



# RHEL Lifecycle Management in the Cloud with Satellite

Another Installment in the Some Assembly Required Presentation Series

6/18/2020

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Josh Swanson  
Solution Architect

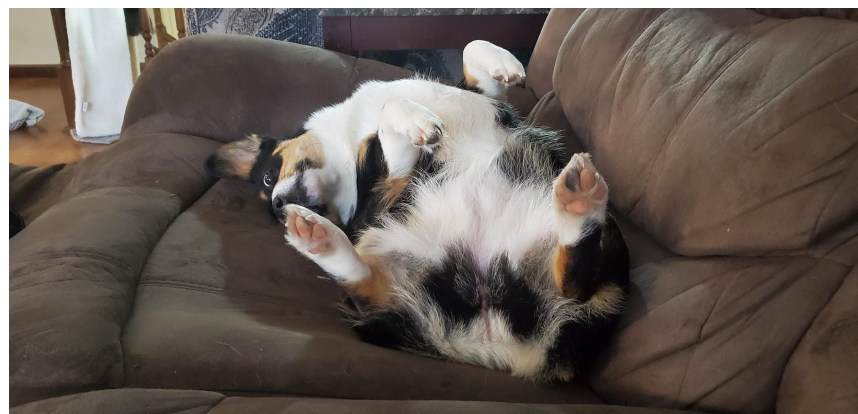
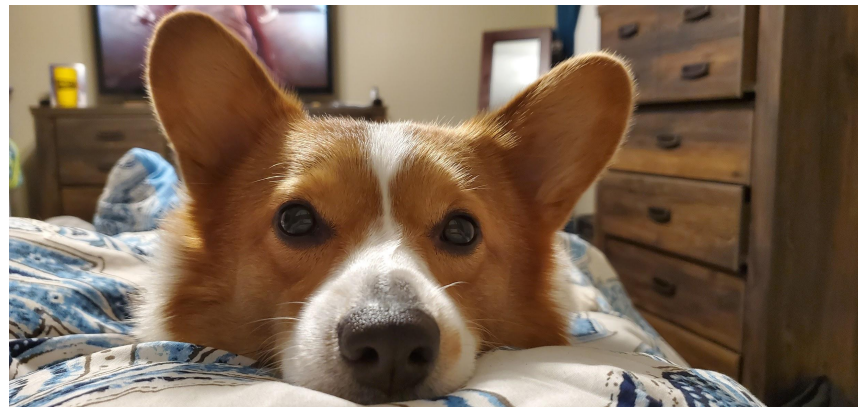
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# Shameless Plug

<https://www.meetup.com/Ansible-Minneapolis/>

<https://www.youtube.com/channel/UC3IbK0ZyeYF56JBIUeRdU3Q>

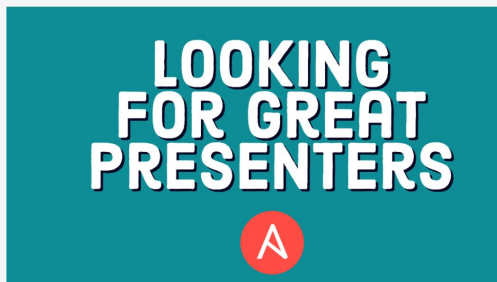
Thursday, June 18, 2020

## Providing Governance to Self-Service Infrastructure Provisioning in the Cloud



Hosted by  
Brian Dolan-Goecke and Josh Swanson

Share



### Details

Provisioning infrastructure (bare-metal, cloud VMs, serverless) with Ansible allows you to seamlessly transition into configuration management, orchestration and application deployment using the same simple, human readable, automation language. Taking this one step further, running Ansible Automation Platform enables integration with your existing platforms to power self-service automation for people of various skill levels - domain expert, junior architect, operations specialist, etc.

Organizer tools



Ansible Minneapolis  
Public group



Thursday, June 18, 2020  
6:30 PM to 9:30 PM CDT  
Every 3rd Thursday of the month  
[Add to calendar](#)



Online event  
<https://bluejeans.com/678555292?src=calendarLink>

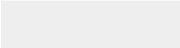
Report this event



# Today's Agenda:

- Hybrid cloud from an IaaS perspective
- What is satellite?
- Connecting satellite to the big three cloud providers
- Building out provisioning finishing templates
- Lifecycle management in the cloud
- Satellite's Place in the Cloud
- The Value of Using Satellite for Cloud Deployments
- One vs. Multiple Satellites

# Hybrid Cloud from an IaaS Perspective

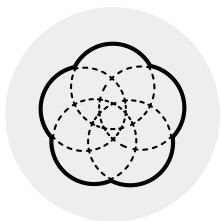


# Balancing innovation and optimization

## Managing Cloud Infrastructure Like On-Premise



Optimize the IT you have



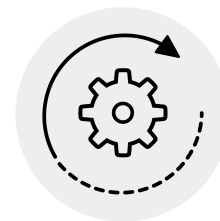
Integrate apps, data, & processes



Add & manage cloud infrastructure

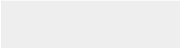


Build more modern applications



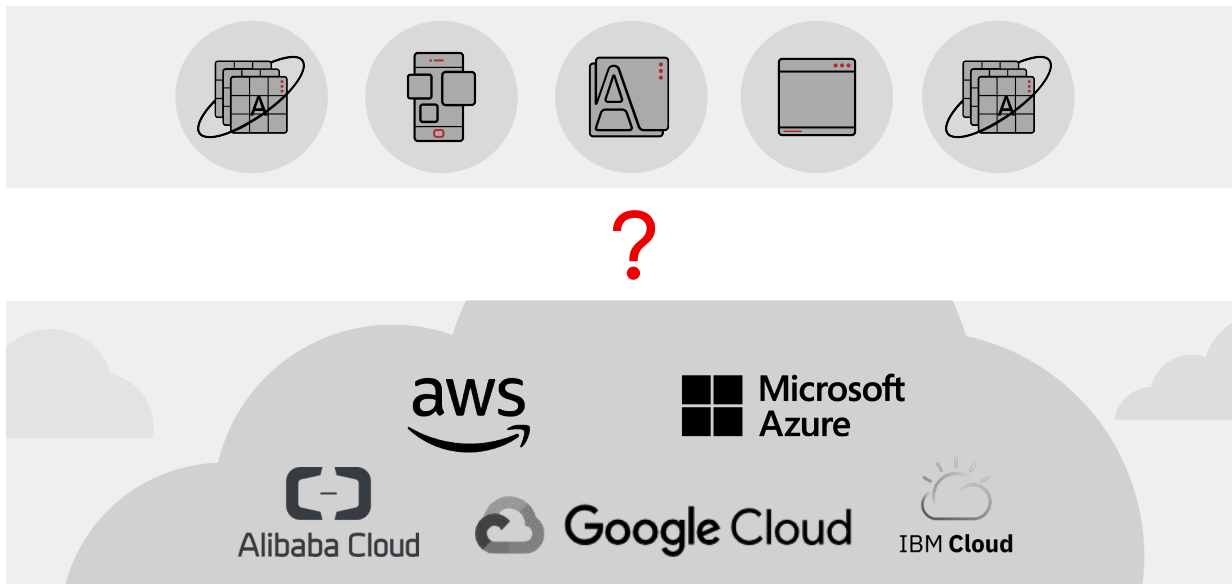
Automate & manage IT

How do you add cloud resources while maintaining existing applications & environments?




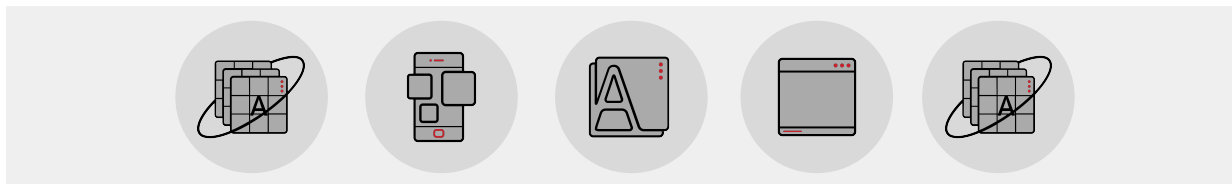
# Organizations are overwhelmed by cloud options & number of vendors

Which cloud? How many? How can I use them all?



# The cloud is just another place to run Red Hat Enterprise Linux

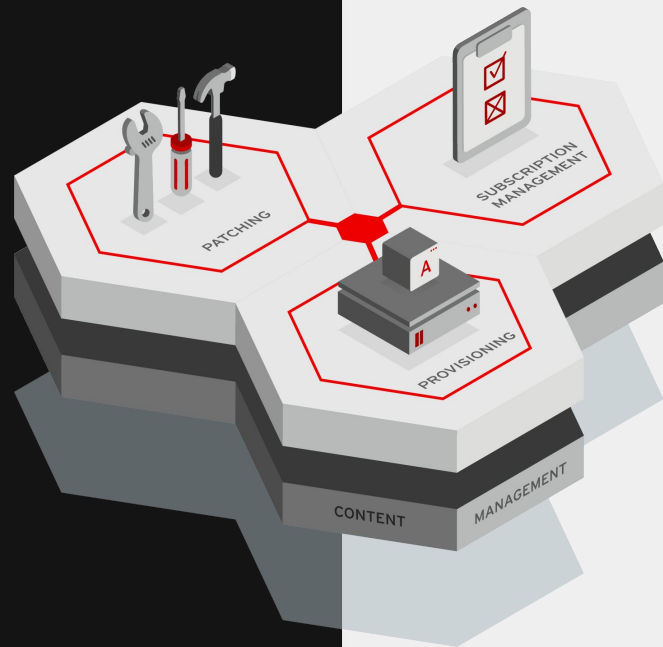
**Consistency Yields Simplicity and Efficiency**



Enterprise stability  
Cloud agility  
Developer productivity  
Application portability

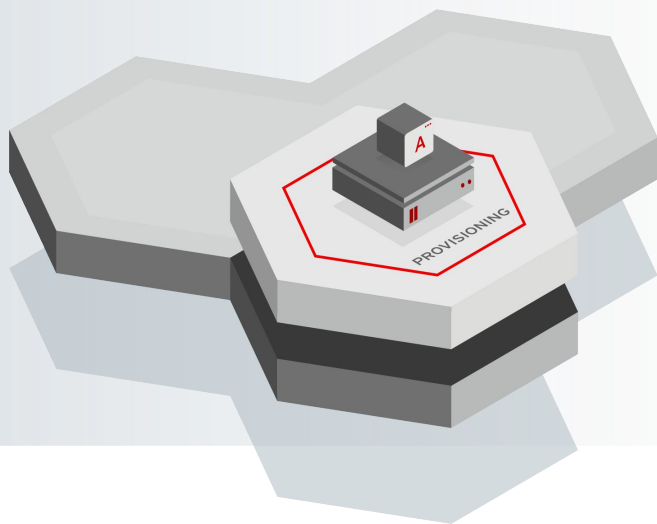


# What is Red Hat Satellite?



**Red Hat Satellite is a *scalable platform* to manage patching, provisioning, and subscription management of your Red Hat infrastructure, *regardless of where it is running.***

# Provisioning Management



**Provision** to bare metal, virtual, private, and public clouds

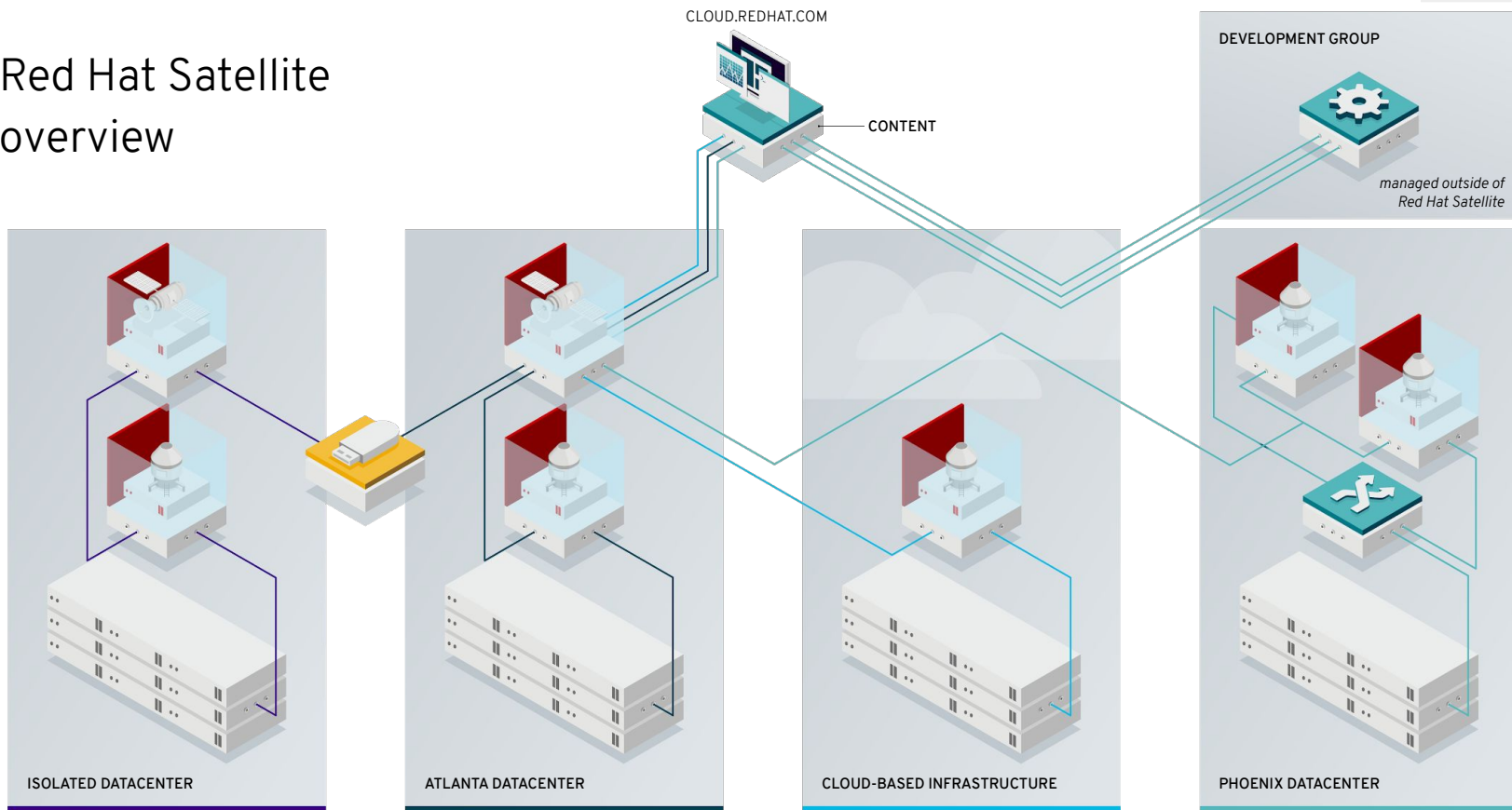


**Import** non-provisioned hosts



**Automate** using Ansible roles to perform post-provisioning steps

# Red Hat Satellite overview



# Demo: connecting satellite to GCP

# Connecting Satellite to GCP

The screenshot shows the Google Cloud Platform console interface for creating a service account. The left sidebar contains navigation options under 'IAM & Admin', with 'Service Accounts' selected. The main content area is titled 'Create service account' and includes a progress indicator with three steps: 1. Service account details, 2. Grant this service account access to project (optional), and 3. Grant users access to this. The 'Service account details' section contains the following fields:

- Service account name:** A text input field containing 'satellite'. Below it, the text reads 'Display name for this service account'.
- Service account ID:** A text input field containing 'satellite'. To its right, the email domain '@msp-lab.iam.gserviceaccount.com' is displayed with 'X' and 'C' icons for clearing or copying.
- Service account description:** A text input field. Below it, the text reads 'Describe what this service account will do'.

At the bottom of the form, there are two buttons: 'CREATE' and 'CANCEL'.

# Connecting Satellite to GCP

The screenshot shows the Google Cloud Platform IAM & Admin console for the project 'msp-lab'. The left sidebar lists various IAM & Admin services, with 'Service Accounts' selected. The main content area is titled 'Create service account' and shows a progress indicator with three steps: 1. Service account details (completed), 2. Grant this service account access to project (optional), and 3. Grant users access to this project. The 'Service account permissions (optional)' section is active, displaying a table with one role: 'Compute Admin'. The condition for this role is 'Full control of all Compute Engine resources.' Below the table is a '+ ADD ANOTHER ROLE' button. At the bottom of the permissions section are 'CONTINUE' and 'CANCEL' buttons.

Google Cloud Platform msp-lab Search products and r

IAM & Admin

Service Accounts

Create service account

1 Service account details — 2 Grant this service account access to project (optional) — 3 Grant users access to this

**Service account permissions (optional)**

Grant this service account access to msp-lab so that it has permission to complete specific actions on the resources in your project. [Learn more](#)

Role	Condition
Compute Admin	<a href="#">Add condition</a>

Full control of all Compute Engine resources.

+ ADD ANOTHER ROLE

CONTINUE CANCEL

# Connecting Satellite to GCP

msp-lab ▾

🔍 Search products and resources ▾

Service accounts

+ CREATE SERVICE ACCOUNT

🗑️ DELETE

## Service accounts for project "msp-lab"

A service account represents a Google Cloud service identity, such as code running on Compute Engine VMs, App Engine apps, or systems running outside Google. [Learn more about service accounts.](#)

Organization policies can be used to secure service accounts and block risky service account features, such as automatic IAM Grants, key creation/upload, or the creation of service accounts entirely. [Learn more about service account organization policies.](#)

☰ Filter table

<input type="checkbox"/>	Email	Status	Name ↑	Description	Key ID	Key creation date	Actions
<input type="checkbox"/>	<a href="mailto:ansible@msp-lab.iam.gserviceaccount.com">📧</a> ansible@msp-lab.iam.gserviceaccount.com	✓	ansible		994dfcc7184ac9e5776574ed619f8033d767d12d	May 27, 2020	⋮
<input type="checkbox"/>	<a href="mailto:ansible-cli@msp-lab.iam.gserviceaccount.com">📧</a> ansible-cli@msp-lab.iam.gserviceaccount.com	✓	ansible-cli		a56ad48ba437406c4354fc1cf6eb64bba517072f	Jun 1, 2020	⋮
<input type="checkbox"/>	<a href="mailto:151088186851-compute@developer.gserviceaccount.com">📧</a> 151088186851-compute@developer.gserviceaccount.com	✓	Compute Engine default service account		No keys		⋮
<input type="checkbox"/>	<a href="mailto:satellite@msp-lab.iam.gserviceaccount.com">📧</a> satellite@msp-lab.iam.gserviceaccount.com	✓	satellite		No keys		⋮

- Edit
- Disable
- Create key
- Delete



# Connecting Satellite to GCP

...eaccount.com	✓	ansible	994d1cc7184ac9e5776574e061918033d767d12d	May 27, 2020
...viceaccount.com	✓	ansible-cli	a56ad48ba437406c4354fc1cf6eb64bba517072f	Jun 1, 2020
...veloper.gserviceaccount.com	✓	Compute Engine default service account	No keys	
...eaccount.com	✓	satellite	No keys	

### Create private key for "satellite"

Downloads a file that contains the private key. Store the file securely because this key can't be recovered if lost.

**Key type**

JSON  
Recommended

P12  
For backward compatibility with code using the P12 format

CANCEL CREATE

# Connecting Satellite to GCP

msp-lab Search products

## Metadata

Metadata SSH Keys

sshKeys	jjaswanson4:ecdsa-sha2-nistp256 AAA... [Remove]
enable-oslogin	FALSE [Remove]

[+ Add item](#)

# Connecting Satellite to GCP

### Select a project

NEW PROJECT  
  
**RECENT** ALL  

Name	ID
✓ <a href="#">msp-lab</a> ?	msp-lab
<a href="#">My First Project</a> ?	pacific-shelter-277815

CANCEL OPEN

# Connecting Satellite to GCP

← satellite [EDIT](#) [DELETE](#)

### Service account details

Name  
satellite

Description

Email  
satellite@misp-lab.iam.gserviceaccount.com

Unique ID  
103832428880632491583

### Service account status

Disabling your account allows you to preserve your policies without having to delete it.

✔ Account currently active

[DISABLE SERVICE ACCOUNT](#)

✓ [SHOW DOMAIN-WIDE DELEGATION](#)

### Keys

Add a new key pair or upload a public key certificate from an existing key pair. Please

# Connecting Satellite to GCP

[Compute Resources](#) » Create Compute Resource

**Compute Resource** Locations Organizations

Name \*

Provider \*

Description

Google Project ID \*  [Documentation](#)

Client Email \*

Certificate Path \*  The file path where your JSON file is located

Zone \*  [Test Connection](#)

[Submit](#) [Cancel](#)

# Connecting Satellite to GCP

Compute Resources » gcp-msp-lab

Associate VMs Edit Create Image

Compute Resource Virtual Machines Images Compute profiles

Filter...

Name	Type	State	Actions
gcp-satellite01	n1-standard-8	running	Power Off

Showing 1 to 1 of 1 items

<< < 1 of 1 > >>



# Demo: connecting satellite to Azure

# Connecting Satellite to Azure

The screenshot shows the Microsoft Azure portal interface. At the top, there is a blue header with the Microsoft Azure logo and a search bar. Below the header, the page title is "Default Directory | Overview" with a sub-header "Azure Active Directory". A search bar with the placeholder "Search (Cmd+)" is visible. To the right of the search bar are links for "Switch tenant", "Delete tenant", "Create a tenant", "What's new", and "Got feedback?".

The left sidebar contains a navigation menu with the following items:

- Overview
- Getting started
- Diagnose and solve problems
- Manage
  - Users
  - Groups
  - External Identities
  - Roles and administrators
  - Administrative units (Preview)
  - Enterprise applications
  - Devices
  - App registrations
  - Identity Governance
  - Application proxy

The main content area is titled "Default Directory" and contains two panels:

- Tenant information**:
  - jjaswanson4gmail.onmicrosoft.com
  - Your role: Global administrator (with a [More info](#) link)
  - Azure AD Free
  - Tenant ID: d46c44d5-4b90-424... (with a copy icon)
- Azure AD Connect**:
  - Status: Not enabled
  - Last sync: Sync has never run

At the bottom left, there is a "Sign-ins" section with a count of 2.



# Connecting Satellite to Azure

Microsoft Azure Search resources, services, and docs (G+)

[Home](#) > [Default Directory](#) | [App registrations](#) >

## Register an application

**\* Name**  
The user-facing display name for this application (this can be changed later).

 ✓

Supported account types

Who can use this application or access this API?

- Accounts in this organizational directory only (Default Directory only - Single tenant)
- Accounts in any organizational directory (Any Azure AD directory - Multitenant)
- Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)

[Help me choose...](#)

Redirect URI (optional)  
We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.

# Connecting Satellite to Azure

Home > Default Directory | App registrations >



Search (Cmd+/) <<

Delete Endpoints

Overview

Quickstart

Integration assistant (preview)

Manage

Branding

Display name : [satellite](#)

Application (client) ID : 6562ead3-0dcf-4797-90fc-cf94d4f2bde5

Directory (tenant) ID : d46c44d5-4b90-424c-a1b2-1622bed07a17

Object ID : 812382e6-c787-47dd-a61f-1f30dae514b0

Supported account types : [My organization only](#)

Redirect URIs : [Add a Redirect URI](#)

Application ID URI : [Add an Application ID URI](#)

Managed application in l... : [satellite](#)



# Connecting Satellite to Azure

Home > Resource groups > rhel-management | Access control (IAM)

Resource groups  
Default Directory

+ Add Manage view

Filter by name...

Name ↑↓

- cloud-shell-storage-westus
- iaas-us-east-us
- NetworkWatcherRG
- rhel-management

Settings

- Quickstart
- Deployments
- Policies
- Properties
- Locks
- Export template

Cost Management

- Cost analysis
- Cost alerts (preview)
- Budgets
- Advisor recommendations

Monitoring

Search (Cmd+/)

+ Add Edit columns Refresh Remove Got feedback?

Check access Role assignments Deny assignments Classic administrators Roles

**Check access**  
Review the level of access a user, group, service principal, or managed identity has to this resource. [Learn more](#)

Find  
Azure AD user, group, or service principal  
Search by name or email address

**Add a role assignment**  
Grant access to resources at this scope by assigning a role to a user, group, service principal, or managed identity.  
[Add](#) [Learn more](#)

**View role assignments**  
View the users, groups, service principals and managed identities that have role assignments granting them access at this scope.  
[View](#) [Learn more](#)

**View deny assignments**  
View the users, groups, service principals and managed identities that have been denied access to specific actions at this scope.

**Add role assignment**

Role  
Owner

Assign access to  
Azure AD user, group, or service principal

Select  
satellite

No users, groups, or service principals found.

Selected members:  
satellite [Remove](#)

# Connecting Satellite to Azure

Notifications

[More events in the activity log](#) →

Dismiss all

✓ Added Role assignment  
satellite was added as Owner for rhel-management.  
a few seconds ago

✓ Create application  
Successfully created application satellite.  
5 minutes ago

# Connecting Satellite to Azure

[Home](#) > [Default Directory | App registrations](#) >



Search (Cmd+/)



Delete



Endpoints

Overview

Quickstart

Integration assistant (preview)

## Manage

Branding

Authentication

Certificates & secrets

Display name : **satellite**

Application (client) ID : 6562ead3-0dcf-4797-90fc-cf94d4f2bde5

Directory (tenant) ID : d46c44d5-4b90-424c-a1b2-1622bed07a17

Object ID : 812382e6-c787-47dd-a61f-1f30dae514b0



Welcome to the new and improved App registrations. Looking to learn how it's changed f

# Connecting Satellite to Azure

The screenshot shows the Microsoft Azure portal interface. At the top, there is a blue header with the text 'Microsoft Azure' and a search bar containing 'Search resources, services, and docs (G+/)'. Below the header, the breadcrumb navigation reads 'Home > Default Directory | App registrations >'. The main content area is titled 'satellite | Certificates & secrets'. On the left, there is a navigation pane with a search box 'Search (Cmd+/)' and several menu items: 'Overview', 'Quickstart', 'Integration assistant (preview)', 'Manage' (with a sub-menu containing 'Branding', 'Authentication', 'Certificates & secrets', 'Token configuration', 'API permissions', and 'Expose an API'), and 'Certificates & secrets' (which is currently selected). The main content area displays a dialog box titled 'Add a client secret'. The dialog has a 'Description' field with the value 'satellite-client-secret' and an 'Expires' section with three radio button options: 'In 1 year', 'In 2 years', and 'Never' (which is selected). At the bottom of the dialog are 'Add' and 'Cancel' buttons. Below the dialog, the text 'Client secrets' is followed by a description: 'A secret string that the application uses to prove its identity when requesting a token. Also can be ref'.

# Connecting Satellite to Azure

The screenshot shows the Microsoft Azure portal interface. At the top, there is a blue header with a hamburger menu icon, the text "Microsoft Azure", and a search bar containing the text "Search resources, services, and docs (G+/)". Below the header, the breadcrumb "Home >" is visible. The main heading is "Subscriptions" with a star icon. Underneath, it says "Default Directory". There is a "+ Add" button. A descriptive paragraph follows: "View list of subscriptions for which you have role-based access control (RBAC) permissions to manage Azure resources. To view subscriptions for w... Showing subscriptions in Default Directory directory. Don't see a subscription? [Switch directories](#)". Below this is a "My role" section with a help icon. A selection bar shows "8 selected". An "Apply" button is present. A filter section shows "Showing 1 of 1 subscriptions" and a checked checkbox for "Show only subscriptions selected in the [global subscriptions filter](#)". A search bar contains "Search to filter items...". A table with one row is shown below. The table has two columns: "Subscription name" and "Subscription ID". The row contains "msp-lab" and "0a65b4ea-ea12-4b16-8993-f6049d0d0d88".

Microsoft Azure

Search resources, services, and docs (G+/)

Home >

## Subscriptions

Default Directory

+ Add

View list of subscriptions for which you have role-based access control (RBAC) permissions to manage Azure resources. To view subscriptions for w... Showing subscriptions in Default Directory directory. Don't see a subscription? [Switch directories](#)


My role ⓘ

8 selected

Apply

Showing 1 of 1 subscriptions  Show only subscriptions selected in the [global subscriptions filter](#) ⓘ

Search to filter items...

Subscription name	Subscription ID
 msp-lab	0a65b4ea-ea12-4b16-8993-f6049d0d0d88

# Connecting Satellite to Azure

josh-demo ▾ msp-lab ▾

[Compute Resources](#) > Create Compute Resource

---

**Compute Resource** | Locations | Organizations

Name \*

Provider \* 

Description

Client ID \*

Client Secret \*

Subscription ID \*

Tenant ID \*

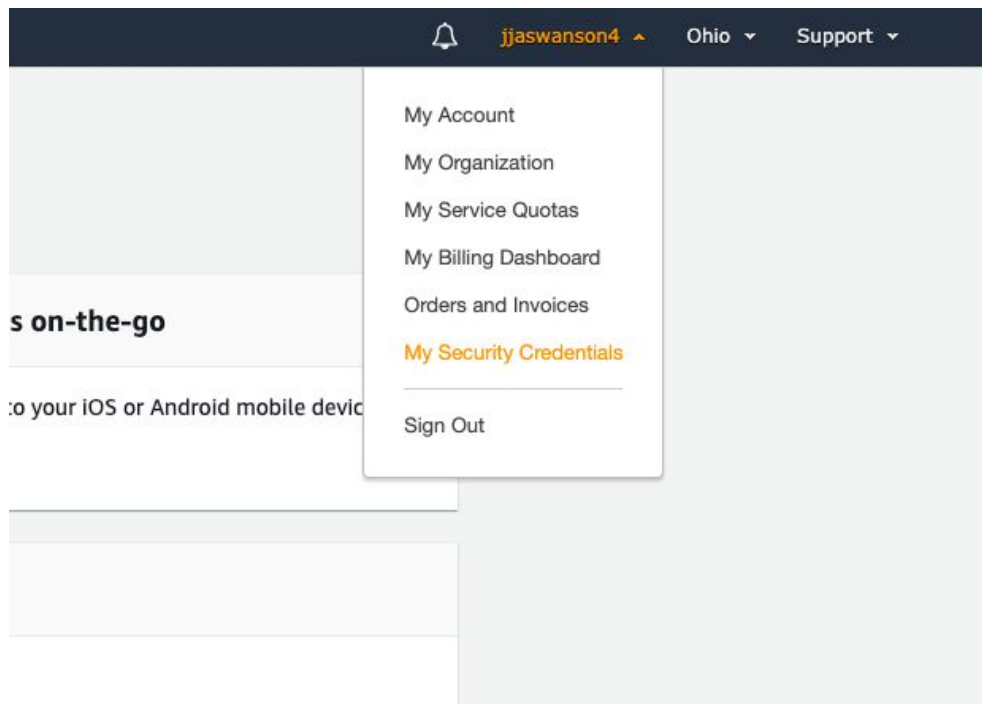
Azure Region ⓘ \*





# Demo: connecting satellite to AWS

# Connecting Satellite to AWS



# Connecting Satellite to AWS

## Your Security Credentials

Use this page to manage the credentials for your AWS account. To manage credentials for AWS Identity and Access Management (IAM) users, use the [IAM Console](#).

To learn more about the types of AWS credentials and how they're used, see [AWS Security Credentials](#) in AWS General Reference.

▲ Password

▲ Multi-factor authentication (MFA)

▼ Access keys (access key ID and secret access key)

Use access keys to make programmatic calls to AWS from the AWS CLI, Tools for PowerShell, the AWS SDKs, or direct AWS API calls. You can have a maximum of two access keys (active or inactive) at a time. [Learn more](#)

Created	Access Key ID	Last Used	Last Used Region	Last Used Service	Status	Actions
---------	---------------	-----------	------------------	-------------------	--------	---------

Create New Access Key

Root user access keys provide unrestricted access to your entire AWS account. If you need long-term access keys, we recommend creating a new IAM user with limited permissions and generating access keys for that user instead. [Learn more](#)

▲ CloudFront key pairs

▲ X.509 certificate

▲ Account identifiers

# Connecting Satellite to AWS

^ Password

^ Multi-factor authentication (MFA)

▼ Access keys (access key ID and secret access key)

Use access keys to make programmatic calls to AWS from the AWS CLI, Tools for PowerShell, the AWS SDKs, or direct AWS API calls. You can have a maximum of two access keys (active or inactive)

Created	Access Key ID	Last Used	Last Used Region	Last Used Service
---------	---------------	-----------	------------------	-------------------

[Create New Access Key](#)

Root user access keys provide unrestricted access to all AWS services and resources. Consider creating a user with limited permissions and generating an access key for that user.

**✔ Your access key (access key ID and secret access key) has been created successfully.**

**Download your key file now, which contains your new access key ID and secret access key. If you do not download the key file now, you will not be able to retrieve your secret access key again.**

To help protect your security, store your secret access key securely and do not share it.

[▶ Show Access Key](#)

[Download Key File](#) [Close](#)

^ CloudFront key pairs

^ X.509 certificate

^ Account identifiers

# Connecting Satellite to AWS

Compute Resource   Locations   Organizations

Name \*

Provider \*

Description


HTTP Proxy

Access Key \*  [Documentation](#)

Secret Key \*

Gov Cloud

Region  [Test Connection](#)



# Demo: building out finishing provisioning templates

# Building Out Finishing Provisioning Templates

```
<%#
kind: finish
name: cloud-provision-finish
model: ProvisioningTemplate
oses:
- RedHat
%>

<% if @host.provision_method == 'image' && root_pass.present? -%>
# Install the root password
echo 'root:<%= root_pass -%>' | /usr/sbin/chpasswd -e
<% end -%>

<%= snippet 'cloud-provision-register' %>

<% unless host_param_false?('package_upgrade') -%>
# update all the base packages from the updates repository
if [ -f /usr/bin/dnf ]; then
  dnf -y update
else
  yum -t -y update
fi
<% end -%>

<%= snippet('cloud-deploy-remote-execution-keys') %>

sync

exit 0
```

# Building Out Finishing Provisioning Templates

```
<%#
kind: snippet
name: cloud-provision-register
model: ProvisioningTemplate
snippet: true
-%>
subscription-manager unregister
subscription-manager clean
...
<% if host_param('subscription_manager_username') && host_param('subscription_manager_password') %>
  <% if host_param('subscription_manager_pool') %>
    subscription-manager register --name="<%= @host.name %>" --username='<%= host_param("subscription_manager_username") %>' --password='<%=
host_param("subscription_manager_password") %>'
    subscription-manager attach --pool='<%= host_param('subscription_manager_pool') %>'
  <% else %>
    subscription-manager register --name="<%= @host.name %>" --username='<%= host_param("subscription_manager_username") %>' --password='<%=
host_param("subscription_manager_password") %>' --auto-attach
  <% end %>

  <% elsif activation_key %>
    subscription-manager register --name="<%= @host.name %>" --org='<%= subscription_manager_org %>' --activationkey='<%= activation_key %>'
  <% else %>
    echo "No activation key found: Not registering to subscription manager"
  <% end %>
...

```



# Building Out Finishing Provisioning Templates

[All Hosts](#) > Create Host | central-1nl-demo-01.gcp.lab.msp.redhat.com

Host
Ansible Roles
Virtual Machine
Operating System
Interfaces
Puppet Classes
Parameters
Additional Information

### Puppet Class Parameters

Puppet Class	Name	Type	Value	Omit <span style="font-size: 0.8em;">⊙</span>

### Global Parameters

Name	Type	Value	Actions
enable-epel	string	<input type="text" value="false"/>	<span>Override</span>
enable-puppet5	string	<input type="text" value="true"/>	<span>Override</span>

### Host Parameters

Name	Type	Value	Actions
<input type="text" value="kt_activation_keys"/>	<input type="text" value="string"/>	<input type="text" value="ah-rhel7-prod"/>	<span>Remove</span>

+ Add Parameter

Submit
Cancel


# Building Out Finishing Provisioning Templates

```
<%#
kind: snippet
name: cloud-deploy-remote-execution-keys
model: ProvisioningTemplate
snippet: true
%>
...
cat << EOF >> <%= ssh_path %>/authorized_keys
<%= host_param('remote_execution_ssh_keys').is_a?(String) ? host_param('remote_execution_ssh_keys') : host_param('remote_execution_ssh_keys').join("\n") %>
EOF

chmod 0700 <%= ssh_path %>
chmod 0600 <%= ssh_path %>/authorized_keys
chown -R <%= "#{ssh_user}:" %> <%= ssh_path %>

# Restore SELinux context with restorecon, if it's available:
command -v restorecon && restorecon -RvF <%= ssh_path %> || true

<% if ssh_user != 'root' && host_param('remote_execution_effective_user_method') == 'sudo' -%>
<% if @host.operatingsystem.family == 'Redhat' || @host.operatingsystem.family == 'Debian' -%>
echo "<%= ssh_user %> ALL = (root) NOPASSWD : ALL
Defaults:<%= ssh_user %> !requiretty" > /etc/sudoers.d/<%= ssh_user %>
<% elsif @host.operatingsystem.family == 'Suse' -%>
echo "<%= ssh_user %> ALL = (root) NOPASSWD : ALL
Defaults:<%= ssh_user %> !targetpw" >> /etc/sudoers
<% end -%>
<% end -%>
```



# Demo: setting up an image and compute profile for a cloud compute resource

# Setting Up Images/Compute Profiles

[Compute Resources](#) » [gcp-msp-lab \(us-central1-a-Google\)](#) » [Images](#) » Create image

**Name \***

**Operating System \***

**Architecture \***

**Username \***  The user th

**Image \***

**User Data**  Does this image support user data input (e.g. via cloud-init)?

# Setting Up Images/Compute Profiles

[Compute Resources](#) » [gcp-msp-lab \(us-central1-a-Google\)](#) » [Compute Profiles](#) » [New g1-small](#)

---

Compute profile *	<input type="text" value="g1-small"/>
Compute resource *	<input type="text" value="gcp-msp-lab (us-central1-a-Google)"/>
Machine type	<input type="text" value="g1-small"/>
Network	<input type="text" value="default"/>
Associate Ephemeral External IP	<input checked="" type="checkbox"/>

---

Storage

Size (GB)	<input type="text" value="100"/>
-----------	----------------------------------



# Demo: lifecycle management in the cloud

# Lifecycle Management in the Cloud

- Create a new instance in the cloud
- Install some base packages
- Promote new content
- Patch the instance
- Reboot the instance
- Destroy the instance

# Lifecycle Management in the Cloud

All Hosts > Create Host | central-1nl-demo1.gcp.lab.msp.redhat.com

Host    Ansible Roles    Virtual Machine    Operating System    Interfaces    Puppet Classes    Parameters    Additional Information

Name \*  ⓘ This value is used also as the host's primary interface name.

Organization \*

Location \*

Host Group  x

Deploy On  inherit

Compute profile  inherit

Lifecycle Environment  x

Content View  x

Content Source  x

Puppet Environment  inherit [Reset Puppet Environment](#)

Puppet Master ⓘ  inherit

Puppet CA ⓘ  inherit

OpenSCAP Capsule ⓘ  inherit



# Lifecycle Management in the Cloud

[All Hosts](#) » Create Host | central-1nl-demo1.gcp.lab.msp.redhat.com

Host   Ansible Roles   Virtual Machine   **Operating System**   Interfaces   Puppet Classes   Parameters   Additional Information

Architecture \*

Operating system \*

Provisioning Method \*  Boot disk based    Network Based    Image Based

Image

Root Password \*  Password must be 8 characters or more

Provisioning Templates

Display the templates that will be used to provision this host

✔ Templates resolved for this operating system

Finish template Template [gcp-provision-finish](#)

# Lifecycle Management in the Cloud

All Hosts > Create Host | central-1nl-demo1.gcp.lab.msp.redhat.com

Host   Ansible Roles   Virtual Machine   Operating System   Interfaces   Puppet Classes   **Parameters**   Additional Information

### Puppet Class Parameters

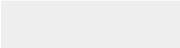
Puppet Class	Name	Type	Value	Omit
--------------	------	------	-------	------

### Global Parameters

Name	Type	Value	Actions
enable-epel	string	<input type="text" value="false"/>	<input type="button" value="Override"/>
enable-puppet5	string	<input type="text" value="true"/>	<input type="button" value="Override"/>
kt_activation_keys	string	<input type="text" value="ak-rhel7-prod"/>	<input type="button" value="Override"/>

### Host Parameters

Name	Type	Value	Actions
------	------	-------	---------



# Lifecycle Management in the Cloud

[All Hosts](#) > Create Host | central-1nl-demo1.gcp.lab.msp.redhat.com

**New in Progress** ✕

- running - Set up compute instance central-1nl-demo1.gcp.lab.msp.redhat.com
- pending - Acquire IP addresses for central-1nl-demo1.gcp.lab.msp.redhat.com
- pending - Query instance details for central-1nl-demo1.gcp.lab.msp.redhat.com
- pending - Prepare post installation script for central-1nl-demo1.gcp.lab.msp.redhat.com
- pending - Wait for central-1nl-demo1.gcp.lab.msp.redhat.com to come online
- pending - Configure instance central-1nl-demo1.gcp.lab.msp.redhat.com via SSH

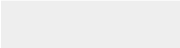
**Host** | Ansible Roles | Virtual Machine | Operating System | Interfaces | Puppet Classes | Parameters | Additional Information

**Name \***  ✕ This value is used also as the host's primary interface name.

**Organization \***  ▼

**Location \***  ▼

**Host Group**  ✕ ▼



# Lifecycle Management in the Cloud

All Hosts > Create Host | central-1nl-demo1.gcp.lab.msp.redhat.com

**📄 New in Progress** ✕

- ✔ completed - Set up compute instance central-1nl-demo1.gcp.lab.msp.redhat.com
- ✔ completed - Acquire IP addresses for central-1nl-demo1.gcp.lab.msp.redhat.com
- ✔ completed - Query instance details for central-1nl-demo1.gcp.lab.msp.redhat.com
- ✔ completed - Prepare post installation script for central-1nl-demo1.gcp.lab.msp.redhat.com
- 🔄 running - Wait for central-1nl-demo1.gcp.lab.msp.redhat.com to come online
- 🛑 pending - Configure instance central-1nl-demo1.gcp.lab.msp.redhat.com via SSH

**Host** | Ansible Roles | Virtual Machine | Operating System | Interfaces | Puppet Classes | Parameters | Additional Information

**Name \***  🔗 This value is used also as the host's primary interface name.

**Organization \***

**Location \***

**Host Group**  ✕

# Lifecycle Management in the Cloud

Google Cloud Platform msp-lab Search products and resources

**Compute Engine** **VM instances** [CREATE INSTANCE](#) [IMPORT VM](#) [REFRESH](#) [START](#) [STOP](#) [RESET](#) [DELETE](#)

Filter VM instances Columns

<input type="checkbox"/> Name ^	Zone	Recommendation	In use by	Internal IP	External IP	Connect
<input type="checkbox"/> <span>central-<b>lnl-demo1-gcp-lab-msp-redhat-com</b></span>	us-central1-a			10.128.0.35 (nic0)	35.232.177.107	SSH ▾ ⋮
<input type="checkbox"/> <span>gcp-satellite01</span>	us-central1-a			10.128.0.26 (nic0) 📄	34.69.55.10	SSH ▾ ⋮

**Related Actions**

- [View Billing Report](#)  
View and manage your Compute Engine billing
- [Monitor Stackdriver Logs](#)  
View, search, analyze, and download VM instance logs
- [Setup Firewall Rules](#)  
Control traffic to and from a VM instance

VM instances sidebar: VM instances, Instance groups, Instance templates, Sole-tenant nodes, Machine images, Disks, Snapshots, Images, TPUs, Migrate for Compute Engine, Committed use discounts, Metadata, Health checks





# Lifecycle Management in the Cloud

[Job Templates](#) > Edit RHEL Cloud Standards 

**Template** Inputs Job Type History Locations Organizations Help

Name \*

Default



**Editor** Changes Preview    






```
1
2 - hosts: all
3 - tasks:
4 +   - name: install nano | standard packages
5 -     yum:
6 -       name: nano
7 -       state: latest
8 -   - name: install insights-client | standard packages
9 -     yum:
10 -    name: insights-client
11 -    state: latest
12 -    name: force time to be synced
13 -    shell: chronyc -a makestep
14 -    name: reset insights
15 -    shell: insights-client --unregister
16 -    name: register insights
17 -    shell: insights-client --register
```

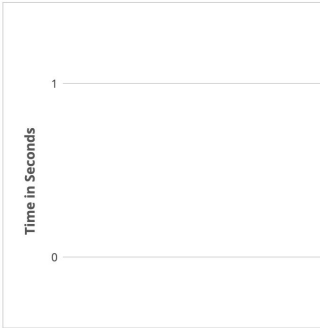

Description

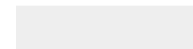
Audit Comment

# Lifecycle Management in the Cloud

All Hosts >  central-Inf-demo1.gcp.lab.msp.redhat.com 

Details	
Audits   <b>YAML</b>   Content	
Properties   Metrics   Templates   VM   NICs	
Properties	
Status	 Warning
Build	 Installed
Errata	 All errata applied
System Purpose	 Unknown
Subscription	 Unknown subscription status
Build duration	N/A
Token	N/A
Domain	<a href="https://gcp.lab.msp.redhat.com">gcp.lab.msp.redhat.com</a>
IP Address	35.232.177.107
Architecture	x86_64
Operating System	RHEL Server 7.8
Host group	<a href="#">gcp-rhel7-provision</a>
Boot time	Not reported
Location	<a href="#">gcp</a>
Organization	<a href="#">msp-lab</a>
Owner	<a href="#">Admin User</a>



# Lifecycle Management in the Cloud

[Jobs](#) > Job invocation

Job category \*

Job template \*

Bookmark

Search Query

Resolves to 1 hosts

[> Display advanced fields](#)

Type of query  Static Query  Dynamic Query

Schedule  Execute now  Schedule future execution  Set up recurring execution



# Lifecycle Management in the Cloud

Jobs > Enforce RHEL Standards On Cloud Instances

Rerun Rerun failed Job Task Cancel Job Abort Job

Overview Preview templates

### Results

100%  
Success

1 0 0 0

### Target hosts

Manual selection using **static query**

name ~ central-1nl-demo1.gcp.lab.msp.redhat.com

Execution order: **alphabetical**

Evaluated at: 2020-06-16 16:16:14 -0500

**root**  
RHEL Cloud Standards effective user

**1**  
Total hosts

Filter ... Q Search

Host	Status	Actions
central-1nl-demo1.gcp.lab.msp.redhat.com	success	Host detail

20 per page 1-1 of 1 << < 1 of 1 > >>

# Lifecycle Management in the Cloud

Job invocations > Enforce RHEL Standards On Cloud Instances > Template Invocation for central-lnl-demo1.gcp.lab.msp.redhat.com

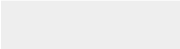
[Back to Job](#) [Toggle command](#) [Toggle STDERR](#) [Toggle STDOUT](#) [Toggle DEBUG](#) [Task Details](#) [Cancel Job](#) [Abort Job](#)

Target: [central-lnl-demo1.gcp.lab.msp.redhat.com](#)

```
1:
2: PLAY [all] *****
3:
4: TASK [Gathering Facts] *****
5: ok: [central-lnl-demo1.gcp.lab.msp.redhat.com]
6:
7: TASK [install nano | standard packages] *****
8: changed: [central-lnl-demo1.gcp.lab.msp.redhat.com]
9:
10: TASK [install insights-client | standard packages] *****
11: ok: [central-lnl-demo1.gcp.lab.msp.redhat.com]
12:
13: TASK [force time to be synced] *****
14: changed: [central-lnl-demo1.gcp.lab.msp.redhat.com]
15:
16: TASK [reset insights] *****
17: changed: [central-lnl-demo1.gcp.lab.msp.redhat.com]
18:
19: TASK [register insights] *****
20: changed: [central-lnl-demo1.gcp.lab.msp.redhat.com]
21: PLAY RECAP *****
22: central-lnl-demo1.gcp.lab.msp.redhat.com : ok=6 changed=4 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
23: Exit status: 0
```

Scroll to bottom

Scroll to top



# Lifecycle Management in the Cloud

Job Templates > Edit RHEL Cloud Patch

Template Inputs Job Type History Locations Organizations Help

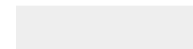
Name \*

Default

Editor Changes Preview

```
1 - hosts: all
2 -
3 tasks:
4 - name: update all packages
5   yum:
6     name: '*'
7     state: latest
8     register: updated_packages
9 - name: reboot if packages were updated
10  reboot:
11    reboot_timeout: 3600
12  when:
13    - updated_packages.changed
```

Description



# Lifecycle Management in the Cloud

[Jobs](#) > Job invocation

Job category \*

Job template \*

Bookmark

Search Query

Resolves to 1 hosts

[> Display advanced fields](#)

Type of query  Static Query  Dynamic Query

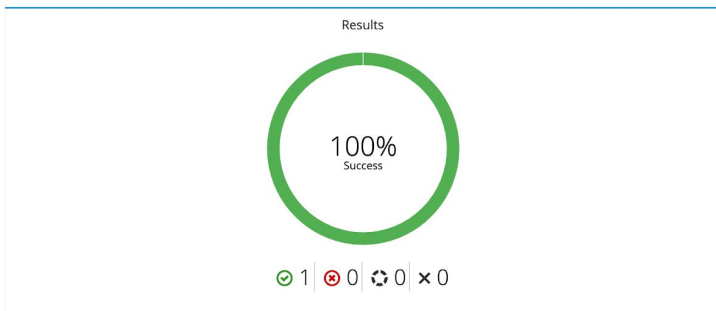
Schedule  Execute now  Schedule future execution  Set up recurring execution

# Lifecycle Management in the Cloud

Jobs > Update all packages on RHEL in the cloud

Rerun Rerun failed Job Task Cancel Job Abort Job

Overview Preview templates



### Target hosts

Manual selection using **static query**

name ~ central-lnl-demo1

Execution order: **alphabetical**

Evaluated at: 2020-06-16 16:26:07 -0500

 **root**  
RHEL Cloud Patch effective user

 **1**  
Total hosts

Filter ... Search

Host	Status	Actions
central-lnl-demo1.gcp.lab.msp.redhat.com	✔ success	Host detail ▾

20 per page 1-1 of 1 << 1 of 1 >>

# Lifecycle Management in the Cloud

[Job invocations](#) > [Update all packages on RHEL in the cloud](#) > [Template Invocation for central-lnl-demo1.gcp.lab.msp.redhat.com](#)



[Back to job](#) [Toggle command](#) [Toggle STDERR](#) [Toggle STDOUT](#) [Toggle DEBUG](#) [Task Details](#) [Cancel Job](#) [Abort Job](#)

Target: [central-lnl-demo1.gcp.lab.msp.redhat.com](#)

```
1:
2: PLAY [all] *****
3:
4: TASK [Gathering Facts] *****
5: ok: [central-lnl-demo1.gcp.lab.msp.redhat.com]
6:
7: TASK [update all packages] *****
8: ok: [central-lnl-demo1.gcp.lab.msp.redhat.com]
9:
10: TASK [reboot if packages were updated] *****
11: skipping: [central-lnl-demo1.gcp.lab.msp.redhat.com]
12: PLAY RECAP *****
13: central-lnl-demo1.gcp.lab.msp.redhat.com : ok=2  changed=0  unreachable=0  failed=0  skipped=1  rescued=0  ignored=0
14: Exit status: 0
```

[Scroll to bottom](#)

[Scroll to top](#)

# Lifecycle Management in the Cloud

The screenshot shows the Satellite web interface with a 'Delete Hosts' dialog box open. The dialog title is 'Delete Hosts - The following hosts are about to be changed'. It contains a warning message, a table of host details, and 'Cancel' and 'Submit' buttons.

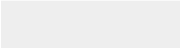
**Delete Hosts - The following hosts are about to be changed**

**Warning:** This might take a while, as all hosts, facts and reports **will be deleted** as well. This **will delete** the linked VMs and their disks, and is irreversible. This behavior can be changed via global setting "Destroy associated VM on host delete".

Name	Host group	Environment	Location	Organization
central-1nl-demo1.gcp.lab.msp.redhat.com	gcp-rhel7-provision		gcp	msp-lab

Remember hosts selection for the next bulk action

Buttons: Cancel, Submit



# Lifecycle Management in the Cloud

tfom msp-lab

Search products and resources

VM instances [CREATE INSTANCE](#) [IMPORT VM](#) [REFRESH](#) [START](#) [STOP](#) [RESET](#) [DELETE](#)

Filter VM instances Columns

<input type="checkbox"/> Name ^	Zone	Recommendation	In use by	Internal IP	External IP	Connect
<input type="checkbox"/> central-1nl-demo1-gcp-lab-msp-redhat-com	us-central1-a			10.128.0.35 (nic0)	35.232.177.107	SSH ▾ ⋮
<input type="checkbox"/> gcp-satellite01	us-central1-a			10.128.0.26 (nic0)	34.69.55.10	SSH ▾ ⋮

Related Actions

**View Billing Report**  
View and manage your Compute Engine billing

**Monitor Stackdriver Logs**  
View, search, analyze, and download VM instance logs

**Setup Firewall Rules**  
Control traffic to and from a VM instance

line  
s



# Satellite's Place in the Cloud



# Satellite's Place in the Cloud

Treat Satellite as a platform for RHEL lifecycle management

Great scenarios to use satellite with cloud deployments:

- When instances need tight control around content
  - ERP in the cloud
  - COTS/apps with specific requirements
- When instances will live for longer than a few hours
  - Patching standards
  - Compliance standards
- BYOS/subscription management
  - Tracking subscription utilization across clouds
  - Having the ability to limit deployments

# The Value of Using Satellite for Cloud Deployments

# The Value of Using Satellite for Cloud Deployments

Treat Satellite as a platform for RHEL lifecycle management

- If your existing provisioning processes leverage satellite today, it makes sense to extend that functionality to cloud providers
  - Small adjustments to existing workflows will rapidly lead to cloud deployments
  - Existing workflows don't need to be completely uprooted
- Use satellite to compliment other tools
  - Ansible, terraform, powershell, etc etc etc etc...
  - Consume satellite's content management features while having other automation tools build out your IaaS
  - Satellite doesn't handle all aspects of cloud deployments

# One vs. Multiple Satellites

# One Satellite vs. Multiple Satellites

One satellite to rule them all? Sauron would be proud!

## One Satellite

Pros:

One window into RHEL anywhere

One place to do content management

One place to view subscription utilization

Cons:

One single point of failure (even with capsules)

Scaling issues (remember to tune satellite!)

Connection/networking requirements

## Multiple Satellites

Pros:

Independent operation of on-prem vs. cloud

Satellite is “closer” to the managed instances

Less connection requirements

Cons:


Having to export/import content views for consistency


Cost of IaaS to run satellite

Insights can help with “single pane of glass”, not native to satellite

# Thank you

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