETSI	European Telecommunications Standard Institute
FTP	File Transfer Protocol
GMSC	Gateway Mobile Switching Center
GSM	Global System for Mobile communication
GPRS	General Packet Radio Service
GUI	Graphical User Interface
HTML	Hyper Text Markup Language
IBM	International Business Machines
IMSI	International Mobile Subscriber Identity
I/O	Input/Output
IP	Internet Protocol
IT	Information Technology
KQI	Key Quality Indicator

MAP	Mobile Application Part
MS	Mobile Subscriber
MSC	Mobile Switching Centre
MSISDN	Mobile Station Integrated Services Digital Network
NE	Network Equipment
PM	Performance Management
POD	Plain Old Documentation
PW	Password
RT	Remote Terminal
SCP	Secure CoPy
SFTP	Secure File Transfer Protocol
SGSN	Serving GPRS Support Node
SLA	Service Level Agreement
SM	Short Message
SMPP	Short Message Peer-to-Peer
SMS	Short Message Service
SMSC	Short Message Service Centre
SQL	Structured Query Language
SS	Supplementary Service Support
USSD	Unstructured Supplementary Service Data
UTC	Universal Time Coordinated (also known as GMT or Greenwich Mean Time)
UUCP	Unix to Unix CoPy
XML	Extensible Markup Language



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