

Upgrading vRealize Automation 7

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Last week VMware released a new version of vRealize Automation (vRA), version 7.0.1. In this version most of the version 7.0.0 bugs and issues are resolved. In the [release notes](#) you can find the list of all resolved issues. In this blog I will guide you through the upgrade process.

It is possible to upgrade to this new version from any supported vRealize Automation 6.2.x version and the latest 7.0 version. In this blog I will focus on an upgrade from version 7.0.0 to version 7.0.1. If you still use an earlier version of vRA you have to upgrade first to version 6.2.x. The environment we will upgrade is a minimum deployment based on version 7.0.0.

The following steps are required for a successful upgrade of vRealize Automation.

1. Backup your current installation
2. Shut down vRealize Automation Windows services on your IAAS server
3. Configure hardware resources
4. Download and install upgrades to the vRA appliance
5. Download and install updates for IAAS
6. Post Upgrade Tasks

Backup your current installation

Before you start the upgrade it is important to backup some components of the existing installation. If something goes wrong you can always go back to the current version.

Configuration file backup

First start with a backup of the vRA configuration files. This file can be backed up with the following steps:

1. Login with ssh on the vRA appliance
2. Make a copy of the following directories:
 - /etc/vcac/
 - /etc/vco/
 - /etc/apache2/
 - /etc/rabbitmq/

First create a directory backup.

```
mkdir /etc/backupconf
```

Copy now all directories to this folder:

```
cp -R /etc/vcac/ /etc/backupconf/
```

Perform these steps for each folder.

Database backup

Make a SQL backup of the vRA IAAS database. For the integrated postgres database it is enough to snapshot the complete vRA appliance.

1. **Login** to the database server
2. Open the MSSQL Management Console and login
3. Click **left** on the vRA database and choose **Tasks** and choose **Backup Up..**
4. Choose the **location** for the backup and click on **OK**.
5. Wait for the completion of the backup.

Screenshots of the tenant configuration and users.

If something goes wrong with the upgrade it could be possible that this configuration information is changed. For safety it is recommended to capture this information.

1. Login as administrator to the vRA interface.
2. Make a Screenshot of your **tenants**.

Tenants

+ New Edit Delete	
Name	URL Name
vsphere.local	vsphere.local

3. And the **Local Users** of the tenant

Edit Tenant: vsphere.local

General	Local users	Administrators						
<h4>Local Users</h4> <p>Manage local users in tenant</p> <p>+ New Delete</p> <table border="1"><thead><tr><th>Name</th><th>Email</th></tr></thead><tbody><tr><td>configurationadmin@vsphere.local</td><td>configurationadmin@test.com</td></tr><tr><td>vro user (vro@vsphere.local)</td><td>vro@user.local</td></tr></tbody></table>			Name	Email	configurationadmin@vsphere.local	configurationadmin@test.com	vro user (vro@vsphere.local)	vro@user.local
Name	Email							
configurationadmin@vsphere.local	configurationadmin@test.com							
vro user (vro@vsphere.local)	vro@user.local							

4. And the **Administrators**

General	Local users	Administrators						
<h4>Tenant administrators</h4> <p>Select users or groups to grant the Tenant administrator role.</p> <p>Search</p> <table border="1"><thead><tr><th>Name (2)</th></tr></thead><tbody><tr><td>vRA Tenant Admins (vRA Tenant Admins@metis@lab.local)</td></tr><tr><td>vro user (vro@vsphere.local)</td></tr></tbody></table>		Name (2)	vRA Tenant Admins (vRA Tenant Admins@metis@lab.local)	vro user (vro@vsphere.local)	<h4>laaS administrators</h4> <p>Select users or groups to grant the laaS administrator role.</p> <p>Search</p> <table border="1"><thead><tr><th>Name (2)</th></tr></thead><tbody><tr><td>vRA Infrastructure Admins (vRA Infrastructure Admins@metis@lab.local)</td></tr><tr><td>vro user (vro@vsphere.local)</td></tr></tbody></table>	Name (2)	vRA Infrastructure Admins (vRA Infrastructure Admins@metis@lab.local)	vro user (vro@vsphere.local)
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vro user (vro@vsphere.local)								

Backup any files you have customized

The vRA upgrade will possibly delete or modify all customized files. If you want to keep this files please backup them. In our environment we don't use any customized files.

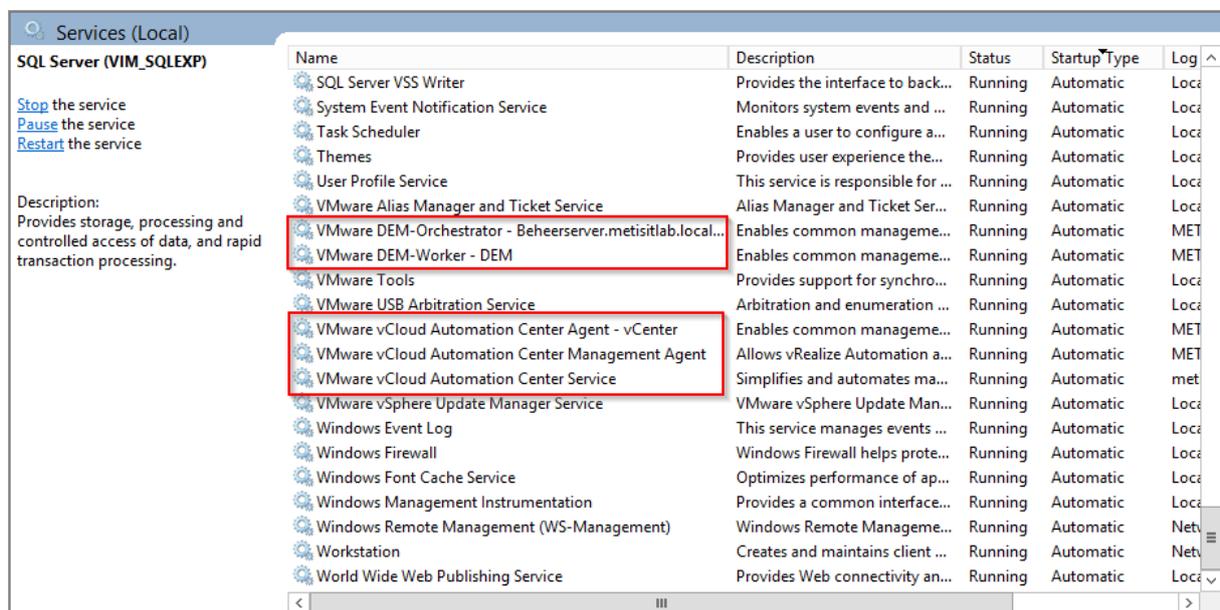
Create snapshot of the IAAS server

To take a snapshot of the IAAS server is the last step in the upgrade process.

1. Shutdown the IAAS server and the vRA appliance in the correct order.
 - a. Login to vCenter
 - b. First select the IAAS VM and select **shutdown guest**. If the shutdown is complete select the vRA appliance and choose again for **shutdown guest**.
2. Right-click on the IAAS VM and select Snapshots and Take Snapshot. Fill in the name of the snapshot and click on OK.
3. **Power On** the IAAS VM

Disable the IAAS services

1. Login on the IAAS server open **services.msc** and stop the following services:
 - a. All VMware vCloud Automation agents
 - b. All VMware DEM workers
 - c. All DEM orchestrator
 - d. VMware vCloud Automation Center Service

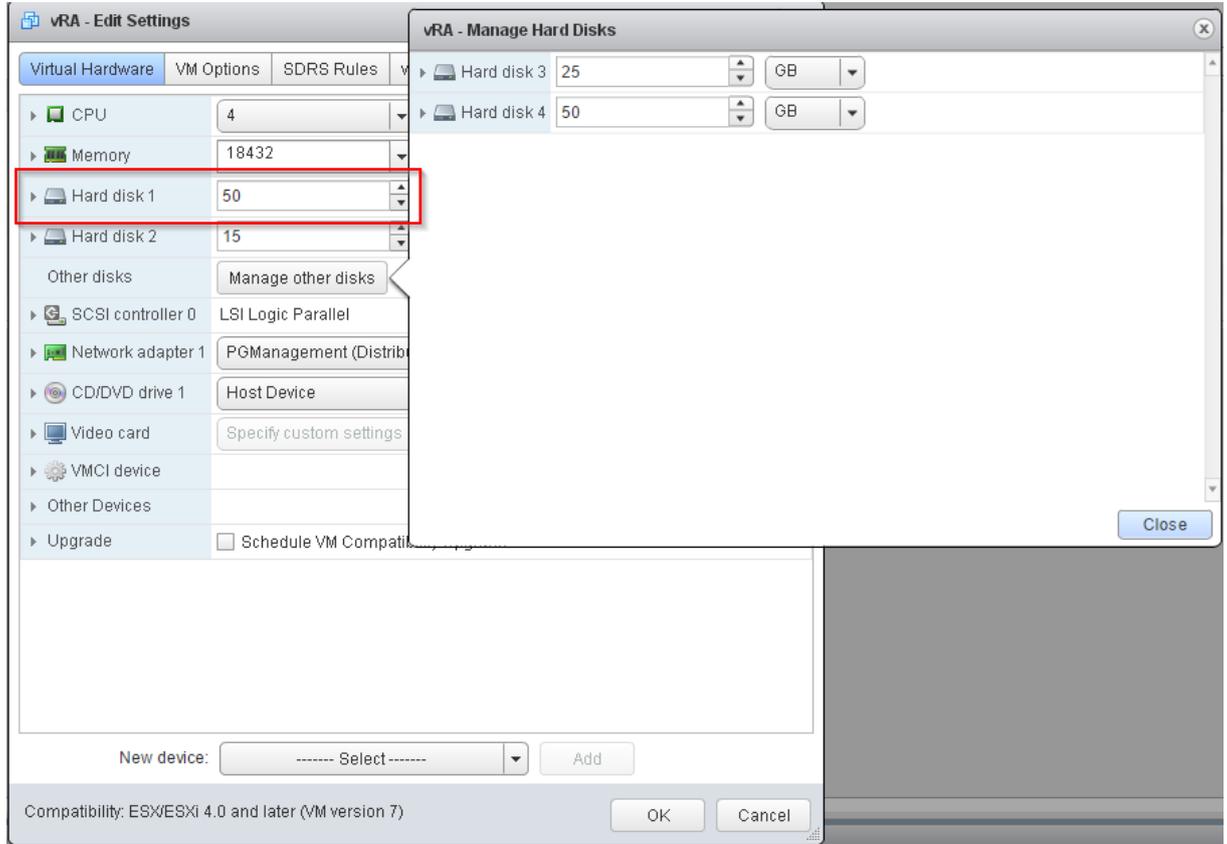


Configure hardware resources of the vRA appliance

For the upgrade it is necessary to extend the existing disks of the vRA appliance. But before we do this, create a copy of the existing vRA appliance.

1. Right-click on the vRA appliance, select **Clone** and **Clone to Virtual Machine**
2. Give the VM a unique **name** and select the **resources** for the new VM and click on **Finish**.

3. Wait for completion.
4. Right-click on the original VM and select **Edit Settings**.
5. **Extend** the first disks (1) to 50GB and click OK.



6. Create a snapshot of the VM. **Select** the VM, click on **Snapshots** and click **Take Snapshot**.
7. Wait for the snapshot.
8. **Power on** the vRA VM.
9. Wait for the machine to start
10. SSH to the vRA VM and **login** with the **root** account.
11. Execute the following commands to stop all vRA services:

```
Service vcac-server stop
```

```
Service vco-server stop
```

```
Service vpostgres stop
```

12. Extend the Linux file system with the following commands:

Unmount swap table:

```
Swapoff -a
```

Delete existing partitions and create a 44GB root and 6GB swap partition. This command and the next command return an error about the kernel that is still active at this point. After a reboot at step 13 all changes will be active:

```
(echo d; echo 2; echo d; echo 1; echo n; echo p; echo ; echo ; echo '+44G'; echo n; echo p; echo ; echo ; echo ; echo w; echo p; echo q) | fdisk /dev/sda
```

Change the swap partition type:

```
(echo t; echo 2; echo 82; echo w; echo p; echo q) | fdisk /dev/sda
```

Set disk 1 bootable:

(echo a; echo 1; echo w; echo p; echo q) | fdisk /dev/sda

Register partition changes and format the new swap partition:

Partprobe

Mkswap /dev/sda2

Mount the swap partition:

Swapon -a

13. Reboot the vRA partition

14. When the appliance is started again login with SSH and resize the partition table:

Resize2fs /dev/sda1

15. Check the resize with command *df -h*

Install the vRA update

1. Login on the management interface: <https://vRAhostname:5480>
2. Click on the Services tab and check the services. All services should be registered except the iaas-service.

If everything is checked, click on the update tab. If not all services are running and you are using a proxy server, check this VMware article:

https://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2144067

3. Click on **Check Updates**. The new update will be displayed.

Status Settings

Update Status

Vendor: **VMware Inc.**
Appliance Name: **VMware vRealize Appliance**
Appliance Version: **7.0.0.1460 Build 3311738** ([Details...](#))

 **Available Updates**
Appliance Version: **7.0.1.150 Build 3622989** ([Details...](#))

Last Check: **Friday, 2016 March 18 16:03:53 UTC+1**

4. Click now on **Install update** and Click **OK**.

5. The follow the installation you can check the following log files:

/opt/vmware/var/log/vami/updatecli.log

/opt/vmware/var/log/vami/vami.log

/var/log/vmware/horizon/horizon.log

The most useful information can be found in the vami.log and updatecli.log. In these log files you can see the download progress and information about the upgrade status.

Use `tail -f /opt/vmware/var/log/vami/` to show all log files*

6. Wait until the update is finished.

VMware vRealize Appliance

vRA Settings Services System Telemetry Network Update Admin Help | Logout user root

Status Settings

Update Status

Vendor: VMware Inc.
Appliance Name: VMware vRealize Appliance
Appliance Version: 7.0.0.1460 Build 3311738 (Details...)

System reboot is required to complete the update
Version 7.0.1.150 Build 3622989

Actions

Check Updates
Install Updates

Last Check: Friday, 2016 March 18 19:56:40 UTC+1

VA-check: finished
DB-check: finished
Pre-install: finished

You are enrolled in the Customer Experience Improvement Program (CEIP) during this upgrade. For more information about the program, see [vRealize Automation Product documentation](#). You can unenroll from the program from the Telemetry tab on the product management console.

Post-install: finished

Update finished successfully. Reboot this appliance from the System tab. After reboot, re-enter all license keys from the Licensing page on the vRA Settings tab.
WARNING: Immediately update any vRealize Automation IaaS nodes after reboot to avoid product version mismatches.

Last Install: Friday, 2016 March 18 20:39:41 UTC+1

VA-check: finished
DB-check: finished
Pre-install: finished

You are enrolled in the Customer Experience Improvement Program (CEIP) during this upgrade. For more information about the program, see [vRealize Automation Product documentation](#). You can unenroll from the program from the Telemetry tab on the product management console.

Post-install: finished

Update finished successfully. Reboot this appliance from the System tab. After reboot, re-enter all license keys from the Licensing page on the vRA Settings tab.
WARNING: Immediately update any vRealize Automation IaaS nodes after reboot to avoid product version mismatches.

7. If the upgrade is finished, reboot the appliance. Click on the **System** tab and click on **reboot**.

Upgrading the IAAS server components

The next step in this process is to upgrade the IAAS components. The IAAS installer will also upgrade the MSSQL database. In earlier upgrade processes it was needed to separately upgrade the database. To start the IAAS upgrade, follow the following steps:

1. Open your favorite web browser and go to: <https://vRAhostname:5480/installer>
2. Click the **IAAS installer** link. Save the prompted file. (**Do not change the filename!**)
3. Open the installer and follow the wizard.
4. Accept the license agreement and click on **Next**.
5. Provide the Appliance Login Information. Click on **Next**.

vRealize Automation Configuration

Log In
Provide the administrator credentials for the VMware vRealize Appliance.

Appliance Login Information

Appliance host name: vra.metisitlab.local:5480

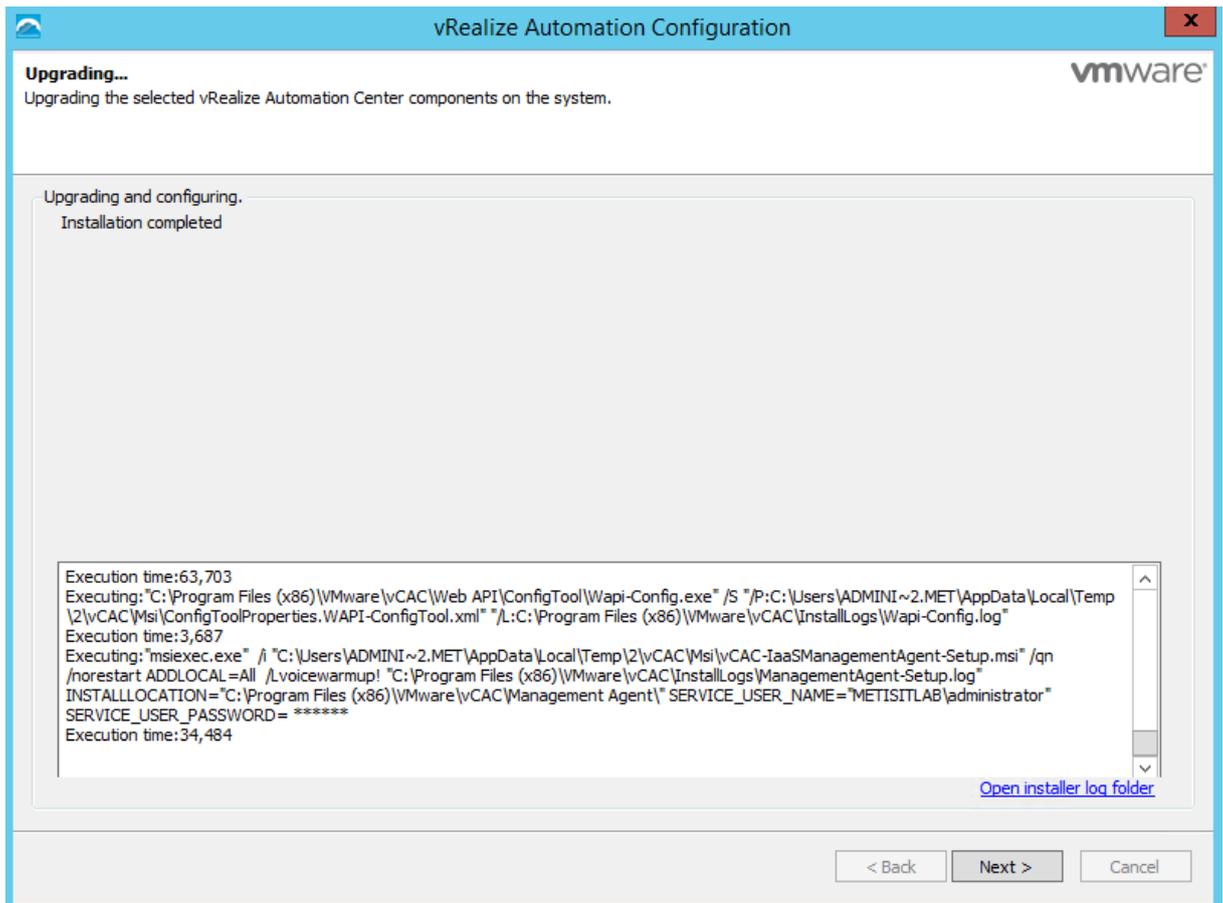
User name:

Password:

Accept Certificate
Required in order to access the virtual appliance management interface (VAMI)
[View Certificate](#)

< Back Next > Cancel

6. Choose for **Upgrade**. Click on **Next**.
7. Provide the correct Service Account for the component services and the authentication information of the SQL server. Click on Next.
8. Accept the certificate of the SSO Default Tenant and provide the SSO Administrator Credentials. Click on Next.
9. Click now on Upgrade to start the upgrade.



10. Click on **Next** and **finish** to complete the IAAS upgrade.

Post upgrade tasks

After the IAAS upgrade first check the correct operation of the vRA appliance. Click on the infrastructure tab and click on endpoint. Verify the endpoint overview is correct. Next try to request a blueprint and check if everything will finish successful.

If everything is correct, the last step is the upgrade of the vRA agents on the OS templates. The new agents also contain some bug fixes. In our environment we use CentOS and Windows Operating Systems. We will first start with the upgrade of the CentOS agent followed by the Windows Agent.

CentOS agent

1. Convert the CentOS template to a VM and boot the VM.
2. Download the prepare_vra_template.sh script from the following location:
https://vRAhostname.local:5480/service/software/download/prepare_vra_template.sh
3. Allow execution of the script with:
`chmod +x prepare_vra_template.sh`
4. Execute the script: `./prepare_vra_template.sh`.
5. Follow the wizard and provide the correct information. I choose for vSphere, no certificate check and the install Java.
6. Wait for completion and shutdown the VM.
7. Convert the VM back to a template.

Windows Agent

For the upgrade of the Windows Agent we will use the script made by [Gary Coburn](#). He developed a script that will install all the needed components and the vRA agent on Windows. Thanks to my colleague Ronald van Vugt for this modification on this script because of newer java version. The original script is based on vRA version 7.0.0 which included version jre-1.8.0-66. The java version included in version 7.0.1 is newer, so a modification to the script is required.

1. Download the original script from [here](#) or [here](#). And open the script and search for the following line:
`$url="https://" + $vRAurl + ":5480/service/software/download/jre-1.8.0_66-win64.zip"`
2. This line must be edited to:
`$url="https://" + $vRAurl + ":5480/service/software/download/jre-1.8.0_72-win64.zip"`
3. If the script is edited run the script with the following parameters:
`./prepare_vra_template.ps1 vra-hostname iaas-hostnamePasswordofDarwinUser`
4. The script will sometimes ask for confirmation.
5. Wait till the installation is complete.
6. Shutdown the VM and convert it again to a template.

Verify the installation

Now request some of your blueprints to verify the correct operation of the vRA appliance, IAAS server and the guest agents. If everything is OK, then it is time to delete the snapshots of the vRA appliance and IAAS server.

1. Select the VM, choose for **snapshots** and **Manage Snapshots**
2. Delete the snapshot you have made before installation.
3. Do this for both VMs

Conclusion

Before executing this upgrade in a production environment it is recommended to plan the upgrade and verify that all dependencies will work after the upgrade. Also plan enough time for this upgrade, so you have the time to check and verify the installation.