

Global Services Product Support Bulletin

ScaleIO Software 1.30

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1.0 Introduction

This Product Support Bulletin (PSB) provides ScaleIO software 1.30 product release information.

2.0 Applicability

This PSB is EMC® confidential and is intended for EMC Global Services personnel and Authorized Service Providers only. The information in this PSB applies to ScaleIO software 1.30 product release information.

3.0 General Availability Date

The General Availability (GA) date for the ScaleIO software 1.30 is September 19, 2014.

4.0 Global Services Program Manager

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5.0 Product Description

5.1 Overview

ScaleIO is a software-only solution that uses existing servers' local disks and LAN to create a virtual SAN that has all the benefits of external storage—but at a fraction of cost and complexity. ScaleIO utilizes the existing local internal storage and turns it into internal shared block storage. ScaleIO storage is comparable to, or better than, any expensive external shared block storage.

The lightweight ScaleIO software components are installed on the application servers and communicate via a standard LAN to handle the application I/O requests sent to ScaleIO block volumes. An extremely efficient decentralized block I/O flow, combined with a distributed, sliced volume layout, results in a massively parallel I/O system that can scale up to thousands of nodes.

ScaleIO is designed and implemented with enterprise-grade resilience. In addition, the software features an efficient, distributed, self-healing process that overcomes media and node failures, without requiring administrator involvement.

Dynamic and elastic, ScaleIO enables administrators to add or remove nodes and capacity on-the-fly. The software immediately responds to the changes, rebalancing the storage distribution and achieving a layout that optimally suits the new configuration.



ScaleIO is hardware agnostic. The software works efficiently with various types of disks, including: magnetic (HDD) and solid-state (SSD) disks, Flash PCI Express (PCIe) cards, networks, and hosts.

ScaleIO can easily be installed in an existing infrastructure and in green field configurations.

5.2 New Features

ScaleIO v1.30 introduces several new features, listed below. In addition, it includes internal enhancements that increase the performance, capacity usage, stability, and other storage aspects.

Note: To upgrade from previous versions, contact EMC Support.

Thin provisioning: In v1.30, you can create volumes with thin provisioning. In addition to the on-demand nature of thin provisioning, this also yields much quicker setup and startup times.

Fault Sets: You can define a Fault Set, a group of ScaleIO Data Servers (SDSs) that are likely to go down together (For example if they are powered in the same rack), thus ensuring that ScaleIO mirroring will take place outside of this fault set.

Enhanced RAM read cache: This feature enables read caching using the SDS server RAM.

Installation, deployment, and configuration automation: Installation, deployment, and configuration has been automated and streamlined for both physical and virtual environments. The install.py installation from previous versions is no longer supported.

VMware management enhancement: A VMware, web-based plug-in communicates with the Metadata Manager (MDM) and the vSphere server to enable deployment and configuration directly from within the VMware environment.

GUI enhancement: The GUI has been enhanced dramatically. In addition to monitoring, you can use the GUI to configure the backend storage elements of ScaleIO.

REST API: A Representational State Transfer (REST) API can be used to expose monitoring and provisioning via the REST interface.

OpenStack support: ScaleIO includes a Cinder driver that interfaces with OpenStack, and presents volumes to OpenStack as block devices which are available for block storage. It also includes an OpenStack Nova driver, for handling compute and instance volume-related operations.

Planned shutdown of a Protection Domain: You can simply and effectively shut down an entire Protection Domain, thus preventing an unnecessary rebuild/rebalance operation.

Role-based access control: A role-based access control mechanism has been introduced.

IP roles: For each IP address associated with an SDS, you can define the communication role that the IP address will have: Internal—between SDSs and MDMs; External—between ScaleIO Data Clients (SDCs) and SDSs; or both. This allows you to define virtual subnets.

MDM— IP address configuring: You can assign up to eight IP addresses to primary, secondary, and tie-breaker MDM servers, thus enhancing MDM communication redundancy. In addition, you can configure a specific IP address that the MDM will use to communicate with the management clients. This enables you to configure a separate management network so you can run the GUI on an external system.

Syslog reporting: Events can be sent to a syslog server.

Network throttling enhancement: This version introduces finer granularity in bandwidth control, enabling you to set different limits for different forms of traffic, for specific Protection Domains.

Rebuild throttling: You can define the rebuild IO priority policy for a Storage Pool based on IO priority and bandwidth use.

Extended Product Limits: Product capabilities have been significantly enhanced, as described in Table 1.

Table 1. ScaleIO Capabilities

Item	Limit
ScaleIO System raw capacity	From 300GB to 16PB
Device size	100GB to 4TB
Minimum Storage Pool capacity	300GB
Volume size From	8GB to 1PB
Maximum number of Volumes / Snapshots in system	32,768*
Maximum number of Volumes + Snapshots in VTree	32
Maximum capacity per SDS	64TB
Maximum SDSs per system	1024
Maximum SDSs per Protection Domain	128*
Maximum devices (disks) per SDS server	64
Maximum devices (disks) per Storage Pool	512
Maximum SDCs per system	1024
Maximum Protection Domains per system	256
Maximum Storage Pools	1024
Maximum Storage Pools per Protection Domain	64
Maximum Fault Sets per Protection Domain	64
Maximum SCSI Initiators per system	1024
Maximum IP addresses per server (MDM and SDS)	8

*If more capacity, size, volume, etc. are needed, contact EMC Support.

6.0 Hardware and Software Configurations

Refer to the E-Lab Navigator: <https://elabnavigator.emc.com/eln/elhome> for ScaleIO.

6.1 Hardware Requirements

PROCESSOR

One of the following:

- Intel or AMD x86 32-bit (for Xen only)
- Intel or AMD x86 64-bit (recommended)

PHYSICAL MEMORY

- 500 MB RAM for the Meta Data Manager (MDM)
- 500 MB RAM for each ScaleIO Data Server (SDS)
- 50 MB RAM for each ScaleIO Data Client (SDC)



DISK SPACE

- 1 GB for each physical node or Citrix XenServer hypervisor
- 8 GB for VMware topologies

CONNECTIVITY

One of the following:

- 1 gigabit or 10 gigabit (recommended) network
- IP-over-InfiniBand network

Dual-port network interface cards (recommended)

Make sure of the following:

- There is network connectivity between all components.
- Network bandwidth and latency between all nodes is acceptable.
- Ethernet switch supports the bandwidth between network nodes.
- MTU settings are consistent across all servers and switches. For jumbo frame support, set the MTU for servers, switches, and vSwitches to 9000.
- The following ports are open in the local firewall of the server:
 - MDM: 6611 and 9011
 - SDS: 7072
 - Tie-Breaker: 9011

Note: You can change the default port. For more information, contact EMC Support.

6.2 Software Requirements

One of the following (for a complete list, refer to the EMC Support Matrix):

- Linux: CentOS 5.5 or later, Red Hat 5.5 or later, or SUSE 11 SP1, SP2, and SP3

Packages required for all components:

- numactl
- libaio

Packages required for MDM components:

- mutt (for Call-Home)
- bash-completion (for scli completion)
- Latest version of Python 2.X

Package required for running the GUI is Java 1.6, or later.

- Windows: 2008 R2, 2012, or 2012 R2
 Package required for running the GUI is Java 1.7, or later.
- Hypervisors:
 - VMware ESXi 5.0, 5.1, or 5.5
 - Hyper-V
 - XenServer 6.1
 - RedHat KVM

For the ScaleIO most current list of supported operating systems, refer to the E-lab Navigator:
<https://elabnavigator.emc.com/eln/elhome>.

7.0 Model Numbers

ScaleIO model numbers are provided in Table 2 below.

Table 2. Model Numbers

Model Name	Description
300-015-340	EMC SCALEIO SOFTWARE
456-105-948	EMC SCALEIO SOFTWARE CAPACITY=CB
456-105-949	EMC SCALEIO ENTERPRISE FEATURES=CB
456-106-100	EMC SCALEIO SOFTWARE CAPACITY OEM=CB
456-106-101	EMC SCALEIO ENTERPRISE FEATURES OEM=CB
456-106-154	EMC SCALEIO SOFTWARE CAPACITY=CB
456-106-155	EMC SCALEIO ENTERPRISE FEATURES=CB
457-101-570	EMC SCALEIO SOFTWARE CAPACITY ELA=CB
457-101-571	EMC SCALEIO ENTERPRISE FAEATURES ELA=CB
SCALEIO-ENCR	EMC SCALEIO SOFTWARE W ENCRYPTION=CB
SCALEIO-HDD	EMC SCALEIO SOFTWARE FOR HDD=CB
SCALEIO-PHY	MODEL-XTREM SERVER FLASH-NA
SCALEIO-QOS	EMC SCALEIO SOFTWARE W QOS=CB
SCALEIO-REPL	EMC SCALEIO SOFTWARE W REPLICATION=CB
SCALEIO-SNAP	EMC SCALEIO SOFTWARE W SNAPSHOTS=CB
SCALEIO-SSD	EMC SCALEIO SOFTWARE FOR SSD=CB

8.0 Upgrade Strategy

8.1 Software Upgrade Requirements

Upgrade from earlier versions to ScaleIO 1.30 requires a complete de-install and re-install based migration. This requires EMC technical assistance. Contact EMC Support for upgrade. ScaleIO Escalation Engineering will also assist, as necessary.

8.2 Operating Environment Code Upgrade Considerations

Refer to the E-Lab Interoperability Navigator at the following link: <https://elabnavigator.emc.com/eln/elhome>

9.0 Hardware and Operating System Requirements

All configuration information is defined in the E-Lab Interoperability Navigator at the following link:

<https://elabnavigator.emc.com/eln/elhome>

9.1 Operating Environment Release History

Table 3. Release Software History

Release Type	GA Date	Factory Cut-in Date	Code Version
Major	2012	N/A	1.10
Major	November 5, 2013	November 5, 2013	1.20
Major	February 5, 2014	February 18, 2014	1.21
Major	September 19, 2014	September 19, 2014	1.30

9.2 Supported Software Components

For a list of currently supported software components, refer to the EMC Online Support web site at:

<https://elabnavigator.emc.com/eln/elhome>

10.0 Installation Strategy

ScaleIO version 1.30 has been designed to be completely customer installable, maintainable, and upgradable. EMC Global Services offers Basic, Enhanced and Premium support options for ScaleIO. EMC Technical Solutions offers basic remote Virtual Service Delivery implementation and assessment services. Furthermore, Global Services offers worldwide remote technical support for ScaleIO 7x24x365. A ScaleIO self-help product web page for customers and partners is also available at https://support.emc.com/products/33925_ScaleIO.

10.1 Field Process for Installations

ScaleIO Services will be primarily delivered by COE resources – Divisional SIO Champions to support Federal and Dark Site delivery where onsite presence is required:

Ready To Solo Resources COE:10, Americas:1, EMEA:1, APJ:4

11.0 Professional Services Offerings

Fixed Fee Implementation

- Fixed Scope and Level of effort
- Small to mid-size customers
- Use case driven
- Up to 250 TB (or 25 hosts)

PS-BAS-SIOIMP

\$5,620

***EMC Standard Implementation
for ScaleIO***

Custom SOW

Design & Implementation for Multi-site and
Multi-host deployments with more than
250TB of Storage license sold

PS-CUS-ASD

Custom Priced

***EMC ScaleIO Custom Design and
Implementation (PS-CUS-ASD)***

12.0 Support Strategy

To ensure the best in class Total Customer Experience, the support strategy for ScaleIO 1.30 will be the same as for any other ASD products. All ScaleIO end-user service requests will follow the EMC Service Request process to Remote Support with coordination of pass through escalation to ScaleIO Escalation Engineering on as needed basis.

ScaleIO customers will open Services Requests using the standard EMC call system for voice and web initiated calls. All calls will be queued to the ScaleIO Global Technical Support team. EMC Global Services offers Basic, Enhanced, and Premium support options for ScaleIO. Furthermore, Global Services offers worldwide remote technical support for ScaleIO 7x24x365. A ScaleIO self-help product web page for customers and partners is also available on the EMC Online Support web site's Support by Product page for ScaleIO at https://support.emc.com/products/33925_ScaleIO.

12.1 EMC Support Matrix (ESM)

The ESM is available from the EMC Online Support web site: <https://elabnavigator.emc.com/eln/elhome>

12.2 EMC Remote Connection Strategy

The ScaleIO 1.30 software does not support EMC remote connection. It provides an email capability that can be set up to email error events to an email address. Remote access to ScaleIO is performed via WebEx remote session.

12.3 Customer Service Engineers Responsibilities

ScaleIO is a software product that is serviced remotely through CS Remote Reactive team. Customer Service Engineers are not planned to go onsite to provide ScaleIO support.

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13.0 Partner Strategy

The ScaleIO Business Partner strategy planning is currently under review.

14.0 Software Download Information

ScaleIO 1.30 software is designed to be customer upgradeable. Software upgrades will be available through the EMC ScaleIO software product page downloads area located at:

https://support.emc.com/products/33925_ScaleIO.

15.0 Training Strategy

ScaleIO training information is available at: <http://education.emc.com>.

15.1 Global Technical Training

Global Services training course descriptions and learning paths are found at: <https://education.emc.com/>.

ScaleIO 1.30 Introduction: This course introduces ScaleIO technology and provides a high-level overview of the solution components and architecture. It also highlights specific customer challenges that can be addressed by the ScaleIO solution.

Target Audience: This course is intended for individuals requiring a basic introduction to ScaleIO technology and core product functionality.

Delivery Type: eLearning

Duration: 30 Minutes

Registration: https://education.emc.com/index_login.htm?id=734524574

Additional Education Information

- [New Product Readiness - Technical Training for Product Launches](#)
- [Education and Development Website](#)
- [Proven Professional Program Information](#)
- Other Information, contact: EdServices@emc.com

15.2 Customer Training

Customer training information can be found on the EMC Online Support portal:

<https://support.emc.com/search/search.htm>

16.0 Skill Management System Strategy

After training, technical staff must submit an incremental skills assessment, including a comment to record the product version for which they are trained and also to indicate any change in proficiency. Click here to start: [EMC Skills Management](#).

Table 4. Skills Management

Job Function	SABA Role	Skill
FSS	GS: Tiered Storage-Unified (FSS)	ScaleIO Solution Support
Global Tech Support	GS: Tiered Storage-Unified (GTS)	ScaleIO Troubleshooting
Implementation Specialist	GS: Tiered Storage-Unified (IS)	ScaleIO Implementation
Solution Architect	GS: Tiered Storage-Unified (SA)	ScaleIO Design
Resident	GS: Tiered Storage-Unified (Resident)	ScaleIO Administration

17.0 Warranty and Post Warranty Support

The latest warranty and maintenance terms are published on EMC.com as follows.

- [Limited Warranty:](#)
- [Basic:](#)
- [Enhanced:](#)
- [Premium:](#)
- [SW Warranty:](#)

Software Products: Customers purchase a “day one” maintenance contract to gain access to support and the rights to new versions of software.

Table 5. Software Warranty

Product Name	Warranty		Customer Services Contract ⁽¹⁾
	Service Level	Term	Service Level
ScaleIO	Software - Media Defects	90 Days	Basic
			Enhanced
			Premium

Note 1: Maintenance contracts: Standard Term duration is one year, but can be purchased for multiple years.

Severity Levels:

- Severity 1 – Critical: Severe problem preventing customer or workgroup from performing critical business functions.
- Severity 2 – High: The customer or workgroup is able to perform the job function, but performance of the job function is degraded or severely limited.
- Severity 3 – Medium: Customer or workgroup performance of job function is largely unaffected.
- Severity 4 – Request: Minimal system impact; includes feature requests and other non-critical questions.

18.0 Reference Documentation

Detailed installation and maintenance instructions are available from the EMC Online Support web site: https://support.emc.com/products/33925_ScaleIO.

19.0 White Papers and Other Resources

White papers and other resources are available from the EMC Online Support web site: https://support.emc.com/products/33925_ScaleIO.

20.0 Troubleshooting and Getting Help

For additional information regarding this product release, from the EMC Online Support web site: https://support.emc.com/products/33925_ScaleIO.

21.0 Key Word Listing and Legend of New Terms

Table 6. Key Words and Legend of New Terms

Acronym / Term	Definition
ScaleIO	ScaleIO is a software-only solution that uses existing servers' local disks and LAN to create a virtual SAN that has all the benefits of external storage.
SDC	ScaleIO Data Client
SDS	ScaleIO Data Server
MDM	Meta Data Management
ECS	Elastic Converged Storage

22.0 Product Availability and End of Support Dates

In addition to the release of ScaleIO 1.30, EMC is announcing the termination of support and maintenance schedule for some older releases so that EMC can focus development efforts on the current technology.

Current Product EOSL and Extended Support availability information can be found on: <https://support.emc.com/products>. Choose your product and then scroll down to the "Service Life" section in the left banner.

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