



# Building a self-service backup & recovery portal with VMware vRealize Automation

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## Introduction

VMware vRealize Automation is one of the first tools that provides a portal that end users and system administrators can use to get what they need quickly and efficiently, normally without the intervention of other IT staff. In fact, it's so extensible that there's no need for enterprises to even create the portal itself, not to mention program the required HTML and directory integrations, or maintain and support it as well.

All enterprises need backup, but more importantly they need to restore those files and virtual machines (VMs). Often, system administrators are required to complete the backup and restore tasks, but that is not always the best way of doing things.

Veeam® has been empowering customers to back up virtual, physical and cloud workloads for a long time and is now streamlining these processes further through VMware vRealize Automation (vRA) integration. Through this integration, when an end user requests one or multiple VMs, those VMs are automatically added to a backup job as part of the provisioning. This also means when the end user needs an entire VM or file within that VM restored, they can request it on their own, all without IT support, but still within the constraints and guidelines of IT.

## Audience

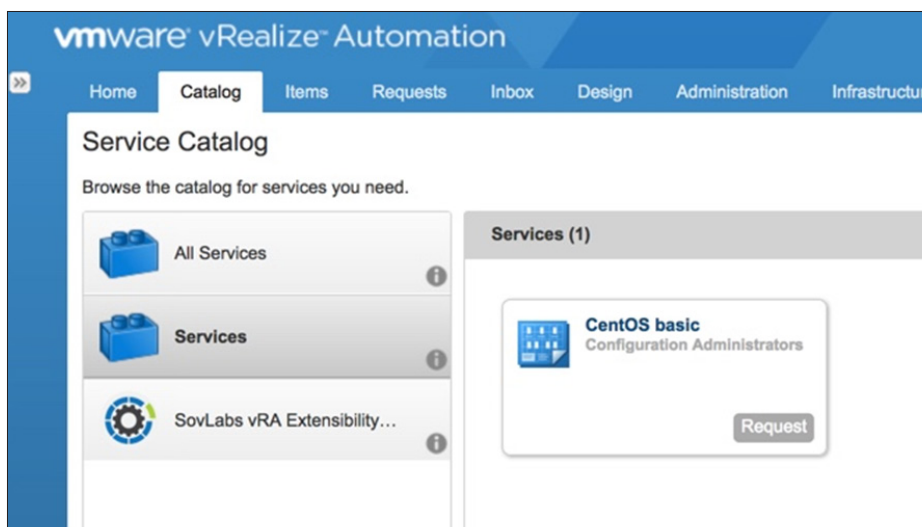
This guide is intended for IT managers and directors to demonstrate how this integration works and see how it will enable their business to be more agile and efficient. It is also for anyone who wants to learn what is possible when you combine VMware, SovLabs and Veeam solutions.

## Overview

Below we will use screenshots to show the step-by-step process of provisioning and day two actions.

## Provision

We will see below a user, Jane Doe, requesting a VM. This example is a CentOS Linux VM called "CentOS basic." As you might imagine, this request could be for almost anything, from a single, simple Linux VM to a full LAMP stack. It could even be an Exchange server cluster used to test patches. Imagination is important here.



There are several screens describing the purpose and size of the VM.

**New Request**

CentOS basic

Deployment: CentOS basic

**General** **Properties**

**Description:** Need to test account software updated.

**Reason for request:** Need to test account software updated.

**Deployments:** 1 (Select 1-5)

But just a few minutes later, a VM is ready.

**vmware vRealize Automation**

Home Catalog **Items** Requests Inbox Design Administration Infrastructure Containers

**Machines** Owned by: Me Owner

Select an item type from the menu on the left to view your provisioned items. Use the Actions menu to manage your items.

Name	Description	Owner	Expense (Mont...	Blueprint Name	Component	IP Address	Status
yycit04	We will use this Lin	Jane Doe	Not Applicable	CentOS basic	CentOS		On
yvrit01		Jane Doe	Not Applicable	CentOS basic	CentOS		On

It should be noted that the parameters of the VM can be adjusted within the boundaries of IT decisions. This might take on a more rigid approach where no adjustments are permitted, or one that is more flexible where more memory can be selected during the provisioning process for example.

## Backup

While the end user doesn't see this, below is a screenshot demonstrating that the requested VM is included in a backup job automatically as part of the provisioning process. When the job runs at its scheduled time, it will find the newly provisioned VM and back it up.

NAME	STATUS	ACTION
yycit02	Success	VM size: 112.0 GB (8.2 GB used)
yycit03	Success	Changed block tracking is enabled
yychr01	Success	Processing yycit02
yvrit01	Success	Processing yycit03
yvrit03	Success	Processing yychr01
yvrit02	Success	Processing yvrit01
yycit04	Success	Processing yvrit03
		Processing yvrit02
		Processing yycit04
		All VMs have been queued for processing
		Load: Source 40% > Proxy 84% > Network 48% > Target 0%
		Primary bottleneck: Proxy
		Job finished at 2/8/2018 2:19:14 PM

This is pretty cool. An end user requested a machine and that night it gets backed up with zero manual IT intervention. And yet, it is all within defined IT boundaries and resource guidelines.

## Instant backup

It is also possible as an end user to easily request an instant backup of the requested VM. This is like a snapshot but better, as it is easier to execute and manage. Below we look at the process of an instant backup. The VM is selected from within the **Items** view.

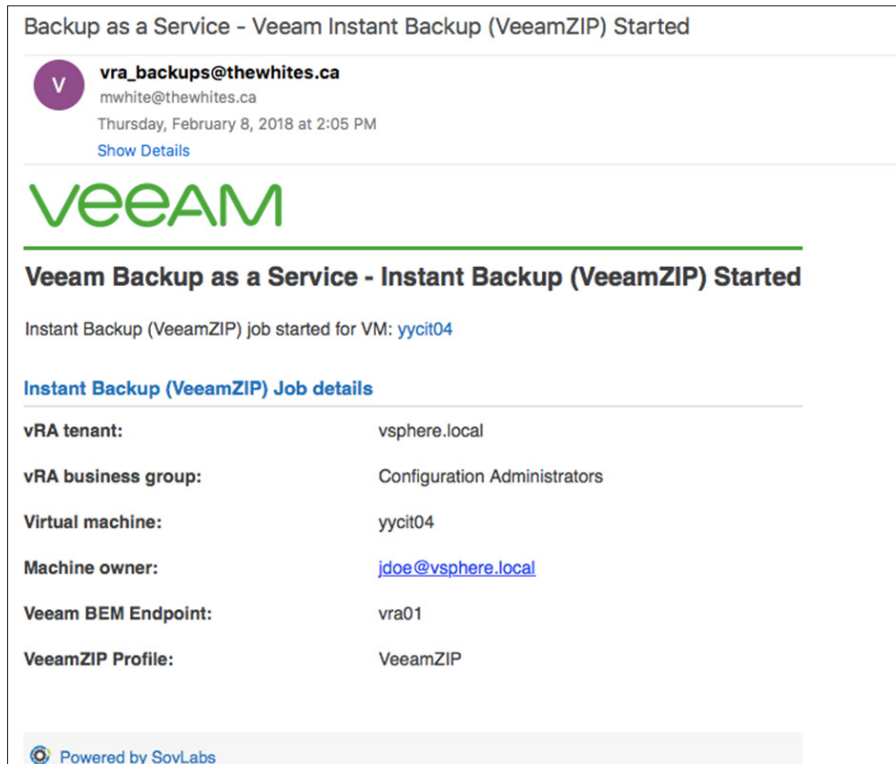
The screenshot shows the 'Item Details' page for a VM named 'yycit04'. The page has a blue header with the VMware vRealize Automation logo and navigation tabs: Home, Catalog, Items, Requests, Inbox, Design, Administration, Infrastructure, and Containers. The 'Items' tab is selected. On the left, there's a sidebar with the VM's icon and details: Name (yycit04), Component (CentOS), Status (On), CPUs (1), Memory (MB) (2048), Storage (GB) (16), Description (We will use this Linux VM to test our latest account software updates. V), Owner (Jane Doe), Provisioned (2/8/18, 1:58 PM), Type (Virtual Machine), Parent (CentOS basic-97852300), Lease (Indefinite), and Expires (Never). The main content area has tabs for General, Storage, Network, Security, Properties, and Snapshots. The 'General' tab is active, showing the VM's configuration. On the right, there's an 'Actions' panel with a list of available actions: Change Backup Jobs (...), Change Lease, Create Snapshot, Destroy, Expire, Install Tools, Instant Backup (Veeam...), Manage Properties (So...), Power Cycle, Power Off, Reboot, Reconfigure, Recover Files and Fold..., Recover VM (Veeam), Reprovision, Shutdown, and Suspend. A red arrow points to the 'Instant Backup (Veeam...)' action.

The **Actions** area on the right lists useful options that have been enabled by the vRA administrator within defined IT boundaries. These are dynamic and state aware; you may see some that I don't. Perhaps on Linux you will see Connect via SSH, but on Windows you may see other options such as Connect via RDP.

As the arrow indicates, we have the "Instant Backup" choice. Once selected, there are a few questions.

The screenshot shows the 'New Request' page for an 'Instant Backup (VeeamZIP)' request. The page has a blue header with the VMware vRealize Automation logo and navigation tabs: Home, Catalog, Items, Requests, Inbox, Design, Administration, Infrastructure, and Containers. The 'Requests' tab is selected. On the left, there's a sidebar with the Veeam logo and details: Instant Backup (VeeamZIP), SovLabs Veeam Backup as a Service module. The main content area has a form for the request. The form has a title 'Instant Backup (VeeamZIP)' and a 'Machine name' field with the value 'yycit04'. There are two required fields: 'Veeam BEM Endpoint' with a dropdown menu showing 'vra01' and 'Zip Profile' with a dropdown menu showing 'VeeamZIP'. There is an 'Emails to notify' field with a plus icon and a list of email addresses: 'jdoe@thewhites.ca' and 'mwhite@thewhites.ca'.

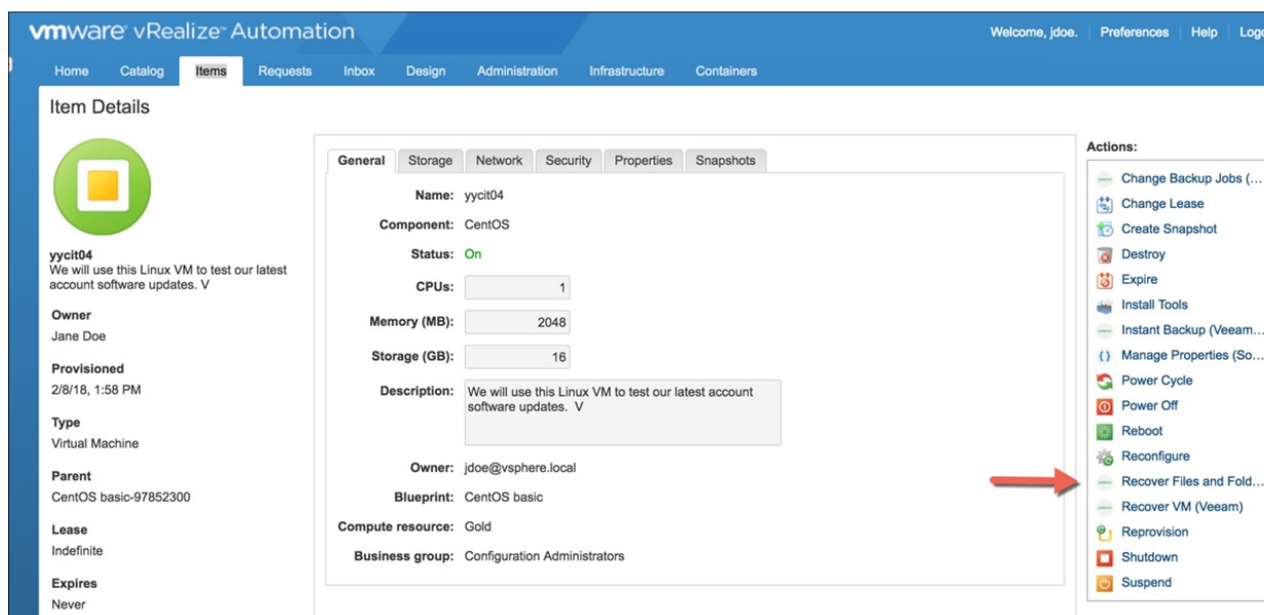
Once the form is filled in and a few minutes go by, an email will be received informing that the backup job has started and another when it is complete. Like so many things in this automated world, I have changed this to only send an email upon the completion of the backup job.



Pictured above is the default email, but it is customizable.

## Restore files(s)

We start at the same place as we did with the Instant Backup, but instead opt for "Recover Files and Folders."



We get to choose the time period to restore from.

The screenshot shows the 'New Request' form in the VMware vRealize Automation interface. The 'Items' tab is selected. On the left, there is a Veeam logo and the text 'Recover Files and Folders (Veeam) SovLabs Veeam Backup as a Service module'. The main form area has three tabs: 'Select restore point', 'Select files or folders', and 'OS Credentials'. The 'Select restore point' tab is active. It contains the following fields: 'Machine name' (yycit04), 'Operating System' (Linux), 'Select timezone' (Etc/UTC), 'Restore time period' (Latest backup), and 'Restore point' (yycit04@2018-02-08 21:17...).

Next, we get to select the files or folders to restore.

The screenshot shows the 'New Request' form in the VMware vRealize Automation interface, now on the 'Select files or folders' tab. The 'Machine name' is still 'yycit04'. A checkbox 'Click to activate the selected restore point?' is checked. The 'File path' field is empty. The 'Files' section shows a list of files: 'dev', 'etc', 'media', 'mnt', 'opt', and 'proc'. To the right of this list is a box labeled 'home' with a plus icon and a minus icon.

In this case we are restoring files of a Linux machine, so they look a little different than Windows files. But the process would not change if you were restoring Windows files.

The last thing before the restore occurs is the prompt for credentials to use.



The screenshot shows the 'New Request' form in the VMware vRealize Automation interface. The 'Items' tab is selected. On the left, there's a Veeam logo and the text 'Recover Files and Folders (Veeam) SovLabs Veeam Backup as a Service module'. On the right, there are three tabs: 'Select restore point', 'Select files or folders', and 'OS Credentials'. The 'OS Credentials' tab is active, showing fields for 'OS Username', 'OS Password', and 'Emails to notify'. The 'Emails to notify' field contains 'jdoe@thewhites.ca' and has a green plus icon next to it.

Then you get your lost files!

## Restore VM

You can restore your VM as well. The process is quite similar, but it starts with a different option – “Recover VM.”

The screenshot shows the 'Item Details' page in the VMware vRealize Automation interface. The 'Items' tab is selected. On the left, there's a VM icon and details for 'yyct04', including its owner 'Jane Doe', provisioned date '2/8/18, 1:58 PM', type 'Virtual Machine', parent 'CentOS basic-97852300', lease 'Indefinite', expires 'Never', and business group 'Configuration Administrators'. The main area shows the 'General' tab with details for 'yyct04', including component 'CentOS', status 'On', CPUs '1', memory '2048', storage '16', and description 'We will use this Linux VM to test our latest account software updates. V'. The owner is 'jdoe@vsphere.local', blueprint is 'CentOS basic', compute resource is 'Gold', and business group is 'Configuration Administrators'. On the right, there's an 'Actions' list with various options. A red arrow points to the 'Recover VM (Veeam)' option in the list.

You still get to pick which copy of your VM you restore and it works pretty fast.



## Conclusion

Now that you know we were able to get this all working in the lab, and you can see the screenshots, you should have an idea on how it could all work for you. You can be sure that Veeam is very committed to APIs and will continue to improve them.

In this document you have seen automation that empowers end users to be more powerful and free up time for the IT people to work on other things — for example that might help make it easier to make money for the company! It should be said that this is one way of doing automation that I think makes things much easier. You could in fact skip vRA and SovLabs and do the portal and automation connections all using your own tools — like PowerShell, vRealize Orchestrator or Java among many others. Be aware that although there are options, what this document shows is what I think is the best for most customers.

Ok, so are you convinced? Curious how to get this functionality? My suggestion would be to find a partner that you like and trust and see if they have done any vRA before. SovLabs includes both install and support in their purchase price so that is straightforward to make work. Of course, you need to be a Veeam customer too. Don't hesitate to let me know how it goes or what you think about how it works — I do want to know!

## Acknowledgements

I want to thank Kim Delgado for the most excellent help with vRealize Automation. She is part of the Customer Success team at VMware and what a great job that is for her! Much thanks Kim.

I would like to thank the whole SovLabs team, starting with David Coulter (CTO) and including Brian Baggett who is one of their rock star cloud automation architects. Brian was a very big help and I most appreciated that. SovLabs has a very good collection of plug-ins for vRA and you can find more about them in the Links section below.

## Lab information

In our lab we used vSphere 6.5 update 1 with patches current as of Feb. 8, 2018. We used Veeam Backup & Replication™ 9.5 Update 3. The vRealize Automation version was 7.3 with patches required by SovLabs. We are using SovLabs plugins version 2017.4.3.3.

We essentially did a default vRA install and Veeam install. We made sure both were working before we brought SovLabs in and did a basic install of it. Not all functionality was used.

Normally, it would require development work -- some in JavaScript -- to connect vRealize Automation and Veeam, so it would be complex and each feature you want surfaced would need work. Instead, we partnered with SovLabs who have experience building plug-ins for vRealize Automation, to eliminate the need to do any development work. Remember that both VMware and Veeam issue updates that can impact API and that will often negate what you have done and require more work. I recommend most customers avoid the development work. It will mean you get a working product faster and yet you can still tweak it as necessary. SovLabs really enables you to do more and do it easier.

Through the use of the Veeam plugin by SovLabs and vRA XaaS extensibility, you can achieve a great deal with no customization or coding needed. It works, and works pretty darn good, but there is much more customization possible if you like.

## Links

**SovLabs doc's site:** <https://docs.sovlabs.com/>

**Veeam docs:** <https://www.veeam.com/documentation-guides-datasheets.html>

**VMware docs:** <https://docs.vmware.com/en/vRealize-Automation/index.html>

**VMware Validated Design for vRealize Automation:** <http://pubs.vmware.com/vmware-validated-design-41/index.jsp#com.vmware.vvd.sddc-design.doc/GUID-73A3C12D-5F2E-4CE1-82D0-136218771065.html>

**Virtual Jad on vRA v7.3:** <http://www.virtualjad.com/2017/05/scoop-vrealize-automation-7-3.html>

**IT Hollow Simple Install:** <https://theithollow.com/2016/01/11/vrealize-automation-7-simple-installation/>

**SovLabs Plug-ins:** <https://sovlabs.com/products/>

## About the Author



I started out after leaving the military, in professional services for a VMware partner. After doing technical implementations around the world, I joined VMware. I started as a Partner SE, followed by Specialist SE, then Staff Technical Marketing Architect and finally into R&D as an Integration Architect. Much of my career has been in BCDR related work. I have spoken on a variety of topics at TSX, PEX, VMworld, Gartner and local VMUGs. I started at Veeam in technical marketing specializing in the Veeam Availability Orchestrator product, but recently moved into Veeam Research & Development as a field PM.

I did the work in this paper, along with Kim and Brian. If you have questions, please do not hesitate to reach out ([michael.white@veeam.com](mailto:michael.white@veeam.com)).

## About SovLabs

SovLabs provides an enterprise framework for extending VMware vRealize Automation (vRA). By seamlessly enabling consumption of data center & cloud technologies including Veeam, SovLabs allows vRA allows customers to design, deploy and manage hybrid cloud environments.

Deployment in hours, feature richness and full support are just a few reasons why SovLabs was named VMware Technical Innovation Partner of the Year. Visit [SovLabs.com](http://SovLabs.com) or request a free trial.

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