



# Download and Configure vRealize Automation Standalone Blueprint

vRealize Automation  
Version 7.4

TECHNICAL WHITE PAPER

APRIL 13, 2018

VERSION 1.2

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## Revision History

DATE	VERSION	DESCRIPTION
April 12, 2018	1.0	Initial version.
April 13, 2018	1.2	Additional edits.

## Introduction

This document guides you through the process of downloading a standalone vRealize Automation blueprint from the vRealize Automation appliance and then importing, configuring, and using that blueprint in vRealize Automation 7.4.

The supplied blueprint, and its associated software components, are provided in a downloadable .zip file. The blueprint is usable in a vRealize Automation 7.2 and greater installation, although the download is only available from the vRealize Automation 7.4 appliance.

Note: Unless otherwise indicated, all cited documentation topics are found in the vRealize Automation version-specific product documentation at <https://docs.vmware.com/en/vRealize-Automation/index.html>.

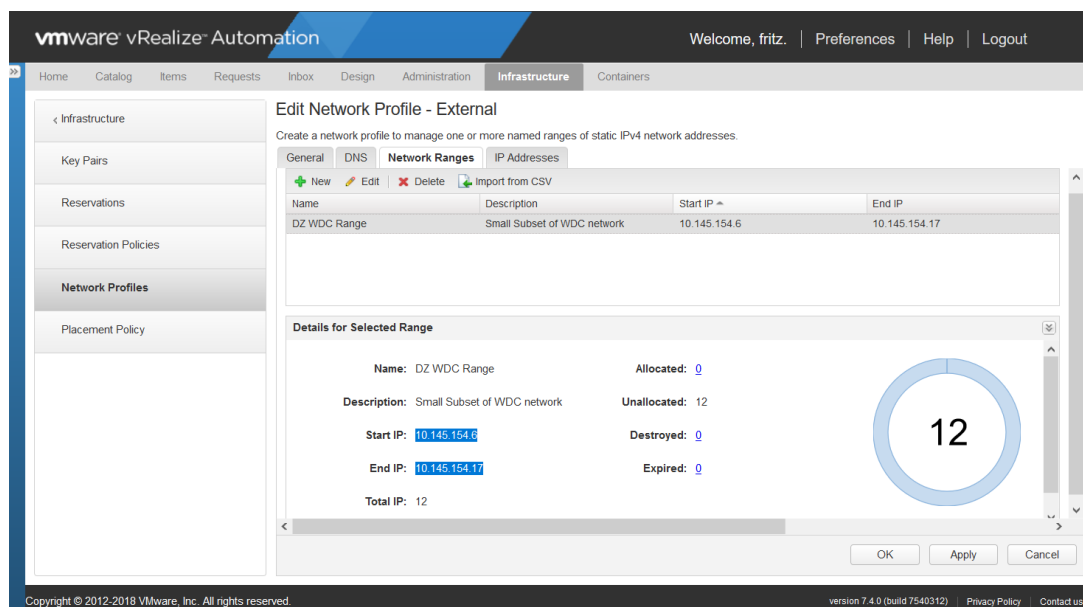


# 1 - Infrastructure Configuration

- a. You must configure your vRealize Automation environment to use network profiles to control static IP ranges for your deployments.
- b. Configure an external network profile using the supplied IPAM endpoint within vRealize Automation is required. For information about how to create and configure network profiles, see the [Creating a Network Profile](#) documentation topic.

Verify that the following values are populated for your network profile:

- a. Primary DNS
- b. Secondary DNS (can be same as a.)
- c. DNS suffix



- i. Host names must be assigned in the DNS controller database for each of the reserved static IP addresses that you use in the above network profiles.
  - ii. Reverse lookup, for each static IP used in the above network profile, must also be preconfigured.
  - iii. DNS lookup (running **nslookup <IP Address>**), for each static-IP used in the network profile, must also be resolvable by your vRealize Automation environment and by each deployed machine.
- b. Deploy the VM templates to be used for cloning in the vRealize Automation with infrastructure blueprint to target your vCenter.
  - c. **vRealize Automation virtual appliance:**



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- i. Deploy your vRealize Automation 7.4 Virtual Appliance OVF with your required password, and SSH session-enabled settings into your vCenter. These values are not updated by the blueprint.
- ii. Once the OVF is deployed, power on the machine. Allow the machine 15 minutes to power on.
- iii. Connect to the machine console by using an SSH session and log in as root. Run the following command to remove the wget utility, if it is installed:  
**rm \$(which wget)**
- iv. Open the [Install the Guest Agent on a Linux Reference Machine](#) documentation topic and install the guest agent and software bootstrap agent. When finished, you can shut down the VM OS by using the following shell command:

```
shutdown -h now. Do not use the power off option
```

- v. Edit the VM settings for your Virtual Appliance. Under **vApp options > Application**, set the following values:
    - 1. Enable SSH service in the appliance: check according to preference.
    - 2. Hostname must be set to **localhost**.
    - 3. Initial root password: Set this to your preferred password.
    - 4. Leave all other vApp properties, including networking properties, blank.
  - vi. The virtual appliance can be converted to a template for cloning.
  - vii. The vRealize Automation template in the blueprint does not use or need a customization spec. Do not provide a customization spec.
- d. **IaaS Windows VM:**
- i. Verify that all IaaS prerequisites are met for your Windows template, as outlined in the [IaaS Windows Servers](#) documentation topic.
  - ii. If you plan to provision an IaaS VM as a standalone computer (not part of a domain), verify that the local Administrator user has **Log on as Service** rights in **Local Security Policies → Local Policies → User Rights Assignment**. However, if you plan to provision an IaaS VM as a computer in a domain, verify that the domain user account for running IaaS services has the above assigned rights.
  - iii. VMware Tools must be installed on your IaaS Windows machine. See [KB 2004754](#) for instructions on how to install VMware Tools on a Windows machine.
  - iv. When installing Microsoft SQL Server on your IaaS machine, configure a SQL authentication user (**sa**), and a password for that user. SQL authentication is an IaaS install requirement. If you plan to provision an IaaS VM as a computer in a domain, use a domain user account for accessing vRA SQL Database. Join the IaaS

- VM to a target domain, add new domain account in Security → Logins and assign that user **public** and **sysadmin** SQL server roles, then disjoin from that domain.
- v. Install the <http://support.microsoft.com/kb/816042> KB on your Windows template. Also install recommended Microsoft security patches.
  - vi. Verify that there are no virus scanner or protection programs running on the IaaS machine. These programs can interfere with the vRealize Automation installation.
  - vii. Follow the instructions on the <https://<vRA server FQDN>/software/index.html> page for downloading and running the following PowerShell script on your IaaS template VM:

```
prepare_vra_template_windows
```

Example instructions are provided below.

#### Windows Software Installers

You can download a zip file to help install the supported Java Runtime Environment, the guest agent, and the software bootstrap agent on your machine.

- [prepare\\_vra\\_template\\_windows.zip](#) (RIGHT CLICK and choose SAVE TARGET AS)

Extract the contents of the zip file and after going to the directory where the files were extracted, `prepare_vra_template.ps1` can be executed as:

- PowerShell -NoProfile -ExecutionPolicy Bypass -Command `.\prepare_vra_template.ps1`
- OR
- `.\prepare_vra_template.bat`

You can manually prepare your Windows reference machine by installing the supported Java Runtime Environment in `C:\opt\vmware-jre`, and installing the guest agent and the Software bootstrap agent.

- [jre-1.8.0\\_151-win64.zip](#)
- [vmware-vra-software-agent-bootstrap-windows\\_7.4.0.0.zip](#)

- viii. Create or update a vCenter Customization Specification in Customization Specification Manager. Use this spec for customizing the Windows (IaaS) VM. This spec is used in the blueprint to set VM parameters such as administrator password, Windows license, and domain membership. Values other than the hostname are not updated by the blueprint.
  1. Your Windows VM must join a workgroup or a domain.
  2. You must set an Administrator password and cannot leave it blank.  
This value will be used in the deployment blueprint, and does not get set later.
  3. You must select the **UTC** option. Only UTC is currently supported.
- e. If you are using linked cloning with snapshots, shut down your VMs and take snapshots.
- f. If you are not using linked cloning, shut down your VMs and convert them to templates for cloning.



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## 2 - IaaS Manager Service Configuration

If you expect to use vRealize Orchestrator extensibility workflows (such as the MachineProvisioned workflow used in this content package) to run longer than the default setting of 30 minutes to avoid timing out, update the following setting:

**Infrastructure → Administration → Global Settings → Group: Extensibility → Extensibility lifecycle message timeout:**

Group: Extensibility				
General	Disable extensibility	Set to True will disable extensibility service. (Default it is set to False)	False	
General	Extensibility lifecycle message timeout	The maximum amount of time the master workflow gets blocked on each state waiting for extensibility events.	01:00:00	

Note: If you update the timeout setting, you must restart the IaaS Manager Service.

## 3 - Import Blueprint & Software Component Contents

Use VMware CloudClient 4.x to import the **vRAIaaSAppForvSphere.zip** file that you downloaded from the vRealize appliance into your vRealize Automation tenant. The zip file contains the out-of-the-box vRealize Automation blueprint and several software components that are used in the blueprint.

The blueprint name is *vRealize Automation with Infrastructure*. The blueprint ID is *vRealizeAutomationwithInfrastructure*.

You can download CloudClient at <https://code.vmware.com/tool/cloudclient>. When you download CloudClient, also download the CloudClient documentation.

See the CloudClient documentation for information about using the `vra content import` command to validate and then import the blueprint and software component contents into your environment.

### Examples

Examples of these operations are shown below:

#### Example 1:

```
cloudclient>vra content import --path "<folder>\vRAIaaSAppForvSphere.zip" --dry-run NO --  
resolution OVERWRITE --verbose
```

```
+-----+
```

```
| Notification |
```

```
+-----+
```

\* Performing import precheck for [<folder>\vRAIaaSAppForvSphere.zip]. Note this operation does not import any content.



+-----+

|Result Details|

+-----+

[ {

"contentId" : "Software.ReleaseVMwareCommonFunctionsshell",

"contentName" : "Release-VMware-Common-Functions-shell",

"contentType" : "software-component",

"operationStatus" : "WARNING",

"messages" : [ "Found matching content, import will overwrite this content." ],

"operationErrors" : [ ]

}, {

"contentId" : "Software.StandaloneVMwareCommon",

"contentName" : "Standalone-VMware-Common",

"contentType" : "software-component",

"operationStatus" : "WARNING",

"messages" : [ "Found matching content, import will overwrite this content." ],

"operationErrors" : [ ]

}, {

"contentId" : "Software.StandaloneVMwarevRACommon\_Functions",

"contentName" : "Standalone-VMware-vRA-Common\_Functions",

"contentType" : "software-component",

"operationStatus" : "WARNING",

"messages" : [ "Found matching content, import will overwrite this content." ],

"operationErrors" : [ ]

}, {

"contentId" : "Software.StandalonevRAServer72andHigher",



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```

"contentName" : "Standalone-vRA-Server-7.2 and Higher",
"contentType" : "software-component",
"operationStatus" : "WARNING",
"messages" : [ "Found matching content, import will overwrite this content." ],
"operationErrors" : [ ]
}, {
"contentId" : "Software.StandaloneVMwarevRAConfigIaaS72andHigher",
"contentName" : "Standalone-VMware-vRA-ConfigIaaS-7.2 and Higher",
"contentType" : "software-component",
"operationStatus" : "WARNING",
"messages" : [ "Found matching content, import will overwrite this content." ],
"operationErrors" : [ ]
}, {
"contentId" : "Software.WindowsRebootcomputer",
"contentName" : "Windows - Reboot Computer",
"contentType" : "software-component",
"operationStatus" : "WARNING",
"messages" : [ "Found matching content, import will overwrite this content." ],
"operationErrors" : [ ]
}, {
"contentId" : "Software.StandaloneVMwareIaaS72andHigher",
"contentName" : "Standalone-VMware-IaaS-Server-7.2 and Higher",
"contentType" : "software-component",
"operationStatus" : "WARNING",
"messages" : [ "Found matching content, import will overwrite this content." ],
"operationErrors" : [ ]
}

```



```

}, {
  "contentId" : "Software.StandaloneVM_Hostname_Domain_Resolution_Windows",
  "contentName" : "Standalone-VMware-Hostname-Domain-Resolution-Windows",
  "contentType" : "software-component",
  "operationStatus" : "WARNING",
  "messages" : [ "Found matching content, import will overwrite this content." ],
  "operationErrors" : [ ]
}, {
  "contentId" : "Software.StandaloneVMwareSLESUpdate72andHigher",
  "contentName" : "Standalone-VMware-SLES-Update-7.2 and Higher",
  "contentType" : "software-component",
  "operationStatus" : "WARNING",
  "messages" : [ "Found matching content, import will overwrite this content." ],
  "operationErrors" : [ ]
}, {
  "contentId" : "vRealizeAutomationwithInfrastructure",
  "contentName" : "vRealize Automation with Infrastructure",
  "contentType" : "composite-blueprint",
  "operationStatus" : "WARNING",
  "messages" : [ "Found matching content, import will overwrite this content." ],
  "operationErrors" : [ ]
} ]

```

+-----+

| Import Precheck Result |

+-----+

WARNING: Import precheck finished with warnings.



- \* 10 content(s) were validated with warnings.
- \* Nothing was imported.
- \* You may choose to run with '--precheck WARN' to proceed with import even when there is warning.

The above message confirms that the blueprint and its related software components were validated with warnings for import into a target vRealize Automation tenant. If this is the first time that you are importing the software components, you will likely not see any warnings.

## Example 2

```
cloudclient>vra content import --path "<folder>\vRAIaaSAppForvSphere.zip" --dry-run NO --
resolution OVERWRITE --precheck WARN
```

```
`+-----+
```

```
|Notification|
```

```
+-----+
```

```
* Performing import precheck for [<folder>\vRAIaaSAppForvSphere.zip]. Note this operation does
not import any content.
```

```
+-----+
```

```
|Import Precheck Result|
```

```
+-----+
```

```
WARNING : Import precheck finished with warnings.
```

- \* 10 content(s) were validated with warnings.
- \* Nothing was imported.
- \* Run with '--verbose' option to see details.

```
+-----+
```

```
|Notification|
```

```
+-----+
```

```
* Importing [<folder>\vRAIaaSAppForvSphere.zip]. Note this operation will import the given
content unless it encounters failures.
```



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+-----+

| Import Result |

+-----+

WARNING : Import finished with warnings.

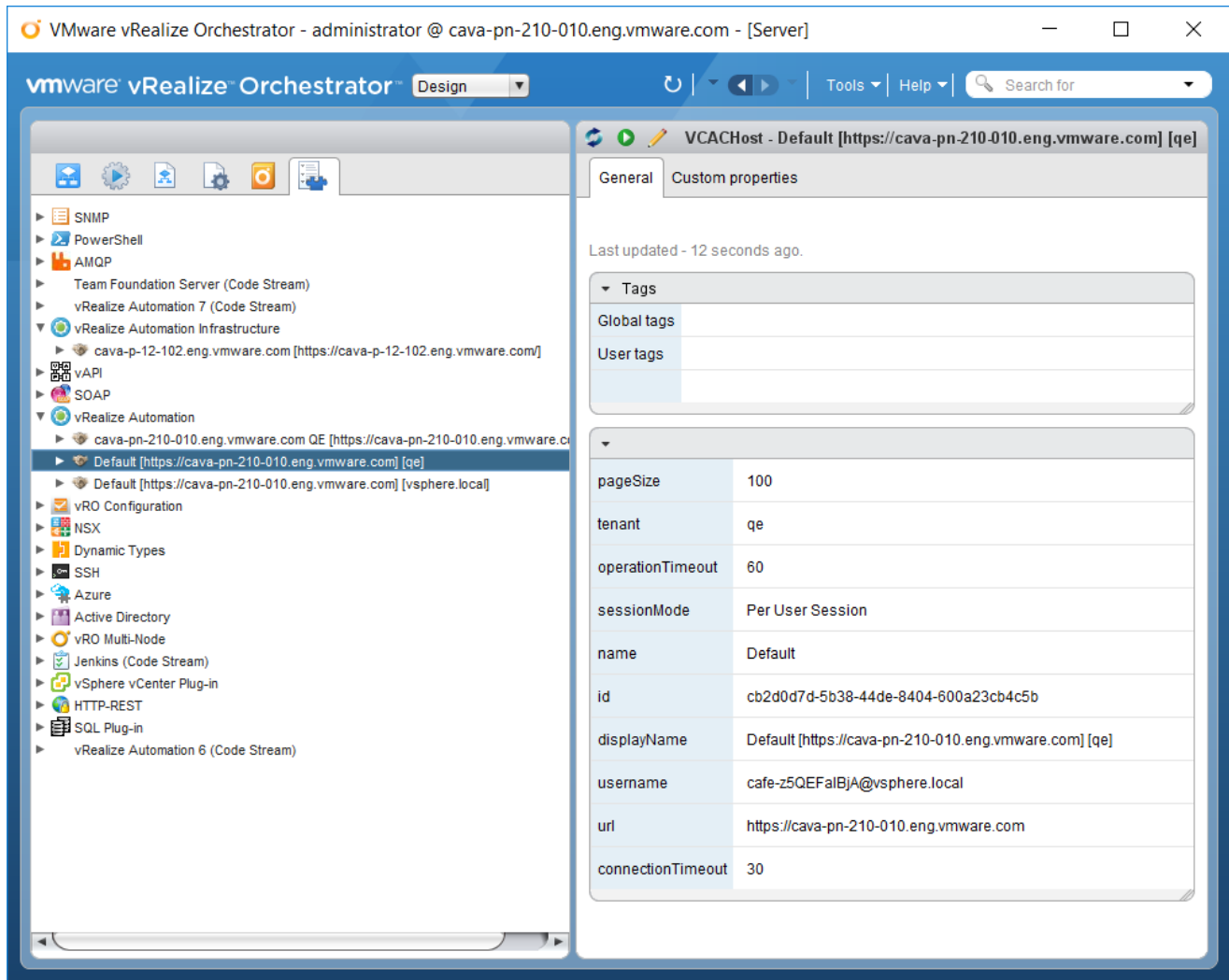
\* 10 content(s) were imported successfully.

The above message confirms that the vRealize Automation blueprint and its related software components were successfully imported into the target vRealize Automation tenant.

## 4 - vRealize Orchestrator Configuration

- a. One-time setup of the Event Broker extensibility package for vRealize Orchestrator:
  - i. Import the supplied **com.vmware.ctoa.ebs.extensibility.package** file as described in the [Import a Package](#) topic in the vRealize Orchestrator documentation.
  - ii. Configure vRealize Automation host settings for vRealize Orchestrator plug-ins as described in the [Add a vRealize Automation Host](#) topic in the vRealize Orchestrator documentation.
  - iii. Configure the vRealize Automation IaaS host as described in the [Add an IaaS Host](#) topic in the vRealize Orchestrator documentation.

Sample configurations for vRealize Automation and the IaaS plug-ins are shown below:



- iv. Run the *Setup EBS Extensibility* workflow located in the *EBS Extensibility – Configuration* folder.  
Select the **vRAHost** instance that corresponds to the target tenant, as in the following example:

**Start Workflow : Setup EBS Extensibility**

**1 EBS Extensibility**

- 1a Installation
- 1b Property configuration

Action: Install

\* vRAHost: Default [https://cava-pn-210-010.eng.vmware.com] [vsphere.local]

Cancel Back Next Submit

Select **All** for machine properties.

**Start Workflow : Setup EBS Extensibility**

**1 EBS Extensibility**

- ✓ 1a Installation
- 1b Property configuration

Include machine properties: All

Cancel Back Next Submit

- Click **Submit** and then monitor the vRO log in the vRO development client to check for messages confirming your EBS extensibility setup.

```
[2018-01-16 16:56:00.171] [I] Creating workflow subscription...
[2018-01-16 16:56:00.738] [I] Workflow subscription EBS Extensibility - Provision created.
[2018-01-16 16:56:00.993] [I] Creating workflow subscription...
[2018-01-16 16:56:01.334] [I] Workflow subscription EBS Extensibility - Lifecycle created.
[2018-01-16 16:56:01.446] [I] EBS Property group with ID 'EBSExtensibility' will be created
[2018-01-16 16:56:01.830] [I]
```

```
[2018-01-16 16:56:01.872] [I] The following property can be used if the property group
'EBS Extensibility' is assigned to the blueprint:
EBS.BuildingMachine
EBS.MachineProvisioned
EBS.UnprovisionMachine
EBS.DisposingPre
EBS.DisposingPost
EBS.MachineCloned
EBS.InitialPowerOn
EBS.On
EBS.Off
EBS.Reboot
EBS.Requested
EBS.Expired
```

---

- Configure the connection to a vCenter server as described in the documented in the [Configure the Connection to a vCenter Server Instance](#) topic in vRealize Orchestrator documentation.
- Import the supplied **com.vmware.cse.vrarelease.package** file as described in the [Import a Package](#) topic in vRealize Orchestrator documentation.
- Update the vRealize Orchestrator configuration element (**vCAC Cava → Server**) settings to match the host names in the target vRealize Automation environment as described in the [Configuration Elements](#) topic in vRealize Orchestrator documentation.

Select **Design** from the vRealize Orchestrator client drop-down menu.

- Select the **Configurations** view.
- Expand the **vCAC Cava → Server** element, click **Edit** and configure the following properties:
  - Specify the FQDN for the following elements in the **Attributes** tab.



*vcacHostname* - FQDN of your vRealize Automation server  
*iaasHostname* - IaaS of your vRealize Manager Service server

An example of these configuration attributes is shown below:

Server

GeneralAttributesEventsPermissions

R+ X 3 < >

Name	Type	Value	Description
vcacHostname	string	cava-pn-210-010.enq.vmware.com	FQDN of vRA VA hostload balancer for environment
iaasHostname	string	cava-p-12-102.enq.vmware.com	FQDN of IaaS Manager Service hostload balancer
vraFingerprint	string	xx	Not used
iaasFingerprint	string	xx	Not used
sshuser	string	root	Not used
sshpwd	SecureString	*****	Not used

CancelRevertSaveSave and close

iii. Click **Save and Close** to save your configuration settings.

e. (OPTIONAL if using custom e-mail notifications) Change vRealize Orchestrator configuration element (**vCACCava → Notifications**) settings to specify settings such as company SMTP server, user name, and password. You can also specify the **fromAddress** and **fromName** values to display the sender e-mail address and sender name in messages.

An example is shown below:

VMware vRealize Orchestrator - administrator@cava-pn-210-010.eng.vmware.com - [Server]

Notifications

GeneralAttributesEventsPermissions

R+ X S C M

Name	Type	Value	Description
fromAddress	string	vra_notifications@vsphere.local	mail from address, which appears in mail client
toAddress	string		send mail to this addresses
fromName	string	vRA Content Deployment Notifications	mail from name, which appears in mail client
smtpHost	string	smtp.company.com	SMTP Server IP/FQDN used to send mails
smtpPort	number	25.0	SMTP Port used to send mails
username	string		email authentication username, if needed
password	SecureString		email authentication password, if needed
useSsl	boolean	<input type="radio"/> Yes <input checked="" type="radio"/> No	Use SSI connection for SMTP?
useStartTls	boolean	<input type="radio"/> Yes <input checked="" type="radio"/> No	StartTLS for SMTP?

CancelRevertSaveSave and close



## 5 - vRealize Automation Tenant Configuration

- Run inventory data collection on the compute resource corresponding to your vCenter to collect the template and VM changes that you have made.
- Create a vRO endpoint as described in the [Create a vRealize Orchestrator Endpoint](#) topic in vRealize Automation documentation.
- Configure the vRO endpoint to enable Event Broker subscriptions-based extensibility as described in the [Configure the Embedded vRealize Orchestrator Server](#) topic in vRealize Automation documentation.
- Create a reservation as described in the [Create a Reservation](#) topic in vRealize Automation documentation, being sure to use a resource pool and assign the network profile that you created in section 1 (Infrastructure Configuration).

An example reservation is shown below:

### Edit Reservation - vSphere (vCenter)

Change settings in a listed reservation.

General
Resources
Network
Properties
Alerts

Machine quota: 20

\* Memory (GB):

Physical	Total Reserved	Total Allocated	This Reservation
1024	1000	0	1000

\* Storage (GB):

	Storage Path	Physical	Free	Total Reserved	This Reservation Reserved	This Reservation Allocated	Priority	Disabled
	vcac-perflab	8999	2107	1200	1200	0	1	No
	vcac-scale...	3000	862	0				
	vcac-scale...	3000	629	0				
	vcac-scale...	3000	615	0				
	datastore1 (10)	272	10	0				
	datastore1 (11)	272	220	0				
	datastore1 (12)	272	209	0				
	datastore1 (13)	272	85	0				

Resource pool: Deployments

(OPTIONAL If using custom e-mail notifications). Click **Administration** → **Events** → **Subscriptions** and create a non-blocking subscription for the blueprint to the *Catalog item request completed* event by using the **Get Payload Properties - Blueprint or Catalog requests - send E-mail notification** vRO workflow as a target.

Base your subscription on conditions as shown in the following example.

Use the **BlueprintID** value for the conditions as shown in the following graphic.

## Edit Workflow Subscription

Event Topic

Conditions

Workflow

Details

Specify whether the workflow should be run for all events or based on conditions.

☐ Run for all events

☒ Run based on conditions

All of the following

User name Does not e... Nothing

Any of the following

Data > Blueprint ID Equals vRealizeAutomation... vRealizeAutomation...

+ Add expression

+ Add expression

Constant

Field

vRealizeAutomationwithInfr:

Use the **Get Payload Properties - Blueprint or Catalog requests - send E-mail notification** vRO workflow as a target for the non-blocking subscription as shown in the following graphic.

## Edit Workflow Subscription

Event Topic

Conditions

Workflow

Details

Select a workflow:

- Orchestrator
  - EBS Extensibility
  - Library
  - QE
  - System
- vCAC Cava
  - Notification
    - Get Payload Properties - Blueprint or Catalog requests - send E-mail notification
    - Get VM properties when catalog item succeed NESTED BP
    - Send email report
    - Send report for provisioned multemachine
  - vCenter
  - vSphere blueprint

Selected workflow:

Name: Get Payload Properties - Blueprint or Catalog requests - send E-mail notification

Description: Developed to handle e-mail notification for Cava requests for most of Blueprints - regular and now nested, the child workflow should be "Get VM properties when catalog item succeed NESTED BP"

Input parameters:

Name	Type
payload	Properties

Displaying 1 - 1 of 1

Output parameters:

Name	Type
No parameters	

Publish the newly created subscription and verify that its status appears as **Published** by selecting **Administration > Events > Subscriptions** as shown in the following example.

For information about Event Broker Subscription publishing, see [Working with Provisioning and Life Cycle Workflow Subscriptions](#) and [Scenario: Create a Post-Provisioning Snapshot Workflow Subscription](#) in vRealize Automation documentation.



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Advanced Search							
<a href="#">New</a> <a href="#">Edit</a> <a href="#">Publish</a> <a href="#">Unpublish</a> <a href="#">Delete</a>							
Name ▲	Description	Event Topic ID	Blocking	Reply	Priority	Timeout (min)	Status
BusinessGroupEB		com.vmware.csp.core	No	No			Published
Business Group Event		com.vmware.csp.core	No	No			Published
Cava Get Payload Properties - Blueprint o...	Developed to handle e-mail notification for Cava requests for most of Bluep	com.vmware.csp.com	No	No			Published
EBS Extensibility - Lifecycle	Subscription for EBS Extensibility. DO NOT delete or modify.	com.vmware.csp.iaas	Yes	No	5	120	Published
EBS Extensibility - Provision	Subscription for EBS Extensibility. DO NOT delete or modify.	com.vmware.csp.iaas	Yes	No	5	120	Published

NOTE: You can customize the content of notification e-mails by changing the **Get VM properties part of deployment and use them for SUCCESS E-mail generations** script operator in the **Get Payload Properties - Blueprint or Catalog requests - send E-mail notification** vRO workflow.



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## 6 - Blueprint Level Configuration Updates

- a. In vRealize Automation, open the vRealize Automation blueprint in each VM and select a **Clone** or **Linked Clone** build information action for each VM.

Verify that the correct VM template for each component is selected as a **Clone From** source and, in the case of LinkedClone, that its latest snapshot corresponds to a state in which all the previous prerequisites are configured.

For the IaaS Windows machine, add the desired customization spec as shown in the following example:

The screenshot shows the 'IaaS' configuration page in vRealize Automation. The 'Build Information' tab is selected. The configuration includes:

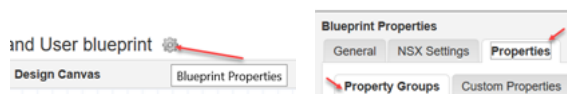
- Blueprint type:** Server
- Action:** Clone
- \* Provisioning workflow:** CloneWorkflow
- \* Clone from:** win2012-iaas-domain
- Customization spec:** Windows-iaas-Domain

- b. Click the **Storage** tab for each VM and, if present, delete the 1 GB drive that contains the **DELETE THIS** label.
- c. Customize any necessary reservation policies, machine prefixes, and lease settings.
- d. Modify or verify custom property settings in the overall blueprint as described below.

### Open the Custom Properties or Property Groups UI page

In vRealize Automation, click **Design > Blueprints** and select the blueprint that you want to open from the list.

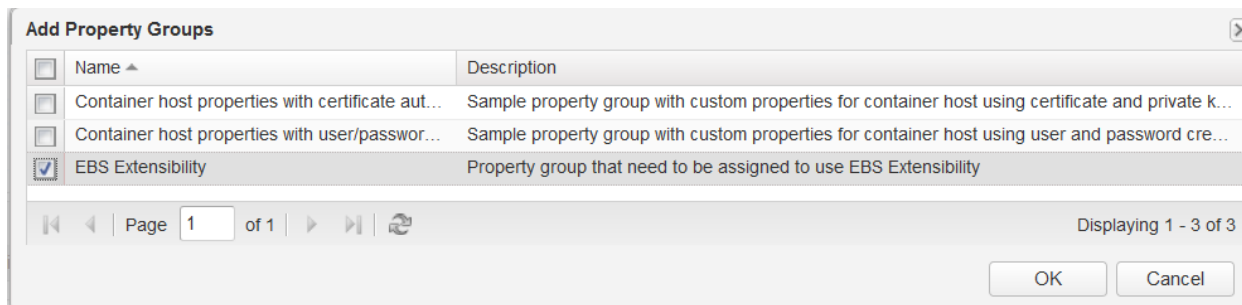
Click the Blueprint Properties icon and then click **Properties > Property Groups** or **Custom Properties**.



**NOTE:** All custom properties that are not listed below can be left as is.

### Custom Properties for vRA – vSphere Machine:

- i. **vcac\_va\_license\_key** – enter your vRealize Automation developer license key.
- ii. Verify that the **EBS Extensibility** custom property group, which was created automatically in section 4 (vRealize Orchestrator Configuration) is listed in the Property Groups list for your open blueprint.



- iii. **EBS.MachineProvisioned** – Verify that the Global ID of the **Release - Machine Provisioned activities EBS** vRealize Orchestrator workflow is entered. That ID can be found by selecting the workflow in the Orchestrator client. See the following image as an example.

Name	Release - Machine Provisioned activities EBS
ID	b9d8a5ba-72f2-4b0a-a042-528fc2ce31b6
Version	0 . 0 . 6
Workflow icon	

- iv. **vcac\_va\_root\_password** – The root password for the vRealize Automation virtual appliance should match the one configured in section 1 (Infrastructure Configuration) for the corresponding VM template.

### Custom Properties IaaS – vSphere Machine

- i. **iaas\_va\_admin\_password** – Specifies the Windows VM Administrator user password (for **Administrator** user if local, for Domain user if IaaS VM joins a domain).
- ii. **iaas\_va\_admin\_user** – Specifies the Windows VM Administrator user – (for **Administrator** user if local, for Domain user if IaaS VM joins a domain).

- iii. Verify that the custom property group **EBS Extensibility**, created in section 1 (vRealize Orchestrator Configuration) appears in the Property Groups list.
- iv. **EBS.MachineProvisioned** – Verify that the Global ID of the **Release - MachineProvisioned - Set VM Hostname** vRealize Orchestrator workflow is listed. You can find the global ID value by selecting the workflow in the Orchestrator client.

#### Custom properties - *Common software component*:

- i. **ntp\_servers** – Specifies the NTP server(s) address or hostname for the network where VMs will be deployed
- ii. **OPTIONAL**. If the IaaS VM joins a domain, specify values for the following properties for Domain user with rights to rename computers on the Domain used in the **Standalone-VMware-IaaS-Server-7.2\_and\_Higher\_1** component.
  - **ad\_domain** – Specifies the domain name (for example company.com).
  - **ad\_password** – Specifies the domain administrator user password.
  - **ad\_username** – Specifies the domain administrator user name.

#### Custom properties - *Standalone-vRA-Server-7.2\_and\_Higher\_1 software component*

- i. **cert\_sign** – Specifies the SHA2 value for self-signed certificate. Default (sha256) can be used.
- ii. **certificate\_country\_code** – Specifies the self-signed certificate country code. Default (US) can be used.
- iii. **certificate\_organisation\_name** – Specifies the self-signed certificate organization name. Default (Organisation) can be used.
- iv. **certificate\_organisation\_unit** – Specifies the self-signed certificate organization unit. Default (CMBU) can be used.
- v. **days\_valid** – Specifies the self-signed certificate validity range. Default (1825) can be used.
- vi. **horizonpass** – Specifies the Administrator user password for the default vRA tenant (administrator@vsphere.local).
- vii. **iaas\_db\_name** – Specifies the IaaS database name. Default (vra) can be used.
- viii. **iaas\_db\_windows\_auth** – Specifies the flag whether to use Windows authorization for connection to SQL database. Default (false) can be used if default user (sa) is used for connection, otherwise need to be changed to true.
- ix. **iaaspassphrase** – Specifies the IaaS database encryption passphrase, secured string value. Non-default value recommended.



- x. **mssql\_user** – Specifies the IaaS database username used for connection to SQL database. Default (sa) can be used or, in case when IaaS VM joins a Domain and has a pre-defined domain service account added, a domain user account.
- xi. **mssql\_pass** – Specifies the IaaS database password for SQL Server authentication user above. Should match password for default sa user or password for domain user service account if that is used on the IaaS VM template.
- xii. **vsphere\_agent\_endpoints** – Specifies the Name of vSphere endpoint to configure for vRealize Automation vSphere proxy agent. The name of the endpoint that gets created later in the product must match this value. One agent must be installed. Default value (**vCenter**) can be used.
- xiii. **vsphere\_agent\_names** – Specifies the name of vRealize Automation vSphere proxy agent service that gets installed on IaaS machine. One agent must be installed. Default value (**vCenter**) can be used.
- xiv. **web\_site\_name** – Specifies the name of the default IIS Web site for IaaS components. Default (Default Web Site) can be used.

An example of some of these property values is shown below:

Name ▲	Description	Type	Binding	Value	E
mssql_pass	Local or domain SQL Server ...	Secure String	No	*****	
mssql_server		String	Yes	_resource~Standalone-VM_Hostname_Domain_Resolution_Wi...	
mssql_user	Local or domain SQL Server ...	String	No	sa	
ntp_servers	NTP servers for Time setting	String	Yes	Common~ntp_servers	
single_iaas_password	Pwd for Local or Domain user...	String	Yes	Common~iaas_va_admin_password	
single_iaas_user	Local or Domain user for run...	String	Yes	Common~iaas_va_admin_user	
sleep_max		String	No	1200	
sso_tenant		String	No	vsphere.local	
timezone	Time Zone for vRA and IaaS ...	String	Yes	Common~timezone	
use_existing_database		String	No	false	
use_single_iaas_credentials		String	No	true	
vcac_build_type	Either ob or sb, if this propert...	String	Yes	Common~build_type	
vcac_va_hostname	The vRA VA FQDN	String	Yes	_resource~Common~vcac_va_hostname	
vcac_va_ip	The vRA VA IP	String	Yes	Common~vcac_va_ip	
vcac_va_license_key	vRA appliance license key	String	Yes	vRA~vcac_va_license_key	
vra_agent_hostnames		String	Yes	_resource~Standalone-VM_Hostname_Domain_Resolution_Wi...	
vra_agent_passwords		Secure String	No		
vra_agent_usernames		String	No		
vra_common_functions_file_...	Path to script file with functio...	String	Yes	_resource~VMware-vRA-Common_Functions_1~vra_common_f...	
vra_dem_hostnames		String	Yes	_resource~Standalone-VM_Hostname_Domain_Resolution_Wi...	
vra_dem_passwords		Secure String	No		
vra_dem_usernames		String	No		
vra_lb_fqdn		String	Yes	_resource~Common~vcac_va_hostname	



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After making changes to custom properties and property groups settings, click **OK**.  
Click **Save** to save blueprint changes and click **Finish** to exit out of the saved blueprint.



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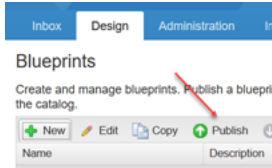
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## 7 - Catalog Management

a. Publish the blueprint that you just updated and saved in section 6 (Blueprint Level Configuration Updates) by selecting the blueprint from the Blueprints view and clicking **Publish**.

For information about publishing, see [Publishing a Blueprint](#) in vRealize Automation documentation.



The blueprint is published to the vRealize Automation services catalog.

b. Configure the published blueprint catalog item with the appropriate entitlements as described in [Creating Entitlements](#) and [Configure a Catalog Item](#) topics in vRealize Automation documentation.

An example of catalog item configuration is shown below:

### Configure Catalog Item

A screenshot of the 'Configure Catalog Item' form in vRealize Automation. The form has two tabs: 'General' and 'Entitlements'. The 'General' tab is active. The form contains the following fields and options:

- Source:** Blueprint Service
- Resource type:** Deployment
- Description:** Updated standalone vRA Blueprint with Cloning components from respective VM templates. Below the description is a text area with the text 'MOST COMPONENTS Updated with unused'.
- Icon:** A text input field with a 'Browse...' button. Below it, the text 'Recommended size: 100 x 100 pixels' is displayed.
- Preview:** Three preview icons are shown: 'List view' (a small gear icon), 'Catalog view' (a medium gear icon), and 'Detail view' (a large gear icon).
- Status:** A dropdown menu with 'Active' selected.
- Quota:** A dropdown menu with 'Unlimited' selected.
- Service:** A dropdown menu with 'Standalone vRA Service' selected.
- New and noteworthy:** A checkbox that is checked.

For more information about the catalog and managing catalog items, services, and entitlements, see the [Managing the Service Catalog](#) topic in vRealize Automation documentation.

## 8 - Blueprint Provisioning and Deployment

Request provisioning of the published blueprint and verify its progress.

a. In vRealize Automation, click **Catalog**.














b. Locate the published blueprint, click **Request** and respond to prompts.

An example of a successful vRealize Automation blueprint provisioning request is shown below:

Deployment: vRealize Automation with Infrastructure

 Request

Execution information for vRealize Automation with Infrastructure Upd

Name	Status	Details	Waiting for	Component ID	Component Type	Request Type
 vRA	✓ Successful			vRA	vSphere (vCent...	Allocate
 IaaS	✓ Successful		vRA	IaaS	vSphere (vCent...	Allocate
 IaaS[0]	✓ Successful	Request succeeded. Created oem-iaas-54.	IaaS	IaaS	vSphere (vCent...	Provision
 vRA[0]	✓ Successful	Request succeeded. Created oem-vra-62.	IaaS	vRA	vSphere (vCent...	Provision
Common-Fu...	✓ Successful		 vRA[0], IaaS	Common-Functi...	Release-VMwar...	Provision
VMware-vRA...	✓ Successful		 IaaS, Common-Functions[0]	VMware-vRA-C...	Standalone-VM...	Provision
Common[0]	✓ Successful		 vRA[0], IaaS, Common-Functions[0], IaaS...	Common	Standalone-VM...	Provision
Standalone-...	✓ Successful		 IaaS, IaaS[0]	Standalone-VM...	Standalone-VM...	Provision
Standalone-...	✓ Successful		 IaaS, Common[0], Common-Functions[0]	Standalone-VM...	Standalone-VM...	Provision
Standalone-...	✓ Successful		 Standalone-VM_Hostname_Domain_Res...	Standalone-VM...	Standalone-VM...	Provision
Windows_-_...	✓ Successful		 Standalone-VMware-IaaS-Server-7.2_an...	Windows_-_Reb...	Windows - Rebo...	Provision
Standalone-...	✓ Successful		 Standalone-VM_Hostname_Domain_Res...	Standalone-VM...	Standalone-VM...	Provision
Standalone-...	✓ Successful		 Standalone-VM_Hostname_Domain_Res...	Standalone-vRA...	Standalone-vRA...	Provision

c. If the request fails or is only partially successful, examine the failed tasks by clicking the circled button with the ellipses. Make any necessary adjustments or configuration changes in the blueprint, based on the exceptions, then request provisioning again.

## Deployment: vRealize Automation with Infrastructure

Execution information for vRealize Automation with Infrastructure Upd ▼

Name	Status	Details	Waiting for	Component ID
vRA	✓ Successful			vRA
IaaS	✓ Successful		vRA	IaaS
vRA[0]	✓ Successful	Request succeeded. Created oem-vra-65.	IaaS	vRA
IaaS[0]	✓ Successful	Request succeeded. Created oem-iaas-56.	IaaS	IaaS
Common-...	✓ Successful		vRA[0], IaaS	Common-Fun...
VMware-v...	✓ Successful		Common-Fun...	VMware-vRA-...
Standalon...	✓ Successful		IaaS, IaaS[0]	Standalone-V...
Common[0]	✓ Successful		vRA[0], Com...	Common
Standalon...	✓ Successful		Common[0], ...	Standalone-V...
Standalon...	✗ Failed	One or more of the spawned tasks failed. See task log for more details	Common[0], I...	Standalone-V...
Standalon...	⚠ Aborted	Marking as ABORTED. A preceding component request has Failed or parent request	Windows_-_R...	Standalone-V...
Standalon...	⚠ Aborted	Marking as ABORTED. A preceding component request has Failed or parent request	Common[0], v...	Standalone-v...
Windows_...	⚠ Aborted	Marking as ABORTED. A preceding component request has Failed or parent request	IaaS, IaaS[0], ...	Windows_-_R...

## 9 - Troubleshooting

### Support for TLS 1.2 protocol

Steps to enable TLS 1.2 protocol support if that secured communications protocol is enforced on the vRA appliance – without it vRealize Automation agents might fail to establish communication with the appliance.

See the [Transport Layer Security Protocol](#) topic in Microsoft documentation.

For TLS 1.2 to be enabled and negotiated on servers that run Windows Server 2008 R2, you must create the *DisabledByDefault* entry in the appropriate subkey (client or server) and set it to 0. The entry is in the registry and is set to 1 by default.

Applicable versions: As designated in the Applies To list that is at the beginning of this topic excluding those versions prior to Windows Server 2008 R2 and Windows 7.

Registry path: HKLM SYSTEM\CurrentControlSet\Control\SecurityProviders\SCHANNEL\Protocols

To disable the TLS 1.2 protocol, create an Enabled entry in the appropriate subkey. This entry does not exist in the registry by default. After you have created the entry, change the DWORD value to 0. To enable the protocol, change the DWORD value to 1.

**TLS 1.2 subkey table**

Subkey	Description	Default
Client	Controls the use of TLS 1.2 on the client.	Enabled
Server	Controls the use of TLS 1.2 on the server.	Enabled
DisabledByDefault	Flag to disable TLS 1.2 by default.	Enabled

### Performance Issues

A. Deployments might start to fail with an error such as that shown below.

```
<machine_name>: InstallSoftwareWorkflow SendWorkitem Exception: Machine
<machine_name>: InstallSoftwareWorkflow. Install software work item timeout.
```

You can display errors by clicking **Infrastructure** ➔ **Monitoring** ➔ **Log**.

- If you see these issues after a few days of successful provisioning, check the memory usage on your vRealize Orchestrator appliance by running: **cat /proc/meminfo** from its console.
- If you see that you are running **low on MemFree** (if setting is less than 2GB), increase the virtual appliance memory to 30 GB and then restart the virtual appliance.

- If you have an HA system, apply the same amount of memory to all secondary VAs and restart them all at the same time.

B. If you see the same install software error as above without ever having a successful deployment, it is likely that either the guest or software agent are misconfigured and need to be reinstalled. You can reinstall as described in the [Install the Guest Agent on a Windows Reference Machine](#) topic in vRealize Automation documentation and in section 1 (Infrastructure Configuration).

C. After cloning your vRealize Automation virtual appliance to a template, the clone fails with an error stating that the initial OVF root password needs to be set.

If you see the described error, set the OVF root password again on the cloned template by converting your template back to a VM and then editing the VM settings in vCenter. Click **vApp Options** → **Initial root password**, reenter your password, and save your settings. You can then convert your VM to a template and retry your clone request.

D. If your deployed Windows machine is not getting the correct static IP, ensure that a vCenter customization specification is being used in the blueprint for the IaaS component.

E. If none of your machines are getting a static IP assigned from vRealize Automation:

- Verify that you properly configured your network profile in your reservation. See [Edit a Reservation to Assign a Network Profile](#).
- Verify that the reservation specified in your machine components is configured to use the correct reservation policy. See [Choosing a Reservation Scenario](#) and [Reservation Policies](#).