User Data Repository

Release Notes

Release 10.2.x

E66961-03

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ORACLE®

User Data Repository Release Notes, Release 10.2.x

E66961-03

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Introduction

The Oracle Communications User Data Repository (UDR) 10.2.0.0.0 release is a minor release for the 10.0.0.0.0 code stream.

These Release Notes identify the functions and features of UDR Release 10.2.0.0.0 that includes Feature Descriptions, supported Hardware Baseline, and Media and Documentation pack contents, as well as identifying the Supported Upgrade Paths.

This document also includes listings of both the resolved and known bugs for this release.

Patch-related resolved and known bugs are listed in the Software Patches chapter.

Directions for accessing key Oracle sites and Services are also identified in the Oracle References and Services chapter.

Release Notes are included in the Documentation Pack made available with every Software Release.

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Feature Descriptions

This minor release adds the following features to UDR 10.0.0.0.0:

- OCUDR Hardware Configuration and Performance (19117937)

- IP Address Ranges for Provisioning White Lists (19652754)

- PNR Generation with Bulk Import (19652811)

- New Measurements for Provisioning Requests (19652774)

- Provisioning Validation of Multiple Keys (19730076)

- Improved OCUDR Provisioning Throughput (20069979)

- OCUDR DB Audit to Detect Index Corruption (20366261)

- OCUDR Reduced Footprint C-Class Configuration (20264791)

- OCUDR Support for G9 HP Hardware (20304787)

- OCUDR Support for X5-2 Hardware (20481340)

- Row-Level updates for DQ using REST (21084125)

- Provisioning Validation of Multiple Keys (19730076)

- On-demand Quota Reset with statistics (19730049)

OCUDR Hardware Configuration and Performance (19117937)

OCUDR 10.0 introduced OCUDR on a standard c-class hardware configuration for each site, consisting of two 128GB blades for the MP and SOAM, two 192GB blades for the NOAMP, and two storage arrays. OCUDR 10.0 allowed customers to also deploy 256GB servers for the NOAMP, but they would be supported with the same rated capacity as the 192GB servers. The standard OCUDR 10.0 configuration leveraged TVOE virtualization for some functional components.

OCUDR 10.2 continues to support those same configurations, and incrementally adds support rack-mount server configurations, as well as a C-Class configuration with increased capacity that leverage 256GB blades for the NOAMP. The 10.2 RMS configuration is fully virtualized, meaning that all functional components are deployed using TVOE virtualization. The 10.2 C-Class configurations continue to leverage TVOE virtualization for the SOAM and MP functional components, while the NOAMP is deployed as "bare metal" (without virtualization).

IP Address Ranges for Provisioning White Lists (19652754)

This enhancement allows for a range of IP address ranges to be specified with wildcards in the whitelist associated with authorized sources of provisioning commands. This capability is valuable for customers who allow their operations team to initiate provisioning requests from their individual computers. Instead of all requests coming from a centralized provisioning OSS, they instead may come from many sources in the network. The existing behavior with provisioning whitelists requires many entries to be configured for the whitelist, which is difficult to manage. With this feature, ranges of IP addresses associated with the computers assigned to operations teams can be defined, thus minimizing the number of entries required in the authorization whitelist. It will be the customer's responsibility that the OAM access WAN is properly secured to prevent malicious attacks from other servers that fall within the defined ranges.

Note this feature is only applicable to IPv4, since the OCUDR provisioning interfaces do not currently support IPv6.

PNR Generation with Bulk Import (19652811)

This enhancement allows the operator to configure whether or not Sh PNR messages shall be generated whenever a subscriber's profile is updated with the OCUDR bulk import capability. Prior to this feature, PNR messages were not generated when updates were performed with bulk import. With this feature, if an update is performed on a profile associated with a subscriber with an active subscription for notifications, then a PNR message shall be generated.

New Measurements for Provisioning Requests (19652774)

This enhancement introduces new measurements and KPIs associated with the OCUDR provisioning interface that allow the customer to better understand the types of provisioning requests that are being received from their OSS. OCUDR 10.0 has measurements concerning the total number of requests received, but does not break them out based on the type of request. This feature incorporates that additional level of detail.

Provisioning Validation of Multiple Keys (19730076)

This enhancement provides the option for additional validation to be performed if a provisioning request is received that contains multiple keys. The current logic provides a response to the request if a subset of the specified keys have matched. With this feature, the customer can specify whether "validation of multiple keys" should be performed, and if so, the request will process successfully only if all keys specified in the request match the profile in the database. This applies to each of the different provisioning request and operation types supported on the SOAP interfaces, and is not applicable to the REST provisioning interface. This change will also apply to provisioning requests received via the bulk import interface.

Improved OCUDR Provisioning Throughput (20069979)

This enhancement increases the provisioning throughput for scenarios where the "Provisioning with Durability Confirmation" configuration parameter is set to "no". This feature will enhance the provisioning interface to be able to process this level of

traffic, and will characterize the tradeoff of Sh TPS that must occur in order to accomplish it.

OCUDR DB Audit to Detect Index Corruption (20366261)

The OCUDR database embeds index information in subscriber records in order to implement the data schema defined in the SEC. An audit is required that can be periodically executed by the customer during a maintenance shift in order to determine whether any corruption has occurred in the embedded index values associated with each subscriber. This feature incorporates this audit into the OCUDR product software.

OCUDR Reduced Footprint C-Class Configuration (20264791)

This feature supports the ability to deploy OCUDR with C-Class Blades in a configuration that only requires 4 slots in the C-Class enclosure. Several customer sites require the ability to deploy OCUDR on C-Class, but not have the capacity requirements associated with the initial 6 slot OCUDR C-Class configuration introduced in the OCUDR 10.0 release. In many of these cases, the customer's enclosure may not have enough free slots available to accommodate the existing C-Class configuration. There are also cost drivers for a reduced-footprint solution for customers who do not need the capacity and performance of the 6-slot configuration.

OCUDR Support for G9 HP Hardware (20304787)

Support of deployments with HP G9 hardware. This includes both C-Class and RMS configurations.

OCUDR Support for X5-2 Hardware (20481340)

Support of deployments with Sun X5-2 hardware.

Row-Level updates for DQ using REST (21084125)

DynamicQuota rows can be selected, inserted, deleted, or updated using either the "name", the combination of "name" and "InstanceId", or the combination of "name" and "Type" as a key value. Using "name" will impact all instances that share that specific name. Using "name" and "InstanceId" will identify a specific DynamicQuota row(s) for the request. Likewise, Using "name" and "Type" will identify a specific DynamicQuota row(s) for the request.

On-demand Quota Reset with statistics (19730049)

The OCUDR 10.0 supports a provisioning operation to reset a single quota instance for a single subscriber. With the enhancements provided by this feature, the quota reset operation can be applied to a range of subscribers or to all subscribers and/or pools in the database.

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Software and Documentation

Oracle Communications software is available for download on the Oracle software delivery website. Documentation is delivered electronically the on Oracle Help Center. Both the Software and the Documentation are listed in this chapter.

Software

All components available for download from the Oracle Software Delivery Cloud (https://edelivery.oracle.com/) are in Table 3-1.

> **Note:** This list is accurate at the time of release, but is subject to change. View the Oracle Software Delivery Cloud site for the latest information.

Table 3-1   Release 10.2 Software Contents

Name
Oracle Communications User Data Repository 10.2.0.0.0-12.15.0
Oracle Communications Tekelec Platform Distribution 64-bit 7.0.2.0.0-86.32.0
Oracle Communications Tekelec Platform Management and Configuration 6.4.0.0.0-64.8.0
Oracle Communications Tekelec Virtual Operating Environment 3.0.2.0.0-86.32.0

Documentation

All documents available for download from the Oracle Help Center site (http://docs.oracle.com) are listed in Table 3-2.

> **Note:** This list is accurate at the time of release but is subject to change. See Oracle Help Center for all available documents.

Table 3-2   Release 10.2 Documentation Contents

Name
Release Notes
Licensing Information User Manual
Core Documentation Set
Enhanced Subscriber Profile Repository User's Guide
Operation, Administration, and Maintenance User's Guide

Table 3-2   (Cont.) Release 10.2 Documentation Contents

Name

Alarms, KPIs, and Measurements Reference

Hardware Documentation Roadmap Reference

Installation, Upgrade, and Disaster Recovery Set

Installation and Configuration Procedure

Network Interconnect Reference

Network Impact Report

Software Upgrade Procedure

Disaster Recovery Guide

Configuration Document Set

Communication Agent User's Guide

Diameter Common User's Guide

Diameter User's Guide

Security Guide

Provisioning Document Set

SOAP Provisioning Interface Reference

REST Provisioning Interface Reference

Bulk Import / Export File Specification

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Supported Hardware Baseline

The Hardware identified in this table comprises the hardware and server versions that have been verified with this Release.

Supported Hardware Baseline

Table 4-1   Release 10.2 Supported Hardware Baseline

Hardware	Description
HP **G8** C-Class Normal Capacity	Consists of 2x128**GB** blades + 2x192GB blades + 2 storage arrays • Servers are equipped with 2x900GB **HDD**s and **mezzanine** card with 10GB networking • Storage arrays are equipped with 12x146GB 15K RPM HDDs
HP G8 C-Class Low Capacity	Consists of 2x192GB or 256GB blades + 2 storage arrays • The storage blade can be either the DS2200sb or the DS2220sb
HP G8 C-Class High Capacity	Consists of 5x192GB/256GB blades + 2 storage arrays This configuration is achieved by adding an additional 128GB blade to each site, as well as using 256GB blades for the NOAMP database. • 3 128GB Blades • 2 256GB Blades • 2 Storage Arrays The Storage Blade that is leveraged in this configuration can be either the DS2200sb or the DS2220sb
HP G8 Rack Mount Server (RMS)	Consists of 2x192GB DL380 G8 **RMS** • 2x900GB HDDs and • mezzanine card with 10GB networking • 12x146GB 15K RPM HDDs
Oracle X5-2 Normal Capacity	Consists of 1x256GB blade • 2 SAS2 1.2 TB HDDs • 4 SAS3 SFF Solid State Drives with 400GB each • 1 additional Dual port 10GbE NICs

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Oracle Communications User Data Repository and Oracle Communications Policy Management Compatibility and Software Upgrade Paths

This chapter provides a Oracle Communications Policy Management compatibility matrix and a table of upgrade paths to Oracle Communications User Data Repository Release 10.2.

Oracle Communications User Data Repository and Oracle Communications Policy Management Compatibility Matrix

Table 5-1 shows which releases of Oracle Communications Policy Management are compatible with each release of UDR.

Table 5-1   Oracle Communications User Data Repository and Oracle Communications Policy Management Compatibility Matrix

UDR Software Release	Compatible Policy Management Software Release
10.0	10.5, 11.5, 12.1
10.2	11.5, 12.1

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Supported Upgrade Paths

This release has been tested for upgrade from the prior release; this chapter contains the exact path for upgrade. Please verify that your current installed release is listed on the valid upgrade path.

Supported Upgrade Paths

This figure shows valid upgrade paths for release 10.2. The paths added in this release for testing include OCUDR 10.0 and OCUDR 10.0.0.0.1. Upgrades, including rollback capability, shall be provided while the OCUDR remains in service and provisioning fully active.

Figure 6-1   Release 10.2 valid upgrade paths

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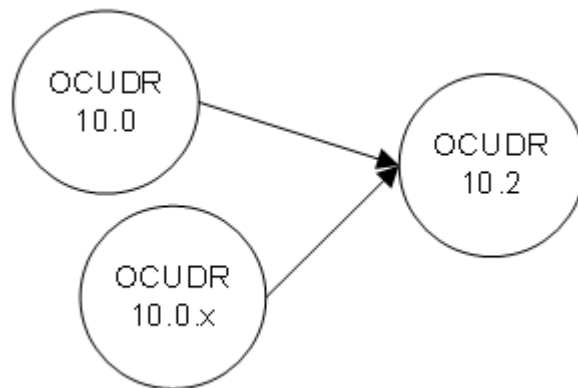
Resolved and Known Bugs

This chapter lists the resolved and known bugs for Release 10.2.0.0.0. Resolved and known bugs for Release 10.2 patches are listed in the Software Patches chapter.

These bug lists are distributed to customers with a new software release at the time of General Availability (GA), and are updated for each maintenance release.

Severity Definitions

The problem report sections in this document refer to Bug severity levels. Definitions of these levels can be found in the publication, *TL 9000 Quality Management System Measurement Handbook*.

Problem Report: A report from a customer or on behalf of the customer concerning a product or process defect requesting an investigation of the issue and a resolution to remove the cause. The report may be issued via any medium. Problem reports are systemic deficiencies with hardware, software, documentation, delivery, billing, invoicing, servicing or any other process involved with the acquisition, operation, or performance of a product. An incident reported simply to request help to bring back the service or functionality to normal without the intent to investigate and provide a resolution to the cause of the incident is not a problem report.

- Critical: Conditions that severely affect the primary functionality of the product and because of the business impact to the customer requires non-stop immediate corrective action, regardless of time of day or day of the week as viewed by a customer on discussion with the organization such as

    1. product inoperability (total or partial outage),

    2. a reduction in the capacity capability, that is, traffic/data handling capability, such that expected loads cannot be handled,

    3. any loss of emergency capability (for example, emergency 911 calls), or

    4. safety hazard or risk of security breach.

- Major: Product is usable, but a condition exists that seriously degrades the product operation, maintenance or administration, etc., and requires attention during pre-defined standard hours to resolve the situation. The urgency is less than in critical situations because of a lesser immediate or impending effect on product performance, customers and the customer's operation and revenue such as

    1. reduction in product's capacity (but still able to handle the expected load),

    2. any loss of administrative or maintenance visibility of the product and/or diagnostic capability,

3. repeated degradation of an essential component or function, or

4. degradation of the product's ability to provide any required notification of malfunction.

- Minor: Other problems of a lesser severity than 'critical' or 'major' such as conditions that have little or no impairment on the function of the system

- Minor, No Loss of Service: Oracle severity beyond what is defined by TL 9000.

The numbered severity levels in the tables below correspond to these definitions:

- 1 - Critical

- 2 - Major

- 3 - Minor

- 4 - Minor, No Loss of Service

Resolved Bug Listing

This table lists bugs that are resolved in the following builds:

Application Lineup:

- UDR 10.2.0-12.15.0

Platform Lineup:

- DPI 7.1.0.0.0-71.24.0

- TPD 7.0.2.0.0-86.28.0* (UDR Baseline; Oracle Linux 6.6)

- TPD 7.0.1.0.0-86.20.0 (PM&C TPD Version)

- TVOE 3.0.2.0.0-86.28.0

- PMAC 6.0.1.0.0-60.21.0

- COMCOL 6.4-p252

- Appworks 6.0.1-60.35.0

- Exgstack 7.1.0-71.22.0

- HP Firmware 2.2.9 (minimum)

Note:

* The **TPD** version is upgraded to 7.0.2.0.0-86.32.0 when User Data Repository is successfully installed.

The above listed load line-up provides a view of our **GA** milestone release. The Firmware is addressed by an independent manufacturer (e.g., **HP**) and will have additional release guidance and requirements. We recommend review of the line-up prior to system upgrade.

Note: Customer known bugs are sorted in ascending order by severity and then by bug number.

Table 7-1   Release 10.2 Resolved Bugs

Severity	Bug Number	Title	SR#
2	19336068	Ousted fragments found on NO active switch over. Audit stuck	NA
3	19726583	UDR prcess restrated while adding 200 ipv4 SCTP multi homed connections	NA
3	19614158	UDR takes down idle REST connection before configured idle timeout	NA
3	19118763	OCUDR:Incomplete Event Description is observing for "Event ID 13459:Sending Client Invalid"	NA
3	19117406	OCUDR:Application name need to be removed from SPRFE Oper	NA
3	19912980	Insert Server Screen does not show both the XSI networks	NA
3	19855922	Update field command for a key gives undesired result	NA
3	19955912	Error Code 13137 is not generated at BaseFieldSet [Insert/Edit] path.	NA
3	19872402	XsasProv counter value not cleared automatically in KPI NO GUI	NA
3	19769006	Received error codes 70018 and 70019 when trying to delete subscribers via SOAP	NA
3	19119077	Prov Import file status is complete but system does not import any more	NA
3	19823931	Replication stuck in a ConnectedReinit/Down loop after UDR disaster recovery	NA
3	19884115	Abterms generated during prod.stop	NA
3	19986739	HA Misconfiguration issue found when NOAMP server goes into OOS state	NA
3	19849376	lvcreate command fails in pre-upgrade backup	NA
3	19989239	Spare NO raises alarm 31102 while irepstat shows active replication	NA
3	19118873	OCUDR backups fill up disk space too quickly	NA
4	20865439	Support Auto Enrollment Blacklist	NA
4	20776918	Uniterrupted migration of AE subscribers from SPR to OCUDR	NA
4	20694497	OCUDR 10.0 Support for 2x64GB blade configuration	NA
4	20531518	Measurement counts for provisioning requests	NA

Table 7-1   (Cont.) Release 10.2 Resolved Bugs

Severity	Bug Number	Title	SR#
4	20531499	Improved OCUDR Provisioning Throughput	NA
4	20531475	On-demand Quota Reset with statistics	NA
4	20531461	Provisioning validation of multiple keys	NA
4	20531367	IP address ranges for provisioning white lists	NA
4	20531362	Support for PNR Generation with Bulk Import	NA
4	20422260	OCUDR 10.2 Online Help Issues	NA
4	20190243	OCUDR configuration and characterization support for RMS	NA
4	20202607	Provisioning with Durability Confirmation option on Provisioning Options GUI	NA
4	20865430	OCUDR Migration tool support for OCUDR-OCUDR Migrations	NA
4	20701610	dbauditor code for release 10.2	NA
4	19918050	xsas process crashed multiple times with subscriber profile create operation	NA
4	19885287	Allow change the key fields of subscriber	NA
4	19363368	CPU Pinning script to be enhanced to pin CPUs based on the number of cores avail	NA
4	19660584	Provision interface need support at least 50 TPS on one connection	NA
4	19943676	Alarm 13061 "ERA_ResponderFailed" is being raised due to no backup directory	NA

Customer Known Bug Listing

This table lists known bugs in this release.

Note: Customer known bugs are sorted in ascending order by severity and then by bug number.

Table 7-2   Release 10.2 Customer Known Bugs

Severity	Bug Number	Title	Customer Impact	Workaround
3	20675206	UDR_10.2: Back Up Failure occurred on Standby NO server due to Day light saving.	Automatic provisioning and Configuration backup files are not available on the day the day light savings is applied.	Manual cleanup of the file management area should be done before the day light savings is applied.

Table 7-2   (Cont.) Release 10.2 Customer Known Bugs

Severity	Bug Number	Title	Customer Impact	Workaround
3	21233488	Issues related to ISO 8601 date/time formats.	No impact on the functionality of OCUDR.	This is a configuration change and the customer can modify it from the SEC GUI.
3	21444665	Loss of iLO GUI access on Oracle X5-2 servers during installation of UDR 10.2.	Oracle X5-2's ILO becomes unresponsive sometimes.	Workaround is to ssh to the ILOM address and reset with the command " reset /SP "
3	21538189	idb.sync fails when partial failed transactions are left in Shared Memory.	No impact on the functionality of OCUDR. The issue is addressed by procedural changes. This bug has been created to track the Platform changes.	Workaround already specified in the Upgrade Document.
3	21564698	UDR 2 UDR Migration on demand process restart during fault insertion testing.	This is a fault insertion testcase. OCUDR to OCUDR Migration process does not exit gracefully. This issue is observed only due to manual interruption of the task.	1. pm.set off o2omod 2. Set up the SSH tunnel between Source and Target OCUDR with the same port as used earlier for the tunnel. 3. pm.set on o2omod
3	21636185	DB issue during backout on Primary Standby NO from 10.2 - >10.0.1.	Switchover while replication audit is in progress can result in database becoming inconsistent.	The customer should delete entries not needed before the backout.
3	21636421	Configuration Not removed after UDR System Backout 10.2->10.0.1-10.22.0.	No impact on the functionality of OCUDR. Entries added to the Export Scheduling and Subscribing Client Permissions tables after the upgrade would be retained post backout.	The customer should delete entries not needed before the backout.
3	21665758	PNR Sequence Number issue for Delete Entity.	No impact on the functionality of OCUDR or inter operability with PCRF.	No workaround needed.This Bug was resolved in Patch 1. See Table 8-1

Table 7-2   (Cont.) Release 10.2 Customer Known Bugs

Severity	Bug Number	Title	Customer Impact	Workaround
3	21752177	udrbe abterms when MOD process exits.	Whenever an AE migration is in progress and there is delay in migration (data migrated after configured wait time), udrbe process will restart causing switch over to occur.	Increase the wait time for migration to a larger value like 50 milliseconds.

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Software Patches

This chapter lists the resolved and known bugs for Release 10.2 patches and is updated each time a patch is released.

Resolved Bug Listing - Patch 1

This table lists bugs that are resolved in the following build:

Application Lineup:

- UDR 10.2.0.1.0-12.22.0

Platform Lineup:

- DPI 7.1.0.0.0-71.24.0

- TPD 7.0.2.0.0-86.28.0* (UDR Baseline; Oracle Linux 6.6)

- TPD 7.0.1.0.0-86.20.0 (PM&C TPD Version)

- TVOE 3.0.2.0.0-86.28.0

- PMAC 6.4.0.0.0-64.8.0

- COMCOL 6.4-p252

- Appworks 6.0.1-60.35.0

- Exgstack 7.1.0-71.22.0

- HP Firmware 2.2.9 (minimum)

> **Note:**
>
> * The TPD version is upgraded to 7.0.2.0.0-86.32.0 when User Data Repository is successfully installed.

The above listed load line-up provides a view of our GA milestone release. The Firmware is addressed by an independent manufacturer (for example., HP) and will have additional release guidance and requirements. We recommend review of the line-up prior to system upgrade.

> **Note:** Resolved bugs are sorted in ascending order by severity and then by bug number.

Table 8-1   Release 10.2 Resolved Bugs, Patch 1

Severity	Bug Number	Title	SR#
3	21665758	PNR Sequence Number issue for Delete Entity	NA
3	21955371	SOAP Select Response is not a valid XML when entities are retrieved	NA
3	21954005	Memory leak observed when Prov traffic is run at 600 TPS with durability	NA
3	21954021	PNR is not generated for all subscriptions for Provisioning updates	NA
3	22144979	Single Row retrieved multiple times if a Quota contains rows with same name	NA
3	22087391	> incorrectly changed to "&gt" during migration and provisioning update	NA
3	22079464	Udr should reject the request containing empty CDATA	NA
3	22027505	PNR is not generated for SOAP update requests updating/deleting multiple entitie	NA
3	22166001	PNS with Experimenta-Result-Code causing exception, subscription not removed	NA
4	21840454	If UDR needs alarm aggregation, "oatmeal" needs to be modified	NA

Customer Known Bug Listing - Patch 1

This table lists known bugs discovered during the 10.2.0.1.0 development/testing process.

Note: Resolved bugs are sorted in ascending order by severity and then by bug number.

Table 8-2   Release 10.2 Customer Known Bugs, Patch 1

Severity	Bug Number	Title	Customer Impact	Workaround
2	22724602	OCUDR Failover Error	All MPs will respond to the MPEs with "Diameter unable to comply" for a brief period of time until the DB replication is complete on Site 1.	The issue could be prevented by performing the following steps [1] Place NO-1B into Forced Standby, in NodeInfo, before powering it on. [2] Use irepstat to verify the state of the link. [3] Leave NO-1B in Forced Standby while the link is ActiveBehind. [4] Once the link is Active, remove the Forced Standby restriction on NO-1B. This will allow the switch over to occur without the lengthy down time of no HA Active node.
3	22726723	Can't insert and run a SQR task with same Task ID that has been run and deleted	Customer will not be able to schedule a new task with the same name as a task that was deleted after execution.	The customer can schedule new tasks with different task names.
3	22152042	TKLCSnmp.log fill disk space in volume /var/ TKLC to 100%	/var/TKLC directory on NOAMP gets 100% full	The customer can disable INFO and DEBUG logging for the SNMP by adjusting the snmp logging level to Warning ['4'] or above.

9

Oracle References and Services

This chapter describes how to obtain help, where to find related documentation, and provides other general information.

My Oracle Support (MOS)

MOS (https://support.oracle.com) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with MOS registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select 2 for New Service Request

2. Select 3 for Hardware, Networking and Solaris Operating System Support

3. Select one of the following options:

   - For Technical issues such as creating a new Service Request (SR), Select 1

   - For Non-technical issues such as registration or assistance with MOS, Select 2

You will be connected to a live agent who can assist you with MOS registration and opening a support ticket.

MOS is available 24 hours a day, 7 days a week, 365 days a year.

Emergency Response

In the event of a critical service situation, emergency response is offered by the Customer Access Support (CAS) main number at 1-800-223-1711 (toll-free in the US), or by calling the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. 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 Oracle.

Customer Training

Oracle University offers expert training on Oracle Communications solutions for service providers and enterprises. Make sure your staff has the skills to configure, customize, administer, and operate your communications solutions, so that your business can realize all of the benefits that these rich solutions offer. Visit the Oracle University web site to view and register for Oracle Communications training: education.oracle.com/communication. To reach Oracle University:

- In the US, please dial 800-529-0165.

- In Canada, please dial 866-825-9790.

- In Germany, please dial 0180 2000 526 (toll free) or +49 8914301200 (International).

- In Spain, please dial +34 91 6267 792.

- In the United Kingdom, please dial 0845 777 7 711 (toll free) or +44 11 89 726 500 (International).

For the appropriate country or region contact phone number for the rest of the world, please visit Oracle University's web site at http://www.oracle.com/education/contacts.

Locate Product Documentation on the Oracle Help Center Site

Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) site, http://docs.oracle.com. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at http://www.adobe.com.

1. Access the Oracle Help Center site at http://docs.oracle.com.

2. Click Industries.

3. Under the Oracle Communications subheading, click the Oracle Communications documentation link.

   The Communications Documentation page appears. Most products covered by these documentation sets will appear under the headings "Network Session Delivery and Control Infrastructure" or "Platforms."

4. Click on your Product and then the Release Number.

   A list of the entire documentation set for the selected product and release appears.

5. To download a file to your location, right-click the `PDF` link, select `Save target as` (or similar command based on your browser), and save to a local folder.

Locate Product Release Software on the Oracle Software Delivery Cloud Site

Oracle Communications software is available for electronic download at the Oracle Software Delivery Cloud site, https://edelivery.oracle.com. Only authorized customers with a valid password may download software from the site.

For directions on downloading the software and other information about using this site, click **FAQ** in the top right corner.