Oracle MaxRep for SAN

Customer Release Notes 3.0

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Revision History

Table 1: Revisions

Revision description	Revision date
Release 3.0	2016-11-03

CHAPTER 1

Product Release Information

Purpose

This document describes new features, capacities, system configuration requirements, system operating limits, hardware, firmware, software, and documentation information for Release 3.0 of the Oracle MaxRep for SAN system.

The information provided is accurate at the time of publishing. Newer information might be available from your Oracle authorized representative.

System Enhancements

This release includes system enhancements and quality improvements to the Oracle MaxRep for SAN system.

Updated Hardware Platform

The Oracle MaxRep Replication Engine has been updated for Release 3.0. The updated hardware includes:

- Dual 18 Core Intel Xeon E5-2658 processors
- 64 GB RAM
- 8 Gb FC support
- 10 Gb Ethernet support
- IP Bonding for Management ports

Oracle Flash Storage Support

Oracle MaxRep for SAN 3.0 supports Oracle FS1-2 Flash Storage arrays, as well as legacy Pillar Axiom storage systems.

Expanded Engine LUN Support

Oracle MaxRep for SAN Release 3.0 has increased LUN support per Replication Engine. Refer to *Oracle MaxRep for SAN Product Limits* for additional information.

Software Enhancements

This release provides software enhancements and quality improvements to the Oracle MaxRep for SAN system.

Multiple Replication Engine Storage Registration

Oracle MaxRep for SAN Release 3.0 will support registering multiple Replication Engines to a single Pillar Axiom or Oracle Flash Storage System. This significantly increases the scalability of a configuration.

- Dual 18 Core Intel Xeon E5-2658 processors
- 64 GB RAM
- 8 Gb FC support
- 10 Gb Ethernet support
- IP Bonding for Management ports

Installation and Management Via Web UI

Oracle MaxRep for SAN Release 3.0 supports the initial configuration and ongoing management of the following attributes via an updated UI:

- Configuring a hostname
- Configuring networking
- Configuring the DNS
- Setting the timezone
- Setting the NTP server
- Configuring the ILOM
- Configuring the control service Replication Engine
- Configuring MaxRep high availability
- Configuring a software cache LUN
- Shutting down a Replication Engine
- Shutting down/RestartingReplication Engine services
- Updating MaxRep software

Expanded Engine LUN Support

Oracle MaxRep for SAN Release 3.0 has increased LUN support per Replication Engine. Refer to *Oracle MaxRep for SAN Product Limits* for additional information.

CHAPTER 2

Support

Support

Various levels of customer service are provided on a contract basis for Oracle MaxRep for SAN systems. If you have purchased a service contract from Oracle or Pillar Data systems, authorized support personnel will perform support and repair according to the terms and conditions of that agreement.

Supported Hardware Components

Your Oracle-supplied parts for Oracle FS Systems and Oracle MaxRep Replication Engines are supported through Oracle Customer Support. Hardware that does not conform to Oracle FS Systems or Oracle MaxRep specifications, or is not an Oracle-supplied part, voids the warranty and might compromise data integrity.

Oracle FS Hardware Requirements

The following are the requirements for an Oracle FS System to be used as a source or target replication array:

- All source and target Oracle systems must be Oracle FS1-2, or Pillar Axiom 600.
- for Fibre Channel (FC) only: The Oracle systems must have FC SAN fabric connectivity.
- Brick or Brick or Drive Enclosure capacity must be sized properly to account for the additional capacity required for the repliation solution. The Brick or Drive Enclosure spindle count must be sized properly to account for the performance requirements for the replication solution.

Oracle MaxRep Engine Hardware Requirements

The following are the hardware requirements for the Oracle MaxRep for SAN Replication Engine:

- For Fibre Channel (FC) support: The Replication Engine must have FC SAN fabric connectivity.
- For data change rates of more than 3 TB/day, multiple Replication Engines might be required. Performance targets can vary depending upon the data that is replicated, the host access patterns to that data, and the SAN,

network, and target storage resources available to the Replication Engines included in the solution.

- Up to eight Replication Engines can be registered to a single Oracle FS System.
- Communications to primary or secondary Oracle FS Pilots require Ethernet connectivity.

Pillar Axiom Storage System Requirements

The following are hardware requirements for the Pillar Axiom Storage system:

- For Fibre Channel (FC) only: The Pillar Axiom Storage system must have FC SAN fabric connectivity.
- For iSCSI only: The Pillar Axiom Storage system must have iSCSI connectivity.
- For FC and iSCSI: The Pillar Axiom Storage system must support both FC SAN fabric and iSCSI connectivity.
- For iSCSI support: The Pillar Axiom Storage system must have Ethernet LAN connectivity.

Access to Oracle MaxRep for SAN Systems

Administrators of the Oracle MaxRep for SAN GUI have access to certain features of the product based on their administrative role type. Refer to following table for the MaxRep user interface administration roles.

Table 2: MaxRep user interface administrator roles

Major UI areas	Administrator role	Monitor role
Protect Context	Full Access	No Access
Monitor Context	Full Access	Full Access
Recover Context	Full Access	Limited Access (Read only view)
Settings	Full Access	Limited Access

Download Software Updates

Prerequisite

Before attempting to download firmware or system software, contact Oracle Customer Support and open a Service Request (SR) for a software update.

Note: When Oracle Customer Support has verified that your system meets the prerequisites for the update, you will be sent a password that enables you to download the Oracle MaxRep software and the firmware or software update will be made available to you.

Note: Have the password on hand before you download the software. This password is only valid for seven days.

1. When the software is available to you, point your browser to My Oracle Support (*https://support.oracle.com/CSP/ui/flash.html*) and sign in.

   Tip: After signing in to My Oracle Support (MOS), you can view the current information about Oracle MaxRep and Pillar Axiom firmware and patches. To view this information, enter **`1422199.1`** in the **Search Knowledge Base** field.

2. On the top menu bar, click **Patches & Updates**.
3. In the Patch Search frame, click **Product or Family (Advanced)**.
4. In the Product is list box, enter your system model.

   Tip: As you begin entering characters, appropriate items appear in the dropdown list. Choose the model that corresponds to your system.

5. In the Release is list box, click the dropdown arrow to expand the Pillar Axiom (MaxRep) model, select the desired Pillar Axiom (MaxRep) software release, and then click in the middle of the screen to close the dropdown menu.
6. Click **Search**.
   The Patch Search Results window displays.

   Note: Check the file size of the download and verify that your local system has sufficient space to store the download file.

   Important: If you intend to use this local system to stage the software, ensure that this system has free capacity that is at least 2.2 times the size of the file download.

7. (Optional) To view the patch release notes, click **Read Me** in the Patch Search Results window.
8. To download the software package, click **Download**.
9. To begin the download, click the name of the software archive.
   A dialog opens requesting a password.
10. Enter the password that Oracle Customer Support sent to you, and then click **Unlock**.
11. Browse to the location on your local system where you want to save the software update packge.

    Tip: Record this location for later use. You will need this information when you stage the software to the Pillar Axiom Replication Engine MaxRep.

12. Extract the contents of the downloaded zip file.

    Important: Be sure to preserve the original file names and extensions of the contents, because renaming could prevent successful staging.

Oracle MaxRep for SAN Firmware

Firmware for Oracle MaxRep for SAN Release 3.0 or higher is preinstalled at the factory on all Replication Engines. If a full reinstallation is required, contact Oracle Customer Support to schedule a reinstallation.

Files include:

Oracle MaxRep for SAN Release 3.0.1

- `MaxRep_v3.0.1.GA.3547_SW_07Oct2014.iso`
- `readme.html`
- `md5sum`

Oracle MaxRep for SAN Firmware Update

The updates listed below apply only to version 3 of the Oracle MaxRep for SAN solutions that are running v3.0.1.GA.3547 or higher.

The updates cannot be applied to version 1 or version 2 of the Pillar Axiom MaxRep Replication for SAN solutions.

Determine Updates Needed for Your Environment

The firmware updates required depend on the version currently installed on your Replication Engines. In general, updates must be installed sequentially. Refer to Table 3 for a list of release versions and the associated steps to update firmware.

Table 3: Version updates

Current version	Update steps
Oracle MaxRep for SAN 3.0.8	No update is required
Oracle MaxRep for SAN 3.0.4	Apply Oracle MaxRep for SAN update 3.0.8
Oracle MaxRep for SAN 3.0.3	Apply Oracle MaxRep for SAN update 3.0.8
Oracle MaxRep for SAN 3.0.2	Apply Oracle MaxRep for SAN update 3.0.8
Oracle MaxRep for SAN 3.0.1	Apply Oracle MaxRep for SAN update 3.0.8

Files Included in the Update

Important: Oracle recommends that you check My Oracle Support (*https://support.oracle.com/CSP/ui/flash.html*) for the latest updates.

Oracle MaxRep for SAN Update 3.0.8

- `MaxRep_v3.0.8.GA.3547.012_Update.tgz`
- `MaxRep_v3.0.8.GA.3547.012_Update.tgz.md5`
- `readme.html`

CHAPTER 3

System Limits

Oracle MaxRep for SAN System Limits

This version of the Oracle MaxRep for SAN system operates within supported limits.

Important: Use care when operating a system that has been configured to run at or near the system operating limits. The system may exhibit anomalies when all limits are exercised concurrently. Also, the time to start Oracle MaxRep for SAN systems from a powered-off or shutdown state and the responsiveness of the GUI can be adversely affected by the following conditions:

- You configure a system near one or more of its limits
- You increase the number of customer-defined system objects, such as protection plans, virtual snapshots, and so on

Oracle recommends that you consult with Oracle Advanced Customer Support(ACS) to plan your Oracle MaxRep for SAN system configuration prior to actual installation and configuration.

Oracle MaxRep for SAN System Operating Limits

For detailed information on system limits, refer to the online help or to the *Oracle MaxRep for SAN User's Guide* PDF file (search for *Range of Field Definitions*).

Oracle MaxRep for SAN Product Limits

The limits of the Oracle MaxRep for SAN R3.0 are listed in the following table.

Table 4: Product limits for Oracle MaxRep for SAN systems

Specification	Limit
Replication Engine per configuration	8
Replication Engine per storage array	8
Storage arrays per Replication Engine	8
Replicated LUNs per Replication Engine	500
LUNs per protection plan	64
Protection plans per Replication Engine	Unlimited

Table 4: Product limits for Oracle MaxRep for SAN systems (continued)

Specification	Limit
Number of retention LUNs per Replication Engine	255
Max capacity of each retention LUN	16.0 TB or 15.6 TiB
Daily change rate limit per LUN per Replication Engine - FC	3.0 TB or 2.9 TiB
Daily change rate limit per protection plan per Replication Engine - FC	3.0 TiB per day
Daily change rate limit per Replication Engine - FC	3.0 TiB per day
Application consistency agents per Replication Engine	96
Virtual snapshots per Replication Engine	2048
Physical replication copies per Replication Engine	255

Replication Engines for Each Configuration

The limit on the number of Replication Engines depends upon the configuration. Up to four process service Engines have been tested in non-high availability (NHA) solutions, and up to eight for high availability (HA) solutions.

Replication Engines for Each Oracle FS System

The maximum number of Replication Engines for each Oracle FS System is eight.

Storage Arrays for Each Replication Engine

The maximum number of Oracle FS Systems and Pillar Axiom storage arrays for each Replication Engine is eight.

Replicated LUNs for Each Replication Engine

The maximum number of replicated LUNs for FC-attached Engines is 1024.

LUNs for Each Protection Plan

The maximum number of LUNs per protection plan is 64.

Protection Plans for Each Replication Engine

If only volume replication is being performed, the practical limit is the same as the number of replicated LUNs for each Replication Engine because each protection plan will have at least one LUN. There is no logical limit within the Oracle MaxRep software.

Number of Retention LUNs for Each Replication Engine

The tested limit of retention LUNs for each Replication Engine is four. Note that each retention LUN used reduces, by one, the available replicated LUNs for that Replication Engine.

Maximum Capacity of Each Retention LUN

Larger file systems are possible by using a larger blocksize; however, serviceability may be an issue. The recommended limit is 16.0 TB or 15.6 TiB.

Daily Change Rate Limits

Daily change rate limits will vary depending upon block sizes and the write access patterns to the source LUN data, the performance capabilities of the target storage, and the available bandwidth between the source and target storage. Listed performance targets might not be met under conditions of highly random small block I/O, or in cases where target storage or bandwidth availability cannot meet the demand of the solution. Highly sequential I/O or I/O with larger block sizes could exceed the listed performance targets.

Application Consistency Agents for Each Replication Engine

The maximum number of application consistency agents registered to a Replication Engine is 96.

Virtual Snapshots for Each Replication Engine

The tested limit for virtual snapshots is 2048.

Physical Replication Copies for Each Replication Engine

Note that the number of physical copies mapped from an Oracle FS System or a Pillar Axiom storage array will limit the number of replication LUNs available for that Replication Engine.

Oracle FS System Operating Limits

Refer to Oracle FS System documentation for information on storage array operating limits.

- Oracle FS1-2 Flash Storage System Customer Release Notes, Release 6.2.2
- Pillar Axiom 600 Customer Release Notes, Release 5.4

CHAPTER 4

System Requirements

Oracle FS System Management (ASSM) Requirements

Oracle FS Storage Service Manager on a source or target Oracle FS System for the 6.1 family must be at release 6.01.14 or later.

For the 6.2 family, Oracle recommends the Oracle FS Storage Service Manager be at release 6.2.4 or later.

For the 6.3 family, Oracle recommends the Oracle FS Storage Service Manager be at release 6.3.314 or later.

Pillar Axiom Storage Service Manager on a source or target Pillar Axiom System must be at release 05.04.16 or later.

Browser Requirements

- Microsoft Internet Explorer 7.0 or later
- Mozilla Firefox 24.0 or later
- Screen resolution of 1024 x 768 pixels
- Adobe Flash Player 10 or later

Network Requirements

Ethernet ports

Each Replication Engine that uses FC-only connectivity to a primary or secondary Oracle FS System requires two Ethernet connections: a 10 Gigabit Ethernet (10 GbE) RJ-45 connection for management, a 1 GbE RJ-45 connection for hardware monitoring and ILOM access. To support IP bonding for the management interface, an additional 10 GbE RJ-45 Ethernet port is required.

Environment

Connectivity between metro area sites for synchronous replication must include an extension of the local SAN fabric to the remote site using dense wavelength division multiplexing (DWDM) over dark fibre, which is the network system that consists of fibre optic cables between the primary and secondary locations. Sufficient bandwidth must be available to accommodate the change rate of the source data, as well as the target Oracle FS System writes and journaling.

Connectivity between sites for remote asynchronous replication must include sufficient WAN bandwidth to accommodate the change rate of the source data.

Oracle FS Replication Engine Network Requirements

SAN ports

Each Replication Engine that uses FC connectivity to a primary or secondary Oracle FS System requires four connections. These connections are 8 Gb/s (FC) and are provided through LC connections on the back of the Replication Engine.

Environment

The SAN hardware that the Replication Engine is connected to must support Node Port ID Visualization (NPIV). NPIV must be enabled for all connected initiator ports on the Replication Engine.

CHAPTER 5

Additional Notes

Additional Notes

For items that refer to inserting and/or removing field replaceable units (FRUs), refer to the *Oracle MaxRep for SAN Hardware Guide* on the *Oracle Help Center* for more information.

For items that refer to provisioning or configuring an Oracle MaxRep for SAN System, refer to the *Oracle MaxRep for SAN User's Guide* on the *Oracle Help Center* for more information.