



Sangfor VDI

Release Notes

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About This Document






This document provides a detailed upgrade guide for Sangfor VDI.

Intended Audience

This document is intended for:

- System / Network Administrator
- Technical Users.

Note Icons

English Icon	Description
	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation, which if not avoided, could result in minor or moderate injury.
	Indicates a hazardous situation, which if not avoided, could result in settings failing to take effect, equipment damage, or data loss. NOTICE addresses practices not related to personal injury.
	Calls attention to important information, best practices, and tips. NOTE addresses information not related to personal injury or equipment damage.

Change Log

Date	Change Description
Oct. 25, 2021	This is the first release of this document.

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1 Overview

1.1 Major Features

1.1.1 New Features

1. **More Stable:**

The high availability of the VDC system has been greatly improved. Through the reconstruction of session management and the improvement of authorization, the reliability and business continuity of the VDC system is enhanced, improving the user experience. In the direct connection to VMP mode, if the VDC system fails (restart or downtime) from half an hour to one day (related to the user login time), online users will not be affected. If the cluster is not stable, online users are not affected.

Under the scenarios where licenses cannot be obtained due to instability, licenses are reduced or increased, and licenses service gets restarted, online users will not be disconnected.

The problem of the inconsistency between the number of online users and the number of licensed users is fixed.

2. **More Accurate:**

The VDC alert mechanism has been optimized. New log modules and labels are added to help O&M staff locate issues more accurately and troubleshoot issues faster.

The interaction design of the alert message and alert page is optimized and adds more monitoring items, such as IP conflict, Redis-related single point of failures, handle leaks, etc. When an anomaly occurs, it can monitor and capture timely, automatically recover from a critical anomaly or isolate the anomaly to ensure the reliability of VDC.

3. **Faster:**

In the file transfer scenario, increasing the endpoint's read rate connected to a USB storage device greatly improves the user experience.

After optimization, the read rate of USB storage devices is increased by up to 200% for Gigabit Ethernet and 60% for Fast Ethernet.

The read performance after optimization exceeds the competitors' products. For example, under the Gigabit Ethernet, the read rate of STD-500 thin clients can reach 35MB/s.

4. Smoother:

When AD domain users access virtual machines or when an AD domain policy is pushed down, users will access smoother, and the policy will rapidly take effect. This version solved the problem that the AD domain policy of the virtual machine in the restored type did not take effect and that the AD domain policy did not take effect because the VM was not restarted after it joined the domain.

By supporting joining VM templates to the AD domain, the boot speed of the VM in the restore mode is improved (compared to the templates not joining the domain, the speed is improved by 40 seconds to 70 seconds).

5. More Compatible:

In the restored type, more different models of printer configurations can be saved, providing users with more reliable value and significantly improving administrators' efficiency.

This version solved the problem of saving printer configurations for the VMs in the restored type. VDC supports customizing printer configuration paths, making printer configuration more flexible and widening the scope of supported printer configurations. It also solved the problem that the configuration cannot be saved by customizing a custom path to add the

registry path of that printer configuration.

6. More Powerful:

This version includes the functions of 5.4.10R1_EN and includes the functions of all official versions.

1.1.2 Others

The upgrade will affect the following old functions:

1. Starting from version 5.5.0, **VDI does not support Window XP anymore**. It will lead the XP VM to be VDI agent abnormal, which will cause various problems in future. The last version that can support Windows XP OS is 5.4.5. **If the customer has Windows XP VM, they can only maintain at or upgrade to VDI 5.4.5.**
2. The web console command **sshftp** that opens the SSH background is deleted in this version.
3. Upgrading from versions between VDI5.4.0_EN and VDI5.4.2_EN requires enabling the **Remote Maintenance** function on the **System > System > O&M Configuration** page of VDC. Upgrading from VDI5.4.5_EN and later versions requires enabling the **Upgrade Maintenance** function on the above-mentioned page.
4. For version 5.4.1_EN and later versions, the licensing method for VDC hardware is the same as VDC software, and both are granted by the VMP license key. During this process, communication between VDC and VMP needs to keep normal.

1.2 Upgrade Impacts

After the upgrade, you need to restart the device.

1.2.1 Impacts on Services

After the upgrade, the device needs to restart, which will interrupt the business.

Therefore, it is necessary to communicate with the customer to perform the upgrade during off-peak hours.

1. During the upgrade of VMP, users cannot log in to virtual machines.
2. After the upgrade, the agent for VM will be updated, and the VM will get restarted. Please notify users in advance to keep or back up important data.
3. During the upgrade of VDC, users who have logged in to VMs will be disconnected.

1.2.2 Impacts on O&M

During the upgrade, O&M staff cannot log in to VMP or VDC to perform operations.

1.2.3 Impacts on Customer Network

Network will not be affected during the upgrade.

1.2.4 Restrictions on Upgrade

1. During the VDC upgrade process, the connected VMs are disconnected and automatically reconnected. If the automatic reconnection fails, you need to log in again after upgrading all the components (ROM or agent).
2. Upgrading the device will cause the device to restart, and users cannot access it temporarily, so the upgrade needs to be performed during off-peak hours.
3. Users who enabled shared mode on 3D-supported VMs (non-vGPU mode) need to contact a Sangfor technical support representative before the upgrade, and perform the upgrade operation under the instruction of the technical support representative.
4. If your device is a beta version, you must upgrade to this official version. After that, you can upgrade the device to other official versions.
5. For VDI5.3.2SP1 and earlier versions, users who enabled passthrough mode on 3D-supported VMs need to apply for VDC platinum user licenses

before the upgrade, and update VDC licenses after the upgrade. Otherwise, they will not be able to access the VMs in passthrough mode because they are not licensed.

6. You can only use Sangfor Firmware Updater 6.3 to upgrade VDC.
7. This version can only be upgraded from VDI5.4.0_EN and later versions. For versions earlier than VDI5.4.0_EN, you need to upgrade them to VDI5.4.5R1_EN before upgrading to the current version.

1.2.5 Other Impacts

None.

1.3 Customer Upgrade Preparations

1.3.1 Upgrade Preparations

Refer to the business interruption time in the table and negotiate with the customer to schedule the time and organize O&M staff to perform the upgrade.

1.3.1.1 VMP

Operation	Time Taken	Note
Shut down VM and service system	An average of 30 seconds for each virtual machine	Except for cases where it is necessary to log in to the virtual machine for operation, virtual machines can be shut down in batch on VMP directly.
Enter maintenance mode on VMP, upload the update patch to upgrade.	10 mins to 1 hour	<p>It may take 10 minutes to upgrade a single VMP in LAN.</p> <p>It may take 30 minutes to upgrade a VMP cluster comprising two nodes in LAN.</p> <p>It may take one hour to upgrade a VMP cluster comprising three or more nodes in</p>

		LAN.
Restart all hosts and wait for the cluster to be stable.	5 mins	
Restart the service system.	10 mins	

1.3.1.2 VDC

Operation	Time Taken	Note
Use Sangfor Updater 6.0 to connect to VDC.	1 min	Use the user account and password for logging in to the VDC console.
Upload VDC update patch and start the upgrade.	Software: 30 mins Hardware: 35 mins	
Restart VDC and wait for services to be stable.	2 mins	VDC will restart automatically after the upgrade is completed.

1.3.2 Notes

During the upgrade process, the customer's O&M staff cannot perform operations.

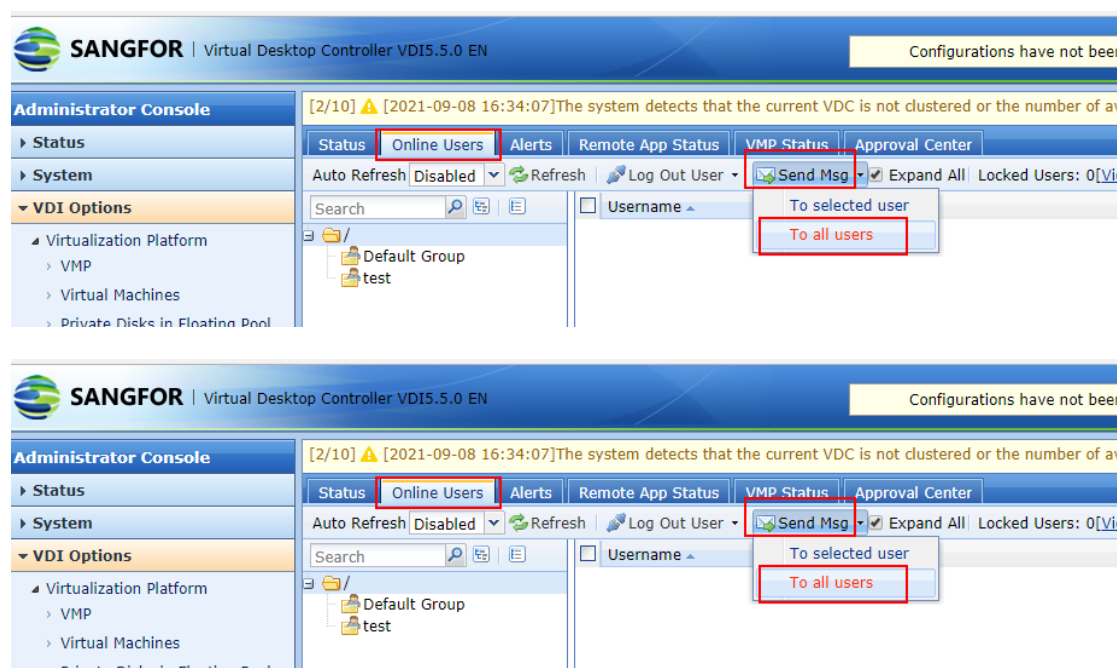
The administrator needs to be notified of the following:

1. The upgrade will cause the users who logged in to the device to disconnect and the VMs to restart. Therefore, the administrator needs to reserve time for the upgrade in advance.
2. Before the upgrade of VMP, make sure that all VMP nodes in the cluster are online.
3. The versions of VDC and VMP must be consistent, and the upgrade of each device needs to be performed in the same period.
4. Before the upgrade, If there is a VM template in restored type, the agent will not be automatically upgraded after the upgrade. You need to upgrade the agent manually.



To upgrade the agent, see Agent Upgrade in Restored Type.

- Before the upgrade, you can send a message about the upgrade to all users on the VDC console.



End-users need to be notified of the following:

- If a client of the C/S architecture has the virtual desktop page opened before the VDC upgrade, you need to refresh the page or reopen the page after the upgrade, and then try to log in to the virtual desktop again.
- If a thin client has the virtual desktop opened before the VDC upgrade, you need to upgrade the ROM of the thin client after the upgrade, and then log in to the virtual desktop again.
- During the VMP upgrade process, the users' VMs will get restarted.
Therefore, please notify the users to save

1.4 Implementation Procedure

To guarantee the best performance, versions of VDC and VMP should be

consistent. Upgrade of VMP and VDC should be executed simultaneously, and the VM agent should also be upgraded. ROM needs to be upgraded when users access the virtual machine via a thin client. Upgrade procedures should be strictly followed.

Step	Description	Time Taken
Step 1	Check if the VDC upgrade license is still valid and the value of the remaining days for the VMP license is greater than 0.	About 5 mins
Step 2	Check if VDC or VMP has any custom installation package or update patch installed	About 10 mins
Step 3	The following pre-upgrade check patch vdi-sp_202108122018-update_pre_check_EN.ssu is required for VDC. For VMP, the pre-upgrade check patch aDesksp-updatepatch-540_5410R1(20210910).pkg is required.	About 10 mins
Step 4	Upgrade aCenter (if any) first. Otherwise, proceed to the next step directly.	About 10 mins
Step 5	Upgrade VMP	1-2 hours
Step 6	If hosts with VDC installed combine to form a cluster, declustering is required before upgrade.	VDC software (for each): 30 mins VDC hardware (for each): 35 mins
	Upgrade a single VDC	
Step 7	Upgrade VM agent	10 mins for each (upgrade of VM agent can be performed concurrently, and the actual time needed can be estimated as per practical scenarios of the customer)

Step 8	Upgrade aDesk	5 mins for each (upgrade for aDesk can be estimated as per practical scenarios of the customer)
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Table 1: Upgrade Procedures

1.5 Upgrade Notes

1. VDI5.5.0_EN supports the upgrade of VDI5.4.0_EN and later official versions, and does not support the upgrade of other versions earlier than VDI5.4.0_EN. Versions earlier than VDI5.4.0_EN need to be upgraded to VDI5.4.0_EN first.
2. Install the pre-check package before the upgrade (after the check is passed, the upgrade can be performed):

Pre-check package for VDC:

vdi-sp_202108122018-update_pre_check_EN.ssu.Pre-check package for

VMP: aDesksp-updatepatch-540_5410R1(20210910).pkg.Disk and partition requirements:

- In the 2D-supported scenario, the storage space of the VMP system disk partition /sf/data/local should be greater than 7.8 GB for the cluster controller and 3.9 GB for other nodes.
- In the 3D-supported scenario, the storage space of the VMP system disk partition /sf/data/local should be greater than 9.8 GB for the cluster controller and 6 GB for other nodes.
- VDC system disk should be 64 GB SSD, and the memory space should be at least 4 GB. System disk of the 3D-supported VMP server should be at least 128 GB SSD.



If it is a VDC hardware device and the size of the system disk is not 64 GB, you need to contact a Sangfor technical support representative to replace the disk with a 64 GB SSD.

Likewise, if it is a hardware VDC device and the memory size is less than 4 GB, you need to contact the technical support representative to replace the memory with 4 GB.

During the period of replacing the memory or SSD, you can export the global configuration of the VDC hardware device, import the global configuration on VMP to create a VDC software device, and then contact the technical support representative to grant a license to you.

After the replacement is completed, you can export the configuration of the VDC software device to the hardware VDC device and delete the VDC software to avoid conflicts. In this way, the problem that the business is interrupted during the replacement of VDC hardware components is solved.

3. Licenses-related notes:

- For version 5.4.1_EN and above, the licensing method for VDC hardware is the same as VDC software. Both are granted by the VMP license key. During this process, communication between VDC and VMP should be normal.

4. Upgrade for 3D-supported servers and VMs:

- For scenarios where shared mode is applied on 3D-supported VMs, please contact the customer service at +60 127-117-129 (7511) and perform the upgrade under the guidance of Sangfor technical support representatives.
- For version VDI5.3.2SP1_EN and earlier versions, if the user has passthrough mode enabled on 3D-supported VMs, it is required to apply for a superuser license before the upgrade. After upgrade is completed, it is required to update the VDC license. Otherwise, the user is unable to access the virtual machine in passthrough mode.
- After an upgrade on a 3D-supported server for VMP is completed, it is required to update the VM agent. The VM may crash if the endpoint device is accessed before the upgrade of the agent is completed.
- To upgrade on a 3D-supported server for VMP, the 3D VM needs to upgrade the graphics driver first. Refer to the download guide on Sangfor Community for the download URL.

5. You can only use Sangfor Firmware Updater 6.3 to upgrade VDC.

1.6 Post-Upgrade Service Check

After the upgrade is complete, start the service and perform the service check.

1.7 Rollback Instructions

1. If the upgrade fails, Sangfor technical support engineers and channel engineers cannot roll back devices themselves.
2. Instead, they need to contact an expert or technical support representative for troubleshooting.

2 Upgrade Guide

To guarantee the best performance, versions of VDC and VMP should be consistent. Upgrade of VMP and VDC should be executed simultaneously, and the VM agent should also be upgraded. ROM needs to be upgraded when users access the virtual machine via a thin client.

Please follow the upgrade process. You need to complete the VMP upgrade before upgrading VDC. For nodes with VMP installed in a cluster, you need to ensure that all nodes are online during the upgrade, and then perform the upgrade on the cluster controller.

For VDC devices deployed in a cluster, these devices need to be exited from the cluster before the upgrade. Devices of different versions cannot access the distributed cluster simultaneously, so the devices need to be upgraded at the same time. Ensure that these devices can work before adding them to the cluster.

2.1 Preparations for Upgrade

2.1.1 Upgrade Tools

Component Name	Update Patch Name	Link for Download
VMP Update	VMP5.5.0_EN(20210912).pkg	https://community.sangfor.com/plugin.php?id=service:download&action=view&fid=8#/7/all
VDC Update	VDC5.5.0_EN(20210911).ssu	
VDC Pre-upgrade Check Patch	vdi-sp_202108122018-update_pre_check_EN.ssu	
VMP Pre-upgrade Check Patch	aDesksp-updatepatch-540_5410R1(20210910).pkg	

PC Client Installation Package (if any)	install-in-one.zip	
Report Center Installation Package (if any)	ReportCenterServInstall5.5.0(2021091110).zip	

Table 2: Update Patches

Name	Description	How to Get
Sangfor Firmware Updater 6.3	Used for VDC upgrade.	https://download.sangfor.com/Download/Product/VDI/VDI5.5.0_EN/SANGFOR_Updater6.3_aDesk.zip

Table 3: Tools

2.1.2 Environment Information

Platform	IP	Username/Password
VMP	-	-
VDC	-	-

2.1.3 Customer Resource Coordination

For a smooth upgrade, you need to make the following preparations:

- Fix a time for the upgrade and make full preparations in case of business interruption during the upgrade.
- Get contact information of the person in charge of the device upgrade.
- Prepare a computer that has stable access to the internet, VMP, and VDC. The computer needs to have permission to install and run the Sangfor Firmware Updater.

2.2 Pre-Upgrade Check

2.2.1 General Check Items

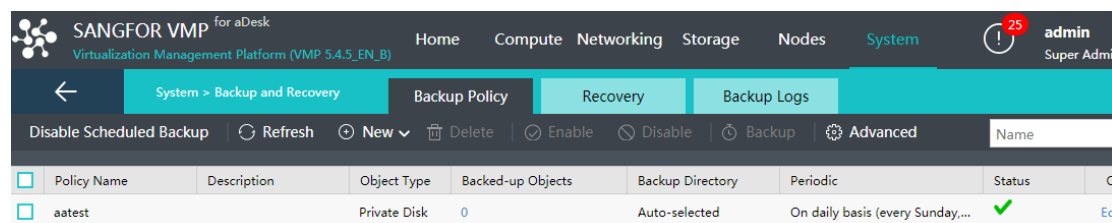
Item	Object
Version	Current VMP version
	Current VDC version
	Current VM agent version
	Current aDesk ROM version
Custom installation package or update patch	Custom VMP installation package or update patch
	Custom VDC installation package or update patch
Update patch	Check if the update patches for VMP and VDC are successfully downloaded. Check if MD5 value is correct.
Upgrade tools	Chrome
	Sangfor Updater 6.0
VDC cluster status	Check if all clustered VDC nodes are online.
VMP system configuration	VMP system configurations have been successfully backed up.
VDC configuration	Log in to VDC console to view and archive the current configurations of modules including Virtual Machines, Operations Center, Resources and Roles.
Automatic check items	Make sure all check items on VDC console are marked as normal.
VS replicas	Check if there are two replicas. Please contact Sangfor technical support representative if there is only one replica or three replicas.
Backend key files	Check if there are any files other than rd and vm under the directory /boot/firmware/current/package/files/. Please contact Sangfor technical support representative if any exists.
Host virtual storage space	Remaining virtual storage space of the host should be greater than 100 GB.

Scheduled tasks	Check if all scheduled tasks, if any, on VDC or VMP have been stopped.
VM status	Check if all virtual machines in a cluster have been safely shut down.

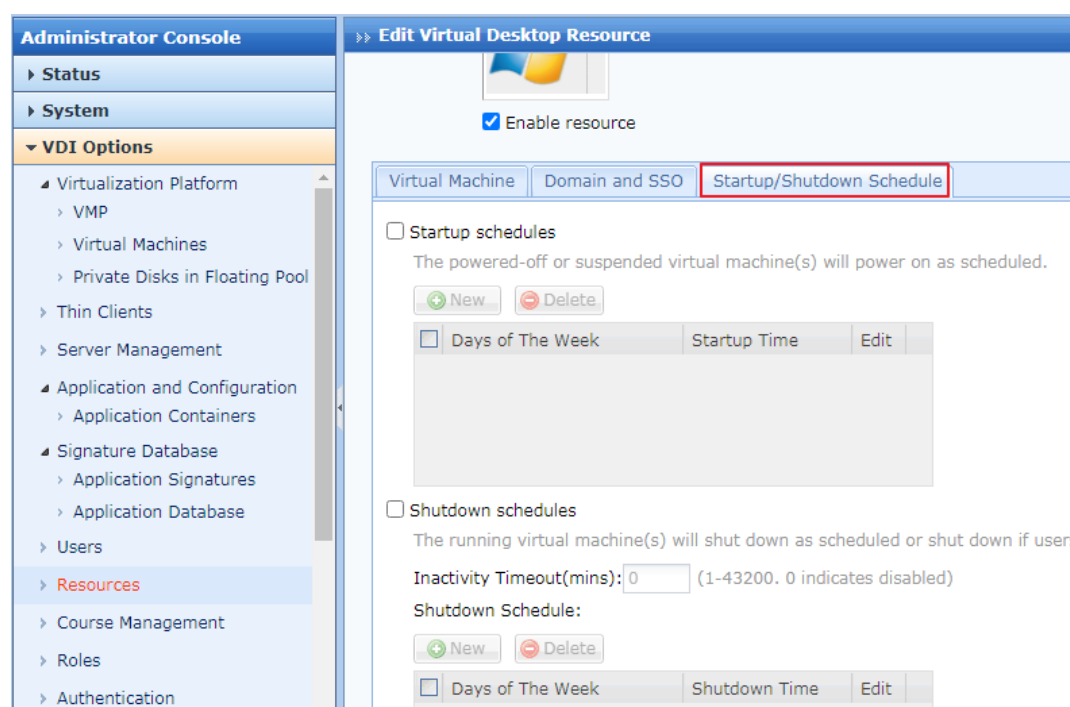
2.2.1.1 Scheduled Task on VMP

Check if there are scheduled tasks configured in the VMP cluster. If such task exists that will be executed during the upgrade time, make sure it is stopped in advance. Scheduled tasks usually include the following:

1. Scheduled Backup.



2. Scheduled Startup/Shutdown.



For details, refer to **General Check Items** in this chapter, and make sure all the check items are confirmed.

2.2.2 VMP Disk File Check

Check if the disk file is normal to avoid VM unavailability or data loss after the upgrade is completed due to disk file damage.



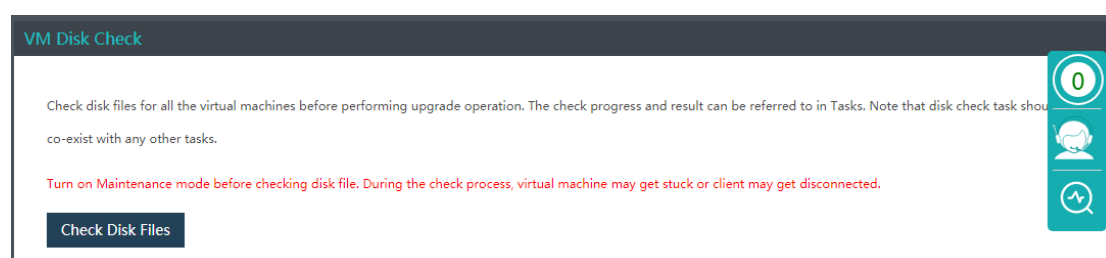
During this process, services of running virtual machines will be interrupted for some time. The customer needs to be informed before this operation.

2.2.2.1 Operation

For version 5.1_EN and above.

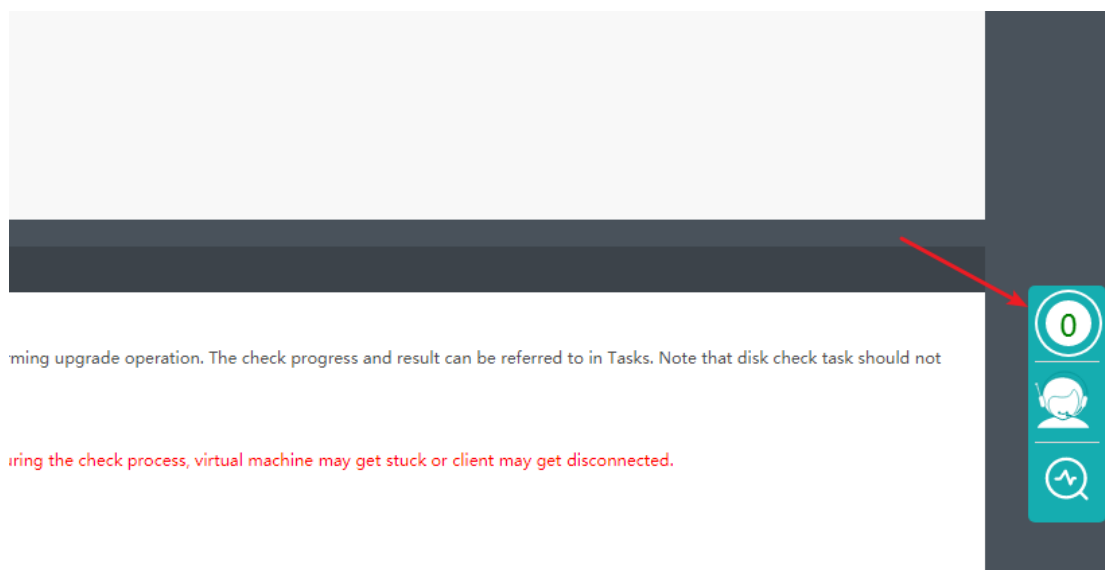
2.2.2.2 Procedures

1. Log in to the VMP console and shut down all virtual machines in batch (including VDC).
2. Go to **System > Upgrade > VM Disk Check** and click **Check Disk Files**.



2.2.2.3 Check Result

Click on tasks to view information about the check progress and results.



1. If the check result is normal, a description saying **All VM disk files are normal.** will be displayed.

	Username	Node	Object Type	Object	Operation
18:33	admin(10.70.243.223)	10.70.42.20	host	10.70.42.20	View
13:32	admin(10.70.243.223)				View
08:08	admin(172.22.68.130)				View
37:47	admin(10.70.243.223)				View
37:39	admin(10.70.243.223)				View
39:21	admin(10.70.243.223)				View
37:31	admin(10.70.243.223)				View
37:45	admin(10.70.243.223)				View
37:36	admin(10.70.243.223)				View
37:07	admin(10.70.243.223)				View
37:15	admin(10.70.243.223)				View
37:14	admin(10.70.243.223)				View
37:12	admin(10.70.243.223)				View
36:25	admin(10.70.243.223)	10.70.42.20	user	admin	View

Status: ✔ Completed

Action: Check_environment_for_upgrade

Start Time: 2020-6-21 12:13:25

End Time: 2020-6-21 12:13:32

Username: admin(10.70.243.223)

Node: 10.70.42.20

Object Type: host

Object: 10.70.42.20

Description: Disk space check passed
Version check passed
Licensing status check passed.
Virtual storage check passed
VM check passed.
3D-supported virtual machine check passed.

2. If any error occurs, an error message will be included in the description as shown below, indicating the disk file is abnormal. Please contact the customer service at +60 127-117-129 (7511) for handling in this case.

	Username	Node	Object Type	Object	Operation
18:33	admin(10.70.243.223)	10.70.42.20	host	10.70.42.20	View
13:32	admin(10.70.243.223)	Status: Completed Action: Check_environment_for_upgrade Start Time: 2020-6-21 12:13:25 End Time: 2020-6-21 12:13:32 Username: admin(10.70.243.223) Node: 10.70.42.20 Object Type: host Object: 10.70.42.20 Description: Disk space check passed Version check passed Licensing status check passed. Virtual storage check passed VM check passed. 3D-supported virtual machine check passed.			View
08:08	admin(172.22.68.130)				View
37:47	admin(10.70.243.223)				View
37:39	admin(10.70.243.223)				View
39:21	admin(10.70.243.223)				View
37:31	admin(10.70.243.223)				View
37:45	admin(10.70.243.223)				View
37:36	admin(10.70.243.223)				View
37:07	admin(10.70.243.223)				View
37:15	admin(10.70.243.223)				View
37:14	admin(10.70.243.223)				View
37:12	admin(10.70.243.223)				View
36:25	admin(10.70.243.223)	10.70.42.20	user	admin	View

2.3 Upgrade Procedure

2.3.1 Upgrade Path

Official versions of 5.4.0_EN or later can be upgraded directly to version 5.5.0_EN. Versions earlier than 5.4.0_EN need to be upgraded to version 5.4.5_EN first before being upgraded to version 5.5.0_EN.

For details, refer to the following image:

Target Version (T)	5.1_EN	5.3.3_EN	5.3.8_EN	5.3.8SP1_EN	5.4.0_EN	5.4.0SP1_EN	5.4.1_EN	5.4.2_EN	5.4.0R2_EN	5.4.5_EN	5.5.0_EN
Current Version (S)											
5.1_EN	✓	✓	✓	✓	✓	✓	✓	✓	x	x	x
5.3.3_EN	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	x
5.3.8_EN	x	x	✓	✓	✓	✓	✓	✓	✓	✓	x
5.3.8SP1_EN	x	x	x	✓	✓	✓	✓	✓	✓	✓	x
5.4.0_EN	x	x	x	x	✓	✓	✓	✓	✓	✓	✓
5.4.0SP1_EN	x	x	x	x	x	✓	✓	✓	✓	✓	✓
5.4.1_EN	x	x	x	x	x	x	✓	✓	x	✓	✓
5.4.2_EN	x	x	x	x	x	x	x	✓	x	✓	✓
5.4.0R2_EN	x	x	x	x	x	x	x	x	✓	✓	✓
5.4.5_EN	x	x	x	x	x	x	x	x	x	✓	✓
5.5.0_EN											✓

(1) The symbol "✓" indicates that the current version can be directly upgraded to the target version and the symbol "x" means the opposite.

(2) The above information only indicates whether each of the listed current versions can be upgraded to the target versions respectively. For specific upgrade operations and related check prior to upgrade, please refer to Upgrade and Delivery Guide for Technical Support. (Please contact Technical Support for versions that are not included above.)

(3) Upgrade Instruction for Earlier Versions:

The version 5.1_EN cannot be directly upgraded to 5.4.0R2_EN and 5.4.5_EN. You are recommended to upgrade it to version 5.3.3_EN before upgrading.

2.3.2 Upgrade Procedure

To upgrade successfully, follow the upgrade procedures strictly. If any problem occurs during upgrade, do not restart the host on your own and contact Sangfor technical support representative in time.

2.3.2.1 License Validity Check

2.3.2.1.1 Notes

For version 5.4.1_EN and above, the licensing method for VDC hardware is the same as VDC software. Both are granted by the VMP license key. During this process, communication between VDC and VMP should be normal.

2.3.2.1.2 Procedures

1. Log in to the VDC console and go to the **System > System > Licensing** to check if the upgrade license is valid. If the license has expired and an upgrade is allowed, contact customer service at +60 127-117-129 (7511) for handling.
2. Log in to the VMP console, go to the **System > Licensing & Service**. An upgrade is allowed when **VMP License Remaining** is greater than 0. Otherwise, contact customer service at +60 127-117-129 (7511) for handling.

2.3.2.2 VDC/VMP Custom Installation Package or Update

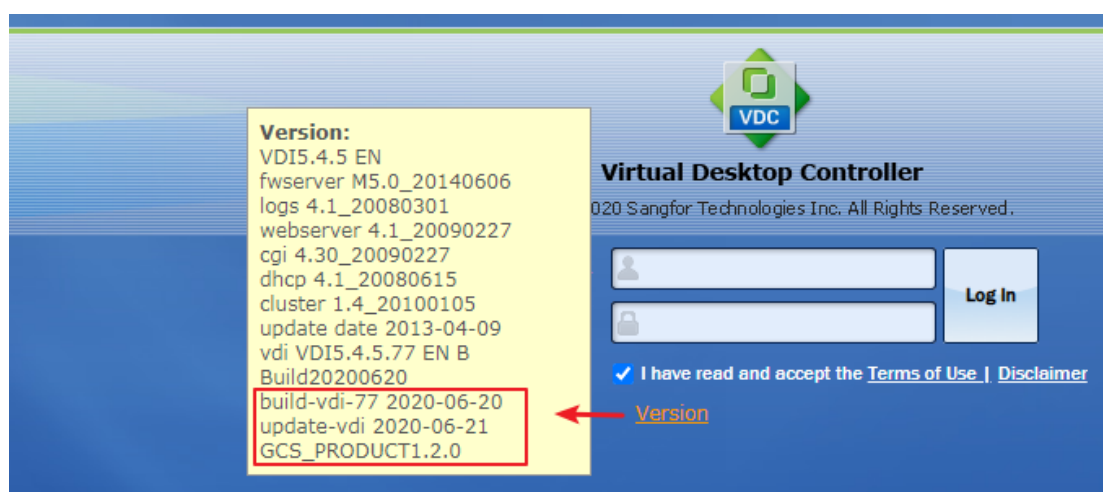
Patch

2.3.2.2.1 VDC Custom Installation Package or Update Patch

On the VDC console login page, hover the on-screen mouse pointer above Version to view the detailed version information of VDC, or contact the customer service at +60 127-117-129 (7511) for suggestions if any of the following information is included:

custom-built cti-support-lichao+yangchao-20191226-TD201910161156,
custom-built (34 2019-12-05 19:34:27)-i-ZGGDHDJT(2020-03-06

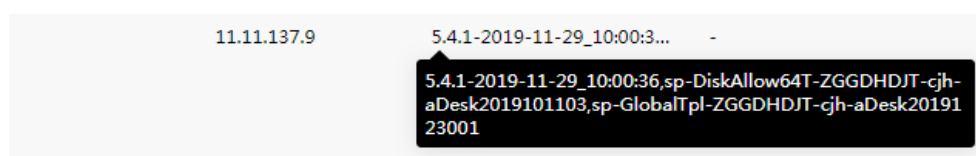
16:51:48)-llj+ghm+lyj+xyx+zyb-aDesk-2019111904



2.3.2.2.2 VMP Custom Installation Package or Update Patch

Log in to the VMP console to check the VMP version information in **Upgrade > Details**, and contact the customer service at +60 127-117-129 (7511) for upgrade suggestions if any of the following is included:

sp-read_system_config-lock-43098,
sp-GlobalTpl-ZGGDHDJT-cjh-aDesk2019123001



2.3.3.3 Pre-Check Patch Before Upgrade

If nodes with VDC installed are deployed in a cluster, you can connect to Sangfor Firmware Updater using the cluster IP address or dispatcher IP address to install **vdi-sp_202108122018-update_pre_check_EN.ssu**.

The pre-upgrade check patch

aDesksp-updatepatch-540_5410R1(20210910).pkg needs to be installed to upgrade VMP.

Functions of the patch **aDesksp-updatepatch-540_5410R1(20210910).pkg**:

- Check for 32-bit 3D-supported virtual machines because they cannot be upgraded. You can migrate them to 64-bit virtual machines.
- Check for the VMP cluster that uses virtual storage. If the current cluster controller is not added to virtual storage, switch to the one added to the virtual storage.
- Check whether the remaining system disk space of the VMP node is larger than 7.8 GB.
- Check whether a VM using Windows Server 2003 exists in the VMP cluster. If yes, the upgrade is not allowed.
- Check whether the VDC meets the upgrade requirements.

Functions of the patch **vd-sp_202108122018-update_pre_check_EN.ssu**:

- Check whether the function of pushing scripts from the backend is enabled on the VDC. If yes, the upgrade is not allowed. Before upgrading VMP, install this patch on its associated VDC.
- Check whether the memory space of the VDC hardware is less than 4 GB. If yes, the upgrade is not allowed.
- Check whether the number of concurrent users is specified for a user group of VDC. If the value is not 0, the upgrade is not allowed.



Installation of the pre-upgrade check patch is the same as that of the official package, i.e., by using Sangfor Firmware Updater for VDC and loading the package on the web console page for VMP.

2.3.3.4 VMP Upgrade

Before upgrade, ensure all items included in Chapter 2.2 Pre-Upgrade Check

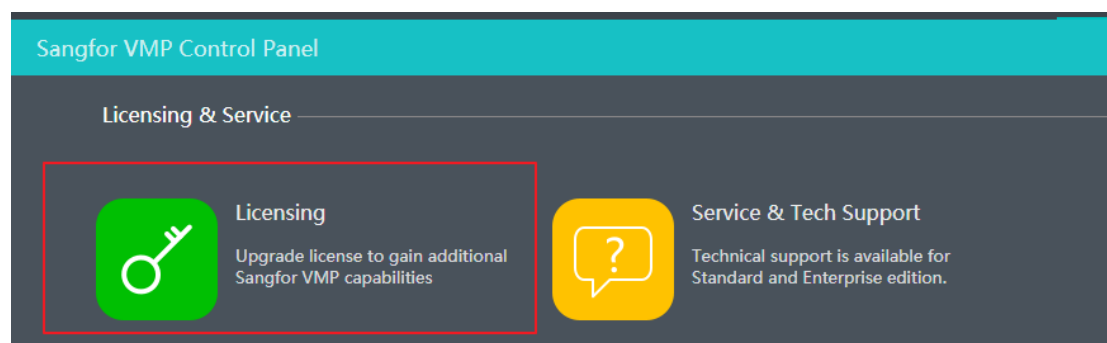
have been properly checked and marked as normal. Otherwise, do not upgrade VMP.

2.3.3.4.1 Note



1. If multiple hosts with VMP installed combine to form a cluster, make sure the cluster status is normal, and log in with the cluster IP address to perform the upgrade.
2. Make sure all VMs are safely shut down before loading the update package.
3. The time required for an upgrade may vary as per cluster. For details, refer to Chapter 1.3.1 Upgrade Preparations.

2.3.3.4.2 Procedure

1. Log in to the VMP console.
2. Go to **System > License** and check the license key of VMP. Ensure the license key is valid to avoid problems caused by an invalid license key, such as VM startup failure after the node is restarted.



Licenses

 Compute Virtualization (VMP) Sangfor Server Virtualization Software	 Storage Virtualization (aSAN) Sangfor Virtual Storage Software
Validity Period: 514 days Max Host CPUs: 1000 Max Running VMs: 10000 Max Memory of VM: 999999999(GB) Max CPU Cores: 32 cores (for 3D-supported VM)	Edition: Official version Licensed CPUs: 28 / 100

3. Make sure that all VMs have been shut down manually.
4. Go to **System > Upgrade** on VMP and enter maintenance mode. Then, click **Check Now** to check the hardware environment. If the hardware check failed, follow the guide info for troubleshooting.

Maintenance Mode

Enabling Maintenance mode will not impact running virtual machines, but will disable console and external API operations.

Maintenance mode is disabled

Enable Maintenance Mode

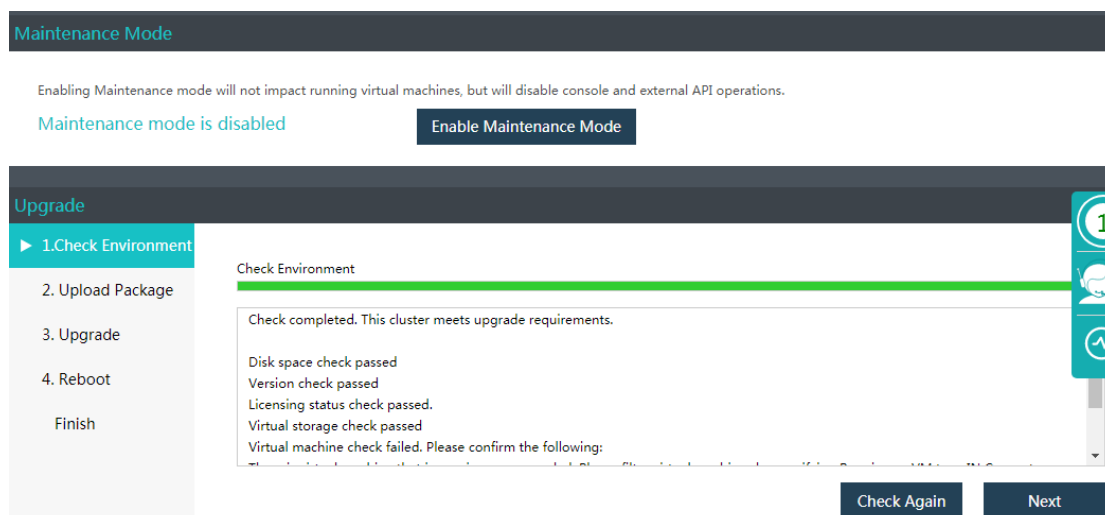
Upgrade

- ▶ 1. Check Environment
- 2. Upload Package
- 3. Upgrade
- 4. Reboot
- Finish

Current Version: V 5.4.5_EN_B
Your software is up to date.

Check Now

5. Wait for the check to complete, as shown below. If it fails, a message will pop up. Please refer to Chapter 2.5, **Troubleshooting Upgrade Failures**.



6. Load the release package **VMP5.5.0_EN(2021912).pkg**. After the upgrade is completed, click **Restart All Nodes** for the package to take effect. The system will exit from maintenance mode automatically after being restarted.
7. Check VMP status, including whether hosts and virtual datastores are online and whether the platform has been properly licensed. If any problem occurs, contact customer service at +60 127-117-129 (7511).

2.3.3.6 VDC Upgrade

2.3.3.6.1 Notes

1. Before upgrading VDC, check the public network time first to ensure that the PC running Sangfor Firmware Updater can be properly connected to the network. If the customer environment does not allow networking, please use the offline update client tool to upgrade.
2. If VDC devices are deployed in a cluster, they are required to exit from the cluster and be upgraded separately and then join the cluster after all upgrades are completed. After all devices exit from the cluster, no configuration on VDC devices can be modified.

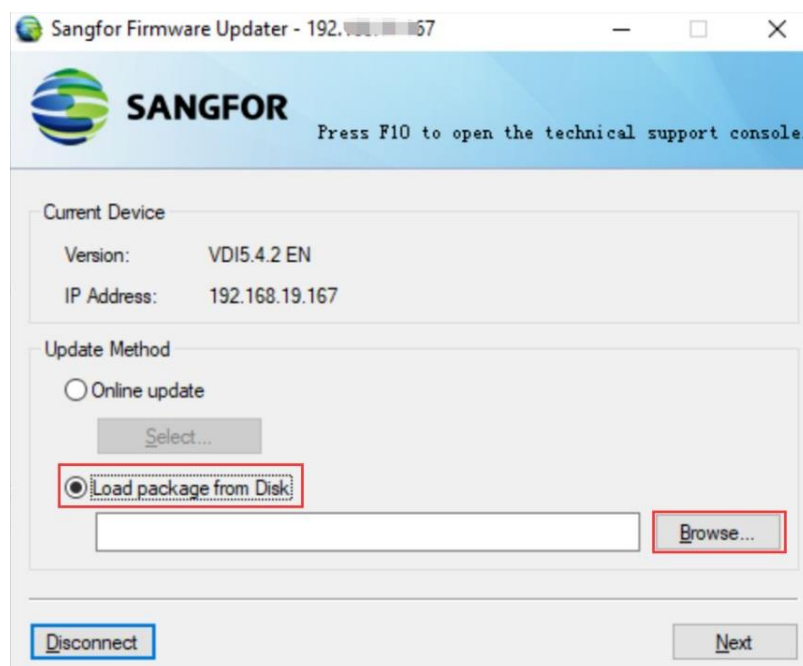
3. The upgrade script will check whether there is dirty data on VDC. If the following message with the word **Error** appears, it indicates dirty data, and the upgrade operation will stop. Please go to Sangfor Community or contact customer service at +60 12711 7129 (7511) for troubleshooting.

Error: Dirty data on svpnvdi_vm_user table, check it, vm id = 1

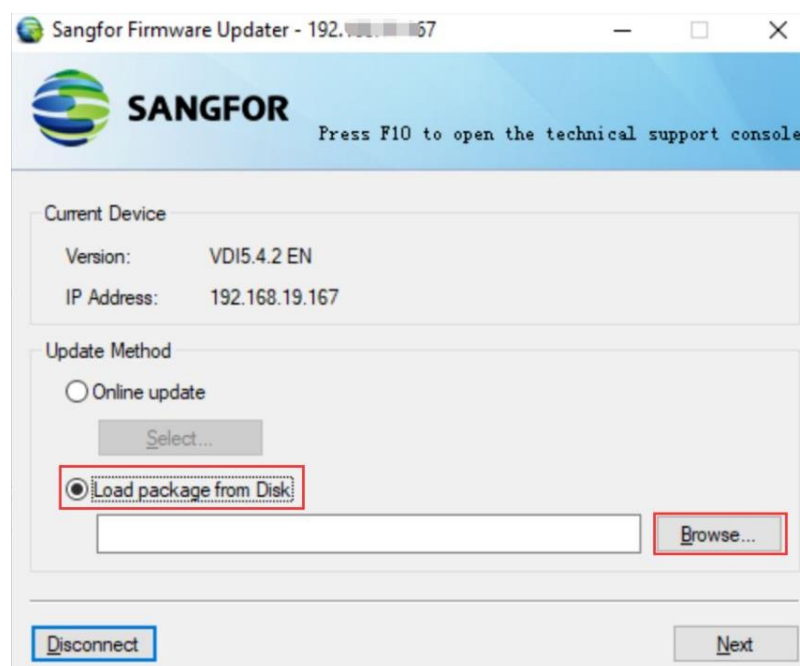
4. For upgrading versions between VDI5.4.0R2_EB and VDI5.4.2_EN with Sangfor Firmware Updater, go to **System > System > Console Options** on the VDC console, enable the **Remote Maintenance** function, and click **Save**, to connect Sangfor Firmware Updater to VDC.
5. For upgrading VDI5.4.5_EN or later versions with Sangfor Firmware Updater, go to **System > System > O&M Configuration** on the VDC console, enable the **Upgrade Maintenance** function, and click **Save**, to connect Sangfor Firmware Updater to VDC.

2.3.3.6.2 Procedures

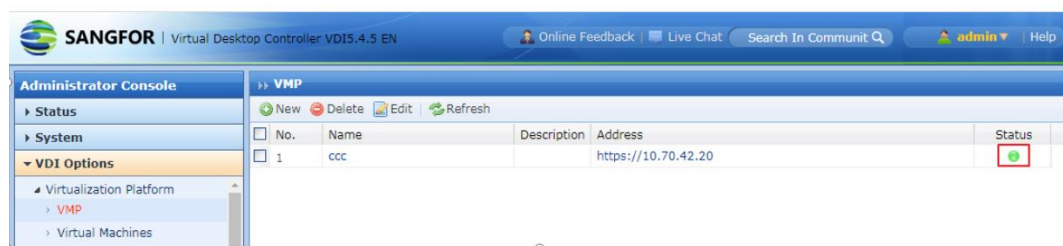
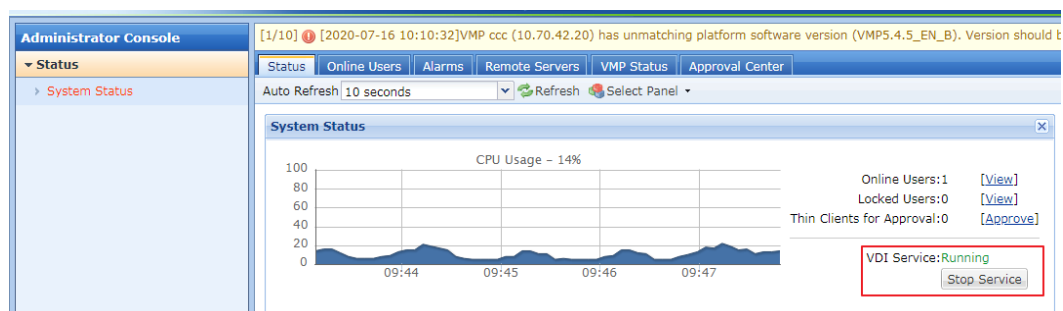
1. For VDC hardware, back up the global configuration of the web console before the upgrade. For VDC software, take a snapshot before the upgrade.
2. Connect to VDC by using Sangfor Firmware Updater, where the username and password are the username and password for logging in to VDC.



3. Select **Load package from Disk** to load the VDC upgrade package (*****.ssu file**), and click **Next** to start the upgrade.

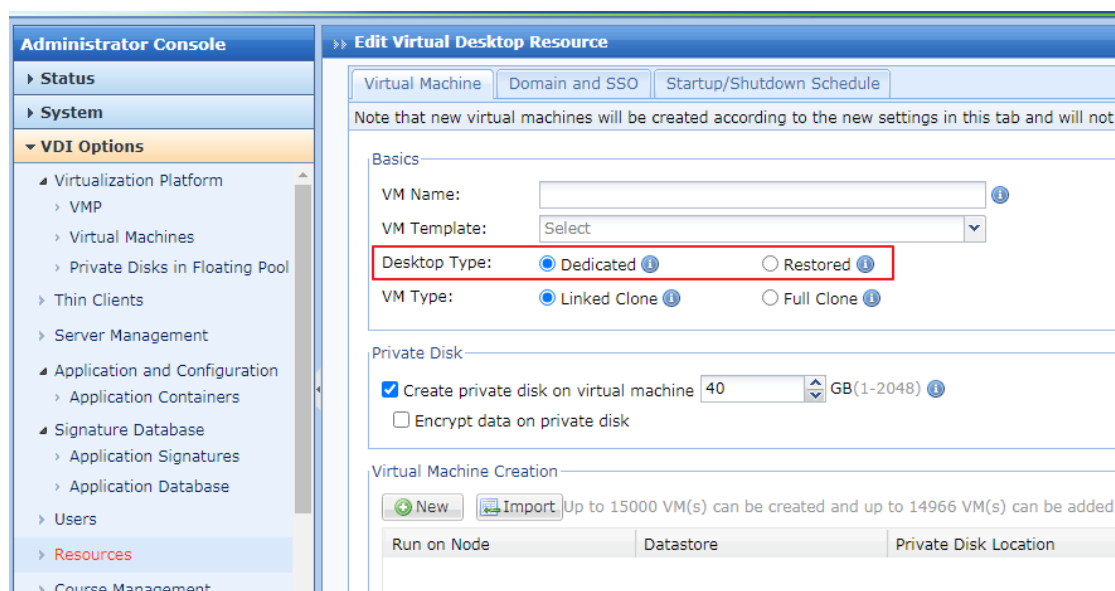


4. After VDC is upgraded and automatically restarted, log in to VDC to check whether it is operating. You have to check whether the VDI service is running and the VMP is connected.



2.3.3.7 Agent Upgrade

Currently, there are two types of deployed virtual machines: dedicated type and restored type. For details, please go to **VDC > VDI Options > Resources** and select the corresponding VM, and then go to **Virtual Machine > Desktop Type**.



2.3.3.8 Agent Upgrade in Dedicated Type

2.3.3.8.1 Notes

1. The upgrade of the agent for Windows 7/10 VMs requires users to log in to VDC.
2. The agent of a VM template has not been upgraded in this upgrade type. Therefore, the agent program in the VM deployed from this template is still an old one, but it still needs to be automatically upgraded via VDC.
3. If the agent status is not displayed in green, please go to Sangfor Community or contact customer service at +60 12711 7129 (7511) for troubleshooting.
4. After the VMP server with a 3D graphics card is upgraded, access the client until the agent is upgraded. Otherwise, the client may break down.

2.3.3.8.2 Procedures

1. Enable all the virtual machines on VDC for auto-upgrade.
2. During the upgrade process, the virtual machine will automatically restart multiple times. You can log in to VDC to view the virtual machine list and check the upgrade progress of the agent.

2.3.3.9 Agent Upgrade in Restored Type

2.3.3.9.1 Note

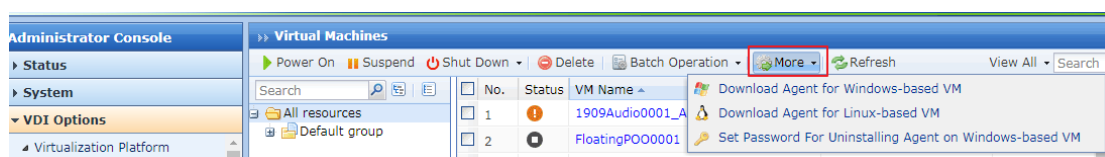
This method applies to the restored type only.

2.3.3.9.2 Procedures

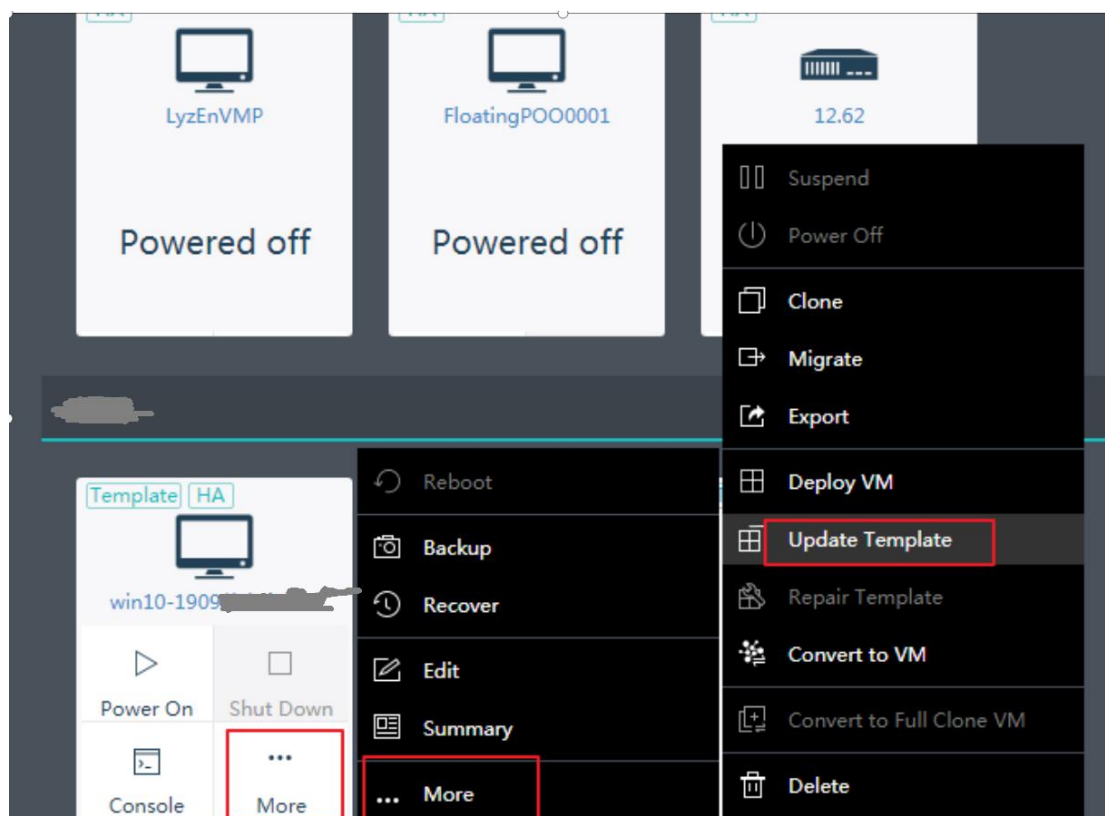
1. Log in to VMP console, start the VM template, double-click **uninst.exe** under **C:\Program Files(x86)\Sangfor\SSL\VDI** in the 64-bit operating system (**C:\Program Files\Sangfor\SSL\VDI** in the 32-bit operating system) to uninstall the original agent program, and restart the VM template after

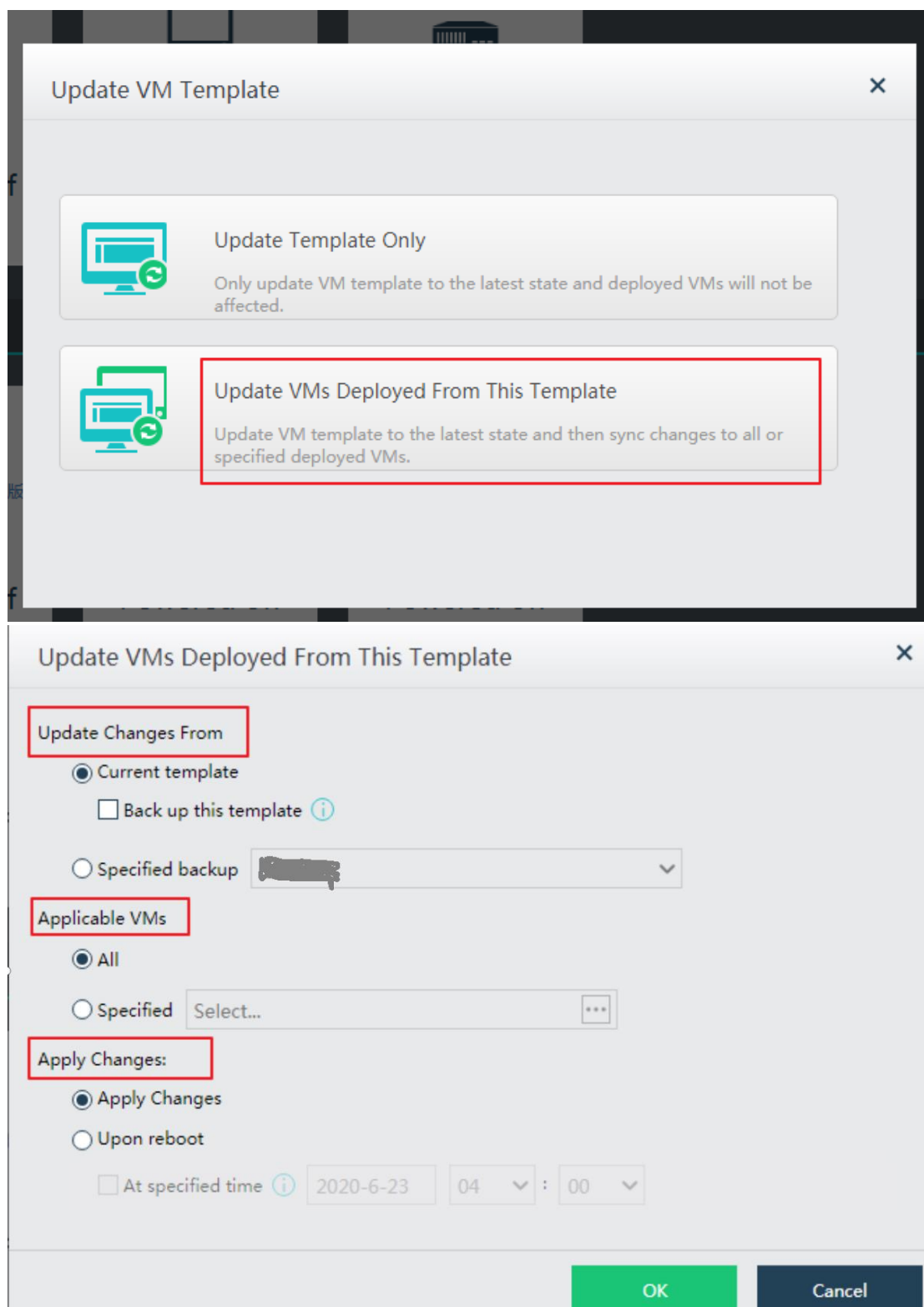
the agent program is uninstalled.

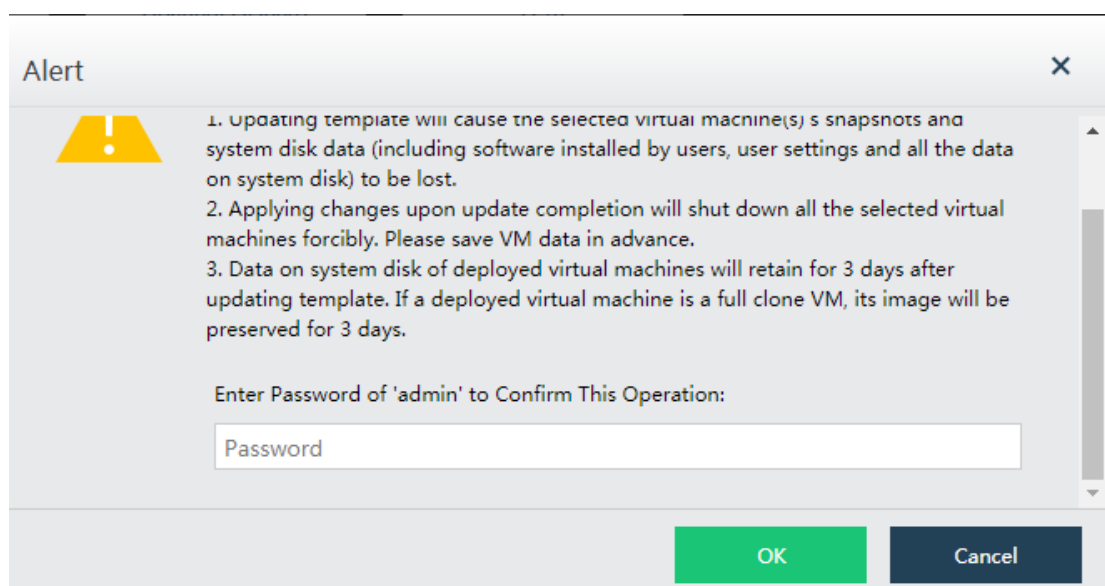
2. Log in to VDC via the browser inside a VM after restarting the VM template. Click **Download Agent for Windows-based VM** or **Download Agent for Linux-based VM** in **VDI Options > Virtual Machines > More** to download and install the agent, and restart the VM template after the installation is completed.



3. Shut down the VM from inside after restarting the VM template, and click **Update Template** to all deployed VMs according to the following figures.





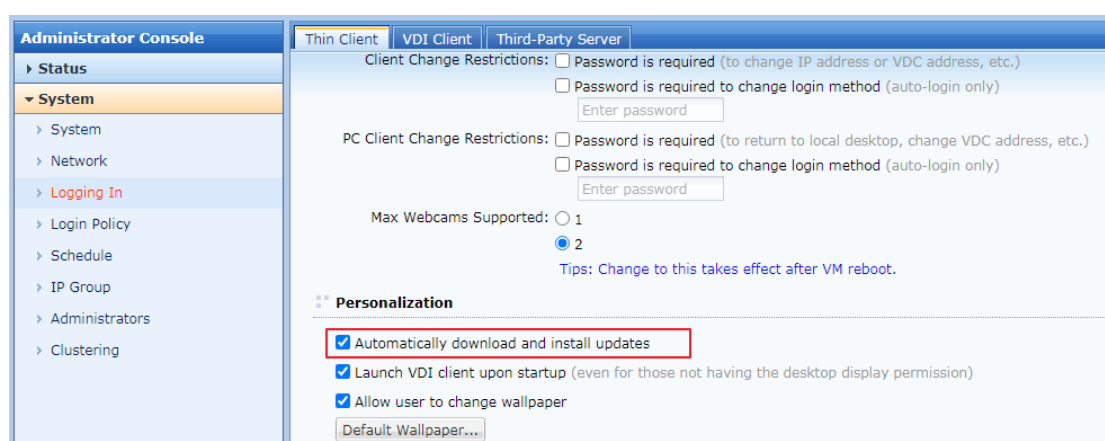


2.3.3.10 aDesk ROM Upgrade

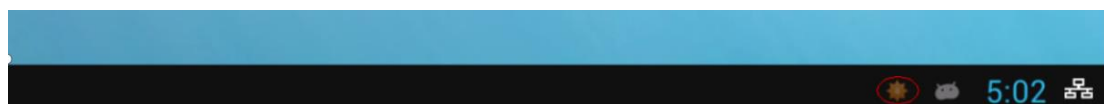
2.3.3.10.1 ARM-Based aDesk ROM Upgrade

2.3.3.10.2 Procedures

1. Log in to VDC, go to **System > Logging In > Thin Client > Personalization**, and select **Automatically download and install updates**.



2. Start all aDesk devices, and click the system update prompt in the lower right corner of the desktop to download the update.



3. Click **Download**, and you will see the download progress.
4. Click **Install Now** after the download is completed. A new ROM system will be installed and updated on aDesk after the system is restarted.
5. The system will automatically start after the restart is completed. Please check the version number to ensure that the aDesk ROM is updated.

Status	Serial Number	Client Type	Area	Latest Online Us...	Current IP Addr...	Associated Log...	MAC Address	Model	Version	Time Connected/Disconne...
Offline	7AD9150020	-	Default area	win10	172.22.16.94		a4:17:91:03:0f:be	aDesk-ST...	5.4.5.13	Disconnected since 2020-...
Offline	7AXB310083	-	Default area	AudioTest	172.22.16.34		10:0d:0e:77:56:1b	aDesk-ST...	5.4.5.10	Disconnected since 2020-...
Offline	8PCa2d94ee	-	Default area	user2	113.110.231.28		fe:fc:fe:77:53:4c	WIN-PC	-	Disconnected since 2020-...

2.3.3.10.3 Notes

During the upgrade process, if there are issues such as getting stuck, black screen, white screen, please try the following methods to restore aDesk:

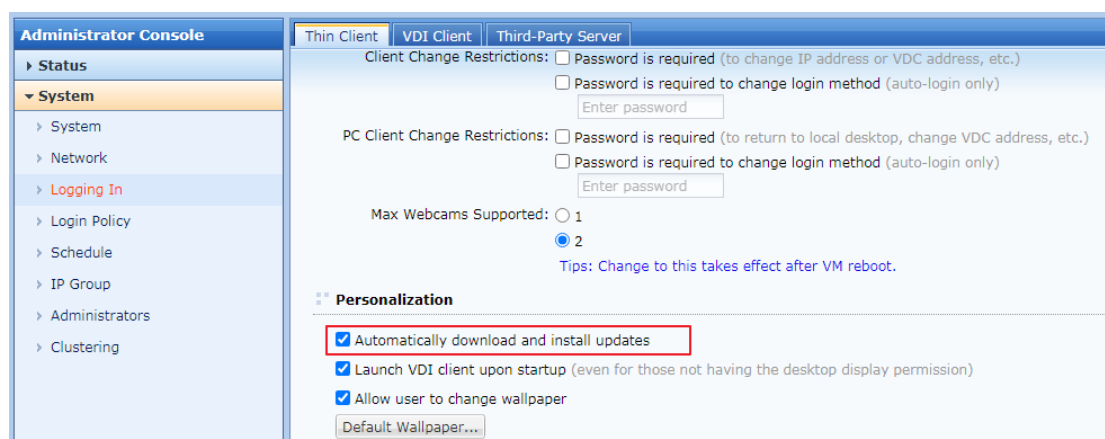
1. Factory reset and initialize the system settings of aDesk.
2. Update the firmware of aDesk.

For details, please go to Sangfor Community or contact customer service at +60 12711 7129 (7511) for troubleshooting.

2.3.3.10.4 x86-Based aDesk ROM Upgrade

2.3.3.10.5 Procedure

1. Log in to VDC, go to **System > Logging In > Thin Client > Personalization**, and select **Automatically download and install updates**.



2. Start all aDesk devices, and click the system update prompt in the lower right corner of the desktop to download the update.
3. The system will automatically start after the restart is completed. Please check the version number to ensure that the aDesk ROM is updated.

Status	Serial Number	Client Type	Area	Latest Online Us	Current IP Addr	Associated Log	MAC Address	Model	Version	Time Connected/Disconnection
Offline	7AD9159020	-	Default area	win10	172.22.16.94	-	a4:17:91:03:0f:ba	aDesk-ST	5.4.5.13	Disconnected since 2020-...
Offline	7AXB310083	-	Default area	AudioTest	172.22.16.34	-	10:0d:0e:77:56:1b	aDesk-ST	5.4.5.10	Disconnected since 2020-...
Offline	8PCa2dF4ee	-	Default area	user2	113.110.231.28	-	fe:fc:fe:77:53:4c	WIN-PC	-	Disconnected since 2020-...

2.3.3.10.6 Notes

During the upgrade process, if there are issues such as getting stuck, black screen, white screen, please try the following methods to restore aDesk:

1. Factory reset and initialize the system settings of aDesk.
2. Update the firmware of aDesk.

For details, please go to Sangfor Community or contact customer service at +60 12711 7129 (7511) for troubleshooting.

2.3.3.11 Report Center Upgrade (If Any)

For environments with Report Center deployed, directly use the new version of the report center installation package to overwrite the original installation package and then install the new package.

Do not manually uninstall the original installation package and install the new package.

2.3.3.12 Graphics Driver Upgrade (If Any)

For VMs with vGPUs, the graphics driver upgrade is needed to be separately performed on every VM. The upgrade steps are as follows:

1. The graphics card driver has been updated from VDI5.4.5_EN. To upgrade this version, make sure that the driver version of the VM is GRID 11.1. please refer to the **Virtual GPU Software User Guide from NVIDIA document**.
2. Copy the driver to the VM.
3. Double-click the graphics card driver to overwrite the existing driver and install it. A license will be automatically obtained after the automatic restart.

2.3.3.12.1 Notes

1. The graphics card driver does not support 32-bit VMs because of the limitation of the NVIDIA graphics card driver. Therefore, please confirm whether the customer meets the requirement to use 32-bit 3D VMs before upgrading.
2. The graphics card driver needs to be upgraded manually. For a VM in dedicated type, you need to manually use the new driver to overwrite the old one in the VM deployed from a template. For a VM in restored type, you can use the new driver to overwrite the old one in the template).
3. If the customer has encountered the above situations and cannot avoid the issues mentioned above, please contact the supplier for troubleshooting.



Please go to Sangfor Community for graphics card drivers or contact customer service at +60 12711 7129 (7511).

2.4 Post-Upgrade Check

2.4.1 Check the Platform

Item	Object
Version	Check if the version of VMP after the upgrade. Make sure it is the latest version.
	Check if the version of VDC after the upgrade. Make sure it is the latest version.
Custom installation package or update patch	Check the information of the custom VMP installation package or update patch.
	Check the information of the custom VDC installation package or update patch.
Upgrade license key	Check whether the VDC license key information is the same.
VDC cluster status	Check whether all clustered VDC nodes are online.
VM status	Check whether all VMs in a cluster can start.
Virtual Desktop	Check if the virtual desktop can be properly accessed through aDesk/PC/mobile devices. Ensure there is no error in video playing, peripheral connecting, using other application systems and programs required by customers.
Automatic check items	Make sure all check items on the VDC console are marked as normal.
Scheduled task configuration	Check if all scheduled tasks on VDC or VMP have been restored. (If any)

2.4.2 Check Service Status

Check whether customer services are running normally.

2.5 Troubleshooting Upgrade Failures

2.5.1 VDC

Q1: The current version does not meet the upgrade requirements.

Scenario: The current version does not meet the upgrade requirements.

Solution: Upgrade the VDC device to the specified official version first, then upgrade to the desired version.

Q2: There is a custom update patch on the device.

Scenario: The device cannot update from the custom version.

Solution: The device has a custom update patch installed and does not support updating. Please contact Sangfor technical support representative.

Q3: There remains dirty data on the device.

Scenario: The device cannot update from the custom version.

Solution: The device has a custom update patch installed and does not support updating. Please contact Sangfor technical support representative.

Q4: The upgrade license is invalid.

Scenario: The upgrade license is invalid.

Solution: The upgrade license of the device has expired. Please renew the license.

Q5: The cluster has been enabled on the device.

Scenario: The cluster has been enabled on the device. Please disable the cluster and try again.

Solution: Disable the cluster on the device and then upgrade again.

Q6: The application container is being operated on the device.

Scenario: The application container is being operated.

Solution: The application container is being produced, updated, and tested on the current device. Please complete the operations first, or cancel the operations, and then try again.

2.5.2 VMP

Q1: Some virtual machines are not disabled.

Scenario: Some virtual machines are not disabled. Please disable these virtual machines and try again.

Solution: Disable the virtual machines in Running and Suspended status filtered on the VMP console, and then restart the task to upgrade.

Q2: Disk space check failed before the upgrade.

Scenario: Disk space check failed.

Solution: Go to the VMP backend to check partition **/sf/data/local**. If the available space is less than 6 GB, please delete some files in the partition (delete the files under directory **/sf/data/local/dump**).

Q3: Version check failed before the upgrade.

Scenario: Version check failed.

Solution: Please check the detailed version information of each node in the cluster to check whether there is a different version. If yes, please contact Sangfor technical support representative for handling.

Q4: Virtual storage check failed before the upgrade.

Scenario: Version check failed.

Solution: Please check the detailed version information of each node in the cluster to check whether there is a different version. If yes, please contact Sangfor technical support representative for handling.

Q5: Task failed during the upgrade process.

Scenario: The upgrade task failed.

Solution: Please click the upgrade information to view the details and retry the upgrade. If the upgrade task fails again, please download the upgrade failure log first and contact Sangfor technical support representative for troubleshooting. Before it prompts that upgrade succeeded on VMP, please be

sure to contact Sangfor technical support representative and then perform the rollback operation.

Q6: Showing upgrade failed, but the upgrade was actually completed.

Scenario: It prompts upgrade failed on some nodes while upgrade succeeded on the others.

Solution: Please click **Roll Back** to roll back the upgrade of all nodes, disable the maintenance mode, and then check and upload the upgrade package to upgrade again. If the upgrade fails again, please contact Sangfor technical support representative.

Q7: There is an offline node after the upgrade of VMP.

Scenario: There is an offline node after the upgrade of VMP.

Solution: Please ping the IP address of the offline node in the command line on the cluster controller console, and check whether it can be ping. If it cannot be ping, please connect a display to the offline node to check whether the node can be started properly. If it cannot be started, please restart the offline node and check whether it is online. If it is still offline after the restart, please contact Sangfor technical support representative.

Q8: Virtual datastore stays offline for a long time after the upgrade.

Scenario: Virtual datastore on the Home page of VMP stays offline for a long time.

Solution: Please check whether each interface of the storage area network is normal and whether each interface's communication is normal through the VMP command line console. If interfaces and their communications are normal, but the virtual datastore is still offline, please contact Sangfor technical support representative. The virtual datastore will go online within 10 mins after the node restarts. If it is more than 20 mins, it means an error occurred.

Q9: The virtual storage used is non-DC SSD after the restart of the node.

Scenario: It prompts **the virtual storage used is non-DC SSD** after the restart of the node.

Solution: Contact Sangfor technical support representative to remove the restriction upon non-DC SSD.

Q10: Virtual machine gets stuck in starting phase after the upgrade.

Scenario: SSD tiering will be formatted after the upgrade from versions earlier than VMP5.3.2. The virtual machine's cache will be lost and reconstructed, and the virtual machine will get stuck in starting phase.

2.6 Rollback Instructions

1. To avoid abnormalities, please perform the upgrade by strictly following the upgrade procedure requirements in this guide. The on-site service personnel needs to have the necessary backend resources ready beforehand.
2. **Risks and Solutions for VDC upgrade:**
 - Before upgrading the VDC, you need to export the global VDC configuration. If it is a VDC software device, you must take a snapshot in advance to facilitate emergency and rollback.
 - Before upgrading the custom package, take a snapshot of the VDC to facilitate emergency rollback.
 - If the VDC hardware device model is VDC-2500, and the interface orders do not match after the upgrade. You can reconnect to the device backend through eth0, delete the two script files rc2swapnic.sh and arrange_eth.sh, and restart the VDC.
 - **Alternative solution:** Whether it is a VDC software or hardware device, if the service is unavailable due to upgrade failures, you can quickly deploy the VDC software based on the global VDC configuration backed up in advance and connect to VMs through an account created in the

background to recover the service, thereby limiting the impact of upgrade failures.

3. **Risks and Solutions for VMP upgrade:**

- Before upgrading VMP, it is recommended to upgrade the cluster for testing first. If the upgrade process and results are achieved as expected, you can upgrade the cluster running customer services.
- Use aDeploy to perform a routine health check before the upgrade to identify anomalies in the cache, hardware, and logs and confirm whether these anomalies affect the upgrade.
- If problems such as frequent synchronization of virtual storage data occur during the upgrade, contact a Sangfor technical support representative timely.
- After the upgrade, use aDeploy and refer to the check items in Chapter 2.4 Post-Upgrade Check to check the load of the cluster and the balancing of replicas.
- **Alternative solution:** If the upgrade of a major version of VMP fails or part of the upgrade fails, contact the technical support representative.
- For the upgrade through a custom VMP package or service pack, the rollback is supported.

4. **Risks and Solutions for Agent Upgrade:**

- Check the agent status and version of each VM in VDC. If the upgrade fails, analyze the cause for an abnormal VM and update it manually. Generally, the abnormality is caused by antivirus software.
- After the upgrade is successful, first randomly check 20 accessed VMs to ensure no blue screen, and then power on all VMs.
- Some incompatible antivirus software such as 360 Total Security is installed in the customer's virtual machine. Therefore, you need to upgrade the custom package and install the patch to fix the blue screen.

5. Risks and Solutions for Thin Client ROM Upgrade:

- The risk of thin client upgrade failure is very low. Once ROM upgrade errors occur, manually flash the ROM.
- Prepare several spare thin clients. For those errors that cannot be solved by manually flashing the ROM, it is recommended to use another thin client first.

6. Risks and Solutions for Customized Features:

- When developing a customized feature, the customer environment is simulated, and other information such as VDC configurations are copied for simulation testing. After multiple tests and confirmation, the upgrade can only be performed after the customized feature meets the customer's expectations.
 - After the upgrade, the customized feature needs to be remotely debugged and migrated by the developer to ensure the connection with a third party's authentication server.
7. During the entire upgrade, technical support representatives will be on duty remotely, preparing for any possible issues.



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