

# 7700/7300 Flash Storage Platform™ Release Notes For Concerto™ 7.5.5.1 and Aria 7.1.0.2

September 2015



**violin**  
MEMORY

## Table of Contents

Introduction .....	4
What’s New in This Release .....	4
Resolved Issues in Aria 7.1.0.2 .....	4
Resolved Issues in Aria 7.1.0.1 .....	4
Resolved issues in Concerto 7.5.5.1.....	4
Resolved issues in Concerto 7.5.5.....	4
Resolved Issues in Concerto 7.5.4.....	5
Concerto 7.50/7.5.2/7.5.3/7.5.4 Upgrade Known Issues .....	5
Concerto 7.5.5 Known Issues .....	5
ACM Upgrade from 7.0 to 7.1 Known Issues .....	7
Aria 7.1.0 Known Issues .....	7
Upgrading the Flash Storage Platform (7700/7300/7300E) .....	7
Supported Upgrade Paths.....	7
Showing Current Software Version.....	8
Upgrading Aria Software (7.1 to 7.1.0.2) .....	9
Non-Disruptive Upgrade (NDU) .....	9
Downloading the Upgrade Image.....	10
Upgrading the Array Modules .....	10
Verifying the Upgrade Readiness of the Flash Storage Platform.....	10
NDU Prerequisites.....	11
Check the Health of the System.....	11
Download the Image to the ACMs.....	12
Upgrade the ACMs, VCMs and VIMMs .....	13
Disruptive Upgrade .....	16
Upgrade Sequence .....	16
1: Shut down the Memory Gateways .....	16
2: Upgrade the Array Firmware .....	17
Upgrading Concerto OS Software .....	19

Upgrading Concerto OS Software on a 7700 FSP HA Cluster.....	19
Upgrading Concerto OS Software on a 7700 FSP Stretch Cluster.....	21
Upgrading Concerto OS Software on a 7300 Shelf or 7700 FSP Controller .....	22
Upgrading From 7.50 .....	23
For 7300/7300E FSPs Using Replication.....	25
Upgrading from 7.5.2 or Higher .....	26
Upgrading Concerto Software on a Non-HA 7300 FSP .....	27
Violin Memory Customer Support.....	28

## Introduction

These are the release notes for the 7700/7300 Flash Storage Platform™ (FSP), running Concerto 7.5.5 software on the Memory Gateways and Aria software and firmware A7.1.0.2 on the ACMs.

## What's New in This Release

- Improved speed of VM cloning on dedup LUNs
- Improved performance of large block sizes
- Support of >2TB dedup LUNs on failover
- Improved garbage collection
- Stretch cluster/replication speed improvement

## Resolved Issues in Aria 7.1.0.2

- **29108/29518:** Improved handling of VCM CRAM errors that includes an automatic VCM reload in cases where a CRAM error is detected.
- **29452/29510:** Resetting the array configuration may cause an ACM to be inaccessible.
- **29285/29520:** Update ACM callhome settings.
- **29300/29590:** Fans may spin at low speed.

## Resolved Issues in Aria 7.1.0.1

- **28847:** Incorrect serial number reported in callhome.

## Resolved issues in Concerto 7.5.5.1

- **29414/29537:** Potential race condition with dedup garbage collection.

## Resolved issues in Concerto 7.5.5

- **28163/29078, 28524/29079:** Slow response times in ESX environment.
- **28671:** Out-of-space-error for dedup LUNs.

- **28752:** SRA growing after executing “shrinksnapshotresource” command.
- **29042/29081:** Resolved issue with LUN sizes greater than 2TB.
- **29061:** Resolved issue with UMAP performance optimization/SCSI compliance.
- **29097:** Resolved issue with dedup replication failure.
- **29136:** Resolved locking issue in xcopy datapath (VM/VAAI performance enhancement).
- **29160:** Resolved failure with configuring group replication.
- **29198:** Resolved issue with failure to add replication to snapshot group.
- **29205:** Resolved issue with all LUNs replicating correctly during initial sync.
- **29229:** Resolved issue with role reversal of snapshot group from replica sever failing with primary server up.
- **29243:** SRM certification: resolved issue with promote of replica device from replica server error.
- **29259:** Mirroring performance enhancement.
- **29295:** Resolved iocore issue during attempt to create thin clone for an individual LUN from CDP journal.

## Resolved Issues in Concerto 7.5.4

- **28537:** The configuration jump-start wizard does not currently support changing of Memory Gateway attributes after the Memory Gateways have been configured for the first time.

## Concerto 7.5.0/7.5.2/7.5.3/7.5.4 Upgrade Known Issues

- **26101:** During RPM upgrade, concerto stop/start, you may see the error:

```
Starting Concerto Authentication Module [FAILED].
```

This can be ignored, as the Authentication Module starts up despite the error message.

## Concerto 7.5.5 Known Issues

- **26222:** Informational error messages "vpcimon detected error on device" in the MG log. Ignore this message as it does not impact Concerto functionality.
- **26852:** For dedup LUNs, watermark-based replication is not supported. Use schedule-based replication only.

- **27140:** Target disk for snapshot copy is limited to thick LUN type.

**Workaround:** Do not specify the target LUN type when performing snapshot copy.

- **27505:** Memory Gateway failover causes 7700 FSP controllers to also failover.

In a 7700 FSP configuration, when an array that contains the 7700's quorum LUNs has a controller go down, it may cause one of the 7700 nodes to failover. A typical case is when upgrading Concerto software on the arrays.

**Workaround:** Once both controllers are up on the array, issue the `isscli stoptakeover` command on the active 7700 FSP controller.

- **28303:** The `isscli promotemirror` command is not supported for thin-to-dedup mirroring.

**Workaround:** When performing LUN conversion between dedup and thin LUN on the 7300 FSP, please use the `luncvt.sh` utility.

- **28306:** Timemark attached to a thin clone may be deleted if the snapshot resource policy is set to "Always Maintain Write Operations" and the resource pool is running out of space.

**Workaround:** Utilize instant copy to convert the ThinClone to a thick LUN.

- **28188:** Snapshot resource may go offline after writes for long duration.

**Workaround:** If you plan to write to ThinClones, it is recommended that you promote the appropriate snapshot to a Thick LUN. If you plan on potentially copying a ThinClone to a vLUN, make sure to select the "Instant Copy" option when creating the ThinClone. Any I/O running to a ThinClone must be stopped before copying that ThinClone to a Thick LUN.

- **28474:** LUN expansion of mirrors with Thin and dedup members is not supported.

- **29360:** Controller version showing "null" for MG-A and MG-B.

**Workaround:** If network configuration is changed in a 7300 FSP using the `isscli setservernetconfig` command or by using Symphony, you need to run the following commands on both Memory Gateways (MG-A and MG-B): `xmlstat $IS_CONF setslotinfo` and `xmlstat $IS_CONF setarraycapacity`.

## ACM Upgrade from 7.0 to 7.1 Known Issues

- **27865:** ACM upgrade fails due to ACM Master failover.

**Workaround:** This issue could happen if there is an ACM mastership change during array upgrade. In rare cases when this occurs, the installation has been successful, but the boot location was not changed and the ACM was not rebooted.

1. Log in to the standby ACM CLI.
2. Type “show version”. If the version is correct, then STOP; done with standby.
3. Type “show boot”. One of the partitions should show the existing running software, and the version of the new software. If the "Next boot partition" indicates that the upgraded partition will be used next, issue the “reload” command. Wait for the standby ACM to boot up the new software before performing the procedure on the master.
4. Otherwise, change the boot selector: image boot next. Reboot, and wait for the standby to boot up the new software.
5. Repeat the procedure on the Master ACM.

## Aria 7.1.0 Known Issues

- **24219:** Rerunning jump-start wizard does not retain the IP address for the other ACM. If the wizard is run from acm-a, it does not display the default IP addresses for acm-b.

**Workaround:** There is no workaround. You must type the other ACM IP address once again.

- **28666:** Changing the hostnames or IP addresses of 7700 FSP controllers or 7300 FSP Memory Gateways in a live environment after initial configuration is not currently supported.

## Upgrading the Flash Storage Platform (7700/7300/7300E)

This section provides the steps to upgrade the Aria software running on the ACMs and the Concerto software running on the Memory Gateways. The FSP should be upgraded in the order presented below.

### Supported Upgrade Paths

Any 7300 Flash Storage Platform (shelf) that accompanies the 7700 Flash Storage Platform must be running Concerto 7.5.5.1 and Aria A7.1.0.2 software. Perform the following steps to determine if the 7700 or 7300 FSPs (arrays) need to be upgraded.

The following tables identify the supported *starting* versions for the 7300 Flash Storage Platform and 7700 FSP controllers from which to upgrade to Concerto 7.5.5.1 and Aria 7.1.0.2. Ensure that the 7300 FSPs are upgraded before upgrading the FSP controllers.

Previous software versions and upgrade instructions are available from Violin Memory Customer Support at <http://www.violin-memory.com/support/>

### 7700 Flash Storage Platform

Starting FSP Controller Version	Upgrade Steps
Concerto 7.5.0, 7.5.2, 7.5.3, 7.5.4, 7.5.4.1, 7.5.5	Upgrade 7700 FSP controller to Concerto 7.5.5.1 (NDU)

### 7300 Flash Storage Platform

Starting Gateway Version	Starting Array Version	Upgrade Steps
Concerto 7.5.0	A7.0.x	Upgrade Memory Gateways to Concerto 7.5.5.1 (NDU) Upgrade Array to A7.1.0.2(either NDU or immediate)
Concerto 7.5.2 Concerto 7.5.3	A7.1.0.0	Upgrade Memory Gateways to Concerto 7.5.5.1 (NDU) Upgrade Array to A7.1.0.2 (either NDU or immediate)
Concerto 7.5.4 Concerto 7.5.4.1 Concerto 7.5.5	A7.1.0.1	Upgrade Memory Gateways to Concerto 7.5.5.1 (NDU) Upgrade Array to A7.1.0.2 (either NDU or immediate)

## Showing Current Software Version

### Aria:

1. Start a terminal session to the Aria CLI using the ACM management IP address or host name.
2. Log in as "admin".
3. Type "show version".

```
violin-acm-a [1S507F00002: master] > show version
Product name:      supervisor
Product release:  A7.1.0.0
Build ID:         #3
```



```
Build date:      2015-04-28 02:26:17
Target arch:    ppc
Target hw:      acm
```

Aria software version A7.1.0.0 is shown in the above example output.

#### Concerto:

1. Start a terminal session to the Master Memory Gateway using its IP address or host name.
2. Log in using the following credentials:
  - Log in as: “root”
  - password: “ViolinMEM1”
3. Type “`isscli getserverversion`” at the command prompt:

```
[root@violin-mga ~]# isscli getserverversion
The following parameter is required for this command. Please refer to the
usage below for the proper parameters.
```

```
-s or --server-name
```

```
Command Line Interface Version 7.5.2, Build 8860
Copyright 2014-2015 Violin Memory, Inc. All Rights Reserved.
```

Concerto software version 7.5.2 is shown in the above example output.

## Upgrading Aria Software (7.1 to 7.1.0.2)

### Non-Disruptive Upgrade (NDU)

The Flash Storage Platform contains three distinct sets of modules, and as a result, must be upgraded in a staged manner for the system to remain operational during the NDU process.

These are the steps you will be performing to upgrade the system:

1. Prepare the ACMs, VCMs and VIMMs for the upgrade.
  - a. Check the health of the system.
  - b. Download the image to the ACMs
2. Upgrade the ACMs, VCMs and VIMMs.

3. Check the health of the system.

---

**Note:** Performance is slightly reduced during the NDU process as the various modules are upgraded and rebooted.

---

## Downloading the Upgrade Image

Before upgrading the system, download the upgrade image as described below.

1. Go to <http://www.violin-memory.com/support/>
2. Log in to Customer Support using your Violin Memory Customer Portal login and password information. (Contact Customer Support if you do not have an account.)
3. Click the **Software Downloads** tab.
4. Navigate to **Concerto OS7 Flash Storage Platform > Concerto OS 7.5.5.1 > Base Software > Base Software Image Files**. Download the aria-A7.1.0.2.img software image file to a client computer (laptop).

You may use the aria-A7.1.0.2.img.md5 file to ensure that the .img file was not corrupted when downloaded.

**Note:** The concerto\_release\_version.rpm and .md5 files will be used to upgrade the Concerto software, described later in this document.

## Upgrading the Array Modules

Follow these steps to perform a staged, non-disruptive upgrade of all of the Flash Storage Platform modules: ACMs, VCMs and VIMMs.

---

**Note:** For the 7300 Flash Storage Platform, the NDU process will take 3 to 5 hours. Most of this time is during the VIMM upgrade process.

---

## Verifying the Upgrade Readiness of the Flash Storage Platform

1. Start a terminal application and then use the VIP to log in to the Master ACM. Log in as “admin”.
2. Enter enable mode using the following command:

```
violin-acm-a [violin: master] > enable
```

3. Type the “show cluster upgrade staged status” command to check the upgrade readiness. If all of the **NDU Prerequisites** are met for a staged upgrade, the following message displays:

```
# show cluster upgrade staged status
Checking readiness for staged upgrade...

Passed all checks for staged upgrade
```

- If the array passes all of the checks, proceed.
- If the array fails one or more of the checks, remedy the situation and then rerun the “`show cluster upgrade staged status`” command.

## NDU Prerequisites

All of the following NDU prerequisites are checked by the “`show cluster upgrade staged status`” command. If any of the conditions are not met, a message will display in the CLI output along with a remedy. The system cannot be upgraded until it passes this pre-upgrade step.

1. There must be 2 ACMs, clustered and running the same release version.
2. The array must be a 32- or 64-VIMM model.
3. All VIMMs must be booted and error-free (i.e., no VIMM alarms must be present).
4. All VCMs must be present, booted and assigned the default set of VIMMs.
5. The VIMM tree must be balanced and no RAID rebuilds can be in progress.
6. No FLASH free operations on any VIMMs can be in progress.
7. The system must be formatted and the data plane must be up.
8. The system must have already completed an upgrade to the version that supports non-disruptive upgrades.
9. Both PCMs must be present.
10. All floating spares must be available as spares.
11. There must not be any degraded RAID groups.
12. All VIMMs should report an acceptable health threshold.
13. There must be no VCM or VIMM alarms raised on the array.
14. Internal links must not be degraded.
15. VIMM configs for all VCMs must be optimal and not degraded.
16. All VCMs and VIMMs must be capable of performing an NDU operation.
17. The system must have been scrubbed within the past four days.

## Check the Health of the System

1. Repeat the following on both Memory Gateways:
  - a) Log in to the Memory Gateway CLI (MG-A or MG-B) as ‘root’.
  - b) Run the “`concerto status`” command and then inspect the output, ensuring all processes are in “RUNNING” state.

```
[root@hostname-mgb ~] # concerto status
Violin Concerto Server version 7.50 (Build XXXX)
Copyright (c) 2014 Violin Memory, Inc. All Rights Reserved.
Status of Concerto FC Initiator Module [RUNNING]
```

```
Status of Concerto Authentication Module [RUNNING]
Status of Concerto Block Device Module [RUNNING]
Status of Concerto Base Module [RUNNING]
Status of Concerto IO Core Module [RUNNING]
Status of Concerto Upcall Module [RUNNING]
Status of Concerto Environmental monitor daemon [RUNNING]
Status of Concerto ACU Services [RUNNING]
Status of Concerto Log Upload Services [RUNNING]
Status of Concerto FC Target Module [RUNNING]
Status of Concerto Communication Module [RUNNING]
Status of Concerto CLI Proxy Module [RUNNING]
Status of Concerto Logger Module [RUNNING]
Status of Concerto Statistic Monitoring Module [RUNNING]
Status of Concerto SNMPD Module [RUNNING]
Status of Concerto Self-Monitoring Module [RUNNING]
Status of Concerto Failover Module [RUNNING]
```

```
[root@hostname-mgb ~] #
```

- c) Run the “sms” command and verify FailOverStatus shows as “FailOverStatus: 1(UP)”:

```
[root@hostname-mgb ~]# sms
FailOverStatus: 1(UP)
```

Please use sms -u to get usage

2. Log in to the Master ACM CLI.
3. Type “enable” and then “configure terminal” to enter configure mode.
4. Type the following commands to verify that the array is ready for a staged upgrade:
  - a) “show alarms”: no alarms should be present.
  - b) “vdiag”: no errors should be present.
  - c) “show cluster upgrade staged status”: no errors should be displayed.
5. If alarms are present, take corrective action to clear the alarms before proceeding.

## Download the Image to the ACMs

1. Establish access from the client computer (laptop) to the Master ACM using an Ethernet connection (remote or directly attached).
2. Using SCP from a Linux or Mac OS client, or PSCP.exe (part of the PuTTY package) from a Windows command shell, transfer the .img file to the Flash Storage Platform as follows:

### MAC OS or Linux

```
scp <path to file>/<image-name> admin@<ACM Master IP>:/var/opt/tms/images/
```

Example: \$scp ./aria-A7.1.0.2.img admin@10.5.5.54:/var/opt/tms/images

### Windows and PuTTY SCP

```
pscp -scp C:\<path-to-file>\<image-name> admin@<ACM Master IP>:/var/opt/tms/images/
```

Example: C:\images> pscp - scp C:\images\aria-  
A7.1.0.2.img admin@10.5.5.54:/var/opt/tms/images

After successfully downloading the image to the ACMs, log in to the Master ACM CLI and issue the “show images” command to verify the image is present.

## Upgrade the ACMs, VCMs and VIMMs

1. Continue the staged upgrade of the ACMs, VCMs and VIMMs by typing the following command:

```
(config) # cluster upgrade <image-name> staged
```

The ACMs complete their upgrade process in approximately 10 minutes.

---

**Caution:** The CLI session must remain open while the ACMs are upgraded. Do not disconnect or type Ctrl+C during the ACM upgrade. Doing so will terminate the upgrade.

---

Once the ACMs have been upgraded, they will reboot one after the other, starting with the standby. When the Master ACM reboots, the current CLI session is automatically disconnected.

2. Log in to the Master ACM to verify that the VCM upgrade process is occurring by typing the “monitor upgrade” command:

```
violin-acm-a [: master] # monitor upgrade
Press control-C to return...
VCM a is upgrading
VCM b is upgrading
VCM c is upgrading
VCM d is upgrading
vcm-a 1: 2013-09-01 09:03:10 [3742] Copying /opt/violin/libexec/vcm_x4ab.upg
to 169.254.1.20 ...
vcm-a 2: 2013-09-01 09:03:39 [3742] Verifying image on VCM at 169.254.1.20 ...
vcm-b 1: 2013-09-01 09:03:10 [3771] Copying /opt/violin/libexec/vcm_x4ab.upg
to 169.254.1.30 ...
vcm-b 2: 2013-09-01 09:03:41 [3771] Verifying image on VCM at 169.254.1.30
vcm-a 11: 2013-09-01 09:11:55 Reboot triggered. ETA for renewed
communications is 5 minutes ...
Any upgraded VCMs have now finished rebooting.
Waiting for about 2 minutes for VCMs to start staged upgrade of VIMMs...
Press control-C to return...
```

The VCMs are upgraded in approximately 20 minutes.

3. Once the VCMs are upgraded, verify that the VIMM upgrades occur by typing the “monitor vimm-upgrades” command:

```
violin-acm-a [: master] # monitor vimm-upgrades
Press control-C to return...

Staged upgrade of VIMMs starting...

2014-06-01 09:34:51: vcm-a starting firmware upgrade of VIMMs
2014-06-01 09:34:52: vcm-a completed firmware upgrade of VIMMs
```

---

**Note:** The “monitor upgrade” command by default shows the VIMM upgrade process.

---

4. Once all of the VIMMs are upgraded, type the “show vimm version detail” command to ensure that all VIMMs are running the new version:

```
violin-acma-acm-a [violin: master] (config) # show vimms version detail
Vimm      Firmware Version ( Date )                Control Plane Version ( Date )
-----
00        7.1.0.0      ( Apr 15 01:08:14 2015 )          7.1.0.0      ( Apr 15 01:08:14 2015 )
01        7.1.0.0      ( Apr 15 01:08:14 2015 )          7.1.0.0      ( Apr 15 01:08:14 2015 )
02        7.1.0.0      ( Apr 15 01:08:14 2015 )          7.1.0.0      ( Apr 15 01:08:14 2015 )
03        7.1.0.0      ( Apr 15 01:08:14 2015 )          7.1.0.0      ( Apr 15 01:08:14 2015 )
04        7.1.0.0      ( Apr 15 01:08:14 2015 )          7.1.0.0      ( Apr 15 01:08:14 2015 )
```

5. Check the health of the system once again:
  - a. From the Master ACM CLI, type the following commands:
    - i. “show alarms”: no alarms should be present.
    - ii. “vdiag”: no errors should be present.
6. Repeat the following steps **on both Memory Gateways**, to verify health of MGs:
  - a. Run the “concerto status” command and then inspect the output, ensuring all processes are in “RUNNING” state.

```
[root@hostname-mgb ~] # concerto status
Violin Concerto Server version 7.50 (Build XXXX)
Copyright (c) 2014 Violin Memory, Inc. All Rights Reserved.
Status of Concerto FC Initiator Module [RUNNING]
Status of Concerto Authentication Module [RUNNING]
Status of Concerto Block Device Module [RUNNING]
```

```
Status of Concerto Base Module [RUNNING]
Status of Concerto IO Core Module [RUNNING]
Status of Concerto Upcall Module [RUNNING]
Status of Concerto Environmental monitor daemon [RUNNING]
Status of Concerto ACU Services [RUNNING]
Status of Concerto Log Upload Services [RUNNING]
Status of Concerto FC Target Module [RUNNING]
Status of Concerto Communication Module [RUNNING]
Status of Concerto CLI Proxy Module [RUNNING]
Status of Concerto Logger Module [RUNNING]
Status of Concerto Statistic Monitoring Module [RUNNING]
Status of Concerto SNMPD Module [RUNNING]
Status of Concerto Self-Monitoring Module [RUNNING]
Status of Concerto Failover Module [RUNNING]
```

```
[root@hostname-mgb ~] #
```

- b. Run the “sms” command and verify that FailOverStatus shows as “FailOverStatus: 1(UP)”:

```
[root@hostname-mgb ~]# sms
FailOverStatus: 1(UP)
Please use sms -u to get usage
```

- c. Run the “getfailoverstatus” command, as follows, to show the failover configuration status:

```
[root@violin-mg-a ~]# isscli getfailoverstatus -s 169.254.1.101 -u root -p
ViolinMEM1
Failover Servers=violin-mg-a / violin-mg-b
Configuration Type=Mutual Failover
Failover State=Normal
```

Command: getfailoverstatus executed successfully.

```
[root@violin-mg-a ~]# isscli getfailoverstatus -s 169.254.1.102 -u root -p
ViolinMEM1
Failover Servers=violin-mg-b / violin-mg-a
Configuration Type=Mutual Failover
Failover State=Normal
```

Command: getfailoverstatus executed successfully

## Disruptive Upgrade

Upgrading the Flash Storage Platform requires installation of new array firmware. To ensure a successful upgrade of the array, review this section to understand the steps involved. A typical upgrade will take more than one hour to complete.

Before you begin, verify that both nodes are present and online by typing the “`show cluster global`” command from the Master ACM CLI. Both nodes should show “`Node State: online`”.

**Note:** An immediate upgrade of a FSP/array that is configured with 7700 FSP controllers is not recommended. If a disruptive upgrade is desired, power off the 7700’s FSPs/arrays prior to upgrading the ACM software.

### Upgrade Sequence

1. **Shut down the Memory Gateways:** Log into Memory Gateway Master (from ACM Master) and then shut down cluster. Then, power down the Memory Gateways from the ACM Master.
2. **Upgrade the Flash Storage Platform Firmware:** Log in to the Master ACM and then upgrade the firmware. The ACMs, VCMs and then VIMMs upgrade. Network connection is lost during this process. Log back in to the ACM Master to verify ACM upgrade and to view VCM then VIMM upgrade processes.

### 1: Shut down the Memory Gateways

Both of the Memory Gateways must be shut down and powered off *before* upgrading the ACMs to release A7.1.0.2. Follow these steps to shut down the Memory Gateways.

1. From the Master ACM, type the following to power off the Memory Gateways gracefully:

```
#no array modules type mg enable
```

2. Respond “yes” to confirm the shutdown.
3. From the Master ACM command prompt, type the following to verify that the Memory Gateways are powered off:

```
#show array modules type mg detail
```

The following line in the output for the Memory Gateways shows that both are now powered off:

```
Power                : no
```



## 2: Upgrade the Array Firmware

**IMPORTANT:** Make sure the Memory Gateways are shut down and powered off *before* upgrading to release A7.1.0.2.

1. Start a terminal application and log in to the Flash Storage Platform Master ACM as “admin”. Once the terminal application is started, use the system host name or the ACM management IP address to ensure a direct connection.
2. Establish access from the client computer (laptop) to the Master ACM using an Ethernet connection (remote or directly attached).
3. Using SCP from a Linux or Mac OS client, or PSCP.exe (part of the PuTTY package) from a Windows command shell, transfer the .img file to the Flash Storage Platform as follows:

### MAC OS or Linux

```
scp <path to file>/<image-name> admin@<ACM Master IP>:/var/opt/tms/images/
```

Example: `$scp ./aria-A7.1.0.2.img admin@10.5.5.54:/var/opt/tms/images`

### Windows and PuTTY SCP

```
pscp -scp C:\<path-to-file>\<image-name> admin@<ACM Master IP>:/var/opt/tms/images/
```

Example: `C:\images> pscp - scp C:\images\aria-A7.1.0.2.img admin@10.5.5.54:/var/opt/tms/images`

After successfully downloading the image to the ACMs, log in to the Master ACM CLI and issue the “show images” command to verify the image is present.

4. Type the following at the command prompt to access the CLI’s configuration mode:

```
> enable
# configure terminal
```

5. Type the following to install the A7.1.0.2 image:

```
# cluster upgrade <image name and location> immediate
```

6. Respond “yes” to confirm the upgrade.

This upgrades both Array Controller Modules (ACMs) and reboots both modules immediately after completion of the upgrade.

**IMPORTANT:** The upgrade process takes about one hour to complete. Do not power off or reboot the system during the upgrade process. Do not manually power on any of the array modules. All modules should reboot on their own after the modules are upgraded.

7. Log in to the Master ACM once again. Use the following commands to verify that the ACMs are now installed with the new image and that both ACMs are part of the cluster:

```
> show version
```

The following line in the output shows that the ACM is now running A7.1.0.2:

```
Product release:   A7.1.0.2
```

```
# show cluster global
```

The following line in the output shows that both ACM's are up and part of the cluster:

```
Cluster node count:  2
```

8. Use the "monitor upgrades" command to verify that the VCM upgrade is still in progress:

```
# monitor upgrades
Press control-C to return...
VCM a is upgrading
VCM b is upgrading
VCM c is upgrading
VCM d is upgrading
...
```

Use CONTROL-C to exit the monitor command.

The above output shows that the VCMs are being upgraded to the new release.

The array continues its upgrade process. The Memory Gateways will power on when the VCMs are ready.

**Note: Complete the steps below if the following warning messages display:**

"WARNING: POSSIBLE DNS SPOOFING DETECTED!" or

"WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!"

These steps allow you to log in to the Memory Gateways from either ACM.

1. Log in to the Master ACM.

2. Type the following at the command prompt to access the CLI's configuration mode:

```
> enable
#configure terminal
```

3. Type the following commands:

```
# ssh client user admin known-host mg-a remove
# ssh client user admin known-host mg-b remove
# ssh client user admin known-host 169.254.1.101 remove
# ssh client user admin known-host 169.254.1.102 remove
```

**Note:** If the Memory Gateways are not automatically powered back on following the upgrade, complete the following steps:

1. Start a terminal application and log in to the array Master ACM as "admin". Once the terminal application is started, use the system host name or the ACM management IP address to ensure a direct connection.
2. Type the following at the command prompt to access the CLI's configuration mode:

```
> enable
#configure terminal
```

3. Run the following command to power on both Memory Gateways:

```
#array modules type mg enable
```

## Upgrading Concerto OS Software

### Upgrading Concerto OS Software on a 7700 FSP HA Cluster

See the steps below for instructions on upgrading Concerto OS software on the devices in a non-stretch cluster environment.

See "Upgrading Concerto OS Software on a 7700 FSP Stretch Cluster" if you are upgrading 7700 FSP controllers that are part of a stretch cluster.

1. Verify that the 7700 FSP controllers and the 7300 FSPs are healthy, as follows:
  - a. Run the "getserverconfiginfo" command on each 7700 FSP controller and ensure that Failover is *Normal* and not *Suspended*:

```
# isscli getserverconfiginfo -s `uname -n` | grep Failover
Failover Servers=ControllerA / ControllerB
```

```
Configuration Type=Mutual Failover  
Failover State=Normal  
Failover Suspended=No
```

- b. Run the “getserverconfiginfo” command on each 7300 FSP (shelf) and ensure that Failover is *Normal* and not Suspended:

```
# isscli getserverconfiginfo -s `uname -n` | grep Failover  
Failover Servers=hostname-mga / hostname-mgb  
Configuration Type=Mutual Failover  
Failover State=Normal  
Failover Suspended=No
```

2. Upgrade the shelf containing the quorum drives for the 7700 FSP controllers first.

See “Upgrading Concerto OS Software on a 7300 Shelf or 7700 FSP Controller” to upgrade the shelf. Failover may occur on controllers as a result of the 7300 shelf upgrade.

3. Bring the 7700 FSP controllers to a normal state if failover has occurred as a result of step 2:

- a. Run the “sms” command on both 7700 FSP controllers.
- b. If both controllers show status as 1 (UP), no action is needed. Go to step 4.
- c. If one controller shows status as 2 (READY) and the other controller shows status as 1 (UP), run the “isscli stoptakeover -s 127.0.0.1” command on the controller that shows status as 1 (UP). Wait for the “sms” output of both controllers to show 1 (UP) before proceeding to the next step.
- d. If the “sms” output of does not meet the above criteria, do not move forward. Wait 30 minutes, and if the “sms” output is still the same, contact Customer Support to resolve this issue.

4. Upgrade all 7300 shelves.

Follow steps 1-3 above to upgrade all of the 7300 shelves. The remaining shelves can be upgraded in parallel. If failover occurs on the 7700 FSP controllers during the upgrade, wait until all shelves have been upgraded prior to performing step 3.

5. Upgrade the 7700 FSP controllers.

See “Upgrading Concerto OS Software on a 7300 Shelf or 7700 FSP Controller” to upgrade the 7700 FSP controllers.

## Upgrading Concerto OS Software on a 7700 FSP Stretch Cluster

See the steps below for instructions on upgrading Concerto OS software on the devices in a stretch cluster environment.

**Note:** Upgrading 7700 FSP controllers in a Stretch Cluster configuration causes failover from each site to its partner site while the controller is upgraded. Depending on ISL configuration and distance between sites, temporary performance impact may be observed by applications during the upgrade process.

1. Verify that the 7700 FSP controllers and the 7300 FSPs at both sites are healthy:
  - a. Run the “getserverconfiginfo” command on each 7700 FSP controller and ensure that Failover is *Normal* and not Suspended:

```
# isscli getserverconfiginfo -s 127.0.0.1 | grep Failover
Failover Servers=ControllerA / ControllerB
Configuration Type=Mutual Failover
Failover State=Normal
Failover Suspended=No
```

- b. Run the “getserverconfiginfo” command on each 7300 FSP (shelf) and ensure that Failover is *Normal* and not Suspended:

```
# isscli getserverconfiginfo -s 127.0.0.1 | grep Failover
Failover Servers=hostname-mga / hostname-mgb
Configuration Type=Mutual Failover
Failover State=Normal
Failover Suspended=No
```

2. Upgrade all 7300 shelves at Site A, one shelf at a time.

See “Upgrading Concerto OS Software on a 7300 Shelf or 7700 FSP Controller” to upgrade a shelf. MG failover causes downstream link failover on 7700, possible performance impact.

3. Rescan the downstream links from both 7700 FSP controllers. Issue the following command:

```
# isscli rescandevices -s 127.0.0.1 -r
```

4. Upgrade all 7300 shelves at Site B, one shelf at a time.

See “Upgrading Concerto OS Software on a 7300 Shelf or 7700 FSP Controller” to upgrade a shelf. MG failover causes downstream link failover on 7700, possible performance impact.

5. Rescan the downstream links from both 7700 FSP controllers. Issue the following command:

```
# isscli rescandevices -s 127.0.0.1 -r
```

6. Verify that the 7700 FSP controllers are still healthy.

At one of the stretch cluster sites, connect to the monitor IP address of a local 7700 FSP controller and then run the “getserverconfiginfo” command to ensure that Failover is Normal and not Suspended:

```
# isscli getserverconfiginfo -s 127.0.0.1 | grep Failover
Failover Servers=ControllerA / ControllerB
Configuration Type=Mutual Failover
State=Normal
Failover Suspended=No
```

7. Upgrade the 7700 FSP controllers.

See “Upgrading Concerto OS Software on a 7300 Shelf or 7700 FSP Controller” to upgrade the controllers. Controller failover impacts host application. Traffic over northbound ISL will saturate link, affecting performance.

## Upgrading Concerto OS Software on a 7300 Shelf or 7700 FSP Controller

How you upgrade the Concerto OS software depends on the current software version running on the Memory Gateways and 7700 FSP controllers in a 7300 Flash Storage Platform (FSP) and if the FSP is in a High Availability (HA) state or not. Follow the steps below to determine both and to upgrade the Concerto software.

**Note:** The Memory Gateways within a 7300 FSP and the 7700 FSP controllers run the same Concerto OS software. Although the upgrade procedures below are specific to upgrading the Memory Gateways, the same steps can be used to upgrade the controllers. Simply replace “mg-a” with “Controller A” and “mg-b” with “Controller B” when upgrading the Concerto OS software on the 7700 FSP controllers.

1. From the Software Downloads section of the Support portal, navigate to **ConcertoOS7 Flash Storage Platform > Concerto OS 7.5.5.1 > Base Software > Base Software Image Files**. Download the RPM software image file to a client computer (laptop).

You may use the md5 file to ensure that the .rpm file was not corrupted when downloaded.

**Note:** The “concerto\_upgrade\_release\_version.tgz” file is only used for Memory Gateways that have been replaced, and is not required for this upgrade process.

2. Determine the monitor IP address and current version of software, as follows:
  - a. Start a terminal session (SSH) to Memory Gateway A (mg-a) using any IP address that will launch a session on mg-a. If you are currently logged in to the Master ACM, you can log in to mg-a by typing “slogin root@mg-a”. When logged in to a 7700 FSP controller, use “ssh root@controller-A-ipaddress”.
  - b. Issue the “ifconfig eth0” command to determine the monitor IP address of Memory Gateway A/Controller A. For example:

```
[root@mg-a ~]# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 00:90:FB:4F:E7:4C
          inet addr:10.5.77.2  Bcast:10.5.79.255  Mask:255.255.248.0
          inet6 addr: fe80::290:fbff:fe4f:e74c/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1479550 errors:0 dropped:0 overruns:0 frame:0
          TX packets:503638 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:184325780 (175.7 MiB)  TX bytes:406795948 (387.9 MiB)
          Interrupt:20 Memory:eca00000-eca20000
```

In the example above, **10.5.77.2** is the monitor IP address.

- c. Issue the “concerto status” command to determine the current software version:

```
[root@mg-a ~]# concerto status
Violin Concerto Server version 7.50 (Build 8629)
Copyright (c) 2014-2015 Violin Memory, Inc. All Rights Reserved.
```

In the above example, the current version is 7.50.

3. Depending on the current version of software, go to “Upgrading from 7.50” or “Upgrading from 7.5.2 or higher.”

## Upgrading From 7.50

1. Using PuTTY, or a similar SSH client session, copy the downloaded image to the /root directory on Memory Gateway A/Controller A:

```
pscp <filename> root@mg-a-monitor-ipaddress:/root
```

2. Start a terminal session (SSH) to Memory Gateway A using its monitor IP address. (The default password is “ViolinMEM1”.)

3. If the password was changed, issue the following command before issuing the “rpm\_upgrade” command:

```
sed -i 's#ViolinMEM1#NEW-PASSWORD#g' `which rpm_upgrade`
```

**Note:** The “NEW-PASSWORD” must be the same on both Memory Gateways.

4. Issue the following command to ensure that failover is not suspended and is in a normal state:

```
isscli getserverconfiginfo -s `uname -n` | grep Failover
```

In the output, you should see the following status:

```
Failover State=Normal  
Failover Suspended=No
```

5. Issue the following command to upgrade the Memory Gateways:

```
[root@mg-a ~]# rpm_upgrade <new-rpm-path>
```

For example: rpm\_upgrade /root/concerto-7.5.5-8860.x86\_64.rpm

```
# Upgrade can take up to 20-30 minutes. Please wait while the script is running  
commands. Some commands like “sms” script will run periodically.  
# script will output “PASSED” if everything goes well or it will abort if an  
error/unexpected output occurs.
```

If the upgrade script fails with the following error, this means that HA is not configured:

```
“Primary server ip is not configured on port eth0:0. Please make sure that HA is  
configured and primary ha monitor port is eth0”.
```

6. Go to “Upgrading Concerto Software on a Non-HA 7300 FSP” if you see this message.

7. If the upgrade is successful, check the running Concerto version:

```
[mg ~] # concerto status
```

8. Check the HA status of both Memory Gateways:

```
[mg-a ~] # sms  
[mg-b ~] # sms
```

You should see the following output for failover status:

```
FailOverStatus : 1 (UP)
```



## For 7300/7300E FSPs Using Replication

**Note:** The following procedure is only needed for standalone 7300/7300E FSPs using replication. It is not required for 7700 FSP deployments.

If a 7300/7300E is configured with replication, replication jobs may fail after upgrading if upgrading from a version lower than 7.5.3 to version 7.5.3 or higher. It is recommended that you reboot one Memory Gateway at a time using the procedure below after the upgrade process so that replication jobs can continue.

1. Start a terminal session (SSH) to Memory Gateway A using its monitor IP address.
2. Issue the `“sms”` command and wait for the output to display status as `“1 (UP)”`. If dedup is enabled, wait for the output to show IO Cache Failover State: `“1 (CACHE_HA_STEADY_STATE)”`
3. Start a terminal session (SSH) to Memory Gateway B using its monitor IP address.
4. Issue the `“sms”` command and wait for the output to display status as `“1 (UP)”`.
5. Start a terminal session (SSH) to Memory Gateway A using its monitor IP address.
6. Issue the `“reboot”` command.

The terminal session will disconnect. Wait for mg-a to start up. This will take about 5 minutes. You can ping the monitor IP address to verify.

7. Log in to Memory Gateway A using its monitor IP address.
8. Issue the `“sms”` command to verify that the `“FailOverStatus”` is `“READY”`. If `FailOverStatus` is not ready, issue the `“sms”` command until the status is `“READY”`.
9. Log in to Memory Gateway B using its monitor IP address.
10. Issue the `“sms”` command. If dedup is enabled, wait for the output to show IO Cache Failover State: `“1 (CACHE_HA_STEADY_STATE)”` and `“FailOverStatus”` as `“1 (UP)”`.
11. Issue the `“isscli stoptakeover -X 600”` command.
12. In the Memory Gateway A terminal session, wait for the output to display status as `“1 (UP)”`. If dedup is enabled, wait for the output to show IO Cache Failover State: `“1 (CACHE_HA_STEADY_STATE)”`
13. Log in to Memory Gateway B using its monitor IP address.

14. Issue the “reboot” command.

The terminal session will disconnect. Wait for mg-b to start up. This will take about 5 minutes. You can ping the monitor IP address to verify.

15. Log in to Memory Gateway B using its monitor IP address.
16. Issue the “sms” command to verify that the “FailOverStatus” is “READY”. If FailOverStatus is not ready, issue the “sms” command until the status is “READY”.
17. Log in to Memory Gateway A using its monitor IP address.
18. Issue the “sms” command. If dedup is enabled, wait for the output to show IO Cache Failover State: “1(CACHE\_HA\_STEADY\_STATE)” and “FailOverStatus” as “1(UP)”.
19. Issue the “isscli stoptakeover -X 600” command.
20. In the Memory Gateway B terminal session, wait for the output to display status as “1(UP)”. If dedup is enabled, wait for the output to show IO Cache Failover State: “1(CACHE\_HA\_STEADY\_STATE)”

## Upgrading from 7.5.2 or Higher

1. Copy the downloaded image to the /root directory on Memory Gateway A/Controller A:

```
pscp <filename> root@mg-a-monitor-ipaddress:/root
```

2. Start a terminal session (SSH) to Memory Gateway A using its monitor IP address.
3. Issue the following command to upgrade the Memory Gateways:

```
Usage: rpm_upgrade --rpm-path=<new-rpm-path>  
       [--primary-server-password=<primary-server-password>]  
       [--secondary-server-password=<secondary-server-password>]
```

For example: rpm\_upgrade --rpm-path=/root/concerto-7.5.5-8860.x86\_64.rpm --primary-server-password=ViolinMEM1 --secondary-server-password=ViolinMEM1

# Upgrade can take up to 20-30 minutes. Please wait while the script is running commands. Some commands like “sms” script will run periodically.

# script will output “PASSED” if everything goes well or it will abort if an error/unexpected output occurs.

If the upgrade script fails with the following error, this means that HA is not configured:

```
“Primary server ip is not configured on port eth0:0. Please make sure that HA is configured and primary ha monitor port is eth0.”
```

4. Go to “Upgrading Concerto Software on a Non-HA 7300 FSP” if you see this message.

5. If the upgrade is successful, check the running Concerto software version:

```
[mg ~] # concerto status
```

6. Check the HA status of both Memory Gateways:

```
[mg-a ~] # sms
```

```
[mg-b ~] # sms
```

You should see the following output for failover status:

```
FailOverStatus : 1 (UP)
```

7. Complete the procedures in “For 7300/7300E FSPs Using Replication.”

## Upgrading Concerto Software on a Non-HA 7300 FSP

**Note:** Upgrading a 7300 FSP/7700 FSP controller that is not in HA mode causes I/O disruption. Make sure that any applications using vLUNs on the non-HA FSP/7700 FSP controller are shut down before performing this operation.

1. Copy the RPM image to both Memory Gateways’ host IP addresses (used when running configuration jump-start).

```
pscp <filename> root@<mg-b-ipaddress>:/root  
pscp <filename> root@<mg-a-ipaddress:>/root
```

2. Log in to each Memory Gateway and issue the following commands:

```
# concerto stop all  
# rpm -e concerto  
# rpm -ivh /root/<rpm-name>  
# concerto start all
```

## Violin Memory Customer Support

---

### **Violin Memory, Inc. USA**

4555 Great America Parkway

Santa Clara, CA 95054

<http://www.violin-memory.com/support/>

E-mail: [support@vmem.com](mailto:support@vmem.com)

## Legal Notice

---

Copyright© 2010-2015 Violin Memory, Inc. All rights reserved.

Violin, Violin Memory and the Violin logo are registered trademarks of Violin. A complete list of Violin's trademarks and registered trademarks is available at [www.violin-memory.com/company/trademarks/](http://www.violin-memory.com/company/trademarks/)

All other brands, product names, company names, trademarks, and service marks are the properties of their respective owners.

Licenses of Violin's software are subject to the terms and conditions set forth in Violin's End User License Agreement. Sales of Violin's hardware are subject to Violin's Terms and Conditions applicable to sales of hardware.

Violin Memory, Inc.  
4555 Great America Parkway  
Santa Clara, CA 95054  
USA