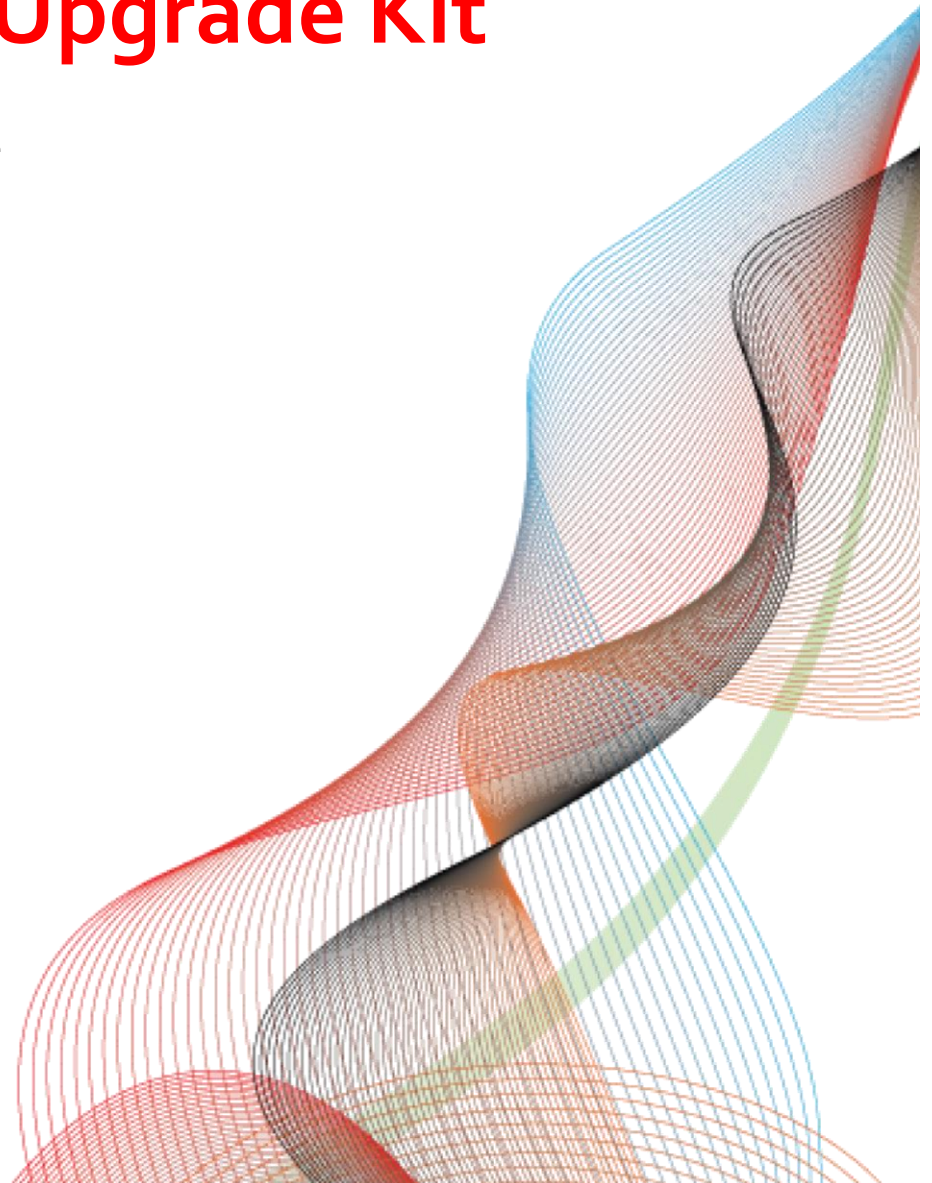




# **Fujitsu DataCore SVA 10.0 PSP4 Upgrade Kit**

Administrator Guide

**December 2015**



**Global Leader in Storage Virtualization Software**

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# Intended Audience

This document has been prepared by DataCore Software as a guide for the benefit of *SANsymphony-V™* administrators wishing to upgrade deployed instances of the Fujitsu DataCore Storage Virtual Appliance (SVA).

**This document describes the process for upgrading a SVA currently running *SANsymphony-V™* 10.0 Product Service Pack 1 (“PSP 1”) OR LATER, to 10.0 Product Service Pack 4 (“PSP 4”).**

The software and procedures described apply *only* to this specific use-case. If you are currently running versions of *SANsymphony-V™* other than this, or you are not using SVA hardware, then other procedures will apply. If in doubt you should contact your reseller, or consult DataCore Technical Support.

## Important

It is assumed that the upgrade will be performed by a competent person with requisite training in the installation and administration of the current release of DataCore *SANsymphony-V™*. This training and knowledge is a pre-requisite of the upgrade process.

If in doubt, please contact your authorized DataCore Reseller for assistance.

# Document Revision History

Recent changes made to this document

First published (December 2015) – Release V1.0

# SVA Software Compatibility Matrix

## Firmware and BIOS

Only the following BIOS and Firmware versions are supported when running *SANsymphony-V™* version 10.0.4.x (“PSP 4”) on the Fujitsu DataCore SVA

Component	Version	Comment
iRMC	8.05F	Will be upgraded during this procedure
Server BIOS	1.15.0	May be upgraded during this procedure
RAID Controller SAS-MFI-BIOS FW-Package	3.30.02.2 12.15.0-0239	May be upgraded during this procedure
MPT-SAS-HBA MPT2BIOS	7.19.00.00	Only valid for SVA 30x and SVA 60x series
FC-HBAs Qlogic QLe 2562 Bios Qlogic QLe 2672 Bios	3.24 3.26	May be upgraded during or after this procedure

The use of other firmware or BIOS versions is not supported and could render the SVA inoperable.

## Other software

The following additional software will be installed or updated during the upgrade procedure.

Component	Version	Comment
Fujitsu ServerView Agent	7.20.14	Will be upgraded during this procedure
Fujitsu Raid Manager	6.3.3	Will be upgraded during this procedure
Fujitsu AIS Connect Agent	1.0.36.564	May be upgraded during this procedure
Oracle Java	8 Update 66	Will be upgraded during this procedure

# Prerequisites

## Important information - please read carefully

1. The following network connectivity is required:
  - a. A RDP connection to the SVA unit that is being upgraded.
  - b. A connection to the iRMC web interface on the unit being upgraded, either via HTTPS (Port 443) or HTTP (Port 80). Connection via HTTPS is recommended.

If iRMC access is *not* available, physical access to the server will be necessary as a full power-cycle (from 'cold and dark') may need to be performed as part of the BIOS upgrade procedure.
  - c. Connection to the iRMC board via SSH may be necessary (see 'Known Issues' later in this document).
2. The SVA must have access either to the Microsoft online update service, or to a Microsoft WSUS server, as the current operating system patch level will be raised as part of the upgrade process.
3. The user account that will be used throughout the upgrade procedure requires both OS administrator rights on the SVA and *SANsymphony-V™* administrator permissions ("Owners" role). An upgrade started in the context of one user account must be completed within this same security context. Switching user contexts during the upgrade is not supported and may cause the upgrade to fail.
4. This procedure is *only* for upgrading from Fujitsu DataCore SVA Release 10.0.1.0 ("R10 PSP1") or later. Alternative procedures will be required for upgrading from versions prior PSP1. Contact DataCore Technical Support if in any doubt.
5. **Before starting** the upgrade ensure sure that:
  - a. All DataCore SVAs and any other *SANsymphony-V™* Servers participating in a highly available Server Group together (i.e. synchronous mirroring / SMPA) are online.
  - b. All mirrored Virtual Disks are in a "Healthy" state.
  - c. Every application server has redundant paths to its DataCore-hosted storage volumes, so that proper failover between DataCore Servers can occur during the maintenance operation.

## Prerequisites

If any of these conditions are not met then the requisite corrective actions must be completed and the system made healthy *before* proceeding with the update. DO NOT attempt to start an upgrade if these conditions are not met.

6. Each SVA node is upgraded individually. Do not start the upgrade process on more than one SVA node at a time, otherwise a service outage may occur.
7. During the course of the upgrade procedure several reboots of the SVA nodes will be requested. Do not try to consolidate or skip reboots but execute each request to reboot individually and serially. **Failure to do so may cause the upgrade to fail and/or permanent damage to the SVA.**
8. Please follow the instructions given within this guide carefully and precisely.
9. If you find an instruction within this document to be unclear, or the process to be not exactly as described herein, please contact DataCore Technical Support and await further instructions before proceeding.



# Upgrade Process Workflow

The supplied Upgrade Kit consists of all of the software and firmware updates necessary to raise the SVA to the supported PSP3 Level, with the exception of Microsoft-supplied updates to the base OS (which must be installed via WSUS or via online Microsoft Update). The process is driven by a series of PowerShell “wrapper” scripts which perform the requisite upgrade activities. The actual update steps invoked will be dependent upon the current software and firmware revisions detected during the upgrade.

## Preparing for the Upgrade

In preparation, the operating system is patched to the latest level available at the time of performing the upgrade. The minimum required patching level is described elsewhere within this document (see “Appendix A”).

The upgrade kit, as a ZIP archive, is copied to the desktop of the SVA and extracted. A further extraction process is run, controlled via a PowerShell script named “extract-upgradekit.ps1”. This moves the necessary software and other scripts into the Upgrade Kit installer directory, checks their integrity, and starts the upgrade process.

The upgrade process itself is conceptually divided into three phases, with a separate PowerShell script responsible for each phase. The scripts will be automatically executed in sequence and across reboots, once the process has been started by the administrator.

### Phase One

The first phase is implemented by a script named “01\_SVA\_Upgrade\_before\_SSY-V\_installer.ps1”. During this phase, the *SANsymphony-V™* software and services on the SVA are stopped and the system firmware is updated. This includes the server BIOS and installed components, such as RAID controllers, HBAs and the iRMC service processor. Exactly which updates are performed will depend on the current firmware revisions detected by the script and the hardware configuration associated the specific SVA model. Multiple reboots of the SVA may be required whilst still in this phase of the upgrade, depending on which firmware updates are made.

### Phase Two

Phase two is implemented by the script “02\_SVA-Upgrade\_install-ssyv.ps” and performs the upgrade of the DataCore *SANsymphony-V™* software itself, including the application of any post-release updates that might be necessary. A reboot of the SVA is required.

## Phase Three

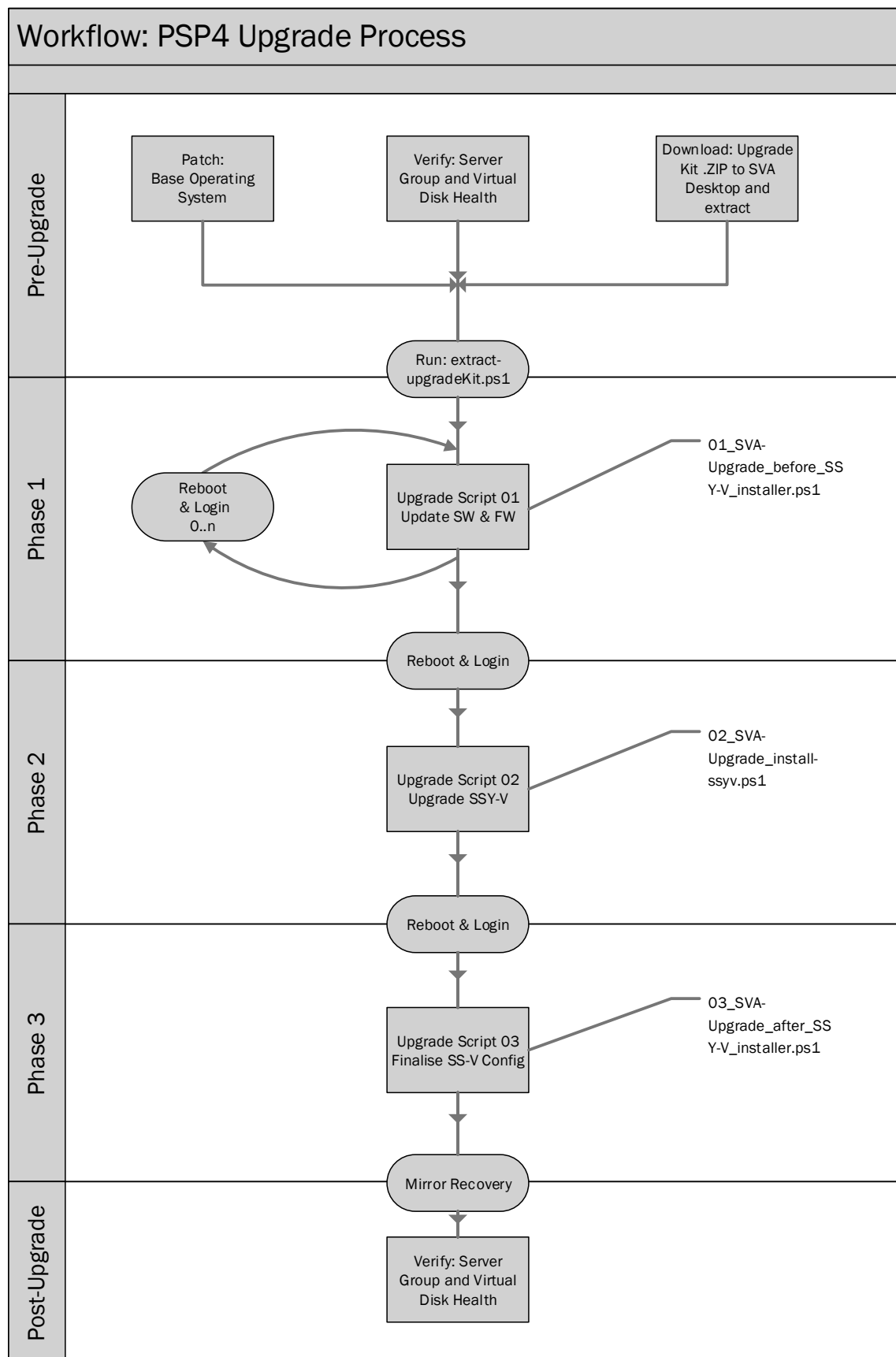
In the final phase of the upgrade, the *SANsymphony-V™* backup settings are checked and the software is re-started. Once the recovery of any mirrored Virtual Disks has finished, the upgrade is complete and the upgrade process may be repeated on any other SVAs or DataCore Servers within the Server Group. The script “03\_SVA-Upgrade\_after\_SSY-V\_installer.ps1” is responsible for executing this phase of the Upgrade.

## Important Procedural Considerations

In the event that you should need to open a support incident with DataCore Technical Support during the upgrade, please collect all log files written into the directory “C:\SVA-Upgrade\logs”, add them to a ZIP archive file and attach this file to the incident. This is *in addition* to the *SANsymphony-V™* Support Bundle which is customary for all support incidents.

Keep in mind that the iRMC service processor will be rebooted as part of the upgrade. If you are using iRMC console redirection to perform the upgrade remotely you will lose access for several minutes.

Remember that the DataCore *SANsymphony-V™* software services will be stopped at the beginning of the upgrade and will not be restored until it is completed. This will result in loss of access to any “single” (non-mirrored) Virtual Disks hosted on the SVA that is being upgraded for the duration of the upgrade. In the case of mirrored Virtual Disks, you must allow mirror recovery to complete before starting the upgrade on another SVA or DataCore Server in the same Server Group, or again, loss of access to Virtual Disks may result.



# Performing the Upgrade

## Important

Please ensure that ALL Virtual Disks display a status of “Healthy” within the *SANsymphony-V™* Management Console before starting the upgrade procedure.

Prior to starting the upgrade, please ensure that you have also read the “Known Issues” and “Cautions and Warmings” sections of this document, so that you are familiar with their content and prepared to handle such situations, should they occur during the course of the upgrade.

## Patch the Windows operating system

The minimum required OS patch level for a SVA running *SANsymphony-V™* PSP4 is that reflecting a Windows Update “up to date” status as of 09. December 2015. Upgrades of SVAs which are patched to levels more current than this are supported. DataCore strongly recommends updating the OS with all available patches as of the actual date of the upgrade.

Note: It may be necessary to run Windows Update several times in succession in order to receive all available updates.

## Copy the Upgrade Kit to the SVA

Copy the Upgrade Kit (as the ZIP archive supplied) to the desktop of the user account which will be used to run it.

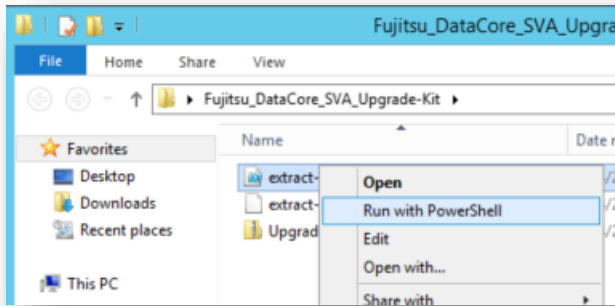
## Extract the Upgrade Kit ZIP file

Use the Windows File Explorer “extract all” context menu option to extract the contents of the Upgrade Kit to the desktop (this is the default destination). This will consist of a single folder named “Fujitsu\_DataCore\_SVA\_Upgrade-Kit” and copies of this installation guide in various formats (including PDF and MHT).

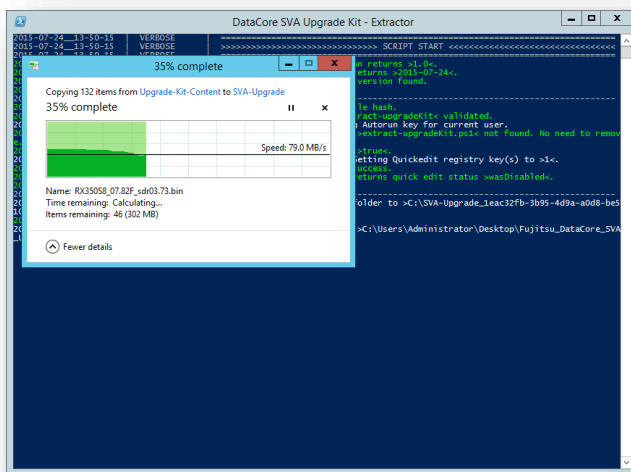
## Unpack the Upgrade Kit content

Open the newly extracted folder, locate and execute the supplied “extract-upgradekit.ps1” script, which will continue to extract the content of the upgrade kit. **Run the script by locating it within Windows Explorer and selecting “right-click” -> “Run with Powershell”.** Do *not* run the script by double-clicking it, or from an existing Powershell Console window.

## Performing the Upgrade



The Upgrade Kit content is extracted:



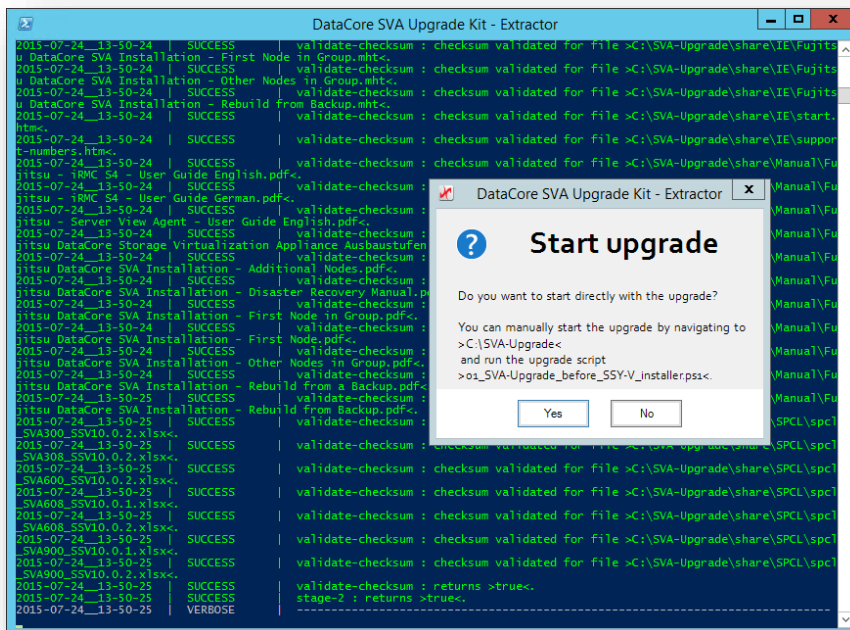
Please note that for your convenience, the Upgrade Kit manual has also been copied to the Desktop of the current user in a number of common formats:

The .MHT-File version ('Archived HTML Document') can be viewed directly on the SVA using the Internet Explorer web browser.

## Acknowledge that the upgrade can start

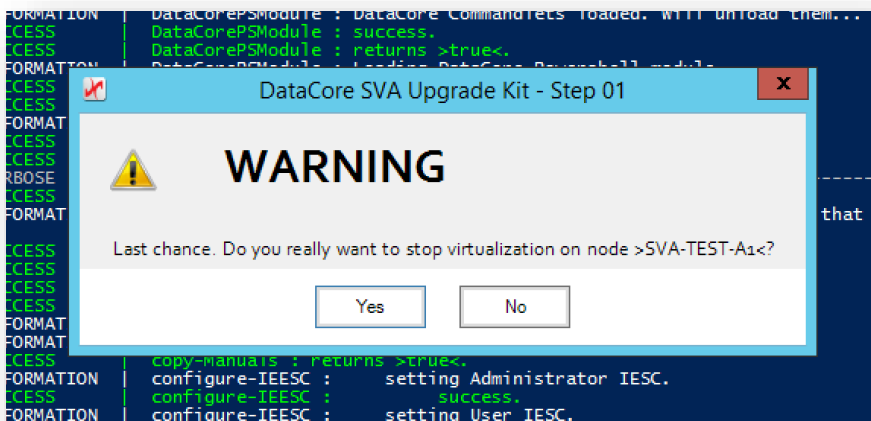
After extraction, the extraction script will verify the content of the package. If the content is validated, the script will prompt you to start the upgrade now. Click "Yes" to invoke the PowerShell script that will implement Phase One of the SVA upgrade. The upgrade process will start.

## Performing the Upgrade



Once the upgrade has started the unpacked upgrade kit content placed on the desktop of the user may be extraneous and may be deleted if so desired. This consists of a file folder "Fujitsu\_DataCore\_SVA\_Upgrade-Kit" and a correspondingly named ZIP archive.

Once the Upgrade script is running, a number of preliminary 'housekeeping' tasks will be performed and some pre-requisites checked. If the script determines that the upgrade can proceed with the SVA in its current state, a *final* pre-upgrade confirmation dialogue box will be displayed:



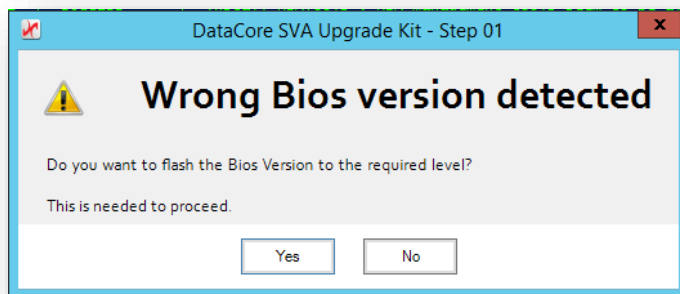
## Performing the Upgrade

Clicking “Yes” will cause the DataCore *SANsymphony-V™* software installed on this SVA to stop processing IO requests and unload all DataCore drivers.

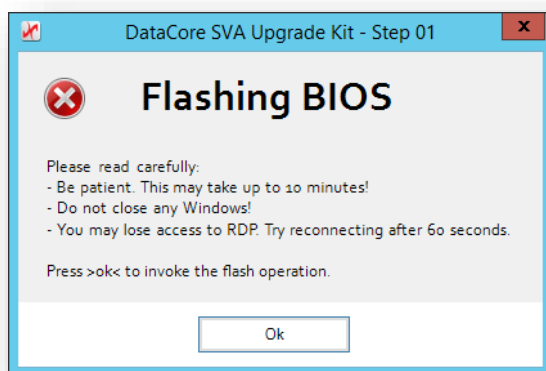
**Note:** As a result, any Virtual Disks of the type “single” (i.e. non-mirrored) hosted on this SVA will become inaccessible until the upgrade is completed. Any mirrored Virtual Disks will lose redundancy and become inaccessible through *this* SVA – this will cause multipath enabled hosts to “failover” their access paths to a partnered SVA server.

## SVA BIOS update

The upgrade script will determine whether the SVA BIOS version needs to be updated. If this is the case, it will display the following dialog box. Choose “Yes” to start the BIOS upgrade.

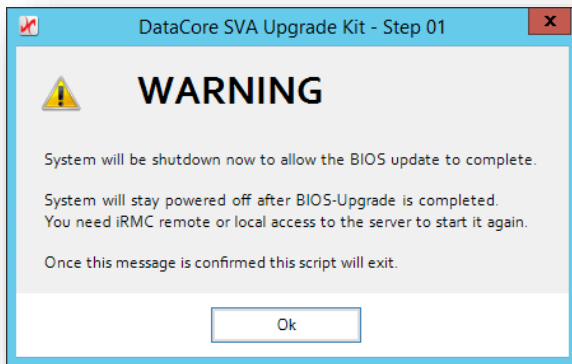


Please read the additional important comments regarding the BIOS update carefully. Click “Ok” to invoke the actual flashing process and continue with the upgrade.

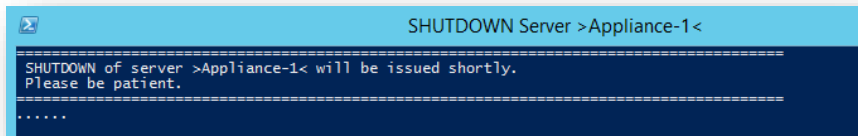


After the BIOS flash is completed an additional warning message is displayed. Acknowledge this message to shut down the system.

## Performing the Upgrade



Another Powershell Console window should be displayed, stating that the SVA will shut down **and power-off** shortly.



Wait until the server has powered-down *completely* ("cold and dark").

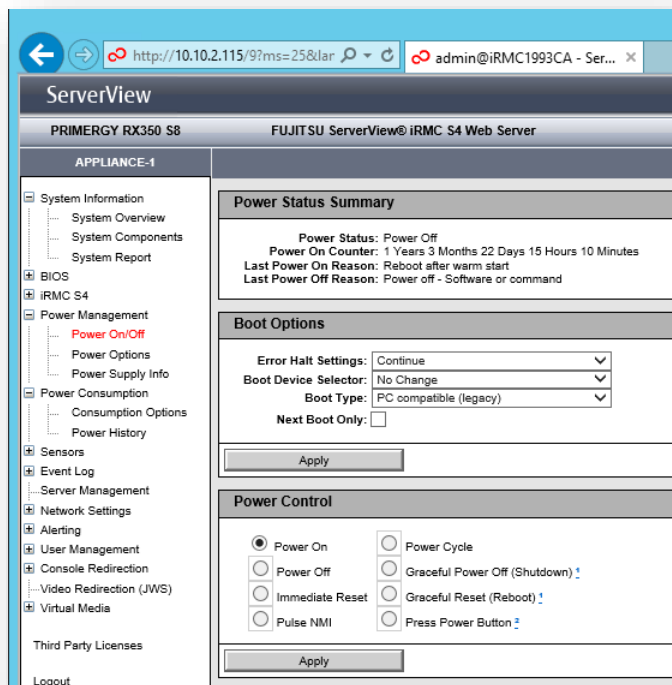
## Power-on the SVA

Connect to the iRMC web interface of the SVA being upgraded and login.

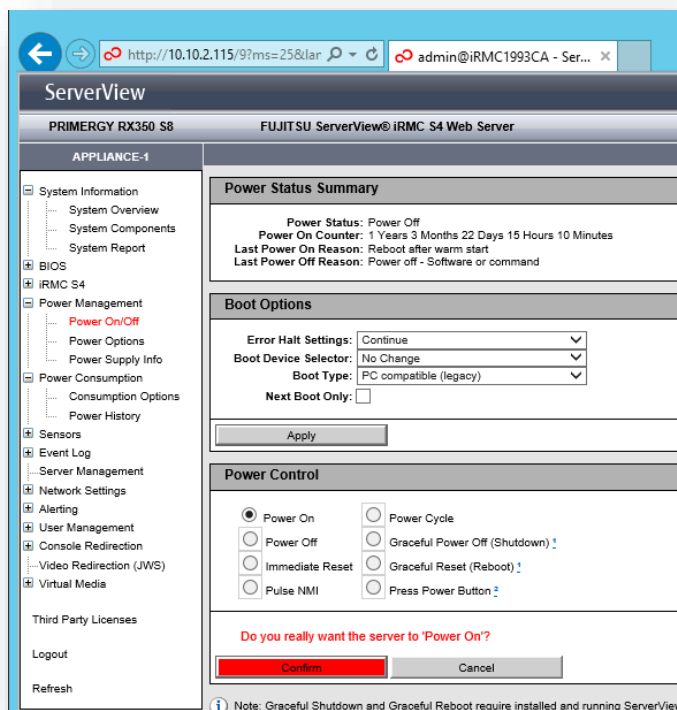
Navigate to "Power Management" -> "Power On/Off". Select "Power On" and hit "Apply".



## Performing the Upgrade

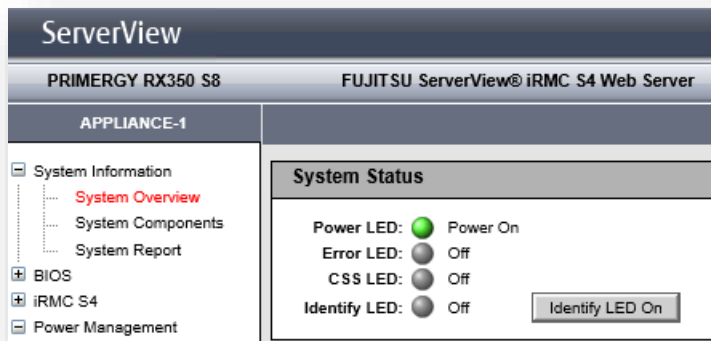


You will be requested to confirm the power-on operation



## Performing the Upgrade

You can check if the server operation was performed successfully by navigating to the system overview. The “Power LED” should reflect the status “Power-on”.

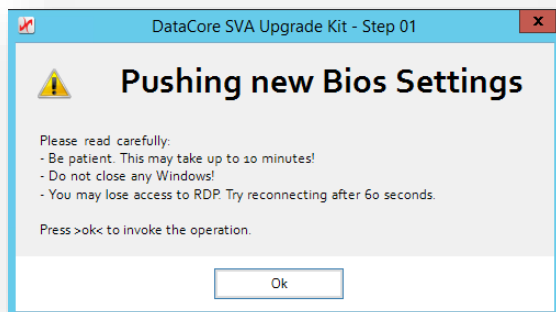


Allow the SVA to boot.

## Update SVA BIOS settings

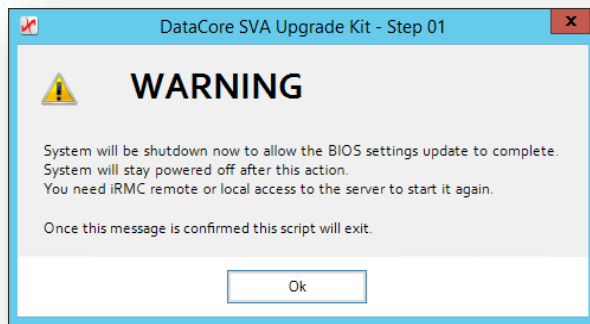
Once the server has booted log-in either via console or RDP, using the same user account used to initiate the upgrade. Please be patient. The Upgrade Kit should restart automatically after a few seconds.

The upgrade process will detect that the BIOS has been flashed with a new version of the firmware and therefore ensure that the correct settings are also restored. Click “ok” to invoke this process and proceed with the upgrade.

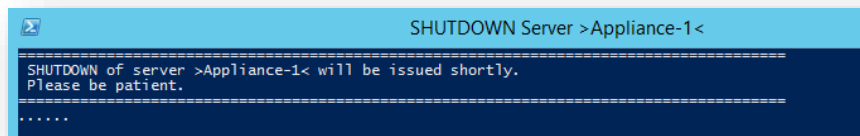


Once the BIOS settings have been restored successfully, you will be notified of an impending shutdown. Acknowledge this message to proceed, causing the shutdown of the SVA.

## Performing the Upgrade



Once again, a secondary Powershell Console window should pop up, providing confirmation that shutdown is in progress.



Wait until the SVA is completely powered-down.

## Power-on the SVA via iRMC

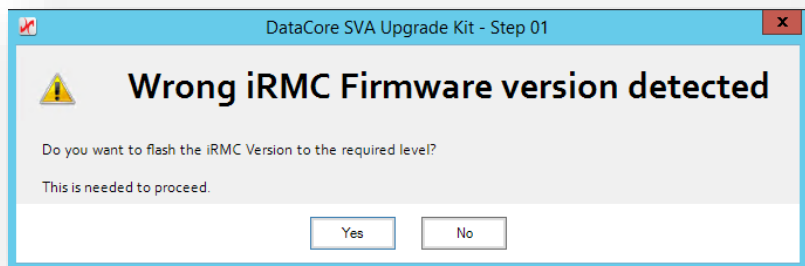
Repeat the steps detailed previously to issue a “power-on” instruction from the iRMC, or use the Physical Power control.

## Update the iRMC Firmware

When the SVA has booted log in either via console (iRMC) or RDP, using the same user account used to initiate the upgrade. Please be patient. The Upgrade kit should restart automatically after a few seconds.

The system will now detect that the iRMC Firmware version is not at the expected revision level. Click “Yes” to accept and commence the process to flash the iRMC Service Processor with new firmware.

## Performing the Upgrade

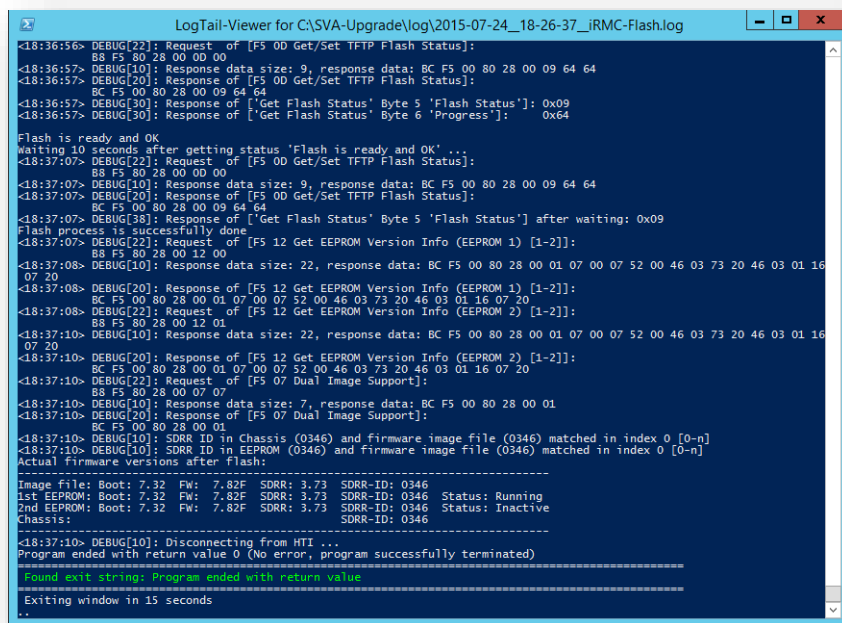


The iRMC flash process consists of several steps and may take some minutes to complete.

- Flash currently inactive ROM
- Set currently inactive to active ROM
- Boot newly flashed ROM
- Flash second (now inactive) ROM

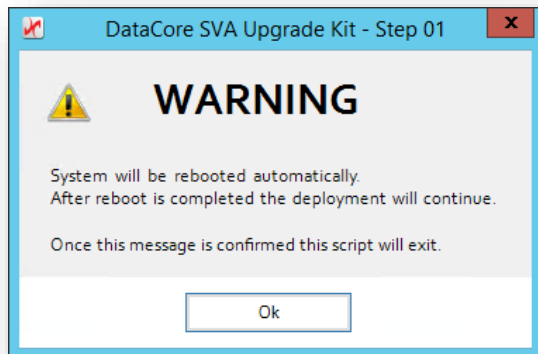
**Important:** Since the iRMC Service Processor is rebooted as part of this procedure, expect to lose access to the iRMC console for several minutes.

To reflect the status of the flashing process, a monitor has been implemented. This will be started in another PowerShell Console window and close itself once the flashing is completed.



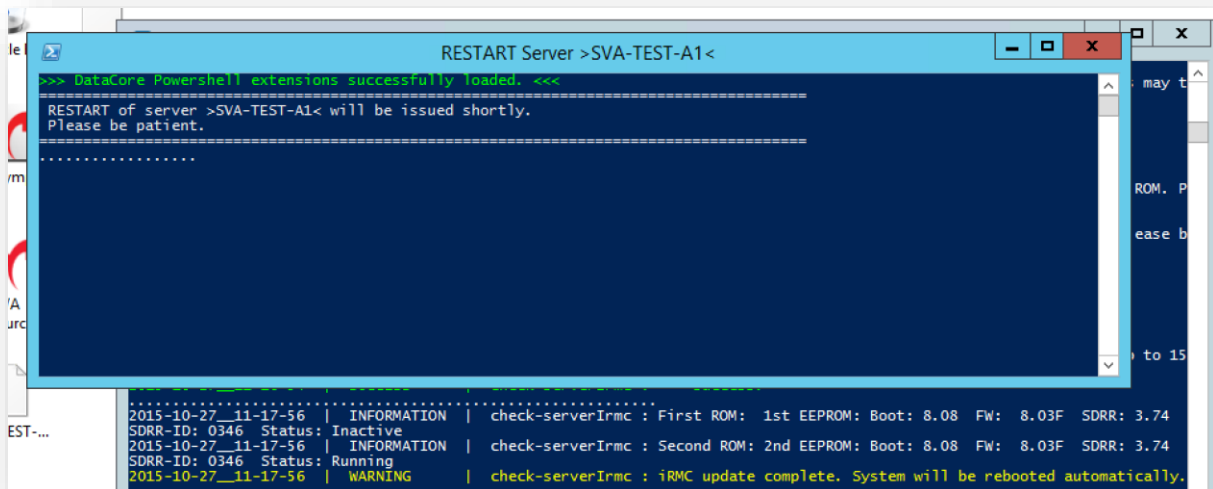
## Performing the Upgrade

After flashing, a checks will be made and the iRMC will be reset. When the iRMC update process is fully completed, the upgrade script will display a dialogue box prompting the operator to permit the SVA to reboot.



Acknowledge the message by clicking “ok”. The SVA will initiate a reboot.

A secondary PowerShell Console window will open, confirming that a reboot is in progress.



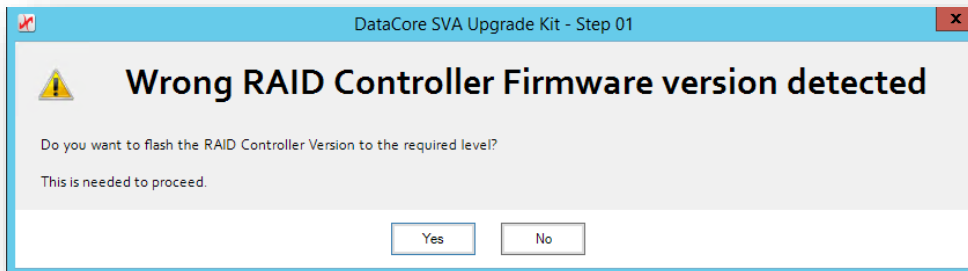
Wait until the reboot is complete.

## Update SVA RAID controller firmware

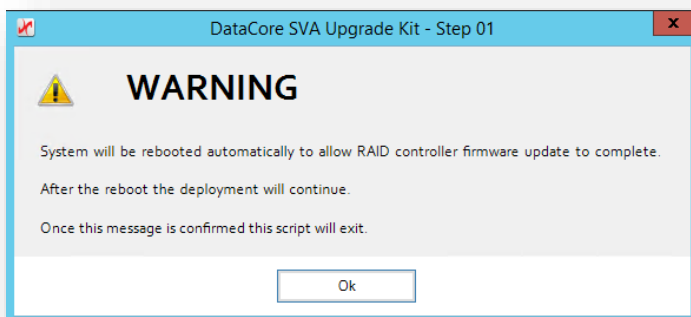
When the SVA has booted, log-in either via remote console (iRMC) or RDP, with the same user account used to initiate the upgrade. Please be patient. The Upgrade Kit should restart automatically after a few seconds.

## Performing the Upgrade

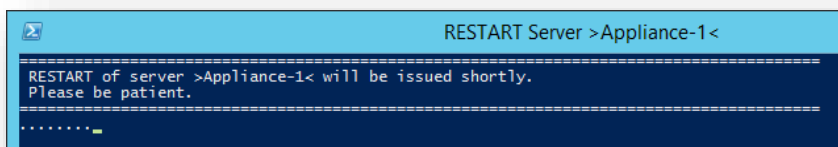
The upgrade process will detect that a newer version of the RAID controller firmware needs to be installed. Select “Yes” to proceed with the upgrade and install the new firmware.



Once the RAID controller firmware update has completed a message is displayed, notifying the operator of an impending reboot. Acknowledge the message by clicking “ok”.

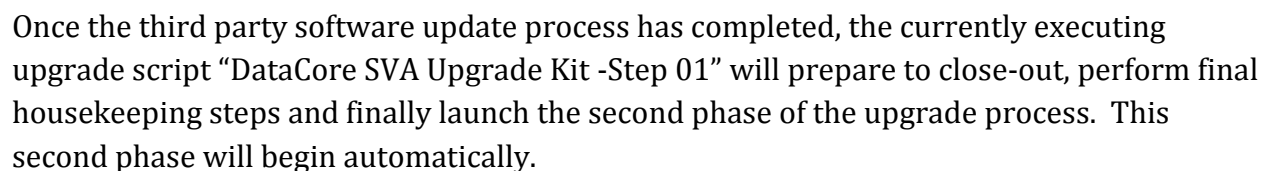


Another PowerShell Console window should open, indicating that the SVA will be restarted.



Wait until the reboot has completed.

During this phase of the upgrade various updates to non-DataCore management software, agents and associated drivers are performed (if required). The following screenshot illustrates this procedure.



```

DataCore SVA Upgrade Kit - Step 02

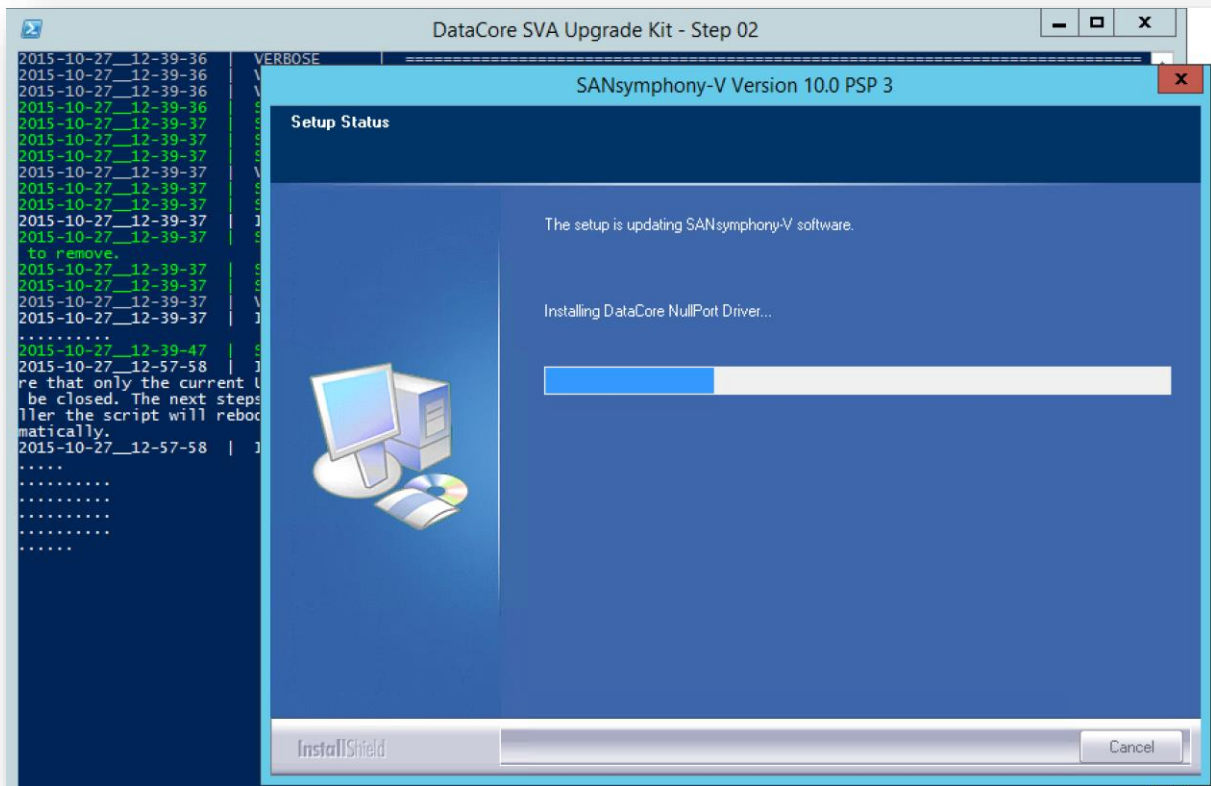
2015-07-24_19-05-58 | VERBOSE | =====
2015-07-24_19-05-58 | VERBOSE | >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>><<<<
2015-07-24_19-05-58 | VERBOSE | SCRIPT START
2015-07-24_19-05-58 | VERBOSE | =====
2015-07-24_19-05-58 | SUCCESS | get-scriptVersion : Function returns >1.0<.
2015-07-24_19-05-58 | SUCCESS | get-scriptDate : Function returns >2015-07-24<.
2015-07-24_19-05-58 | SUCCESS | stage-0 : valid Powershell version found.
2015-07-24_19-05-58 | SUCCESS | stage-0 : returns >>true<.
2015-07-24_19-05-58 | VERBOSE | -----
2015-07-24_19-05-58 | SUCCESS | sha512hash : returns the file hash.
2015-07-24_19-05-58 | SUCCESS | stage-1 : Checksum for >02_SVA-Upgrade_install-ssyv< validated.
2015-07-24_19-05-58 | INFORMATION | autorunPsisScript : removing Autorun key for current user.
2015-07-24_19-05-58 | SUCCESS | autorunPsisScript : run-key >02_SVA-Upgrade_install-ssyv.ps1< not found. No need
to remove.
2015-07-24_19-05-58 | SUCCESS | autorunPsisScript : returns >>true<.
2015-07-24_19-05-58 | SUCCESS | stage-1 : returns >>true<.
2015-07-24_19-05-58 | VERBOSE | -----
2015-07-24_19-05-58 | INFORMATION | Waiting a for the previous upgrade step to complete.
.....

```

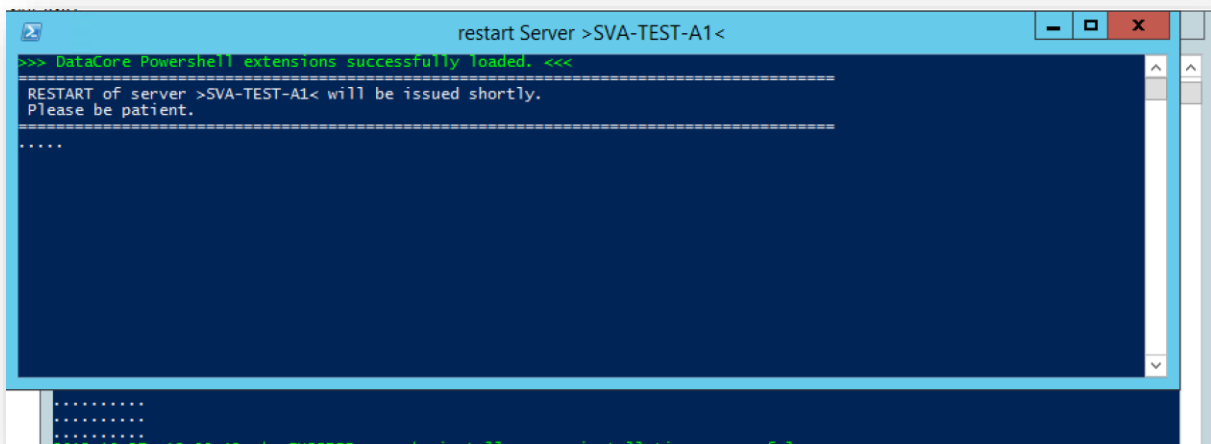
Fujitsu DataCore SVA 10.0 PSP4 Upgrade Kit



## Performing the Upgrade



If the check correctly validates the update, the SVA will reboot itself. Another PowerShell Console windows will open, notifying the operator that the SVA will be rebooted.



Wait until the reboot is completed.

The DataCore advanced backup-configuration tool will be installed and/or updated. Another PowerShell window will open and execute the necessary configuration actions:

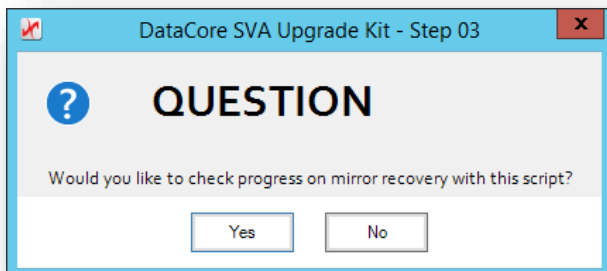
```
DataCore SANsymphony-V Backup-Configuration
```

Date	Status	Action / Message
2015-07-25_08-09-06	VERBOSE	>>>>>>>>>>>>>>>>>>>>>> SCRIPT START <<<<<<<<<<<<<<<<<<<<<<<<<<
2015-07-25_08-09-06	VERBOSE	
2015-07-25_08-09-06	VERBOSE	
2015-07-25_08-09-07	SUCCESS	get-scriptVersion : Function returns >1.0.9<.
2015-07-25_08-09-07	SUCCESS	get-scriptDate : Function returns >2015-07-07<.
2015-07-25_08-09-07	SUCCESS	stage-0 : valid Powershell version found.
2015-07-25_08-09-07	SUCCESS	stage-0 : returns >>true<.
2015-07-25_08-09-07	VERBOSE	-----
2015-07-25_08-09-07	SUCCESS	sha512hash : returns the file hash.
2015-07-25_08-09-07	SUCCESS	stage-1 : Checksum for >backup-configuration< validated.
2015-07-25_08-09-07	INFORMATION	autorunPslScript : removing Autorun key for current user.
2015-07-25_08-09-07	SUCCESS	autorunPslScript : run-key >backup-configuration.psl< not found. No need to rem
2015-07-25_08-09-07	SUCCESS	owe.
2015-07-25_08-09-07	SUCCESS	autorunPslScript : returns >>true<.
2015-07-25_08-09-07	INFORMATION	DataCorePSModule : Checking for already loaded DataCore Powershell module ...
2015-07-25_08-09-07	INFORMATION	DataCorePSModule : DataCore Commandlets not loaded.
2015-07-25_08-09-07	SUCCESS	DataCorePSModule : returns >>true<.
2015-07-25_08-09-07	INFORMATION	DataCorePSModule : Loading DataCore Powershell module ...
2015-07-25_08-09-07	SUCCESS	DataCorePSModule : success.
2015-07-25_08-09-07	SUCCESS	DataCorePSModule : returns >>true<.
2015-07-25_08-09-07	SUCCESS	stage-1 : returns >>true<.
2015-07-25_08-09-07	VERBOSE	-----
2015-07-25_08-09-07	SUCCESS	get-osLanguage : returns >>english<<.
2015-07-25_08-09-07	WARNING	stage-2 : local path not found. Creating >C:\SSY-V-Backup\<.
2015-07-25_08-09-07	SUCCESS	stage-2 : success.
2015-07-25_08-09-07	INFORMATION	NtfsPermission : creating access rule for >C:\SSY-V-Backup\<. User/group >DcsAd
min< and permission>FullControl<.		
2015-07-25_08-09-07	SUCCESS	NtfsPermission : success.
2015-07-25_08-09-07	SUCCESS	NtfsPermission : returns >>true<.
2015-07-25_08-09-08	WARNING	stage-2 : local path is not shared. Creating SMB share with name>SSY-V-Backup\$<
2015-07-25_08-09-09	SUCCESS	stage-2 : success.
2015-07-25_08-09-09	INFORMATION	dcsServiceConnection : Connecting to the DataCore Executive service with passt
through authentication.		

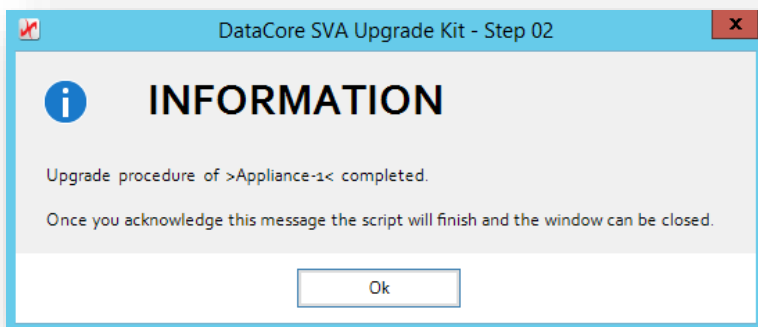
Once all upgrade actions have been performed successfully the upgrade script will issue a “Start Virtualization” command to the *SANsymphony-V™* instance on the upgraded SVA. This allows storage IO processing on that node to recommence and will cause automatic recovery steps to be performed for any Mirrored Virtual Disk types that have been configured on that SVA.

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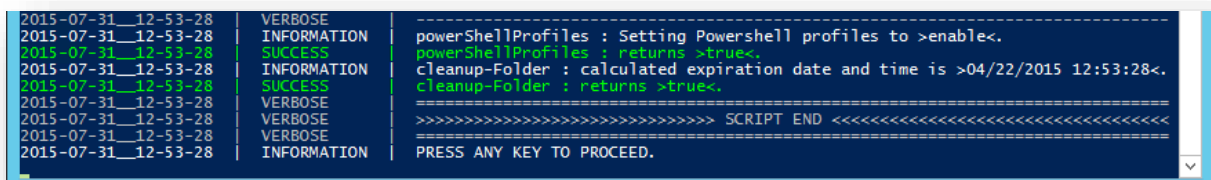
## Performing the Upgrade



Once the upgrade is completed, either by selecting “no” at the dialogue above, or when mirror recoveries have been detected as completed, you will receive the following message:



Confirm the dialog by clicking “Ok”. The upgrade of this SVA unit is now complete. However the PowerShell console window will remain open so that the operator may review the upgrade log if required. The last few message lines shown in the PowerShell Console window should resemble those shown in the illustration below, having a distinct “Script End” footer:



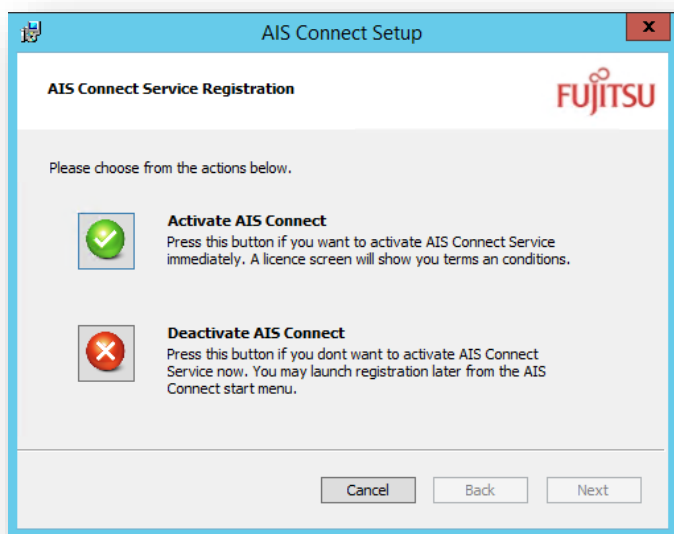
As the upgrade is now complete it is safe to close this PowerShell Console window at any time, either via a keystroke or by using the red close window button located in its upper right-hand corner.

## Performing the Upgrade

You can now proceed to upgrade the next SVA / DataCore Server node within this Server Group.

# Post-Upgrade Steps

After the upgrade has completed the Fujitsu AIS Connect registration wizard is invoked. This is because during the upgrade process the version of the AIS Connect software has also been upgraded and it will need to be reconfigured.



Upon completion, the desktop of the SVA unit should resemble this illustration:



Please note the following:

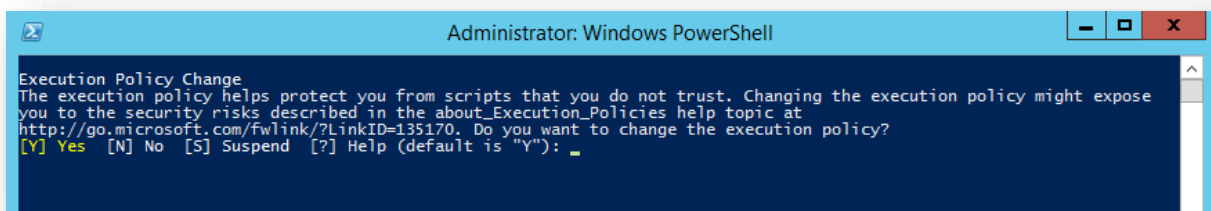
- The DataCore *SANsymphony-V™* cmdlets desktop shortcut has been removed. This is because the *SANsymphony-V™* cmdlets are now automatically available within every PowerShell session.
- A CSV file has been placed on the desktop which contains information relating to the WWNs of Fibre Channel HBAs discovered in the SVA during the upgrade process.
- A link to the SVA resources page has been placed on the desktop. Follow the link and make yourself familiar with the content.

# Known Issues

Through internal QA testing procedures and field reports, DataCore Software is aware that certain issues *may* be encountered during the upgrade procedure. Please make yourself familiar with the content of this section *prior* to starting the upgrade, so that you are properly prepared to handle any of these situations should they occur.

## PowerShell Script prompts for Execution Policy change

The upgrade script may prompt for a change to Execution Policy. This will usually be the case if a PowerShell script has not previously been executed on this SVA by using the “right click” -> “execute” context menu of Windows Explorer. If this should occur, please accept the policy change by answering “Y” and proceed. *If* it is encountered at all, this prompt should be encountered at most once during the upgrade.



## iRMC web page not responding

Under certain circumstances the iRMC Service Processor may become unresponsive, which will result in the iRMC web interface pages being inaccessible. Your web browser will show a message to the effect of “website unavailable”

This situation is rectified by commanding a reset of the Service Processor. Use an SSH client to connect to the iRMC using the same user credentials as you would for the Web-Interface itself. The following menu should be shown:

```
*****
*   Welcome to PRIMERGY Remote Manager   *
*   Firmware Revision 7.38F (1.00)       *
*   SDR 3.71 ID 0346 TX300S8             *
*   Firmware built Jun 23 2014 22:13:25 CEST *
*****

System Type : PRIMERGY RX350 S8
System ID   : YLNV001420
System Name : APPLIANCE-2
System OS   : Windows Server 2012 R2 Standard
System Status: OK (Identify LED is OFF)
Power Status : On
Asset Tag   : Appliance 2

Main Menu

(1) System Information...
(2) Power Management...
(3) Enclosure Information...
(4) Service Processor...
(5) RAID Management...

(c) Change password
(r) Console Redirection (EMS/SAC)
(s) Start a Command Line shell...
(l) Console Logging

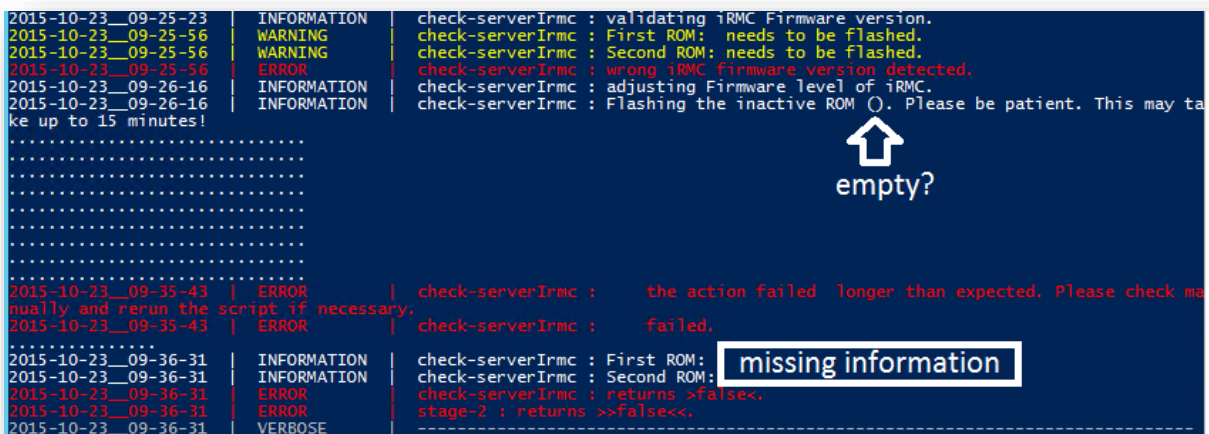
Enter selection or (0) to quit: █
```

Choose option 4 (Service Processor). In the menu that follows, choose firstly option 4, a warm reset. If this fails to resolve the issue, repeat the above steps but execute option 5 instead, which is a cold reset. A cold reset of the service processor should only be used if a warm reset does not have the desired effect. After issuing a reset instruction, the Web-Interface should become available again within 3 to 4 minutes.



## iRMC firmware flash fails

Under certain circumstances the iRMC firmware update can fail. This is typically the case when upgrading from older versions of the iRMC, such as version 7.38F. Should this happen, the output of the Upgrade Kit PowerShell Console window will *resemble* the following illustration:



```

2015-10-23_09-25-23 | INFORMATION | check-serverIrmc : validating iRMC Firmware version.
2015-10-23_09-25-56 | WARNING | check-serverIrmc : First ROM: needs to be flashed.
2015-10-23_09-25-56 | WARNING | check-serverIrmc : Second ROM: needs to be flashed.
2015-10-23_09-25-56 | ERROR | check-serverIrmc : wrong iRMC firmware version detected.
2015-10-23_09-26-16 | INFORMATION | check-serverIrmc : adjusting Firmware level of iRMC.
2015-10-23_09-26-16 | INFORMATION | check-serverIrmc : Flashing the inactive ROM (). Please be patient. This may take up to 15 minutes!
.....
.....
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.....
2015-10-23_09-35-43 | ERROR | check-serverIrmc : the action failed longer than expected. Please check manually and rerun the script if necessary.
2015-10-23_09-35-43 | ERROR | check-serverIrmc : failed.
.....
2015-10-23_09-36-31 | INFORMATION | check-serverIrmc : First ROM:
2015-10-23_09-36-31 | INFORMATION | check-serverIrmc : Second ROM:
2015-10-23_09-36-31 | ERROR | check-serverIrmc : returns >false<.
2015-10-23_09-36-31 | ERROR | stage-2 : returns >>false<<.
2015-10-23_09-36-31 | VERBOSE | -----

```

The failure is due to a communication issue between the operating system and the iRMC, when communicating through the HTI device. To resolve this, execute a cold reboot of the iRMC Service Processor as described in the previous section. If this reboot of the iRMC does not resolve the problem, try restarting the SVA again which will cause the upgrade step to run again.

If the issue remains unresolved, please open a Support Incident with DataCore Technical Support.

## SVA freezes at POST (Power-On Self-Test)

In very rare cases the SVA may not execute its POST correctly following a reboot. This may be considered to be the case if, following the issue of a reboot instruction, the server console remains in the following state for longer than 2 minutes:

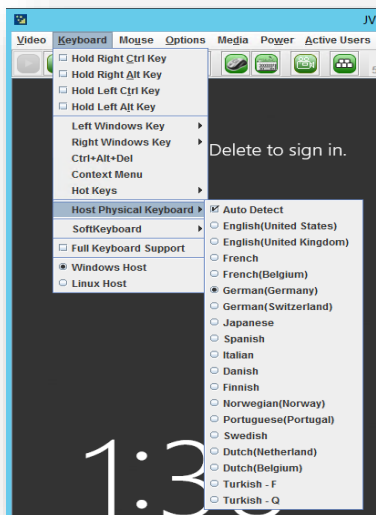


If this situation is encountered then it will be necessary to power-cycle the SVA, either via the iRMC Web-Interface or by using the physical power/reset button on the unit itself, in order to restore normal operation and continue the upgrade process.

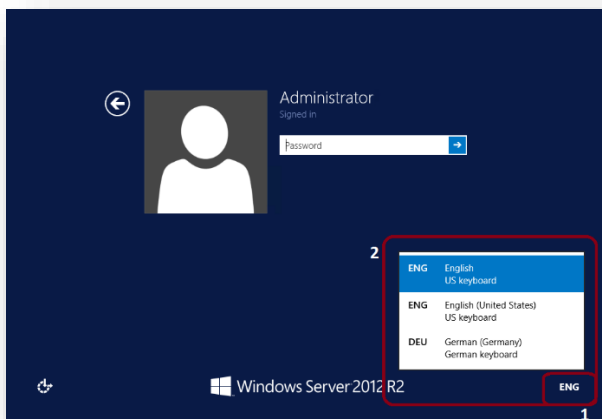
## User credentials appear incorrect when using the iRMC Console to perform a remote upgrade

When attempting to connect to the iRMC console remotely, it is possible that the keyboard layout for this device will not be set correctly and therefore the keystrokes that are being relayed are not those expected. Hence user authentication will fail.

To rectify this, update the iRMC console settings. Navigate to “Keyboard” → “Host Keyboard Layout” and select the expected keyboard layout, as shown in the illustration below:



If you still experience issues when logging-in, check that the correct keyboard layout is selected in the Windows login screen:



- ALL Powershell sessions are closed before starting the upgrade.
- You execute the PS script by using the Windows Explorer context menu ( -> right click -> run Powershell script).

## PowerShell scripts fail due to "checksum validation error"

```

2015-07-16 07:59:19 | VERBOSE      | =====  

2015-07-16 07:59:19 | VERBOSE      | >>>>>>>>>>>>>>>>>>> SCRIPT START <<<<<<<<<<<<<<  

2015-07-16 07:59:19 | VERBOSE      | =====  

2015-07-16 07:59:19 | SUCCESS     | get-scriptVersion : Function returns >x1.1<.  

2015-07-16 07:59:19 | SUCCESS     | get-scriptDate : Function returns >2015-07-07<.  

2015-07-16 07:59:19 | SUCCESS     | stage-0 : valid Powershell version found.  

2015-07-16 07:59:19 | SUCCESS     | stage-0 : returns >>true<.  

2015-07-16 07:59:19 | VERBOSE      | -----  

2015-07-16 07:59:19 | SUCCESS     | sha512hash : returns the file hash.  

2015-07-16 07:59:20 | ERROR       | stage-1 : someone tampered the script >Port-Defaults<.  

2015-07-16 07:59:20 | INFORMATION | autorunPslScript : removing Autorun key for current user.  

2015-07-16 07:59:20 | SUCCESS     | autorunPslScript : run-key >Port-Defaults.psl< not found. No need to remove.  

2015-07-16 07:59:20 | SUCCESS     | autorunPslScript : returns >>true<.  

2015-07-16 07:59:20 | INFORMATION | DataCorePSModule : Checking for already loaded DataCore Powershell module ...  

2015-07-16 07:59:20 | INFORMATION | DataCorePSModule : DataCore Commandlets loaded. Will unload them..  

2015-07-16 07:59:20 | SUCCESS     | DataCorePSModule : success.  

2015-07-16 07:59:20 | SUCCESS     | DataCorePSModule : returns >>true<.  

2015-07-16 07:59:20 | INFORMATION | DataCorePSModule : Loading DataCore Powershell module ...  

2015-07-16 07:59:20 | SUCCESS     | DataCorePSModule : success.  

2015-07-16 07:59:20 | SUCCESS     | DataCorePSModule : returns >>true<.  

2015-07-16 07:59:20 | ERROR       | stage-1 : returns >>false<.  

2015-07-16 07:59:20 | VERBOSE      | -----  

2015-07-16 07:59:20 | INFORMATION | powerShellProfiles : Setting PowerShell profiles to >enable<.  

2015-07-16 07:59:20 | SUCCESS     | powerShellProfiles : returns >>true<.  

2015-07-16 07:59:20 | INFORMATION | dcsService-Connection : cleaning all DataCore Server Sessions from this Powershell-session.  

2015-07-16 07:59:20 | INFORMATION | dcsService-Connection : >0< connections have been cleared from this Powershell-session.  

2015-07-16 07:59:20 | SUCCESS     | dcsService-Connection : returns >>true<.  

2015-07-16 07:59:20 | INFORMATION | cleanup-Folder : calculated expiration date and time is >04/07/2015 07:59:20<.  

2015-07-16 07:59:20 | SUCCESS     | cleanup-Folder : returns >>true<.  

2015-07-16 07:59:20 | VERBOSE      | -----  

2015-07-16 07:59:20 | VERBOSE      | >>>>>>>>>>>>>>>>>>> SCRIPT END <<<<<<<<<<<<<<  

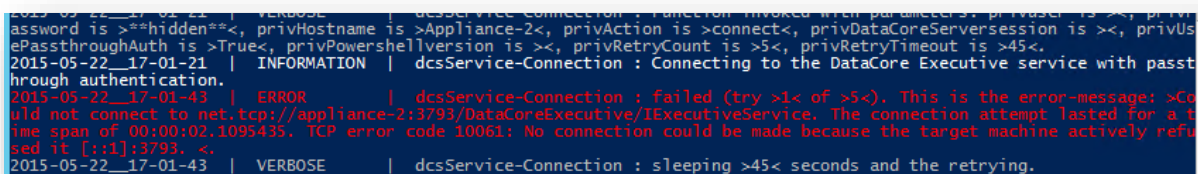
2015-07-16 07:59:20 | VERBOSE      | -----  

2015-07-16 07:59:20 | INFORMATION | PRESS ANY KEY TO PROCEED.
```

Fujitsu DataCore SVA 10.0 PSP4 Upgrade Kit

## “DCSservice-Connection” issue

Is it possible that under certain conditions, the upgrade automation scripts cannot connect to the DataCore Executive Service instance running on the SVA. In such an event, an error will be logged similar to that illustrated below:



```

2015-05-22_17-01-21 | VERBOSE | dcsService-Connection : Function invoked with parameters: privUser is ><, privPassword is >*>hidden*><, privHostname is >Appliance-2<, privAction is >connect<, privDataCoreServerSession is ><, privUsePassthroughAuth is >True<, privPowerShellVersion is ><, privRetryCount is >5<, privRetryTimeout is >45<.
2015-05-22_17-01-21 | INFORMATION | dcsService-Connection : Connecting to the DataCore Executive service with passthrough authentication.
2015-05-22_17-01-43 | ERROR | dcsService-Connection : failed (try >1< of >5<). This is the error-message: >Could not connect to net.tcp://appliance-2:3793/DataCoreExecutive/IExecutiveService. The connection attempt lasted for a time span of 00:00:02.1095435. TCP error code 10061: No connection could be made because the target machine actively refused it [::1]:3793.<.
2015-05-22_17-01-43 | VERBOSE | dcsService-Connection : sleeping >45< seconds and the retrying.
  
```

Should this occur, it has most likely done so because the DataCore Executive Service is still in the process of re-starting, following the completion of another step in the upgrade process. In this case, usually the affected script will pause and wait for the service to become available, at which time the upgrade will resume automatically. However if this is not so, use the Windows Server Manager / services.msc to ensure that the Executive Service is started and then re-start the upgrade by executing the appropriate script.

## Following an upgrade, the error-LED of the SVA is illuminated

In very rare cases, the SVA’s error LED is turned on after the upgrade is completed. This happens because of an older version of the HBA firmware version is detected as being incompatible with the current BIOS version that has been installed.

This does not pose any risk to the operation of the SVA but will require a reboot of the server as part of the procedure in order to clear the error condition indicator.

In the event that this should occur, please contact DataCore Technical Support for instructions on how to resolve this behaviour.

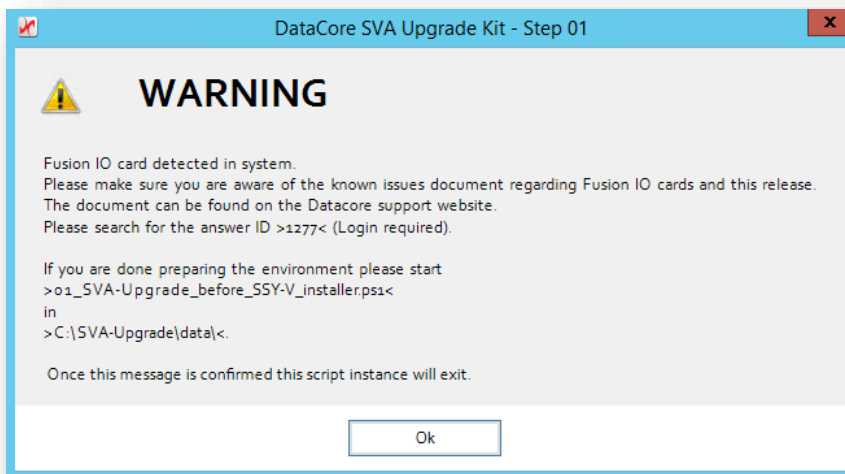
# Possible Caution and Warnings

The automation scripts that make up the Upgrade Kit are adaptive, in that they perform only necessary upgrade steps. Only updates required for hardware that is actually found to be present within a particular SVA unit will be applied. Therefore the upgrade process will not necessarily follow the same steps on all systems. For this reason, any, all or none of the following messages and situations may be encountered during the upgrade of a particular SVA unit. However all scenarios detailed here are possible, and if they should be encountered, are normal expected behaviour. Follow the corresponding instructions within this section if they occur.

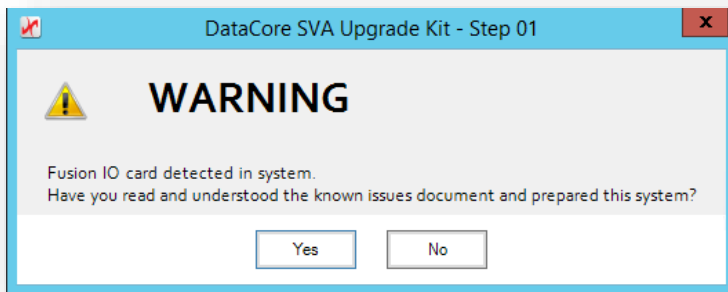
## Message regarding detection of Fusion IO devices

If a Fusion IO (SANdisk) card is detected within the SVA that is being upgraded a warning is displayed as there is a known issue relating to older Fusion IO drivers. The SVA must be properly prepared before proceeding with the upgrade. The Fusion IO driver installed should be no later than revision 3.2.10.1509. Please refer to the “3<sup>rd</sup> Party Known Issues” document placed on DataCore’s support website to get most recent information.

Once you acknowledge this warning the script instance will exit in order to allow you to check and, if necessary, update the driver version.



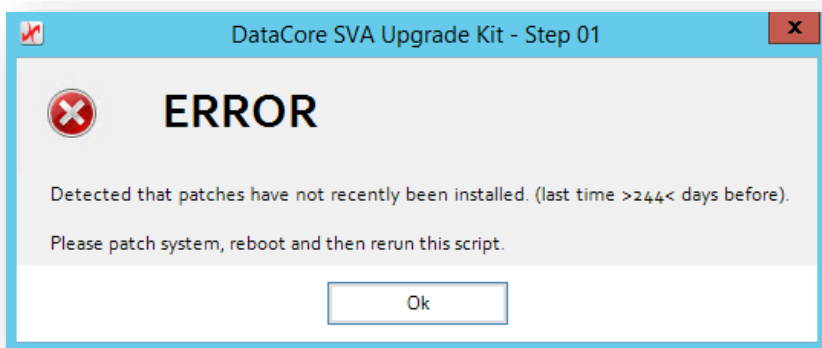
After the restart of the script the procedure will request confirmation that the driver check / installation has been performed.



Once confirmed, the upgrade process will continue normally.

## OS Patch level not up-to-date

A recent level of OS patching is a pre-requisite for the SVA upgrade and is enforced by the upgrade scripts. If Windows Update / WSUS update was not run immediately prior to executing the upgrade then the following message will be displayed:



Upon confirmation, the script instance will exit. The Windows Update console is opened automatically in order to allow you to check for and install any necessary updates.

# Appendix A – Minimum OS patch level for SVA running R10 PSP4

For reference, the following is a list of patches that reflect the *minimum* patch level as of 09. December 2015, against which this upgrade kit version has been validated. Please be aware that some of the older updates may have been superseded:

KB2843630	KB2939087	KB3013769	KB3045717	KB3074548
KB2862152	KB2954879	KB3013791	KB3045719	KB3075220
KB2868626	KB2957189	KB3013816	KB3045746	KB3075249
KB2876331	KB2961072	KB3014029	KB3045755	KB3076895
KB2883200	KB2961908	KB3014442	KB3045992	KB3077715
KB2884846	KB2962123	KB3016074	KB3045999	KB3078405
KB2887595	KB2962806	KB3018467	KB3046017	KB3078601
KB2892074	KB2966826	KB3019978	KB3046359	KB3078676
KB2893294	KB2966828	KB3020338	KB3046737	KB3080042
KB2894029	KB2966870	KB3021674	KB3047255	KB3080149
KB2894179	KB2967917	KB3021910	KB3048043	KB3080446
KB2894852	KB2968296	KB3022777	KB3048072	KB3081320
KB2898514	KB2972103	KB3023219	KB3048097	KB3082089
KB2898742	KB2972213	KB3023222	KB3048778	KB3083992
KB2898871	KB2973114	KB3023266	KB3049989	KB3084135
KB2900986	KB2973201	KB3024751	KB3050267	KB3084905
KB2901101	KB2973351	KB3024755	KB3050514	KB3086255
KB2901128	KB2975061	KB3027209	KB3054169	KB3087039
KB2903939	KB2976897	KB3029438	KB3054203	KB3087041
KB2904266	KB2977292	KB3029603	KB3054256	KB3087088
KB2906956	KB2977765	KB3029803	KB3054464	KB3087137
KB2908174	KB2978041	KB3030377	KB3055323	KB3087390
KB2909921	KB2978122	KB3030947	KB3055343	KB3087418
KB2911106	KB2978126	KB3032323	KB3055642	KB3088195
KB2912390	KB2978668	KB3032663	KB3057839	KB3091297
KB2913152	KB2979573	KB3033446	KB3058168	KB3092601
KB2913270	KB2979576	KB3033889	KB3058515	KB3092627
KB2913760	KB2988948	KB3034348	KB3059316	KB3094486
KB2914218	KB2989930	KB3035017	KB3059317	KB3095701
KB2916036	KB2992611	KB3035126	KB3060383	KB3096411
KB2917929	KB2993651	KB3035132	KB3060681	KB3096433
KB2917993	KB2993958	KB3035487	KB3060716	KB3097966
KB2918614	KB2998097	KB3035527	KB3060793	KB3097992
KB2919355	KB2999226	KB3035553	KB3061468	KB3097997
KB2919394	KB3000850	KB3036612	KB3061512	KB3098779
KB2920189	KB3002657	KB3037576	KB3061518	KB3099834
KB2922229	KB3003057	KB3037579	KB3063843	KB3099864
KB2923300	KB3003743	KB3037924	KB3064209	KB3100919
KB2923528	KB3004361	KB3038002	KB3065013	KB3100956
KB2923768	KB3004365	KB3038562	KB3067505	KB3101183
KB2928193	KB3004394	KB3039066	KB3068457	KB3101246
KB2928680	KB3004545	KB3041857	KB3068708	KB3102429



## Appendix

KB2930275	KB3006137	KB3042058	KB3069392	KB3102939
KB2931366	KB3006226	KB3042085	KB3071663	KB3103696
KB2934501	KB3008242	KB3042553	KB3071756	KB3104002
KB2934504	KB3010788	KB3043812	KB3072307	KB3107998
KB2934507	KB3011780	KB3044374	KB3072595	KB3108347
KB2934508	KB3012702	KB3044673	KB3072630	KB3108381
KB2934519	KB3013172	KB3045171	KB3072633	KB3109094
KB2934520	KB3013410	KB3045634	KB3074228	KB3109103
KB2938066	KB3013538	KB3045685	KB3074545	KB3112148
				KB3112336

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