

IBM System Storage N series



Virtual Storage Console 2.1.1 for VMware vSphere Release Notes

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Virtual Storage Console 2.1.1 for VMware vSphere Release Notes

These release notes describe new features, enhancements, and known issues for IBM System Storage N series Virtual Storage Console 2.1.1 for VMware vSphere.

Virtual Storage Console consists of three capabilities:

- Monitoring and Host Configuration
- Provisioning and Cloning
- Backup and Recovery

Each of these capabilities has its own administration guide, where you can find information on using it. The installation instructions for Virtual Storage Console are in the *Virtual Storage Console Installation and Administration Guide*, which is also the administration guide for the Monitoring and Host Configuration capability.

Virtual Storage Console includes the following versions of the Monitoring and Host Configuration, Provisioning and Cloning, and Backup and Recovery capabilities.

VSC version	Monitoring and Host Configuration	Provisioning and Cloning	Backup and Recovery
2.1.1	2.1.1	3.2.1	3.0.4
2.1	2.1.0	3.1.2	3.0.2
2.0.1p1	2.1	3.1.1P1	3.0.1P1
2.0.1	2.1	3.1.1	3.0.1
2.0	2.0	3.1	3.0

Ensure that the installed version of Virtual Storage Console is 2.1.1 and downloaded from the N series Support website located at:

www.ibm.com/storage/support/nseries

Information on finding Virtual Storage Console system requirements

Before you install the Virtual Storage Console software, you must ensure that your storage system conforms to the software, hardware, and operating system requirements.

For the most up-to-date information on the system requirements, see the Interoperability Matrix, available on the IBM N series support website, which is accessed and navigated as described in “Websites” on page 51.

Updates to the Release Notes

The release notes might be updated between product releases. The following changes have occurred since the original release.

October 2011 update

The following changes have been made in this release:

- The ALUA Capable field in the SAN Storage Controllers panel of the Monitoring and Host Configuration tab displays incorrect information about the ALUA status. See “ALUA Capable field displays incorrect status” on page 18.
- IBM has implemented a VMware advanced configuration option that reduces rescan times and prevents virtual machines from not responding under an all-path-down (APD) condition. See “VMware option implemented to help with rescan operation issue” on page 5.
- The information on the backup search criteria is incorrect in the *Virtual Storage Console 2.1.1 VMware vSphere Backup and Recovery Administration Guide*. See “Search criteria incorrect in Backup and Recovery Administration Guide” on page 45.
- When you install the mbralign download package that works with hosts running ESXi, you must make sure you use the installation steps for ESXi hosts, not ESX hosts. The Release Notes contain instructions that are specific to mbralign on ESXi hosts. See “Downloading and installing mbralign for ESXi hosts” on page 46.
- The Provisioning and Cloning API variable aggrOrVolName has been changed to containerName. See “Correction to VSC 2.1.1 Provisioning and Cloning Administration Guide” on page 48.

New and changed features

Virtual Storage Console 2.1.1 includes new features, performance improvements, and problem fixes.

Monitoring and Host Configuration features

A new feature that applies to all the three capabilities is support for vSphere 5.0, which includes vCenter Server 5.0 and ESXi.

Note: vSphere 5.0 ships with ESXi only, which means that there is no console. You must perform all operations through vCenter or a vSphere Management Assistant (vMA).

In addition, each capability has new features that are specific to it. These features are described in the following sections.

The Monitoring and Host Configuration capability of Virtual Storage Console includes several new features that apply to both the ESX host and the storage controller. Detailed information about the features is contained in the *Virtual Storage Console Installation and Administration Guide*.

Note: The Virtual Storage Console capability was renamed Monitoring and Host Configuration to better describe its function.

This release of Monitoring and Host Configuration includes the following new features:

- The ability to designate a host as skipped

Hosts in this state are not discovered. Earlier versions of Virtual Storage Console allowed you to designate controllers as skipped, but not hosts.

- A Status Reason column for Hosts

This feature provides more information about why an alert occurred. Previously, the Status Reason column was available for controllers only.

- New `mbralign` download package with hosts running ESXi

There is a different version of the `mbralign` program for ESXi 4.x and 5.x, and also ESX 4.x depending upon the version of the VMware operating system installed.

To download the appropriate `mbralign` installation file, follow the instructions on the IBM N series support website. Refer to the Websites section for accessing the N series support site.

Provisioning and Cloning features

This section describes new features in the Provisioning and Cloning capability. Detailed information about the features is contained in the *Virtual Storage Console Provisioning and Cloning Administration Guide*.

This release of Provisioning and Cloning includes the following new features:

- The ability to reclaim space after data deletion in a guest OS.
- Misalignment prevention prior to cloning.
- The ability to specify the number of CPUs and memory settings for new virtual machines.
- The ability to add existing datastores to new ESX servers in clusters and datacenters.
- Retention of View Server credentials for cloning.
- The ability to clone datastores across vSphere sites.
- The ability to create, name, and manage virtual machine distribution into new View Server pools.
- Citrix XenDesktop 5.0.
- Data ONTAP 8.1.0 7-Mode.
- The ability to import into Citrix XenDesktop and VMware View (API enhancement).
- Catalog-based provisioning API.
- Online Help.

Note: ESX 3.5 is not supported in this release of the Provisioning and Cloning capability.

Backup and Recovery features

This section describes new features in the Backup and Recovery capability. Detailed information about the features is contained in the *Virtual Storage Console Backup and Recovery Administration Guide*.

This release of Backup and Recovery includes VMDK support for SnapDrive for Windows and SnapManager for Microsoft SQL Server.

Fixed issues

Some known issues are fixed in this release of Virtual Storage Console.

- “Fixed issues: Multiple capabilities”
- “Fixed issues: Monitoring and Host Configuration”
- “Fixed issues: Provisioning and Cloning” on page 8
- “Fixed issues: Backup and Recovery” on page 10

Fixed issues: Multiple capabilities

This section describes issues from previous releases that affect multiple capabilities and have been fixed in this release of Virtual Storage Console.

- “VMware option implemented to help with rescan operation issue”

VMware option implemented to help with rescan operation issue

VMware provides an advanced configuration option, FailVolumeOpenIfAPD, that is available in certain versions of ESX and ESXi, including ESX/ESXi 4.0 Update 3 and higher and ESX/ESXi 4.1 Update 1 and higher. This option reduces rescan times and prevents virtual machines from not responding under an all-path-down (APD) condition.

IBM automatically sets and removes this flag around the rescan operations for versions of ESX/ ESXi 4.x that both support the option and are supported with VSC. For information on this flag, see VMware knowledge base article 1016626, Virtual machines stop responding when any LUN on the host is in an all- paths-down condition (APD) (kb.vmware.com/kb/1016626)

Also see VMware knowledge base article 1015084 Unpresenting a LUN containing a datastore from ESX 4.x and ESXi 4.x.

Note: Previous versions of the release notes referred to this issue as *VMware ESX 4.x does not support hot removal of LUNs*.

Fixed issues: Monitoring and Host Configuration

Some known issues are fixed in the Monitoring and Host Configuration capability for use with this release of Virtual Storage Console. The Monitoring and Host Configuration capability was named the Virtual Storage Console capability in previous releases.

- “Updated `mbralign` usage guidelines and restrictions”
- “All resources shown regardless of Inventory panel selection”
- “VSC incorrectly reports the controller's total free and used disk space when there is more than one aggregate”
- “VSC discovery hangs when discovering ESX 4.1 hosts”
- “VSC - Cancel of discovery leaves the discovery 'in progress'” on page 7
- “VSC - Null Pointer Exceptions cause discovery to hang” on page 7
- “VSC - Discovery failing due to several IOException errors” on page 7
- “VSC does not discover private NFS network interfaces properly” on page 7
- “VSC cannot handle NFS datastores accessed with an IP alias” on page 7
- “VSC does not support controller domain credentials” on page 8
- “VSC Storage Details unable to show data for nested NFS exports” on page 8

Updated `mbralign` usage guidelines and restrictions

The updated `mbralign` program included in the latest release corrects the issues in earlier versions.

The *Virtual Storage Console 2.1.1 for VMware vSphere Installation and Administration Guide* contains more information on `mbralign`.

All resources shown regardless of Inventory panel selection

The Monitoring and Host Configuration capability displays only those resources associated with the selection in the vSphere Client Inventory panel.

VSC incorrectly reports the controller's total free and used disk space when there is more than one aggregate

Virtual Storage Console for VMware vSphere (VSC) 2.0 and 2.01P1 might incorrectly calculate the total free and used disk space when there is more than one aggregate provisioned on a storage controller.

This issue is now fixed.

VSC discovery hangs when discovering ESX 4.1 hosts

VSC might hang when trying to discover ESX 4.1 hosts. The `wrapper.log` file contains messages similar to:

```
"java.lang.ClassNotFoundException:  
com.vmware.vim25.ArrayOfHostFeatureVersionInfo..."
```

This issue is now fixed.

VSC - Cancel of discovery leaves the discovery 'in progress'

If a user cancels the VSC discovery while it is in progress, such as closing the vCenter Client during a discovery, it might leave the discovery in progress. In addition, any running Discovery tasks are stuck in progress as well.

This issue is now fixed.

VSC - Null Pointer Exceptions cause discovery to hang

2.0.x might crash, preventing the discovery from finishing. The wrapper.log file contains messages similar to:

```
'Exception in thread "pool-4-thread-5"  
java.lang.NullPointerException...'
```

This issue is now fixed.

VSC - Discovery failing due to several IOException errors

The VSC Credential wizard might fail when trying to enter the storage controller credentials in a high-latency network.

This issue is now fixed.

VSC does not discover private NFS network interfaces properly

VSC might not discover storage controllers that have only NFS exports on private networks. Usually the controllers are displayed in the controller credential wizard so that you can enter a public IP address that VSC can use to connect to the controllers, but a controller might not be displayed.

This issue is now fixed.

VSC cannot handle NFS datastores accessed with an IP alias

If multiple NFS datastores in a storage controller are mounted by ESX and each uses a unique IP alias, VSC does not display all datastores. At the end of discovery process, VSC reports only a single NFS datastore and discards all the others.

This issue is now fixed.

VSC does not support controller domain credentials

VSC does not support using domain credentials for entering the credentials during Controller Credential Wizard. You must use a local account on the storage controller for RBAC for VSC.

This issue is now fixed.

VSC Storage Details unable to show data for nested NFS exports

VSC does not support nested NFS exports. Datastores in "nested" NFS exports show as OFFLINE and show no volume details on the **Storage Details - NAS** panel.

This issue is now fixed.

Fixed issues: Provisioning and Cloning

Some known issues are fixed in the Provisioning and Cloning capability for use with this release of Virtual Storage Console.

- “Unable to create new datastore across mixed ESX 3.5 and 4.0 hosts”
- “Redeploy fails when source is on physical storage and destination resides within vFiler context” on page 9
- “Timeout error while adding storage controller” on page 9
- “Resize/destroy datastore fails in a vFiler using vFiler0” on page 9
- “Datastore provisioning fails with protocol error” on page 9

Unable to create new datastore across mixed ESX 3.5 and 4.0 hosts

When provisioning or cloning new NFS datastores across a datacenter or cluster containing a mix of ESX 3.5 and ESX 4 hosts, the wizard may not allow the datastore creation.

If any of the ESX 4 hosts in the datacenter or cluster has 32 or more NFS mounts, the wizard will not allow creation of any new NFS datastores.

This issue is fixed.

Redeploy fails when source is on physical storage and destination resides within vFiler context

If clones have been created from a source virtual machine on a physical storage system to a destination vFiler within the same physical storage system, the redeploy of those clones will fail.

This issue is fixed.

Timeout error while adding storage controller

Adding a controller to the Provisioning and Cloning capability using an IP address that cannot be resolved through reverse DNS lookup can fail.

The failure is due to a timeout issue during a reverse DNS lookup in the ManageONTAP SDK layer.

To prevent this error, ensure DNS is properly configured so that controllers can be pinged by name from the server. Then add the controllers to the Provisioning and Cloning capability using a DNSresolvable hostname, not an IP address.

This issue is fixed.

Resize/destroy datastore fails in a vFiler using vFiler0

When resizing or destroying datastores that exist within a vFiler, the operation may report that the physical storage system (vFiler0) is actually a vFiler. This prevents the operation from completing successfully.

Workaround: Remove the physical storage system from the list of controllers managed by the Provisioning and Cloning capability, and add the vFiler. Then initiate the resize or destroy operation again.

This issue is fixed.

Datastore provisioning fails with protocol error

When using vSphere 4.1, datastore provisioning can fail if VMware Distributed Power Management has powered down the servers.

This issue is fixed.

Fixed issues: Backup and Recovery

Some known issues are fixed in the Backup and Recovery capability for use with this release of Virtual Storage Console.

- “VSC 2.1 services do not start in some Windows Server 2008 environments”
- “Backup and restore jobs fail due to list rules error ”
- “VSC 2.x performance degradation occurs in large VMware environments” on page 11
- “Unable to create a restore session for a virtual machine that is located inside a folder ” on page 11
- “Restore session not deleted when session expires” on page 11
- “Backup and Recovery fails to delete correct Snapshot copy” on page 12
- “Backup and Recovery incorrectly deletes most recent Snapshot copy” on page 12
- “Restore session fails to complete successfully” on page 12

VSC 2.1 services do not start in some Windows Server 2008 environments

VSC 2.1 services fail to run in some Windows 2008 environments due to an issue with Java Service Wrapper 3.4.1.

As a result, the vSphere Plugin Framework and SnapManager services do not start successfully. The root cause is a problem in Java Service Wrapper 3.4.1. This problem has been resolved in versions 3.5.5 and later of the Java Service Wrapper.

This issue is now fixed.

Backup and restore jobs fail due to list rules error

Backup and restore operations may fail with the error:

Current rules require calling a different version of nfs-exportfs-listrules

You can use multiple security rules for NFS exports from Data ONTAP 7.0. However, when NFS exports on a storage system require multiple security rules, you must use a different version of NFS APIs to access and modify the export rules. SnapManager for Virtual Infrastructure does not use that version of the APIs. As a result the backup and restore operations may fail unless you use a single security rule for all NFS exports on the storage system.

This issue is now fixed.

VSC 2.x performance degradation occurs in large VMware environments

Large VMware environments can affect VSC 2.1 performance.

During a backup operation, VSC attempts to verify whether a datacenter is involved in the backup. If VSC is backing up a datacenter, it attempts to include all datastores of the datacenter in the backup. As part of this, VSC has to query each individual datastore contained by the datacenter one by one. This can adversely affect performance in environments with large number of datastores.

This issue is now fixed.

Unable to create a restore session for a virtual machine that is located inside a folder

If you have a folder in your vCenter Server inventory that contains a virtual machine, you cannot create a restore session that attaches a disk from a backup to that virtual machine.

This issue is now fixed.

Restore session not deleted when session expires

When a restore session is not deleted when the session expires, all backup jobs stop running.

Workaround: You can continue to run scheduled backup jobs.

To continue running backup jobs, complete the following steps:

1. Verify that your restore sessions are clean.
 - a. Stop the SnapManager for Virtual Infrastructure service.
 - b. Go to smvi installation directory/server/repository.
 - c. Edit the sfrMounts.xml file to remove the sfr mount corresponding to the session.
 - d. Edit the fileRestoreKeys.xml file to remove the corresponding keys.
2. Restart the SnapManager for Virtual Infrastructure service.

This issue is now fixed.

Backup and Recovery fails to delete correct Snapshot copy

When a backup with an incorrect name for a Snapshot copy is deleted, the Backup and Recovery capability deletes the wrong Snapshot copy and does not delete a different Snapshot copy that should be deleted. The backup operation fails because it does not have a recent Snapshot copy.

This issue is now fixed.

Backup and Recovery incorrectly deletes most recent Snapshot copy

The Backup and Recovery capability deletes the most recent backup Snapshot copy instead of the oldest Snapshot copy.

This issue is now fixed.

Restore session fails to complete successfully

During a restore of a virtual machine, the operation results in an error:

FLOW-11019: Failure in NaStorageDestroyAction:
java.lang.NullPointerException

This issue is now fixed.

Virtual Storage Console limitations

This section lists the limitations that affects all capabilities of Virtual Storage Console.

Monitoring and Host Configuration limitations

There are some limitations in the Monitoring and Host Configuration capability.

- `mbralign` is not supported on Windows Server 2008

The `mbralign` program is not supported on Windows Server 2008. By default, Windows Server 2008 is configured with GPT and normally does not need to be aligned.

If you use `mbralign` with Windows Server 2008, errors might occur when you boot the disk.

Workaround: If you attempted to align a Windows Server 2008 using `mbralign`, you must restore the Windows 2008 VM by using the backup files that `mbralign` created. The `mbralign` program creates backup `*-flat.vmdk` and `*.vmdk` files in the same directory as the source `.vmdk` file.

- High-latency networks affect time required for rendering

High-latency networks take longer to render objects. The rendering time is also affected by the number of vSphere clients and whether these clients are on the same machine as the vCenter Server.

For example, suppose you want to load SAN details on 300 remote vSphere clients over a high latency network. This task can take several minutes.

Workaround: There is no workaround because this is normal behavior for high-latency networks.

Backup and Recovery limitations

There are some limitations in the Backup and Recovery capability.

- If Storage VMotion moves a virtual machine to a different datastore, the virtual machine can only be restored to the original datastore instead of the datastore where it currently resides.
- It does not support initiating a multipath SnapMirror configuration from a backup.

The Backup and Recovery capability does support a single-path SnapMirror initiation from a backup. If you want to use a multipath SnapMirror configuration along with Backup and Recovery, you must ensure that the

SnapMirror process occurs on a frequent schedule and is triggered from the storage system rather than from within Backup and Recovery through the SnapMirror job option.

- It does not back up traditional volumes; it only backs up FlexVol volumes.
- It does not support restoration of a virtual machine to an alternate datastore that was not the virtual machine's container at the time of backup.
- It does not restore the components of virtual machines that are present on other VMFS datastores when restoring a datastore using the GUI.

These virtual machines can be fully restored by providing the ESX host details in the CLI when restoring a datastore or a virtual machine using the GUI or the CLI.

- It does not restore a datastore that has been removed from the vCenter Server after backup.
- It does not support the mounting of NFS datastores on volumes exported with the actual option.
- It does not support multiple vCenter Servers simultaneously.
- It does not support datastores spanning more than one volume.
- It does not support qtree SnapMirror updates. The Backup and Recovery capability supports only volume-based SnapMirror updates.
- It does not support VMFS datastores created with two or more LUN extents.
- It cannot run on shared storage.
- A mount operation for a VMFS datastore might take several minutes because VMFS scans for a new cloned LUN.
- It cannot take VMware snapshots of Windows virtual machines that have iSCSI LUNs connected through Microsoft iSCSI Software Initiator, or RDM LUNs. You can back up such virtual machines without selecting the Perform VMware consistency snapshot option. However, RDMs are not backed up and are not recoverable from these backups. For more information, see VMware knowledge base article 1009073 *Unable to take a quiesced VMware snapshot of a virtual machine* at the following link:
kb.vmware.com/kb/1009073

In addition to the limitations that affect the Backup and Recovery capability, there are also limitations that affect the Restore Agent, which works with the Backup and Recovery capability during the restore process. These limitations include the following:

- It does not support the mounting of GPT partitioned disks on Windows XP.
- It does not support dynamic disks.
- It does not support IDE controllers.

Known issues

You need to be aware of the known issues and workarounds for each of the Virtual Storage Console capabilities so that you can use the product more effectively.

- “Known issues with all capabilities”
- “Known issues with Monitoring and Host Configuration” on page 18
- “Known issues with Provisioning and Cloning” on page 26
- “Known issues with Backup and Recovery” on page 36

Known issues with all capabilities

Some issues affect all of the Virtual Storage Console capabilities.

- “Error message "permission denied" when accessing the vSphere Client”
- “Clicking several links concurrently in the navigation pane results in an error” on page 16
- “Error message "A script on this page is causing Internet Explorer to run slowly...” on page 16
- “vSphere Client displays multiple IBM N series icons in Linked Mode” on page 16
- “JRE version vulnerable to security issues” on page 16
- “Installation wizard appears to hang during uninstall” on page 17
- “Security certificate warnings displayed” on page 17
- “Problem occurs when starting the vSphere Client if Virtual Storage Console server is unavailable” on page 17

Error message "permission denied" when accessing the vSphere Client

After installing Virtual Storage Console, you might see the "permission denied" message when you launch the vSphere Client to access VSC because of the proxy configuration in Internet Explorer.

Workaround: Disabling the Internet Explorer proxy configuration enables access to VSC using the vSphere Client.

To turn off the proxy settings, do the following steps:

1. Close any vSphere Clients that are open.
2. Navigate to the Control Panel.

3. Click **Internet Options** and select the **Connections** tab.
4. Click **LAN Settings**.
5. Clear all the check boxes and click **OK**. After you disable the proxy settings, launch the vSphere Client and click the **IBM** tab to verify that the error message does not appear.

Clicking several links concurrently in the navigation pane results in an error

If you click several links concurrently in the vSphere Client navigation pane, access to items in the pane might fail with the following error message:

An error has occurred in the script on this page

Workaround: If this error message appears, restart the vSphere Client. To avoid this problem, click another link in the navigation pane only after the current panel appears.

Error message "A script on this page is causing Internet Explorer to run slowly..."

You might see this message if VSC takes too long to complete an operation. You can adjust your Internet Explorer settings to avoid this message.

This message does not indicate a problem with VSC other than a script taking longer to run than the timeout setting in Internet Explorer.

For instructions on adjusting the Internet Explorer timeout setting, see Microsoft Knowledgebase article 175500.

vSphere Client displays multiple IBM N series icons in Linked Mode

When you join multiple vCenter Servers using Linked Mode, an IBM N series icon appears for each instance of the Virtual Storage Console.

Workaround: Double-click the vCenter Server to which you are connected to identify which icon to click.

JRE version vulnerable to security issues

Virtual Storage Console includes the Java Runtime Environment (JRE) 1.6.0_18, a component of the Oracle Java SE and Java for Business applications. This version of the JRE might be vulnerable to security issues.

Workaround: You must upgrade to JRE 1.6.0_24 or later by downloading a patch from the Oracle site.

Installation wizard appears to hang during uninstall

When uninstalling the Virtual Storage Console software, the installation wizard appears to hang with one second remaining. This might occur because a dialog box in the background prompts you to remove all files related to Virtual Storage Console.

Workaround: Click on the dialog box in the task bar to bring it to the foreground and click **Yes** or **No** on the confirmation prompt to complete the uninstallation of the Virtual Storage Console software.

Problem occurs when starting the vSphere Client if Virtual Storage Console server is unavailable

If the Virtual Storage Console server is unavailable when starting the vSphere Client, the IBM N series icon does not get displayed.

Workaround: Restart the vSphere Client when the Virtual Storage Console server is available.

Security certificate warnings displayed

Depending on your web browser and security configuration, you might see security certificate warnings displayed when installing and using VSC.

VSC uses self-signed SSL certificates. You might see warnings similar to the following:

The security certificate presented by this website was not issued by a trusted certificate authority.

You can safely ignore these warnings and proceed to the requested program or web page.

You can also add self-signed certificates or a certificate signed by a Certificate Authority

Known issues with Monitoring and Host Configuration

Some unexpected and potentially undesired behaviors, as well as, in some cases, workarounds to avoid these behaviors, are identified in this release.

- “ALUA Capable field displays incorrect status”
- “mbralign fails to align on Windows Server 2003 64-bit systems” on page 19
- “mbralign for ESXi takes a long time to align files” on page 19
- “VM does not boot after running mbralign” on page 19
- “Data collection fails with “unknown error” on Windows Server 2008 systems” on page 20
- “Storage Details - SAN panel has no details” on page 20
- “MPIO Settings still shows Alert icon after running Set Recommend Values” on page 21
- “ESX 3.5 hosts are listed but settings are not modified” on page 21
- “Storage configuration updates not displayed by Monitoring and Host Configuration” on page 21
- “Windows cluster disk reservation lost after faults in ALUA configuration” on page 22
- “Windows guest OS might crash during storage faults because of virtual memory use” on page 22
- “Guest I/O failure during storage faults” on page 23
- “ESX with Windows Server 2003 MSCS guest uses partner path after controller giveback” on page 23
- “ESX/ESXi 4 in an FC or FCoE configuration with ALUA might show all dead paths for some LUNs after a controller fault” on page 24
- “Virtual machine disk I/O throughput can drop without sufficient physical memory” on page 24
- “Cisco 10 Gb network or FCoE switch port in error disabled state” on page 25
- “ALUA requires Data ONTAP 7.3.1 or later” on page 25
- “vSphere Client shows inactive datastores for ESX 4.1 hosts” on page 26
- “Host discovery fails when VMware DPM powers down servers” on page 26

ALUA Capable field displays incorrect status

The **ALUA Capable** field in the **SAN Storage Controllers** panel of the **Monitoring and Host Configuration** tab incorrectly reports the ALUA status. If ALUA is enabled, the field shows the value as **Disabled**. If ALUA is disabled, the field shows the value as **Enabled**.

Workaround: There is no workaround at this time.

mbralign fails to align on Windows Server 2003 64-bit systems

The `mbralign` program cannot align files on Windows Server 2003 64-bit versions. The program does not work with the NTFS 64-bit boot sectors.

Workaround: You can restore the Windows Server 2003 64-bit VM by using the backup file that the `mbralign` program created.

mbralign for ESXi takes a long time to align files

The `mbralign` program for ESXi can take a much longer time to align files than the `mbralign` program used with the ESX Host Utilities 5.2.1.

This happens because the `mbralign` program runs in the technical support console of ESXi, which is a busybox console. As a result, the number of resources available for the application are reduced. The limited amount of memory causes an increase in the amount of time it takes to align the VMDK files.

Workaround: There is no workaround at this time because currently there is no way to increase the amount of memory in the technical support console of ESXi.

VM does not boot after running mbralign

In certain situations, a virtual machine might not boot after running the `mbralign` program. You can revert to the backup VMDK files saved by `mbralign`.

There are several problems that can prevent a VM from booting after running the `mbralign` program. The workaround, however, is the same: revert to the backup VMDK files saved by the `mbralign` program.

Avoid the following situations when running the `mbralign` program:

- Do not run `mbralign` for a VM when the VM is powered on.
- Do not run `mbralign` on SLES 11 guests.
- Do not use the `--force` option when running the `mbralign` program on Windows 7, Windows Server 2008, or Windows Server 2008 R2 guests.

Data collection fails with "unknown error" on Windows Server 2008 systems

When running the data collection programs with VSC installed on a Windows Server 2008 system or Windows Server 2008 R2 system, you get the following error message.

unknown error has occurred please see logs for details

The VSC service typically runs under the Local System account. For Windows Server 2008 and Windows Server 2008 R2, the Windows security features prevent the data collection programs from running correctly under the Local System account.

Workaround: If you receive the preceding error message when running the data collection programs, the workaround is to configure the VSC service to run using an Administrator account.

In the Windows Server 2008 or Windows Server 2008 R2 Services application, change the Log On properties of the VSC service to run as an Administrator account instead of the Local System account.

Storage Details - SAN panel has no details

The **Storage Details - SAN** panel in the Monitoring and Host Configuration capability displays no details. The status of one or more storage controllers on the **Overview** panel is Unmanaged.

The storage controller must be running a minimum version of Data ONTAP software that supports interfaces needed by the SAN functionality of Monitoring and Host Configuration capability. Earlier versions of Data ONTAP software do not have these interfaces, and Monitoring and Host Configuration cannot discover SAN resources. However, the controller itself is discovered by Monitoring and Host Configuration capability.

If all controllers are unmanaged (not running the minimum Data ONTAP version), then the **Storage Details - SAN** panel displays nothing. When a controller is unmanaged, neither SAN nor NAS details for that controller are available.

The NAS functionality of the Monitoring and Host Configuration capability can work with earlier versions of Data ONTAP software. It is possible for NAS details to be displayed when SAN details cannot be displayed.

Check the IBM N series interoperability matrix on IBM N series support web site (accessed and navigated as described in “Websites” on page 51) for the

supported versions of Data ONTAP software. At the time these *Release Notes* were published, Data ONTAP 7.3.1.1 or later was required for SAN functionality.

MPIO Settings still shows Alert icon after running Set Recommended Values

After running **Set Recommended Values**, the MPIO Settings column for an ESX host on the Monitoring and Host Configuration capability **Overview** panel might still show an Alert icon.

If a storage controller is skipped during discovery, the Monitoring and Host Configuration capability is unable to set the MPIO settings for the paths to that controller. The **Alert** icon continues to be displayed after running **Set Recommended Values**.

Workaround: You can check the **Discovery Status** panel to see if you have any skipped controllers. If you have a skipped controller, right-click the controller and select **Modify Credentials**. Clear the **Skipped** check box and enter credentials for the controller. Run an Update, and then run **Set Recommended Values** again.

ESX 3.5 hosts are listed but settings are not modified

The Monitoring and Host Configuration capability lists ESX 3.5 hosts and displays storage details for their mapped LUNs and NFS datastores. However, Monitoring and Host Configuration cannot modify any settings for ESX 3.5 hosts.

If you try modify the settings for an ESX 3.5 host, the Monitoring and Host Configuration capability displays the following error message.

You have selected one or more hosts that VSC is unable to set the recommended values for. Please see the Installation and Administration Guide for more information.

This message is also displayed if you select and try to modify multiple hosts and one or more of the selected hosts is running a version of ESX earlier than 4.0.

Storage configuration updates not displayed by Monitoring and Host Configuration

When you add or remove storage resources, such as LUNs or NFS exports, the changes are not immediately displayed by the Monitoring and Host Configuration capability.

The Monitoring and Host Configuration capability gets its configuration information from the vCenter Server. You must first rescan the storage adapters for the ESX host to discover changes. Then you select **Update** on the Monitoring and Host Configuration capability **Overview** panel to discover the new resources.

Windows cluster disk reservation lost after faults in ALUA configuration

A Windows cluster (Windows Server 2003 MSCS or Windows Server 2008 failover cluster) running as guests on ESX 4.0 reports disk reservations lost. The cluster service is unavailable and delayed write errors might be reported. The LUNs used by the cluster have ALUA enabled.

This problem can occur with all ESX path selection policies.

When using ESX guest operating systems in a Windows cluster configuration, disable ALUA on the LUNs and use the FIXED path selection policy.

Windows guest OS might crash during storage faults because of virtual memory use

Windows guest operating systems on ESX 3.5 and ESX 4.0 servers might crash during a storage fault due to a kernel in page stack error because the virtual memory on a SAN disk is temporarily unavailable.

The Windows event log might contain errors similar to the following:

Event ID: 51

Event Type: Warning

Event Source: Disk

Description: An error was detected on device \\Device\\Harddisk0\\DR0 during a paging operation.

Event ID: 9

Source: %HBA_DRIVER_NAME%

Description: The device, \\Device\\ScsiPort0, did not respond within the timeout period.

Possible workarounds include:

- Allocating sufficient physical memory to the guests.
- Placing the pagefile on local disk.
- Minimizing the virtual memory size on the Windows guests where possible to minimize its usage.

Note that having the pagefile on local disk does not allow vMotion of the guest to work properly, because vMotion requires a shared disk.

Guest I/O failure during storage faults

A guest OS on ESX 3.5 might have I/O failures during storage faults because storage commands that receive a Task Set Full status are immediately retried without delay.

The workaround is to enable the LUN queue depth adaptive throttle to limit the number of commands sent to the LUN when it experiences a Task Set Full condition.

The LUN queue depth adaptive throttle is available in ESX 3.5 update 4 and later.

You can configure the throttle using the appropriate GUI client for your version of ESX. Open the **Configuration** tab for the ESX host and select **Software > Advanced Settings**. In the **Disk** settings, set the following values:

- Disk.QFullSampleSize 32
- Disk.QFullThreshold 8

If you use the throttle for one host, you must use it for all hosts in the environment. This prevents I/O from hosts without throttle enabled from getting all of the storage I/O. If you have a mixed environment with ESX 4.0 and ESX 3.5 hosts, be sure to upgrade all ESX 3.5 hosts to 3.5 Update 4 and enable the throttle.

For more information about the LUN queue depth adaptive throttle, see VMware knowledge base article 1010922 Controlling LUN queue depth throttling in VMware ESX 3.5 Update 4

ESX with Windows Server 2003 MSCS guest uses partner path after controller giveback

After controller giveback, the I/O path to a LUN used by a Windows Server 2003 MSCS guest continues to use a partner (proxy) path. The controller issues partner path misconfigured message, and performance might be degraded.

This issue occurs in a VMware ESX configuration with two Windows Server 2003 MSCS guests clustered across physical ESX hosts accessing shared disk resources from a LUN on an HA pair. Before the issue occurs, one controller successfully fails over to its partner. However, after controller giveback, the I/O path to the LUN continues to use a partner path. This issue occurs only when the controller that normally owns the LUN is the controller that failed over.

During controller failover, all I/O to the failed controller switches to the partner controller. After giveback, the I/O should return to the original path through the original controller. If the I/O continues through the partner controller, the routing is less efficient. The storage controller issues messages saying the partner path is misconfigured to notify you that I/O is using a partner path.

In this MSCS configuration, ESX continues to use the partner path because that path has a SCSI reservation for the LUN. ESX uses the partner path to the LUN until the disk resource ownership is transitioned to the other VM or the current partner path becomes unavailable. The ESX host then selects a new path. By design, the ESX host returns to the initial preferred path that was specified for the LUN if it is available.

The workaround is to manually transition the disk resources to the ESX host where the other MSCS guest is located. The ESX host for that guest sends a SCSI RESERVE command to the disk, and ESX selects a local path to the LUN.

ESX/ESXi 4 in an FC or FCoE configuration with ALUA might show all dead paths for some LUNs after a controller fault

Running ESX 4 or ESXi 4 in an FC or FCoE configuration with ALUA, the ESX host might indicate that all paths to a LUN are dead after one of the storage controllers experiences a fault. This can happen in a High Availability configuration.

This issue can occur if the ESX path evaluation initiated after the fault happens before the controller's ALUA state transition is completed.

No action is needed. If there are valid physical paths to the LUN, the condition is cleared by either of the following events:

- Periodic path evaluation that happens every 300 seconds.
- An I/O is sent to the LUN.

Either event enables the host to determine the proper ALUA state and update the path state.

Virtual machine disk I/O throughput can drop without sufficient physical memory

VMware virtual machine disk I/O throughput can drop significantly when memory usage on other virtual machines increases. This issue occurs when physical memory is overcommitted and ESX must use memory reclamation and swapping.

ESX/ESXi memory management techniques allow memory over commitment on the host which works well on typical deployments where the virtual machines are lightly loaded. When the working set memory in all virtual machines combined plus the virtualization overhead exceeds the physical memory available on the host, ESX or ESXi uses memory reclamation and swapping to provide additional memory needed for the applications. This can impact the disk I/O performance.

When predictable disk I/O performance is needed and when the host does not have sufficient physical memory, the memory reclamation impact in a virtual machine can be limited by reserving sufficient memory for that virtual machine.

See the Managing Memory Resources chapter in the *vSphere Resource Management Guide* for additional information on memory virtualization and performance considerations.

Cisco 10 Gb network or FCoE switch port in error disabled state

After storage controller faults, the ports on a Cisco 10 Gb network or FCoE switch might go into error disabled (errdisable) state. The error disabled state is caused by too many flow control (pause) frames being sent to the port. You can configure your switch to automatically recover from this problem.

Cisco Ethernet switch ports respond to a large number of flow-control (pause) frames by disabling the port. This is intended to protect the switch from various failures and configuration problems. By default, after the port is disabled, it must be reenabled manually.

During storage controller faults, the number of flow-control frames sent to the switch can exceed the limit and cause the port to be disabled.

You can configure the switch to automatically recover the port from this state after a specified interval by using the following switch commands:

```
errdisable recovery cause pause-rate-limit  
errdisable recovery interval 30
```

For more information about the errdisable command, see the documentation for your Cisco switch.

ALUA requires Data ONTAP 7.3.1 or later

ALUA with ESX 4.0 and 4.1 is supported only with Data ONTAP 7.3.1 or later.

Enabling ALUA support on igroups used by ESX 4.0 hosts is recommended when you have a supported version of Data ONTAP. Do not enable ALUA with earlier versions of Data ONTAP or with ESX 3.5 hosts.

vSphere Client shows inactive datastores for ESX 4.1 hosts

After a storage fault, the vSphere Client might show one or more datastores for an ESX 4.1 host as inactive. VMware features that require the datastore to be active are not available.

Features including VMware vMotion, VMware High Availability, VMware Distributed Resource Scheduler, and VMware Fault Tolerance are not available when the datastore status is inactive.

The workaround is to rescan the storage adapters by selecting **Storage Adapters** on the **Configuration** tab in the vSphere Client and clicking **Rescan**. After the rescan, the vSphere Client shows the correct datastore status.

Host discovery fails when VMware DPM powers down servers

Monitoring and Host Configuration capability discovers only hosts that are connected and powered on.

If hosts are powered down by VMware Distributed Power Management, Monitoring and Host Configuration capability does not discover them. Be sure all hosts are powered on and not in standby before host discovery begins.

Known issues with Provisioning and Cloning

Some unexpected and potentially undesired behaviors, as well as, in some cases, workarounds to avoid these behaviors, are identified in this release.

- “Datastore remote replication fails when destination is a clustered ESX host that is disconnected” on page 27
- “Misalignment detection on iSCSI (VMFS) datastores does not work on vCenter 4.0 Update 2 ” on page 28
- “Datastore Remote Replication fails if source and destination aggregates are not the same bit type” on page 28
- “Fibre Channel datastore mount fails when using the same initiator in igroups on both cluster storage systems” on page 28
- “Fibre Channel datastore mount failure during Backup and Recovery mount and unmount processes” on page 29
- “VMware vSphere 5.0 datastore limits do not apply in mixed vSphere environments” on page 29

- “Qtree Redeploy limitations” on page 29
- “Cloning fails with move error in log” on page 29
- ““Clone operation in progress” error after canceling task” on page 30
- “Hardware compatibility error” on page 30
- “Do not use a qtree or volume with NTFS security style” on page 30
- “VM creation progress indicators do not match” on page 31
- “Storage controller data can take several seconds to load” on page 31
- “Canceled tasks are not deleted from Recent Tasks pane” on page 31
- “Misaligned VM file system impacts performance” on page 31
- “Datastore Destroy operation fails” on page 32
- “Performance is degraded when requesting large number of clones.” on page 32
- “Password in custom specification not accepted” on page 33
- “VMs are not created” on page 33
- “VMs remain after Destroy operation” on page 33
- “Cannot create datastore if aggregate space is insufficient” on page 33
- “No IP address found if VMkernel and storage systems not in same network” on page 33
- “Multiple IPs are used on storage system” on page 34
- “Connectivity to storage controller is lost” on page 35
- “Redeploy fails on new virtual hard drive” on page 35
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- “Do not use e0M port” on page 35
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Datastore remote replication fails when destination is a clustered ESX host that is disconnected

If you select a clustered ESX host that is disconnected as the destination in the **Add Remote Datastore Replication** wizard, the task fails when attempting to mount the datastore.

Workaround: Reconnect the disconnected host, then use the Synchronize feature to complete the replication.

Misalignment detection on iSCSI (VMFS) datastores does not work on vCenter 4.0 Update 2

Misalignment detection not supported in vCenter 4.0 Update 2 but supported in vCenter 4.1 and 5.0.

Workaround: If you are running vCenter 4.0 Update 2, confirm that your iSCSI (VMFS) datastores are aligned prior to cloning operations.

Datastore Remote Replication fails if source and destination aggregates are not the same bit type

Datastore Remote Replication fails if you establish a relationship with a source datastore that resides in a 32-bit aggregate and a destination that resides in a 64-bit aggregate.

Replication also fails with a source datastore in a 64-bit aggregate and a destination in a 32-bit aggregate. The failure occurs because SnapMirror cannot establish a mirroring relationship between aggregates of different bit types.

Workaround: Select source and destination aggregates that are both 32-bit or both 64-bit.

Fibre Channel datastore mount fails when using the same initiator in igroups on both cluster storage systems

Mounting a datastore fails when you are using the FC protocol and the same initiator in igroups on both storage systems in a clustered pair. To avoid a potential problem in the event of a failover, Data ONTAP does not allow igroup sharing across clustered storage systems.

After you use an initiator in an igroup on storage system A, map the igroup to a LUN, and then log in to that LUN, you cannot use that same initiator in an igroup on storage system B. This restriction ensures that, if a failover occurs, the same LUN ID is not assigned to a different LUN.

Workaround: Do not attempt to mount a datastore to a clustered storage system if the datastore is associated with an initiator that is already mapped to a LUN on the other clustered storage system.

Fibre Channel datastore mount failure during Backup and Recovery mount and unmount processes

If you attempt to mount an FC datastore using the Provisioning and Cloning capability while a mount or unmount is in progress by the Backup and Recovery capability, the datastore mount might fail.

Workaround: Do not mount a datastore with the Provisioning and Cloning capability while performing a mount or unmount using the Backup and Recovery capability.

VMware vSphere 5.0 datastore limits do not apply in mixed vSphere environments

In mixed-version vSphere environments, the maximum VMFS datastore size and maximum number of NFS datastores revert to vSphere 4 limits.

Qtree Redeploy limitations

The Provisioning and Cloning capability does not support redeploying qtrees in certain cases.

The Redeploy feature is not supported in the following cases:

- On qtrees residing on vFiler volumes.
- From NTFS qtrees to mixed qtrees.

Cloning fails with move error in log

A cloning task might fail when the controller cannot resolve its host name, or when a controller resolves its host name to an IP address other than one it owns. In either case, the ndmpcopy operation fails.

When cloning fails, an error similar to the following error is logged:

```
ERROR com.IBM.rcu.server.jzapi.FilerUtil - Move of /vol/win7_64bit_test/
ntap_rcu1268850273837/.tmpNdmpDir/Win7_64bitflat.vmdk to /vol/win7_64bit_test/
ntap_rcu1268850273837/0000hd0000-flat.vmdk failed.
```

The following example shows a configuration where the IP address 10.61.177.220 was removed from this controller and the etc/hosts file was not updated. The etc/hosts file contains both IP addresses:

```
#Auto-generated by setup Thu Nov 19 15:47:12 GMT 2009
127.0.0.1 localhost 10.61.177.220 kc3140 <= (This is wrong)
10.61.177.221 kc3140-e0M
```

The output of ifconfig -a shows that only the 10.61.177.221 address is operational on this controller:

```
kc3140> ifconfig -a
e0M: flags=0x2948867 <UP,BROADCAST,RUNNING,MULTICAST,TCPCSUM> mtu 1500
inet 10.61.177.221 netmask 0xffffffff broadcast 10.61.177.255
ether 00:a0:98:0a:22:06 auto-100tx-fd-up) flowcontrol full
```

Workaround: Ensure that the controller can resolve its name to a valid IP address. In this example, map 10.61.177.221 to kc3140 as shown below:

```
#Auto-generated by setup Thu Nov 19 15:47:12 GMT 2009
127.0.0.1 localhost
10.61.177.221 kc3140
```

<= (This is right)

"Clone operation in progress" error after canceling task

After a clone operation is canceled and the canceled message is displayed in the Recent Tasks pane, a new clone operation request can result in an error.

If the Web service has not finished cleaning up the canceled task before a new request is made, the following error is displayed:

A clone operation is already in progress. Once it's completed, try again.

Workaround: Wait a few seconds after canceling a clone operation before starting a new one.

Hardware compatibility error

The destination ESX host, or the ESX hosts in the destination datacenter or cluster, are not checked for complete hardware compatibility prior to cloning. If the source and destination are not compatible, the cloning operation fails.

When a cloning operation fails due to hardware incompatibility, an error is logged. For example, a request to clone a source virtual machine with four vCPUs to an ESX host with only one physical CPU would result in the following error:

Virtual Machine requires 4 CPUs to operate, but the host hardware provides 1.

Workaround: Ensure that the destination hardware is compatible with the source before executing a cloning operation.

Do not use a qtree or volume with NTFS security style

The Provisioning and Cloning capability uses FlexClone technology at the file level to quickly create virtual machine clones. If the cloned files reside in a

qtree or volume with the NTFS security style, Data ONTAP might panic, causing that node to crash and failover to occur (if running a dual-node system).

Before using the Provisioning and Cloning capability, make sure that all volumes presented to the Virtual Infrastructure are using UNIX style security. For more information about qtree security styles, see the na_qtree man page.

VM creation progress indicators do not match

You can safely ignore the mismatch of progress indicators for virtual machine creation in vSphere Client panels.

Storage controller data can take several seconds to load

The fields in the **Specify Storage Controllers** screen can take several seconds to load.

The Provisioning and Cloning capability cross-references datastore and controller information while loading storage controller data. The delay varies depending on the sizes of the environment, the server running Virtual Storage Console, and the server running vCenter.

Canceled tasks are not deleted from Recent Tasks pane

Canceled Provisioning and Cloning tasks might remain displayed in the vSphere Client Recent Tasks pane indefinitely.

Workaround: Restart the Windows service to clear these tasks. From **Control Panel > Administrative Tools > Services**, right-click **VMware vCenter Server** and select **Restart**. Or, run the following commands from the command line:

```
net stop vpxd  
net start vpxd
```

Misaligned VM file system impacts performance

If the file system in the virtual machine is not properly aligned, a warning is displayed before the cloning operation begins. This allows you to correct the misalignment and avoid propagating the misalignment to the clones. Messages are also logged in the messages file on the controller and in the AutoSupport data.

Performance is significantly impacted by the block alignment of the virtual machine file system to the controller. The Provisioning and Cloning capability inspects the source vmdk file of any virtual machine that is cloned. The result

of this inspection is recorded in the log file. If the file system in the virtual machine is not properly aligned, the following message is logged:

Partition 1 of /vol/test/ntap_rcu1236650660984/0000hd0000-flat.vmdk

is NOT aligned. (LBA=63).

Partition *number* of *volume_path*-flat.vmdk is NOT aligned.

For more information on alignment issues, see the following VMware technical white papers, available in the ISV Solutions Resource Library, which is accessed and navigated as described in “Websites” on page 51

- Technical report: IBM System Storage N series and VMware Virtual Infrastructure 3 Storage - Best practices
- Technical report: Aligning file systems in virtual environments with IBM System Storage N series - Best practices
- Technical report: Storage Block Alignment with VMware Virtual Infrastructure and IBM System Storage N series - Correctly aligning LUNs and virtual disk files
- Technical report: VMware ESX Server 3.0 on IBM System Storage N series Best-practices backup case study

Datastore Destroy operation fails

During a datastore Destroy operation, if any host cannot disconnect the datastore, the operation fails.

Failure of the Destroy operation can be caused by a virtual machine being powered up after the Destroy process is initiated.

Workaround: Resolve the issue that caused the datastore disconnect to fail. Then perform the Destroy operation from the ESX host that cannot disconnect.

Performance is degraded when requesting large number of clones.

Cloning performance is affected by many factors, including vCenter Server hardware configuration, number and hardware configuration of the ESX hosts, and the current load on either or both.

Workaround: Performance can degrade if you request a very large number of clones in a single operation. If this occurs, reduce the number of clones requested per operation. For example, instead of requesting 2,000 clones, perform two operations of 1,000 clones each.

Password in custom specification not accepted

The password in a custom specification might not be applied. This occurs in Windows operating systems only.

Workaround: Power up the source virtual machine, set the password in the source virtual machine, and power it down. Then rerun the cloning request.

VMs are not created

During storage system takeover or giveback, virtual machine clone creation fails because the Provisioning and Cloning capability cannot communicate with the storage controller.

Workaround: Resubmit the cloning request when the takeover or giveback process is complete.

VMs remain after Destroy operation

After running the Destroy operation on a datastore, some of the VMs might still appear in the inventory tree.

Attempting to remove these destroyed VMs results in the following error message:

The request refers to an object that no longer exists or has never existed.

Workaround: Restart the vSphere Client.

Cannot create datastore if aggregate space is insufficient

Datastore creation ends in error if the aggregate does not have sufficient space.

If the space requested for a new datastore exceeds the available space on the aggregate, the following warning message is displayed:

Warning: aggr does not have sufficient space for the operation

Workaround: Cancel the operation and increase the space in the aggregate to accommodate the cloning operation. Then rerun the datastore create request.

No IP address found if VMkernel and storage systems not in same network

Provisioning and Cloning tasks might end in error if at least one VMkernel IP address and one storage system IP address are not in the same network.

If kernel and storage system IP addresses are not in the same network, the following error is logged:

Unable to continue. No ip addresses found when cross-referencing kernel ip addresses and addresses on the controller.

Unable to find a matching network to NFS mount volume to these hosts.

Workaround: Do one of the following:

- Make sure that at least one VMkernel IP address and one storage system IP address are in the same network.
- To allow mounting across all subnets or to specify allowed networks, use the following settings in the preferences file. These settings allow only the specified networks to map NFS datastores or iSCSI-based VMFS datastores, respectively:

```
default.allow.nfs.mount.networks  
default.allow.iscsi.mount.networks
```

In the following example, all NFS networks that share a common subnet can be used to mount datastores:

```
<entry key="default.allow.nfs.mount.networks" value="ALL"/>
```

In the following example, only the 192.168.51.0 and 10.11.0.0 networks can map iSCSI-based VMFS datastores:

```
<entry  
key="default.allow.iscsi.mount.networks"  
value="192.168.51.0;10.11.0.0"/  
>
```

The preferences file is stored by default in the following location:

c:\program files\IBM\virtual storage console\etc\kamino
\kaminoprefs.xml

Multiple IPs are used on storage system

Any matching network between the storage system and the ESX VMkernel is used to mount datastores.

To prevent a network from being used to mount datastores, use the setting default.restrict.mount.networks in the preferences file. This file is stored in the following location:

c:\program files\ibm\virtual storage console\etc\kamino\preferences.xml

In the following example, the networks 192.168.2.0 and 10.1.0.0 are ignored when determining the storage system IP address to use for the next datastore:

```
<entry key="default.restrict.mount.networks"  
value="192.168.2.0;10.1.0.0"/>
```

Connectivity to storage controller is lost

If connection to the storage controller is lost, Provisioning and Cloning tasks in progress will fail.

Workaround: Resolve the communication issue. No additional steps need to be taken in the application. The Provisioning and Cloning capability creates a new connection for each new task.

Redeploy fails on new virtual hard drive

If you attempt a redeploy operation after adding a new virtual hard drive to the source virtual machine rather than modifying the contents of the existing hard drives, the operation fails.

When a new virtual hard drive is added to the virtual machine source after clones are created, the new hard drive does not exist on the clones. Therefore, there is no destination datastore identified for the new hard drive and the Redeploy operation fails.

Workaround: After adding a new virtual hard drive to a source virtual machine, create new clones from the source rather than performing a Redeploy operation.

NFS error during redeploy

The redeploy operation fails if an ISO is mounted to the clones that are to be redeployed.

Workaround: Remove the ISO mapping and run the operation again.

Do not use e0M port

When adding storage controllers for use with the Provisioning and Cloning capability, do not select the e0M port when specifying interfaces to use on the storage controller.

Internet script error during redeploy

Occasionally an internet script error displays after clicking the Redeploy link.

Click **OK** on the error message and the procedure completes normally.

vFiler restrictions are ignored if physical storage system is added with root privileges

If a physical filer and its vFilers are added to the Provisioning and Cloning capability, any restrictions on the vfiler are ignored if the physical filer has root privileges.

For example, a user added in vFiler context without destroy capabilities could destroy datastores if the vFiler's physical filer was added with root privileges.

Workaround: To restrict access to a vFiler, only the vFiler, and not the physical filer, should be added to the Provisioning and Cloning capability.

Known issues with Backup and Recovery

Some unexpected and potentially undesired behaviors, and in some cases, workarounds to avoid these behaviors, are identified in this release.

- “Backup and Recovery will log a warning about a failing task during backup request” on page 37
- “Virtual machine is unresponsive during a backup” on page 37
- “Running a script during backup results in an error” on page 38
- “Backup and Recovery cannot verify whether the scripts ran successfully” on page 38
- “Attempting to delete the latest Snapshot copy results in an anomaly” on page 38
- “vCenter Server displays an error message that virtual machine has two VMDKs with same UUID” on page 38
- “Mounting more than 15 disks on virtual machine fails” on page 39
- “Automount is enabled by default” on page 39
- “Problem occurs during unmount of backup copy of datastore” on page 39
- “NFS mounts are restricted to eight by default” on page 39
- “Problems when performing a single file restore on virtual machines hosted on vSphere environment” on page 39
- “Unable to verify which disk is being restored” on page 40
- “Virtual machine is unresponsive during a backup that uses a VMware snapshot” on page 40
- “CLI times out during a backup” on page 40
- “Unable to download Restore Agent setup file using Internet Explorer on Windows 2003” on page 40
- “Unable to retrieve deleted backup in offline session of Restore Agent” on page 41

- “Backup and Recovery sometimes cannot see datastores from LUNs mapped to ALUA-enabled initiator groups” on page 41
- “vCenter Server cannot find targets for iSCSI LUNs” on page 41
- “Problem occurs during restore of virtual machine or datastore from a mounted backup on the same ESX server” on page 41
- “Unable to delete restore session even if source virtual machine has been deleted” on page 41
- “Virtual machine cannot power on after it is restored and added to the vCenter Server” on page 42
- “Datastore backup does not contain all virtual machine clones” on page 42
- “Cannot power on a virtual machine with VMware consistency snapshot” on page 42
- “Disconnecting the FC initiator used to mount a LUN clone from the ESX server results in the mounted backup being removed from the server” on page 42
- “Attaching a .sfr file using Outlook Web Access (OWA) might fail” on page 42
- “Deleting a nonexistent restore session results in an error” on page 43
- “Drive letters that are used for network mapped drives might be incorrectly displayed as available drive letters” on page 43
- “Notification e-mail for restore session contains an IPv6 address” on page 43
- “Restore session fails when using vFiler root volume” on page 44

Backup and Recovery will log a warning about a failing task during backup request

When performing a backup request, you may receive an email from Backup and Recovery about a failing task.

If the Backup and Recovery capability is unable to create vCenter tasks during a backup, you will receive a warning email even if the backup is completed successfully. This occurs when you schedule a backup and configure it to send emails when warnings or errors occur.

Although the email you receive will indicate a warning, the backup request actually succeeds. Your backup will not suffer from adverse affects due to this.

Virtual machine is unresponsive during a backup

When you back up a datastore of a powered-on virtual machine that is experiencing heavy I/O activity, the vCenter server might time out. During this time, the host might be disconnected from the vCenter server.

Check the performance of your storage system and make sure you have installed the latest VMware patches.

Running a script during backup results in an error

Running a script using perl script.pl in the Backup and Recovery capability user interface or CLI does not work for the Perl system command.

Workaround: You must remove the word Perl from the system command and specify script.pl in the script.

Backup and Recovery cannot verify whether the scripts ran successfully

If the path for Perl was not set up correctly, the Backup and Recovery capability might not be able to verify whether the Perl script ran successfully during pre- or post-backup phase.

Attempting to delete the latest Snapshot copy results in an anomaly

If the latest Snapshot copy with the _recent suffix is deleted from Backup and Recovery capability manually or by retention, no other Snapshot copy is renamed with the _recent suffix.

vCenter Server displays an error message that virtual machine has two VMDKs with same UUID

When using Restore Agent or the SnapManager for Virtual Infrastructure user interface and CLI to perform an offline disk attachment, you receive an error message about duplicate UUIDs.

Workaround: To allow duplicate UUIDs without a message appearing.

1. Use Restore Agent to mount a disk from a backup copy of the virtual machine.
2. After attaching the disk, launch vSphere Client.
3. Select a virtual machine in the vSphere Client.
4. Ensure that the VMware administrator does not need to reply to any questions in the vSphere Client.
5. You might need to click the first two tabs in the vSphere Client for the virtual machine.
6. Attach a disk from a backup copy of the virtual machine, using either the SnapManager for Virtual Infrastructure user interface or CLI.
7. Repeat Steps 2 through 6.

Mounting more than 15 disks on virtual machine fails

Each virtual machine can have up to four SCSI controllers, and each controller can hold up to 15 disks. If the virtual machine already has 15 disks on each controller, you cannot add more disks.

Workaround: Ensure that you have available SCSI IDs on the SCSI controllers that are currently attached to the virtual machine. You can add an additional controller if needed and the limitation has not been reached.

Automount is enabled by default

The Automount feature is enabled by default on Windows (XP, Vista, and Windows 7) operating systems, and the feature cannot be disabled. Windows automatically assigns a drive letter and mounts the disks. In offline mode, disks are mounted to a drive letter when they are attached to the virtual machine.

Problem occurs during unmount of backup copy of datastore

If the ESX server shuts down unexpectedly while the Backup and Recovery capability is attempting to delete a restore session and unmount a backup copy of a datastore from that server, the Backup and Recovery capability detects the failure and aborts the operation. It is assumed that the backup copy is still mounted on the ESX server. If the datastore was unmounted by the ESX server prior to the unexpected shutdown, this results in the Backup and Recovery capability maintaining information in the metadata that is no longer valid.

Workaround: You can contact technical support for assistance with resolving errors in the metadata file.

NFS mounts are restricted to eight by default

The default configuration allows for eight NFS mounts for each ESX host.

Workaround: You can use the Monitoring and Host Configuration capability to modify the NFS settings.

Problems when performing a single file restore on virtual machines hosted on vSphere environment

If you perform a single file restore on virtual machines hosted in a vSphere environment, the backup mount operation might fail because of virtual machine reconfiguration task errors. These issues are caused by underlying API failures. When the SnapManager for Virtual Infrastructure server detects

these errors, it reports an error for the self-service restore session and performs the necessary cleanup. For a limited self-service restore session, the single file restore operation aborts and the SnapManager for Virtual Infrastructure server performs the necessary cleanup.

Unable to verify which disk is being restored

During backup and restore of a virtual disk, the disk is identified by the name used in vCenter server (such as Hard Disk 1). There is no correlation in SnapManager for Virtual Infrastructure between this name and the drive letter used by the underlying virtual machine operating system.

Workaround: Before running a restore operation, mount the backup and manually verify that the disk corresponds to the drive to be restored.

Virtual machine is unresponsive during a backup that uses a VMware snapshot

Running a backup job that uses a VMware snapshot might result in the loss of remote desktop connectivity and the virtual machine being unresponsive until the backup is finished running.

Workaround: Run the backup job without using a VMware snapshot.

CLI times out during a backup

During a backup, if the SnapManager for Virtual Infrastructure server does not respond in a timely manner, the CLI times out and the following message appears:

Connection to SMVI server was refused. Ensure that the server is running.

Workaround: If the Backup and Recovery capability detects this error, make sure that the server is running and then perform the backup.

Unable to download Restore Agent setup file using Internet Explorer on Windows 2003

Using Internet Explorer on Windows 2003 to download the Restore Agent setup file might result in a message saying that Internet Explorer cannot download the file.

Workaround: You must modify the security settings for the Internet Explorer browser. For details, see the documentation for your version of the browser.

Unable to retrieve deleted backup in offline session of Restore Agent

You cannot retrieve deleted data from a backup mounted in an offline session of Restore Agent. For a limited self-service restore session, any changes you make to the disks in a backup remain until the restore session ends because the volume clone is removed only after the session expires and the disks are removed.

Workaround: You need to re-create or generate a new restore session and mount the backup again so that you can retrieve the deleted backup.

Backup and Recovery sometimes cannot see datastores from LUNs mapped to ALUA-enabled initiator groups

When you click Backup or Inventory in the Backup and Recovery GUI, some datastores might be missing. These datastores are from LUNs mapped to ALUA-enabled initiator groups.

Workaround: Rescan all HBAs from each ESX host and then reopen the Backup and Recovery.

vCenter Server cannot find targets for iSCSI LUNs

The Backup and Recovery capability cannot proceed without the target information because it is used to determine the target storage system.

Problem occurs during restore of virtual machine or datastore from a mounted backup on the same ESX server

When performing a restore of a virtual machine or datastore from a mounted backup on the same ESX server, a problem might occur during the Rename Datastore task.

The problem is a result of the restore operation using the same name for the new cloned datastore. You can ignore this error because the restore operation uses a unique ID instead of the display name for the datastore. During the restore operation, one or more datastores are tagged snap-x-y. These datastores are automatically deleted when the restore operation is complete.

Unable to delete restore session even if source virtual machine has been deleted

Using the force option fails to delete a restore session even if the source virtual machine has been deleted. The restore session is automatically removed when the session expires.

Virtual machine cannot power on after it is restored and added to the vCenter Server

When you restore a virtual machine from a backup and then add it to the vCenter Server, the virtual machine is not available in the vCenter Server inventory.

For more information, see VMware knowledge base article 1012333 vCenter Server stops responding after adding an ESX host to Inventory.

Datastore backup does not contain all virtual machine clones

After you run a backup of a datastore, the backup might not contain all virtual machine clones created after a successful completion of the backup.

Cannot power on a virtual machine with VMware consistency snapshot

When powering on a virtual machine after completing a successful backup, an error occurs that causes the VMware snapshot removal process to abort.

Guidelines for implementing virtual machines with VMware snapshots are not included in the Virtual Storage Console documentation.

For more information, see VMware knowledge base article 1007849 Consolidating snapshots.

Disconnecting the FC initiator used to mount a LUN clone from the ESX server results in the mounted backup being removed from the server

The Backup and Recovery capability does not allow you to specify which initiators (iSCSI or FC) you want to have a LUN mapped to. If you back up a datastore of an iSCSI-based LUN and then mount it on the host, the Backup and Recovery capability might use FC instead of iSCSI initiators. If you then remove the FC initiator from the storage system, the mounted backup is removed from the server.

Attaching a .sfr file using Outlook Web Access (OWA) might fail

A restore session configuration might not get downloaded correctly if it is attached as a .sfr file using Outlook Web Access (OWA). Check the Microsoft support site for more information about OWA server configuration or access the e-mail message using a non-OWA mailbox.

Deleting a nonexistent restore session results in an error

When you attempt to delete a nonexistent restore session using the name of a valid virtual machine or a virtual machine for which this session does not exist, an error message appears in the CLI output.

Drive letters that are used for network mapped drives might be incorrectly displayed as available drive letters

Drive letters that are used for network mapped drives might be displayed as available drive letters in Restore Agent of the Backup and Recovery capability because of a Microsoft API bug.

Notification e-mail for restore session contains an IPv6 address

When you create a restore session in SnapManager for Virtual Infrastructure, the notification e-mail for the restore session contains an IPv6 address for the virtual machine instead of an IPv4 address.

Workaround: You can prevent IPv6 addresses from appearing in the notification e-mail. You only need to complete this procedure once and the system generates the correct IPv4 addresses.

To avoid IPv6 addresses appearing in the notification e-mail for a restore session, complete the following steps:

1. Shut down the SnapManager for Virtual Infrastructure server (via Windows Services).
2. Open the `wrapper.conf` file. This file is stored in the following location:
`Virtual Storage Console\smvi\server\etc\wrapper.conf`
3. Locate the following section of the file.

```
# Java Additional Parameters
wrapper.java.additional.1=-XX:MaxPermSize=128m
wrapper.java.additional.2=-Dcom.sun.management.jmxremote
wrapper.java.additional.3=-Dcommon.dir=.
wrapper.java.additional.4=-Dorg.apache.cxf.Logger=org.apache.cxf.common.logging.Log4jLogger
```
4. Add the following to this section of the file.
`wrapper.java.additional.5=-Djava.net.preferIPv4Stack=true`
5. Start the SnapManager for Virtual Infrastructure server (via Windows Services) and verify the email notification for the restore session.

Restore session fails when using vFiler root volume

The restore operation for a virtual machine using the vFiler root volume results in the following error:

Storage system error: The vfiler root volume vol4041vf1 cannot have clones.

Workaround: Remove the FlexClone license or set `storage.provision.volumeCloneLun=false` in `smvi.override` and restart the SnapManager for Virtual Infrastructure server.

Documentation corrections

The Virtual Storage Console documentation might be updated between product releases. Any corrections appear in this section of the Release Notes.

- “Search criteria incorrect in Backup and Recovery Administration Guide”
- “Correction to upgrade information in VSC 2.1.1 Installation and Administration Guide”
- “VSC 2.1.1 administration guides contain references to OnCommand Plug-in for VMware” on page 46
- “Downloading and installing mbralign for ESXi hosts” on page 46
- “Corrections made to Backup and Recovery Administration Guide” on page 48
- “Correction to VSC 2.1.1 Provisioning and Cloning Administration Guide” on page 48

Search criteria incorrect in Backup and Recovery Administration Guide

The Virtual Storage Console 2.1.1 VMware vSphere Backup and Recovery Administration Guide incorrectly lists the backup search criteria.

Here is the correct information on search criteria:

Available criteria are the Backup Name, Entity Name, Time Stamp, Mounted, SFR active, or VMware Snapshot.

Virtual Storage Console 2.1.1 does **not** support the following search criteria: backup ID, dataset name, dataset description, node name (local or remote), or resource name.

Correction to upgrade information in VSC 2.1.1 Installation and Administration Guide

The Virtual Storage Console 2.1.1 for VMware vSphere Installation and Administration Guide states that Virtual Storage Console (VSC) 2.1.1 supports upgrades from "VSC 2.0 only." It should state that upgrades are supported from "VSC 2.0 or later."

Here is the correct information on upgrades:

VSC 2.1.1 supports upgrades from VSC 2.0 or later. The VSC installer does not support upgrades from versions of VSC prior to 2.0 or from standalone versions of RCU or SnapManager for Virtual Infrastructure (SMVI). If you have any of that software installed, you must uninstall it before you install VSC 2.1.1. If the VSC installer finds one of those versions of VSC, RCU, or SMVI on the server, it prompts you to uninstall the software. Then the installer aborts.

VSC 2.1.1 administration guides contain references to OnCommand Plug-in for VMware

The Virtual Storage Console (VSC) 2.1.1 administration guides incorrectly contain references to OnCommand Plug-in for VMware. These references do not apply to VSC 2.1.1 documentation and will be removed in the next release of VSC.

Here are examples of the incorrect references:

- The *Virtual Storage Console 2.1.1 Provisioning and Cloning Administration Guide* and the *Virtual Storage Console 2.1.1 Installation and Administration Guide* incorrectly state that you can use the Backup and Recovery capability to:
Perform policy-based backups of individual virtual machines, datastores, or a datacenter

This is an OnCommand Plug-in for VMware feature, not a VSC 2.1.1 feature. VSC 2.1.1 supports on-demand backups.

- There are several references in the text and in screenshots to *Legacy Backup and Recovery*. Those references and screen shots should refer to Backup and Recovery. The VSC Backup and Recovery capability is a current product, not a legacy product.

Downloading and installing `mbralign` for ESXi hosts

The 2.1.1 release of Virtual Storage Console includes `mbralign` for ESXi hosts as well as `mbralign` for ESX hosts. The *Virtual Storage Console 2.1.1 for VMware vSphere Installation and Administration Guide* contains combined `mbralign` installation instructions for ESX and ESXi hosts. To avoid confusion, this section provides instructions specific to ESXi hosts.

You must be able to open a console connection to the ESXi host.

The MBR tools must be installed and run directly on the ESXi host. You cannot run these tools from the vSphere Client, vCenter Server, or Virtual Storage Console server.

1. Open the vSphere Client and log into your vCenter Server.
2. Select a Datacenter in the **Inventory** panel, and then select the **IBM N series** tab.

3. In the Monitoring and Host Configuration capability, select the **Tools** panel.
4. Under **MBR Tools**, click the **Download (For ESXi 4.x and ESXi 5.0)** button.

Make sure you download the MBR Tools for ESXi. If you download the wrong MBR tools file, the tools will **not** work.

5. When the File Download dialog is displayed, click **Save**.
6. **(ESXi 4.x)** If you are using ESXi 4.x, manually enable the ESXi shell and SSH so that you can use the `scp` command to copy the files to the correct directories if needed.

ESXi 4.x does not enable the ESXi shell and SSH by default. You can enable these options from the physical host or from the vCenter. The following steps enable these options from the vCenter.

Note: The vCenter creates a configuration alert for each ESXi host that has the options enabled.

To enable the ESXi shell, perform the following steps:

- a. From the vCenter, highlight the appropriate ESXi host.
- b. Go to the **Configuration** tab.
- c. In the left pane under **Software**, select **Security Profile**.
- d. Select **Properties** from the **Services** pane.
- e. Highlight the **ESXi Shell** service and select **Options**.
- f. Select **Start and Stop with Host**.
- g. Click **Start**.

To enable the ESXi SSH, perform the following steps:

- a. From the vCenter, highlight the appropriate ESXi host.
- b. Go to the **Configuration** tab.
- c. In the left pane under **Software**, select **Security Profile**.
- d. Select **Properties** from the **Services** pane.
- e. Highlight the **SSH** service and select **Options**.
- f. Select **Start and Stop with Host**.
- g. Click **Start**.

7. Copy the MBR tools file to the root (/) directory of the ESXi host. If you are using ESXi 4.x, use the Troubleshooting Console. If you are using ESXi 5.x, use the Technical Service Console.

You might need to open ESXi firewall ports to enable copying the tools to the host.

Note: The MBR tools libraries must be located in specific directories on the host. Be sure to download the file to the root directory of the ESXi host.

8. Extract the files by entering the following command:

```
tar -zxf mbrtools_esxi.tgz
```

If you did not download the file to the root directory, you must manually move the files to that directory.

Note: ESXi does not support -P with the tar command.

9. Run the `mbralign` tool to check and fix the partition alignment.

Corrections made to Backup and Recovery Administration Guide

An issue occurred while the *Virtual Storage Console 2.1 Backup and Recovery Administration Guide* was being prepared for publication that caused some user instructions and other information to be missing.

The publication error is fixed in the *Virtual Storage Console 2.1 Backup and Recovery Administration Guide*.

If you are using the Backup and Recovery capability, make sure that you use the 2.1.1 documentation.

Correction to VSC 2.1.1 Provisioning and Cloning Administration Guide

Appendix B of the *Virtual Storage Console 2.1.1 Provisioning and Cloning Administration Guide* refers to the API variable `aggrOrVolName` as the container name for new datastores. This variable has been changed to `containerName`, to support NFS aggregates, VMFS volumes, and Provisioning Manager storage services.

The variable `aggrOrVolName` appears on the following pages and should read `containerName`:

- page 94
- page 95 (two occurrences)
- page 96 (three occurrences)
- page 97

Where to find product documentation and other information

There are additional sources of information for this release of Virtual Storage Console.

The following table describes where to find additional information about Virtual Storage Console.

To learn about...	Go to this information source...
New and changed features, fixed issues, limitations, known issues, and documentation corrections	<i>Virtual Storage Console Release Notes</i>
How to download and install Virtual Storage Console	<i>Virtual Storage Console Installation and Administration Guide</i>
How to discover and add storage resources in Virtual Storage Console	<i>Virtual Storage Console Installation and Administration Guide</i>
How to collect Virtual Storage Console log files	<i>Virtual Storage Console Installation and Administration Guide</i>
How to clone a virtual machine	<i>Virtual Storage Console Provisioning and Cloning Administration Guide</i>
How to add storage systems in Backup and Recovery	<i>Virtual Storage Console Backup and Recovery Administration Guide</i>
How to back up a virtual machine or datastore in Backup and Recovery	<i>Virtual Storage Console Backup and Recovery Administration Guide</i>
How to find troubleshooting information	<i>Virtual Storage Console Installation and Administration Guide</i> and <i>Virtual Storage Console Provisioning and Cloning Administration Guide</i>
How to find preference files, logs, and export files	<i>Virtual Storage Console Provisioning and Cloning Administration Guide</i>
How to find programmable APIs	<i>Virtual Storage Console Provisioning and Cloning Administration Guide</i>
Virtual Storage Console GUI	Virtual Storage Console online Help
Backup and Recovery GUI	Backup and Recovery online Help

Websites

IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. The following web pages provide N series information:

- A listing of currently available N series products and features can be found at the following web page:
www.ibm.com/storage/nas
- The IBM System Storage N series support website requires users to register in order to obtain access to N series support content on the web. To understand how the N series support web content is organized and navigated, and to access the N series support website, refer to the following publicly accessible web page:
www.ibm.com/storage/support/nseries/
This web page also provides links to AutoSupport information as well as other important N series product resources.
- IBM System Storage N series products attach to a variety of servers and operating systems. To determine the latest supported attachments, go to the IBM N series interoperability matrix at the following web page:
www.ibm.com/systems/storage/network/interophome.html
- For the latest N series hardware product documentation, including planning, installation and setup, and hardware monitoring, service and diagnostics, see the IBM N series Information Center at the following web page:
<http://publib.boulder.ibm.com/infocenter/nasinfo/nseries/index.jsp>
- See the Independent software vendors (ISV) Solutions Resource Library and VMware content at the following web page:
www-03.ibm.com/systems/storage/solutions/isv/isv_vmware.html

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