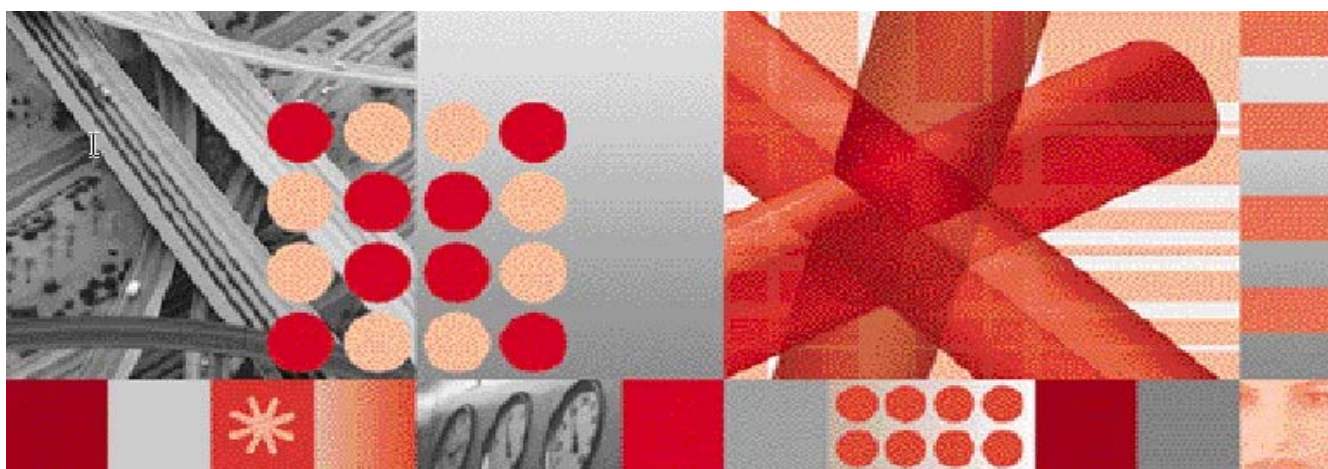




Netcool Service Quality Manager Roaming Active Test Service Solution

IBM

Version 1.2.1.1



Interface Control Guide

**TIVOLI NETCOOL SERVICE QUALITY MANAGER ROAMING AT SERVICE SOLUTION
INTERFACE CONTROL GUIDE**

Note: Before using this information and the product it supports, read the information in Notices on page 22.

This edition applies to version 1, release 2, modification 1.1 of IBM Tivoli Netcool Service Quality Manager Roaming AT 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 Roaming AT Service Solutions Interface Control Guide* details the Roaming AT Service Solution input interface i.e. CSV input files in terms of:

- File naming conventions
- Data file format, structure, and semantics
- Supported delivery/Collection mechanism
- Data file input and output directory
- File granularity
- File frequency
- Maximum latency tolerated

1.1 Audience

This guide is intended for parties wishing to provide mediated data to the IBM Tivoli Netcool Service Quality Manager Roaming AT Service Solutions.

1.2 Required Skills and Knowledge

This guide assumes you are familiar with the following:

- General IT Principles
- IP Networking
- Unix® Operating Systems
- GSM Roaming Services

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>Format</i>	<i>Examples</i>	<i>Description</i>
ALL UPPERCASE	GPS NULL MYWEBSERVER	Acronyms, device names, logical operators, registry keys, and some data structures.
<u>Underscore</u>	See Document Conventions	For links within a document or to the Internet. Note that TOC and index links are not underscored. Color of text is determined by browser settings.
Bold	Note: 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 is...</i> <i>A web server must be installed...</i> <i>See the 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>Type OK to continue.</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.

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Monospace Bold	<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><Monospace italics></i>	<code># cd <oracle_setup></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

Chapter	Description
Interface Specifications	Provides interface specification and file naming conventions.
Enumerations and Definitions	Describes the call types.
Glossary	Glossary.

1.5 User Publications

The following user publications are provided with the Roaming AT Service Quality Manager Service Solution:

Table 3 Roaming AT Service Solution Documentation

Document	Description
<i>Tivoli Netcool Service Quality Manager Service Solutions Installation Guide</i>	Details the generic steps required to install any Service Quality Manager Service Solution including Roaming AT.
<i>Tivoli Netcool Service Quality Manager Roaming Probe Service Solution Interface Control Guide</i>	Details the Roaming Probe Service Solution input interface.
<i>Tivoli Netcool Service Quality Manager Roaming AT Solution Interface Control Guide</i>	Details the Roaming AT Service Solution input interface.
<i>Tivoli Netcool Service Quality Manager Roaming AT Service Solution Release Notes</i>	Provides information on the Roaming AT Service Solution release contents, platform requirements, installation and upgrade procedures, and known issues.
<i>Tivoli Netcool Service Quality Manager Roaming Service Solution Version 1.2 to 1.2.1.1 Upgrade Guide</i>	Provides information on how to upgrade the Roaming Service Solution to Version 1.2.1.1 from Version 1.2

The following user publications are provided with the Service Quality Manager software in Adobe® Portable Document Format (PDF) and HTML formats.

Table 4: Service Quality Manager User Documentation

Document	Description
<i>Release Notes</i>	Provides information on the Service Quality Manager 4.1.1 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 SQM Provisioning (Services Resources, KQI Models and Service Models applications) in Service Quality Manager.
<i>Monitoring Guide</i>	Describes Monitoring (SLA Monitor, KQI Analyzer, Alarm Monitor, Audit Manager and SLA Web Monitor applications) in Service Quality Manager.

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<i>CEM Monitoring Guide</i>	Describes how to use and monitor the Customer Experience Management [CEM] feature in Service Quality Manager.
<i>CEM 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 Service Quality Manager administrative tasks including instructions on how to complete the following tasks: <ul style="list-style-type: none"> - Starting and stopping Service Quality Manager. - Running batch processes such as archiving trace files and log files. - Backing up and restoring the system.
<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"> - Starting and stopping Service Quality Manager. - Running batch processes such as archiving trace files and log files. - Backing up and restoring the system.
<i>Upgrade Guide</i>	Details how to upgrade from one Service Quality Manager from v3.1.3 to v 4.1.1
<i>BusinessObjects Installation & Configuration Guide</i>	Provides information on the steps required to install and configure the BusinessObjects (v 6.5 or XI) Server and Client for use with Service Quality Manager.
<i>Service Quality Manager Service Solution Installation Guide</i>	Details the generic steps required to install any Service Quality Manager Service Solution including CEM GPRS.
<i>CEM GPRS Service Solution Interface Control Guide</i>	Details the CEM GPRS Service Solution input interface.
<i>CEM GPRS Service Solution Overview Guide</i>	Provides an overview of the CEM GPRS Service Solution product architecture.
<i>Service Quality Manager Core Online Help</i>	Provides information and procedures for using Service Quality Manager client applications

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<i>Customer Experience Management Online Help</i>	Describes how to use and monitor the Customer Experience Management feature in the Service Quality Manager
<i>SLA Webview Online Help</i>	Describes how to use and monitor the SLA Webview feature in the Service Quality Manager

2 Interface Specifications

2.1 Overview

This document provides all the required information for parties intending to provide data from Roaming service systems to IBM Tivoli Netcool Service Quality Manager Roaming AT Service Solution.

The Service Solution expects to be supplied with data related to Roaming AT probes in files which are detailed below.

2.2 Supported Version

This document refers to IBM Roaming AT Service Solution 1.2.1.1.

2.3 Interface Definition

2.3.1 File Naming Convention

The file naming convention is as follows:

```
A<YYYYMMDD>.<hhmm>-<YYYYMMDD>.<hhmm>[_<UniqueID>].csv
```

Where:

<YYYYMMDD>.<hhmm> elements correspond to the file interval start time and end time respectively.

- YYYY is the year in four-digit notation.
- MM is the month in two-digit notation (01 - 12).
- DD is the day in two-digit notation (01 - 31).
- HH is the two-digit hour of the day (local time), based on the 24-hour clock (00 - 23).
- MM is the two-digit minute of the hour 00-59 (local time).

UniqueID is an optional element that can be used to, for instance, uniquely identify the Roaming System. This element is recommended in situations where the deployed solution has multiple mediation points.

File Examples

The following are example files which show the naming convention:

- Filename: A20080314.0000-20080314.0015.csv
- Filename: A20080314.0015-20080314.0030.csv

2.4 Data Specification

2.4.1 Roaming AT CSV File Format

The data files must provide the fields in top down order as shown in the tables below. The files are expected to contain standard CSV header lines containing the field names shown below.

Table 5: Roaming AT Server File Format

<i>Field Name</i>	<i>Field Description</i>	<i>Constraints</i>	<i>Example</i>
ORIG_SUBSC_ID	The ID of the subscriber or modem that is the originating party in the test scenario. For example, in a voice call scenario this should be the ID of the subscriber or modem who initiated the call. ID presented in this field may be MSISDN or IMSI.	Digits range = 0...9 Total length ≤ 15 digits.	
ORIG_PROBE_ID	The ID of the probe where the originating subscriber or modem is located or connected.	String ≤ 64 characters	
ORIG_PROBE_LOCATION	The geographical location of the originating probe.	String ≤ 64 characters	Dublin
DEST_ID	The ID of the entity which is the destination party in the test scenario. For example: - In a Voice Call scenario this should be the ID of the destination subscriber/modem - In a Location Update scenario this should be the destination network ID where the subscriber/modem is trying to update the location. - In a GPRS http DL throughput scenario this should be the APN ID/name.	String ≤ 64 characters	
ROAMING_DEST_TYPE	The type of the destination entity.	Enumeration	See section 3
DEST_PROBE_ID	The ID of the probe where the destination subscriber or modem is located or connected.		
DEST_PROBE_LOCATION	The geographical location of the destination probe.	String ≤ 64 characters	San Francisco

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ROAMING_TEST_TYPE	<p>The type of test provided to verify a specific roaming service.</p> <p>One row in the CSV file is expected for one specific test execution. This row provides information about test execution attempts and also provides results (successes, metrics values, etc., depending on the test type).</p>	Enumeration	See section 3
H_PLMN	<p>The identification of the Home PLMN, which normally is a party (operator) for whom the TNSQM roaming model will provide metrics.</p> <p>This is to propagate PLMN Resource Type instances which represent one of roaming PLMNs. AT provides specific tests (ROAMING_TEST_TYPE) between two PLMNs (roaming partners).</p> <p>Example of H_PLMN (PLMN) Resource instance:</p> <p>JPNTTDoCoMo where: JP – Japan NTTDoCoMo – example of network name</p> <p>PLMN Resource instances will be derived from H_PLMN and V_PLMN CSV interface columns.</p> <p>Based on PLMN Resource instances, PLMN_PLMN Resource instances shall be created - this needs to be a Composite Resource Type [<PLMN Name>,<PLMN Name>] where H_PLMN shall be presented on the first position and V_PLMN shall be presented on the second.</p>	String ≤ 64 characters	JPNTTDoCoMo
V_PLMN	<p>The identification of the Visited PLMN, which normally is a party</p>	String ≤ 64 characters	IEO2

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	<p>(operator) for whom the TNSQM roaming model will provide metrics.</p> <p>This is to propagate PLMN Resource Type instances which represent one of roaming PLMNs. AT provides specific tests (ROAMING_TEST_TYPE) between two PLMNs (roaming partners).</p> <p>Example of V_PLMN (PLMN) Resource instance:</p> <p>IEO2 where: IE – Ireland O2 – example of network name</p> <p>PLMN Resource instances will be derived from H_PLMN and V_PLMN CSV interface columns.</p> <p>Based on PLMN Resource instances PLMN_PLMN, Resource instances shall be created - this needs to be a Composite Resource Type [<PLMN Name>,<PLMN Name>] where H_PLMN shall be presented on the first position and V_PLMN shall be presented on the second.</p>		
ROAMING_TYPE	<p>May be international OR national. International roaming means that the PLMN involved in signaling traffic exchange are in two different countries.</p> <p>In national roaming both PLMNs are in the same country</p>	Enumeration	See section 3
ROAMING_DIRECTION	<p>Depends on location of the Roamer.</p> <p>Inbound Roaming is when foreign network subscriber is roamed in H_PLMN</p> <p>Outbound Roaming is when H_PLMN subscriber is roamed in a foreign V_PLMN</p>	Enumeration	See section 3

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FAILURE_REASON	The test/procedure failure reason. If available from Active Test platform, this shall present the reason for the tested procedure/service failure.	String \leq 64 characters	Network Problem
ROAMING_TEST_OUTCOME	The outcome of the test.	Enumeration	See section 3
METRIC_TYPE	Indicates the type of measurement in the 'METRIC_VALUE' column.	Enumeration	See section 3
METRIC_VALUE	<p>This is the column where all 'metric' values shall be provided.</p> <p>By “metric values” it is meant:</p> <ul style="list-style-type: none"> - Voice Quality score - Transmitted data volume [kbits] - Throughput [kbit/s] <p>What will be presented depends on ROAMING_TEST_TYPE.</p> <p>For ROAMING_TEST_TYPES :</p> <p>Voice_Q, GPRS_http_DL_throughput, GPRS_ftp_DL_throughput metric values are expected as the test results.</p> <p>Values for those ROAMING_TEST_TYPES are expected with different units.</p>	<p>Float</p> <p>≥ 0</p>	35
TIME	The time/duration of a specific procedure tested by test (specific test scenario)	<p>Float</p> <p>≥ 0 ms</p>	212

Example Data

The following are examples of data showing headers and fields:

ORIG_SUBSC_ID,ORIG_PROBE_ID,ORIG_PROBE_LOCATION,DEST_ID,ROAMING_DEST_TYPE,DEST_PROBE_ID,DEST_PROBE_LOCATION,ROAMING_TEST_TYPE,H_PLMN,V_PLMN,ROAMING_TYPE,ROAMING_DIRECTION,FAILURE_REASON,ROAMING_TEST_OUTCOME,METRIC_TYPE,METRIC_VALUE,TIME
44111222333,IE_01,Dublin,UKSampleNetwork1,2,,1,IESampleNetwork1,UKSampleNetwork1,1,1,-2,-1,,1455
44111222333,IE_01,Dublin,UKSampleNetwork1,2,,1,IESampleNetwork1,UKSampleNetwork1,1,1,-2,-1,,1230
44111222333,IE_01,Dublin,UKSampleNetwork1,2,,1,IESampleNetwork1,UKSampleNetwork1,1,1,-2,-1,,1240
44111222333,IE_01,Dublin,UKSampleNetwork1,2,,1,IESampleNetwork1,UKSampleNetwork1,1,1,Network Error,-4,-1,,
353222333444,UK_02,London,IESampleNetwork1,2,,1,IESampleNetwork1,UKSampleNetwork1,1,2,-2,-1,,2100

2.4.2 CSV File Granularity

The granularity of the file is expected to be such that only 1 CSV row will be specified for each test execution, with the following columns:

- ROAMING_TYPE
- ROAMING_DIRECTION
- V_PLMN
- H_PLMN
- ROAMING_TEST_TYPE
- ORIG_SUBSC_ID
- METRIC_TYPE

The columns below are expected to contain the following data in each row based on the above grouping:

- TIME
- METRIC_VALUE
- ROAMING_TEST_OUTCOME
- FAILURE_REASON (if available from data source)

2.4.3 SQM Delivery/Collection Mechanism

Transfer Mechanism

The data files will be transferred by Data Push to the data directory on the IBM Tivoli Netcool Service Quality Manager Host platform.

Data Directory

The data directory is configurable by the IBM Tivoli Netcool Service Quality Manager customer. The default value is `/appl/sa/var/adapter/roaming_at_loader`. The IBM Tivoli Netcool Service Quality Manager Customer will need to ensure that mediation can deliver files to the configured location.

File Interval

The file interval is 15 minutes and must be on 15 minute boundaries, for example: 1615 to 1630.

Transfer Latency

The transfer latency is configurable by the IBM Tivoli Netcool Service Quality Manager customer. The default value is 60 minutes. The value of this parameter represents the maximum delay allowed in data presentation at the data directory.

Files per Interval

The service solution expects 1 file per Roaming AT system per interval.

3 Enumerations and Definitions

3.1 Roaming Type

The data file must use the following table to identify the ROAMING_TYPE type.

Table 6: Roaming AT ROAMING_TYPE Type

<i>Id</i>	<i>ROAMING_TYPE Type</i>
1	International
2	National

3.2 Roaming Direction

The data file must use the following table to identify the ROAMING_DIRECTION type.

Table 7: Roaming AT ROAMING_DIRECTION Type

<i>Id</i>	<i>ROAMING_DIRECTION Type</i>
1	Inbound
2	Outbound

3.3 Roaming Test Type

The data file must use the following table to identify ROAMING_TEST_TYPE type.

Table 8: Roaming AT ROAMING_TEST_TYPE Type

<i>Id</i>	<i>ROAMING_TEST_TYPE Type</i>
1	LU
2	Voice_Call
3	Voice_Q
4	CLIP

5	CLIR
6	CF_Act
7	SMS_e2e
8	MMS_e2e
9	GPRS_Attach
10	GPRS_PDP_act
11	GPRS_http_DL_throughput
12	GPRS_ftp_DL_throughput

3.4 Roaming Destination Type

The data file must use the following table to identify ROAMING_DEST_TYPE type.

Table 9: Roaming AT ROAMING_DEST_TYPE Type

<i>Id</i>	<i>ROAMING_DEST_TYPE Type</i>
1	Subscriber
2	Network
3	APN

3.5 Metric Type

The data file must use the following table to identify METRIC_TYPE type.

Table 10: Roaming AT METRIC_TYPE.Type, MAP Causes

<i>Id</i>	<i>METRIC_TYPE Type</i>
-1	NOT SET
1	data_volume
2	throughput
3	voice_q

3.6 Test Outcome

The data file must use the following table to identify TEST_OUTCOME type.

Table 11: Roaming AT TEST_OUTCOME.Type, MAP Causes

<i>Id</i>	<i>TEST_OUTCOME Type</i>
-1	NOT SET (if not available/not expected for the specific ROAMING_TEST_TYPE)
-2	Success
-3	Inconclusive
-4	Failure

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Appendix A Glossary

Table 12: Glossary of Terms

<i>Acronym</i>	<i>Description</i>
AT	Active Test
FTP	File Transfer Protocol
HTTP	HyperText Transfer Protocol
HTTPS	HyperText Transfer Protocol Secure
KB	Kilobytes
KPI	Key Performance Indicator
KQI	Key Quality Indicator
QoS	Quality of Service
SFTP	Secure File Transfer Protocol
SLA	Service Level Agreement
SLO	Service Level Objective (i.e. thresholds)
SRP	Server Routing Protocol
TNSQM	Tivoli Netcool Service Quality Manager

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