

**Oracle® Communications  
Subscriber Data Management**

Feature Notice

Release 9.3

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# Subscriber Data Management

This document includes a brief description on the SDM Product, an overview of the hardware platform, an overview of the software architecture, new feature descriptions, and explains how to find customer documentation on the Customer Support Site.

## Introduction

Subscriber Data Management is used to consolidate and manage cross-domain subscriber data as a single logical profile. Data is stored in the back-end database, which supports multiple front-end applications.

Feature notices are distributed to customers with each new release of software.

This *Feature Notice* includes the following topics:

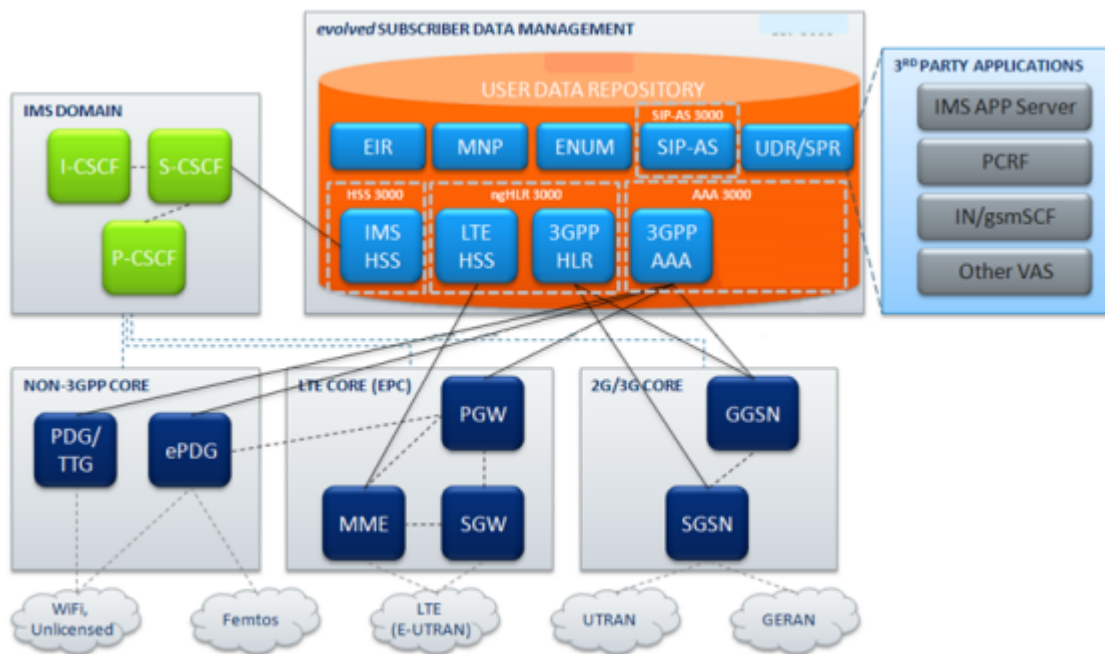
- [SDM Description](#)
- [Hardware Platform Overview](#)
- [Software Architecture](#)
- [New and Enhanced Features](#)

For further details on the SDM product and on each feature covered in this document, refer to the SDM Customer Documentation set's Product Description. The SDM Documentation Roadmap should be your document of reference to get the list of all the SDM Customer Documents available and a description of each of their purpose. This will map you to the right document based on the type of information you need. For instructions on how to locate the SDM Customer Documentation, go to this section: [Locate Product Documentation on the Customer Support Site](#)

## SDM Description

The Tekelec Subscriber Data Management (SDM) product family is a multi-profile subscriber management system, designed with an objective to consolidate all the information (or profiles) of a mobile subscriber. It enables centralization of subscriber information/data in one logical place and convergence of subscriber's registration, authentication and call termination at the core of the network, regardless of the access domain (including GSM/UMTS, IMS, SIP, LTE, and others).

The evolved Subscriber Data Management (SDM) solution features a distributed and layered architecture that provides a scalable back-end database, the Subscriber Data Server (SDS), which centralizes subscriber data from multiple front ends such as these applications: 3GPP ngHLR and AuC functions, MNP, SIP-AS, IMS-HSS, LTE-HSS, EIR, LTE-EIR, ENUM, 3GPP AAA, and SPR. In other releases, it can also include other functional elements, or network applications, as depicted in this figure.



**Figure 1: The SDM and typical network architecture**

### Hardware Platform Overview

The Tekelec Subscriber Data Management (SDM) software solution supports one software stream and can use one of the following hardware platforms:

The EAGLE XG hardware used for the Subscriber Data Management (SDM) application is available for AC and DC power. The hardware consists of the following cabinets and components depending on customer-specific configurations:

- Cabinets
  - HP Enterprise cabinet (AC)
  - Telect CoreMAX seismic cabinet (DC)
- Power distribution units (AC) or panels (DC)
  - HP AC PDU
  - Telect 100A 4-Position Demarcation DC PDP
  - Telect 100A Dual feed DC PDP
- Cisco 4948E/4948E-F aggregation switch
- HP c7000 enclosure with
  - Onboard Administrator
  - Cisco 3020 blade switch
  - HP BL460 G6/Gen8 blade server
  - D2200sb storage blade
- HP DL360 G6 rackmount server
- HP DL380 G6/Gen8 rackmount management/application server

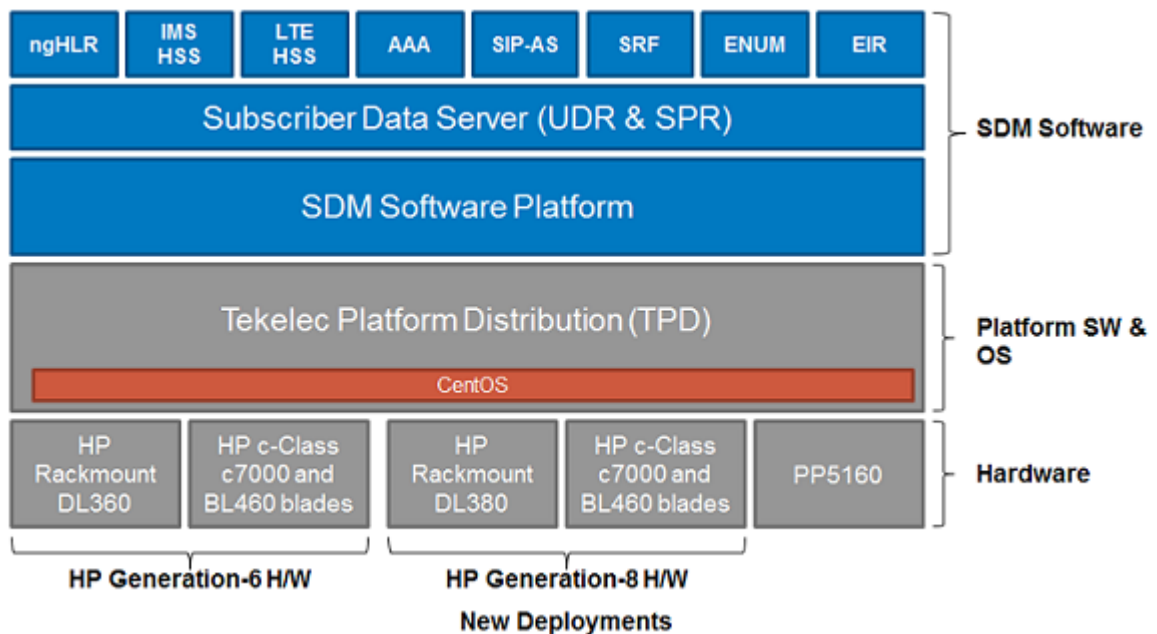


Figure 2: Hardware Platforms

**Software Architecture**

The figure shows a high level view of the SDM software architecture.

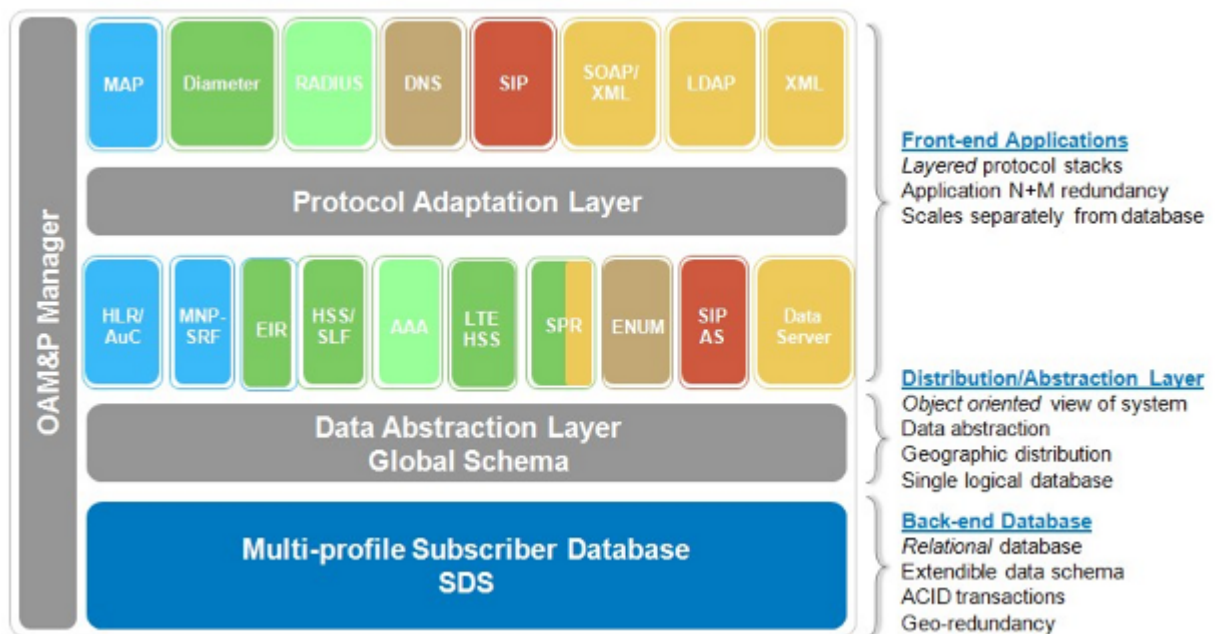


Figure 3: SDM high level software architecture

The system can be composed of up to 2 slots for rackmount Single Board Computers (SBC), and up to 16 slots for blade SBCs. This means that up to two or sixteen slots can have assigned SBCs that offer services.

**Note:** The number of HP server/storage blades supported depends on the configuration of the system.



## New and Enhanced Features

### Provisioning row and field level data for DynamicQuota and State data

The SPR handles the Dynamic Quota and State entities as opaque (invisible to the system) data blobs (binary large object). The Network Operator cannot update specific fields and rows within this data. To update this data the provisioning system must read the existing data entity (DynamicQuota or State), update the complete entity, and then write the entire data entity back to the database.

This method of updating the DynamicQuota and State entities does not work with all Network Operator provisioning systems.

With this feature, DynamicQuota and State data can be read and updated using individual fields over the following interfaces: XML/TCP (also known as Direct XML), XML/SOAP, XML/REST.

This table indicates the feature impact on the system:

New Alarms	New Error Messages	New Counters	New hardware	New Configuration tables/attributes	New Subscriber Provisioning tables/attributes	New Network/Subscriber Provisioning interfaces
N	N	N	N	N/N	N/N	N/N

For more information about this feature, refer to *SPR Dynamic Quota provisioning* and *SPR State provisioning* in the *Product Description* of the SDM 9.3 documentation set.

### SPR Database Extraction Tool

The Database Extraction Tool is used to access the SDM SPR database and extract subscriber information into a file. This file can be stored locally or can be exported to and stored on an external system. The file includes the data items within the subscriber profile in XML format, which can be post-processed offboard and converted into other formats.

This table indicates the feature impact on the system:

New Alarms	New Error Messages	New Counters	New hardware	New Configuration tables/attributes	New Subscriber Provisioning tables/attributes	New Network/Subscriber Provisioning interfaces
Y	Y	N	N	N/N	N/N	N/N

For more information about this feature, refer to *Database Extraction Tool* in the *Product Description* of the SDM 9.3 documentation set.

## SPR Provisioning Logs

The Tekelec Subscriber Data Server (SDS) can act as a centralized Subscription Profile Repository (SPR) for PCRF nodes. This setup allows the PCRF nodes to communicate with the SDM IMS-HSS front-end application over the Sh interface to provision subscriber and pool data to be stored in the SPR.

The SPR Provisioning Logs feature records all provisioning requests and retrieval attempts processed by the SPR. Processed information includes subscriber, pool, quota, state, and other related data. Both functions, the logging of provisioning events and the logging of retrieval events, can be turned on independently.

Requests can be received from either of these interfaces: CLI, WebCI, XML-TCP (Direct XML), XML-SOAP, or XML-REST (MSR API).

Request types include create, modify, delete, and retrieve, where the command name for these requests depends on the provisioning interface used.

Each log event creates a new line in the log file and in the XML format in which they were received.

SPR log files are stored on the server associated with the provisioning interface. The maximum file size is 10MB. The files can be retrieved in CSV (comma-separated values) format from this directory: `/blue/var/log/csv`. The files can also be retrieved by SCP/SFTP protocol to an external server.

Using CLI or WebCI, the operator can dynamically turn on/off and configure this feature in the `HssSPRConfig` table with these attributes:

- `ProvLogEnabledFlag` - turn on/off feature
- `ProvLogSelectEnabledFlag` - turn on/off logging for retrieval attempts (SELECT)
- `ProvLogMaxFileSize` - configures maximum size per log file
- `ProvLogNumRotatedFiles` - configures maximum number of old log files to keep

The following table indicates the feature impact on the system:

New Alarms	New Error Messages	New Counters	New Hardware	New Configuration tables/attributes	New Subscriber Provisioning tables/attributes	New Network/Subscriber Provisioning interfaces
N	N	N	N	N/Y	N/N	N/N

For more information about SPR provisioning logs, refer to *SPR provisioning logs* in the *Product Description* of your SDM 9.3 documentation set.

## Handling Multiple Quota Instances With The Same Name

An enhancement has been added to provisioning commands associated with quota handling.

A subscriber can have multiple records with the same quota name. This allows a subscriber to have multiple top-ups and passes associated with their profile.

The following table indicates the feature impact on the system:

<b>New Alarms</b>	<b>New Error Messages</b>	<b>New Counters</b>	<b>New Hardware</b>	<b>New Configuration tables/attributes</b>	<b>New Subscriber Provisioning tables/attributes</b>	<b>New Network/Subscriber Provisioning interfaces</b>
N	N	N	N	N/N	N/N	N/N

For more information about this feature, refer to *SPR Quota Provisioning* in the *Product Description* of your SDM 9.3 documentation set.

# Tekelec Resources and Services

Tekelec provides a number of resources for SDM family. These include the availability of product documentation online, customer training, and access to the Customer Care Center.

## Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Tekelec TAC Engineers are available to provide solutions to your technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Tekelec Technical Assistance Centers are located around the globe in the following locations:

### Tekelec - Global

Email (All Regions): [support@tekelec.com](mailto:support@tekelec.com)

- **USA and Canada**

Phone:

1-888-367-8552 (toll-free, within continental USA and Canada)

1-919-460-2150 (outside continental USA and Canada)

TAC Regional Support Office Hours:

8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **Caribbean and Latin America (CALA)**

Phone:

+1-919-460-2150

TAC Regional Support Office Hours (except Brazil):

10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays

- **Argentina**

Phone:

0-800-555-5246 (toll-free)

- **Brazil**

Phone:

0-800-891-4341 (toll-free)

TAC Regional Support Office Hours:

8:00 a.m. through 5:48 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**

Phone:

1230-020-555-5468

- **Colombia**

Phone:

01-800-912-0537

- **Dominican Republic**

Phone:

1-888-367-8552

- **Mexico**

Phone:

001-888-367-8552

- **Peru**

Phone:

0800-53-087

- **Puerto Rico**

Phone:

1-888-367-8552

- **Venezuela**

Phone:

0800-176-6497

- **Europe, Middle East, and Africa**

Regional Office Hours:

8:30 a.m. through 5:00 p.m. (GMT), Monday through Friday, excluding holidays

- **Signaling**

Phone:

+44 1784 467 804 (within UK)

- **Software Solutions**

Phone:

+33 3 89 33 54 00

- **Asia**

- **India**

Phone:

+91-124-465-5098 or +1-919-460-2150

TAC Regional Support Office Hours:

10:00 a.m. through 7:00 p.m. (GMT plus 5 1/2 hours), Monday through Saturday, excluding holidays

- **Singapore**

Phone:

+65 6796 2288

TAC Regional Support Office Hours:

9:00 a.m. through 6:00 p.m. (GMT plus 8 hours), Monday through Friday, excluding holidays

## Emergency Response

In the event of a critical service situation, emergency response is offered by the Tekelec Customer Care Center 24 hours a day, 7 days a week. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with the Tekelec Customer Care Center.

## Customer Training

Tekelec offers a variety of technical training courses designed to provide the knowledge and experience required to properly provision, administer, operate, and maintain Tekelec products. To enroll in any of the courses or for schedule information, contact the Tekelec Training Center at (919) 460-3064 or E-mail [training@tekelec.com](mailto:training@tekelec.com).

A complete list and schedule of open enrollment can be found at [www.tekelec.com](http://www.tekelec.com).

## Locate Product Documentation on the Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into the Tekelec Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at [www.adobe.com](http://www.adobe.com).

1. Log into the [Tekelec Customer Support](#) site.

**Note:** If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

# Glossary

## #

3GPP  
3rd Generation Partnership Project.  
The standards body for wireless communications.  
3rd Generation Partnership Project

## A

AAA  
Authentication, Authorization, and Accounting (Rx Diameter command)

AS  
Application Server  
A logical entity serving a specific Routing Key. An example of an Application Server is a virtual switch element handling all call processing for a unique range of PSTN trunks, identified by an SS7 DPC/OPC/CIC\_range. Another example is a virtual database element, handling all HLR transactions for a particular SS7 DPC/OPC/SCCP\_SSN combination. The AS contains a set of one or more unique Application Server Processes, of which one or more normally is actively processing traffic.

AuC  
Authentication Center

## E

EIR  
Equipment Identity Register  
A network entity used in GSM networks, as defined in the 3GPP Specifications for mobile networks. The entity stores lists of



**E**

International Mobile Equipment Identity (IMEI) numbers, which correspond to physical handsets (not subscribers). Use of the EIR can prevent the use of stolen handsets because the network operator can enter the IMEI of these handsets into a 'blacklist' and prevent them from being registered on the network, thus making them useless.

## ENUM

**TE**lephone **NU**mber **M**apping

A technology for unifying various communications and telephone addresses for private and business numbers, facsimile and mobile phone numbers, SMS services, Instant Messaging and email. ENUM integrates legacy phone numbers with the Domain Name System (DNS). Users can access and maintain a directory that supports all forms of wired communication, mobile communications networks, and the Internet. ENUM allows for an end user to be reached on multiple devices via one phone number and allows the end user to determine which device to contact first or multiple devices simultaneously.

**G**

## GSM

## Global System for Mobile Communications

A second generation digital PCS mobile phone standard used in many parts of the world.

**H**

## HSS

## Home Subscriber Server

**H**

A central database for subscriber information.

**I**

IMS

IP Multimedia Subsystem

These are central integration platforms for controlling mobile communications services, customer management and accounting for mobile communications services based on IP. The IMS concept is supported by 3GPP and the UMTS Forum and is designed to provide a wide range of application scenarios for individual and group communication.

**L**

LTE

Long Term Evolution

The next-generation network beyond 3G. In addition to enabling fixed to mobile migrations of Internet applications such as Voice over IP (VoIP), video streaming, music downloading, mobile TV, and many others, LTE networks will also provide the capacity to support an explosion in demand for connectivity from a new generation of consumer devices tailored to those new mobile applications.

**M**

MNP

Mobile Number Portability

Allows a user to keep his or her mobile phone number despite changing provider. The subscriber also keeps the network carrier code.

**S**

## S

SBC	Single-board computer
SDM	Subscriber Data Management
SIP	Session Initiation Protocol A peer-to-peer protocol used for voice and video communications.
SPR	Subscriber Profile Repository A logical entity that may be a standalone database or integrated into an existing subscriber database such as a Home Subscriber Server (HSS). It includes information such as entitlements, rate plans, etc. The PCRF and SPR functionality is provided through an ecosystem of partnerships.

## U

UMTS	Universal Mobile Telecommunications System The standard for 3G used by GSM service providers. UMTS includes voice and audio services, for fast data, graphic and text transmissions, along with transmission of moving images and video.
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