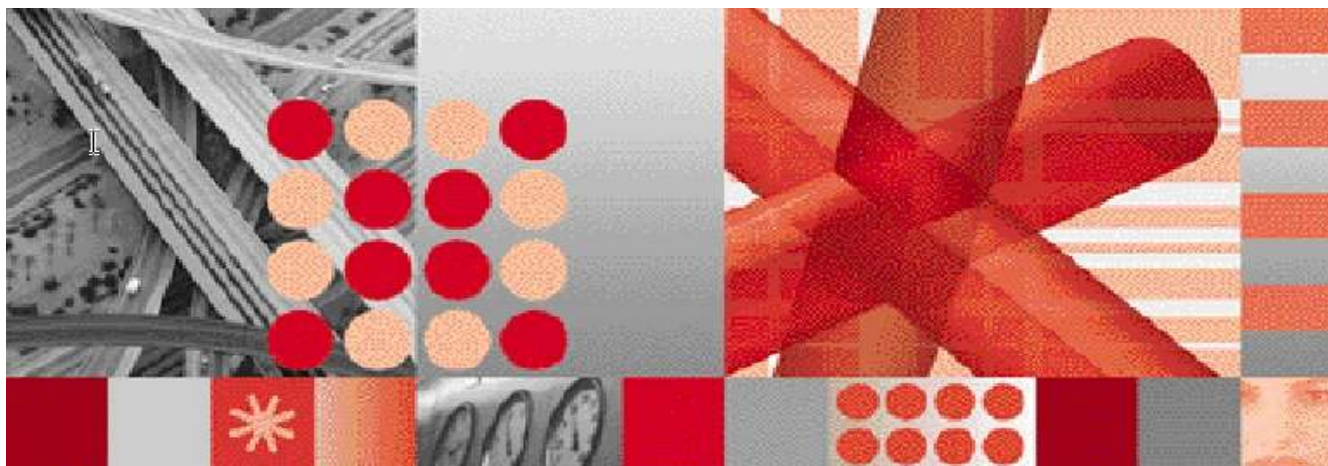**Tivoli.** **Netcool Service Quality Manager**
GPRS RAN PM Service Solution

Version 1.4.4

IBM

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 4, modification 4 of IBM Tivoli Netcool Service Quality Manager GPRS service solution and to all subsequent releases and modifications until otherwise indicated in new editions.

Table of contents

1 About this documentation

The *IBM Tivoli Netcool Service Quality Manager GPRS RAN PM Service Solution Interface Control Guide* details the GPRS (General Packet Radio Service) RAN (Radio Access Network) PM (Performance Monitor) service solution input interface i.e. CSV (Comma Separated Value) input files in terms of:

- File naming conventions

- Data file format, structure, and semantics

- Supported delivery and 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 GPRS RAN PM service solution.

1.2 Required skills and knowledge

This guide assumes you are familiar with:

- General IT (Information Technology) principles

- IP (Internet Protocol) networking

- UNIX® operating systems

- GPRS service solution

1.3 Guide conventions

The following command prompts can be seen throughout this guide 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 guide uses the typographical conventions shown in the following table:

Table 1: General guide conventions

Format	Examples	Description
ALL UPPERCASE	GPS NULL MYWEBSERVER	Acronyms, device names, logical operators, registry keys, and some data structures.
Link	See www.ibm.com	For links within a document or to the Internet.
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.
Italic	A *busy hour* is... A web server *must* be installed... See the *User Guide*	New terms, emphasis, and book titles.
Monospace	./wminstall $ cd /cdrom/cdrom0 /xml/dict addmsc.sh core.spec Type OK to continue.	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.

Monospace Bold	**[root] # pkginfo | grep -i perl** 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.
<Monospace italics>	# cd *<oracle_setup>*	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]	log-archiver.sh [-i][-w][-t]	Used in code examples: indicates options.

1.4 Guide structure

This guide is organized into the following chapters:

Table 2: Guide 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 GPRS RAN PM Service Quality Manager service solution.

Table 3: GPRS RAN PM service solution customer documentation

Guide title	Description
Tivoli Netcool Service Quality Manager Service Solutions Installation Guide	Details the generic steps required to install any Service Quality Manager service solution including GPRS RAN PM
Tivoli Netcool Service Quality Manager GPRS RAN PM Service Solution Interface Control Guide	Details the GPRS RAN PM service solution input interface.
Tivoli Netcool Service Quality Manager GPRS Service Solution Release Notes	Provides information on the GPRS service solution release contents, platform requirements, installation and upgrade procedures, and known issues.

The following user publications are provided with the Service Quality Manager core software as Adobe® PDFs (Portable Document Format). Online help is available in HTML (Hypertext Markup Language) format.

Table 4: Service Quality Manager customer documentation

Guide title	Description
Release Notes	Provides information on the Service Quality Manager release contents, platform requirements, installation and upgrade procedures, and known issues.
Configuration Guide	Describes SLA (Service Level Agreement) provisioning (parties, SLAs, and SLA templates applications) and Service Quality Management provisioning (services resources, KQI (Key Quality Indicator) models and Service models applications) in Service Quality Manager.
Monitoring Guide	Describes monitoring (SLA monitor, KQI analyzer, alarm monitor, Audit manager and SLA web monitor applications) in Service Quality Manager.
Customer Experience Manager Monitoring Guide	Describes how to use and monitor the Customer Experience Manager feature in Service Quality Manager.
Customer Experience Manager Provisioning Guide	This is reference guide containing information for provisioning the Customer Experience Manager system.

Solaris Server Installation Guide	Describes how to install the Service Quality Manager server system on Solaris 10g.
Client Installation Guide	Describes how to install the Service Quality Manager client.
AIX Server Installation Guide	Describes how to install the Tivoli Netcool Service Quality Manager server system on IBM AIX® 5.3L.
Solaris System Administration Guide	Provides an overview of the Service Quality Manager administrative tasks including instructions on how to complete the following tasks: - Starting and stopping Service Quality Manager. - Running batch processes such as archiving trace files and log files. - Backing up and restoring the system.
AIX System Administration Guide	Provides an overview of the AIX Service Quality Manager administrative tasks including instructions on how to complete the following tasks: - Starting and stopping Service Quality Manager. - Running batch processes such as archiving trace files and log files. - Backing up and restoring the system.
Upgrade Guide	Details how to upgrade from one version of Service Quality Manager to another.
BusinessObjects Installation and Configuration Guide	Provides information on the steps required to install and configure the BusinessObjects (v6.5 or XI) server and client for use with Service Quality Manager.
Service Quality Manager Core Online Help	Provides information and procedures for using Service Quality Manager client applications.
Customer Experience Manager Online Help	Describes how to use and monitor the Customer Experience Manager feature in the Service Quality Manager.
SLA Webview Online Help	Describes how to use and monitor the SLA Webview feature in Service Quality Manager.

2 Interface specifications

2.1 Overview

This guide provides all the required information for parties intending to provide mediated GPRS RAN PM, data to the Tivoli Netcool Service Quality Manager GPRS RAN PM service solution.

2.2 Supported version

This guide refers to the GPRS RAN PM service solution v1.4.4.

2.3 Interface definition

2.3.1 File naming convention

The file naming convention is:

```
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, based on 24-hour clock (00-23).

- `mm` is the two digit minute of the hour (00-59).

File names are expected to be adjusted to compensate for the difference between GMT and the local time of the host system where the GPRS RAN PM service solution is deployed. The mediator must clarify the appropriate time zone adjustment with the Tivoli Netcool service Quality Manager customer.

`UniqueID` is an optional element that can be used, for example, to uniquely identify the GPRS RAN PM 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:

- `A20080420.1300-20080420.1400_sqm_gprs_ran_pm.csv`

- `A20090122.1800-20090122.1900_GPRS_RAN_PM_file123.csv`

2.4 Metric CSV Data Specification

2.4.1 GPRS RAN PM file format

The data file must provide the fields in the top down order as shown in table below. The file is expected to contain a standard CSV header line containing the field names shown below.

Table 5: File format

Field name	Field description	Constraints	Example
CGI	The Cell Global Identity for the current cell	VARCHAR(128) – Not Null	78941084D7F99F
BSSNAME	The name of the BSS	VARCHAR(64) – Not Null	CBSKSCB0SM
SOURCEVENDOR	The equipment supplier whose systems supplied the metrics provided in this vendor-independent data file. 0 - Ericsson 1 - Alcatel Lucent 2 - Nortel 3 - Nokia 4 - Huawei	INTEGER – Not Null	0
VENDORVERSION	The version of the interface of equipment supplier whose systems supplied the metrics provided in this vendor-independent data file	VARCHAR(64) – Not Null	R10
TBFUPLINKATTEMPTS	This KPI indicates the total number of Temporary Block Flow (TBF) allocation attempts in the uplink direction.	INTEGER Nullable, but >= 0 if present	1103
TBFUPLINKSUCCESSES	This KPI indicates the total number of Temporary Block Flow (TBF) allocation successes in the uplink direction.	INTEGER Nullable, but >= 0 if present	1013

TBFU-PLINKFAIL-URES	This KPI indicates the total number of Temporary Block Flow (TBF) allocation failures in the uplink direction.	INTEGER Nullable, but >= 0 if present	90
TBFDOWNLINKAT-TEMPTS	This KPI indicates the total number of Temporary Block Flow (TBF) allocation attempts in the downlink direction.	INTEGER Nullable, but >= 0 if present	4988
TBFDOWNLINKSUC-CESSES	This KPI indicates the total number of Temporary Block Flow (TBF) allocation successes in the downlink direction.	INTEGER Nullable, but >= 0 if present	4781
TBFDOWNLINKFAIL-URES	This KPI indicates the total number of Temporary Block Flow (TBF) allocation failures in the downlink direction.	INTEGER Nullable, but >= 0 if present	207
NUM-BERTBFSU-PLINK	This KPI indicates the accumulated number of Temporary Block Flow (TBF) s allocated in the uplink direction.	INTEGER Nullable, but >= 0 if present	1373
NUM-BERTBFSDOWNLINK	This KPI indicates the accumulated number of Temporary Block Flow (TBF) s allocated in the Downlink direction.	INTEGER Nullable, but >= 0 if present	6372
PDCHAL-LOCATION-ATTEMPTS		INTEGER Nullable, but >= 0 if present	116
PDCHAL-LOCATION-SUCCESSES	This KPI indicates the total number of PDCH allocation successes. The counter value is incremented at each allocation of PDCHs from the circuit switched domain.	INTEGER Nullable, but >= 0 if present	112
PDCHAL-LOCATION-FAILURES	This KPI indicates the total number of PDCH allocation failures. The counter value is incremented at each failed allocation of PDCHs from the circuit switched domain.	INTEGER Nullable, but >= 0 if present	4
MEANAVAILABLEPDCHS	This measurement provides the mean number of PDCHs which are available to be used (including those actually in	FLOAT Nullable, but >= 0 if	16.5

ICG-11

	use) over the measured period.	present	
MEANOCCUPIEDPDCHS	This measurement provides the arithmetic mean number of occupied PDCHs over the measured period.	FLOAT Nullable, but >= 0 if present	11.2
RLCUPLINKDATAVOLUME	This KPI measures the RLC data volume (in kbits) in the Uplink direction	INTEGER Nullable, but >= 0 if present Value in kbits	13381
RLCUPLINKTRANSMITTIME	This KPI measures the time (in seconds) that RLC data was actually being transmitted in the Uplink Direction.	INTEGER Nullable, but >= 0 if present Value in seconds	2051
RLCDOWNLINKDATAVOLUME	This KPI measures the RLC data volume (in kbits) in the Downlink direction. Note: If unavailable, this can be defaulted to the measurement period in seconds.	INTEGER Nullable, but >= 0 if present Value in kbits	29686
RLCDOWNLINKTRANSMITTIME	This KPI measures the time (in seconds) that RLC data was actually being transmitted in the Downlink Direction. Note: If unavailable, this can be defaulted to the adapter measurement period in seconds.	INTEGER Nullable, but >= 0 if present Value in seconds	9788
OPERATIONALDOWNTIME	Operational downtime is a measure of the unavailability of a CELL in this measurement period due to unplanned downtime.	INTEGER Nullable, but >= 0 if present Value in seconds	21

ADMINIS-TRATIVE-DOWNTIME	This is a measure of the unavailability of a CELL in this measurement period due to administrative downtime. A Cell is administratively locked by a system administrator and is usually for planned maintenance (though it occasionally occurs due to system administrator error)	INTEGER Nullable, but >= 0 if present Value in seconds	34
TbfDropRate	Ratio of Temporary Block Flows (TBF) dropped to total TBFs	FLOAT Nullable, but >= 0 if present	16.5
TbfDro-pRateWt	The weight KPI is generally set to the denominator of the formula which is used to calculate the corresponding rate or throughput KPI. It is used during aggregation to produce weighted-means where appropriate. A typical value for the weight KPI would be the number of TBFs in the cell. The weight may also be set to a value of '1' which would treat each KPI value equally during aggregation.	INTEGER Nullable, but >= 0 if present	35
GprsAv-gUlTpTbf	Average uplink GPRS throughput per Temporary Block Flow (TBF)	FLOAT Nullable, but >= 0 if present	16.5
GprsAv-gUlTpTbfWt	The weight KPI is generally set to the denominator of the formula which is used to calculate the corresponding rate or throughput KPI. It is used during aggregation to produce weighted-means where appropriate. A typical value for the weight KPI would be the number of TBFs in the cell. The weight may also be set to a value of '1' which would treat each KPI value equally during aggregation.	INTEGER Nullable, but >= 0 if present	76
GprsAvgDlTpTbf	Average downlink GPRS throughput per Temporary Block Flow (TBF)	FLOAT Nullable, but >= 0 if present	16.5
GprsAvgDlTpTbfWt	The weight KPI is generally set to the denominator of the formula which is used to calculate the corresponding rate or throughput KPI. It is used during	INTEGER Nullable, but >= 0 if	23

	aggregation to produce weighted-means where appropriate. A typical value for the weight KPI would be the number of TBFs in the cell. The weight may also be set to a value of '1' which would treat each KPI value equally during aggregation.	present	
EdgeAv-gUlTpTbf	Average uplink EDGE throughput per Temporary Block Flow (TBF)	FLOAT Nullable, but >= 0 if present	16.5
EdgeAv-gUlTpTbfWt	The weight KPI is generally set to the denominator of the formula which is used to calculate the corresponding rate or throughput KPI. It is used during aggregation to produce weighted-means where appropriate. A typical value for the weight KPI would be the number of TBFs in the cell. The weight may also be set to a value of '1' which would treat each KPI value equally during aggregation.	INTEGER Nullable, but >= 0 if present	15
EdgeAvgDlTpTbf	Average downlink EDGE throughput per Temporary Block Flow (TBF)	FLOAT Nullable, but >= 0 if present	16.5
EdgeAvgDlTpTbfWt	The weight KPI is generally set to the denominator of the formula which is used to calculate the corresponding rate or throughput KPI. It is used during aggregation to produce weighted-means where appropriate. A typical value for the weight KPI would be the number of TBFs in the cell. The weight may also be set to a value of '1' which would treat each KPI value equally during aggregation.	INTEGER Nullable, but >= 0 if present	89
EdgeReqDlThroughput	EDGE Requested Downlink throughput.	INTEGER Nullable, but >= 0 if present	567

Example data:

The following examples show header and data fields:

```
CGI,BSSNAME,SOURCEVENDOR,VENDORVERSION,TBFUPLINKATTEMPTS,TBFUPLINKSUCCESSES,TBFUP
LINKFAIL-
URES,TBFDOWNLINKATTEMPTS,TBFDOWNLINKSUCCESSES,TBFDOWNLINKFAILURES,NUMBERTBFSUPLIN
K,NUMBERTBFSDOWNLINK,PDCHALLOCATIONATTEMPTS,PDCHALLOCATIONSUCCESSES,PDCHALLOCATIO
NFAIL-
URES,MEANAVAILABLEPDCHS,MEANOCCUPIEDPDCHS,RLCUPLINKDATAVOLUME,RLCUPLINKTRANSMITTI
ME,RLCDOWNLINKDATAVOLUME,RLCDOWNLINKTRANSMITTIME,OPERATIONALDOWNTIME,ADMINISTRATI
VEDOWN-
TIME,TBFDROPRATE,TBFDROPRATEWT,GPRSAVGULTPTBF,GPRSAVGULTPTBFWT,GPRSAVGDLTPTBF,GPR
SAVGDLTPTBFWT,EDGEAVGULTPTBF,EDGEAVGULTPTBFWT,EDGEAVGDLTPTBF,EDGEAVGDLTPTBFWT,EDG
EREQDLTHROUGHPUT
```

```
78941084D2A47F,CBSKSCB2SM,0,E6,907,857,50,5773,5583,190,1984,7617,145,144,1,16,12,
16378,2289,25483,11453,5,8,0.1,1,0.1,1,0.1,1,0.1,11,0.1,21,31
```

```
7894106595866C,TBSDETB4SM,3,RN2.1,839,756,83,3355,3055,300,1010,8647,175,174,1,16,
11,17294,2782,24611,9905,0,19,4.2,6,4.2,6,4.2,6,4.2,16,4.2,26,36
```

CSV 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.

- CGI

- BSSNAME

- SOURCEVENDOR

- VENDORVERSION

2.4.2 Service Quality Manager Delivery and Collection Mechanism

Transfer mechanism

The CSV data file is transferred by data push to the data directory on the Tivoli Netcool Service Quality Manager host platform where the adapter is configured.

Mediation systems must deliver the data files to that directory. The transfer mechanism must be agreed between the Tivoli Netcool service Quality Manager customer and the data mediator, but could typically include methods such as FTP (File Transfer Protocol), SFTP (Secure File Transfer Protocol), SCP (Secure Copy), UUCP (Unix to Unix Copy Protocol) and local copy.

Data directory

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

File interval

The file interval is 60 minutes and must be on actual hour boundaries, for example: 0800 to 0900

Transfer latency

The transfer latency is configurable by the 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 CSV file per interval.

2.5 CRM interface definition

2.5.1 CRM file naming convention

The CRM file naming convention is as follows:

```
gprs_ran_pm_cellarea.map

gprs_ran_pm_location.map
```

This is not configurable and is predefined in the adapter property files.

2.6 CRM data specification

2.6.1 GPRS RAN PM CellArea CRM file format

The data file must provide the fields in the top down order as shown in table below. The file does not contain a CSV header.

Table 6: File format

Field Name	Field Description	Constraints	Example
CGI	The cell global identity for the current cell, logically consisting of MNC - Mobile Network Code MCC - Mobile Country Code	LAC values 0000 and FFFE are reserved.	78941084D7F99F

	LAC - Location Area Code CI - Cell identity The format of the CGI field is CCCNNNLLLLIIII where: CCC is the mobile country code (3 decimal digits). NNN is the mobile network code (2 or 3 decimal digits). LLLL is the location area code (4 hexadecimal digits) IIII is the cell identifier (4 hexa-decimal digits).		
CellArea	The name of the CellArea. This is an arbitrary grouping of cells obtained usually from a CRM system. It can be (a) groups of Cells from a marketing point of view or possibly (b) a group of cells under the control of a BSC/RNC.	Text string (64 characters)	Cell Area 0

Example data

The following is example data showing fields, please note there is no header.

```
78941007EF1600,Sample GPRS RAN PM Cell Area 0
78941017975A10,Sample GPRS RAN PM Cell Area 1
789410191DEE90,Sample GPRS RAN PM Cell Area 2
```

Note: In a scenario where there is a requirement to reassign a CGI to another Cell Area, this file should then be modified to reflect the change and the adapter will automatically reload the contents of the new map file when it processes the next batch of CSV data files.

2.6.2 GPRS RAN PM Location CRM file format

The data file must provide the fields in the top down order as shown in table below. The file does not contain a CSV header.

Table 7: File format

Field Name	*Field Description*	*Constraints*	*Example*
CGI	The cell global identity for the current cell, logically consisting of MNC - Mobile Network Code MCC - Mobile Country Code	LAC values 0000 and FFFE are reserved.	78941084D7F99F

	LAC - Location Area Code CI - Cell identity The format of the CGI field is CCCNNNLLLLIIII where: CCC is the mobile country code (3 decimal digits). NNN is the mobile network code (2 or 3 decimal digits). LLLL is the location area code (4 hexadecimal digits) IIII is the cell identifier (4 hexadecimal digits).		
Location Area	The name of the Location Area. This is an arbitrary grouping of cells obtained usually from a CRM system. It can be (a) groups of Cells from a marketing point of view or possibly (b) a group of cells for a geographic location.	Text string (64 characters)	Cell Area 0

Example data

The following is example data showing fields, please note there is no header.

```
78941084D7F99F,Location Area 0
78941007E43150,Location Area 0
78941007EF1600,Location Area 2
```

Note: In a scenario where there is a requirement to reassign a CGI to another Location Area, this file should then be modified to reflect the change and the adapter will automatically reload the contents of the new map file when it processes the next batch of CSV data files.

3 Enumerations and definitions

3.1 GPRS RAN PM

The data file must use the following table to identify the source vendor.

Table 8: GPRS RAN PM source vendor

Id	SOURCE_VENDOR
0	Ericsson
1	Alcatel Lucent
2	Nortel
3	Nokia
4	Huawei
5	Motorola
6	Juniper
7	UT star
8	NSN

Appendix A Glossary

Table 9: Glossary of acronyms

Acronym	Description
AIX	Advanced Interactive eXecutive
BSS	Base Station Subsystem
CGI	Cell Global Identity
CSV	Comma Separated Values
DBCS	Double Byte Character Set
FTP	File Transfer Protocol
GERAN	GSM Edge Radio Access Network
GMT	Greenwich Mean Time
GPRS	General Packet Radio Service
GPS	Global Positioning System
GUI	Graphical User Interface
IBM	International Business Machines
IP	Internet Protocol
IT	Information Technology
KQI	Key Quality Indicator
PM	Performance Monitor
POD	Plain Old Documentation
RAN	Radio Access Network
SCP	Secure CoPy
SFTP	Secure File Transfer Protocol
SLA	Service Level Agreement
SQL	Structured Query Language
UUCP	Unix to Unix CoPy

XML	Extensible Markup Language

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