This document is intended as an update for the following book:

*vRealize Orchestrator Essentials* by Daniel Langenhan, Packt Publishing Sep 2015.

On 23.12.15 VMware released vRealize Orchestrator 7. Due to this, some changes to chapter 1, 2 and 3 need to be made. The rest of the Book is not impacted by any changes.

With Version 7.2 and 7.3 things have changed again and this document was updated to reflect these changes.

**General**

Please have a look at the vRO 7.3 Release Notes that can be found here:


The main changes are that will impact this book are:

- Control Center now fully works as intended
- Orchestrator Configurator is now retired
- LDAP is removed
• Authentication supports the vSphere Platform Services Controller architecture
A lot of the old configuration workflow are not accessible anymore and the work should now be done using the Orchestrator Control Center

Chapter 1
The following changes apply for vRO7.3 to chapter 1

More about Plug-ins
Orchestrator itself comes with quite a lot of plugins pre-installed. The following table shows all the plug-ins that vRealize Orchestrator 7.3 comes with.

<table>
<thead>
<tr>
<th>Plugin Name</th>
<th>Version and name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Directory</td>
<td>AD 3.0.5.5377446</td>
</tr>
<tr>
<td>AMQP Plug-in</td>
<td>AMQP 1.0.4.5244874</td>
</tr>
<tr>
<td>Configuration plug-in for vRealize Orchestrator</td>
<td>Configurator 7.3.0.5481809</td>
</tr>
<tr>
<td>Dynamic Types plug-in for vRealize Orchestrator</td>
<td>DynamicTypes 1.3.0.5416411</td>
</tr>
<tr>
<td>Common enumerated types</td>
<td>Enums 7.0.1.4939616</td>
</tr>
<tr>
<td>Library plug-in for vRealize Orchestrator</td>
<td>Library 7.0.1.4939616</td>
</tr>
<tr>
<td>Mail Plug-in</td>
<td>Mail 7.0.1.4939616</td>
</tr>
<tr>
<td>Wrapper to Jakarta Apache Commons Net library</td>
<td>Net 7.0.1.4939616</td>
</tr>
<tr>
<td>Power Shell Plug-in</td>
<td>PowerShell 1.0.11.5262161</td>
</tr>
<tr>
<td>REST plug-in for vRealize Orchestrator</td>
<td>REST 2.2.2.5376849</td>
</tr>
<tr>
<td>Simple Network Management Protocol plug-in for vRealize Orchestrator</td>
<td>SNMP 1.0.3.5277615</td>
</tr>
<tr>
<td>SOAP plug-in for vRealize Orchestrator</td>
<td>SOAP 2.0.0.5277614</td>
</tr>
<tr>
<td>VMware vRealize Orchestrator SQL Plug-In</td>
<td>SQL 1.1.4.5107267</td>
</tr>
<tr>
<td>SSH plug-in for vRealize Orchestrator</td>
<td>SSH 7.0.2.5054732</td>
</tr>
<tr>
<td>vAPI plug-in for vRealize Orchestrator</td>
<td>VAPI 7.4.0.5402952</td>
</tr>
<tr>
<td>vSphere vCenter Plug-in</td>
<td>VC 6.5.0.5471688</td>
</tr>
<tr>
<td>vRealize Orchestrator Multi-Node Plug-In</td>
<td>VCO 7.3.0.5481809</td>
</tr>
</tbody>
</table>
# Chapter 2

The following changes apply for vRO7 to chapter 2

## Licensing

vRO is automatically licensed with vSphere vCenter and/or vRealize Automation. As soon as you connect vRO to one of these authentication sources vRO is licenced.

Although Orchestrator is not available with the Essentials and Essentials Plus licensing, it can be operated in Player mode only. This limits your usage to executing existing workflows and prevents you from editing or creating them.

## vRO Compatibility

If possible you should use vRO7 instead of vRO6 with vSphere 6, as vRO7 recognizes the new PSC structure.

<table>
<thead>
<tr>
<th>Orchestrator Version</th>
<th>vCenter Version</th>
<th>vRealize Automation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.x</td>
<td>5.1</td>
<td>vCAC 5.2.3</td>
</tr>
<tr>
<td>5.5.x</td>
<td>5.1 – 6.0 (5.5.3)</td>
<td>vCAC 5.2.3</td>
</tr>
<tr>
<td>6.0.x</td>
<td>5.1 – 6.5 (6.0.5)</td>
<td>6.2.x</td>
</tr>
<tr>
<td>7.0.x – 7.1</td>
<td>5.1 – 6.5</td>
<td>analog with vRO version</td>
</tr>
<tr>
<td>7.2-7.3</td>
<td>5.5 – 6.5</td>
<td></td>
</tr>
</tbody>
</table>

Check also the [VMware Product Interoperability Matrices](https://www.vmware.com/resources/compatibility/sim/interop_matrix.php)
Appliance size requirements
The vRO 7 Appliance requires the following virtual resources:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>2 vCPUs</td>
</tr>
<tr>
<td>Memory</td>
<td>6GB</td>
</tr>
<tr>
<td>Disk Space</td>
<td>17 GB (7 + 10)</td>
</tr>
<tr>
<td>Network</td>
<td>1 x Network 1x IP or DHCP</td>
</tr>
</tbody>
</table>

Open Ports
The major changes are:
change is that port http 8280 now forwards to https 8281.
https 8283 now is used for the Orchestrator Control Centre.

<table>
<thead>
<tr>
<th>Source</th>
<th>Target</th>
<th>TCP Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desktop</td>
<td>vRO</td>
<td>5480</td>
<td>Appliance Configuration</td>
</tr>
<tr>
<td>Desktop</td>
<td>vRO</td>
<td>80 (redirect)</td>
<td>vRO Webpage and vRO Client Connection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>443 (redirect)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8280 (redirect)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8281</td>
<td></td>
</tr>
<tr>
<td>Desktop</td>
<td>vRO</td>
<td>8283</td>
<td>vRO Control Center</td>
</tr>
<tr>
<td>vRO</td>
<td>vCenter</td>
<td>443</td>
<td>vCenter Connection</td>
</tr>
</tbody>
</table>

Database
There is need to do this anymore with Version 7.2 the internal DB is cluster ready and fully functional.

Deploying the Orchestrator Appliance
1. Open your vSphere Web Client and log in.
2. Select a host or cluster that should host the Orchestrator Appliance.
3. Right-click the Host or Cluster and select Deploy OVF Template.
4. The deploy wizard will start and ask you the typical OVF questions:
   ° Accept the EULA
   ° Choose the VM name and the VM folder where it will be stored
   ° Select the storage and network it should connect to. Make sure that you select a static IP

5. The **Customize template** step will now ask you about some more Orchestrator-specific details. You will be asked to provide a new password for the root user. The root user is used to connect to the vRO appliance operating system or the web console.

6. The other password that is needed is for the vRO Configurator interface. We will have a quick look at that in *Chapter 3, Integrating Orchestrator with vSphere*.

7. The last piece of information needed is the network information for the new VM. The following screenshot shows an example of the **Customize template** step
After the deployment

If the deployment was successful, the VM’s console should show a screen similar to the one below.

Accessing the Orchestrator Home page

The main changes are that the Orchestrator Configuration is now gone and replaced by Orchestrator Control Center. The other minor change is the quick link to the Orchestrator documentation.
The Home page contains some very useful links. As shown in the figure above, here is an explanation of each number.

1. Click here to start the Orchestrator Java Client. You can also access the Client directly by browsing to:  
   https://[IP or FQDN]:8281/vco/client/client.jnlp

2. Click here to download and install the Orchestrator Java Client locally
3 Click here to access the Orchestrator Control Center
4 A selection of links to find help, information and to download plug-ins
5 Additional VMware links
6 A quick link to the VMware Orchestrator Documentation

**Base configuration with vRO 7.3**

After you have deployed the Appliance you should configure it.

**Setup Wizard**

1. Go to the vRO Webpage
2. Click on Orchestrator Control Center
3. You are prompted for a login. Use root and then the password you specified in the OVA deployment.
4. The Setup wizard will now step you though the base configuration.
5. Select Standalone for this installation. You can change the hostname if you require.
6. Next, we need to select the Authentication method. Choose vSphere and enter the FQDN of your PSC (Platform Service Controller (SSO)).
7. After clicking Connect you may need to Accept the PSC’s certificate.
8. You are now required to enter an SSO user that has the right to add a solution to SSO. This can be Administrator@vsphere.local. This user will only be used once to establish the connection between vRO and SSO. This user will NOT be used for any other connections between vRO and vCenter. If you are using vCenter the default tenant is the name you gave your vSphere SSO domain (Default: vsphere.local)

9. Click Register
10. Next you need to select the vRO Admin group you created earlier. You can type part of the name and then click on Search to find it.

11. Click on Save Changes.

12. The Wizard has finished and you should test your settings. Click on Configure Authentication Provider and then Choose Test Login.

13. Provide user credential from a member of the vRO Admin group (user@domain) and click Test. If a Green banner shows up with the words: The user has Administrative rights in vRealize Orchestrator then you finished with the base setup.
Configure Orchestrator with an external database
No need to do this anymore with Version 7.2 the internal DB is cluster ready and fully functional.

Enter a license
This has been already done while setting up Authentication.

Last steps
This is only needed when using an external Database and as we are not using it anymore, this step can be ignored.

Restart Orchestrator
The Orchestrator Service needs to be restarted every time a major change was made.
1. In the Orchestrator Control Center click on Startup Options
2. Click on Restart to restart the Orchestrator Service.
3. Wait until the service shows RUNNING again. This may take a moment, however it can take up to 2minutes before the vRO Services are fully ready to allow login with the vRO Client.

Starting the Orchestrator Client with SSO User
Let's open the Orchestrator Client. For the Orchestrator Client to work, you need to run at least Java 7.
1. From the Orchestrator home page, click on Start Orchestrator Client.
2. Your Java environment will start. You may be required to acknowledge that you really want to start this application.
3. You will now be greeted with the login screen to Orchestrator
4. Enter the user you tried the test login with in the format user@domain and then click on Login.

The Orchestrator Configuration Tools
This doesn’t exist anymore and can be fully ignored.

Chapter 3
The following changes apply for vRO7 to chapter 3

Installing a plug-in
Instead of the Orchestrator Configuration we now use the Orchestrator Control Center Follow these steps:

1. In the Orchestrator Control Center click on Manage Plug-Ins
2. Click on Browse to browse to the plugin you downloaded.
3. Click Install to install the plugin
4. You now will be presented with a screen in which you need to accept the EULA of the given plugin.

5. Click on Install

6. You now should restart the Orchestrator Service. See the Restart Orchestrator section.