

Oracle Communications Session Delivery Manager

Oracle Communications Session Delivery Manager (SDM) is a centralized management platform designed to meet the demanding requirements of the largest service providers and enterprise network operations centers (NOCs). It features a modular framework for managing Oracle’s network session delivery and control infrastructure elements.

OVERVIEW

Oracle Communications Session Delivery Manager’s flexible, high availability (HA) architecture scales to manage very large networks and provides an extensible framework for hosting solution-specific management applications and value-added application add-ons. Its clustering technology enhances management performance and availability in the most demanding service and business-critical environments.

Through convenient, easy-to-read dashboard and configuration views, Oracle SDM facilitates flow-through provisioning, capacity planning, fraud protection, comprehensive performance, and fault monitoring and management with at-a-glance status indicators that simplify real-time, network-wide management. It also integrates with operation support system (OSS) and business support system (BSS) ecosystems via standard interfaces, to deliver advanced service fulfillment, service assurance, and billing solutions.

APPLICATIONS

Centralized management platform that meets the demands of the largest network operations centers

KEY FEATURES

- Configuration, fault, performance, security and fraud protection management
- At-a-glance dashboard summary
- Flexible device configuration views
- Server clustering
- Load balancing of user sessions across multiple servers
- HA, high-performance management architecture
- Modular, extensible system framework
- Easy/Hands Free Installation/Upgrade
- Open, flexible interfaces and client views
- Programmatic interface

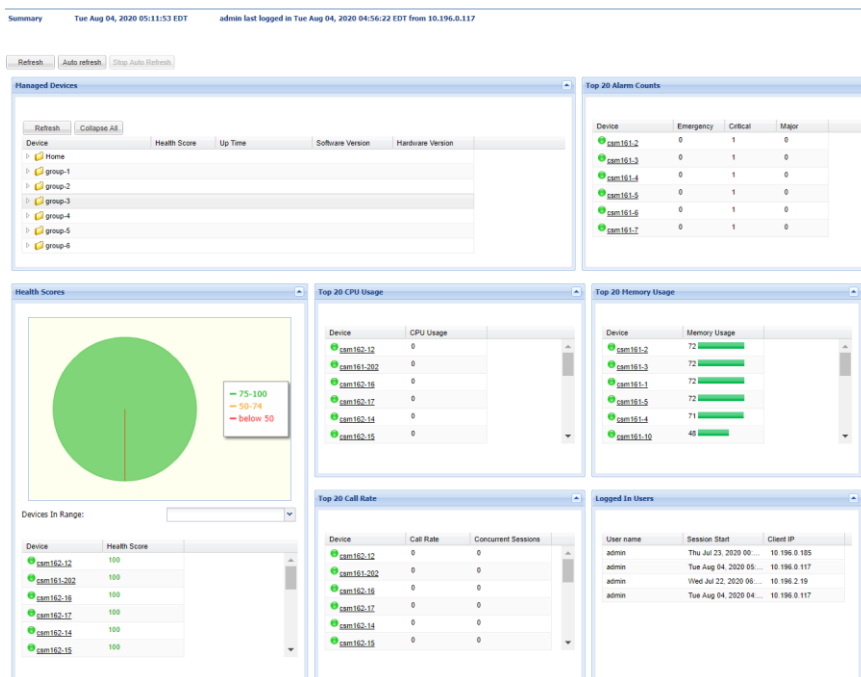


Figure 1. Oracle Communications Session Delivery Manager's easy to read dashboard and system summary screen

ARCHITECTURE

Oracle Communications Session Delivery Manager family of products utilizes a modular, multi-tiered architecture to deliver unprecedented scale, HA, and a flexible user interface that make Oracle SDM product adaptable to a variety of service provider and enterprise NOC environments. Leveraging powerful system services and applications, as well as integrated element management and other applications, Oracle SDM products manage a wide range of Oracle's network session delivery and control infrastructure products and solutions.

Oracle Communications Session Delivery Manager's architecture consists of the base system plus optional management applications that are installed and configured to manage specific session delivery infrastructure products, configurations, and solutions. The base system includes device and security management, as well as real time health monitoring of Oracle SDM server clusters. Management applications/products include the Oracle Communications Session Element Manager, which provides configuration, fault, fraud protection management and performance management for session delivery infrastructure elements, Oracle Communications Session Report Manager, a historical performance data repository for analysis on historical signaling, media and other types of data, and Oracle Communications Session Route Manager, the route provisioning and management tool for session routing proxies (SRP) and session border controllers (SBC).

Through standard interfaces that communicate with external elements, Oracle Communications Session Delivery Manager product family operates seamlessly with third-party OSS/BSS and management systems via a secure SNMPv3 interface. Oracle SDM products also use standard formats such as XML Schema Definition (XSD) for presentation and data management.

Oracle SDM products utilize a browser-based thin client, providing a flexible graphical user interface (GUI) that simplifies management operations. A web services client resides on some of the Oracle SDM products, enabling northbound OSS/BSS application integration for flow-through provisioning and network-wide management.

Oracle SDM products presentation model features CSSs that deliver multiple configuration and dashboard views, making it adaptable to individual and organizational user preferences.

KEY BENEFITS

- Centralized management for session delivery infrastructure products
- Manages small to very large deployments
- One click Network provisioning
- Multiple capabilities for preventing management system outages
- Extensible via management application add-ons
- Multiple client views and integration with third-party OSS/BSS applications
- Enables easy and efficient deployment, configuration, and upgrade of network elements
- Ensure configuration integrity by marking and comparing with golden configuration for each device
- Protect against fraudulent calls utilizing fraud detection and prevention functionality

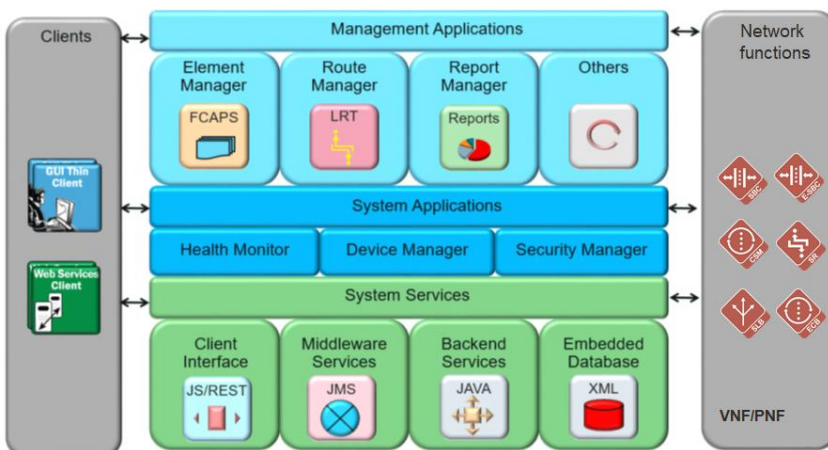


Figure 2. Oracle Communications Session Delivery Manager's modular multi-tiered

BASE SYSTEM

Oracle Communications Session Delivery Manager products base system includes its underlying system services plus a set of base system applications, including the Health Monitor, Device Manager, and Security Manager features. These applications perform basic administrative functions for individual and clustered Oracle Communications Session Delivery Management Suite servers.

Health Monitor

Health Monitor provides heartbeat indicators and statistics related to Oracle Communications Session Delivery Manager. Health Monitor functions and features include the following:

- Status information and statistics related to members of an Oracle SDM server and server cluster
- Alarm generation upon servers entering or exiting an Oracle SDM server cluster
- Maintenance and reporting of disk usage statistics for servers that are members of an Oracle SDM server cluster

Device Manager

Device Manager applies basic administration of individual session delivery infrastructure devices or device groups to simplify the management of small to very large networks of session delivery infrastructure products. Device groups can be organized hierarchically according to the needs of the organization. Device Manager functions and features include the following:

- Addition, deletion, and modification of devices to Oracle SDM
- Display of summary and detailed information on individual devices and device groups
- Bulk deployment capability allows for adding multiple devices for configuration
- Bootloader and software upgrade of Oracle SBCs supported via SDM

Security Manager

Security Manager enables the definition and control of access rights for individual users and user groups, plus an audit log for all changes. Security settings are configurable for users, user groups, and groups of devices. Security Manager functions and features include the following:

- Access control lists that define permitted user and user group access rights (per element management function— configuration, fault, performance; system operations and information; based on function and device group / instance)
- User and user group support (users assignable to groups with predefined permissions; override to group permissions to grant/deny permissions for individual user; unique username/passwords for each individual user for authentication)
- Enhanced level of security by providing Audit log of all activities performed by individual users (including username, date/time, operation performed, and success/failure)

NETWORK SESSION DELIVERY AND CONTROL INFRASTRUCTURE

Oracle's network session delivery and control infrastructure enables enterprises and service providers to manage the many challenges in the delivery of IP voice, video, and data services and applications.

Service provider solutions are deployed at network borders and in the IP service core to help fixed-line, mobile, wholesale, and over-the-top service providers optimize revenues and realize long-term cost savings. In the enterprise, session delivery infrastructure solutions seamlessly connect fixed and mobile users, enabling rich multimedia interactions and automating business processes for significant increases in productivity and efficiency.

Oracle Communications Session Delivery Manager provides management capabilities for the following Oracle Communications Session Delivery products:

- Oracle Communications Session Border Controller
- Oracle Enterprise Session Border Controller
- Oracle Communications Session Router
- Oracle Communications Subscriber Aware Load Balancer
- Oracle Communications Core Session Manager
- Oracle Enterprise Communications Broker

MANAGEMENT APPLICATIONS

Oracle Communications Session Delivery Manager support a flexible range of management applications that provide operations personnel with the essentials for managing small to very large networks of session delivery infrastructure products across a wide range of session delivery solutions.

Oracle Communications Session Delivery Manager products leverage a highly modular framework that supports additional management applications that can be integrated into the Oracle SDM over time as additional session delivery infrastructure products and solutions are deployed.

Oracle Communications Session Element Manager

Oracle Communications Session Element Manager is used for configuration, monitoring, and statistical collection, and it supports several session delivery infrastructure products and hardware platforms. It is a standard management application within the Oracle Communications Session Delivery Manager family of products. Oracle Communications Element Manager comprises the Configuration Manager, Fault Manager, Fraud Protection Manager, and Performance Manager features of the session delivery infrastructure—all of which are accessed through the Oracle SDM's GUI.

Configuration Manager

Configuration Manager enables element configuration, provisioning, and software management for Oracle Communications Session Delivery products. It also includes a powerful configuration comparison and archiving function to assist operations personnel in auditing and troubleshooting configurations for faster problem resolution and reduced maintenance costs. Configuration archiving automates configuration backups for one or more elements and also enables the restoration of configurations from the archive. Its auditing capabilities include onscreen comparison of element configurations via a golden configuration and PDF file export to save comparison results for subsequent viewing. Operations staff can also perform search and sort functions on the archive and manage its size through editing and purging functions. Other Configuration Manager functions and features include the following:

- Configuration via GUI thin client interface or web services client API to OSS provisioning applications
- Hierarchical view of session delivery infrastructure elements and their physical and logical components (physical interface, virtual interface, realm, signaling service, session agents, etc)
- Global parameter changes that enable simultaneous configuration of multiple attributes across multiple session delivery infrastructure elements
- Multiple concurrent users supported with local configuration views for each user
- Automated software configuration and upgrade using work orders

Fault Manager

Through Fault Manager, Oracle Communications Session Delivery Manager products enable real-time monitoring of operational status by collecting and

Supported Platforms

- Acme Packet 1100
- Acme Packet 3900
- Acme Packet 4600
- Acme Packet 6100
- Acme Packet 6300
- Acme Packet 6350
- Acme Packet Virtual Machine Edition

displaying alarms and fault-related statistics. Fault Manager functions and features include the following:

- Event delivery via Simple Network Management Protocol (SNMP) traps
- User-configurable trap severity mapping
- Alarm and event filtering and management
- E-mail notifications based on severity level of event
- SNMPv3 traps forwarding on North Bound Interface (NBI) providing enhanced security

Performance Manager

Performance Manager enables the collection and real-time monitoring of session delivery infrastructure performance statistics. Performance Manager functions and features include the following:

- Real-time, on-demand collection and display of performance statistics (exportable to CSV-formatted file)
- Comprehensive performance metrics (signaling, media, network, system resources utilization, etc.) with configurable, performance-related threshold crossing alerts

Fraud Protection Manager

Oracle Communication Fraud Protection Manager detects and prevents telephony fraud, using configured allowlist, blocklist, redirect list, rate limits or an external Fraud Detection and Prevention (FDP) system such as Oracle Communications Operations Monitor (OCOM) for seamless management of single or multiple southbound session elements. Fraud Protection Manager functions and features include the following:

- Configuration of wild card based filters to detect and prevent fraudulent calls
- Register with external FDP system
- Life cycle management of Fraud Protection Lists (FPL) which can be configured on-demand, scheduled to run on specific time and in auto mode

Programming Interface

The Oracle Communications Session Delivery Manager comes with a REST Application Programming Interface (API). The REST API interface allows a northbound client application, such as an NFV service orchestrator or other back office systems (BSS/OSS) to programmatic interact with Oracle SDM and its supported product plugins.

Oracle Communications Session Report Manager

Oracle Communications Session Report Manager improves Internet Protocol (IP) communications network planning and troubleshooting, and it collects data across the session delivery infrastructure. It aggregates and reports statistics for device reporting and operational measurements, providing network intelligence for capacity planning, quality of service reporting, and troubleshooting. Oracle Communications Session Report Manager functions and features include the following:

- Predefined reports with integrated filters for customized views
- Automatic import of historical data records (HDRs) from the session delivery infrastructure
- Aggregation of HDR data (hourly, daily, weekly, and monthly)
- Configurable data retention time
- Scheduled or ad hoc reports
- Export of report data (PDF file format)

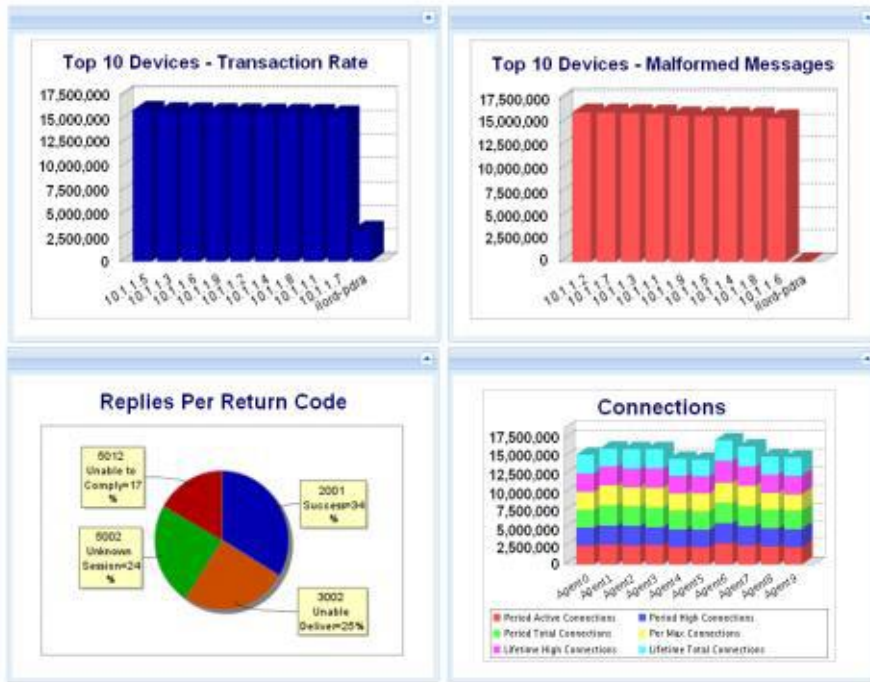


Figure 3. Available reports from Oracle Communications Session Report Manager

Oracle Communications Session Report Manager requires additional software licenses of Oracle Business Intelligence Publisher and Oracle Database.

Oracle Communications Session Route Manager

Oracle Communications Session Route Manager is a management application used in session routing applications for service provider interconnect and peering services. It consolidates and automates the provisioning and distribution of local routing tables (LRT) of up to 2 million routes per SBC or session routing proxy (SRP) from intuitive GUI or REST API for north bound interface.

To enhance troubleshooting and maintenance, Oracle Communications Session Route Manager provides powerful global search and display capabilities, maintains a history of route changes and system updates and provides rollback capability.

- Oracle Communications and modification of onboard routing databases for Oracle SBCs and SRPs
- Automatic distribution of routing information to all or specific subsets of SBCs and SRPs
- Provisioning and management of routing tables using REST API based north bound interface

SYSTEM REQUIREMENTS

Oracle SDM product family system requirements

Attribute	Details
Server	<p>Minimum hardware requirements:</p> <ul style="list-style-type: none">• CPU: 4-core 2.1 GHz processor or better• RAM: 16 GB or higher• Hard disk: 300 GB or higher
Operating system support	<ul style="list-style-type: none">• Oracle Linux 6.5, 6.6, 6.7, 6.8, 6.9• Oracle Linux 7.0, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7• Oracle Linux 8.0, 8.1, and 8.2 64-bit
VMware support	<ul style="list-style-type: none">• Any of the supported operating systems• Same Linux minimum hardware requirements as above
Client	<ul style="list-style-type: none">• Thin client: Web browser• Microsoft Internet Explorer version 11.900 or higher• Mozilla Firefox 44 and later• Google Chrome 56 and later

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