



Infinio Accelerator

Release Notes

Infinio Accelerator

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Release Notes for Infinio™ Accelerator® 3.5.0

These *Release Notes* describe known problems and constraints that apply to Infinio™ Accelerator®, 3.5.0, which has the following build identifiers:

- Build version: 3.5.0-15079
- I/O Filter version: 3.5.0.2271

You can obtain information about component versions in the Management Console UI, including a Filter Diagnostic report that includes the I/O Filter ID string.

See the *Installation and Upgrade Guide* for information about installing the Infinio Management Console VM and the Infinio I/O Filter.

See the *Operations Guide* for information that describes Accelerator product features and explains how to use Infinio Accelerator.

Obtaining Technical Support

If you cannot resolve a problem after viewing the release note information, contact [Infinio Support](#).

If you are experiencing datastore outages or other critical issues and need immediate assistance, contact the support line at **617-374-6500**. You can also send email to support@infino.com.

ESXi Required Patch Levels

This release of Accelerator supports only 6.0 Update 2 or later releases. To correct a known VMware problem, you must apply the following patch:

- ESXi 6.0 Express Patch 6 build 3825889

(Or any subsequent patch that superseded this patch.)

Without this patch there is a risk that creating or deleting an accelerated VM snapshot might cause data inconsistencies in the related VMDK.

If any ESXi hosts in your environment do not contain the correct patch level, Accelerator detects the non-compliant host, giving you the opportunity to install the required VMware patch level before you set up the cluster.

It is strongly advised to upgrade ESXi in production environments.

Changes in this Release

Version 3.5

Feature Improvements

The following feature improvements are included in this release:

- Improved the cache algorithm to enable Accelerator to more effectively target select VMDKs and to dynamically adjust this resource targeting based on changing environmental conditions in order to ensure overall maximum performance.
- Substantially improved the performance of SSD-based caches by overhauling how Accelerator reads and writes to the device.
- Added information about license usage to the Management Console's settings page.
- Updated the Management Console with the latest set of security patches.
- Significant Management Console scale improvements.

Problems Resolved

Installation and Configuration

The following potential installation problems are resolved in this release:

- Resolved an issue where the networking configuration could be reset when adding a static route.
- Fixed an issue when validating license compliance during I/O Filter installation.
- Fixed a minor issue with setting the Management Console's DNS hostname.

Management Console User Interface and VMware Integration

The following potential user interface problems are resolved in this release:

- Fixed a race condition in the vCenter scanning engine.
- Fixed an issue with displaying some properties of a custom SSL certificate in the Management Console's settings view.
- Addressed an issue where some button actions might temporarily not work.
- Resolved a problem where tooltips might flicker or disappear.
- General support bundle collection improvements.
- General stability improvements.

I/O Filter Management

The following potential I/O Filter management problems are resolved in this release:

- Fixed an issue where very large, very active, cached VMDKs could cause the cache to page stored addresses to a secondary data structure and later fail to retrieve them properly, resulting in an artificial cache miss.

- Addressed an issue where in certain cases cache hit rates could degrade over time.
- Fixed an issue where the I/O Filter could crash during uninstallation.

Additional Items

The following additional items are relevant to this release:

- Upgrading Accelerator from versions before 3.4.0 may result in the loss of the cache statistics.

Problems and Resolutions Identified for this Release

The following problems are identified for this release. Where available, a resolution or work-around is provided.

Cache Statistics Missing After Upgrading Accelerator

Problem

After upgrading Accelerator the cache statistics are no longer displayed by the Management Console.

Description

Certain upgrades to the Management Console database will result in the deletion of existing stats entries.

Note, the Management Console is stateless with regards to IO Filter management and VM acceleration. There is no impact to caching or any risk associated with the deletion of these statistics.

Resolution

Unfortunately, upgrades where the cache statistics are deleted are occasionally necessary in order to deliver new features. This is one such occasion and there is no workaround.

Required VMware Hot Fix for UNMAP (Storage Space Reclamation)

Problem

Known problems with storage space reclamation (UNMAP) in vSphere 6.0 and vSphere 6.5 creates an Infinio Accelerator incompatibility when certain storage features are in use. Because of this, Accelerator will automatically modify its behavior for handling UNMAP commands.

- For ESXi 6.0 builds 3620759 through 4558694:
 - All versions of Accelerator 3.1 safely prevent UNMAP calls to the ESXi storage stack.
- For ESXi 6.0 build 4600944:
 - Accelerator 3.1.2 and prior versions have a known incompatibility with UNMAP calls in this build of ESXi. It is advised to upgrade to Accelerator 3.1.3 or a newer version.
 - Accelerator 3.1.3 and subsequent versions fully support UNMAP calls in this build of ESXi.
- For ESXi 6.5 build 4564106:
 - Accelerator 3.1.2 and prior versions are not compatible with vSphere 6.5.
 - Accelerator 3.1.3 and subsequent versions fully support UNMAP calls in this build of ESXi.

Description

The problem can occur in vSphere environments that include storage features that use UNMAP for storage space reclamation. For example, the *SEsparse* virtual disk format that is commonly used for virtual desktops or for snapshots of VMDKs larger than 2TB.

For additional details, refer to VMware KB 2148408 (<https://kb.vmware.com/kb/2148408>).

Resolution

To ensure storage space reclamation is working in your environment, contact VMware Support to obtain vSphere Hot Fixes for PR# 1697376 and PR# 1774074. Once these fixes, or an ESXi build that includes these fixes, are installed, Accelerator will automatically re-enable storage space reclamation.

SSD Cache Device Missing After Upgrading vCenter

Problem

After upgrading vCenter to version 6.5, Accelerator no longer shows the host's SSD cache device in the Adjust Cache Size view.

Description

The process of upgrading to vCenter 6.5 causes information related to each host's vFlash Resource to be dropped from the vCenter database. Without this data, Accelerator fails to correctly represent SSDs that may be available for caching.

Resolution

There are two methods to resolve this issue. The first method is preferred and is non-destructive to an active SSD cache, whereas the second method will reinitialize the device.

Re-sync the host's state to vCenter:

1. In the vCenter client, right-click on the affected host. Select Connection > Disconnect.
2. Once the disconnect command completes, right-click on the same host and select Connection > Connect.

Recreate the vFlash Resource:

1. In the vCenter client, navigate to the host's Virtual Flash Resource Management configuration screen. Perform the Remove All action. *Note, this may affect other services using the vFlash Resource.*
2. Once the removal task has completed, select Add Capacity. Select the devices to add to the vFlash Resource and click OK.

Once either of these two methods has been performed the vFlash Resource will show up in the Accelerator Management Console as an SSD that can be used for caching. To configure it, navigate to Configuration > Adjust Cache Size and select Setup SSD.

Cannot Disable Acceleration on a VM that has Snapshot Delta Files

Problem

When attempting to disable acceleration on a VM, the operation fails with a warning that the VM has a snapshot. However, vSphere indicates that no snapshots are present for the VM. If you are disabling acceleration as part of uninstalling the I/O filter, this "invisible snapshot" state also prevents filter removal.

Description

Under certain rare circumstances, a VMware operation such as migrating a VM or using vMotion on a VM many times might result in leftover delta files, even after you have removed the related snapshots.

You can examine the VMDK files in ESXi to find the orphaned snapshot delta files, as shown in the following example:

```
rw----- 1 root root 2147483648 Oct 17 18:14 auto-workloadVM-win7-64-83c21627.vswp
rw----- 1 root root 10737418240 Oct 19 12:05 auto-workloadVM-win7-64_3-flat.vmdk
rw----- 1 root root 10737418240 Oct 19 12:05 auto-workloadVM-win7-64_2-flat.vmdk
rw----- 1 root root 10737418240 Oct 19 12:06 auto-workloadVM-win7-64_1-flat.vmdk
rw----- 1 root root 1157652480 Oct 19 12:15 auto-workloadVM-win7-64_4-000001-delta.vmdk
rw----- 1 root root 602 Oct 19 12:15 auto-workloadVM-win7-64_4-000002.vmdk
rw----- 1 root root 24576 Oct 19 12:15 auto-workloadVM-win7-64_4-000002-delta.vmdk
rw----- 1 root root 731 Oct 19 12:20 auto-workloadVM-win7-64_4.vmdk
```

The VM's VMDKs might be in an inconsistent state with acceleration disabled on some VMDKs (those without associated delta files) while acceleration is not disabled on other VMDKs (those with associated delta files)

Consequently, you cannot use the Management Console VM to disable VM acceleration. The state "Unable to Disable" appears next to the problem VM.

This problem might also manifest if you attempt to disable acceleration on all VMs by removing the I/O filter from a storage policy.

Resolution

To resolve this problem:

1. In vSphere, run a snapshot consolidation.
2. In vSphere, change the VM's storage policy from its current custom policy that includes the I/O Filter, to the storage default policy.
3. Wait for the policy change to register in vCenter, and to appear in the Accelerator Management Console. If it does not, rescan the vCenter from the Management Console.
4. In vSphere, change the VM's storage policy from the storage default policy back to the custom policy that includes the I/O Filter.
5. In the Accelerator Management Console, *Virtual Machines* screen, verify that you can now disable VM acceleration and, if required, uninstall the I/O filter.

Configure a DNS Search Path When Using a Static Address

Problem

The Management Console cannot resolve the DNS server address.

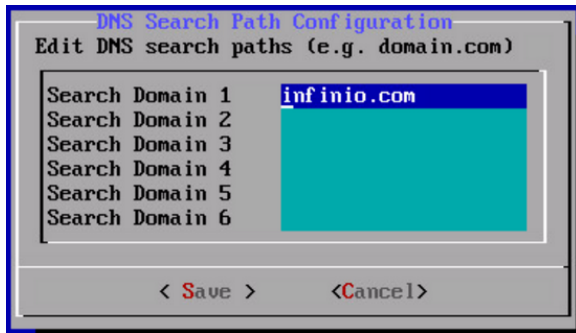
Description

When using the Installer to configure the Management Console with a static address, a search domain is not configured in `/etc/network/interfaces`. This prevents nslookup from resolving the DNS server.

Use the console network configuration utility to configure a search path by adding the appropriate search domain and make sure you have an entry in their DNS server for the Management Console hostname of the console.

Resolution

Follow the procedure described in the *Operations Guide* titled: *Configure a DNS Search Path for the Management Console VM Network*. Use the **Configure DNS Search Path** option to enter the search path, as shown in the following example"



I/O Filter Tasks Fail After Updating vSphere Certificates (EAM Certification Error)

Problem

Accelerator maintenance operations (such as installing and uninstalling I/O Filters) fail, potentially leaving ESXi hosts in maintenance mode. You might see the following error message on the Management Console Web UI:

```
<Cluster_Name>
Error: Failed To Install I/O Filter
An error occurred installing IO filter with URL <viburl>.zip to cluster <cluster_name>
The operation is not allowed in the Current State.
```

Description

If you have recently performed certificate maintenance on your vSphere environment, the ESX Agent Manager (EAM) might not be certified to log in to vCenter and is unable to complete the Accelerator maintenance task. For example, this might occur after the VMCA certificate replacement procedure.

Examine the ESX Agent Manager (EAM) log file (`/var/log/vmware/eam/eam.log`) file or `C:\ProgramData\VMware\vCenterServer\logs\eam\eam.log`) for messages similar to the following:

```
YYYY-MM-DDTHH:MM:SS.MSZ | ERROR | eam-0 | VcConnection.java | 179 | Failed to login to
vCenter as extension. vCenter has probably not loaded the EAM extension.xml yet.: Cannot com-
plete login due to an incorrect user name or password.}}
```

If you see the preceding messages, it is likely that the EAM certification is missing or out of date, possibly due to a recent change in certification methods for the vCenter.

Resolution

Make sure that the EAM service is updated when you replace the vCenter Server certificate. Follow the VMware resolution described in:

After replacing the vCenter Server certificates in VMware vSphere 6.0, the ESX Agent Manager solution user fails to log in (2112577).

(https://kb.vmware.com/selfservice/search.do?cmd=displayKC&docType=kc&docTypeID=DT_KB_1_1&externalId=2112577).

Accelerating a VM Crashes the vCenter Service

Problem

Because of a known issue with vSphere 6, the vCenter Service might crash when you apply an IO Filter to a VM under the following conditions:

- You registered the VM with vCenter under vSphere 5.5 (or an earlier release).
- You subsequently upgraded to vSphere 6 without re-registering the VM.

Description

This problem occurs because the vCenter 5.5 database schema did not include the value **ARRAY_ID** in the **VPX_VIRTUAL_DISK** database table column. That value was introduced by VMware in vSphere V6.0.

To verify, examine **ProgramData\VMware\VMware VirtualCenter\Logs\vpzd.log** for log entries similar to the following:

```
2016-06-21T16:15:40.365-04:00 error vpzd[04320] [Originator@6876 sub=vpzCommon opID=HB-host-15478@17417-6f99e705 ] [Vpzd_HandleVmRootError] Received unrecoverable VmRootError. Generating minidump ...
2016-06-21T16:15:40.365-04:00 error vpzd[04320] [Originator@6876 sub=Default opID=HB-host-15478@17417-6f99e705 ] An unrecoverable problem has occurred, stopping the VMware VirtualCenter service. Error: Error [VdbError] (-5) The data being fetched is NULL at column position 0 for "select array_id from VPX_VIRTUAL_DISK where VM_ID = ? and UPDATE_KEY = ?"
2016-06-21T16:15:40.366-04:00 panic vpzd[04320] [Originator@6876 sub=Default opID=HB-host-15478@17417-6f99e705 ]
-->
--> Panic: Unrecoverable VmRootError. Panic!
```

Resolution

You must update your database schema using the procedure described in the knowledge base article titled: *Configuring Virtual Machine with an IO filter policy crashes vCenter Service* (2146307).

(https://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2146307).

Cannot Remove an SSD Cache Because VMware Logs are Present

Problem

vSphere writes log files to the VMware Virtual Flash resource. In certain ESXi host configurations, if the Infinio SSD cache uses that resource, you will be unable to disable the cache.

Description

Under normal operation, vSphere can store ESXi logs on any storage device. If you do not define a preferred data-store location for the log files, vSphere might arbitrarily select a location during ESXi boot. This can cause a problem if you add a Virtual Flash resource to use for Infinio Accelerator caching. After an ESXi reboot vSphere might use the Virtual Flash for storing log files.

If log files are written to the Virtual Flash resource that you use for Infinio caching, the device always appears busy, and you will be unable to remove the cache. You might also be unable to modify the cache size, because the files that log the modification are located on the device being modified.

Resolution

Follow VMware procedures to store log files on a device other than the device that you intend to use for caching.

See: <https://kb.vmware.com/kb/1033696> *Creating a persistent scratch location for ESXi 4.x/5.x/6.0* (1033696).

VMware Restricts Moving an ESXi Host Between Clusters while VMs are Accelerated

Problem

When moving an ESXi host between clusters, the following message (in vSphere Web client's Recent Tasks, Status field) indicates a VMware restriction:

```
"I/O filter <filter_name> is being used by one or more disks"
```

Description

This VMware restriction applies to all I/O filters. For Infinio, it applies when an ESXi host contains an Infinio I/O Filter, and you attempt to move that host to another cluster while one or more VMs are accelerated.

Be aware that the VMware restriction applies even when accelerated VMs are powered off.

Resolution

First, disable acceleration on all VMs. You can then move the host.

Removing an Accelerated ESXi Host and Adding it Back as Standalone

Problem

Disconnecting an ESXi host from an accelerated cluster, removing it from the inventory and then adding it back as a standalone host causes accelerated VMs to become unmanageable. The Management Console does not correctly report the status of VMs, and you might not be able to manage the I/O Filter.

Description

This problem occurs because VMware supports VAIO only on clustered ESXi hosts and does not support standalone hosts.

If you move an accelerated ESXi host into or out of standalone status, the Infinio Storage Policy is detached from the VM's VMDK. Neither vCenter nor the Management Console can present the correct host or VM status.

Resolution

Avoid removing a host from an accelerated cluster. If you inadvertently move a host, follow the manual I/O Filter uninstallation procedures described in the *Operations Guide* in the section titled: *Manually Uninstalling the Infinio I/O Filter*.