Quick Start Guide

EMC® ScaleIO®

Version 2.0.1.x

Deploying ScaleIO on Linux or Windows Servers

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This document provides a quick start to deploying ScaleIO on Linux and Windows servers. Topics include:

- Preface 2
- Before you begin 3
- System requirements 4
- Preparing the environment 9
- Starting the deployment 11
- Monitoring the deployment 13
- System analysis overview 14
- Enabling the storage 22
- Logging in to the ScaleIO GUI 24

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Preface

As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact your EMC technical support professional if a product does not function properly or does not function as described in this document.

Note

This document was accurate at publication time. Go to EMC Online Support (https://support.emc.com) to ensure that you are using the latest version of this document.

Related documentation

The release notes for your version includes the latest information for your product.

The following EMC publication sets provide information about your ScaleIO or ScaleIO Ready Node product:

- ScaleIO software (downloadable as ScaleIO Software <version> Documentation set)
- ScaleIO Ready Node with AMS (downloadable as ScaleIO Ready Node with AMS Documentation set)
- ScaleIO Ready Node no AMS (downloadable as ScaleIO Ready Node no AMS Documentation set)
- VxRack Node 100 Series (downloadable as VxRack Node 100 Series Documentation set)

You can download the release notes, the document sets, and other related documentation from EMC Online Support.

Typographical conventions

EMC uses the following type style conventions in this document:

Bold	Used for names of interface elements, such as names of windows, dialog boxes, buttons, fields, tab names, key names, and menu paths (what the user specifically selects or clicks)
Italic	Used for full titles of publications referenced in text
`Monospace`	Used for: • System code • System output, such as an error message or script • Pathnames, filenames, prompts, and syntax • Commands and options
Monospace italic	Used for variables
`Monospace bold`	Used for user input
[ ]	Square brackets enclose optional values
|	Vertical bar indicates alternate selections - the bar means “or”

{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information omitted from the example

Where to get help

EMC support, product, and licensing information can be obtained as follows:

Product information

For documentation, release notes, software updates, or information about EMC products, go to EMC Online Support at https://support.emc.com.

Technical support

Go to EMC Online Support and click Service Center. You will see several options for contacting EMC Technical Support. Note that to open a service request, you must have a valid support agreement. Contact your EMC sales representative for details about obtaining a valid support agreement or with questions about your account.

Your comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to techpubcomments@emc.com.

Before you begin

This document describes prerequisites for deploying ScaleIO on Linux or Windows servers.

The procedures in the document apply to ScaleIO deployment in the following scenario:

- all management and data communication are on the same network
- one Protection Domain
- on a fully-converged system

For all other cases and customization options, use the full installation, as described in the *EMC ScaleIO Deployment Guide*. ScaleIO can be deployed in 3-node or 5-node MDM cluster mode. This document supports both modes.

Before Deploying ScaleIO, read this document in its entirety.

Note

ScaleIO installation enables unlimited use of the product, in non-production environments. To obtain a license for production use, and to receive technical support, open a service ticket with EMC Online Support at https://support.emc.com.

Deployment step overview:

1. Prepare the environment
2. Start the deployment
3. Monitor the deployment
4. Run system analysis (Linux only)

5. Enable storage

System requirements

This section lists the requirements for system components.

ScaleIO cluster components

List of required ScaleIO servers.

- ScaleIO component servers:
  - 3-node cluster
    - One Master MDM
    - One Slave MDM
    - One TieBreaker
    - Minimum of three SDSs (on the same servers as the above components, or on three different servers)
    - Any number of SDCs (on the same servers as the above components, or on different servers)
  - 5-node cluster
    - One Master MDM
    - Two Slave MDMs
    - Two TieBreakers
    - Minimum of three SDSs (on the same servers as the above components, or on three different servers)
    - Any number of SDCs (on the same servers as the above components, or on different servers)
- ScaleIO Gateway server, on the same server as any of the ScaleIO components, or on a separate server. Do not install the Gateway on a server on which RFcache (the `xcache` package) or SDC will be installed.

Physical server requirements

Table 1 Server physical requirements

Component	Requirement
Processor	One of the following: • Intel or AMD x86 64-bit (recommended) • Intel or AMD x86 32-bit (for Xen only)
Physical memory	ScaleIO component requirements: • 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) DAS Cache memory requirements (ScaleIO Ready Node). Add to every SVM/node that will be using DAS Cache:

Table 1 Server physical requirements (continued)

Component	Requirement
	• 1U1N servers—500 MB RAM • 2U1N servers—1 GB RAM For optimal performance, remove the swap space (hard disk virtual memory) from the operating system disk. If other applications are running, consult with the application vendor to determine the best practice for swap space and size allocation.
Disk space	• 1 GB for each physical node or Xen hypervisor • 10 GB for VMware topologies

Connectivity	One of the following:
	• 1 GbE or 10 GbE (recommended) network
	• IP-over-InfiniBand network
	Dual-port network interface cards (recommended)
	Ensure the following:
	• There is network connectivity between all components.
	• Network bandwidth and latency between all nodes is acceptable, according to application demands.
	• Ethernet switch supports the bandwidth between network nodes.
	• MTU settings are consistent across all servers and switches.
	• The following TCP ports are not used by any other application, and are open in the local firewall of the server:
	  ▪ MDM: 6611 and 9011
	  ▪ SDS: 7072 (for multiple SDS, ports 7073-7076)
	  ▪ ScaleIO Gateway (includes REST Gateway, Installation Manager, and SNMP trap sender): 80 and 443
	  ▪ Light Installation Agent (LIA): 9099
	  ▪ SDBG ports: MDM 25620, SDS 25640, Multiple SDS 25641-25644 (not 25640)
	• The following UDP port is open in the local firewall of the server:
	  ▪ SNMP traps: 162
	Note
	You can change the default ports. For more information, see “Changing default ports” in the user documentation.

Supported operating systems

For the most updated list, see the EMC Simple Support Matrix (ESSM) at https://elabnavigator.emc.com.

Table 2 Supported operating systems - ScaleIO components

Operating system	Requirement

Linux	Supported versions:
	• CentOS 6.x-7.x, Oracle Linux 6.5/7.x
	• Red Hat 6.x-7.x
	• SLES 11.3, SLES 12, SLES 12.1
	• Ubuntu 14.04, Ubuntu 16.04
	Note
	Before deploying on Ubuntu servers, you must prepare the environment, as described in the *EMC ScaleIO Deployment Guide*.
	Packages required for all components, all Linux flavors:
	• numactl
	• libaio
	Additional packages required for MDM components:
	• bash-completion (for scli completion)
	• Latest version of Python 2.X
	When installing the MDM component on Linux CentOS 6 or RHEL 6 hosts (for software-only systems), set the shared memory parameter in the /etc/sysctl.conf file to at least the following value: kernel.shmmax=209715200. To use this value, type the `sysctl -p` command.
	Requirements for running the GUI:
	• Java 1.8 64-bit, or later (For SUSE 12, see "Installing Java on SUSE 12 servers" in the *ScaleIO Deployment Guide*.)
	• Screen resolution: 1366 x 768 minimum
	• Additional supported operating systems:
	  ▪ Windows 7
	  ▪ Windows 2010
	To use the secure authentication mode, ensure that OpenSSL 64-bit v1.0.1 or later is installed on all servers in the system.
	To use the secure authentication mode on SLES 11.3 servers, ensure that the OpenSSL on the server is v1.0.1 or greater, or install these packages (from the ISO in the Complete VMware SW download container) on the server:
	• `libopenssl1_0_0-1.0.1g-0.40.1.x86_64.rpm`
	• `openssl1-1.0.1g-0.40.1.x86_64.rpm`
	To use LDAP, ensure that OpenLDAP 2.4 is installed on all servers.

Windows	Supported versions: • 2008 R2, 2012, 2012 R2, or 2016 (in v2.0.1.1 and later) • For VxRack Node 100 Series, only 2012 R2 is supported.

Table 2 Supported operating systems - ScaleIO components (continued)

Operating system	Requirement

	• On all MDM servers, install the EMC-provided `PythonModulesInstall.exe` on all MDM nodes. The file is supplied on the ISO, or download from the EMC Online Support site (search for ScaleIO Python Installation Modules) on https://support.emc.com.
	• To install SDC or RFcache on 2008 R2, ensure that Microsoft Security Update KB3033929 is installed.
	Requirements for running the GUI:
	• Java 1.8 64-bit or later
	• Screen resolution: 1366 x 768 minimum
	• Additional supported operating systems:
	  ▪ Windows 7
	  ▪ Windows 2010
	To use the secure authentication mode, ensure that these are installed on all servers in the system:
	• OpenSSL 64-bit v1.0.1 or later
	• Visual C++ redistributable 2010 package, 64-bit
	To use RFcache, ensure that Visual C++ redistributable 2010 package, 64-bit is installed on all servers in the MDM cluster and on all SDSs.

Hypervisors	• VMware ESXi OS: 5.5 or 6.0, managed by vCenter 5.5 (update 2e or later) or 6.0
	• Hyper-V
	• Xenserver 6.5 or 7.0
	  Note
	  OpenSSL 64-bit v1.0.1 is supported on XEN6.5 SP1 (or later)
	• RedHat KVM

OpenStack	Supported versions: • Liberty • Mitaka • Newton • Redhat OpenStack Platform • Mirantis OpenStack • Canonical Ubuntu OpenStack.

ScaleIO Gateway server requirements

Component	Requirement

Supported operating systems	• Windows 2008 R2, 2012 R2, or 2016, including the Visual C++ redistributable 2010 package, 64-bit
	• Linux:
	  ▪ CentOS 6.x-7.x
	  ▪ Oracle Linux 6.5/7.x
	  ▪ Red Hat 6.x-7.x
	  ▪ SLES 11.3, SLES 12, SLES 12.1
	  ▪ Ubuntu 14.04, Ubuntu 16.04
	Every server requires 2 cores and a minimum of 3 GB available RAM.

Supported web browsers	• Internet Explorer 10, or later • Firefox, version 42, or later • Chrome, version 45, or later
Java requirements	• 1.8 or later, 64-bit

Other	• For a Windows Installation Manager (IM):
	  ▪ The WMI service must be enabled on the IM server and on all Windows ScaleIO nodes.
	  ▪ Don't install the Gateway on a server on which RFcache (the `xcache` package) or SDC will be installed.
	• The Gateway server must have connectivity to all the nodes that are being installed. If you are using separate networks for management and data, the server must be able to communicate with both networks.

Other requirements

ScaleIO requires that you use a minimum of three SDS servers, with a combined free capacity of at least 300 GB. These minimum values are true per system and per Storage Pool.

NOTICE

ScaleIO installation enables unlimited use of the product, in non-production environments . To obtain a license for production use, and to receive technical support, open a service ticket with EMC Support at https://support.emc.com.

For complete information on licensing, see the *ScaleIO User Guide*.

Preparing the environment

This topic describes how to prepare the environment before deploying ScaleIO.

Before you begin

Ensure that all ScaleIO component and ScaleIO Gateway servers meet the system requirements.

This step prepares the Gateway (GW) server. The Gateway includes the Installation Manager (IM), which is used to deploy the system in the next steps. To install ScaleIO on Linux nodes, the GW server can be a Windows or Linux server. To install ScaleIO on Windows nodes, or to install in a mixed-OS environment, your IM server must be a Windows server.

Procedure

1. Download and extract the following files for this version:

Operating system	Download these files
RHEL/CentOS	• ScaleIO Gateway for Linux (or Windows) Download • ScaleIO GUI for Windows Download • ScaleIO *<Operating System>* Download (for example ScaleIO 2.0 RHEL6 Download)
Ubuntu	• ScaleIO Gateway for Linux (or Windows) Download • ScaleIO GUI for Windows Download • ScaleIO Ubuntu *<Version>* Download
Windows	ScaleIO Complete Windows SW Download To use a Windows Gateway to deploy ScaleIO on Linux nodes, you should also download the ScaleIO components for the relevant Linux OS.

2. Create the Gateway server:

Operating system	Steps
RHEL/ CentOS	Run the following command (all on one line), where *new_GW_admin_password* is a password that you define to access the IM: `GATEWAY_ADMIN_PASSWORD=<new_GW_admin_password> rpm -U / tmp/ EMC-ScaleIO-gateway-2.0-XXX.X.noarch.rpm --nodeps`

Operating system	Steps
Ubuntu	Run the following command (all on one line), where *new_GW_admin_password* is a password that you define to access the IM: `GATEWAY_ADMIN_PASSWORD=<new_GW_admin_password> dpkg -i /tmp/ EMC-ScaleIO-gateway-2.0-XXX.X.deb`
Windows	a. From the extracted download file, copy the ScaleIO Gateway MSI to the IM server: `EMC-ScaleIO-gateway-2.0-XXX.X-x64.msi` b. Run the file, and enter a new Gateway admin password that will be used to access the IM. c. Prepare disks for storage: a. Ensure that devices to be used are on-line, and initialized as MBR or GPT. b. On each disk, use the Windows Disk Management to create a new, simple volume. Assign a drive letter, and select **Do not format this volume**

The GW server is ready.

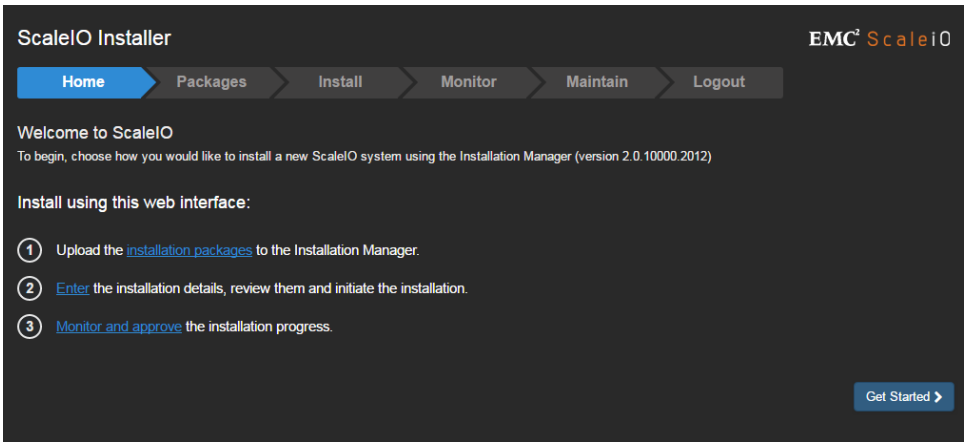
3. Log in to the GW server, by pointing your browser to this URL: `https://<GW_Server_IP_Address>`, where *GW_Server_IP_Address* is the IP address of the server where you installed the GW package.

   Use the default username, admin, and the GW admin password you created in the previous step.

4. Accept the certificate warning; alternatively, install your own certificate for the Tomcat server.

Results

The Installation Manager **Welcome to ScaleIO** window appears:



If the Welcome window does not appear, see *Troubleshooting* in the *ScaleIO Deployment Guide*.

Starting the deployment

This topic describes how to start the ScaleIO deployment.

Now that the Installation Manager is ready, you can start the deployment.

Procedure

1. Upload packages:
   a. From the **Welcome** screen, select the **Packages** tab.

      The **Manage Installation Packages** window appears.

   b. Click **Browse**, and select all the extracted ScaleIO component installation packages.

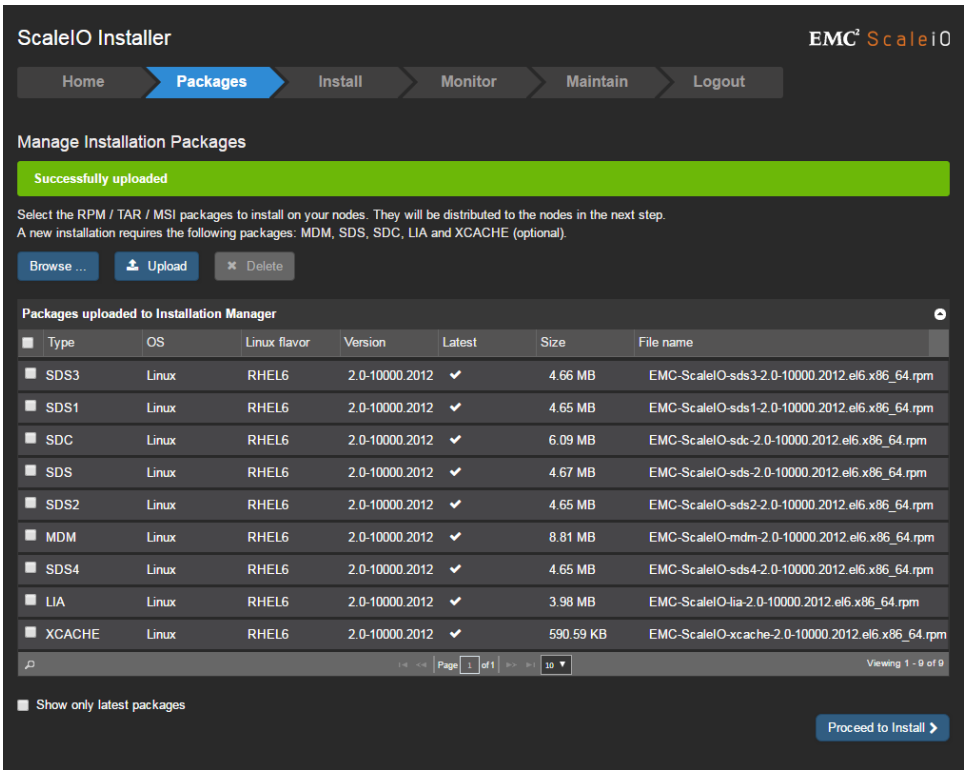
      Minimally, you must select these packages:

      - MDM
      - SDS (The SDS-X packages are not needed.)
      - SDC
      - Xcache
      - LIA

   c. Click **Open**.

   d. Click **Upload**.

   The packages are uploaded to the IM, and are displayed in the file table:



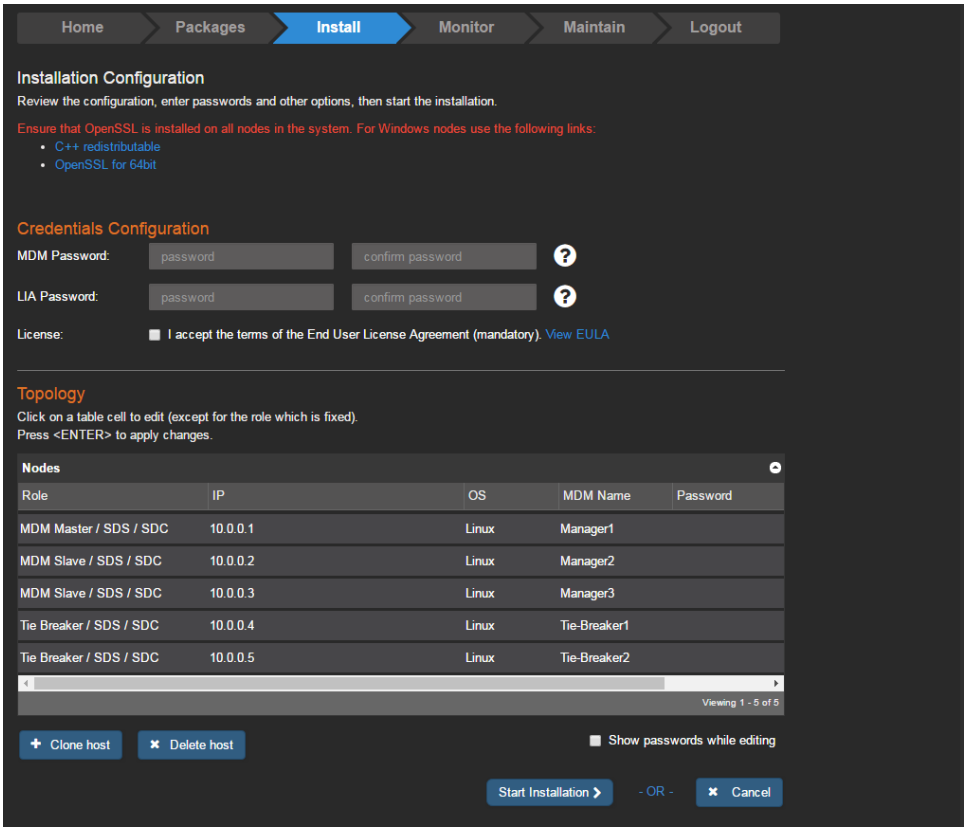
2. Click **Proceed to Install**.

   The **Provide Installation Topology** screen appears.

3. Click **Installation wizard**.
4. Select the format of the MDM cluster to create:

Option	Description
3-node cluster (default)	Configures a Master MDM, a Slave MDM, and a TieBreaker MDM.
5-node cluster	Configures a Master MDM, two Slave MDMs, and two TieBreaker MDMs.

The **Installation Configuration** window appears:



5. Enter a new MDM password and LIA password.

   Passwords must meet the following criteria:

   - Length is between 6 and 31 (ASCII-printable) characters
   - No white spaces
   - Must include at least 3 of the following groups: [a-z], [A-Z], [0-9], or special chars (!@#$ ...).

6. Review, and accept, the end user license agreement.
7. In the **Topology** section, enter server information:

   The **Topology** section is populated with nodes, according to the MDM cluster chosen in the previous step. Each node is also defined as an SDS and an SDC.

   a. For each node, change the IP address, select the host operating system, and enter the host password (the password of the root user).

b. To add more hosts, click **Clone host**.

The assigned IP is derived from the IP of the previous host. Each cloned host is enabled to act as an SDS and an SDC.

8. Click **Start Installation**.

A post-installation notice appears. Its content is described in this document.

Monitoring the deployment

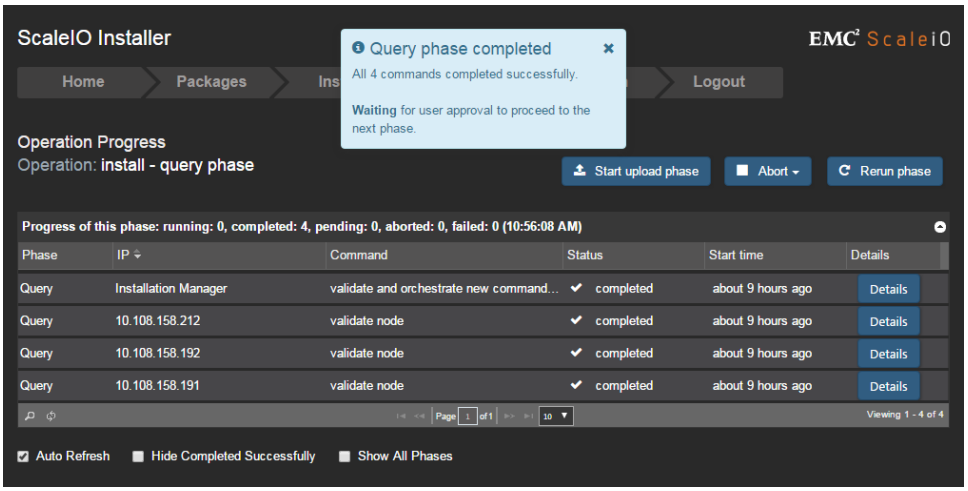
This topic describes how to monitor ScaleIO deployment.

The deployment wizard performs the following phases: query, upload, install, and configure. You must monitor and approve moving from one phase to the next.

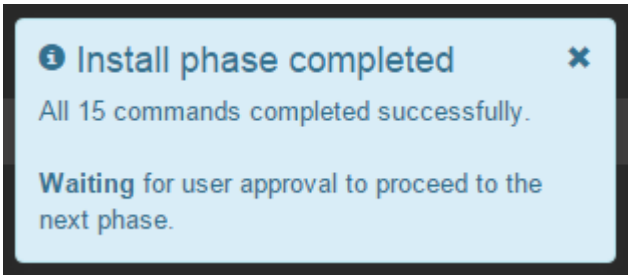
Procedure

1. Click the **Monitor** tab.

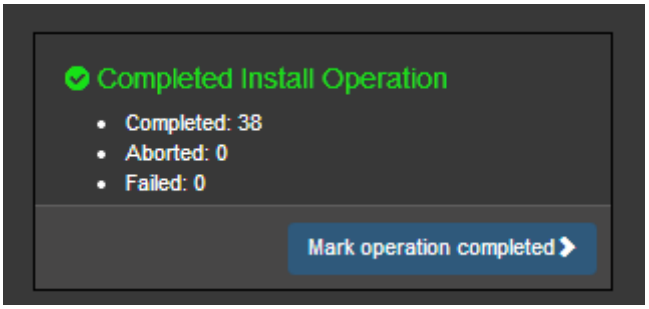
The **Install-query** screen appears:



When each step completes, a message appears that describes the step progress:



2. When the Upload phase is complete, click **Start Install phase**.
3. When the Install phase is complete, click **Start Configure phase**.
4. When the `Completed Install Operation` message is displayed, click **Mark operation completed**.



Results

The wizard installation creates one Protection Domain and one Storage Pool, both with default names.

After you finish

Best practice is to use the ScaleIO System Analysis tool to analyze the ScaleIO system immediately after deployment, before provisioning volumes, and before using the system in production.

System analysis overview

This topic describes ScaleIO system analysis and the environment required to use it.

ScaleIO system analysis enables you to identify potential issues with your ScaleIO system which may prevent best performance. It is highly recommended to analyze the ScaleIO system immediately after deployment, before provisioning volumes, and before using the system in production. You can also use it to check the health of a system that is already operational.

The system analysis is invoked from the ScaleIO Installation Manager (IM). The analysis checks the following:

- ScaleIO components are up and running
- Ping between two relevant nodes in the system
- Connectivity within the ScaleIO configuration (for example, connectivity between SDSs within a Protection Domain, connection of SDCs with the cluster virtual IP address)
- Network configuration
- RAID controller and device configuration

Using the system analysis, you can detect any potential issues in the system, then rectify them, before provisioning and using the system in a production environment.

Environment requirements and prerequisites:

- Supports only RHEL 6.x servers, with the following 3rd-party tools:
  - Netcat
  - StorCLI
  - PERCCLI
  - smartctl
- Requires a ScaleIO Gateway server:
  - On a Linux or Windows server. ScaleIO is tested on RHEL 6.x and RHEL 7.x as well as Windows2K12 servers.

  - With at least 1 GB of free disk space per node in the system
- A web browser, that is supported by the IM.
- Supports LSI RAID controller cards.
- Supports IPv4 network configuration.

Best-practice recommendation:

1. Deploy ScaleIO.
2. Analyze system to identify issues that should be fixed.
3. Fix issues.
4. Analyze system to verify that the issues have been fixed.
5. When the system meets your satisfaction, you can move it into production.

Limitations and compatibility:

- On servers with IPv4 and IPv6, the IPv6 (only) analysis is not conclusive; IPv6 is not supported.
- On servers with MegaRAID, the RAID function analysis is not supported; only StorCLI is supported.
- On servers with multiple SDSs, analysis is performed but it is not conclusive.
- RFCache analysis is not performed.
- Due to default Internet Explorer settings, to expand a report, you may need to grant permission for IE to run scripts. For more information, see the version release notes.

Creating the system analysis report

The topic describes how to create and display the ScaleIO system analysis report.

Before you begin

Ensure that you have access to the following:

- A web browser that is supported by the ScaleIO Installation Manager (IM)
- IP address of the ScaleIO Gateway server
- The Gateway admin username (default: admin) and password (defined during deployment)
- Master MDM IP address, username, and password (defined during deployment)
- LIA password

Procedure

1. Log in to the IM server:
   a. Point your browser to **https://*<IM_Server_IP_address>***

      where **<IM_Server_IP_address>** is the IP address of the server on which the Gateway package is installed.

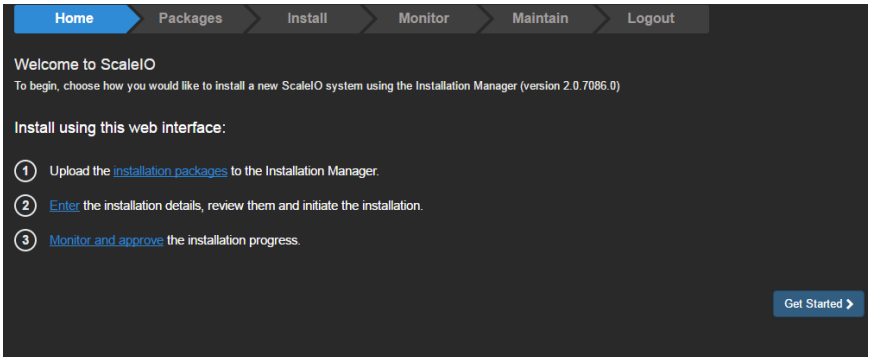
      The **ScaleIO Installer** login screen is displayed:

b. If a login banner is displayed, accept it to continue.

c. Type the Gateway username (default is admin) and password.

d. Click **Login**.

The **ScaleIO Installer Home** screen is displayed.



2. Generate the system analysis report:

a. Click the **Maintain** tab.

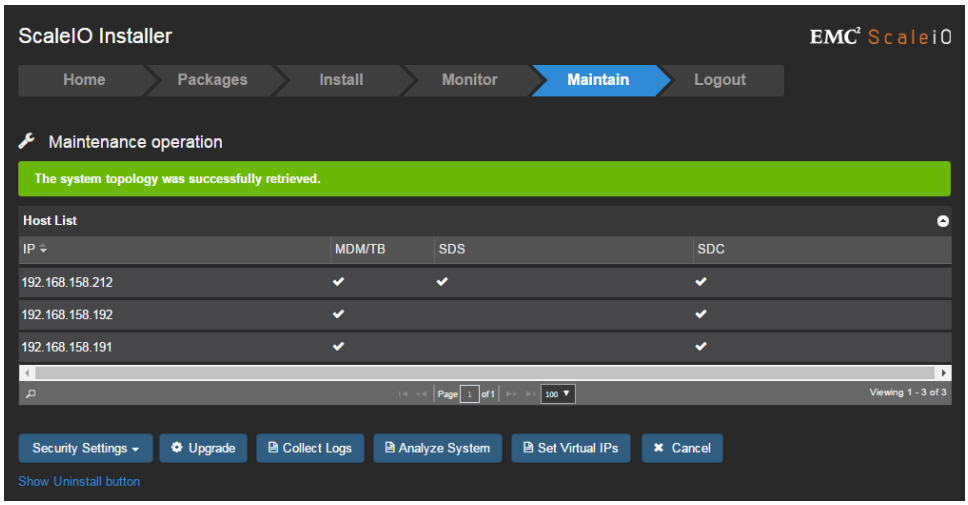
The **Maintenance operation** screen is displayed.
If a warning is displayed that indicates that a previous operation is not completed, it means that the last IM operation was not marked as complete. To continue, click the **Monitor** tab, mark the operation complete, then return to the **Maintain** tab.

b. Enter the authentication credentials:

- Master MDM IP address, user name, and password
- LIA password

c. Click **Retrieve system topology**.

The system topology is displayed.



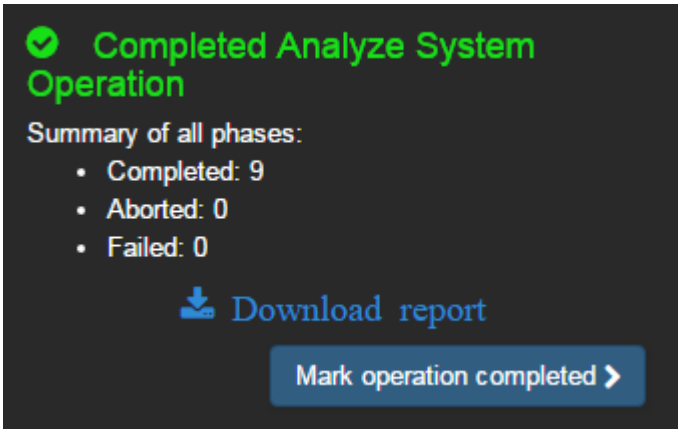
d. Click **Analyze System**.

The system analysis begins.

e. Monitor the progress of the system analysis by clicking the **Monitor** tab.

When the process completes (which could take several minutes), a **Download report** link is displayed.

f. Click the **Download report** link.



The report is saved, in ZIP format, in the default download location of the server on which the report was run.

g. To enable the IM to be available for subsequent operations, click **Mark operation completed**.

3. Display the analysis report:

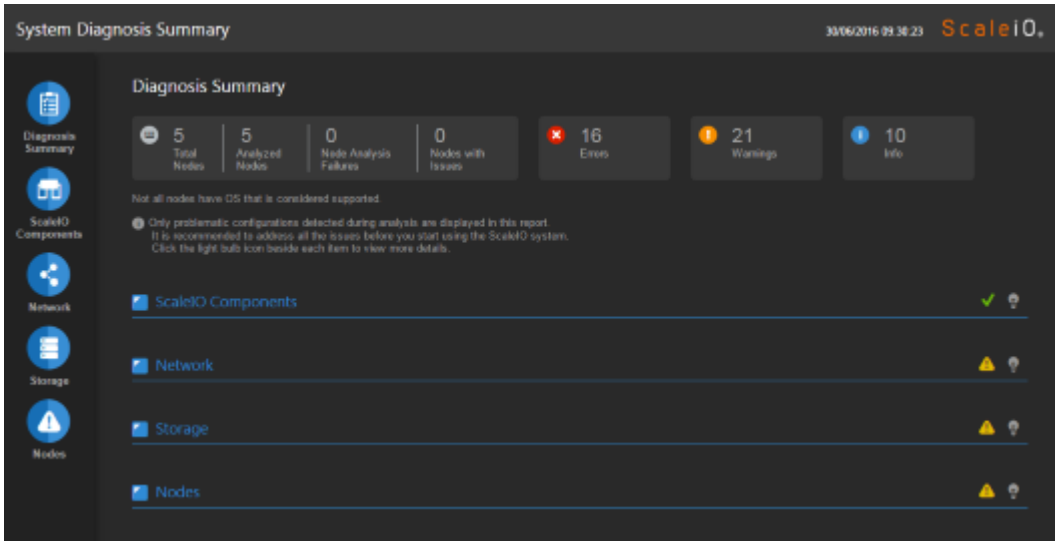
a. Unzip the downloaded file.

The file includes the `ScaleioSystemDiagnosisReport.html` analysis file, and several TGZ files (one for each node, in the `dumps` folder).

b. Double-click `ScaleioSystemDiagnosisReport.html`.

Results

The **System Diagnosis Summary** report is displayed in the default web browser on your computer.

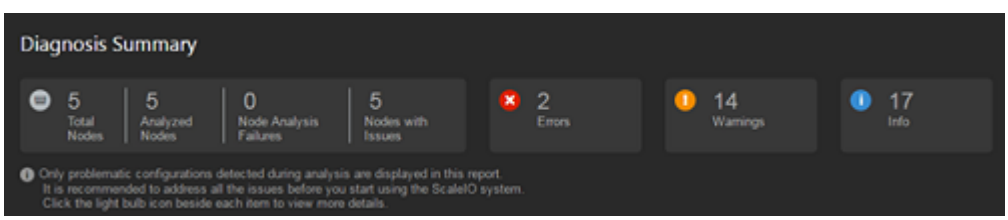


System analysis report description

This topic describes how to get the most benefit from the system analysis report.

At the top of the report, the Diagnosis Summary shows the number of the issues that have been detected system-wide. The summary shows the following categories:

- Node analysis
  - How many nodes are analyzed
  - How many nodes could not be analyzed
  - How many nodes have issues
- Severity analysis
  - How many issues of each severity level were found

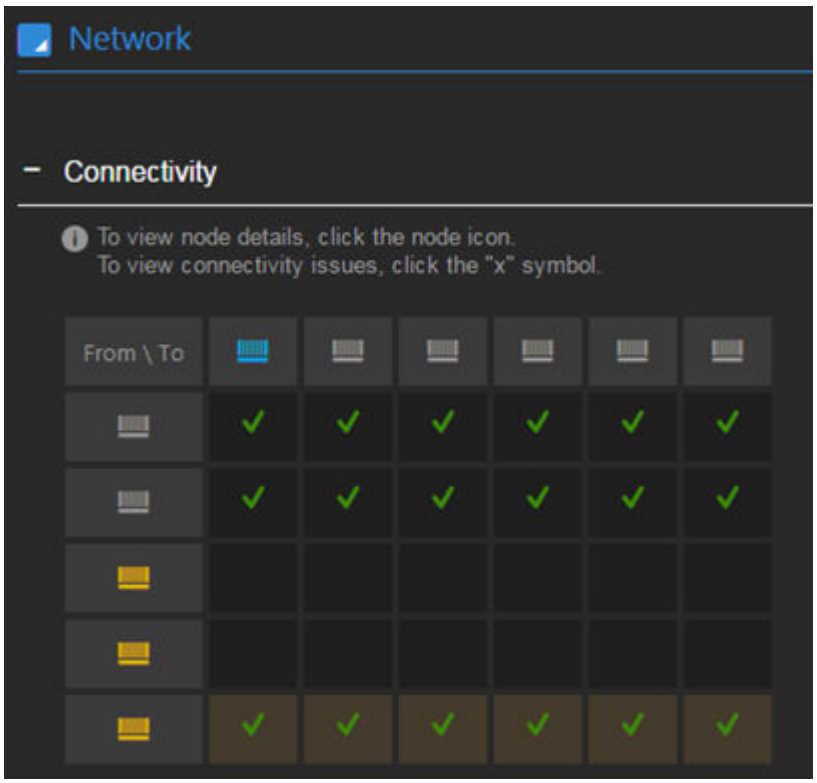


When the analysis first opens, the major sections are shown in summary form. You can expand them to show detailed diagnostic reports, as follows:

- ScaleIO components:
  This section of the report shows the non-running ScaleIO server components, that is, SDS, SDC, and MDM. Failure of these components may affect system performance and data availability. Each of the ScaleIO server components supports the following functionality:
  - SDS server
    The SDS (ScaleIO Data Server) manages the capacity of a single server and acts as the back-end for data access. The SDS is installed on all the servers contributing storage devices to the ScaleIO system. Failure of an SDS may affect the cluster performance and data availability.

- SDC server
  The SDC (ScaleIO Data Client) server is installed on each server that needs access the ScaleIO storage and it is the gateway to the ScaleIO storage. Failure of an SDC server denies its application access to the ScaleIO storage.
- MDM server
  The MDM (Meta Data Manager) server controls and monitors the ScaleIO system. Failure of an MDM may affect the cluster performance and data availability.

- Network:
  This section of the report checks the connectivity between various ScaleIO components, as well as the NIC configuration and performance. The network issues may impact the system performance and data availability.



- Connectivity
  Performing pings between ScaleIO components leads to detecting and resolving connectivity-related issues in the system. If the regular pings succeed, then the MTU pings, followed by the Ncat pings are performed to the ports used by the ScaleIO application.

  If virtual IP addresses are assigned to the MDMs in the cluster, a logical host, called *MDM cluster* is displayed (represented by a blue host icon) in the analysis report. The following issues are tested:

  - SDC connectivity with the virtual IP addresses.
  - All virtual IP addresses are configured.
  - Only one physical node is configured to use the virtual IP address.

  To view specific information:

  - To view the node details, click the node icon.
  - To view connectivity issues, click the X symbol

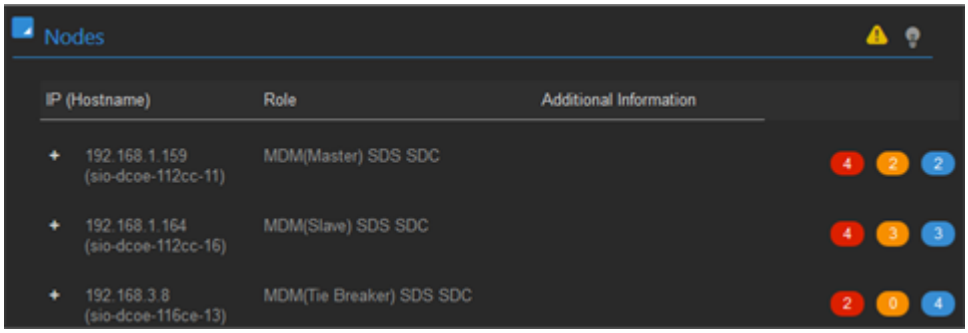
- NIC Configuration and Performance
  This section of the report displays the configurations that do not meet the best practice recommendations described in the user documentation.
- MDM cluster
  Shows status of virtual IP addresses assigned to the MDMs in the cluster.

- Storage:
  The Storage section of the report describes the issues associated with the RAID controllers, storage devices, and storage pool configurations.
  - RAID Controller
    Describes the issues related to the physical disks
  - Devices
    Describes the list of problematic or potentially problematic storage devices
  - Storage Pool Uniformity
    Indicates Storage Pools with non-homogeneous disk performance
- Nodes (groups all of the reported issues per node): Describes the detected issues, as listed above, grouped by node

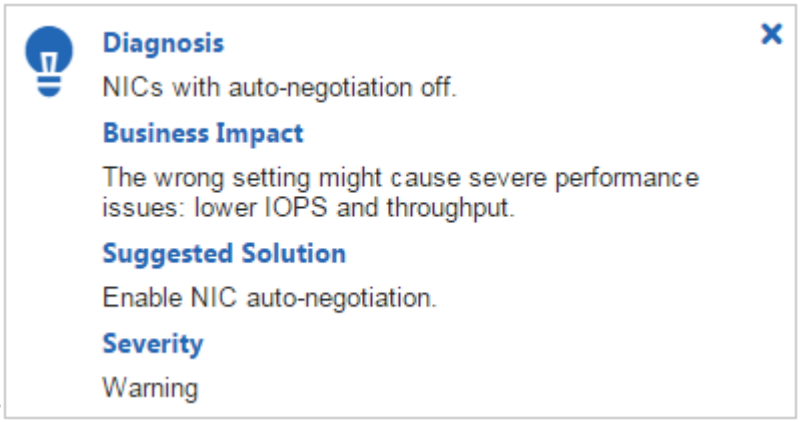
You can show more (or less) information, as follows:

- Use the Expand ( ) button and + symbol to drill down.
- Use the Collapse ( ) button and – symbol to hide information.

The following figure shows an example of the display when the report is expanded.



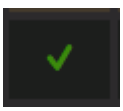
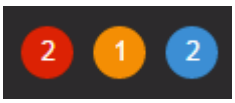
You can show additional details of an error by clicking the ( ) icon. A pop-up window similar to the following is displayed.



The following table describes how to navigate the analysis information:

To display this...	Click this symbol...
Diagnosis Summary	
ScaleIO component issues, sorted according to SDS, SDC, and MDM.	
Network connectivity (including virtual IP address configuration) and NICs	
Storage, including RAID controller, devices, and Storage Pool uniformity	
Nodes, displayed according to IP address and system role	
Collapse a list	
Expand a list	
Open a pop-up containing Diagnosis, Business Impact, and Suggested Solution information.	

The following table describes other symbols and interface elements used in the analysis report display:

Symbol / Interface Elements	Description
	All connectivity tests passed
or	Connectivity issues were detected (for more information, click the symbol)
 (black background)	Connectivity matrix background: all pertinent connectivity tools are available
(brown background)	Connectivity matrix background: connectivity tests could not be performed, due to a missing tool
	Error counters: • Red - Error • Orange - Warning

Symbol / Interface Elements	Description
	• Blue - Info
	All connectivity test tools are available for use on the node
	Some connectivity tests could not be performed on this node, due to missing tools (for more information, click the symbol)
	A logical host, that represents the MDM cluster, when virtual IP addresses are configured

Note

An empty cell in the connectivity matrix indicates that no connectivity check was performed. In such cases, no connectivity is expected.

Enabling the storage

This topic describes how to enable storage after deploying ScaleIO.

Before you begin

You must issue these commands from the Master MDM node, either directly, or via SSH/RDP. Ensure that you have the authentication credentials.
The ScaleIO CLI (SCLI) is installed as part of the MDM component and can be found in the following path:

- Linux — `scli`
- Windows — `C:\Program Files\emc\scaleio\MDM\bin`

After the ScaleIO system is installed, follow these steps to enable using the storage.

Procedure

1. Add SDS devices:

   You can also add devices with the ScaleIO GUI.

   - You must add at least one device to at least 3 SDSs, with a minimum of 100 GB free storage capacity per device.
   - Balance the total device capacity over all SDSs.

   a. Log in to the SCLI:

   ```
   scli --login ---username <MDM_USERNAME> --password
   <MDM_PASSWORD>
   ```

   Note

   If bash completion isn't enabled, run: `. /etc/bash_completion/scli`.

b. Add devices using the following command:

```
scli --add_sds_device --sds_ip <IP> --
protection_domain_name <NAME> --storage_pool_name <NAME> --
device_path <DEVICE_PATH>
```

Examples:

- Linux:

```
scli --add_sds_device --sds_ip 192.168.212.10 --
protection_domain_name default --storage_pool_name
default --device_path /dev/sdX
```

- Windows:

```
scli --add_sds_device --sds_ip 192.168.212.10 --
protection_domain_name default --storage_pool_name
default --device_path g
```

For other options regarding adding Windows devices, see "Adding devices to SDS nodes on Windows servers" in the *ScaleIO Deployment Guide*.

2. Add and map a volume:

a. Add a volume using the following command:

```
scli --add_volume --protection_domain_name <NAME>--
storage_pool_name <NAME> --size_gb <SIZE> --volume_name
<NAME>
```

Example:

```
scli --add_volume --protection_domain_name default --
storage_pool_name default --size_gb 16 --volume_name vol01
```

b. Map a volume to an SDC using the following command:

```
scli --map_volume_to_sdc --volume_name <NAME> --sdc_ip <IP>
```

Example:

```
scli --map_volume_to_sdc --volume_name vol01 --sdc_ip
192.168.212.19
```

Note

In Linux, mapped volumes appear to the SDC as `/dev/sciniX` where *X* is a letter, starting from "a". For more information, see "Mounting ScaleIO" in the ScaleIO documentation.

You can use the GUI or the SCLI `--query_all` command to see the installed nodes and storage.

Results

Now you can start using your storage. For best results, it is recommended to review the *EMC ScaleIO User Guide*.

Logging in to the ScaleIO GUI

Open and log in to the ScaleIO GUI

Before you begin

Ensure that:

- You have the management IP address or hostname of the MDM.
- You have the user name and password to log in to the ScaleIO GUI.

Procedure

1. Install the GUI:

   If the ScaleIO GUI is already installed, skip this step.

OS	Install
Linux	`rpm -U EMC-ScaleIO-gui-2.0-13000.xxx.noarch.rpm`
Windows	`EMC-ScaleIO-gui-2.0-13000.xxx.msi`

2. Open the GUI:

OS	Command
Linux	Run the script `/opt/emc/scaleio/gui/run.sh`.
Windows	Select **Start** > **All Programs** > **EMC ScaleIO GUI**.

   The initial login screen is displayed.

Figure 1 ScaleIO GUI initial login screen

3. Enter the MDM IP address or hostname and click **Connect**.

   If a certificate notice is displayed, review and accept the certificate.

   The login screen is displayed. If a banner is displayed during the login process, confirm it to continue.
4. Enter the MDM username and password, and click **Login**.

Results

The ScaleIO GUI is displayed. Users and passwords are configured with the ScaleIO CLI. For more information, see the *ScaleIO User Guide*.

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