RELEASE NOTES

EMC Storage Integrator for Windows Suite
Version 3.7

Release Notes
P/N 300-012-821
REV 16

April 2015

These release notes contain information for the following topics:

EMC²

Revision history

The following table presents the revision history of this document.

Revision	Date	Description
16	April 2015	Adds support for the following: • EMC VMAX3 and VMAX3 SLO • EMC XtremIO snapshots and VNX advanced snapshots • SCOM support for VMAX3 and XtremIO
15	January 30, 2015	Added support for EMC XtremIO 3.0.1
14	December 5, 2014	Added support for EMC XtremIO, Microsoft SQL Server 2014, and SCOM for VNXe3200
13	September 2014	Added support for EMC RecoverPoint 4.1 and EMC VNX and VNXe system software updates
12	July 2014	Added new features and support as follows: • SQL Server Adapter • Microsoft Active Directory Services • AppSync Adapter • Linux Adapter • VPLEX health monitoring • EMC RecoverPoint Bookmarks
11	May 5, 2014	Added support for VNXe3200
10	March 25, 2014	Added support for Windows Server 2012 R2 and VHDX
9	January 9, 2014	Added IPv6 support
8	November 2013	• EMC FAST VP for VMAX support • Support for expanding LUNs and creating and expanding metas • Microsoft Exchange 2013 support • Exchange DAG scope functionality
7	September 2013	• Next-generation VNX support • Added upgrade instructions for the ESI SCOM Management Packs
6	August 2013	• GUI and hypervisor updates • ESI Exchange Integration • ESI Recover Point Adapter • ESI SCO Integration Pack • EMC Hyper-V VSS Requestor
5	March 2013	Added the EMC software license agreement
4	January 2013	Fourth release of the product
A03	June 2012	Third release of the product
A02	December 2011	Second release of the product
A01	July 2011	First release of the product

Product description

EMC® Storage Integrator (ESI) for Windows Suite is a set of tools for Microsoft Windows and Microsoft applications administrators. The suite includes the following:

◆ ESI for Windows, ESI PowerShell Toolkit, and ESI system adapters

◆ ESI hypervisor support

◆ ESI Service and ESI Service PowerShell Toolkit

◆ ESI SCOM Management Packs

◆ ESI SharePoint Adapter

◆ ESI Exchange Adapter

◆ View database copy status in ESI GUI or with the ESI PowerShell Toolkit.

◆ ESI AppSync Adapter

◆ ESI RecoverPoint Adapter

ESI for Windows, ESI PowerShell Toolkit, and ESI system adapters

The ESI for Windows GUI is based on Microsoft Management Console (MMC). You can run ESI as a stand-alone tool or as part of an MMC snap-in on a Windows computer.

ESI for Windows enables you to view, provision, and manage block storage for Microsoft Windows, Exchange, SQL Server, and SharePoint sites. ESI supports the EMC XtremIO™ series, EMC VMAX® family, EMC VNX® series, and EMC VNXe® series of storage systems. ESI also supports EMC AppSync® and Linux hosts.

The ESI PowerShell Toolkit provides ESI storage provisioning and discovery capabilities with corresponding PowerShell cmdlets.

ESI requires that you install the corresponding system adapters for specific system and application support. The Environment and system requirements section provides specific prerequisites for storage systems and adapters.

ESI hypervisor support

In addition to supporting physical environments, ESI supports storage provisioning and discovery for Windows virtual machines that are running on Microsoft Hyper-V, VMware vSphere, and VMware vCenter. ESI requires that you install the corresponding adapters for the specific hypervisor support.

Storage options in ESI vary depending on what the hypervisor supports, as follows:

◆ For Hyper-V virtual machines, you can create virtual hard disk (VHD and VHDX) files and pass-through SCSI disks. You can also create host disks and cluster shared volumes.

◆ For vSphere ESXi virtual machines, you can create virtual machine disk (VMDK) files and raw device mapping (RDM) disks with or without virtual compatibility mode. You can also create SCSI disks and view datastores. SCSI disks require the use of existing SCSI controllers.

ESI Service and ESI Service PowerShell Toolkit

ESI Service is the communications link between ESI and the ESI SCOM Management Packs. You can use ESI Service to view and report on registered EMC storage systems and storage-system components that are connected to the ESI host system. ESI Service then pushes this data to SCOM. You can also use the ESI Service as a stand-alone tool without SCOM to collect, view, and report this same system data.

When you install the ESI Service as part of the ESI installation, both the ESI Service and the ESI Service PowerShell Toolkit are installed on the ESI host system. You must use the toolkit to set up the ESI Service to communicate with the storage systems and ESI SCOM Management Packs.

ESI SCOM Management Packs

The ESI SCOM Management Packs for Microsoft System Center Operations Manager enable you to manage EMC storage systems with SCOM by providing consolidated and simplified dashboard views of storage entities.

The ESI SCOM Management Packs support the same XtremIO series, VMAX family, and VNX series of storage systems that ESI supports. The management packs also support EMC VPLEX® systems, EMC VNXe3200™ storage systems, and EMC Symmetrix DMX™ 4 storage systems.

The ESI SCOM Management Packs enable you to do the following:

◆ Discover and monitor the health status and health events of EMC storage systems and system components in SCOM.

◆ Receive alerts in SCOM for possible problems with disk drives, power supplies, storage pools, and other types of physical and logical components.

ESI SharePoint Adapter

The ESI Microsoft SharePoint Adapter enables you to navigate Microsoft SharePoint farms and create, provision, and manage storage. You can enumerate databases in SharePoint farms and map them to the underlying storage resources. Then you can use the provisioning wizard to prepare a LUN and provision new content databases and web applications.

ESI Exchange Adapter

The ESI Exchange Adapter enables you to view Microsoft Exchange databases and map the databases to EMC storage. This adapter enables you to do the following:

◆ Discover Exchange mailbox databases, mailbox database copies, mailbox servers, and database availability groups (DAGs).

Note: While getting disk/drive information for mailbox database copies, ESI can discover information only if the disk/drive is visible in the corresponding exchange server.

◆ Associate Exchange objects with applicable EMC storage-system objects.

◆ View database copy status in ESI GUI or with the ESI PowerShell Toolkit.

ESI SQL Server Adapter

The ESI SQL Server Adapter enables you to view local and remote Microsoft SQL Server instances and databases and map the databases to EMC storage. ESI supports the Always On feature in SQL Server 2012 and 2014, which enables you to view the primary SQL Server replica and up to four secondary replicas.

You can use both the ESI GUI and the ESI PowerShell Toolkit for these tasks. You can also use SQL Scripts to create and configure SQL Server databases from an ESI host.

ESI AppSync Adapter

The ESI AppSync Adapter enables simple, self-service application protection with tiered protection options and proven recoverability. This adapter supports multiple SQL Server instances on the same host.

With this adapter, you can do the following tasks in ESI for supported SQL Server and Exchange databases:

- View AppSync Application Server instances and databases, including their database files, copies, subscribed service plans, service plan events, registered storage, registered hosts, and registered EMC RecoverPoint systems.

- Subscribe and unsubscribe databases to AppSync Service plans.

- Protect databases with AppSync service plans or protection policies.

- Mount and unmount database copies on VNX or RecoverPoint target hosts.

- Expire and restore database copies.

AppSync provides the following built-in service plans that you can view and change in ESI:

- The Bronze plan creates and manages local copies.

- The Silver plan creates and manages remote copies.

- The Gold plan creates and manages local and remote copies.

ESI RecoverPoint Adapter

You can use the ESI RecoverPoint Adapter for local and remote data protection. If a disaster occurs, EMC RecoverPoint can recover lost data from any point in time that you select. You can use EMC RecoverPoint in the following ways:

- Connect to existing EMC RecoverPoint/SE or EMC RecoverPoint/EX systems.

- Manage and view replication service clusters, which are groups of RecoverPoint sites and appliances that work together to perform replication for storage and other ESI-managed applications.

- Add consistency groups, which are groups of one or more replica sets.

- Add replica copies, which can be either local or remote copies of a LUN.

- Add replica sets, which include a source LUN and the local and remote copies for that LUN.

- Seamlessly provision journal and replica LUNs when creating replica copies and sets.

◆ View underlying storage details for volumes used by EMC RecoverPoint.

◆ Apply bookmarks and parallel bookmarks to consistency groups.

◆ Enable and disable image access for replica snapshots.

◆ Search and use snapshots for production recovery tasks.

New features and changes

This release adds the following new functionality:

◆ ESI VMAX Adapter now supports the new EMC VMAX3 and the VMAX3 service level objectives (SLO) provisioning feature.

◆ ESI adds support for advanced VNX snapshots and XtremIO snapshots.

◆ ESI SCOM Management Packs now support XtremIO and VMAX3.

◆ ESI PowerShell Toolkit adds new SQL Server PowerShell cmdlets.

◆ ESI adds support for VPLEX GeoSynchrony 5.4 and AppSync 3.0.

This release continues to support Internet Protocol version 6 (IPv6). However, the ESI XtremIO Adapter does not support IPv6.

This release also adds the following new cmdlets to the ESI PowerShell Toolkit.

PowerShell cmdlet	Description
Add-EmcDatabaseToAvailabilityGroup	Adds the specified SQL Server database to the specified availability group.
Add-EmcReplicaToAvailabilityGroup	Adds the specified SQL Server database replica copy to the specified availability group.
Copy-EmcVnxAdvancedSnapshot	Copies the specified VNX advanced snapshot to the specified storage.
Dismount-EmcVnxAdvancedSnapshot	Dismounts the specified VNX advanced snapshot.
Expand-EmcCompositeLun	Expands the composite LUN.
Get-EMCCompositeLunMember	Gets the composite LUN members of the specified composite LUN head.
Get-EMCAvailableCandidatesForLunComposition	Fetches all the LUNs that are qualified to be member LUNs of the specified meta LUN.
Get-EmcESXCluster	Gets the list of VMware ESX clusters.
Get-EmcSnapshotLun	Gets the list of Snapshot LUNs.
Get-EmcSnapshotPool	Gets the list of Snapshot pools.
Get-EmcSqlServer	Gets the list of SQL Servers.
Get-EmcSqlServerAvailabilityGroup	Gets the list of SQL Server availability groups.
Get-EmcSqlServerCredential	Gets the SQL Server credential.
Get-EmcSqlServerDatabase	Gets the list of SQL Server databases.

PowerShell cmdlet	Description
Get-EmcStorageServiceNode	Gets the list of storage service nodes.
Get-EmcVnxAdvancedSnapshot	Gets the list of advanced snapshots.
Get-EmcVnxAdvancedSnapshotMountPoint	Gets the list of advanced snapshot mount points.
Mount-EmcVnxAdvancedSnapshot	Mounts the specified VNX advanced snapshot.
New-EmcSnapshotLun[1]	Creates a new snapshot LUN.
New-EmcSqlServerAvailabilityGroup	Creates a new SQL Server availability group.
New-EmcSqlServerDatabase	Creates a new SQL Server database.
New-EmcVnxAdvancedSnapshot	Creates a new VNX advanced snapshot.
New-EmcVnxAdvancedSnapshotMountPoint	Creates a new advanced snapshot mount point.
Remove-EmcCompositeLun	Removes the composite LUN.
Remove-EmcDatabaseFromAvailabilityGroup	Removes the specified database from the specified availability group.
Remove-EmcReplicaFromAvailabilityGroup	Removes the specified replica database copy from the specified availability group.
Remove-EmcSnapshotLun	Removes the Snapshot LUN.
Remove-EmcSqlServerAvailabilityGroup	Removes the specified SQL Server availability group.
Remove-EmcSqlServerDatabase	Removes the specified SQL Server database.
Remove-EmcVnxAdvancedSnapshot	Removes an advanced snapshot.
Restore-EmcSnapshotLun	Restore the source Snapshot LUN
Restore-EmcVnxAdvancedSnapshot	Restores the VNX advanced snapshot to the source LUN.
Update-EmcAppSyncSystem	Updates the AppSync system by discovering applications.
Update-EmcVnxAdvancedSnapshot	Updates the VNX advanced snapshot.

1. This cmdlet is not new, but new parameters have been added to support XtremIO snapshots.

Note: *EMC Storage Integrator for Windows Online Help* provides more details about ESI PowerShell cmdlets.

Discontinued functionality

This ESI release no longer supports the following:

◆ Microsoft Windows Server 2008 R2

◆ GeoSynchrony 5.3

◆ VNX and VNXe file storage systems

◆ ESI Exchange HA Extension, ESI SCOM Management Packs for Exchange, and Exchange provisioning in ESI

◆ EMC CLARiiON® CX4 storage systems

Fixed problems

This release includes the following fixes and enhancements:

◆ ESI now supports running the cmdlets within a remote PowerShell session on the ESI controller host.

Environment and system requirements

This section describes the environment and system requirements for the ESI for Windows Suite.

ESI system prerequisites

Before you install ESI, complete the following:

◆ Install .NET Framework 4.5 on the ESI controller (the host on which ESI runs).

◆ Ensure that Windows Server 2012 R2 or 2012 is installed on the ESI controller (Windows Server Core installations are not supported).

◆ Ensure that MMC 3.0 is installed. Otherwise, the ESI installer prompts you to upgrade to MMC 3.0 before installing ESI. If MMC is not installed, download and install it from the Microsoft website.

◆ Enable the following firewall exceptions on the ESI controllers and ESI controllees (hosts on which ESI provisions storage):

• Remote Volume Management-Virtual Disk Service (RPC) (vds.exe)

• Remote Volume Management-Virtual Disk Service Loader (RPC) (vdsldr.exe)

• Remote Volume Management (RPC-EPMAP) (svchost.exe)

• Windows Management Instrumentation

◆ Ensure that Microsoft PowerShell 4.0 is installed on all hosts. If PowerShell is not installed, download and install it from the Microsoft website.

◆ Enable the remote PowerShell on ESI controllee hosts by running the following command on the controllee host (the host on which ESI provisions storage):

```
Enable-PSRemoting -force
```

◆ If you use iSCSI or FC transport for SAN connectivity:

• Use the iSCSI initiator to log in to the storage systems.

• Configure zoning for the FC initiator and use that initiator to log in to the storage system.

◆ Install the latest version of EMC PowerPath or Microsoft Multipath I/O (MPIO) with the Microsoft Device Specific Module (MSDSM) on the controllee host.

◆ Ensure that ESI is installed and runs in a domain user login session with administrative privileges for the controller host. The controller and controllee hosts must be members of the same Windows domain or in trusted domains.

◆ To use Microsoft Active Directory Services with ESI, confirm that Windows Server 2012 R2 or 2012 Active Directory is installed. To use AD LDS, confirm an AD LDS instance is installed on the Windows Server.

Storage system and hypervisor software prerequisites

ESI supports the following storage systems and hypervisors with the following, required software.

Storage system	Required versions
EMC VMAX3 family	EMC Enginuity™ release level 5977.498.472 and EMC Solutions Enabler 8.0.2 or later with EMC SMI-S Provider 8.0.2 or later
EMC VMAX2 family	EMC Enginuity release level 5876.159.102, 5876.229.145, 5876.251.161, or 5876.268.174, or 5875.267.201e (depending on the VMAX model) and EMC Solutions Enabler 8.0.2 with EMC SMI-S Provider 8.0.2
EMC VMAXe	EMC Enginuity release level 5875.267.201e and EMC Solutions Enabler 8.0.2 with EMC SMI-S Provider 8.0.2
EMC VNX-F5000™ and VNX-F7000™	Block 05.33.000.5.072
EMC VNX5100™, VNX5200™, VNX5300™, VNX5400™, VNX5500™, VNX5600™, VNX5700™, VNX5800™, VNX7500™, VNX7600™, and VNX8000™	Block 05.31, 05.32, or 05.33.000.5.072
EMC VNXe3100™, VNXe3150™, and VNXe3300™[1]	VNXe 2.3.1.20364 OE
EMC VNXe3200	VNXe 3.0.1.35 or 3.1.1.4993502 OE
EMC XtremIO	3.0.1, 3.0.0, or 2.4.2
Microsoft Hyper-V	64-bit version of Windows Server 2012 R2or 2012
VMware vSphere ESXi Server	5.1 Update 1 or later

1. ESI SCOM Management Packs do not support these VNXe models.

VNX Adapter prerequisite

For VNX block storage systems, you must enable Access Logix on the storage array before connecting a host disk on a Windows host.

VNXe Adapter prerequisite

Install the latest version of the EMC Unisphere® VNXe CLI for your specific environment on the ESI controller host. The latest versions of the VNXe CLIs are available for download on EMC Online Support.

VMAX Adapter prerequisites and limitations

This adapter has the following prerequisites:

◆ For VMAX3 and VMAX2 systems, install and run EMC Solutions Enabler 8.0.2 with EMC SMI-S version 8.0.2 on a management server that is separate from all ESI hosts and storage systems.

◆ For VMAX systems with an Enginuity version earlier than 5876, ESI requires EMC Solutions Enabler 7.6.2 with EMC SMI-S version 4.6.2. The EMC Solutions Enabler software is available on the EMC Solutions Enabler page on EMC Online Support.

◆ Install Oracle Java SE Runtime Environment (JRE) 7 or later, which is required for VMAX3

ESI has the following limitations for managing VMAX2 storage with EMC Fully Automated Storage Tiering for Virtual Pools (FAST™ VP) policies and for expanding LUNs, extending LUNs, and creating meta volumes (metas or composite LUNs):

◆ Expanding a bound stripe meta volume results in the creation of a Business Continuity Volume (BCV), which has the same meta configuration to preserve data. During the expansion, the system creates a mirror relationship between the meta and the BCV, which means the meta and the BCV contain the same data. After the expansion, the storage system detaches the BCV from the meta, and by default, ESI does not delete the device. You can manually delete the BCVs with EMC tools, such as EMC Solutions Enabler SYMCLI or Unisphere for VMAX, to manage disk space.

◆ The Expand-EmcLun cmdlet does not expand a thin meta LUN. The command expands a meta volume.

◆ You cannot expand or extend meta volumes that involve a clone, a remote data facility (RDF), or a snap session.

◆ You cannot compress or shrink meta volumes.

◆ If LUNs in a storage group are not bound to at least one pool that is part of the policy tier, you cannot associate a FAST VP policy to the storage group.

◆ You cannot rebind LUNs for FAST VP.

The following three limitations will be addressed in a future release of ESI:

◆ While events for disk drives can be monitored successfully, the correct status of other devices might not be reported.

◆ You might not be able to expand LUNs on VMAX2 storage systems.

◆ Creating clusters might fail on VMAX3 storage systems.

XtremIO Adapter prerequisites and limitations

This adapter requires XtremIO version 3.0.1, 3.0.0, or 2.4.2.

This adapter has the following limitations:

◆ For XtremIO entities, ESI manages XtremIO volumes as LUNs and manages volume mappings as masking views in ESI.

◆ You can view, but cannot modify, create, or delete XtremIO folders in ESI.

◆ You cannot provision XtremIO storage for SQL Server, Exchange, or SharePoint applications in ESI.

◆ Because XtremIO systems do not use storage pools, ESI lists the entire XtremIO system as a single storage pool in the **Storage Pools** tab.

◆ Because XtremIO systems do not use service nodes, you cannot view service nodes for XtremIO systems in ESI.

◆ Because XtremIO does not require the registration of hosts, you cannot use ESI PowerShell cmdlets that are related to registering hosts for XtremIO systems in ESI.

◆ This adapter does not support IPv6.

VPLEX Adapter prerequisites

This adapter has the following prerequisites:

◆ VPLEX systems must have EMC GeoSynchrony® version 5.4 installed.

◆ This adapter uses the standard SSH network connection to communicate with VPLEX. Confirm that the SSH port 443 is open on the ESI host. If it is not open, the connection fails.

AppSync Adapter prerequisites and limitations

This adapter has the following prerequisites:

◆ EMC AppSync version 3.0 or 2.0 is installed on the Windows Server.

◆ When installing the adapter as part of the ESI installation, you must use the same service name and port information that you used when installing Windows Server.

Your system must meet the following to use this adapter with Exchange databases:

◆ Your system meets the Exchange Adapter prerequisites.

◆ Mount and production hosts must have same version of Windows installed.

Your system must meet the following to use this adapter with SQL Server databases:

◆ Your system meets the SQL Server Adapter prerequisites.

◆ SQL Server databases and transaction logs must be stored on disks in the same storage system.

◆ SQL Server databases must be online during replication.

◆ EMC recommends you use the same version of SQL Server on the production and mount hosts.

◆ Mount hosts must have SQL Server installed to recover databases from mounted copies.

This adapter has the following SQL Server limitations:

◆ SQL Server system databases are not supported.

◆ SQL Server database snapshots are not discovered.

Linux Adapter prerequisites

This adapter has the following Linux system prerequisites, which you can install by default with Linux:

◆ Red Hat version 6.1 and SUSE Linux version 11 is installed on the Linux server. These versions were tested with ESI, however later versions might also work.

◆ ESI uses the standard SSH network connection to communicate with Linux. Confirm that the SSH port 22 is open on the ESI host.

◆ For SCSI operations with ESI, confirm the following is installed on the Linux server:

• Confirm the SCSI sg3-utils tool set component is installed.

• Confirm the optional, open SCSI component with the protocol for iSCSI is installed.

ESI Service prerequisites

ESI Service, which is installed as an option during the ESI installation, has the same prerequisites as the ESI host controller.

ESI SCOM Management Packs prerequisites

The ESI SCOM Management Packs have the following requirements:

◆ The SCOM Management Group server or servers must have Microsoft System Center Operations Manager (SCOM) 2012 R2, 2012 SP1, or 2007 R2 installed.

◆ In addition to meeting the ESI storage-system requirements:

• Symmetrix DMX-4 storage systems must have Enginuity release level 5773.183 and EMC Solutions Enabler version 7.6.2 with EMC SMI-S Provider version 4.6.2 installed.

• VPLEX systems must have GeoSynchrony version 5.4 installed.

ESI SharePoint Adapter prerequisites and supported features

The ESI Microsoft SharePoint Adapter has the following prerequisites:

◆ Windows Server 2012 R2 or 2012 SP2 is installed. (Windows Server Core installations are not supported.)

◆ SQL Server 2012 R2, 2012, or 2008 R2 is installed.

◆ Microsoft SharePoint Server 2013 or SharePoint Foundation 2013 is installed.

This adapter has the following feature limitations:

◆ Does not support XtremIO storage systems.

◆ SharePoint Foundation Client is not supported.

◆ Domain-based SharePoint farm deployment is supported; however, clustered and stand-alone installations and web applications for remote farms are not supported.

Note: If you create a database without a web application on a remote farm, you cannot view the new database in ESI.

ESI Exchange Adapter prerequisites and limitations

The ESI Exchange Adapter has the following prerequisites:

◆ Microsoft Exchange 2013 is installed on the Exchange servers.

◆ Full version of Windows Server 2012 R2 or 2012 is installed on the Exchange servers. (Windows Server Core installations are not supported.)

◆ On each Exchange Server, the Internet Information Services (IIS) Manager for Windows PowerShell must have **PSLanguageMode** set to **FullLanguage** in the **Application settings** for Windows PowerShell.

◆ For EMC RecoverPoint replication, ESI RecoverPoint Adapter is installed on the ESI controller and EMC RecoverPoint/SE or RecoverPoint/EX and the applicable splitters are set up for each supported EMC storage system.

The ESI Exchange Adapter has the following limitations:

◆ This adapter does not support XtremIO storage systems.

◆ You can view, but cannot modify, create, delete, or provision Exchange storage in ESI. Use the Exchange Management Tools for these tasks.

ESI SQL Server Adapter prerequisites

This adapter supports the following Windows and SQL Server versions.

Supported versions	Windows 2012	Windows 2012 R2
SQL Server version 2008 R2	Supported	Supported
SQL Server version 2012	Supported	Supported
SQL Server version 2012 SP1	Supported	Supported
SQL Server version 2014	Supported	Supported

Additionally, this adapter requires that ESI and SQL Server are connected to the same domain controller and you have Administrator login credentials for SQL Server.

This adapter does not support XtremIO storage systems.

ESI RecoverPoint Adapter prerequisites

The ESI RecoverPoint Adapter has the following prerequisites:

◆ Windows Server 2012 R2 or 2012 is installed. (Windows Server Core installations are not supported.)

◆ EMC RecoverPoint/SE or EMC RecoverPoint/EX 4.1 or 4.1.1 is installed.

◆ System.net.http.formatting DLL is installed on the ESI host controller. When you select to install the RecoverPoint Adapter as part of the ESI installation, this DLL is installed for you.

EMC RecoverPoint Release Notes on EMC Online Support provide more details about EMC RecoverPoint/SE and EMC RecoverPoint/EX.

Known problems and limitations

This section describes known problems, limitations, and troubleshooting information for supported storage systems in ESI. The known problems, limitations, and troubleshooting information for all ESI system and application adapters, ESI Service, ESI SCOM Management Packs, and ESI PowerShell Toolkit is available in *EMC Storage Integrator for Windows Suite Online Help*.

Symptom	Prevention, resolution, or workaround
You cannot provision LUNs in oversubscribed storage pools in ESI.	The ESI GUI does not support oversubscribed storage pools. However, you can use ESI PowerShell Toolkit to provision LUNs in oversubscribed storage pools.
In the **Storage System Health** of the SCOM console, the User Friendly Name for the storage system does not appear as the **Display Name**.	To get the User Friendly Name of the storage system to appear as the Display Name in SCOM, you need to set up the storage system filter file. "Setting up the storage system filter file" in *EMC Storage Integrator for Windows Suite Online Help* provides instructions.
• ESI fails to connect to Windows clusters or failover clusters. • ESI cannot create, delete, or disconnect a cluster disk.	• Healthy clusters are an ESI requirement. Confirm that the clusters are healthy. • Cluster resource dependencies are not removed before you delete or disconnect a cluster disk. Before deleting or disconnecting a cluster disk, remove disk resource dependencies.
When you type a valid description for **Storage Pool Description**, sometimes the description does not appear in the **Storage Pool** column.	This is a known problem. The description display is for more information and is not critical for system operations.
Ping system timeout fails.	Set the timeout value according to the network status in ESI.
You are unable to connect to a Windows server.	• Check that firewall rules are enabled on both controller and controllee hosts. • Check that remote PowerShell is enabled on both controller and controllee hosts. • Check that DNS is configured correctly.
Rescan fails to find a LUN.	• Check that the FC Zoning is configured correctly. • Check that the iSCSI initiator is logged into the target port. • Check that the multipath software is configured correctly.

Symptom	Prevention, resolution, or workaround

• Storage-related data does not display in the host view, cluster view, or SharePoint view.
• The storage pools in the **Create Disk** wizard do not load and the wizard is blank.
	• ESI shows storage-related information for a disk only when the corresponding storage systems are registered. Verify that the corresponding storage systems are registered with ESI (in **Storage Systems**). If they are not, register the storage systems.
	• The storage system might take longer than the default timeout value of 60 seconds. Set a higher timeout value (in seconds) in the ESI GUI by selecting **ESI › Options** or in the following registry key:
	`Key: HKLM\SOFTWARE\EMC\WSI\Config`
	`DWORD Value Name: DefaultOperationTimeout`

When you add a storage system to ESI with the ESI GUI, PowerShell does not list the new system. Or the reverse occurs, when you add the system with PowerShell, the ESI GUI does not list it.	Log out of the other application and then reopen it to refresh the list.
One of the following error messages occur: • "Unable to get host system with given parameters." • "EmcVdsProxyService is not available. The operation 'RemoveHostSystem' is unsuccessful."	This might occur when trying to connect ESI to a Windows host by using ESI PowerShell cmdlets that are running within a remote PowerShell session. ESI does not support running the cmdlets within a remote PowerShell session on the ESI controller host.
PowerShell scripts from previous versions of ESI that use the `Connect-EmcSystem` PowerShell cmdlet and fail with the "Parameter `ConnectionName` is needed to create the Host System Object" error.	Instead of using the `HostSystemName` parameter with the `Connect-EmcSystem` cmdlet, change the command line to use the `ConnectionName` parameter for connecting the VMAX system and retry the connection in PowerShell.
For XtremIO systems, errors occur with the following ESI PowerShell cmdlets: • `Get-EmcStorageRegisteredHost` • `Get-EmcStorageRegisteredInitiator` • `New-EmcStorageRegisteredHost` • `New-EmcStorageRegisteredInitiator` • `Remove-EmcStorageRegisteredHost` • `Remove-EmcStorageRegisteredInitiator`	Because XtremIO systems do not require the registration of hosts, ESI does not support the use of ESI PowerShell cmdlets related to registering hosts for XtremIO.
"Retrieval of host disks failed: Operation RefreshDisks failed on VDS proxy..." error occurs.	When the VDS load operation uses the target host FQDN, this name resolution error occurs. To resolve this error, you must configure the Windows host file on the ESI controller host system with both the short (NETBIOS) and long (FQDN) host names.
In ESI, right-clicking a tree node does not display all the menu options.	This is the default behavior of the MMC framework. Select an item and then right-click to display the menu options.
When you create a disk, ESI fails or creates the incorrect volume size.	If you create a host disk and ESI fails or creates the incorrect volume size, you might need to increase the disk size.
If the file system type is FAT32, provisioning a storage volume fails.	FAT32 file system type is not supported in this release.
When you create a virtual hard disk or pass-through SCSI disk for a virtual machine, no IDE controllers are listed.	ESI does not support IDE-based disks. Use hypervisors to create IDE-based disks.
When you specify both the `-ID` and the `-ConcreteLun` parameters with the `Get-EmcLun` ESI PowerShell cmdlet, an "AmbiguousParameterSet exception" error occurs.	The `-ConcreteLun` switch parameter specifies the Concrete LUN type as an optional parameter, through which only Concrete LUNs can be filtered out. Do not use this parameter with the `-ID` parameter because it supports only block storage systems.
For hypervisors, you cannot create new SCSI controllers for virtual machines.	ESI does not support creating new SCSI controllers to create disks for virtual machines. Use the hypervisor to create new SCSI controllers. Then use ESI to create and attach the disks for virtual machines with these existing SCSI controllers.

Symptom	Prevention, resolution, or workaround
For hypervisors, the **Connect to Host** action causes one of the following error messages: • "Can't retrieve IP from MAC address..." • "The host name is empty."	The error can occur for several reasons. Confirm the following to avoid the error: • The virtual machine is a part of a reachable domain. • The supported Windows operating system is installed on that virtual machine. • The IP of that virtual machine is configured correctly. • The ESI-mandatory firewall settings are configured correctly if you want to manage the virtual machine in ESI.
For a VMware ESX host that is connected with ESI to a virtual machine, when you expand a file-based disk on the virtual machine, the operation fails with an "Access to resource settings on the host is restricted to the server that is managing it" error message.	This is a VMware restriction for expanding file-based disks, which requires the operation to succeed only when the vCenter host is connected and the ESX host is disconnected from ESI. Remove the ESX host and add the vCenter hypervisor again in ESI. Then try the expand operation again.
For VMware, you cannot expand RDM disks that are attached with virtual compatibility mode.	For VMware systems, ESI does not support RDM disks that are created with virtual compatibility mode. Use ESI to provision disks without the virtual compatibility mode setting.
For VMAX, when creating disks with the **Create Disk** wizard, "no appropriate storage system found" is the only option in the **Storage System** page.	ESI does not support provisioning disks for host systems (VMware, Windows, SQL Server, and so on) with only iSCSI initiators (HBAs) on VMAX storage systems.
For VMAX, the "Symmetrix system with serial not found: 123400688" error occurs.	When adding VMAX systems to ESI, confirm that you include all the required 12 digits, which might include a prefix of zeros, for example: 000123400688.
For VNX systems, the local administrator account status is **Offline**.	This occurs when a VNX storage array is added with a global account without administrator rights or a local administrator account and the status is **Offline**. VNX systems require administrator accounts with a global scope.
For VNX systems, you are unable to connect a host disk.	If the VNX storage array does not have Access Logix enabled, the host disk connection fails. VNX block storage systems must have Access Logix enabled on a storage array before you can connect a host disk on a Windows host.
For VNX systems, when you can view advanced snapshot LUNs in **LUNs** in the ESI GUI and cannot view them in ESI PowerShell.	You can view advanced snapshot LUNs in the ESI GUI. Although the snapshots exist, you cannot currently view the list with the Get-EmcSnapshotLuns cmdlet.
For VNXe and Hyper-V, when you use New-EmcLun to create a LUN for Hyper-V, a "LUN does not exist" error occurs.	This occurs in older versions of VNXe. To resolve this problem, update your VNXe to version 2.3.1.20364.
For VNXe, a snapshot cannot be promoted.	If the resource has no access to the snapshot, a snapshot cannot be promoted for a host. Set up host access to the snapshot and then try the snapshot promotion.
When you add a VNXe, the "System cannot find the file specified" error occurs when you click **Test Connection**.	VNXe Unisphere CLI might not be available on the controller host where ESI is running. Download VNXe Unisphere CLI from the EMC Online Support website and install it on the ESI host system. After installing the CLI, retry adding the VNXe system.
When you create volumes for XtremIO, the **Login Status** is **Unknown** on the **LUN Masking Settings** page in the **Create Disk** wizard.	ESI cannot display the port addresses for all zoned storage system ports for XtremIO systems in the ESI GUI.
When you modify auto-generated T-SQL for bulk-create databases, ESI does not display a successful completion message.	ESI might not display any messages when you modify auto-generated T-SQL in ESI. This is a known issue that does not require a workaround.
For XtremIO, ESI reports the health status for X-Bricks, Controllers, and SSDs only.	Ignore the health status of all other XtremIO components.

Symptom	Prevention, resolution, or workaround
While provisioning disks on VMAX and VMAX3 storage systems, you must create a masking view if one does not already exist.	ESI 3.7 does not create masking views for VMAX.
While provisioning disks on VMAX and VMAX3, ESI does not report or check the status of the initiators.	You must ensure that the initiators are logged in before starting the Create Disk wizard.
For VMAX, if a Masking View has only one volume left, that last volume cannot be deleted.	Working as designed.

Technical notes

EMC Storage Integrator for Windows Suite Online Help provides all relevant technical notes for ESI, including installation and setup instructions for ESI adapters and other ESI options.

Documentation

The following table lists the ESI documentation that is available in the ESI Zip file.

Name	Part number
EMC Storage Integrator for Windows Suite Release Notes	300-012-821-16
EMC Storage Integrator for Windows Suite Online Help	Not applicable

Software media, organization, and files

This version of ESI is distributed as a Zip file and is only available by request from EMC Technical Support.

Installation

The ESI Zip file includes the ESI installer for the core ESI setup and other ESI options. The Zip file also includes the ESI SCOM Management Packs installer.

If you elect to install the ESI Service, the installer also installs the ESI Service PowerShell Toolkit. *EMC Storage Integrator for Windows Suite Online Help* provides installation and setup instructions for the ESI SCOM Management Packs installer.

You can install ESI in one of the following ways:

◆ Installing a new, complete version of ESI provides instructions for a new, complete installation of ESI. During installation, you can select which adapters and other options to install with ESI.

◆ Reinstalling ESI provides instructions for a reinstallation of the same ESI adapters and ESI options that were installed during your last ESI installation.

◆ Upgrading from ESI version 3.x or later provides instructions for upgrading from an earlier version of ESI and the ESI SCOM Management Packs.

Installing a new, complete version of ESI

To install a new, complete version of ESI:

1. Locate and double-click the latest version of **ESI.3.*.Setup.exe**.

2. In the **ESI InstallShield Wizard**, click **Next**.

3. When the EMC Software License Agreement displays, read and accept the license agreement and click **Next**.

4. In the **Prerequisites** window, confirm that your system meets the prerequisites and click **Next**.

5. In the **Setup** window, confirm or change the options to install and click **Next**.

   Note: Some options, such as the ESI Service, are not selected by default. Also, you can click **Change** in the main **Setup** window, or for each option, to change the default installation paths.

6. In the **Publish Connection Information** window, select a connection service and click **Next**:

   • **Active Directory**—Uses Active Directory to persist connection settings.

   • **Active Directory Lightweight Directory Service**—Persists connection settings in a central location. For this option, type the **Service Name** and **Service Port** for connecting to the AD LDS instance.

   • **Local Server**—Connection settings will be stored locally (same as earlier versions of ESI). For example, MMC and PowerShell use the Windows user profile folder and ESI Service uses SQLCE to persist settings locally.

7. If you are not using Active Directory, skip to the next step.

   If you are using Active Directory, in the **Configure Active Directory** window, specify the username and password of the Active Directory user account for ESI. The ESI installer uses this account to configure Windows Active Directory for ESI. The ESI username must include (that is, be qualified with) the domain name, as follows: **DOMAIN\Username**

8. In the **Ready to Install the Program** window, click **Install**.

   Note: If the installer detects that a later version of a redistributable file is already installed, it will not install the earlier version that is included with ESI and will prompt you with an error message that it failed. If you get this message, click **Yes**.

9. Click **Finish**.

10. If using Active Directory Services, you must configure AD DS or AD LDS for ESI supported applications. For more details, refer to "Setting up Directory Services integration for ESI applications" in *EMC Storage Integrator for Windows Suite Online Help*.

Note: The ESI installer attempts to add a firewall exception rule to enable Remote Volume Management on the host where ESI is being installed. The installer also attempts to enable the remote PowerShell (PS Remoting) on the same host. If the installer encounters a problem during these steps, ESI instructs you to perform these steps manually after the installation is complete.

Reinstalling ESI

To reinstall the same version of ESI to the same installation path and repair the installation or modify the options that are installed:

1. If you plan to select **Local Server** for **Publish Connection Information** in step 7, then skip to the next step.

   If you plan to select either of the new Active Directory options, you must remove all system connection settings before installing ESI as follows:

   a. Remove all systems from ESI. Removing systems from ESI provides instructions.

   b. Delete the following ESI settings file:
      ‹system drive›:\Users\‹user name›\AppData\Local\EMC\ESI\EMC Storage Integrator.settings

2. Locate and double-click the latest version of **ESI.3.*.Setup.exe**.

3. In the **ESI InstallShield Wizard,** click **Next**.

4. When the EMC Software License Agreement displays, read and accept the license agreement and click **Next**.

5. In the **Prerequisites** window, confirm that your system meets the prerequisites and click **Next**.

6. In the **Setup** window, confirm or change the options to install and click **Next**.

   Note: Some options, such as the ESI Service, are not selected by default. Also, you can click **Change** in the main **Setup** window, or for each option, to change the default installation paths.

7. In the **Publish Connection Information** window, select a connection service and click **Next**:

   • **Active Directory**—Uses Active Directory to persist connection settings.

   • **Active Directory Lightweight Directory Service**—Persists connection settings in a central location. For this option, type the **Service Name** and **Service Port** for connecting to the AD LDS instance.

   • **Local Server**—Connection settings will be stored locally (same as earlier versions of ESI). For example, MMC and PowerShell use the Windows user profile folder and ESI Service uses SQLCE to persist settings locally.

8. If you are not using Active Directory, skip to the next step.

   If you are using Active Directory, in the **Configure Active Directory** window, specify the username and password of the Active Directory user account for ESI. The ESI installer uses this account to configure Windows Active Directory for ESI. The ESI username must include (that is, be qualified with) the domain name, as follows:
   DOMAIN\Username

9. Depending on your selection, in the **Ready to Modify the Program** or the **Ready to Repair the Program** window, click **Install**.

> **Note:** If the installer detects that a later version of a redistributable file is already installed, it will not install the earlier version that is included with ESI and will prompt you with an error message that it failed. If you get this message, click **Yes**.

10. Click **Finish**.

11. If using Active Directory Services, you must configure AD DS or AD LDS for ESI supported applications. For more details, refer to "Setting up Directory Services integration for ESI applications" in *EMC Storage Integrator for Windows Suite Online Help*.

Upgrading from ESI version 3.x or later

To upgrade ESI:

1. If you plan to select **Local Server** for **Publish Connection Information** in step 8, then skip to the next step.

   If you plan to select either of the new Active Directory options, you must remove all system connection settings before installing ESI as follows:

   a. If using ESI Service, unpublish all systems from the ESI Service. Unpublishing systems from the ESI Service provides instructions.

   b. Remove all systems from ESI. Removing systems from ESI provides instructions.

   c. Delete the following ESI settings file:
      ‹system drive›:\Users\‹user name›\AppData\Local\EMC\ESI\EMC Storage Integrator.settings

2. Locate and double-click the latest version of **ESI.3.*.Setup.exe**.

3. In the **Upgrade ESI** dialog box, click **Yes**.

4. In the **ESI InstallShield Wizard**, click **Next**.

5. When the EMC Software License Agreement displays, read and accept the license agreement and click **Next**.

6. In the **Prerequisites** window, confirm that your system meets the prerequisites and click **Next**.

7. In the **Setup** window, confirm or change the options to install and click **Next**.

> **Note:** Some options, such as the ESI Service, are not selected by default. Also, you can click **Change** in the main **Setup** window, or for each option, to change the default installation paths.

8. In the **Publish Connection Information** window, select a connection service and click **Next**:

   • **Active Directory**—Uses Active Directory to persist connection settings.

   • **Active Directory Lightweight Directory Service**—Persists connection settings in a central location. For this option, type the **Service Name** and **Service Port** for connecting to the AD LDS instance.

- **Local Server**—Connection settings will be stored locally (same as earlier versions of ESI). For example, MMC and PowerShell use the Windows user profile folder and ESI Service uses SQLCE to persist settings locally.

9. If you are not using Active Directory, skip to the next step.

   If you are using Active Directory, in the **Configure Active Directory** window, specify the username and password of the Active Directory user account for ESI. The ESI installer uses this account to configure Windows Active Directory for ESI. The ESI username must include (that is, be qualified with) the domain name, as follows: **DOMAIN\Username**

10. In the **Ready to Install the Program** window, click **Install**.

    > **Note:** If the installer detects that a later version of a redistributable file is already installed, it will not install the earlier version that is included with ESI and will prompt you with an error message that it failed. If you get this message, click **Yes**.

11. Click **Finish**.

12. If using Active Directory Services, you must configure AD DS or AD LDS for ESI supported applications. For more details, refer to "Setting up Directory Services integration for ESI applications" in *EMC Storage Integrator for Windows Suite Online Help*.

    > **Note:** The ESI installer attempts to add a firewall exception rule to enable Remote Volume Management on the ESI host. The installer also attempts to enable the remote PowerShell (PS Remoting) on the same host. If the installer encounters a problem during these steps, ESI instructs you to perform these steps manually after the installation is complete.

Removing systems from ESI

You can use the **Remove System** action to remove storage systems, applications, appliances, and other supported systems from ESI.

To remove a system from ESI:

1. In the left pane of the ESI window, select **EMC Storage Integrator** or **Storage Systems**.

2. In the center pane, select the storage system.

3. In the **Actions** pane, click **Remove System**.

4. Click **Yes** when prompted for confirmation.

Unpublishing systems from the ESI Service

Before upgrading ESI, you must unpublish all systems from the ESI Service.

To unpublish a system from the ESI Service:

1. In the left pane of the ESI window, select **EMC Storage Integrator** or **Storage Systems**.

2. In the **Actions** pane, click **Publish Connection**.

3. In the **Publish Connection Information** dialog box, set the following for the Service.

Field	Description
IP Address/Name	Type the IP address or name of the host system that is running the service.
Publish To	Select ESI Service as the connection information for the systems.
Default Port	Accept the default port or clear the checkbox to specify a different port number.
Port	If you clear the **Default Port** checkbox, type the port number for the service.

4. Click **Refresh** to get the list of published systems.

5. In the **Target– Storage and Replication Systems** pane, select the systems that you want to unpublish, and then click **Remove**.

6. Click **Publish** to accept the list of systems to unpublish.

   Note: This pane also lists systems that were previously published or registered with the ESI Service by using the ESI Service PowerShell Toolkit or this procedure.

7. Click **Close** to close the dialog box.

Upgrading ESI SCOM Management Packs

To upgrade from version 3.0 or later of the ESI SCOM Management Packs to the latest version, perform the steps in "Installing the ESI SCOM Management Packs" in *EMC Storage Integrator for Windows Suite Online Help* after installing ESI.

To upgrade from version 2.1 of the ESI SCOM Management Packs:

1. In **Administration** in the SCOM console, select all the EMC Storage Integrator management packs, except for the **EMC Storage Integrator Customization** and **EMC Storage Integrator Exchange High Availability Extension Monitoring Customization** XML files, right-click and select **Delete**.

NOTICE

   Do not delete the two customization files or you will lose your customization settings.

2. If prompted, select to also delete any other dependencies.

3. After deleting the ESI version 2.1 SCOM Management Packs, locate and import version 3.1 of the management packs.

   "Installing the ESI SCOM Management Packs" in the *EMC Storage Integrator for Windows Suite Online Help* provides instructions.

Uninstalling ESI

To uninstall ESI:

1. Close all ESI applications, including ESI and the ESI PowerShell Toolkits.

   If you do not close all applicable ESI applications, a warning message to close them might occur during this task.

2. Open the Windows **Programs and Features** Control Panel.

3. Select the EMC Storage Integrator program and click **Uninstall**. If you are upgrading from version 1.2, repeat this step until you remove all EMC Storage Integrator adapters and programs from the list.

   Note: The uninstaller does not remove either the local store file or the Active Directory user container.

4. After removing ESI, follow the steps in Installing a new, complete version of ESI to install the latest version of ESI.

Troubleshooting and getting help

You can get EMC support, product, and licensing information as follows:

Product information — For documentation, release notes, software updates, or information about ESI, go to EMC Storage Integrator for Windows Support Page.

Technical support — EMC Online Support provides technical support services. Note that to open a service request, you must have a valid support agreement. Contact your EMC sales representative to get a valid support agreement or for other questions about your account.