Quick Start Guide

EMC® ScaleIO®

Version 2.0.x

Deploying ScaleIO on VMware ESXi servers

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This document provides a quick start to deploying ScaleIO on VMware ESXi servers. Topics include:

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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 how to deploy ScaleIO on an ESXi server.

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. Register the plug-in
3. Upload the OVA template
4. Deploy ScaleIO

System requirements

This topic describes prerequisites for ScaleIO deployment.

- ScaleIO component servers:
  - 3-node cluster
    - One Master MDM
    - One Slave MDM
    - One TieBreaker
      Plus, the following:
    - 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
      Plus, the following:
    - 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.

The following tables describe the requirements for ScaleIO components, and for the Gateway server.

Table 1 Server physical requirements-ScaleIO components

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	• 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) **Note** To calculate SVM memory allocation, use the formulas provided in the *ScaleIO Deployment Guide*.
Disk space	• 1 GB for each physical node or Xen hypervisor • 10 GB for VMware topologies

Table 1 Server physical requirements-ScaleIO components (continued)

Component	Requirement

Connectivity	One of the following:
	• 1 gigabit or 10 gigabit (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. For jumbo frame support, set the MTU for servers, switches, and vSwitches to 9000.
	• 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)
	  ▪ Tie-Breaker: 9011
	  ▪ 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 SNMP 162 UDP port is open in the local firewall of the server.
	You can change the default ports. For more information, see “Changing default ports” in the *ScaleIO Deployment Guide*.

The following table lists the supported operating systems. For the complete list, see the EMC Support Matrix.

Table 2 Supported operating systems-ScaleIO components

Operating system	Requirement
Hypervisor	• VMware ESXi OS: 5.5 or 6.0, managed by vCenter 5.5 (update 2e or higher) or 6.0 • Hyper-V • Xenserver 6.5 • RedHat KVM

The following table lists the Gateway requirements:

Table 3 System requirements-ScaleIO Gateway server

Component	Requirement

Supported operating systems	One of the following:
	• Windows 2008 R2 or 2012 R2, including the Visual C++ redistributable 2010 package, 64-bit
	• Linux:
	  ▪ CentOS 6.x-7.x
	  ▪ OEL 6.5/7.x
	  ▪ Red Hat 6.x-7.x
	  ▪ SLES 11.3, SLES 12, SLES 12.1
	  ▪ SUSE 11 SP3, SUSE 12
	  ▪ 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 higher • Firefox, version 42, or higher • Chrome, version 45, or higher
Java requirements	• 1.8 or higher, 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.

Note

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.

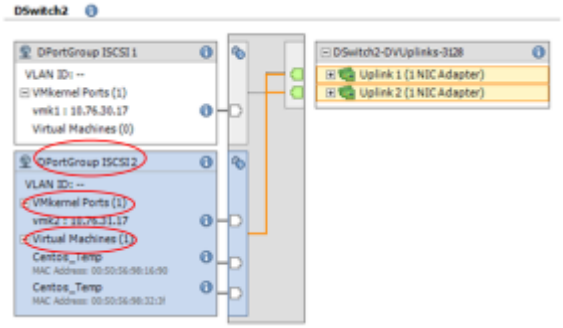
Preparing the environment

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

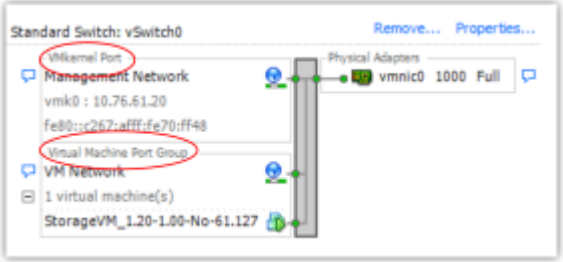
Before deploying on VMware ESX servers, ensure that your environment meets the following requirements:

- A minimum of 3 devices to add to SDS, that all meet the following prerequisites:
  - A minimum of 100 GB available storage capacity

  - The devices must be free of partitions.
  - If a device has a VMFS volume on it, you can use a VMDK instead of a raw device, with a small degradation. Before adding the device, you must use the plug-in **Advanced settings** option to enable VMDK creation.
- All ESX hosts selected to have either an MDM, Tie-Breaker, or SDS component installed on them, must have a defined local datastore, with a minimum of 10 GB free space (to be used for the SVM). If the ESX is only being used as an SDC, there is no need for this datastore.
- The management network must have the following items configured:
  - VMKernel Port (necessary only if using a single network)
  - Virtual Machine Port Group (the name must be identical on all of the ESX hosts)



- When using distributed switches, the distributed switch must have the following items configured:
  - VMKernel port (necessary only if using a single network) on regular vswitch (required only for uploading the SVM OVA using the registration script and can be created without any physical interface)
  - dvPortGroup (distributed switch port group) for virtual machines



- The host from which you run the PowerShell (.ps1) script must meet the following prerequisites:
  - Runs on supported Windows OS
  - PowerCLI is installed
  - Java 1.8 is installed
  - Has incoming and outgoing communication access to the vCenter
- The vSphere web client (Virgo) server must have network connectivity to the host on which the PowerShell script will be used.

Registering the plug-in

This topic describes how to register the ScaleIO VMware plug-in.

Procedure

1. Prepare the files:
   a. From the EMC Online Support site (https://support.emc.com), download and extract the `ScaleIOVMware Software Download` for this version.
   b. From the extracted files, copy the following files to your designated host:
      - `ScaleIOVM_2nics_2.0.13000.xxx.ova`
      - `EMC-ScaleIO-vSphere-plugin-installer-2.0-13000.xxx.zip`
   c. Extract the contents of the zip file.
2. With PowerCLI for VMware, set to Run as administrator, run the following script: `ScaleIOPluginSetup-2.0-13000.xxx.ps1`
   a. Enter vCenter name or IP address, user name, and password.
   b. For **Choose Mode**, choose option **1, Register ScaleIO plug-in**.
   c. Read the upgrade notice, and enter `y` to continue.
   d. For registration, choose either **Standard** (simplified, using embedded Tomcat), or **Advanced** (to use an external web server or previously installed ScaleIO gateway).
   e. Accept the thumbprint (if required).
3. Load the plug-in by logging out, and then logging back in to the vSphere web client.
4. Return to the PowerCLI window, and press ENTER to return to the script menu and complete the plug-in installation.
5. Go to the **Home** tab and verify that the ScaleIO icon is visible in the **Inventories** section.

Results

The plug-in is registered. If the ScaleIO icon is missing, the vSphere web client server failed to register the plug-in, due to one of the following reasons:

- Connectivity problem between the vSphere web client server and the web server storing the plug-in (for example, network / firewall etc.). Resolution: Verify that there is communication between the vSphere web client server and the web server storing the plug-in
- URL problem when using an external web server. Resolution: Verify that the URL is https:// and is pointing to the correct web server IP address (ScaleIO Gateway).

Uploading the OVA template

This topic describes how to upload the ScaleIO OVA template

Procedure

1. Return to the PowerCLI window, and from the script menu, select the option **3, Create SVM template**.
2. Enter the following parameters:
   - Data center name
   - Path to the OVA, including the OVA file name
   - Datastore names

   Note

   For faster, parallel, deployment in large-scale environments, you can use the OVA to create SVM templates on as many as eight datastores. To do so, enter the datastore names, and when done, leave the next line blank, and press ENTER. The following example shows how to enter two datastores:

   ```
   datastores[0]: datastore1
   datastores[1]: datastore1 (1)
   datastores[2]:
   ```

   (For best results, enter a local (not shared) datastore for each ESX server.)

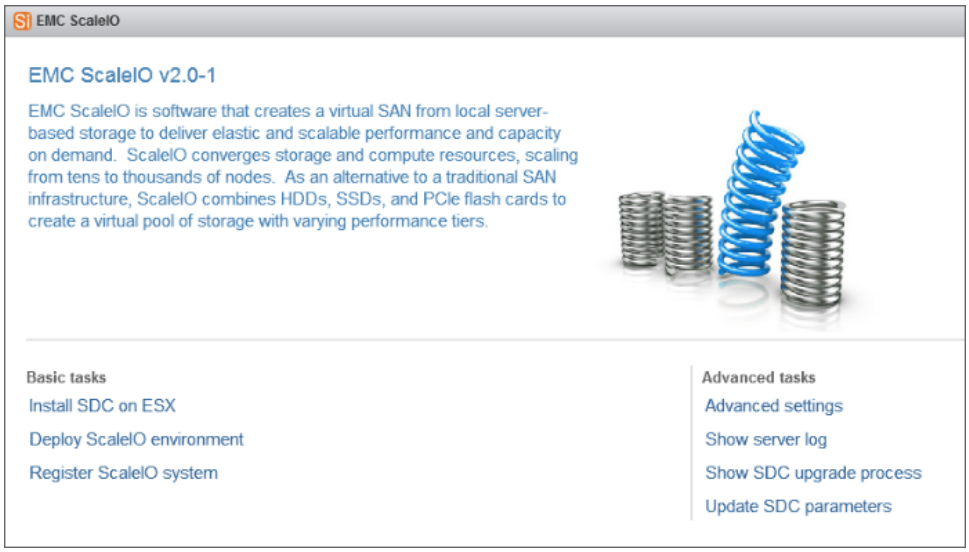
   The upload procedure may take several minutes. When complete, a message similar to the following will appear for each template: `The template EMC ScaleIO SVM Template (v2.0.13000.xxx) was successfully created`
3. When the process is complete, enter `4` to exit the script.

Deploying ScaleIO

This topic describes how to deploy ScaleIO.

Procedure

1. Log in to the vSphere web client.
2. Open the **ScaleIO** screen by clicking the SIO icon.



3. From the **ScaleIO** screen, click **Install SDC on ESX**.

   The **Install SDC on ESX** screen appears, showing all the ESX hosts on all the connected vCenters.
4. Select all the ESX hosts that might be part of this ScaleIO system, and enter the root password for each host.
5. Click **Install**.

   The status appears in the dialog.
6. When finished, click **Finish**.
7. You must restart the ESX hosts before proceeding.
8. When using all-SSD chassis, perform this step; otherwise, go to the next step.

   Sometimes the ESX nodes in an all-SSD chassis do not identify the node disks as Standard Parallel SCSI devices. If so, you must enable the **RDMs on non Parallel SCSI Controllers** option.

   a. In the **EMC ScaleIO** screen, click **Advanced Settings** to display the settings options.

   b. Select the **Enable RDMs on non Parallel SCSI Controller** option and click **OK**.

   c. Go to the next step.
9. From the **EMC ScaleIO** screen, click **Deploy ScaleIO Environment**.

   The deployment wizard begins.
10. Use the deployment wizard to deploy ScaleIO in the VMware environment.

    For a full description, see the *ScaleIO Deployment 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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