
HP OpenView Service Quality Manager



MDS 3G Probes service Adapter

Installation, Configuration and User's Guide

Edition: 1.4

for the HP-UX Operating System

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Preface

This document describes how to install and configure the HP OpenView SQM MDS3GProbes Service Adapter to collect data from a Tekelec platform. The Service Adapter is the application that provides SQM with the performance data used to measure the Quality of Service (QoS).

This document describes how to:

- Install the Service Adapter (and associated subsets)
- Set up the Service Adapter
- Start and Stop the Service Adapter
- Customize the Service Adapter

Intended audience

This document is intended for Service Quality Manager Administrators.

Required knowledge

It is assumed that the reader is familiar with the functionality of Service Quality Manager and has previous experience of the following:

- System administration
- Tekelec platform environment
- HP OpenView SQM
- Acanthis Extended Archiving
- Service Level Management
- Network & Fault Management

It is assumed that the reader is familiar with the concepts described in the following books:

- *HP OpenView Service Quality Manager Overview*
- *HP OpenView Service Quality Manager Service Adapter User's Guide*
- *HP OpenView Service Quality Manager Administration Guide*
- *Acanthis Extended Archiving User's Guide*

Software versions

The software versions referred to in this document are specified in chapter 2.1.1, "Software requirements".

Typographical conventions

The following typographical conventions have been used throughout this document.

Courier font:

- Source code and examples of file contents
- Commands that you enter on the screen
- Pathnames

Italic text:

- Filenames, programs and parameters in the text
- The names of other documents referred to in this guide

Bold text:

- New terms
- Emphasized words
- Keyboard key names

Associated documents

The following documents contain useful reference information:

- *HP OpenView SQM – SQL Service Adapter Toolkit Installation, Configuration and User's Guide*

For a full list of SQM user documentation, see the *HP OpenView Service Quality Manager Product Family Introduction*.

Support

You can visit the HP OpenView support web site at:

<http://support.openview.hp.com/support.jsp>

This Web site provides contact information and details about the products, services, and support that HP OpenView offers.

HP OpenView online software support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support site to:

- Search for knowledge documents of interest
- Submit enhancement requests online
- Download software patches
- Submit and track progress on support cases
- Manage a support contract
- Look up HP support contacts
- Review information about available services
- Enter discussions with other software customers
- Research and register for software training

Chapter 1

Introduction

The HP OpenView Service Quality Manager (SQM) can use the MDS3GProbes Service Adapter to collect data from Tekelec 2G and 3G probes.

This document describes how to install and troubleshoot the MDS3GProbes SA. It also describes the available data feeders.

A comprehensive model using the MDS3GProbes data is provided in SQM MDS value pack. More information on how to use MDS3GProbes can be found in the *HP OpenView SQM MDS Value Pack User's Guide*.

This section provides a brief overview of SQM and the Service Adapter. It also describes the different elements the Service Adapter uses to collect data.

For a detailed description of SQM, see the *HP OpenView Service Quality Manager Overview*.

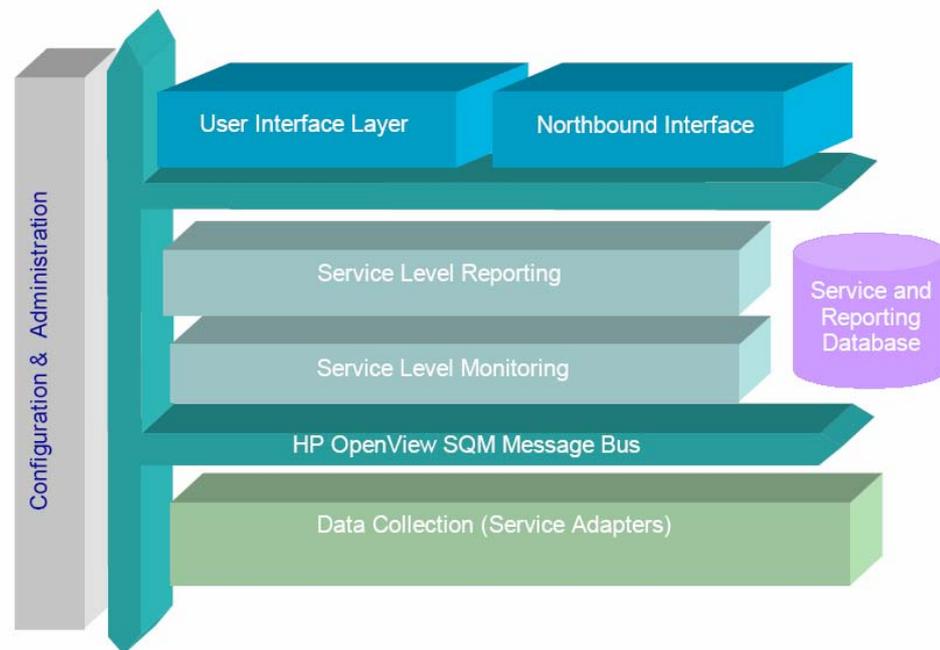
For a detailed description of Service Adapters, see the *HP OpenView Service Quality Manager Service Adapter User's Guide*.

1.1 Service Quality Manager

SQM provides a complete service quality management solution running under the HP implementation of UNIX®, HP-UX. HP-UX, which is compatible with the major industry standards, is based on the UNIX System V Release 4 operating system and includes important features from the Fourth Berkeley Software Distribution. SQM consolidates quality indicators across all domains—telecom, IT networks, servers, and applications—providing end-to-end visibility on service quality. It links service quality degradations to potential impacts on business, allowing network support personnel to address problems and prioritize actions proactively.

SQM monitors the service quality by aggregating information coming from all data sources, such as the network, the IT infrastructure, and the service provider's business processes. Using this information, service operators can pinpoint infrastructure problems and identify their potential effect on customers, services, and service level agreements (SLAs).

Figure 1 Service Quality Manager main components



Service Adapters have two main interfaces to SQM:

- An interface to the Configuration and Administration layer
- An interface to the Service Level Monitoring (SLM) layer

The Configuration & Administration layer contains the configuration repository. This repository stores information on how to connect to Tekelec platform and how to map the raw data from Tekelec database to the SQM parameter format.

The Service and Reporting Database contains the SQM Service Repository, which notably stores the parameters that the Service Adapter must collect.

The layer receives all measurement data from the Service Adapter. It then calculates the each service's status to determine whether that service has failed to meet a service level (SL).

1.2 MDS3GProbes Service Adapter

The MDS3GProbes Service Adapters has been designed to collect pre-defined Key Performance Indicators (KPIs) as collected and pre-processed by the Tekelec IAS solution.

1.2.1 What the Service Adapter does

Together with its partner Tekelec, HP has pre-defined a full set of GPRS-UMTS IP KPIs:

- Built by the IAS ProTraq application:
- From IPDRs generated by IAS non-intrusive signaling probes
- And exported to Oracle database using IAS DataToOracle application.

The Data To Oracle (DTO) application allows the transfer of xDRs stored in a Data Server into an Oracle database.

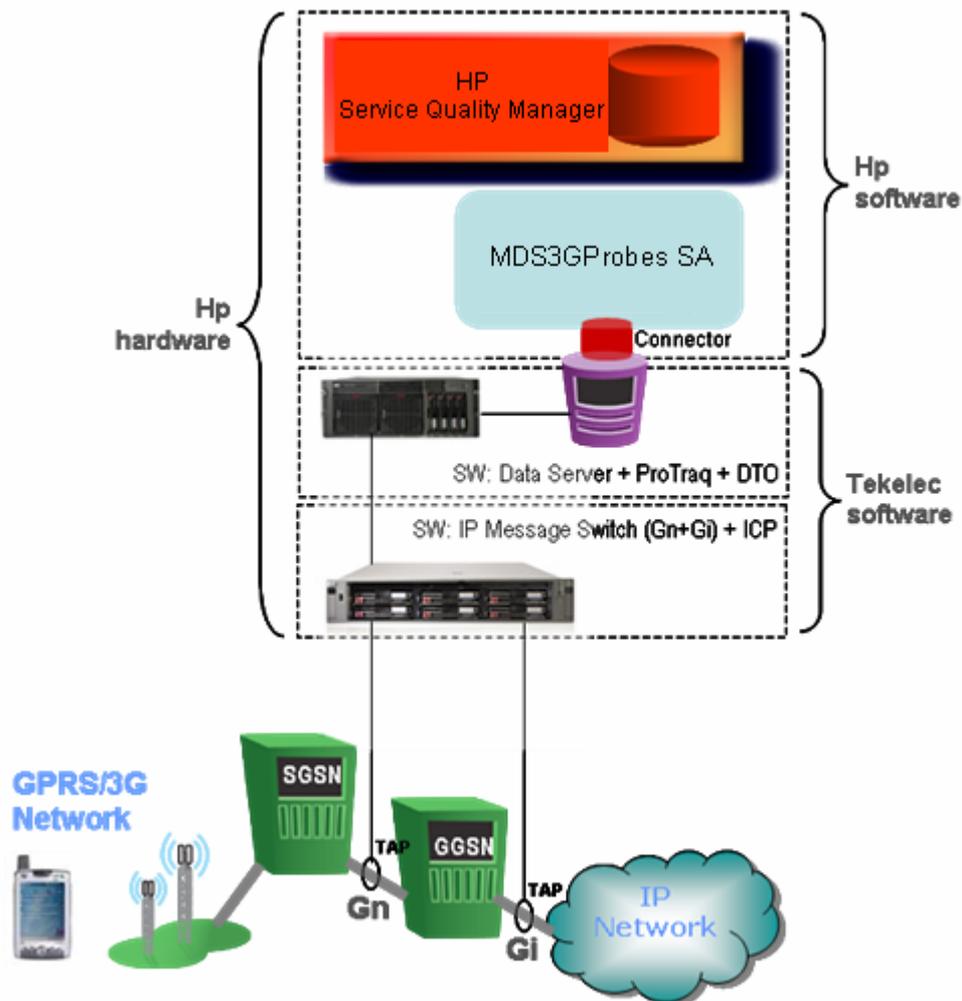
The MDS3GProbe Service Adapter connects to Tekelec Oracle database and collects relevant data. It serves as a bridge between SQM and Tekelec, collecting data from Tekelec, calculating quality indicators, and then feeding them to SQM.

1.2.2 Tekelec Probes as a data source for SQM

Integration is achieved through an SQM SQL Service Adapter, called the MDS3GPROBES Service Adapter. This Service Adapter collects tekelec data from a dedicated SQL view that computes required KPIs for SQM.

This integration is illustrated in the following figure, “ Tekelec /SQM integration”.

Figure 2 Tekelec /SQM integration



1.2.3 Product deployment

Note

Before deploying the MDS3GProbes Service Adapter, please make sure that the required IAS solution, including the DTO application and appropriate Oracle database, has been fully deployed and configured to provide the KPIs as defined in the “Tekelec – HP GPRS-UMTS IP KPIs for HP SQM IP value Pack Specification document.”

On the SQM platform, you must install and configure the Service Adapter with all its prerequisites, which include the SQM Kernel, Service Adapter Common layer, and the SQL Service Adapter.

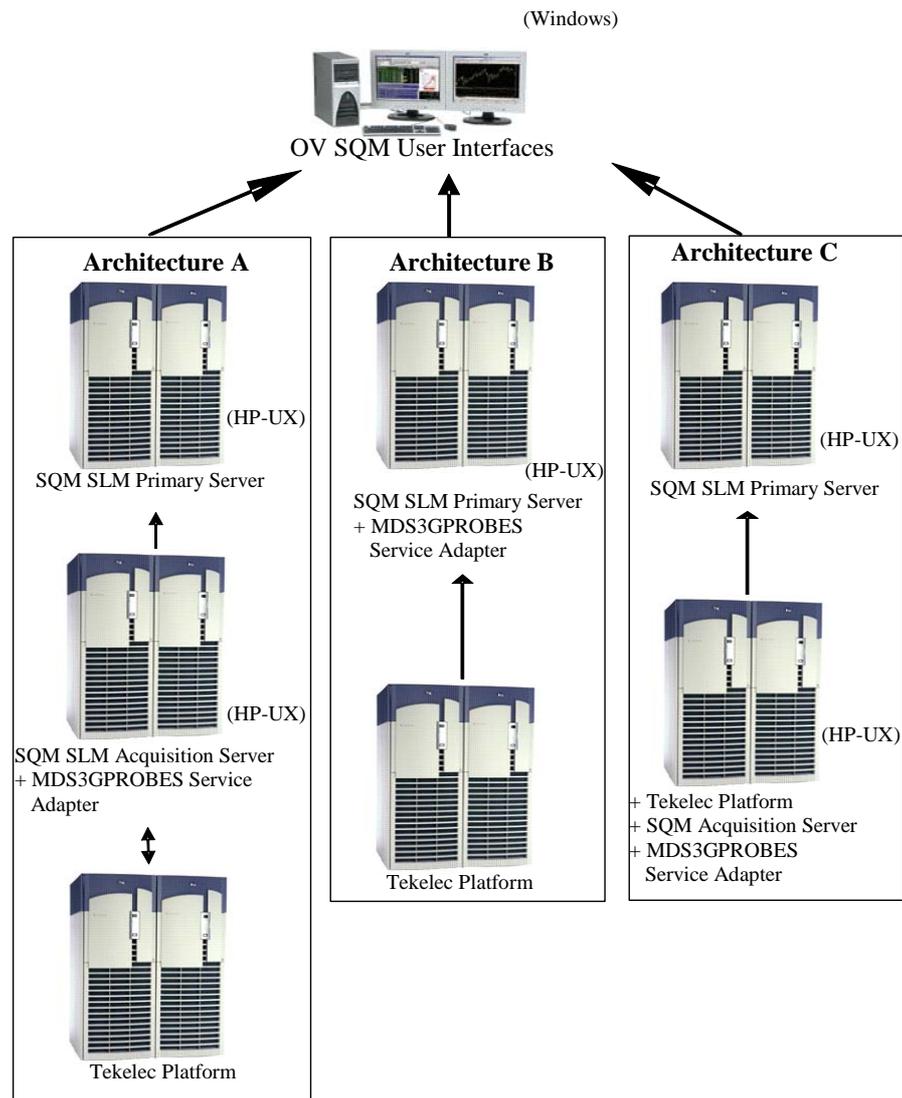
Once the Service Adapter has been configured and started, it begins to collect the specified quality indicators for SQM. The Service Adapter functions as an independent unit.

Each configured installation is called a Service Adapter Application. The Service Adapter Application connects to the Tekelec database using Java Database Connectivity (JDBC), and then collects data from the database.

You can install the Service Adapter on a computer that is not part of the Tekelec environment if you wish. This might be useful if you want to balance network load or have dedicated computers for specific tasks, for example. The Service Adapter Application can also connect across a firewall, providing greater flexibility in secure environments.

Figure 3 below shows how the Service Adapter works with SQM and Tekelec Platform.

Figure 3 Service Adapter deployments



1.2.4 MDS3GPROBES data collection

The Service Adapter uses data feeders to collect data. A data feeder is therefore a source of data for SQM. Each data feeder is defined by a Data Feeder Definition (DFD).

Some DFD related terms are explained below.

- **DFD**

A data structure which defines the source data collected; it is stored both in the SQM Service Repository Manager and in the SQM Central Repository.

- **DFD parameters**

Parameters that define what measurement data the Service Adapter sends to SQM; it is stored in the SQM Service Repository Manager repository.

- **DFD properties**

These properties further identify the managed probe whose data is collected. The properties are stored in the SQM Service Repository Manager's repository.

- **Measurement Reference Point**

The Measurement Reference Point (MRP) identifies the source of the data that is to be collected.

The following sections show the DFD configuration of the MDS3GPROBES Service Adapter.

DTO APN SGSN Gn

Key Performance Indicators provided by Tekelec for APN, measured on interface Gn of a given SGSN. Available for 2G and 3G.
Mapped onto the DTO table SQM_APN_SGSN_Gn.

Properties:

Access Point Name : String

Mapped onto the DTO::Line_ column.

For this DFD, this column gives the list of all of the different couple (APN, SGSN) present in the TABLE.

Format of this column is : APN | SGSN

SGSN identifier : String

Mapped onto the DTO::Line_ column.

For this DFD, this column gives the list of all of the different couple (APN, SGSN) present in the TABLE.

Format of this column is : APN | SGSN

Visible Parameters:

Downlink traffic volume : Int

Identifier: DLVolume

Customer Dependent:

Units: packets

Category: Gauge

Mapped onto DTO::DLVolume_.

Gives the number of GTP T-PDU packets in Downlink (Network to Mobile).

I.e. the average user downlink traffic with the APN.

Uplink traffic volume : Int

Identifier: ULVolume

Customer Dependent:

Units: packets

Category: Rate

Mapped onto DTO::ULVolume_.

Gives the number of GTP T-PDU packets in Uplink (Mobile to Network).

I.e the average user uplink traffic with this APN.

PDP context creation efficiency : Float

Identifier: CreatePDPRatio

Customer Dependent:

Units: %

Category: Rate

The PDP context creation efficiency aggregated for this APN.

Mapped onto DTO::CreatePDPRatio_.

Ratio giving the percentage of successful PDP creation procedure. The value in the table has to be divided by 100 to get the percent value.

PDP context creation procedure duration : Float

Identifier: AvgCreatePDPTime

Customer Dependent:

Units: ms

Category: Other

The time taken to set up PDP context creation.

Mapped onto DTO::AvgCreatePDPTime_.

Ratio between the Sum of the transaction time of the successful Create PDP context procedure and the number of successful PDP creation made. It gives the mean time to complete a PDP creation procedure.

Number of Create PDP context : Int

Identifier: CreatePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CreatePDP_.

Gives the Number of Create PDP context procedure which were done on the network.

Number of successfull Create PDP context : Int

Identifier: CreatePDPOK

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CreatePDPOK_.

Gives the number of successfull Create PDP context procedure made on the network.

Cumul transaction time of successful Create PDP context : Float

Identifier: CumCreatePDPTime

Customer Dependent:

Units: ms

Category: Rate

Mapped onto DTO::CumulCreatePDPTime_.

Cumulative value of the transaction time of the successful Create PDP context procedure made on the network.

Number of Delete PDP context : Int

Identifier: DeletePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::DeletePDP_.

Gives the Number of Delete PDP context procedure which were done on the network.

Number of network initiated Delete PDP context : Int

Identifier: NetworkDeletePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::NetworkDeletePDP_.

Gives the number of Delete PDP context procedure initiated by the network.

DTO APN Gn

APN Key Performance Indicators measured on interface Gn. Provided byTekelec.

Available for 2G and 3G.

Mapped onto the DTO table SQM_APN_Gn.

Properties:

Access Point Name : String

Mapped onto the DTO::Line_ column. In that case this is the APN.

FOR SQL SA INTERNAL USE, DO NOT REMOVE OR

MODIFY THIS PROPERTY

Visible Parameters:

PDP context creation efficiency : Float

Identifier: CreatePDPRatio

Customer Dependent:

Units: %

Category: Rate

Mapped onto DTO::CreatePDPRatio_, the value in the table has to be divided by 100 to get the percent.

Ratio giving the percentage of successful PDP creation procedure.

PDP context creation procedure duration : Float

Identifier: AvgCreatePDPTime

Customer Dependent:

Units: ms

Category: Other

The average time taken to set up PDP context creation.

Mapped onto DTO::AvgCreatePDPTime_.

Ratio between the Sum of the transaction time of the successful Create PDP context procedure and the number of successful PDP creation made. The mean time to complete a PDP creation procedure.

Number of Create PDP context : Int

Identifier: CreatePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CreatePDP_.

Gives the Number of Create PDP context procedure which were done on the network.

Number of successfull Create PDP context : Int

Identifier: CreatePDPOK

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CreatePDPOK_.

Gives the number of successfull Create PDP context procedure made on the network.

Cumul duration of successful Create PDP context procedure : Float

Identifier: CumCreatePDPTi

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CumulCreatePDPTime_.

This is the cumulative value of the transaction time of the successful Create PDP context procedure made on the network.

Number of Delete PDP context : Int

Identifier: DeletePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::DeletePDP_.

Gives the Number of Delete PDP context procedure which were done on the network.

Number of Network initiated Delete PDP context : Int

Identifier: NetworkDeletePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::NetworkDeletePDP_.

Gives the number of Delete PDP context procedure initiated by the network.

Uplink traffic volume : Int

Identifier: ULVolume

Customer Dependent:

Units: packets

Category: Rate

Mapped onto DTO::ULVolume_.

Gives the number of GTP T-PDU packets in Uplink (Mobile to Network).

Downlink traffic volume : Int

Identifier: DLVolume

Customer Dependent:

Units: packets

Category: Rate

Mapped onto DTO::DLVolume_.

Gives the number of GTP T-PDU packets in Downlink (Network to Mobile)

DTO RADIUS GGSN Gi

RADIUS Key Performance Indicators for interface Gi by GGSN provided by Tekelec.

Available for 2G and 3G.

Mapped onto the DTO table SQM_Radius_GGSN_Gi.

Properties:

ElementID : String

Mapped onto the DTO::Line_ column. In that case this is the GGSN identifier.

Visible Parameters:

RADIUS efficiency : Float

Identifier: RadiusRatio

Customer Dependent:

Units: %

Category: Rate

The efficiency of RADIUS authentication.

Mapped onto DTO::RadiusRatio_.

Ratio giving the percentage of successful Radius authentication procedure. The value in the table has to be divided by 100 to get the percent value.

Number of RADIUS response time > T1 & <= T2 : Int

Identifier: RadiusRespUndT2

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::RadiusRespUndT2_.

Gives the number of Radius authentication which took less time than T2 value and more than T1

Value of T1 & T2 depends on the DTO deployment on the customer side. It could be for instance less than 1s and more than 200 milliseconds.

Number of RADIUS response time <= T1 : Int

Identifier: RadiusRespUndT1

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::RadiusRespUndT1_.

Gives the number of Radius authentication which took less time than the T1 value.

Value of T1 depends on the DTO deployment on the customer side. It could be for instance less than 200 milliseconds.

Number of RADIUS response time > T2 & <= T3 : Int

Identifier: RadiusRespUndT3

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::RadiusRespUndT3_.

Gives the number of Radius authentication which took less time than T3 value and more than T2.

Value of T2 & T3 depends on the DTO deployment on the customer side. It could be for instance less than 3s and more than 2s.

Number of RADIUS response time > T3 : Int

Identifier: RadiusRespOverT3

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::RadiusRespOverT3_.

Gives the number of Radius authentication which took more time than T3.

Number of RADIUS authentication : Int

Identifier: NbRadius

Customer Dependent:

Units:

Category: Gauge

Mapped onto DTO::NbRadius_.
Gives the Number of RADIUS authentication which were done on the network.

Number of successful RADIUS authentication : Int

Identifier: NbRadiusOk
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::NbRadiusOk_.
Gives the number of successful RADIUS authentication procedure made on the network.

DTO GGSN

Key Performance Indicators for interface Gn of GGSN provided by Tekelec.
Available for 2G and 3G.
Mapped onto the DTO table SQM_GGSN

Properties:

ElementID : String

Mapped onto the DTO::Line_ column. In that case this is the GGSN identifier.

Visible Parameters:

PDP context creation efficiency : Float

Identifier: CreatePDPRatio
Customer Dependent:
Units: %
Category: Rate
Mapped onto DTO::CreatePDPRatio_.
Ratio giving the percentage of successful PDP creation procedure. The value in the table has to be divided by 100 to get the percent value.

PDP context creation procedure duration : Float

Identifier: AvgCreatePDPTime
Customer Dependent:
Units: ms
Category: Rate
The average duration of the PDP context creation procedure.
Mapped onto DTO::AvgCreatePDPTime_.
Ratio between the Sum of the transaction time of the successful Create PDP context procedure and the number of successful PDP creation made. I.e the mean time to complete a PDP creation procedure.

Number of network initiated Delete PDP context : Int

Identifier: NetworkDeletePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::NetworkDeletePDP_.

Gives the number of Delete PDP context procedure initiated by the network.

Number of Create PDP context : Int

Identifier: CreatePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CreatePDP_.

Gives the number of Create PDP context procedure which were done on the network.

Number of successfull Create PDP context : Int

Identifier: CreatePDPOK

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CreatePDPOK_.

Gives the number of successfull Create PDP context procedure made on the network.

Cumul transaction time of successful Create PDP context : Float

Identifier: CumCreatePDPTime

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CumulCreatePDPTime_.

Cumul the transaction time of the successful Create PDP context procedure made on the network.

Number of Delete PDP context : Int

Identifier: DeletePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::DeletePDP_.

Gives the Number of Delete PDP context procedure which were done on the network.

Uplink traffic volume : Int

Identifier: ULVolume

Customer Dependent:

Units: packets

Category: Rate

Mapped onto DTO::ULVolume_
Gives the number of GTP T-PDU packets in Uplink (Mobile to Network).

Downlink traffic volume : Int

Identifier: DLVolume
Customer Dependent:
Units: packets
Category: Rate
Mapped onto DTO::DLVolume_
Gives the number of GTP T-PDU packets in Downlink (Network to Mobile).

DTO SGSN DNS

Key Performance Indicators measured by Tekelec for SGSN, interface DNS/Gn.
Available for 2G and 3G.

Mapped onto the DTO table SQM_DNS_SGSN.

NOTE:

The Column Corner_ fo this DTO table, is a Text field which allows to identify the different type of roaming & internal DNS traffic from:

- Subscribers (value is "Internal DNS"),
- Subscribers in foreign network (value is "Roaming Out"), and
- Roamers in customer network (value is "Roaming In").

Properties:

SGSN identifier : String

Mapped onto the DTO::Line_ column. In that case this is the SGSN identifier.

Visible Parameters:

DNS APN resolution efficiency : Float

Identifier: DNSresoAPN
Customer Dependent:
Units: %
Category: Rate
The APN DNS resolution efficiency.
Mapped onto DTO::DNSResolutionRatio_
Ratio giving the percentage of successful DNS resolution. The value in the table has to be divided by 100 to get the percent value.

DNS mobility resolution efficiency : Float

Identifier: RatioDnsLacRac
Customer Dependent:
Units: %
Category: Rate
Mapped onto DTO::RatioDnsLacRac_. (To Be Confirmed!)
Efficiency of the mobility DNS resolution: LAC (Local Area Code) / RAC (Routing Area Code).

Number of DNS APN resolution : Int

Identifier: DNSResolution
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::DNSResolution_
Gives the number of DNS APN resolution made on the Network.

Number of DNS mobility resolution : Int

Identifier: DnsLacRac
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::Dnslacrac_ (To Be Confirmed!)

Number of DNS successful resolution : Int

Identifier: DNSResolutionOk
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::DNSResolutionOk_
Gives the number of DNS resolution made on the network which were successful.

Number of DNS mobility successful resolution : Int

Identifier: DnsLacRacOk
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::DnsLacRacOk_
Gives the number of DNS resolution made on the network which were successful.

DTO SGSN Gp

Key Performance Indicators measured by Tekelec for SGSN interface Gp.
Available for 2G and 3G.
Mapped onto the DTO table ??

Properties:

SGSN identifier : String

Mapped onto the DTO::Line_ column. In that case this is the SGSN identifier.

Visible Parameters:

PDP context creation efficiency : Float

Identifier: CreatePDPRatio

Customer Dependent:

Units: %

Category: Rate

The global average PDP context creation efficiency aggregated for all of the APN seen on this SGSN.

Mapped onto DTO::CreatePDPRatio_.

Ratio giving the percentage of successful PDP creation procedure. The value in the table has to be divided by 100 to get the percent value.

PDP context creation procedure duration : Float

Identifier: AvgCreatePDPTime

Customer Dependent:

Units: ms

Category: Rate

Mapped onto DTO::AvgCreatePDPTime_.

Ratio between the Sum of the transaction time of the successful Create PDP context procedure and the number of successful PDP creation made. It gives the mean time to complete a PDP creation procedure.

Number of Create PDP context : Int

Identifier: CreatePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CreatePDP_.

Gives the Number of Create PDP context procedure which were done on the network.

Cumul transaction time of successful Create PDP context : Float

Identifier: CumCreatePDPTime

Customer Dependent:

Units: ms

Category: Rate

Mapped onto DTO::CumulCreatePDPTime_.

Cumulative value of the transaction time of the successful Create PDP context procedure made on the network.

Downlink traffic volume : Int

Identifier: DLVolume

Customer Dependent:

Units: packets

Category: Rate

Mapped onto DTO::DLVolume_.

Gives the number of GTP T-PDU packets in Downlink (Network to Mobile).
I.e. the average user downlink traffic seen by this SGSN.

Uplink traffic volume : Int

Identifier: ULVolume

Customer Dependent:

Units: packets

Category: Rate

Mapped onto DTO::ULVolume_.

Gives the number of GTP T-PDU packets in Uplink (Network to Mobile).
I.e. the average user uplink traffic seen by this SGSN.

Number of Delete PDP context : Int

Identifier: DeletePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::DeletePDP_.

Gives the Number of Delete PDP context procedure which were done on the network.

Number of network initiated Delete PDP context : Int

Identifier: NetworkDeletePDP

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::NetworkDeletePDP_.

Gives the number of Delete PDP context procedure initiated by the network.

Number of successfull Create PDP context : Int

Identifier: CreatePDPOK

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CreatePDPOK_.

Gives the number of successfull Create PDP context procedure made on the network.

DTO WAP Gn

WAP KPI provided by Tekelec. Available for 2G and 3G.

Mapped onto the DTO table SQM_WAP_Gn

Connection related KPI are either

- the WSPconnect related KPI for WAP v1, or
- the TCPconnect related KPI for the WAP v2.

Note: When DTO publishes WAP v1 KPI and WAP v2 KPI in two distinct TABLES, a VIEW (e.g. WAP_V1_V2_VIEW) can be created to join these two TABLES.

Properties:

Server identifier : String

Mapped onto the DTO::Line_ column. In that case this is the WAP Gateway identifier.

Visible Parameters:

Connect efficiency : Float

Identifier: WSPConnectRatio

Customer Dependent:

Units: %

Category: Rate

Mapped onto DTO::WSPConnectRatio_ for WAP v1 and DTO::TCPConnectRatio_ for WAP v2

Ratio giving the percentage of successful WSP or TCP Connect procedure. The value in the table has to be divided by 100 to get the percent value.

Connect procedure duration : Float

Identifier: AvWSPConnectTime

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::AvgWSPConnectTime_ for WAP v1 and DTO::AvgTCPConnectTime_ for WAP v2

Ratio between the Sum of all the transaction time of the WSP or TCP Connect procedure and the total number of WSP TCP Connect made. This is the mean time to complete a WSP or TCP Connect procedure.

Average home page access efficiency : Float

Identifier: AccesPortalRatio

Customer Dependent:

Units: %

Category: Rate

Access to the Portal home pages efficiency.

Mapped onto DTO::AccessPortalRatio_
Ratio giving the percentage of successful Get made to a specific portal. The value in the table has to be divided by 100 to get the percent value.

Time to successfully Get first byte from Portal : Float

Identifier: HomPaAccTim

Customer Dependent:

Units:

Category: Rate

Average time to retrieve the first byte from the Portal home page.

Mapped onto DTO::AvgTimeToGetFirstData_.

Ratio between the Sum of all the time to first byte of the Get to the portale and the number of successful Get made. I.e. the mean time to get first data on a access to the Portal.

Number of Connect : Int

Identifier: WSPConnect

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::WSPConnect_ for WAP v1 and

DTO::TCPConnect_ for WAP v2

Gives the Number of WSP or TCP Connect procedure which were done on the network.

Number of Get to specific Portal : Int

Identifier: NbAccessPortal

Customer Dependent:

Units:

Category: Counter

Mapped onto DTO::NbAccessPortal_.

Gives the number of Get made to a specific Portal (URI based).

Number of successfull Connect : Int

Identifier: WSPConnectOk

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::WSPConnectOk for WAP v1 and DTO::TCPConnectOk for WAP v2

Gives the number of successfull WSP or TCP connect procedure made on the network.

Cumulative duration of the Connect procedure : Int

Identifier: CumWSPConnectDu

Customer Dependent:

Units:

Category: Rate

Mapped onto DTO::CumulWSPConnectTime_ for WAP v1 and
DTO::CumulTCPConnectTime_ fro WAP v2.
Cumulative value of the transaction time of all the WSP or TCP Connect procedure
made on the network (successful AND unsuccessful one).

Number of successful Get to specific Portal : Int

Identifier: NbAccessPortalOk
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::NbAccessPortalOk_.
Gives the number of successful Get made to a specific Portal (URI based).

Cumul time to successfully Get first byte from Portal : Float

Identifier: TimeGetFirstData
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::CumulTimeToGetFirstData_.
Cumulative value of the time to first byte of successful Get made to the Portal.

Cumul length of Uplink transmitted data : Int

Identifier: ULVolume
Customer Dependent:
Units: Bytes
Category: Rate
Mapped onto DTO::ULVolume_.
Gives the number of data transmission made in Uplink (Mobile to Network). It is
based on a cumul of the length in octet of the transmitted data.

Cumul length of Downlink transmitted data : Int

Identifier: DLVolume
Customer Dependent:
Units: bytes
Category: Rate
Mapped onto DTO::DLVolume_.
Gives the number of data transmission made in Downlink ((Network to Mobile). It is
based on a cumul of the length in octet of the transmitted data.

DTO APN Gp

APN Key Performance Indicators measured on interface Gp. Provided by Tekelec.
Available for 2G and 3G.
Mapped onto the DTO table SQM_APN_Gp.

Derived from DTO APN Gn

DTO APN SGSN Gp

Key Performance Indicators provided by Tekelec for APN, measured on interface Gp of a given SGSN. Available for 2G and 3G.
Mapped onto the DTO table SQM_APN_SGSN_Gp.

All parameter and properties are the same as DTO APN SGSN Gn

DTO APN SGSN DNS

DNS resolution Key Performance Indicators measured by Tekelec for an APN onto a SGSN.

Available for 2G and 3G.

Mapped onto the DTO table SQM_DNS_APN_SGSN.

NOTE:

The Column Corner_ fo this DTO table, is a Text field which allows to identify the different type of roaming & internal DNS traffic from:

- Subscribers (value is "Internal DNS"),
- Subscribers in foreign network (value is "Roaming Out"), and
- Roamers in customer network (value is "Roaming In").

This datafeeder uses the parameters and properties of DTO SGSN DNS.

Properties:

Access Point Name : String

Mapped onto the DTO::Line_ column.

For this DFD, this column gives the list of all of the different couple (APN, SGSN) present in the TABLE.

Format of this column is : APN | SGSN

Value of SGSN is assign to property SGSNid.

DTO RADIUS Servers Gi

RADIUS Key Performance Indicators for any Server measured on interface Gi.

Provided by Tekelec. Available for 2G and 3G.

Mapped onto the DTO table SQM_Radius_Servers_Gi.

This datafeeder uses the parameters and properties of DTO RADIUS GGSN Gi.

DTO APN SGSN

Key Performance Indicators provided by Tekelec for APN, measured on interface Gn of a given SGSN. Available for 2G and 3G.

Mapped onto the view SQM_APN_SGSN_VIEW which do the union of the two DTO table SQM_APN_SGSN_Gn and SQM_APN_SGSN_Gp.

This datafeeder uses the parameters and properties of DTO APN SGSN Gp.

DTO MMS Gn

MMS Passive Probing. KPI provided by the DTO
Available for 2G and 3G.

Mapped onto the DTO table SQM_MMS_Gn

Note: Depending on the DTO deployment, this DFD can be extended with a break down per (MO/MT) MMS failure cause family.

Properties:

ElementId : String

Mapped onto the DTO::Line_ column.

Visible Parameters:

Number of MO MMS : Int

Identifier: Nb_MO_MMS

Customer Dependent:

Units:

Category: Rate

Mapped onto column DTO::Nb_MO_MMS_

Give the number of Mobile Originating MMS.

Number of successful MO MMS : Int

Identifier: MO_MMS_Ok

Customer Dependent:

Units:

Category: Rate

Give the number of successful Mobile Originating (MO) MMS

MO MMS successful ratio : Float

Identifier: MO_MMS_Ok_Ratio

Customer Dependent:

Units: %

Category: Rate
Ratio of successful Mobile Originating (MO) MMS
Mapped onto column DTO::MO_MMS_Ok_Ratio_

Upload volume of MO MMS : Int

Identifier: MO_MMS_UL_vol
Customer Dependent:
Units:
Category: Rate
Volume of the Mobile Originating (MO) MMS upload

Number of sent MMS of size less than S1 : Int

Identifier: Nb_MMS_S1
Customer Dependent:
Units:
Category: Rate
Number of MMS sent with a size less than S1 (the value of S1 is configurable by the customer in the DTO configuration)

Number of sent MMS of size greater than S2 : Int

Identifier: Nb_MMS_S2
Customer Dependent:
Units:
Category: Rate
Number of MMS sent with a size greater than S2 (the value of S2 is configurable by the customer in the DTO configuration)

Cumul sending duration of MMS size less S1 : Int

Identifier: Send_time_S1
Customer Dependent:
Units:
Category: Rate
Culmul of the sending duration for the MMS with a size less than the configurable S1 size.

Cumul sending duration of MMS size greater S2 : Int

Identifier: Send_time_S2
Customer Dependent:
Units:
Category: Rate
Culmul of the sending duration for the MMS with a size greater than the configurable S2 size.

Average sending duration of MMS size less S1 : Float

Identifier: Avg_send_time_S1

Customer Dependent:

Units:

Category: Rate

Average sending duration for the MMS with a size less than the configurable S1 size.

Average sending duration of MMS size greater S2 : Float

Identifier: Avg_send_time_S2

Customer Dependent:

Units:

Category: Rate

Average sending duration for the MMS with a size greater than the configurable S1 size.

Number of MT MMS : Int

Identifier: Nb_MT_MMS

Customer Dependent:

Units:

Category: Rate

Number of Mobile Terminating (MT) MMS

Number of succesful MT MMS : Int

Identifier: MT_MMS_Ok

Customer Dependent:

Units:

Category: Rate

Give the number of succesful Mobile Terminating (MT) MMS

MT MMS successful ratio : Float

Identifier: MT_MMS_Ok_Ratio

Customer Dependent:

Units: %

Category: Rate

Ratio of succesful Mobile Terminating (MT) MMS

Mapped onto column DTO::MT_MMS_Ok_Ratio_

Donwload volume of MT MMS : Int

Identifier: MT_MMS_DL_vol

Customer Dependent:

Units:

Category: Rate

Volume of the Mobile Terminating (MT) MMS download

Average receiving duration of MMS size greater S2 : Float

Identifier: Avg_rcv_time_S2

Customer Dependent:

Units:**Category:** Rate

Average receiving duration for the MMS with a size greater than the configurable S2 size.

Mapped onto column DTO::Avg_receive_time_S2_

Average receiving duration of MMS size less S1 : Float

Identifier: Avg_recv_time_S1

Customer Dependent:**Units:****Category:** Rate

Average receiving duration for the MMS with a size less than the configurable S1 size.

Mapped onto column DTO::Avg_receive_time_S1_

Cumul receiving duration of MMS size greater S2 : Int

Identifier: Receive_time_S2

Customer Dependent:**Units:****Category:** Rate

Cumul of the receiving duration for the MMS with a size greater than the configurable S2 size.

Mapped onto column DTO::Receive_time_S2_

Cumul receiving duration of MMS size less S1 : Int

Identifier: Receive_time_S1

Customer Dependent:**Units:****Category:** Rate

Cumul of the receiving duration for the MMS with a size less than the configurable S1 size.

Mapped onto column DTO::Receive_time_S1_

DTO SGSN Gb Iu

Key Performance Indicators measured by Tekelec for the interface Gb of the SGSN, and the interface Iu of the SGSN-3G. The KPI are the same in both cases.

Available for 2G and 3G.

Mapped onto the DTO table SQM_SGSN_Gb

Properties:

ElementID : String

Mapped onto the DTO::Line_ column. In that case this is the SGSN identifier.

Visible Parameters:

Attachement efficiency : Float

Identifier: AttachementE

Customer Dependent:

Units: %

Category: Percent

The average attachment efficiency, i.e. the number of successful attachments divided by the total number of attachment attempts.

Attachment procedure duration : Float

Identifier: AvgAttachTime

Customer Dependent:

Units: ms

Category: Rate

The average attachment procedure duration.

Mapped onto DTO::AvgAttachTime_.

Ratio between the Sum of the transaction time of the successful Attach procedure and the number of successful Attach made. I.e. the mean time to complete an Attach procedure.

PDP context activation efficiency : Float

Identifier: ActivatePDPRatio

Customer Dependent:

Units: %

Category: Rate

The average efficiency of the PDP context activation procedure, i.e. the number of PDP contexts activated successfully divided by the total number of PDP context activation attempts.

Mapped onto DTO::ActivatePDPRatio_.

This ratio giving the percentage of successful Activate PDP context procedure has to be divided by 100 to get the percent value.

PDP context activation procedure duration : Float

Identifier: AvgActivatePDPTi

Customer Dependent:

Units: ms

Category: Rate

The average duration of the PDP context activation procedure.

Mapped onto DTO::AvgActivatePDPTime_.

Ratio between the Sum of the transaction time of the successful Activate PDP context procedure and the number of successful Activate PDP context made. I.e. the mean time to complete an Activate PDP context procedure.

Number of PDP context activation : Int

Identifier: ActivatePDP

Customer Dependent:

Units:**Category:** Rate

Mapped onto DTO::ActivatePDP_.

Gives the global number of activate PDP context request done on the network during the statistic period

Number of Attachment : Int**Identifier:** Attach**Customer Dependent:****Units:****Category:** Rate

Mapped onto DTO::Attach_.

Gives the global number of Attach request done on the network during the statistic period.

Number of successful Attachment : Int**Identifier:** AttachOk**Customer Dependent:****Units:****Category:** Rate

Mapped onto DTO::AttachOk_.

Gives the number of successful Attach made on the network during the statistic period.

Cumulative attachment transaction time : Float**Identifier:** CumAttachTime**Customer Dependent:****Units:** ms**Category:** Rate

Mapped onto DTO::CumulAttachTime_.

Cumulative value of the transaction time of the successful Attach procedure made on the network (successful AND unsuccessful one).

Number of successful PDP context activation : Int**Identifier:** ActivatePDPOk**Customer Dependent:****Units:****Category:** Rate

Mapped onto DTO::ActivatePDPOk_.

Gives the number of successful Activate PDP context procedure made on the network during the statistic period.

Cumulative time of successful PDP context activation : Float**Identifier:** CumActivatePDPTi**Customer Dependent:****Units:** ms**Category:** Rate

Mapped onto DTO::CumulActivatePDPTime_.

Cumulative value of the transaction time of the successful Activate PDP context procedure made on the network (successful AND unsuccessful one).

Number of Detachment : Int

Identifier: Detach
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::Detach_.
Gives the global number of Detach request done on the network during the statistic period.

Number of network originated Detach : Int

Identifier: NetworkDetach
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::NetworkDetach_.
Gives the number of Detach request originated by the network during the statistic period.

Number of Delete PDP context : Int

Identifier: DeletePDP
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::DeletePDP_.
Gives the global number of Delete PDP context request made on the network during the statistic period.

Number of network originated Delete PDP context : Int

Identifier: NetworkDeletePDP
Customer Dependent:
Units:
Category: Rate
Mapped onto DTO::NetworkDeletePDP_.
Gives the number of Delete PDP context request originated by the network during the statistic period.

DTO APN SGSN Gb Iu

APN Key Performance Indicators measured on interface Gn. Provided by Tekelec.
Available for 2G and 3G.
Mapped onto the DTO table SQM_APN_SGSN_Gb.

This datafeeder uses the parameters and properties of DTO SGSN Gb Iu.

Properties:

Access Point Name : String

Mapped onto the DTO::Line_ column.

For this DFD, this column gives the list of all of the different couple (APN, SGSN) present in the TABLE.

Format of this column is : APN | SGSN

Value of SGSN is assign to property SGSNid.

DTO IMEI Gb

KPI measured by Tekelec for Mobile Station on the interface Gb, available for 2G.

Mapped onto the DTO table SQM_IMEI_Gb.

The Mobile Station is identified by its IMEI (International Mobile station Equipment Identity). The IMEI is set to the DFD's ElementID property.

This datafeeder uses the parameters and properties of DTO SGSN Gb Iu.

DTO Gp by IMSIgroup

KPI measured for all of the IMSI of the IMSI group owned by Customer.

To Be Confirmed!

Properties:

IMSI group identifier : String

Customer identifier : String

E.g. CUST

Visible Parameters:

Ratio of unsolicited detachment : Float

Identifier: RaUnsolDetach

Customer Dependent:

Units: %

Category: Rate

Ratio of unsolicited Deactivation : Float

Identifier: RaUnsolDeact

Customer Dependent:

Units: %

Category: Rate

PDP context setup efficiency : Float

Identifier: PDPctxEff

Customer Dependent:
Units: %
Category: Rate
Attachement efficiency : Float

Identifier: AttachEff
Customer Dependent:
Units: %
Category: Rate

Chapter 2

Installing the Service Adapter

This chapter explains how to install the Service Adapter on HP-UX. Once you have completed the installation, you must follow the instructions in the next chapter to configure the Service Adapter.

2.1 Software and Hardware Requirements

2.1.1 Software requirements

- HP-UX 11.11
- Tekelec Platform
- Oracle 10g
- HP OpenView Service Quality Manager V1.4 (Kernel subset)
- HP OpenView SA Common V1.4 (SQMSAGTWCOMMON)
- HP OpenView SQL Service Adapter Runtime V1.4 (SQMSASQL)
- Oracle JDBC driver related to Oracle platform in use.

2.1.2 Hardware requirements

For the complete hardware requirements, see the *HP OpenView Service Quality Manager Installation Guide*.

For the Service Adapter:

- 5 MB of available hard disk space (10 MB recommended)

2.2 Installing the MDS3GPROBES SA

If the OV SQM Kernel has not been installed already, you must install it before you install the Service Adaptor, by following the instructions in “Installing the OV SQM Kernel” below.

If the OV SQM Kernel has already been installed, go directly to “Installing the SA Common subset” on page 38.

2.2.1 Installing the OV SQM Kernel

The SQM Core Kernel subset is a prerequisite for installation of the MDS3GPROBES SA.

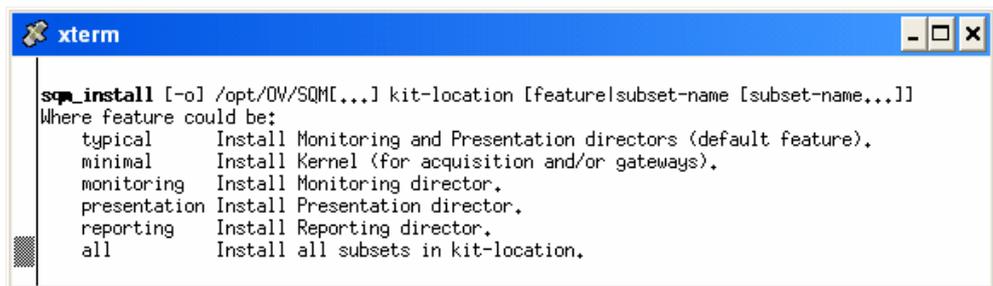
To install the Kernel, do the following.

1. Create the SQM home directory, if it does not already exist.
2. Under the **root** account, enter the following command:

```
# mkdir /opt/OV/SQM<xxx>
```

where <xxx> is the label you want to assign to the current release.

3. Mount the SQM Core CD-ROM on your system.
4. Go to <mounted directory>/SQM-1.40.00
where <mounted directory> is the name of your mounted directory.
5. Run the *sqm_install* tool under the root account.



```
xterm
sqm_install [-o] /opt/OV/SQM[...] kit-location [feature|subset-name [subset-name,...]]
Where feature could be:
  typical    Install Monitoring and Presentation directors (default feature).
  minimal    Install Kernel (for acquisition and/or gateways).
  monitoring  Install Monitoring director.
  presentation Install Presentation director.
  reporting  Install Reporting director.
  all        Install all subsets in kit-location.
```

6. Select the *minimal* feature by entering the following command:

```
# sqm_install /opt/OV/SQM<xxx> <mount directory>/SQM-1.40.00/HP
UX/KIT
```

7. Press **Enter** to install the Kernel.

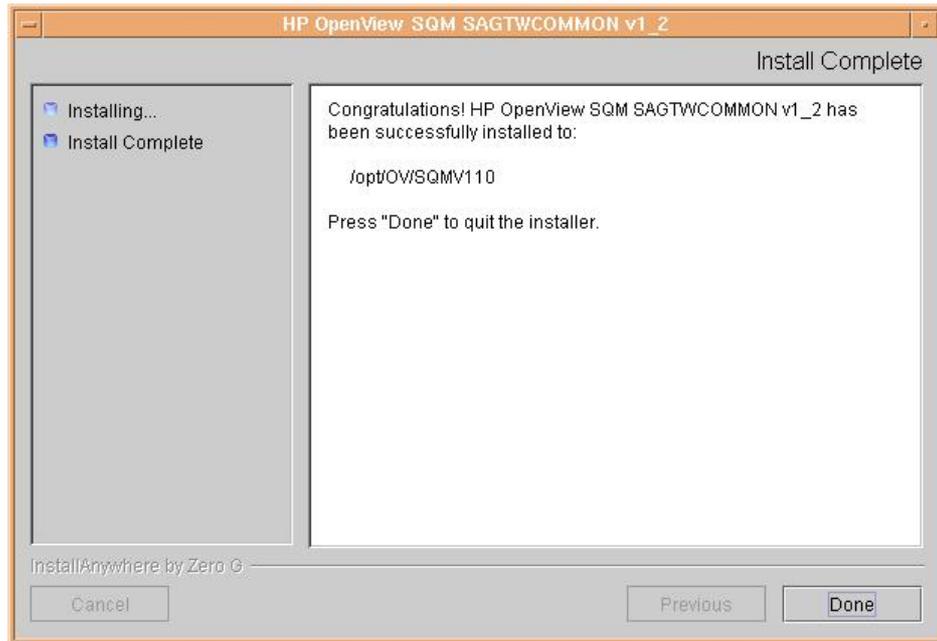
2.2.2 Installing the SA Common subset

If necessary, install the SA Common component by doing the following. If this has already been done, go directly to “Installing the SQL Service Adapter Runtime” on page 39.

1. First, log on to the system as **root** user.
2. Mount the HP OpenView Service Adapters and Gateways CD-ROM on your system.
3. Go to <mount directory>/SQM-1.40.00
and execute the following command:

```
# ./SQMSAGTWCCOMMON-1.40.00.bin
```

The software is installed and the **Install Complete** window is displayed.



2.2.3 Installing the SQL Service Adapter Runtime

If necessary, install the SQL Service Adapter Runtime component by doing the following. If this has already been done, go directly to “Installing the MDS3GPROBES Service Adapter” below.

1. First, log on to the system as **root** user.
2. Mount the HP OpenView SQM Service Adapters and Gateways CD-ROM on your system.
3. Go to `<mount directory>/SQM-1.40.00` where `<mount directory>` is your mount directory.
4. Run the installer by entering the following command:

```
# ./SQMSASQL-1.40.00.bin
```

The software is installed and the **Install Complete** window is displayed as shown below.



5. To finish, click **Done**.

2.2.4 Installing the MDS3GPROBES Service Adapter

To install the MDS3GPROBES SA on HP-UX, do the following.

1. Log on as root user.
2. Mount the HP OpenView SQM Service Adapters and Gateways CD-ROM.
3. Go to `<mount directory>/SQM-1.40.00` where `<mount directory>` is your mount directory.
4. Run the installer by entering the following command:

```
# ./ SQMSAMDS3GPROBES-1.40.00.bin
```

The software is installed and the **Install Complete** window is displayed as shown below.



5. To end the installation process, click **Done**.
6. Execute the installation script to set the correct access rights to the installed files by entering the following commands:

```
# cd $TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/bin
# sh temip_sc_complete_install.sh
```

2.2.5 Uninstalling the MDS3GPROBES Service Adapter

To uninstall the MDS3Gprobes SA software, do the following.

1. Log on as **root** user.
2. Load the SQM environment variables
`$TEMIP_SC_VAR_HOME/temip_sc_env.sh`
3. Enter the following two commands on the SQM platform where the MDS3Gprobes SA has been installed:

```
# cd $TEMIP_SC_HOME
#
./ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/UninstallerDataMDS3
Gprobes/Uninstall_MDS3Gprobes
```

4. See 4.3.2 to delete the application and eventually the DFD

Setting up and Configuring the Service Adapter

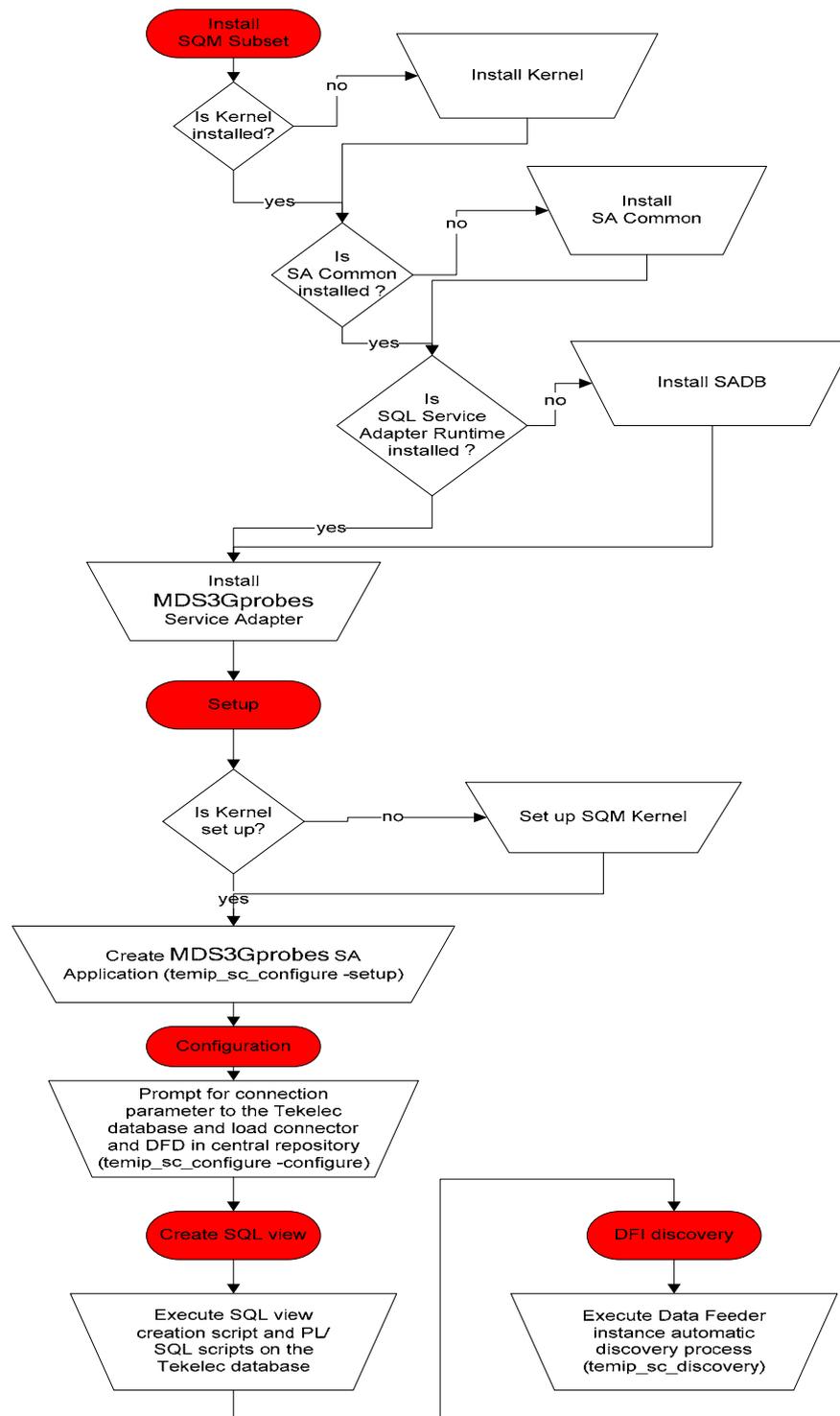
A set of tools is provided with the MDS3Gprobes Service Adapter to make it easier to install, set up and configure. These tools are used to create the application and upload the Data Feeder Definition (DFD) and connection settings into the central repository. They are also used to execute SQL view creation scripts on the Tekelec database server, as well as to discover Data Feeder instances automatically.

Figure 4 on page 44 shows you each of the Service Adapter configuration steps.

The MDS3Gprobes Service Adapter is set up and configured in four steps:

1. Setting up the application by declaring the MDS3Gprobes SA application in the SQM Central Repository and creating the MDS3Gprobes SA application data tree in `TEMIP_SC_VAR_HOME`
2. Configuring the application by replying to user prompts requesting the Tekelec database's connection settings, and loading the connection and Data Feeder definitions into the SQM Central Repository.
3. Creating the database views by executing the SQM SQL view creation files supplied in the MDS3Gprobes SA directory
`$TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/database`
4. Discovering and loading DFIs. DFI discovery is an important feature provided by the MDS3Gprobes Service Adapter. This feature is used to discover and load the Data Feeder Instances that will be managed by the MDS3Gprobes SA application, completely automatically.
This is done by querying the Tekelec database and loading into SQM a DFI for each entity Tekelec platform. This SQL query is based on a view of the `YYY.XXX` table. Before you execute this query to discover the DFI.

Figure 4 MDS3Gprobes SA configuration overview



3.1 Creating the Application

If your Kernel is not yet set up, you must configure it by doing the following. If your Kernel is set up already, go directly to “Setting up the Required Environment” on page 45.

Caution

A Service Adapter application name has to be unique cross platform and director!

3.1.1 Configuring the SQM Kernel

You must set up the SQM Kernel before the `MDS3Gprobes` SA can be configured and run. You can set up the SQM Kernel in any of the following configurations:

- If the `MDS3Gprobes` SA is installed on the HP-UX SQM SLM Primary Server: In this case, see the *HP OpenView SQM Installation Guide* for instructions on how to set up the SQM Server.
- If the `MDS3Gprobes` SA is installed on a HP-UX system separate from the SQM SLM Primary Server on which the SQM Kernel has not yet been configured. In this case, you must retrieve the SLM Server platform description file by doing the following:
 1. Create the `sqmadm` administration user on the target Unix system (see the *HP OpenView SQM Installation Guide* for instructions on how to create the user account)
 2. From the SQM SLM Primary Server, retrieve the file `$TEMIP_SC_VAR_HOME/setupconfig/platform_desc.cfg` and copy it to the SQL SA customization HP-UX system in `$TEMIP_SC_HOME/tmp`
 3. Log on as `root` user, and then enter the following commands:

```
# export TEMIP_SC_HOME=<SQM installation directory>
# cd $TEMIP_SC_HOME/setup/bin
# temip_sc_setup -all -NI
```

3.1.2 Setting up the Required Environment

To set up the required environment, you must do the following:

1. Create the `Sqmadm` group and user. The `sqmadm` group and user are used to set up and manage the kernel and application. See the *HP OpenView Service Quality Manager Installation Guide* for instructions on how to create the `sqmadm` group and user.
2. Set up the environment variables. If the kernel has been set up already, you must source the `temip_sc_env.sh` file contained in the `$TEMIP_SC_VAR_HOME` directory by entering the following command:

```
# . $TEMIP_SC_VAR_HOME/temip_sc_env.sh
```

3.1.3 Creating the MDS3Gprobes SA Application

This phase consists in creating a `MDS3Gprobes` SA application on the SQM platform (on a specified director). To create the `MDS3Gprobes` SA application, do the following:

1. Log on as `root` user.
2. Enter the following commands:

```
# cd $TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/b
in
#temip_sc_configure.sh -setup -dirName <director name> <applica
tion name>
```

where:

- *<director name>* is the director on which the application will be created. (By default, the director name is **acquisition**)
- *<application name>* is the application name provided by the user.

This command declares the MDS3Gprobes Service Adapter application to the SQM Central Repository and creates the application's data tree in:

```
$TEMIP_SC_VAR_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0
```

The following output is displayed:

```
[sqmadm_hotel]/opt/OV/SQMv120/ServiceAdapters/Sql/v1_4/MDS3Gprobe
s_v1_0/bin>temip_sc_configure.sh -setup MDS3GP_host1

Setup the "MDS3GP_host1" application ...
Create the application (this may take several minutes).
Create the data tree.
/var/opt/OV/SQM/slmv14/ServiceAdapters (already exist)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql (already exist)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4 (already exist)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0
(already exist)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
config (already exist)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
discovery (created)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
discovery/filter (created)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
discovery/filter/slmv14_acquisition_MDS3GprobesSA_filter.sh (cr
eated)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
discovery/inventory (created)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
discovery/inventory/raw (created)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
discovery/inventory/filtered (created)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
discovery/repository (created)
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/
repository (created)
Initializing Discovery Tracing and Logging ...
Setup succeed.

Update the access permissions on the data tree... succeed
```

3.2 Configuring the Application

The application must be configured by defining the MDS3Gprobes SA connection parameters and loading the connection and Data Feeder configuration into the SQM Central Repository.

To configure the application, do the following:

1. Log on as **sqmadm** user.
2. Load the SQM environment variables by entering the following command:

```
# . $TEMIP_SC_VAR_HOME/temip_sc_env.sh
```

3. Enter the following commands:

```
# cd $TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/bin
#temip_sc_configure.sh -configure <application name>
```

where <application name> is the application name entered in the setup command.

4. Enter the appropriate SQL database connection information (login, password, database URL, and JDBC driver), and then load the SQL Service Adapter's Data Feeder definitions and connector definition into the SQM Central Repository.

You must provide the following default connection parameters for the Tekelec database:

- URL: jdbc:oracle:thin:@<Tekelec database hostname>:1521:xx
- Username: zzz
- Default Password: yyy
- JDBC Driver: oracle.jdbc.driver.OracleDriver

The following output is displayed:

```
[sqmadm_hotel]/opt/OV/SQMV120/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/bin>temip_sc_configure.sh -configure MDS3GP_host1

Configure the "MDS3GP_host1" application ...
Please enter the database URL [jdbc:oracle:thin:@helios.vbe.cpq.corp.net:1521:xx]:
Please enter the database username [yy]:
Please enter the database password [*****]:
Please enter the database JDBC Driver [oracle.jdbc.driver.OracleDriver]:
Load the Connector in the Tibco Repository
Backup written at the following location: /var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/repository/connectors_data.exp.2004_8_5_17_27_53
/var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/repository/connectors_data.exp has been imported into the Repository
Load the Data Feeder Definitions in the SRM
load DFD: DTO APN Gn - v1_0 (./repository/NewDFDReq.DTO APN Gn.v1_0.xml) ... succeed.
Load the Data Feeder Definitions in the SRM
...
Load the Data Feeder Definitions in the Tibco Repository
Backup written at the following location: /var/opt/OV/SQM/slmv14/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/repository/MDS3Gprobes_dfds_data.exp.2004_8_5_17_28_18
./repository/
MDS3Gprobes_dfds_data.exp has been imported into the Repository
Configuration succeed.

Update the access permissions on the datatree... succeed
```

3.3 Creating the SQL view

This step must be performed only once, when you create the first instance in the Tekelec database, even if multiple MDS3Gprobes Service Adapter instances are created. This is because all MDS3Gprobes SA instances connected to a Tekelec database use the same SQL view.

MDS3Gprobes statistics are computed through an SQL view and PL/SQL scripts which must be deployed in the Tekelec database. These scripts are located in the following directory:

```
/opt/OV/SQMV120/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/datab  
ase
```

To deploy these scripts, enter the following two commands:

```
# cd $TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/bin  
# temp_sc_configure.sh -view <application name>
```

where *<application name>* is the application name entered at the setup command.

Enter the appropriate SQL database connection information (login, password, database URL, and JDBC driver). You must log in as a user with creation privileges on the Tekelec database to execute these scripts. By default, the **system** user has these privileges.

You must provide the following default connection parameters for the Tekelec database:

- Username: system
- Default Password: manager

The database URL and JDBC Driver information are not requested here, because the values specified to enable the MDS3Gprobes SA to connect to the database are reused.

The following output is displayed:

```
[sqmadm_hotel]/opt/OV/SQMV120/ServiceAdapters/Sql/v1_4/MDS3Gpro  
bes_v1_0/bin>temp_sc_configure.sh -view MDS3GP_host1  
  
Create the view ...  
=====  
Executing SQL Script on remote SQL database.  
=====  
=> Please enter the database username: system  
=> Please enter the database password: manager  
INFO: Executing SQL scripts on jdbc:oracle:thin:@helios.vbe.cpq  
corp.net:1521:xx ...  
  
INFO: Executing script './database/MDS_01_UnixTime_packageDecl  
are.sql  
' ...  
INFO: Script execution succeed.  
  
INFO: Executing script './database/MDS_02_UnixTime_packageBody  
.sql ' ...  
INFO: Script execution succeed.  
  
INFO: Executing script './database/MDS_03.DTO.APN.SGSN.Gp.view  
.sql' ...  
INFO: Script execution succeed.  
...  
INFO: Executing script './database/MDS_03.DTO.SGSN.Gp.view.sql  
' ...  
INFO: Script execution succeed.  
  
View creation succeed.
```

3.4 Discovering and Loading DFIs

The SQM DFI discovery is performed by the MDS3GProbes Service Adapter. This function is used to discover and load all the Data Feeder Instances that will be managed by the MDS3Gprobes SA application, completely automatically. This is done by retrieving the MRP properties from an SQL table in the target database.

Discovery script

1. On the SQM director, the discovery is activated with the following script:

PATH:

```
$STEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/bin
```

FILE: `temip_sc_discovery.sh`

SQM discovery phase

- **Raw discovery phase**, in which the SQL discovery query is executed and details of all discovered DFIs are recorded in a raw (unprocessed) inventory file.
- **Filtering phase**, in which a script is executed to filter the DFIs declared in the raw inventory file. A new filtered inventory file is generated containing only the DFIs selected for management. By default, the script does not apply any filtering. You must therefore modify it to filter the details contained in the raw inventory file as required.
- **Loading phase**, in which the details of the filtered DFIs are loaded into the SQM repository, according to one of the following algorithms:
 - *-diff no*
All of the filtered Data Feeder Instances are loaded into the SQM Central Repository if you select this option.
 - *-diff offline*
The list of all discovered/filtered Data Feeder Instances is compared with a reference discovery file (provided by you) if you select this option.
If a Data Feeder Instance exists in the inventory file but it does not exist in the reference file, the Data Feeder Instance is created.
If the Data Feeder Instance does not exist in the inventory file but it exists in the reference file, the Data Feeder Instance is deleted from the SQM Central Repository.
If the Data Feeder Instance exists in the inventory file and the reference file, it is not reloaded.
 - *-diff online*
The same Data Feeder Instance comparisons are performed as those carried out in offline mode if you select this option. Instead of checking the DFIs against a reference file, however, whether DFI is declared depends only on whether the Data Feeder Instance exists in the SQM Central Repository in this case.

Note

The next chapters provide details of each of the above phases.

The same processing can be performed by executing a single command (by default, all filtered Data Feeder Instances are then loaded, through the *-diff no* switch). For details of this command, see “One-shot discovery and loading” on page 52.

3.4.1 Raw discovery phase

In this phase, the MDS3Gprobes SA loads the discovery query definition file and executes the discovery queries to retrieve all DFI for all DFD managed by the MDS3GProbes SA.

A set of dedicated SQL view was deployed on the Tekelec Server when you created the SQL view. These views are used to retrieve Tekelec probes and declare associated DFI.

The DFI are discovered by running query on the view used for the collection. There is a specific query for each DFD.

For example:

```
select distinct APN, SGSNID from DTO_APN_SGSN_GB_VIEW
```

All these queries are defined in the following file:

```
$TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/properties/TeSCSqlDiscovery.xml
```

Tips

A simple way to perform filtering is to update the SQL script defining the discovery view by adding further conditions to the default SQL query's 'WHERE' clause, rather than using a filtering script. You must however ensure that you filter out only the appropriate Tekelec entities when you modify this script.

Command

To execute the discovery query, do the following.

1. Log on as **sqmadm** user.
2. Load the SQM environment variables by entering the following command:

```
# . $TEMIP_SC_VAR_HOME/temip_sc_env.sh
```

3. Enter the following commands:

```
# cd $TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/bin
# temip_sc_discovery.sh -platform <platform name> -director <director name> -application <application name> -discover
```

where:

- *<platform name>* is the name that was defined when the SQM Server was set up and can be read from the variable *\$KERNEL_ID*
- *<director name>* is the director on which the application was created during the setup phase (by default, the director name is **acquisition**)
- *<application name>* is the name that was defined when the application was set up.

The following files are generated in the raw discovery phase:

- The discovered DFI inventory file:
`$TEMIP_SC_VAR_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/discovery/inventory/raw/<platform name>_<director name>_<application name>.xml`

- The DFI declaration XML files:
`$STEMIP_SC_VAR_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/discovery/repository/DeclareDFIReq.DTO_xxx.v1_0.<DFIID>.xml`
- The DFI deletion XML files:
`$STEMIP_SC_VAR_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/discovery/repository/DelDFIReq.DTO_xxx.v1_0.<DFIID>.xml`

3.4.2 Filtering phase

Not Applicable.

3.4.3 Loading phase

Depending on which *-diff* option is selected when the discovery script is launched, the following actions are performed (by default, the *-diff no* option is used to load all filtered Data Feeder Instances):

- **-diff no**
This option loads all the filtered Data Feeder Instances into the SQM Central Repository.
- **-diff offline**
This option compares the list of discovered/filtered Data Feeder Instances against a DFI reference file.
 - If a Data Feeder Instance exists in the inventory file but does not exist in the reference file, the Data Feeder Instance is created.
 - If the Data Feeder Instance does not exist in the inventory file but exists in the reference file, the Data Feeder Instance is deleted from the SQM Central Repository.
 - If the Data Feeder Instance exists in both the inventory file and the reference file, it is not reloaded.
- **-diff online**
The same Data Feeder Instance comparisons are performed as those carried out in offline mode if you select this option. Instead of checking the DFIs against a reference file, however, whether DFI is declared depends only on whether the Data Feeder Instance exists in the SQM Central Repository in this case.

Input

- The DFI filtered inventory file output by the previous command is required as input for this phase.
Its pathname is:
`$STEMIP_SC_VAR_HOME/ServiceAdapters/Sql/v1_4/MDS3GProbes_v1_0/discovery/inventory/filtered/<platform name>_<director name>_<application name>.xml`
- The inventory reference file is needed for the *-diff offline* loading option.
The file must be stored and named as follows:
`$STEMIP_SC_VAR_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/discovery/repository/<platform name>_<director name>_<application name>_discovery_reference.xml`

Command

To run the discovery loading query, do the following:

1. Log on as **sqmadm** user.
2. Load the SQM environment variables by entering the following command:

```
# . /var/opt/OV/SQM/slmv14/temip_sc_env.sh
```

3. Enter the following two commands:

```
# cd $TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/b
in
# temip_sc_discovery.sh -platform <platform name> -director <di
rector name> -application <application name> -load -
diff [no|offline|online]
```

where:

- *<platform name>* is the name that was defined when the SQM Server was set up, and can be read from the variable *\$KERNEL_ID*
- *<director name>* is the director on which the application was created during the setup phase. (By default, the director name is **acquisition**)
- *<application name>* is the name that was defined when the application was set up.

Output

- The loading status for each DFI (Successful, Failure, or Partial) is logged. The discovery loading procedure logs the result of each DFI declaration in the following file:
`$TEMIP_SC_VAR_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/discovery/repository/<platform name>_<director name>_<application name>_discovery_cmds.log`
- If the script fails, you can restart the DFI loading process by executing the following script manually:
`$TEMIP_SC_VAR_HOME/ServiceAdapters/Sql/MDS3Gprobes_v1_0/discovery/repository/<platform name>_<director name>_<application name>_discovery_cmds.sh`

3.4.4 One-shot discovery and loading

If you do not want to call each step in the DFI discovery process described above (discovery, filtering, and loading), you can perform DFI discovery by executing a single command as described below.

Command

1. Log on as **sqmadm** user.
2. Load the SQM environment variables by entering the following command:

```
#. $TEMIP_SC_VAR_HOME/temip_sc_env.sh
```

3. Execute the following commands:

```
# cd $TEMIP_SC_HOME/ServiceAdapters/Sql/v1_4/MDS3Gprobes_v1_0/b
in
#temip_sc_discovery.sh -platform <platform name> -director <dir
ector name> -application <application name> -all
```

where:

- *<platform name>* is the name that was defined when the SQM Server was set up, and can be read from the variable `$KERNEL_ID`
- *<director name>* is the director on which the application was created during the setup phase. (By default, the director name is **acquisition**)
- *<application name>* is the name that was defined when the application was set up.

Output

The one-shot discovery process performs the following tasks:

- Requesting discovery of all DFI and creating a raw discovery file
- Filtering all discovered DFIs by applying the appropriate filters
- If the default load option *-diff no* is selected, loading all discovered DFIs into the SQM Service Repository Manager's repository

3.4.5 Scheduling DFI discovery

The MDS3Gprobes Service Adapter can be deployed in environments in which the configuration changes daily (for example when new entities are added).

HP recommends scheduling automatic discovery by running special scripts containing all of the DFI discovery commands as a *crontab* in such situations.

Scheduled DFI discovery is run in batch mode, and loads newly discovered DFIs automatically from the Tekelec platform.

3.5 Advanced Configuration

See chapter 4.2.5 of the *SQL Service Adapter Toolkit Installation, Configuration and User's Guide*.

Chapter 4

Service Adapter Operation

4.1 Starting and Stopping MDS3Gprobes SA

Starting and stopping the MDS3Gprobes Service Adapter application is done through the standard SQM management commands described in the *HP OpenView SQM Administration Guide*.

To start the application

To start the application, do the following:

1. Log on as **sqmadm** user.
2. Load the SQM environment variables by entering the following command:

```
# . $TEMIP_SC_VAR_HOME/temip_sc_env.sh
```

3. Enter the following command:

```
# temip_sc start_application -platform <platform name> -director <director name> -application <application name>
```

where:

- *<platform name>* is the name that was defined when the SQM Server was set up and can be read from the variable `%KERNEL_ID%`
- *<director name>* is the director on which the application was created in the setup phase. (By default, the director's name is **acquisition**)
- *<application name>* is the name that was entered when the application was set up

To stop the application

To stop the application, do the following:

1. Enter the following command:

```
# temp_sc stop application -platform <platform name> -director <director name> -application <application name>
```

where:

- *<platform name>* is the name that was defined when the SQM Server was set up, and can be read from the variable `%KERNEL_ID%`
- *<director name>* is the director on which the application was created during the setup phase. (By default, the director name is **acquisition**)
- *<application name>* is the name that was defined when the application was set up.

4.2 Starting and Stopping the Collection

The data collection starts only when the Service Adapter Application is instructed to do so by the SQM Service Repository Manager. This is controlled by the SQM SLA Admin User Interface. For more information, see the *HP OpenView SQM SLA Admin User Interface User's Guide*.

4.3 Maintenance

4.3.1 Creating a new Application

To create a new MDS3Gprobes SA Application, do the following:

1. Create the SA application. For details, see “Creating the MDS3Gprobes SA Application” on page 45.
2. Configure the SA Application. For details, see “Configuring the Application” page 46.
3. Create the SQL view. This step is necessary if the new application must be connected to a Tekelec platform that is not already linked to an MDS3GProbes SA. For details, see “Creating the SQL view” on page 47.
4. Discover and load the DFIs. For details, see “Discovering and Loading DFIs” on page 49.
5. Start the SA application. For details, see “Starting and Stopping MDS3Gprobes SA” on page 55.

4.3.2 Deleting an existing Application

To delete the Service Adapter application, do the following:

1. Execute the following command:

```
# temp_sc delete_application -platform <platform name> -director <director name> -application <application name>
```

where:

- *<platform name>* is the name that was defined when the SQM Server was set up, and can be read from the variable `%KERNEL_ID%`

- *<director name>* is the director on which the application was created during the setup phase. (By default, the director name is **acquisition**)
- *<application name>* is the name that was entered when the application was set up.

Chapter 5

Service Adapter Advanced Customization

Because an intermediate SQL view is used between the Tekelec Server and the MDS3Gprobes Service Adapter, you can customize the PL/SQL scripts to:

- Perform special filtering when discovering which entities Tekelec manages
- Filter out MDS3GProbes that should not be included in statistic calculations

These aspects are not described in further details since it is not in the scope of this document.

Appendix A

Installation directory structure

The following directories and files are created under
\$STEMIP_SC_HOME/ServiceAdpaters/Sql/v1_4/ MDS3Gprobes_v1_0:

```
./UninstallerDataMDS3Gprobes
./UninstallerDataMDS3Gprobes/uninstaller.jar
./UninstallerDataMDS3Gprobes/Uninstall_MDS3Gprob
./UninstallerDataMDS3Gprobes/Uninstall_MDS3Gprob
./UninstallerDataMDS3Gprobes/.com.zerog.registry
./jar
./jar/TeSCSAMDS3Gprobes.jar
./properties
./properties/TeSCMDS3Gprobes_Version.properties
./properties/TeSCMDS3Gprobes_Messages.properties
./properties/TeSCMDS3Gprobes.properties
./properties/TeSCSql_Version.properties
./properties/saname.properties
./properties/TeSCSqlDiscovery.xml
./config
./config/SCPlatform_SCDirector_SCApplication.pro
./config/SaSqlDiscoveryMtLogging.properties
./config/SaSqlDiscoveryTraceLogging.properties
./bin
./bin/MDS3Gprobes_v1_0_launch.sh
./bin/temip_sc_discovery.sh
./bin/temip_sc_configure.sh
./bin/temip_sc_create_datatree.sh
./bin/temip_sc_discovery_filter_template.sh
./bin/temip_sc_setup_connector.sh
./bin/temip_sc_update_datatree_access_rights.sh
./bin/temip_sc_complete_install.sh
./bin/temip_sc_create_db_view.sh
./repository
./repository/MDS3Gprobes_v1_0_template.exp
./repository/MDS3Gprobes_v1_0_setup.cfg
./repository/MDS3Gprobes_Connectors_data.exp
./repository/NewDFDReq.DTO.APN.Gn.v1_0.xml
./repository/DelDFDReq.DTO.APN.Gn.v1_0.xml
./repository/NewDFDReq.DTO.APN.Gp.v1_0.xml
./repository/DelDFDReq.DTO.APN.Gp.v1_0.xml
./repository/NewDFDReq.DTO.APNsgsnDNS.v1_0.xml
./repository/DelDFDReq.DTO.APNsgsnDNS.v1_0.xml
./repository/NewDFDReq.DTO.APNsgsnGb.v1_0.xml
./repository/DelDFDReq.DTO.APNsgsnGb.v1_0.xml
./repository/NewDFDReq.DTO.SgsnApnGn.v1_0.xml
./repository/DelDFDReq.DTO.SgsnApnGn.v1_0.xml
./repository/NewDFDReq.DTO.SgsnApnGp.v1_0.xml
./repository/DelDFDReq.DTO.SgsnApnGp.v1_0.xml
./repository/NewDFDReq.DTO.GGSN.v1_0.xml
```

```
./repository/DelDFDReq.DTO_GGSN.v1_0.xml
./repository/NewDFDReq.DTO_IMEI_Gb.v1_0.xml
./repository/DelDFDReq.DTO_IMEI_Gb.v1_0.xml
./repository/NewDFDReq.DTO_GGSN_Gi.v1_0.xml
./repository/DelDFDReq.DTO_GGSN_Gi.v1_0.xml
./repository/NewDFDReq.DTO_ServerGi.v1_0.xml
./repository/DelDFDReq.DTO_ServerGi.v1_0.xml
./repository/NewDFDReq.DTO_SGSN_DNS.v1_0.xml
./repository/DelDFDReq.DTO_SGSN_DNS.v1_0.xml
./repository/NewDFDReq.DTO_SGSN_Gb.v1_0.xml
./repository/DelDFDReq.DTO_SGSN_Gb.v1_0.xml
./repository/NewDFDReq.DTO_SGSN_Gp.v1_0.xml
./repository/DelDFDReq.DTO_SGSN_Gp.v1_0.xml
./repository/NewDFDReq.DTO_WAP_Gn.v1_0.xml
./repository/DelDFDReq.DTO_WAP_Gn.v1_0.xml
./repository/NewDFDReq.DTO_SgsnApn.v1_0.xml
./repository/DelDFDReq.DTO_SgsnApn.v1_0.xml
./repository/NewDFDReq.DTO_MMS_Gn.v1_0.xml
./repository/DelDFDReq.DTO_MMS_Gn.v1_0.xml
./repository/MDS3Gprobes_dfds_data.exp
./util
./util/TeSCSql_Version.properties
```

Glossary

The following table lists the acronyms commonly used in this document.

Term	Description
API	Application programming interface
DFD	Data feeder definition
DFI	Data feeder instance
MRP	Measurement reference point
SAI	Service Adapter Application Name (or Service Adapter instance)
SLA	Service level agreement
SLM	Service level management
SLO	Service level objective
SRM	Service Repository Manager
XML	eXtensible Mark-up Language

