

# Using OneFuse with vRealize Automation 8



## **Table of Contents**

	Chapter 1
01	Installing the OneFuse Workflow Package

Chapter 2: 02 Custom Naming Configuration

Chapter 3: 03 IPAM Configuration

Chapter 4: 04

DNS Configuration

05

Chapter 5: Directory Configuration

06

Chapter 6: Property Toolkit



## Using OneFuse with vRA 8

#### Introduction

As companies continue to make the shift towards digital transformation and more cloud infrastructure, teams are under mounting pressure to find efficient and cost-effective solutions to address automation challenges. A growing number of clouds, toolsets, and teams make this increasingly complicated.

"Poor integrations take a \$500,000	"52% of custom coded projects cost	"57% of IT processes aren't automated
toll on the business every year."1	189% of their original estimate."2	or integrated." <sup>3</sup>

VMware vRealize Automation (vRA) is a popular choice for many organizations to manage their hybrid cloud infrastructure, but it has some gaps. CloudBolt OneFuse provides the ability to extend platform capabilities as well as reduce the need to write custom code to achieve advanced use cases with integrated technologies. With the OneFuse, organizations can codelessly integrate vRA with other automation and DevOps tools to accelerate automation capabilities and realize a faster time-to-value.

Capabilities	OneFuse	vRA 7	vRA 8
Custom Code Reduction		8	8
Integrations Dashboard		8	8
X Multi-tool Consumption		8	8
<b>Q</b> Auditing		8	8
Policy/Template		8	8
Higration/Portability		8	8
Deep and Wide Integrations		8	8

The remainder of this document focuses on how to install and configure OneFuse to complement vRA and fill the gaps to provide a more complete and enterprise ready solution!



## Chapter 1: Installing the OneFuse Workflow Package

Here's how easy it is to install the OneFuse workflow package into vRA8. Once the workflow package is installed you will be able to take advantage of all that OneFuse has to offer within vRA8.

\*Note that this same workflow package will also work for vRA7 and vRA Cloud.

Once the OneFuse vRA workflow package is installed and configured, it will automatically create the needed vRA Event Broker Subscriptions for each of the available integrations.

Before we begin, there are prerequisites you will want to have ready.

#### **Prerequisites**

- Download the appropriate package for the version of OneFuse you are running from.
- The OneFuse appliance should be deployed and configured, see the following articles if you need to walk through the OneFuse deployment and configuration.
  - Deploying the OneFuse Appliance
  - Configuring the OneFuse Appliance
  - Creating a OneFuse Naming Policy
- vRA8 or vRA8 Cloud setup with access to vRO.

#### Importing the OneFuse Workflow Package in vRO

First, we need to import the workflow package that was obtained as part of the prerequisites. To import the package follow the steps below:

1. From the vRO web based UI navigate to Packages and select "Import."

	~	Packages (20028) C			
) Dashboard		Fiter			0   8
Library Workflows	ř	NEW PACKAGE			
Actions Policies		com.vmware.o11n.plugin.s upport	com.vmware.library.mail	com.vmware.library.confi guration	com.vmware.library.soap
Activity Workflow Runs Scheduled	×	Support package	Contains the workflows of the Mail plu		SOAP plug-in package
Waiting for Input (0) Policy Runs					
Assets Packages	~	DETAILS	DETAILS	DETAILS	DETAILS
Configurations Resources		com.vmware.library.vapi	corn.vmware.library.xml	com.vmware.library.amqp	com.vmware.library.powe rsheil.converter
Administration Groups Inventory Audit Logs Git Repositories	×	VAPI Plugin package		AMOP plug-in package	Contains logic for converting between.
Git History API Explorer		EXPORT DELETE ACTIONS -	DETARS	EXPORT DELETE ACTIONS ~	DETAILS
		com.vmware.library.powe	com.vmware.library.snmp		



2. Once you have selected import choose the .package file you previously downloaded and select "Open."



3. After opening the package select "Import."

nbedded-VRO	«				
Dashboard Library Workflows Actions	~	Import io.cloudbolt.on View and set the import options I General Package elements Package Details			
Policies Activity Workflow Runs Scheduled	Ŷ	Name Description Items	lo cituatios confuse Condecto Contrus extensibility Management Eschage Ma		
Waiting for input (0) Policy Runs Assets	~	Publisher Certificate	190 m0760 embasedev 001 sonatus net a4420001-(728-4077-9582-2030en28814;		
Packages Configurations Resources		Orgenization Serial Number Validity	VMexile 00.00.00.00.00.00.00.00.00.00.00.00.00.		
Administration Groups Inventory Audit Logs Oit Repositories Git History	~	Eingerprint (BHA-1)	55 web 7x c 20 W da 5 h H Ale Ba and K S 20 70 (7 79 K) / 92 70 6		
API Explorer					

4. Once the Import is complete navigate to "Workflows" and from tree view navigate to OneFuse -> Configuration -> and select "OneFuse Configuration" workflow and then select "RUN."

		<ul> <li>Workflows</li> </ul>	A OneFuse Configurati edit RUN debug schedule all runs delete duplicate   88
Dashboard		> 🗈 Demo	Summary Variables Inputs/Outputs Schema Version History Audit
); Library	~	> 🗈 Library	· · · · · · · · · · · · · · · · · · ·
Workflows		✓ E) OneEuse	99.94
Actions	_	> E AD	
Policies		> 🗈 Ansible Tower	
Activity	J	<ul> <li>Configuration</li> </ul>	Initiatize Update v9AgetSexEndpointSyNameUpdate v9A Endpoint
		> 🗈 VRAZ	
Workflow Runs		> 🗁 vRA8	
Scheduled		💩 OneFuse Configura	
Waiting for Input (0)		> 🗈 Custom Resources	Create vRA Endpoint / to vRA??
Policy Runs		> E DNS	
ð Assets	$\sim$	> E Endpoints	
Packages		> ET IPAM	
Configurations		> E Naming	getRestGroupportbyName
		> Property Toolkit	
Resources		> E Scripting	
Administration	~	> E SPS	
Groups		> E Utilities	
inventory		> E Testing - MB	
Audit Logs		Testing - MFA	
Git Repositories		& Test Extract Machines	from dani
Git History		A Test Get Machine INde	
		00 101 001 Machine 100	
API Explorer			



5. When the dialog appears check "Create vRA Endpoint" and "Create OneFuse Endpoint" and then select the "Create vRA Endpoint" page.

Config Options2 Create vRA E	Endpoint Create OneFuse Endpoint
Create vRA Endpoint	
Create OneFuse Endpoint	
RUN CANCEL	

6. One the "Create vRA Endpoint" page, enter the FQDN for the vRA appliance, a username, password, port, version, and select "Ignore Certificate Warnings" once completed select the "Create OneFuse Endpoint" page from the top.

Config Options	Create vRA Endpoint	Create OneFuse Endpoint	
VRA CAFE FQDN *		vra82demo01.sovlabs.net	
vRA Username *		vrasvc@sovlabs.net	
vRA Password *			
VRA CAFE Port *		443	
vRA Version		vra8 ~	
Ignore Certificate Wa	rnings?		
RUN CANO	CEL		

7. Create a name for the Endpoint. Keep it simple as this will be used when consuming the integration from within vRA. I would recommend calling it *onefuse*, or *onefusedev*, *onefuseprod* or something similar. Input the FQDN for the appliance, a username, password, the port, and select "Ignore Certificate Warnings". Select "RUN once completed.

OneFuse Endpoint Name *	onefuse	
OneFuse FQDN *	onefusefqdn.sovlabs.net	
OneFuse Username *	admin	
OneFuse Password *		
OneFuse Port *	443	
Ignore Certificate Warnings?		
Verify whether the target hostname matches the names stored inside the server's X.509 certificate		

Once the workflow run is complete the OneFuse vRA package is installed, configured, and ready for use.



## 🔅 OneFuse

## **Chapter 2: Custom Naming Configuration**

Now, we're going to walk through using OneFuse to name a deployed machine in vRA8. To do this we will create a new blueprint within vRA8 and call upon the OneFuse to name it using the naming policy we created as part of "Creating a OneFuse Naming Policy."

By the end of this chapter we will have created a blueprint that will deploy a vSphere machine that is named using the OneFuse Naming module. While this will be a simple example we will build upon this in later chapters to showcase the advanced capabilities offered by OneFuse as a platform.

#### vRA8 with OneFuse: Naming

Before we begin there are prerequisites you will want to have ready.

#### **Prerequisites**

- The OneFuse appliance should be deployed and configured, see the following articles if you need to walk through the OneFuse deployment and configuration.
  - Deploying the OneFuse Appliance
  - Configuring the OneFuse Appliance
  - Creating a OneFuse Naming Policy
- The OneFuse Workflow package needs to be installed and configured within vRA8. The following article can walk you through is you have not completed this yet.
   Installing the OneFuse Workflow Package into vRA8
- vRA installed and a working vSphere Blueprint.

#### **Building the Blueprint**

Note: The following Blueprint "OneFuse\_Naming\_vSphere" example can be found in the following git repo: https://github.com/CloudBoltSoftware/onefuse-examples

1. To begin, login to vRA8 and launch "Cloud Assembly."

Services Identity & Access Management Branding		⊘ Sid Smith × ₩
My Services		
Cloud Assembly	🔊 Code Stream	
O° Orchestrator	() Quickstart	> sumon
Service Broker	🚫 vRA Migration Assistant	





2. Once Cloud Assembly has launched select "Design" from the menu.

ployn	nents Design Infrastructure	Extensibility Tenant Managem	ent Marketplace		D GUIDED SE
epl	oyments 10 Items 7		Q Search deploy	ments (i)   Sort: Cre	eated on (descending) 🗸 📕 🔠
<b>₽</b>	ONEFUSEDNS-VRA-PR No description Project PiedPiper Requestor mbombard	2 Resources ☺ pp-atiptweb013 ☺ ONEFUSEDNS-VRA-PROD-001	Created 5 days ago	Expires in 2 days	ACTIONS ~
P	ONEFUSEIPAM-VRA-PR No description Project PiedPiper Requestor mbombard	2 Resources	Created 5 days ago	Expires in 2 days	ACTIONS ~
	ONEFUSENAME-MACHL No description Project PiedPiper Requestor mbombard	2 Resources ⊕ po-atiotweb013 ⊕ ONEFUSENAME-MACHINE-VR	Created 5 days ago	Expires in 2 days	ACTIONS ~
•	PHYSICALSERVER-INFO No description Project PiedPiper	6 Resources () pp-atidwapp048 () pp-atidwapp048 () pp-atidwapp048	Created <b>5</b> days ago	Expires in <b>2</b> days	ACTIONS ~

3. Next, select "Blank canvas" for the "New From" menu.

🔺 pied p			⑦ Sid Smith ~ 태
	structure Extensibility Tenant Management Marketp	blace	D GUIDED SETUP
Deployments     Design     Infra       €     Cloud Templates        ©     Custom Resources        Ø     Resource Actions	Cloud Templates Diseas V NEW FROM V O SYNC REPOS & CLONE of DEPLOY Blank carvas Terraform Upload Ver Account > S3 Bucket > OneFuse PAM > OneFuse PAM > OneFuse PAM > OneFuse Name >	LOWHLOAD × DELETE      Version(s) created      New draft, version(s) created	
	Cloud Server <b>Q</b>	New draft, version(s) created	12 cloud templates

4. Give your new blueprint a name, description, and select the project you would like it associated with and select "Create".

New Cloud Template	e X
Name *	OneFuse_Naming_vSphere
Description	
Project *	Q OneFuse Blog Project
Cloud template sharing in Service Broker	<ul> <li>Share only with this project</li> <li>Allow an administrator to share with any project in this organization</li> </ul>
	CANCEL CREATE





5. Next, drag a vSphere Machine object onto the blank canvas.



6. Next, we need to assign a vSphere template to the vSphere machine. I'm using the ImageRef property and my template is called Centos7. You will want to replace Centos7 with the name of your template. Below is the Yaml for my vSphere Machine:

formatVersion: 1 inputs: {} resources: Cloud\_vSphere\_Machine\_1: type: Cloud.vSphere.Machine properties: #vRA Properties imageRef: Centos7 cpuCount: 1 totalMemoryMB: 1024

\prec pied	piper Cloud Assembly	③ Sid Smith
Deployments Design In	frastructure Extensibility Tenant Management Marketplace	D GUIDED SETUP
OneEuse Namin		
Oner use_ivamin	J_VSphere settings version history actions*	
~	mi S C I I I I O Code Properties Inputs	
	1 formatversion: 1 2 inputs: ()	
Q. Search Resource Types	<ul> <li>&gt; resources:</li> <li>4 - Cloud Veherer Nachine 3:</li> </ul>	
	5 type: Cloud, vightere. Nuchine 6 - properties:	
<ul> <li>Cloud Agnostic</li> </ul>	7 Insgeker Centos7	
@ Machine	9 totel/#mmryf#: 1874	
∞§ Load Balancer		
Nelwork		
O Security Group		
Volume		8
<ul> <li>Kubernetes</li> </ul>		
KBS Cluster		3
(# K8S Namespace		-
	👘 Cloud_vSpher 1	
(#) Supervisor Namespace		
✓ vSphere		
@ Machine		
Disk		
😳 Network		
✓ N5X		
🔯 Gateway		
og Load Balancer		
Network		
V AWS		
🖬 Instanco 🗸		
DEPLOY TEST VER	SION CLOSE Last saved a few seconds ago	



7. Next, we need to add the OneFuse Naming Policy property to the blueprint. The OneFuse Property/Value has certain parameters that need to be set as below:

OneFuse\_NamingPolicy: 'OneFuseEndpointName:PolicyName'

**OneFuseEndpointName** is the name you gave the OneFuse endpoint when you created it and **PolicyName** is the Naming Policy within OneFuse that you would like to assign.

#OneFuse Module Properties OneFuse\_NamingPolicy: 'onefuseblog:default'

8. The last piece we need to account for is defining additional properties that will be sent to OneFuse and used to create the name. In the article "Configuring the OneFuse Appliance", we created a Static Property Set with simulated inputs. I'm going to use the same properties and values in my example blueprint.

#Additional Properties used to generate name nameGroup: pp nameLocation: atl nameEnv: prod nameOS: l nameApp: web dns\_suffix: sovlabs.net

9. The completed YAML for my blueprints is:

formatVersion: 1 inputs: {} resources: Cloud\_vSphere\_Machine\_1: type: Cloud.vSphere.Machine properties: **#vRA** Properties imageRef: Centos7 cpuCount: 1 totalMemoryMB: 1024 **#OneFuse Module Properties** OneFuse\_NamingPolicy: 'onefuseblog:default' #Additional Properties used to generate name nameGroup: pp nameLocation: atl nameEnv: prod nameOS: l nameApp: web dns\_suffix: sovlabs.net



10. Once your Blueprint is complete let's deploy it and give it a test by selecting the "Deploy" button at the bottom left.

eployments Design I	Ifrastructure Extensibility Tenant Management Marketplace	C) GUIDE	ED SET
neFuse_Namin	g_vSphere settings version history actions -		
<	: [1] · · · · · · · · · · · · · · · · · · ·		
Search Resource Types 😋	1 formatVersion 1 2 inputs ()		
	4 Cloud_Sobere_Techne_1:		
Cloud Agnostic	6 properties 7 • Evil. Properties		
@ Machine	8 imageRef: Centos7 9 concount 1		
od Load Balancer	10 totalRecord(): 1824 11 • FOrefuse Properties		
	13 Chefvis Janinghalicy: 'anefvisidefault' 13 #Additional Province used to generate name		
@ Network	14 name@rcup: pp		
O Security Group	16 remetry: prod		
[i] Volume	17 nane/051 1 18 nane/ppt web		
Kubernetes	15 dis_sore: soviets.ret		
面 K8S Cluster			
[#] K8S Namespace	Rh Cloud vikiter :		
(ii) Supervisor Namespace			
vSchere			
. Marchine			
🚯 Machine			
Disk			
Network			
NSX			
50 Gateway			
Load Balancer			
📀 Network			
AWS			
instance			

11. Assign a deployment name and select "Deploy."

Deploy OneFuse_Namin	Deployment Type	
1 Deployment Type	Create a new deployment	<b>~</b>
	Deployment Name *	OneFuse Naming Basic Test
	Cloud Template Version *	Q Current Draft
	Description	
		CANCEL

12. Navigate to the Deployments menu and you will see your deployment listed and once completed you will notice the name has been set by the OneFuse Naming module.

A pied piper Cloud Assembly	তি 🧟 Siid Smith 🗸 🚻
Deployments Design Infrastructure Extensibility Tenant Management Marketplace	印 GUIDED SETUP
Deployments (Tren) Y	Q. Search deployments () Sort: Created on (descending) · )
OneFuse Naming Basic Test         Destprodivebool           No description         Project         OneFuse Blog Project           Project         OneFuse Blog Project         Image: Comparison of the project	Never expires ACTION8 -

13. Now let's login to the OneFuse appliance and select Naming from the homepage. Once on the Naming page if you scroll all the way down you will see "Managed Names" and you will see your newly created name listed.





	*	123 Nami	ng Sequences				+	CREATE	^	
		Constant on the later of some	pierces to create unique names that i	others to specific						
			r more Naming Sequences can be ass		Q 500	rch by Name				
	~	NAME		DESCRIPTION				ACTIONS		
		default						0 / 1	•	
						Rows per page.	10 × 1-1 of	1 <		
		S Nami	ng Validators				+	CREATE	~	
		Validate that the name per	ented via Naming Policy is unique ago vriuda surbanes such acr 2005 servaris		Q, Sea	rch by Name				
		Validate that the name per	erated via Naming Policy is unique ag sclude systems such as: SNS server(s		Q, 564	rch by Name				
		Validate that the name per			Q, 585	rch by Name		ACTIONS		
		Validate that the name per- validators. Validators can in	clude systems such as: DNS server(s	)		rch by Name		ACTIONS		
		Validate that the name gen validates: Validates: cavin	iclude systems such as: DNS server(s	DESCRIPTION				0 /		
		Validate that the name gen validates: Validates: cavin	iclude systems such as: DNS server(s	DESCRIPTION		rch by Name Rows per page	<u>10 v</u> 3.1 of	0 /		
		Validate that the name gen validates: Validates: cavin	iclude systems such as: DNS server(s	DESCRIPTION			<u>10 ×</u> 3-1 ef	0 /		1
		Vancene that the same per- vancenes. Vancentos can re Trint Pris	name default	DESCRIPTION				• Z	•	1
		Vancene that the same per- vancenes. Vancentos can re Trint Pris	iclude systems such as: DNS server(s	DESCRIPTION				0 /		]
		Vancene that the same per- vancenes. Vancentos can re Trint Pris	Noot default ged Names	DESCRIPTION	alidator	Rows per page		• Z	•	]
		Vanden met her kanne gen vandetser vanzetsere can e TVPE pas	Noot default ged Names	DESCRIPTION	alidator			• Z	•	]
		Vanden met her kanne gen vandetser vanzetsere can e TVPE pas	Noot default ged Names	DESCRIPTION	alidator	Rows per page		• Z	•	]
	ſ		RAME RAME default ged Names mg Policy seeudions.	o bescent tow default DNS v	akćator Q. Seo	Rows par page			•	]

14. If you select the "Eye" under Job you can get more information on the job that created the name.

<b>(</b>	Managed Names				G	REFRESH
Generated names f	rom Naming Policy executions.		Q Sea			
CREATED DATE	SOURCE	SOURCE IP	REQUESTER	NAME	POLICY	JOB
2021-01-13 12:46	24 VREALIZE AUTOMATION 8	10.30.2.10	admin	ppatlprodlweb001	default	0
				Rows per page:	10 ▼ 1-1 of 1	$\langle \rangle$
EFUSE arre ortulen v	Jobs → Job	<b>5598111</b>		-	Successful :	۹ ۹
odule Endpoints	Summary	Details				
ing Ingilialing V	42.168 accords Docards Docards Custom Name Job Type Name Second default Priory Addm Addm Addm Addm Addm Addm Addm Add	}; "policy": "title }; "jobMetada "href"	<pre>: yapurushelaataat ": "befault" (</pre>	amingPolicies/1/", bbMetadata/2/",	RESULT	
	Logs					
	2021-01-13 12:46:24 (INFO) futurniting Namin 2021-01-13 12:47:05 (INFO) Executing Naming 2021-01-13 12:47:06 (INFO) Executing Namin	Create Custom Name Job: e34	e5a607-adfc-4ee6-9aa2-cf	4915598111		
orkapace Admin 🗸 🗸						





0	OneFuse						
A		Jobs > Job					
	Modules 🗸	Job e3e5a607-adfc-4ee6-9aa2-cf49	Job e3e5a607 adfc-4ee6-9aa2 cf49fb5981f1				
8	Module Credentials				Successful :		
÷	Module Endpoints	Summary	Details				
••• {}	Jobs Templating 🗸	42.168 seconds Duration	API	INPUT	RESULT		
		Challe Custon Name Join Type Naming Messue defauit Peteroy admin Messator Weaking Admini Messator Weaking Admini Messator	"templateProperties": "mambon": proof: "foneFairs_templation": "foneFairs_templation": "mambootfon": "all" "mambootfon": "all" "mambootfon": "all" "mambootfon": "all" "mambootfoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFoneFairs": "foneFairs": "foneFoneFairs": "foneFairs": "foneFairs": "foneFoneFoneFairs": "foneFoneFoneFoneFoneFoneFoneFoneFoneFoneF	": "compute.allocation.pre", : "samith", ": "conefuseblog:default", ; s.net",			
		Logs					
		2021-01-13 12:46:24 [INFO] Submitting Nam	ing Greate Custom Name Job: e3e5a607-	adfc-4ee6-9aa2-c149fb5981f1	1		
		2021-01-13 12:47:05 [INFO] Executing Nami	ng Create Custom Name Job: e3e5a607-a	dfc-4ee6-9aa2-cf49fb5981f1			
		2021-01-13 12:47.06 [INFO] Successful Nam	ing Create Custom Name Job: eSe5a607	adfo-4ee6-9az2-cf49fb5981f1			
<b>P</b> «	Workspace Admin 🗸						

Although this is a very simple example of connecting OneFuse to vRA8 for Custom Naming, you can start to see how things tie together.



## **Chapter 3: IPAM Configuration**

Let's create a vRA8 blueprint that utilizes the OneFuse IPAM module to provide IPAM integration for provisioned workloads. We won't just be supplying IP information to vRA8 in this example, OneFuse will determine the network placement as well.

By the end of this chapter we will have added the OneFuse IPAM policy to a vRA8 blueprint that is deploying a vSphere machine. This will be a simple example that we will build upon in future articles.

#### vRA8 with OneFuse: IPAM Integration

Before we begin there are prerequisites you will want to have ready.

#### **Prerequisites**

- The OneFuse appliance should be deployed and configured, see the following articles if you need to walk through the OneFuse deployment and configuration
  - Deploying the OneFuse Appliance
  - Configuring the OneFuse Appliance
  - Creating an IPAM Policy with OneFuse
- The OneFuse Workflow package needs to be installed and configured within vRA8. The following article can walk you through is you have not completed this yet.
   Installing the OneFuse workflow package into vRA8
- vRA installed and a working vSphere Blueprint.

While not required to follow along I will be starting off using a blueprint I had previously created in my article vRA8 custom naming with OneFuse. If you want to follow along from where we left off in that article you will want to read the below two articles before continuing.

- Creating a Naming Policy with OneFuse
- vRA8 Custom Naming with OneFuse

#### Adding IPAM to a vRA8 Blueprint

I am going to use the blueprint that I walked through creating in the previous article, vRA8 Custom Naming with OneFuse. You can do the same, clone the existing blueprint or use one you already have available if you like.

To begin you will need to open the blueprint for editing so we can add the appropriate items for consuming our IPAM policy that we created. If you have not yet created your IPAM Policy you can learn how by reading: Creating an IPAM Policy with OneFuse.

1. We need to add the following property to our blueprint

- OneFuse\_IpamPolicy\_Nico
- The property supports 10 NICs. You can set the NIC by changing the number at the end from 0-9.



2. Next we need to set the value for the property. The value is broken up into 2 parts separated by a colon as outlined below.

- OneFuse\_Endpoint:Policy\_Name
- For my environment this will be *onefuseblog:default*. This will result in the following being added to the blueprint:
- OneFuse\_IpamPolicy\_Nic0: 'onefuseblog:default'

Deployments Design	Infrastructure Extensibility Tenant Management Marketplace	C GUIDED SET
neFuse_Nam	ning_IPAM_vSPhere settings version history actions -	
~		S
2 Search Resource Types		
<ul> <li>Cloud Agnostic</li> </ul>	6 · properties: 7 evRA Properties	
@ Machine	8 imageRef: Centos7 9 cpuCount: 1	
ଗଣ୍ଣ Load Balancer	10 totalMemoryMB: 1824 11 #OneFuse Module Properties	
Network	12 OneFuse NaminePolicy Vorefu 13 OneFuse TpamPolicy Nice: 'on	efuseblog:default"
<ul> <li>Security Group</li> </ul>	14 RAdditional Properties used 15 manaGroup: pp 16 manaGroup: 10 at	to generate name
Volume	10 namedocation: ati 17 nametocation: ati 18 nametos 1	
<ul> <li>Kubernetes</li> </ul>	19 namedoj web 19 namedoj web 20 dons suffix: sovlabs.net	
	21	
K8S Cluster	- Cloud_vSpher	
(m) K8S Namespace		
(#) Supervisor Namesp		
vSphere		
Machine		
Disk		
Network		
NSX		
	• • • • • • • • • • • • • • • • • • •	
M Gateway		

3. The completed yaml code for my blueprint looks like the following:

formatVersion: 1 inputs: {} resources: Cloud\_vSphere\_Machine\_1: type: Cloud.vSphere.Machine properties: **#vRA** Properties imageRef: Centos7 cpuCount: 1 totalMemoryMB: 1024 **#OneFuse Module Properties** OneFuse\_NamingPolicy: 'onefuseblog:default' OneFuse\_IpamPolicy\_Nico: 'onefuseblog:default' #Additional Properties used to generate name nameGroup: pp nameLocation: atl nameEnv: prod nameOS: l nameApp: web dns\_suffix: sovlabs.net



4. Once the blueprint is completed we will do a deploy to test that our IPAM integration is working as expected. Select "Deploy" in the lower left corner.

ሓ pied	pipe	Cloud A	Assembly			③ Sid Smith & VIDM82-01 ✓ ₩
Deployments Design	Infrastructure	Extensibility	Tenant Management	Marketplace		C GUIDED SETUP
OneFuse_Nami	ing_IPAM	I_vSPher				y <sup>8</sup> Code Properties Inputs
Q Search Resource Types ✓ Cloud Agnostic @ Machine ∞§ Load Balancer @ Network ○ Security Group				(≥) (≥) (≥) (≤)	£, Q, μ², ∧	1 formatterision 1 2 lapats: 0 3 reparties: 4 properties: 5 properties: 5 properties: 5 properties: 5 properties: 5 properties: 5 properties: 5 properties: 5 properties: 5 properties: 6 properties: 8 properties: 9 pr
Volume						18 nameOS: 1 19 nameOp: web 20 dns_suffix: sovlabs.net
K8S Cluster						20 21
(#) K8S Namespace (#) Supervisor Namesp				Cloud_vSpher		
∨ vSphere						
Machine Disk						
♀ Network ✓ NSX						
Gateway +						
DEPLOY	CLC	Last save	d a few seconds ago			

5. When the deployment dialog opens give your deployment a name and select "Deploy".

Deploy OneFuse_Namin	Deployment Type		
1 Deployment Type	Create a new deployment	×	
	Deployment Name *	OneFuse_Naming_IPAM_vSpere_Test	_
	Cloud Template Version *	Q, Current Draft	
	Description		
			CANCEL

6. Within a few minutes of starting the deployment a name will have been generated and an IP address will have been reserved. To view the name as well as the IP reservation you can login to the OneFuse UI and view the managed objects. You will also b able to see this information within vRA as well. To view the managed objects within OneFuse login to the OneFuse UI and first select naming then scroll down to the section labeled "Managed Names".

-	rom Naming Policy executions.		C	Cearch by Name		
CREATED DATE	SOURCE	SOURCE IP	REQUESTER	NAME	POLICY	JOB
2021-01-26 12:12:14	VREALIZE AUTOMATION 8	10.30.2.10	admin	ppatlprodlweb007	default	0
2021-01-14 13:04:08	TERRAFORM	10.95.95.8	admin	ppatlpwap002	default	۲
2021-01-13 12:46:24	VREALIZE AUTOMATION 8	10.30.2.10	admin	ppatlprodlweb001	default	0
			,	Rowsperpage: 10 👻	1-3 of 3	$\langle \rangle$



You can then select IPAM from the left menu and under "Managed IP Addresses" you will see the information for your IP Address reservation.

Generated II	P Addresses from If	PAM policy execut	ions.	٩	Search by IP Address	
CREATED DATE	SOURCE	SOURCE IP	REQUESTER	IP ADDRESS	HOSTNAME	POLICY
2021- 01-26 12:12:24	VREALIZE AUTOMATION 8	10.30.2.10	admin	10.30.29.168	ppatlprodlweb007.sovlabs.net	default

7. Within vRA8 you can view the details of your deployment and view the name and IP Address. If you expand Network you will see the network the workload was assigned to and other details.

A pied piper Cloud Assembl	r			ি Sid Sm গ্রু গাচ্ম৪2	iith t-o1 ∽ III	
Deployments Design Infrastructure Extensibility Tenant	Management M	farketplace				
	OneFuse_Naming_IPAM_vSphere_Test Course Second Actions   C					
	e_rest	ACTIONS V C				
No description Requestor	ssmith	Expires or				
Project	OneFuse Blog P					
Cloud Template	OneFuse_Nami	ng_IPAM_vSPhere   Created o	n Jan 26, 2021, 12:11:58 PM			
		HIDE SUMMARY A				
Topology History						
'Q'Search résources ' ' ' ' ' 수 ' 2 288' 錄 ) 🗮 ( 因 '초'	Ð. O.Î ≫					
	Cloud	d_vSphere_Machine_1 ACTIONS ~				
	· · · · · · · · · · · · · · · · · · ·	ieneral				
					2	
	<sub>R</sub>	lesource name	ppatiprodlweb007		8	
					~	
	A	kccount / Region	🚱 vcenter01.sovlabs.net/SovLabs			
		itatus	⊳ On			
Cloud_vSpher	· · · · A	Address	10.30.29.168			
		Compute host	Cluster1			
	· · · > s	itorage				
		letwork				
		Index Name	Address	Assign	iment Type	
		0 dvs_SovLabs_329_10	0.30.29.0_24 10.30.29.168 fe80::250:56ff.fe	static s5:3cb4		
	l					
					,	
CLOSE						

8. If you would like to view more detail the entire output from the OneFuse request is also assigned under properties.

• Below is a sample of the information stored with the output:

{"\_links":{"self":{"href":"/api/v3/onefuse/ipamReservations/3/","title":"10.30.29.168"},"workspace
":{"href":"/api/v3/onefuse/workspaces/2/","title":"Default"},"policy":{"href":"/api/v3/onefuse/ip
amPolicies/1/","title":"default"},"jobMetadata":{"href":"/api/v3/onefuse/jobMetadata/27/","title"
:"Job Metadata Record id

27"}],"id":3,"ipAddress":"10.30.29.168","hostname":"ppatlprodlweb007.sovlabs.net","primaryDns":"1 0.30.0.11","secondaryDns":"10.30.0.12","dnsSuffix":"sovlabs.net","dnsSearchSuffixes":"infoblox851.s ovlabs.net,sovlabs.net","nicLabel":null,"subnet":"10.30.29.0/24","gateway":"10.30.29.1","network":" dvs\_SovLabs\_329\_10.30.29.0\_24","netmask":"255.255.255.0","trackingId":"64080c00-db0c-4af5-9c42-afde95b81793","endpoint":"onefuseblog"}

We have now successfully added and tested IPAM within vRA8. While this is a basic example of consuming a static IPAM Policy, it is possible to drive the IPAM integration more flexibly.



## **Chapter 4: DNS Configuration**

We're going to add OneFuse DNS support to a vRA8 blueprint. If you've been following previous chapters you probably have an idea of how this is going to work. We're going to build upon the examples from previous chapters by leveraging the same blueprint that we created in the article "vRA8 with OneFuse: IPAM integration."

By the end of this chapter, we will have a blueprint that leverages OneFuse to generate a name, assign Network/IP Address as well as create DNS records for the deployed machine. Although these examples are simple and static, they are setting the foundation for future examples where we will dive into creating more flexible and dynamic blueprints.

#### vRA8 with OneFuse: DNS Integration

#### **Prerequisites**

- The OneFuse appliance should be deployed and configured, see the following articles if you need to walk through the OneFuse deployment and configuration.
  - Deploying the OneFuse Appliance
  - Configuring the OneFuse Appliance
  - Creating a OneFuse DNS Policy
- The OneFuse Workflow package needs to be installed and configured within vRA8. The following article can walk you through is you have not completed this yet.
   Installing the OneFuse Workflow Package into vRA8
- vRA installed and a working vSphere Blueprint

#### Adding DNS to a vRA8 Blueprint

We'll use the blueprint that we walked through creating in the previous chapter, vRA8 IPAM Integration with OneFuse. In the previous chapter we cloned a blueprint that was previously used for my naming article. In this example we won't clone the blueprint but utilize the version control that exists within vRA8.

To begin you will need to open the blueprint for editing so we can add the appropriate items for consuming our DNS policy that we created. If you have not yet created your IPAM Policy, you can learn how by reading: Creating a OneFuse DNS Policy.

Before we go ahead and add the needed configuration to our blueprint, we are going to create a version so we can make a record of its current state. To do this we need to open the blueprint and select "version" from the lower menu.





🔺 pie	d piper Cloud Assembly	۲	Sid Smith 옰VIDM82-01 ~	
Deployments Desig	Infrastructure Extensibility Tenant Management Marketplace		CD GUIDED	SETUP
OneFuse_Na	ming_IPAM_vSPhere SETTINGS VERSION HISTORY ACTIONS -			
Cloud Agnostic     Cloud Agnostic     Cloud Agnostic     Machine     G. Security Group     Volume     Visboork     Kubernetes     Mix25 Manegoeci     Mourie     Machine     Machine		Cl: e.Pachine 7 804 Properties licy: 'onefi cy_Nicol: 'or erties used 1		10 ABORD
DEPLOY	VEDSION Last saved a day ago			

Once the version dialog opens give it a description and optionally change log information and select "Create".

Creating Version	×
Version *	2
	Last Version: F
Description	Naming, IPAM, <u>vSPhere</u> with <u>OneEuse</u>
Change Log	
Release	Release this version to the catalog This doug temptate is restricted to this project in the catalog. Edit shareability in cloud template level settings.
	CANCEL

Now that we have a tracked version of the current state we can go ahead and add the properties needed to integrate DNS into our blueprint.

1. We need to add the following property to our blueprint:

- OneFuse\_DnsPolicy\_Nic0
  - The property supports 10 NICs.
  - You can set the NIC by changing the number at the end from 0-9.

2. Next, we need to set the value for the property. The value is broken up into 3 parts separated by a colon as outlined below.

0. OneFuse\_Endpoint:Policy\_Name:DNS\_Suffix

1. For my environment this will be *onefuseblog:default:[[dns\_suffix]]* 

This will result in the following being added to the blueprint:

- OneFuse\_DnsPolicy\_Nico:

'onefuseblog:default:{[dns\_suffix]]'





$\gamma$
∠.

OneFuse_Naming_IPAM_vSPhere strings vieleovierda across	
Construction Types: C Sector State Construction Types C Sector State Co	
KEL Curler      KEL Curler      KEL Curler      KEL Curler      Ket Statementer      Ket	
✓ MX El Gennary ≪Lucch Baancer	

3. You will notice the {{dns\_suffix}} is getting it's value from a property that already exists and has been used in the previous examples for naming and IPAM.

• It's important to note that this is not vA8 Blueprint expression syntax, but it is OneFuse Jinja 2 template syntax.

• It's also important to note that you can use blueprint expression syntax or a combination of both blueprint expression and Jinja 2 template syntax with OneFuse properties. There are reasons you may choose to utilize one over the other, however that is a conversation for another article.

4. For the purposes of this article, it is convenient to use the same property that has provided the DNS suffix to the Naming and IPAM modules, however you may not always want to do this. You also may want to ensure you are using the exact suffix that was leveraged for IPAM and you can. You can specify to use the DNS Suffix from the IPAM configuration by using the following value:

5. [[OneFuse\_Ipam\_Nico.dnsSuffix]]

6. This tells OneFuse to use the DNS Suffix associated with the assigned Nico value.

3. Below is the blueprint yaml for this example:

formatVersion: 1 inputs: [] resources: Cloud\_vSphere\_Machine\_1: type: Cloud.vSphere.Machine properties: #vRA Properties imageRef: Centos7 cpuCount: 1 totalMemoryMB: 1024 #OneFuse Module Properties OneFuse\_NamingPolicy: 'onefuseblog:default' OneFuse\_IpamPolicy\_Nico: 'onefuseblog:default'





OneFuse\_DnsPolicy\_Nic0: 'onefuseblog:default:{{dns\_suffix}}' #Additional Properties used to generate name nameGroup: pp nameLocation: atl nameEnv: prod nameOS: l nameApp: web dns\_suffix: infoblox851.sovlabs.net

4. Once the blueprint is completed, we will do a deploy to test that our DNS integration is working as expected. Select "Deploy" in the lower left corner.

🔺 pied	piper Cloud Assembly	③ Sid Smith × III				
Deployments Design	infrastructure Extensibility Terrart Management Marketplace	ED cuipes setur				
<		is inputs				
Q Search Resource Types	1 domatorian is     2 dopts: D     2 dopts: D     4 reserve     4 Coult statem, states					
V Cloud Agnostic	5 Type Clad.vipter 9 proprilei 7 Poli Popertiei					
@ Machine	2 8100 Propertian 8 Stagent Cetter 9 Centorni 1 10 Centorni 1 10 Centorni 1					
= Load Balancer	Notestana for the second s					
@ Network	13 Instrum (pastel) 14 Instrum_(pastel)	ry, kiele: "onefweeting: defwelt: (Des_seff(x))"				
<ul> <li>Security Group</li> </ul>	14 nameDrouge pp	ortiles used to generate name				
E Volume	17 name, ocation: at: 18 nametric grad					
v Kubernetes		blastin sevlate.net				
KES Ouster						
(k) KIIS Namespace						
(e) Supervisor Names						
~ všphere						
Machine						
Disk						
9 Network						
DEPLOY TEST Y	RESION Last saved 14 minutes ago					

5. When the deployment dialog opens give your deployment a name and select "Deploy"

Deploy OneFuse_Namin	Deployment Type		
1 Deployment Type	Create a new deployment Deployment Name *	V Criefuse DNS Test	
	Cloud Template Version *	Q, Current Draft	
	Description		
			1
			CANCEL



6. Within a few minutes of starting the deployment a name will have been generated, an IP address will have been reserved, and DNS records will have been created. To view the name, IP reservation, and DNS records you can login to the OneFuse UI and view the managed objects. You will also be able to see this information within vRA as well.

o. To view the managed objects within OneFuse login to the OneFuse UI navigate to the module and view the Managed object for that module.

1. In this example, we will have a Naming object, an IPAM object, and a DNS object.

- 2.
- Managed DNS Records C REFRESH Concerned USE factors from 3NS pulley sensations. Concerned USE factors from 3NS pulley sensations. C REALTED BALE ROWARD RECORD R

3. On the DNS Object record you can expand details to view the created DNS records.



7. Within vRA8 you can view the details of your deployment and view the name and IP Address. If you expand Network you will see the network the workload was assigned to and other details. You can view the entire output from these as well as DNS under properties.

	Character Account (			E cuber str
No discription	Requestor Project	senith Oneffice Bog Project Oneffice, Rening, PAM, (SPhere	1.057	West am         Factorer           Laptimet         Juni 12, 2023, 1100-28 AM           Med bit         Juni 22, 2023, 1050-24 AM
Tapalogy History				
		*= 0.4 0 ·		
			reserveral	1018-1018-1048-4348-428e-3x840-8042302
			resultation Description	/resources/compute-descriptionum/relation/2016e-d01a-0074-effected170e
			Institute (Institution, Net)	and validacy default ( dra_seffec)
			Graftuse (Ins. No.)	
			OneFuse_(seniFolicy_NO	and variable default
			OraFuse,(set,)412	C_Initial Cheff Cheff TrippleDonellea/gamileranetice/077084770.30.282073/workpac
		ututeter.	Coefficie, marring	C "perculations, Careta Landor, Quantizer, Statement and Mark 2004. More Albert Science and A
			Uneffune_Namingholicy	true and the second sec
			OraFuse Naming Drahuffa	infulition/PE-annulation and
			OraFuse, Trailing, 31	W12771444 Web-4has Wes-Classical/2008
			Request, Blockbarr, State 4 No. 30 Mossiel(312), Cremust, part, No.	8- 0
			Repart, Blockballs, 949-475-90 Mitsel01627, Creff, et., Naming	b-

1. Below is a sample of the information stored with the output:

{"\_links":{"self":{"href":"/api/v3/onefuse/dnsReservations/1/","title":"ppatlprodlweboog"},"works pace":{"href":"/api/v3/onefuse/workspaces/2/","title":"Default"},"policy":{"href":"/api/v3/onefu se/dnsPolicies/1/","title":"default"},"jobMetadata":{"href":"/api/v3/onefuse/jobMetadata/33/"," title":"Job Metadata Record id



33"}},"name":"ppatlprodlweb009","id":1,"records":[["type":"host","name":"ppatlprodlweb009.infobl ox851.sovlabs.net","value":"10.30.29.231"}],"trackingId":"9537794d-55e9-41ca-95ee-03aacdb2f9 d5","endpoint":"onefuseblog"}

We have now successfully added and tested DNS within vRA8. While this is a basic example of consuming a static DNS Policy, it is possible to drive the DNS integration more flexibly without having to know which specific DNS technology/vendor is being used –policy abstraction at its best!



## **Chapter 5: Active Directory Configuration**

We'll now create a vRA8 blueprint that utilizes the OneFuse Active Directory module to provide AD integration for provisioned workloads. We'll utilize the Active Directory (AD) policy that we created in the "Creating a OneFuse Active Directory Policy" article. I will also be leveraging the same blueprint that was used in the "vRA8 with OneFuse: DNS Integration" article to build on the previous example.

By the end of this chapter we will have added the OneFuse Active Directory (AD) policy to a vRA8 blueprint that is deploying a vSphere machine. This will be a simple example that we will build upon in future articles.

Before we begin, there are prerequisites you will want to have ready.

#### Prerequisites

- The OneFuse appliance should be deployed and configured, see the following articles if you need to walk through the OneFuse deployment and configuration.
  - Deploying the OneFuse Appliance
  - Configuring the OneFuse Appliance
  - Creating a OneFuse Active Directory Policy
- The OneFuse Workflow package needs to be installed and configured within vRA8. The following article can walk you through is you have not completed this yet.
  - Installing the OneFuse Workflow Package into vRA8
- vRA installed and a working vSphere Blueprint

#### Adding the OneFuse Active Directory Integration to a vRA8 Blueprint

We'll use the blueprint we walked through in the previous article on DNS integration. To begin you will need to open the blueprint for editing so we can add the appropriate items for consuming the Active Directory integration. Before we begin we will want to create a new version so we can make a record of the blueprints current state.

If you are not familiar with how to do this please see the previous article "vRA8 with OneFuse: DNS Integration" for step by step instructions.

Now that we have a tracked version of the current state we can go ahead and add the properties needed to integrate Active Directory into our blueprint.

1. We need to add the following property to our blueprint: OneFuse\_ADPolicy

2. Next we need to set the value for the property. The value is broken up into 2 parts separated by a colon as outlined below.





1. OneFuse\_Endpoint:Policy\_Name

• For my environment this will be onefuseblog:default This will result in the following being added to the blueprint:

OneFuse\_ADPolicy: 'onefuseblog:default'

2. If you recall in the article "Creating a OneFuse Active Directory Policy" some new inputs were introduced within my AD policy and they were flagged as required. In this example I'm configuring these as properties on my blueprint so they are passed in as part of the request. There are many different ways to handle these including taking them as vRA8 inputs into the blueprint. We will dive deeper into the various options in future articles.

- The inputs I need to add are:
  - ouGroup
  - ouEnv
  - sgEnv

3. You can see both the OneFuse\_ADPolicy and the added properties in my screenshot below.

1 fc	ormatVersion: 1	
	nputs: ()	
3 + ne	esources:	
4 -	Cloud_vSphere_Machine_1:	
5	type: Cloud.vSphere.Machine	
6 🕶	properties:	
7	#vRA Properties	
8	imageRef: Centos7	
9	cpuCount: 1	
10	totalMemoryMB: 1024	
11	#OneFuse Module Properties	
12	OneFuse_NamingPolicy: 'onefuseblog:default'	
13	OneFuse_IpamPolicy_Nic0: 'onefuseblog:default'	
14	OneFuse_DnsPolicy_NicB: 'onefusehlog:default:{{dns_suffix}}'	
15	OneFuse_ADPolicy: 'onefuseblog:default'	
16	#Additional Properties used to generate name	
17	nameGroup: pp	
18	nameLocation: atl	
19	nameEnv: prod	
20	nameOS: 1	
21	nameApp: web	
22	dns suffix: infoblox851.sovlabs.net	
23	#Additional Properties used for Active Directory Integration	
24	ouGroup: PiedPiper ouEnv: PRD	
25	sgEnv: prod	





4. The complete yaml for my blueprint is below:

formatVersion: 1 inputs: {} resources: Cloud\_vSphere\_Machine\_1: type: Cloud.vSphere.Machine properties: **#vRA** Properties imageRef: Centos7 cpuCount: 1 totalMemoryMB: 1024 #OneFuse Module Properties OneFuse\_NamingPolicy: 'onefuseblog:default' OneFuse\_IpamPolicy\_Nico: 'onefuseblog:default' OneFuse\_DnsPolicy\_Nico: 'onefuseblog:default:{{dns\_suffix}}' OneFuse\_ADPolicy: 'onefuseblog:default' #Additional Properties used to generate name nameGroup: pp nameLocation: atl nameEnv: prod nameOS: l nameApp: web dns\_suffix: infoblox851.sovlabs.net #Additional Properties used for Active Directory Integration ouGroup: PiedPiper ouEnv: PRD sgEnv: prod

3. Once you have completed adding the properties to your blueprint select "Deploy"

🚽 piec	d pipe	Cloud Assembly	©Svenuer at ∀				
Deployments Design	Infrastructure	Extensibility Tenant Management Marketplace	da subso sarue				
OneFuse_Naming_IPAM_VSPhere settings version history actions -							
4		■ 5 2 □ ▲ Q Q 2	<ol> <li>» v<sup>3</sup> <u>Code</u> Properties Inputs</li> </ol>				
O: Search Resource Types			formationstation 1     deputs ()     formation     fo				
V Cloud Agnostic			5 · propries				
@ Machine			8 Snapoleri Centos? 9 rpuCrunti 2				
wij Loed Balancer			18 EstaDamary98: 2024 11 Ebergue Product Properties 13 Confuse Tradue Properties				
@ Network			<ol> <li>Chafter Inschaftlich, 'centrestoppertack'</li> <li>Chafter Josefbig Hick, 'centrestoppertack'</li> <li>Chafter Destricts, Nucl. 'centrestoppertack'</li> <li>Chafter Destricts, Nucl. 'centrestoppertack'</li> </ol>				
C Security Group			15 Unefuse_AOPolicy: 'onefuseting:defwilt' 16 AdoUtional Properties used to generate name				
(3 Volume			17 randonugir pp 18 randonugir pt				
v Rubernetes			13 ratefiri grad 29 ratefii 1 21 ratefic seb				
K85 Cluster			<ul> <li>In reserve: set ors_setMix: infotoxidi.soviets.ret Additional Properties used for Attive Directory Integration</li> </ul>				
(k) K25 Namespace			26 extrage FledPiper				
(e) Supervisor Names			25 optimus pred				
v všohere		Cloud_vtipher.					
	•						
DEPLOY	VERSION	E Last saved an hour ago					





4. Give your deployment a name and select "Deploy"

D.	Deploy OneFuse_Namin	Deployment Type		
	1 Deployment Type	Create a new deployment	v	
		Deployment Name *	Test OneFuse AD	
		Cloud Template Version *	Q Current Draft	_
		Description	OneFuse Naming, PAM, DNS, and AD	
				CANCEL DEPLOY

1. Now that the deployment has been started, let's discuss vRealize Orchestrator. If you launch the vRO web UI and navigate to "Workflow Runs" you will be able to see the OneFuse workflow runs as they execute. This is because the Active Directory Policy includes the build OU option which will initially place the AD computer object in a temporary build OU and then move it to it's final OU once the deployment is complete. You can see this in the screenshot below. You will also see the Naming, IPAM, and DNS workflow runs as well.

2.		Rame	Balus	Start Date y	End Date Y	Started by
	I.	Move OU - vRM8	Completed	Feb 4, 2021157 PM	Feb 4, 2021150 PM	vro-gateway-MUxoUtingFauKkzy
	;	Provision AD - VRAB	Completed	Feb 4, 2021153 PM	Fab 4, 2021154 PM	vro-gateway-MUxcLRjngFzuKkzy
	÷	Provision DNS - VRAB	Completed	Feb 4, 2021153 PM	Feb 4, 2021153 PM	vro-gateway-MUxcUllingFtsKxty
	:	OnePuse 585 Prep Compute Provision	Completed	Peb 4, 2021153 PM	Peb 4, 2021153 PM	vro-gateway-MUxcUbrgPzsRxzy
	I.	Provision IPAM - vRAB	Completed	Feb 4, 2021152 PM	Feb 4, 2021152 PM	vro-gateway-MoxoJprgFaulozy
	i.	Provision Naming - vRAB	Completed	Feb 4, 2021151 FM	Feb 4, 2021151 PM	vro-gateway-MLxcLRjngFzuKkzy

5. Now let's switch back to the OneFuse Appliance and have a look at what objects we have available for each of the modules.

0. First we will look at naming and see the name that was generated for my deployment which is ppatlprodweb015.

Manag	ed Names					C REFRESH
Generated names from Namir	ng Policy executions.		Q Search	by Name		
CREATED DATE	SOURCE	SOURCE IP	REQUESTOR	NADME	POLICY	308
2021-02-04 13:51:15	VREAL(2E AUTOMATION #	10.30.2.10	admin	ppatiprod/web015	default	•
2021-01-28 15:25:19	VREACIDE AUTOMATION #	18.30.2.10	admin	pp#lprodweb012	default	0
2021-01-28 12:34:59	VREALIZE AUTOMATION 8	18.30.2.10	admin	ppatiprod/web011	default	•
2021-01-28-09:51:34	VREALIZE AUTOMATION #	18.90.2.10	admin	ppstiprod/web010	default	0
2021-01-27 10:55:39	VREAUZE AUTOMATION #	10.30.2.10	admin	ppatiprodwab009	default	•
2021-01-26 12:12:14	VREALIZE AUTOMATION #	10.30.2.10	admin	pp#tjprod/web007	default	•
2021-01-14 13:04:08	TERRAFORM	10.95.95.8	admin	ppatipwap002	default	•
2021-01-13 12:46:24	VREAUCE AUTOMATION 8	10.30.2.10	admin	ppatiprodweb001	default	•



1. If we next look at IPAM for this deployment we will see the IP Address of 10.30.29.45 reserved for the machine ppatlprodweb015.

enerated IP Addresses (	from IPAM policy executions.			-			
				6	Eesrch by IP Address		
REATED DATE	SOURCE	SOURCE IP	REQUESTER	IP ADDRESS	HOSTNAME	POLICY	,108
021-02-04 13:52:04	VREALIZE AUTOMATION 8	10.30.2.10	admin	10.30.29.45	ppatiprodiveb015.infoblax051.soviabs.net	default	0
021-01-28 16:26:09	VERALIZE AUTOMATION 8	10.90.2.10	admin	10.00.29.60	maged IP Addresses 2.infobliox851.sov/abs.net	default	0
021-01-28 12:06:39	VREALCE AUTOMATION 8	10.30.2.10	admin	10.30.29.161	ppet/prodiveb011.sov/abs.net	default	•
021-01-27 10:56:24	VREAUCE AUTOMATION 8	10.30.2.10	admin	10.30.29.291	ppatiprodiveb009.infobliox851.sev/abs.net	default	•
021-01-26 12:12:24	VREALIZE AUTOMATION 8	10.30.2.10	admin	10.30.29.168	ppat/prodiweb007.sov/abs.net	default	•

2. We can then jump over to DNS and see that a host record has been created for the machine ppatlprodweb015 with it's IP Address of 10.30.29.45.

😚 Mana	ged DNS Records					0.	EFRESH
Generated SNS Records fro	m DNS policy executions.		Q	Search by Hostname			
OREATED DATE	SOURCE	SOURCE IP	REQUESTER	HOSTNAME	POLICY	J08	DETAI
2021-02-04 13:53:09	VREALIZE AUTOMATION 8	10.30.2.10	admin	ppatiprod/web015	default	0	~
O Details for ppatiprody							
NAME			TYPE	VALU	e.		
NAME ppatlprodiweb015.info	blox851.sovlabs.net		TVPE H05T		e 0.29.45		
	blox851 sovlabs.net vititas.clt automation e	10.30.2.19				0	×

3. Finally if we look at the Managed Active Directory Computer We can see the final OU that the computer object is located within.

enerated Active Directory	Computers from Microsoft Active Dire	ctory policy execution	ts.	(	Q, Search by Co	mputer Account	
REATED DATE	SOURCE	SOURCE IP	REQUESTER	COMPUTER ACCOUNT	POLICY	306	DETAIL
021-02-04 13:53:59	VREALIZE AUTOMATION 8	10.30.2.10	admin	ppatiprodiweb015	default	•	~
Details for ppatlprodiv	veb015						

4. If we look at the "Job" details by selecting the "eye" under the job column we can get additional details including the build OU it was in as well as any security groups that it has been joined to.





Details		
API	INPUT	RESULT
<pre>"title": "default" }. "jobHetadata": {     "href": "/api/v3/one"     "title": "Job Metada }</pre>	fuse/jobMetadata/57/", ta Record id 57"	
"finalOu": "OU-PiedPiper,OU- "securityGroups": [	PRD,00=build,DC=2k19ad,DC=sovlabs,DC PRD,00=final,DC=2k19ad,DC=sovlabs,DC -Groups,OU=SovLabs,DC=2k19ad,DC=sov	C-net",

5. Within vRA8 you can view the details of your deployment and view the name, IP Address, DNS Records, and AD OU that the workload was placed into under the properties sections of the deployment. Below is a sample of the output data that is returned to vRA8 from OneFuse.

{"\_links":{"self":{"href":"/api/v3/onefuse/microsoftADComputerAccounts/1/","title":"ppatlprodl web015"},"workspace":{"href":"/api/v3/onefuse/workspaces/2/","title":"Default"},"policy":{"href": "/api/v3/onefuse/microsoftADPolicies/1/","title":"default"},"jobMetadata":{"href":"/api/v3/onef use/jobMetadata/57/","title":"Job Metadata Record id 57"}},"name":"ppatlprodlweb015","id":1,"state":"final","buildOu":"OU=PiedPiper,OU=PRD,OU=build,

DC=2k19ad,DC=sovlabs,DC=net","finalOu":"OU=PiedPiper,OU=PRD,OU=final,DC=2k19ad,DC=sovlabs,DC=net","securityGroups":["CN=prodDemoComputers,OU=Groups,OU=SovLabs,DC=2k19ad,DC=sovlabs,DC=net"],"trackingId":"18238259-1687-4b4c-b3ca-e26ab2fa7a43","endpoint":"one fuseblog"}

We have now successfully added and tested Active Directory within vRA8. While this is a basic example of consuming a simple Active Directory Policy, it is possible to drive the Active Directory (AD) integration more flexibly.



## **Chapter 6: Property Toolkit**

Let's look at some of the ways the Property Toolkit can be utilized within vRA8.

#### vRA8 Property Stack

vRA8, much like its predecessor vRA7, has the concept of a property stack that lives with the deployed machine throughout its lifecycle. Although there are some significant differences between how the two versions manage the property stack across different lifecycles, we are not going to dig into those details in this article. For this article we are going to talk about the property stack in general terms.

Within the current release of vRA8 there are two places properties can be defined. They can be defined on a project or within a blueprint. The concepts in this article apply to both.

#### Assign OneFuse Property Sets using static properties

Adding a OneFuse Property Toolkit Property Set to a vRA8 blueprint is as easy as defining a standard property on the blueprint. There are a few things to be aware of as outlined below.

The property name must be formatted as *OneFuse\_SPS\_lsomething\_uniquel*. The *OneFuse\_SPS\_* portion of the property name tells the OneFuse workflows that this is a OneFuse property toolkit property that will reference a OneFuse Property Set and the *lsomething\_uniquel* part allows us to define multiples of them. The value for the property will be the name of the Static Property Set that you have created in OneFuse.

We have a property group named *sps\_env\_prod* and this will be the value we will use. It would look something like the following:

- Property Name: OneFuse\_SPS\_Env
- Property Value: sps\_env\_prod

1 fc	ormatVersion: 1			
	nputs: {}			
	esources:			
4 -	Cloud_vSphere_Machine_1:			
5	type: Cloud.vSphere.Machine			
6 🕶	properties:			
7	#vRA Properties			
8	imageRef: Centos7			
9	cpuCount: 1			
10	totalMemoryMB: 1024			
11	#OneFuse Module Properties			
12	OneFuse_NamingPolicy: 'onefuseblog:default'			
13	OneFuse_IpamPolicy_Nic0: 'onefuseblog:default'			
14	OneFuse_DnsPolicy_Nic0: 'onefuseblog:default:{{dns_suffix}}'			
15	OneFuse_ADPolicy: 'onefuseblog:default'			
16 -	#Additional Properties used to generate name			
17	nameGroup: pp			
18	nameLocation: atl			
19	nameEnv: prod			
20	nameOS: 1			
21	nameApp: web			
22	<pre>dns_suffix: infoblox851.sovlabs.net</pre>			
23 🔻	#Additional Properties used for Active Directory Integration			
24	ouGroup: PiedPiper			
25	ouEnv: PRD			
26	sgEnv: prod			
27	OneFuse_ScriptPolicy_001: 'script1:{{Script1_host}}'			
28	OneFuse_ScriptPolicy_002: 'script5:xxx'			
29	Script1_host: www			
30	Script5_host: xxx			
31 *	#Property Toolkit Property Sets			





Adding this property to the blueprint will add every property defined within the *sps\_env\_prod* property set to the property stack for any deployments requested from this blueprint. In our case it will add the following:

1
"nameEnv": "p",
"folderEnv": "PROD",
"ipamEnv": "PROD",
"ouEnv": "PRD",
"sgEnv": "Prod",
"dnsPolicy": "prod",
"adPolicy": "prod",
"location": "atl",
"dnsSuffix": "infoblox851.sovlabs.net",
"deployNameEnv": "Prod",
"s3NameEnv": "production"
}

Because this is a flat property set everything within it will be added to the property stack within vRA. Our next property set that we will add to vRA8 will be a property to define sizing. Within our sizing property set we have nested properties. These are nested under parents and one of those parents is a reserved property that tells vRA8 which properties to include for its platform.

~ K <sub>N</sub>	Code Properties Inputs
1	formatVersion: 1
2	inputs: {}
-	resources:
4 -	Cloud_vSphere_Machine_1:
5	type: Cloud.vSphere.Machine
6 *	properties:
7	#vRA Properties
8	imageRef: Centos7
9	cpuCount: 1
10	totalMemoryMB: 1024
11	#OneFuse Module Properties
12	OneFuse_NamingPolicy: 'onefuseblog:default'
13	OneFuse_IpamPolicy_Nic0: 'onefuseblog:default'
14	OneFuse_DnsPolicy_Nic0: 'onefuseblog:default:{{dns_suffix}}'
15	OneFuse_ADPolicy: 'onefuseblog:default'
16 -	#Additional Properties used to generate name
17	nameGroup: pp nameLocation: atl
18	
19	nameEnv: prod nameOS: 1
20	
21 22	nameApp: web
23 *	dns_suffix: infoblox851.sovlabs.net
24	#Additional Properties used for Active Directory Integration ouGroup: PiedPiper
25	ouEnv: PRD
26	sgEnv: prod
27	OneFuse_ScriptPolicy_001: 'script1:{{Script1_host}}'
28	OneFuse_ScriptPolicy_002: 'script5:xxx'
29	Script1_host: www
30	Script5_host: xxx
31 -	#Property Toolkit Property Sets
32	OneFuse_SPS_Env: 'sps_env_prod'
33	OneFuse SPS Size: 'sps size small'





The contents of the *sps\_size\_small* property set are:

```
{
 "size": "small",
 "cpuCount": "1",
 "memoryMB": "1024",
 "memoryGB": "1",
  "OneFuse_VRA7_Props": {
   "VirtualMachine.CPU.Count": "{{cpuCount}}",
   "VirtualMachine.Memory.Size": "{{memoryMB}}"
  },
  "OneFuse_VRA8_Props": {
   "flavor": "{{size}}"
  }.
  "OneFuse_TF_Props": {
   "cpu": "{{cpuCount}}",
   "memMb": "{{memoryMB}}"
  }.
  "OneFuse_TF_Props": {
   "vcpu": "{{cpuCount}}",
   "mem_size": "{{memoryGB}}"
  }
}
```

Unlike the *sps\_env\_prod* property set not all of these properties will be written against the deployments property stack. Only the parent level properties; cpuCount, memoryMB, and memoryGB as well as the properties located under OneFuse\_VRA8\_Props; flavor will be written against the deployments property stack. The final property set we will add in this example is one that we use for defining applications. In this case WordPress will be the application. The property set will be *sps\_app\_wordpress*.

1 f	ormatVersion: 1
2 i	nputs: {}
3 * r	esources:
4 *	Cloud_vSphere_Machine_1:
5	type: Cloud.vSphere.Machine
6 *	properties:
7	#vRA Properties
8	imageRef: Centos7
9	cpuCount: 1
10	totalMemoryMB: 1024
11	#OneFuse Module Properties
12	OneFuse_NamingPolicy: 'onefuseblog:default'
13	OneFuse_IpamPolicy_Nic0: 'onefuseblog:default'
14	OneFuse_DnsPolicy_Nic0: 'onefuseblog:default:{{dns_suffix}}'
15 16 •	OneFuse_ADPolicy: 'onefuseblog:default' #Additional Properties used to generate name
15 *	nameGroup: pp
18	nameLocation: atl
19	nameEnv: prod
20	nameOS: 1
20	nameApp: web
22	dns_suffix: infoblox851.sovlabs.net
23 *	#Additional Properties used for Active Directory Integration
24	ouGroup: PiedPiper
25	QUENV: PRD
26	sgEnv: prod
27	OneFuse ScriptPolicy 001: 'script1:{{Script1 host}}'
28	OneFuse ScriptPolicy 002: 'script5:xxx'
29	Script1_host: www
30	Script5_host: xxx
31 -	#Property Toolkit Property Sets
32	OneFuse_SPS_Env: 'sps_env_prod'
33	OneFuse_SPS_Size: 'sps_size_small'
34	OneFuse SPS App: 'sps app wordpress'



The contents of *sps\_app\_wordpress* are:

If you look closely you will see that within this property set is another property set property and value. This will result in the contents of the *sps\_os\_centos7* property set also being pulled in as part of the deployments property stack.

The contents of *sps\_os\_centos7* are:

{ "nameApp": "web", "ipamApp": "web", "OneFuse\_SPS\_OS": "sps\_os\_centos7", "deployNameApp": "WORDPRESS" }

Just like with sps\_size\_small only the parent level properties as well as the properties located under *OneFuse\_VRA\*\_Props* will be added to the deployments property stack. At this point all the relevant properties from each group will become part of the deployments resultant property stack and impact the deployment. In this case some affect vRA8 capabilities and others will impact OneFuse module integrations.

#### Assign OneFuse Property Sets using inputs

Assigning OneFuse Property Sets using vRA8 inputs is easy. If we use the same property sets we have already looked at earlier in this chapter we only need to make some minor changes. To start we need inputs for the users to make selections.





Next, we need to be able to use those inputs to drive my OneFuse Static Property Set selections. We do this through the use of blueprint expression syntax.

```
#Property Toolkit Property Sets
OneFuse_SPS_Env: 'sps_env_${input.env}'
OneFuse_SPS_Size: 'sps_size_${input.size}'
OneFuse_SPS_App: 'sps_app_${input.app}'
```

When a user selects an environment it will complete the sps\_env\_ with whatever they selected to attach the appropriate OneFuse Property Set. The full blueprint yaml is below:

formatVersion: 1 inputs: machineCount: type: integer default: 1 maximum: 5 minimum: 1 title: Number of Machines env: type: string description: Select an environment default: test title: Environment oneOf: - title: Development const: dev - title: Test const: test - title: Production const: prod app: type: string description: Select the application to deploy default: linux title: Application oneOf: - title: Linux const: linux - title: Windows const: windows - title: Apache Server (Scripting) const: apache - title: Apache Server (Ansible Tower) const: apache\_ansible\_tower - title: IIS const: iis





- title: SQL Server const: sql - title: WordPress const: wordpress size: type: string description: Select a size default: small title: Size oneOf: - title: Small const: small - title: Medium const: medium - title: Large const: large resources: Cloud\_vSphere\_Machine\_1: type: Cloud.vSphere.Machine properties: **#vRA** Properties imageRef: Centos7 cpuCount: 1 totalMemoryMB: 1024 **#OneFuse Module Properties** OneFuse\_NamingPolicy: 'onefuseblog:default' OneFuse\_IpamPolicy\_Nico: 'onefuseblog:default' OneFuse\_DnsPolicy\_Nico: 'onefuseblog:default:{{dns\_suffix}}' OneFuse\_ADPolicy: 'onefuseblog:default' **#Property Toolkit Property Sets** OneFuse\_SPS\_Env: 'sps\_env\_\${input.env}' OneFuse\_SPS\_Size: 'sps\_size\_\${input.size}' OneFuse\_SPS\_App: 'sps\_app\_\${input.app}'



## Conclusion

All organizations are seeking to automate process to save time, money, and be more productive and efficient. But automation requires an abundance of custom coded integrations and with that these top-ranked challenges:

- Require domain knowledge	- Unmanageable as intro more tools
- Require coding expertise	- Expensive projects
- Time-consuming projects	- Human-error, visibility & governance

OneFuse delivers cloud automation through abstracting underlying integration complexity and presenting varying cloud infrastructure integrations as services that can be re-used again and again. Policy ensures governance conformity, and you don't need domain or coding expertise. Build processes faster and get more done with pluggable and modular integration services.

How much are IT integrations costing you? Find out with our Free ROI Calculator. Ready to try OneFuse in your environment?

Download the Free Community Edition.

#### See OneFuse in action!

Just book and attend a CloudBolt demo.

1. www.networkcomputing.com/networking/integration-challenges-lead-half-million-dollar-year-losses

2. www.it-cisq.org/the-cost-of-poor-quality-software-in-the-us-a-2018-report/The-Cost-of-Poor-Quality-Software-in-the-US-2018-Report.pdf 3. www.gartner.com/en/documents/3888587/rethink-your-internal-private-cloud



Join the conversation

🍠 🚹 😐 🛛 www.cloud

WWW.CLOUDBOLT.IO INFO@CLOUDBOLT.IO 703.665.1060

in Gartner's Magic Quadrant for Cloud Management Platforms.

CloudBolt Software is the enterprise cloud management leader. Our comprehensive solutions for IT automation, orchestration, self-service IT, cost optimization, and security help enterprises simplify complexity and achieve rapid time-to-value anywhere on their hybrid cloud, multicloud journey. Our award-winning cloud management platform and infrastructure integration services are deployed and loved by enterprises worldwide. Backed by Insight Partners, CloudBolt Software has been named one of the fastest-growing private companies on the Deloitte Fast 500 and Inc. 5000 lists. In addition, CloudBolt is 2020 CODiE award winner for best cloud management and featured