

GPC - Cloudforms

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME
1.0	September 2014	Adding formatting	James Villarreal

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Chapter 1

Document Information

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Red Hat Consulting
James Villarreal

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Chapter 2

Project Approach

2.1 Objectives

2.1.1 Project Scope:

- [] Installing up to three (3) CloudForms appliances for CloudForms provisioning and for remote calls from ServiceNow Service Catalog.
 - [] Creating two (2) dashboards in CloudForms consisting of up to fifteen (15) reports in total showcasing Virtual Machine (VM) performance and capacity.
 - [] Initializing CloudForms charge back rates with up to two (2) reports.
 - [] Creating CloudForms categories ("tags") where appropriate.
 - [] Integrating Active Directory for mapping groups to CloudForms user functions
 - [] Setting up up Windows and Linux VM provisioning for a VMWare vSphere environment via the provisioning dialog based on Windows and Linux templates
 - [] Creating a service catalog to provision Windows and Linux VMs including the following features:
 - [] pre-provisioning methods to provision VMs in a folder based on CloudForms tags
 - [] placement of VMs in specific VLANs using CloudForms tags
 - [] creation of VM names based on tags and/or a combination of user-input variables
 - [] acquisition of IP addresses from InfoBlox IP Address Management (IPAM)
 - [] registration of new VMs with Active Directory
 - [] leveraging VMWare VIX for post-execution steps for Windows and Linux
 - [] Creating a dialog button and methods to remove Virtual Machines from inventory including the following features:
 - [] powering off VMs
 - [] moving VMs to new Virtual Center folders
 - [] providing a dialog button to remove VMs from Virtual Center inventory, to remove VMs from Active Directory, and to
 - [] release IP addresses from Infoblox
 - [] Creating a ServiceNow Service Catalog interface to launch provisioning methods leveraging ServiceNow Service Catalog
 - [] access and the ManageIQ plugin provided by ServiceNow.
-

- [] Integrating with one (1) VMWare vCenter Orchestrator (VCO) workflow leveraging REST APIs.
- [] Providing documentation of the installation and configuration of CloudForms in the form of an Engagement Journal
- [] Providing mentoring to client resources related to the CloudForms installation and configuration

2.1.2 Proposed Schedule

- Duration
 - 3 weeks, Sept 8 – Sept 26
- Start Date
 - Sept 8th, 2014
- Travel Schedule
 - Week 1 (9/8 - 9/12)
 - * On-site support with 1 consultant and 1 DA
 - Week 2-3 (9/15 - 9/26)
 - * On-site support with 1 consultants (1 DA available as needed)

2.2 Logistics

- Place of Performance
 - 3100 Windy Hill Road Atlanta GA 30339
- On-Site Customer Contact
 - Jonathan Junkins: 770-850-2359
- Security Requirements
 - None
- Parking
 - [TBD]

2.3 Contact Information

Table 2.1: GPC Information

Name	title	Phone	E-mail
Jonathan Junkins	Virtualization Architect	770.850.2539	jonathan_junkins@genpt.com

Table 2.2: Red Hat Contact Information

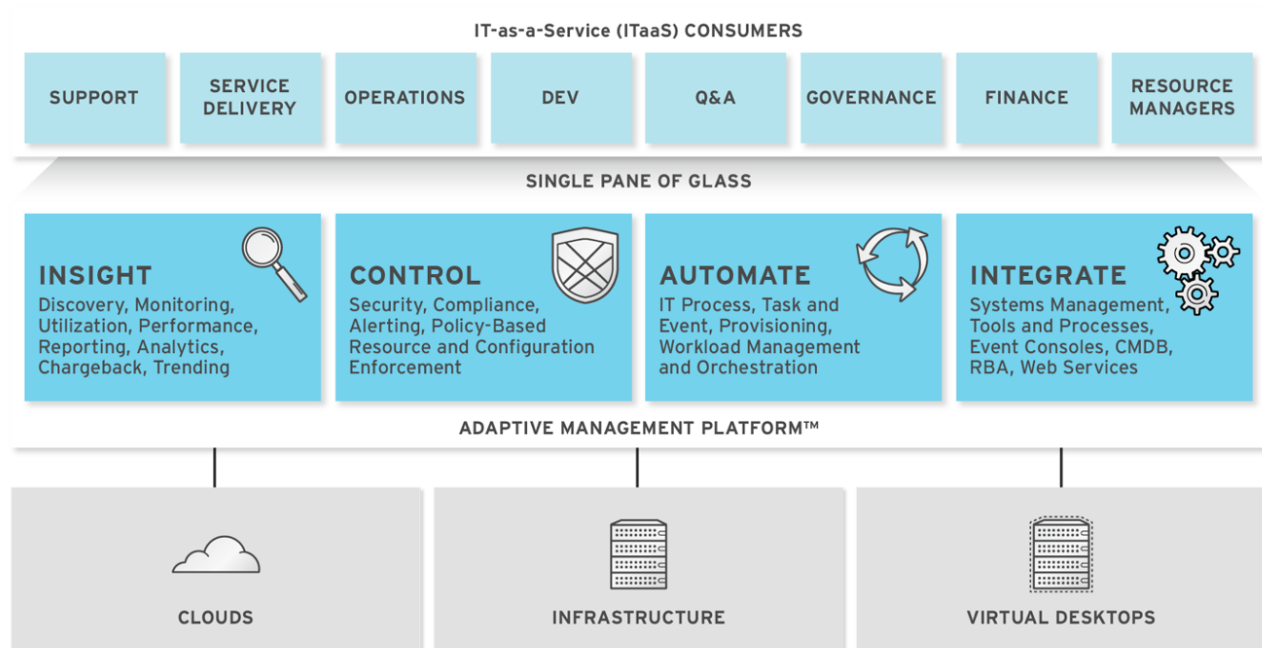
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Chapter 3

Cloudforms POC

3.1 Architecture

*The diagram below describes the capabilities of Red Hat CloudForms Management Engine. Its features are designed to work together to provide robust management and maintenance of your virtual infrastructure.



Features

- The architecture comprises the following components:
 - The CloudForms Management Engine Appliance (Appliance) which is supplied as a secure, high-performance, preconfigured virtual machine. It provides support for Secure Socket Layer (SSL) communications.
 - The CloudForms Management Engine Server (Server) resides on the Appliance. It is the software layer that communicates between the SmartProxy and the Virtual Management Database. It includes support for Secure Socket Layer (SSL) communications.
 - The Virtual Management Database (VMDB) resides either on the Appliance or another computer accessible to the Appliance. It is the definitive source of intelligence collected about your Virtual Infrastructure. It also holds status information regarding Appliance tasks.

- The CloudForms Management Engine Console (Console) is the Web interface used to view and control the Server and Appliance. It is consumed through Web 2.0 mash-ups and web services (WS Management) interfaces.
- The SmartProxy can reside on the Appliance or on an ESX Server. If not embedded in the Server, the SmartProxy can be deployed from the Appliance. Each storage location must have a SmartProxy with visibility to it. The SmartProxy acts on behalf of the Appliance communicating with it over HTTPS (SSL) on standard port 443.

Note

Reference https://access.redhat.com/documentation/en-US/CloudForms/3.0/html/Management_Engine_5.2_Settings_And_Operations_Architecture2.html

3.2 Cloudforms Appliance Allocations

3.2.1 CFME Appliance System Requirements

- POC CFME Appliance:
 - 3x CFME Appliance:
 - * 4 vCPU
 - * 6 GB of RAM
 - * 1x 40 Root Vol Disk
 - * 1x 107GB DB Disk
 - * 1x Network Interface

Note

[Simplified-CFME-VMDB-Region-Zone-Global-Size-Estimator](#)

3.3 CFME Appliance Setup

3.3.1 Initial Setup

1. Download the CFME appliance from the Red Hat Customer Portal (login required). The CFME appliance is available as an OVA (Open Virtualization Format) file from: Download Software > Red Hat Enterprise Linux (v. 6 for 64-bit x86_64) > Red Hat CloudForms Management Engine (v5.2) > VMware Virtual Appliance.
2. Upload the OVA file to the VMware Datastore and create the appliances virtual machines using this file. Convert the virtual machine into a template and use it to create all the appliances.

Note

To increase performance, increase the default 4 vCPUs/6GB RAM appliance configuration to 4 vCPUs/8GB RAM for the Web UI appliance and 4 vCPUs/8GB RAM for the DB and the Worker appliances.

3.3.2 Network Configuration

- Once started, the appliances need to be configured with basic network settings using the virtual serial console in the VMware client. Login as **admin / smartvm** and press Enter to go to the Advanced Settings menu. Set Static Network Configuration, Set Hostname, Set Timezone, Date, and Time. When done entering the settings, select Summary Information to review.
 - Host & IP Allocations
-

Table 3.1: Primary Interface Configuration

Host	IP Address	Netmask	Gateway	DNS Server	Notes
augpcpdrcfapp03	10.5.50.98	255.255.255.0	10.5.50.1	10.5.152.5, 10.6.152.5	CFME UI Appliance
augpcpdrcfapp03	10.5.50.99	255.255.255.0	10.5.50.1	10.5.152.5, 10.6.152.5	CFME Worker Appliance
augpcpdrcfapp02	10.5.50.100	255.255.255.0	10.5.50.1	10.5.152.5, 10.6.152.5	CFME Worker Appliance
augpcpdrcfapp01	10.5.128.217	255.255.254.0	10.5.128.1	10.5.152.5, 10.6.152.6	CFME DB Appliance

3.3.3 Hostname Configuration

- Select Option 4
- Set the hostname of the CFME appliance. Refer to the table in Network Configuration section

3.3.4 Database Configuration

- With the new appliance the Database is not shipped configured by default. There will need to be a separate Database disk created outside of the appliance and then connected once the appliance has been started. In this case, after looking at where the current VM count and number of VM's that will be coming over the next few years the Database has been sized to 100GB. This will allow for growth over the next few years.

Note

The database uses LVM and storage can be extended at a later time

- On the main console window select Option 10 (To Configure Database)
- Select 1) Internal
- Select 1) /dev/mapper/vg_data-lv_pg
- Input Region **10** for the Region Selection
- Press **Enter**

Region Name	Region #	Notes
Region	10	POC to Production
DBRegion	99	Optional: When GPC decides to scale to have DB Replication

Non-DB appliances configure an external database, using the DB appliance.

3.4 SMTP Configuration

SMTP Server	smtp.genpt.com
email	vmadmin@genpt.com

3.5 Database Backups

Database backups are scheduled to occur daily at 10PM EST. Backups are saved to an NFS volume.

NFS Volume Location	nfs://ATLNetApp05data01:/vol/cloudforms_backups
Frequency	Daily
Time	22:00 EST

3.6 Access URL

UI URL
https://10.5.50.98

3.7 VMware Service Account

**Important**

Need a CFME Service Account in order to access VMware vCenter and be able to provision and manage the vCenter environment from Cloudforms

Note

See the VMware documentation for instructions on how to create a role. This role will need to be associated with whatever credentials you enter for the Management System's instance.

- From the Global group, check:
 - Cancel task
 - Diagnostics
 - Log Event
 - Set custom attribute
 - Settings
- The entire set of privileges for the following groups should be checked.
 - Alarms
 - Datastores
 - dvPort Group
 - Host
 - Network
 - Resource
 - Scheduled Task
 - Tasks
 - Virtual Machine
 - vSphere Distributed Switch

In addition, you must also have the following objects and new role in place:

- Datacenter: At the Datacenter the CloudForms Management Engine (CFME) (formerly EVM) user/group must have at least the read-only role at the Datacenter level (Not Propagated) to be able to see the datacenter. Without this access, relationships cannot be made. Specifically, the datastores will not show up.
- Cluster: Each Cluster that the CFME needs access to must have the new role assigned and propagated.
- Folders: Each Folder that CFME needs access to must have the new role assigned and propagated.
- Datastores: Each Datastore that CFME needs access to must have the new role assigned and propagated.
- Networking: Each vLAN or Port Group that CFME needs access to must have the new role assigned and propagated.

Note

For latest update on this section refer to [Creating Role for CFME in VMware](#) article in Customer Portal

3.8 Install VMware VDDK

The integration of the VMware VDDK (Virtual Disk Development Kit) optimizes the execution of SmartState Analysis on Virtual Machines and is required for CFME Appliances to successfully collect insight information within VMware vCenter. The VDDK can be downloaded from the VMware website with a valid customer account.

1. Download the VDDK 1.2.2 from VMware's website at <https://my.vmware.com>
2. Download the file VMware-vix-disklib-5.1.1-1042608.x86_64.tar.gz
3. Copy the file to the /root folder of the CFME Appliances
4. Start an SSH session into the CFME Appliance
5. Run the following commands to extract and install vmware vddk, accept defaults during the installation process:

```
cd /root
tar xvzf VMware-vix-disklib-5.1.1-1042608.x86_64.tar.gz
cd vmware-vix-disklib-distrib
./vmware-install.pl
```

1. Once the VDDK is installed, run the ldconfig command in order for EVM to find the newly installed vddk library.:

```
ldconfig
```

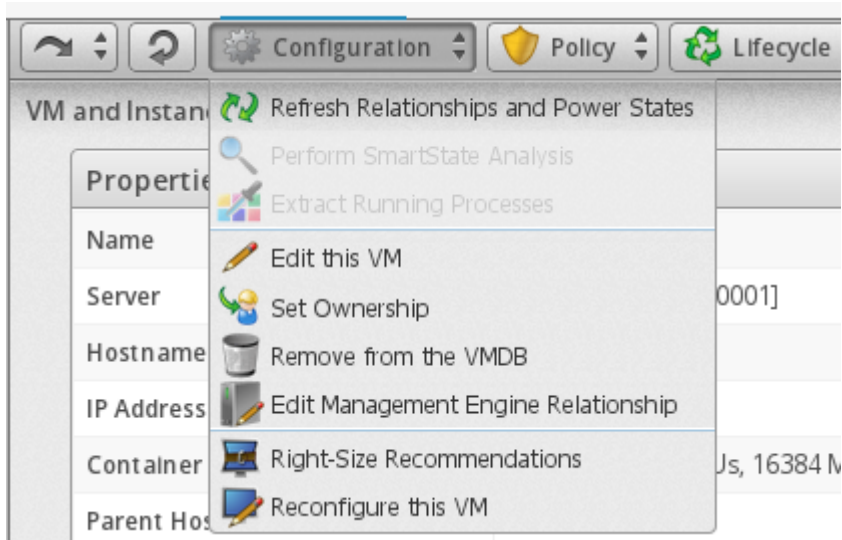
1. Reboot the CloudForms Appliance. The VDDK is now installed on the CFME appliance.

Note

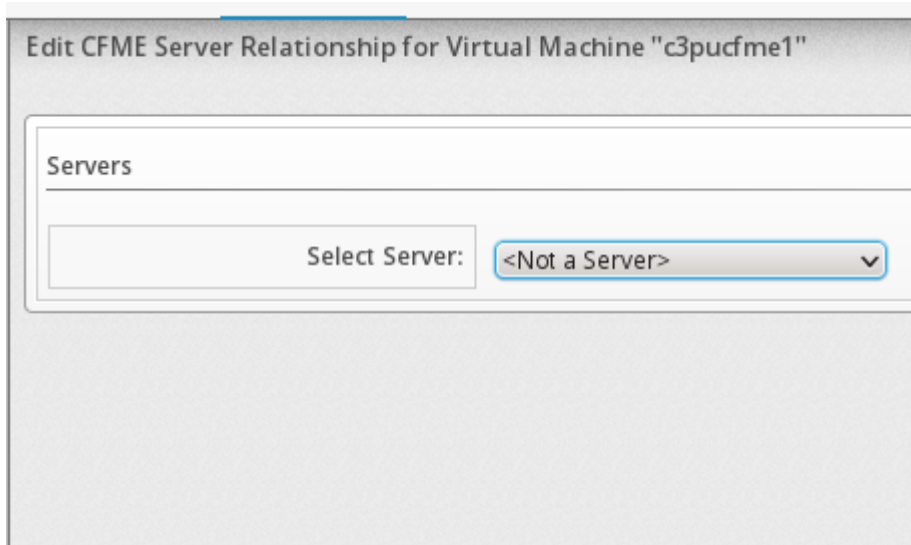
Reference: <https://access.redhat.com/knowledge/articles/329683>

3.9 Associate Cloudforms Appliance as a VM within vCenter Provider

In order for Cloudforms to know which appliance is which VM to execute certain jobs it needs to be associated * Go to Infrastructure > Virtual Machines > Search for <appliance name> (i.e. c3pucfme1) > Click on VM * In the VM object view Use the VM Configuration menu > Select Edit Management Engine Relationship



- Use the drop down menu to associate the EVM appliance that matches up with this VM. (i.e. EVM10000000000001)



- Click on Save

3.10 Configure NTP Server

- Go to Configure > Configuration > Select EVM Server > Click on Server Tab > Enter NTP Information

Label	value
Servers	ntp.genpt.net

- Click on Save

3.11 Configure outgoing E-mail settings

To use the email action in CloudForms Management Engine, you need to set an email address that you will have the emails sent from.

Note

To be able to send any emails from the server, you must have the Notifier Server role enabled. You can test the settings without the role enabled.

Outgoing SMTP E-mail Server

Host	mailserver.domain.com
Port	25
Domain	domain.com
Start TLS Automatically	<input checked="" type="checkbox"/>
SSL Verify Mode	None
Authentication	login
User Name	admin
Password	
From E-mail Address	admin@domain.com
Test E-mail Address	testemail@domain.com

- Environment Specific Settings:

Label	value
Host	smtp.genpt.com
Port	25
Domain	genpt.com
Start TLS Automatically	<NOT checked>
SSL Verify Mode	None
Authentication	login
User Name	vmadmin

Label	value
Password	<blank>
From E-mail Address	vmadmin@genpt.com
Test E-mail Address	

- Use Host to specify the host name of the mail server.
- Use Port to specify the port for the mail server.
- Use Domain to specify domain name for the mail server.
- Check Start TLS Automatically if the mail server requires TLS.
- Select the appropriate SSL Verify Mode.
- Use the Authentication drop down to specify if you want to use login or plain authentication.
- Use User Name to specify the user name required for login authentication.
- Use Password to specify the password for login authentication.
- Use From Email Address to set the address you want to send the email from.
- Use To Email Address if you want to test your email settings.
- Click on Save

3.12 Register Appliance

3.12.1 Editing Customer Information

The Red Hat Updates page allows the user to edit customer information.

- To edit customer information
 - Navigate to Configure → Configuration.
 - Click on the Settings accordion, then Region, then click on the Red Hat Updates tab.
 - Click Edit Registration in the Customer Information area
 - The Customer Information area will display options to edit registration, User ID and Password.
 - * Register to field provides options for the Customer Portal, RHN Satellite v5 for Red Hat Satellite 5.x servers, and RHN Satellite v6 for Red Hat Satellite 6.x servers. If switching to RHN Satellite v5 or v6, the page will refresh and a prompt for a Server URL will be included in the Customer Information area.
 - * The HTTP Proxy area displays options to enable usage of the HTTP Proxy.
 - * The User ID and Password are the customer account details for the Customer Portal or Satellite.

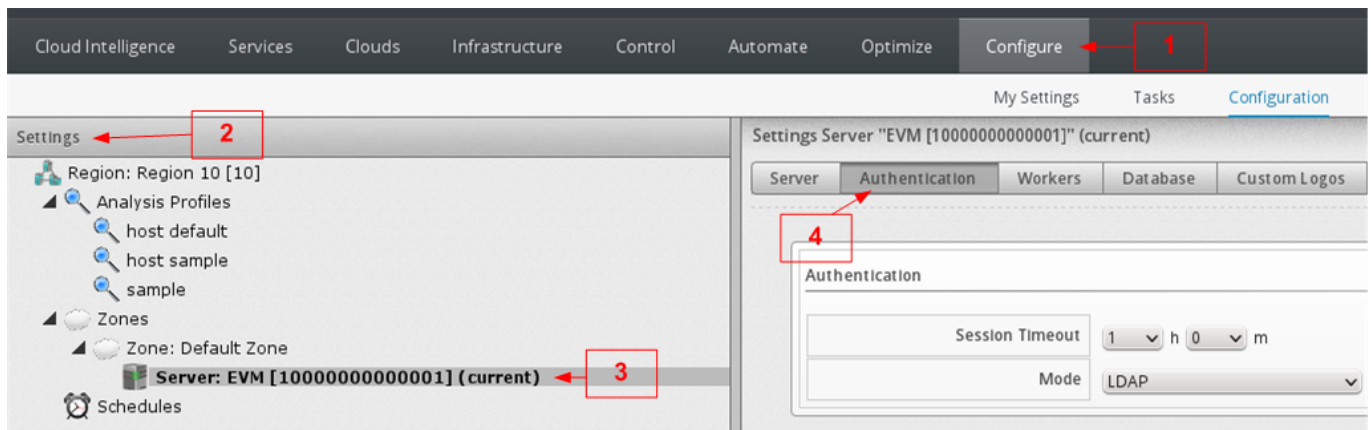
Note

Reference https://access.redhat.com/documentation/en-US/CloudForms/3.0/html/Management_Engine_5.2_Installation_Guide/-chap-Registering_and_Updating_CloudForms_Management_Engine.html

3.13 AD Integration

3.13.1 Go to the LDAP Configuration Page:

3.13.1.1 Configure > Settings > Select EVM Server > Select Authentication Tab



3.13.2 Fill out the LDAP Settings

- Set the Session Timeout and Mode

Session Timeout:	[3]h [0]m
Mode:	LDAP

LDAP Settings

LDAP Host Names

c3picorpc5.corp.premierinc.com

LDAP Port

389

User Type

E-mail Address

User Suffix: <user>@

- Set the LDAP Settings

LDAP Host Names:	awgpcpdmadapp07.genpt.net
LDAP Port:	389
User Type:	User Principle Name
User Suffix: <user>@	genpt.net

LDAP Settings

LDAP Host Names	<input type="text" value="c3picorpd5.corp.premierinc.com"/> <input type="text"/> <input type="text"/>
LDAP Port	<input type="text" value="389"/>
User Type	<input type="text" value="E-mail Address"/>
User Suffix: <user>@	<input type="text"/>

- Set the Role Settings

Get User Groups from LDAP	<Checked>
Get Roles from Home Forest	<Checked>
Follow Referrals	<UnChecked>
Base DN:	DC=GENPT,DC=NET
Bind DN:	svc_vmadmin
Bind Password:	<See GPC's for Password>

Role Settings

Get User Groups from LDAP	<input checked="" type="checkbox"/>
Get Roles from Home Forest	<input checked="" type="checkbox"/>
Follow Referrals	<input checked="" type="checkbox"/>
Base DN	<input type="text" value="DC=corp,DC=premierinc,DC=com"/>
Bind DN	<input type="text" value="CN=cloudforms,OU=Privileged Acco"/>
Bind Password	<input type="password" value="....."/>

Validate

- Click [Validate]
- Click on Save button at the bottom right of the page

3.14 Add Openstack Provider

After initial installation and creation of a CloudForms Management Engine environment, add cloud providers with the following procedure.

- Navigate to Clouds → Providers.
- Click (Configuration), then click (Add a New Cloud Provider).
- Enter a Name for the provider.
- Select the OpenStack in the Provider field
- Fill out the Credentials by typing in a User ID, Password, and a verification of this password (Verify Password).
 - If editing an OpenStack provider, use the AMQP subtab to provide credentials required for the Advanced Message Queuing Protocol service on your OpenStack Nova component.
- Click Validate to validate the credentials.
- Click Add.

3.15 Add VMware Provider

After initial installation and creation of a CloudForms Management Engine environment, add providers to the appliance with the following procedure.

- Navigate to Infrastructure → Providers.
- Click (Configuration), then click (Add a New Infrastructure Provider).
- Type in the Name of the provider to add. The Name is how the device is labeled in the console.
- Select the Type of provider: VMware vCenter.
- Type in the Host Name, and IP Address of the provider to add.
- Type in a User ID and Password with administrator privileges to the provider. To refresh a provider, these credentials are required.
- Click Validate to confirm that the user and password connects.
- Click Save.

VMware Provider Details:

| Name | Atlanta vCenter | Type | VMware vCenter | Host Name | atlesxucsvc.genpt.net | IP Address | 10.5.156.49 | Zone | WK-Zone | User | vmadmin | Password | <See GPC for Password> |

| Name | Dallas vCenter | Type | VMware vCenter | Host Name | ddpvc4.genpt.net | IP Address | 10.6.128.49 | Zone | WK-Zone | User | vmadmin | Password | <See GPC for Password> |

3.15.1 Infoblox Automate Overview

/GPC

/Integration

/Infoblox

- Instances:
 - Infoblox_Create_Host
 - Infoblox_DNS_Alias
 - Infoblox_Dialog_List_Networks
 - Infoblox_Host_Record
 - Infoblox_IPAM
 - Infoblox_Host_Record
 - Infoblox_Delete_Record
 - Infoblox_Host_Record

3.15.2 Methods:

Import Control Policies, Profiles, Alerts * Go to Control > Import/Export * Click on "Browse" and select the local file to upload
 * Click Upload * Next page will populate showing you all of the items that will be imported * Click on "Commit"

Do the previous steps for each of the files in the next section.

3.15.3 Profiles.yaml

Link: [Profiles.yaml](#)

Source:

```
---
- MiqPolicySet:
  name: 3be240d8-2866-11de-af2a-0050568026c2
  description: ! 'Mandatory: Provisioning and Retirement'
  set_type: MiqPolicySet
  guid: 3be240d8-2866-11de-af2a-0050568026c2
  read_only:
  set_data:
    :notes: ! 'This policy profile is REQUIRED if EVM is being used to Provision
      or Retire vms. It must be entitled to the desired management systems. Note:
      this policy profile will potentially result in the removal of a vm from the
      management system upon retirement if the associated VM Retirement statemachine
      [/Factory/StateMachine/VMRetirement] in the the Automate model is configured
      to delete vms. It is not configured for vm deletion out-of-the-box.'
```

mode: control
 owner_type:
 owner_id:
 MiqPolicy:

```
- name: Automation Policy - Scope VM Retirement Warning,  ResponseExecute Automation
  Model
  description: ! 'Operational: Retirement Warning'
  expression:
  towhat: Vm
  guid: 39621392-2866-11de-af2a-0050568026c2
  created_by:
  updated_by: admin
  notes: This policy raises an automation event when a retirement warning event
    is raised
  active: true
  mode: control
  MiqPolicyContent:
  - qualifier: success
    success_sequence: 1
    failure_synchronous: true
  MiqEvent:
    name: vm_retire_warn
    description: VM Retirement Warning
    guid: 97c85330-fe93-11dd-b5e1-005056903dbc
    event_type: Default
    definition:
      default:
      enabled:
  MiqAction:
    name: raise_automation_event
    description: Raise Automation Event
    guid: e7da3b7a-1139-11e1-9333-005056af009e
    action_type: default
    options: {}
  Condition: []
```

```
- name: Automation Policy - Scope VM Retired Response Execute Automation Model
description: ! 'Operational: Vm Retired'
expression:
towhat: Vm
guid: 397700ae-2866-11de-af2a-0050568026c2
created_by:
updated_by: admin
notes: This policy raises an automation event when a vm retirement event is
      raised
active: true
mode: control
MiqPolicyContent:
- qualifier: success
  success_sequence: 1
  failure_synchronous: true
  MiqEvent:
    name: vm_retired
    description: VM Retired
    guid: e363d8aa-1e1e-11de-8918-0050568005db
    event_type: Default
    definition:
      default:
      enabled:
  MiqAction:
    name: raise_automation_event
    description: Raise Automation Event
    guid: e7da3b7a-1139-11e1-9333-005056af009e
    action_type: default
    options: {}
  Condition: []
- name: 427a4378-6519-11df-b637-005056a435be
description: ! 'Analysis: Post Provisioning'
expression:
towhat: Vm
guid: 427a4378-6519-11df-b637-005056a435be
created_by: admin
updated_by: admin
notes: This policy triggers a vm analysis of any newly provisioned VM
active: true
mode: control
MiqPolicyContent:
- qualifier: success
  success_sequence: 1
  MiqEvent:
    name: vm_provisioned
    description: VM Provision Complete
    guid: 2a17a20a-3e8e-11df-9fe2-005056a435be
    event_type: Default
    definition:
      default:
      enabled:
  MiqAction:
    name: vm_analyze
    description: Initiate SmartState Analysis for VM
    guid: 5cbe1082-ce35-11de-a117-005056b0503e
    action_type: default
    options: {}
  Condition: []
```

3.16 Database Backup Procedure

There are two way to perform backups.

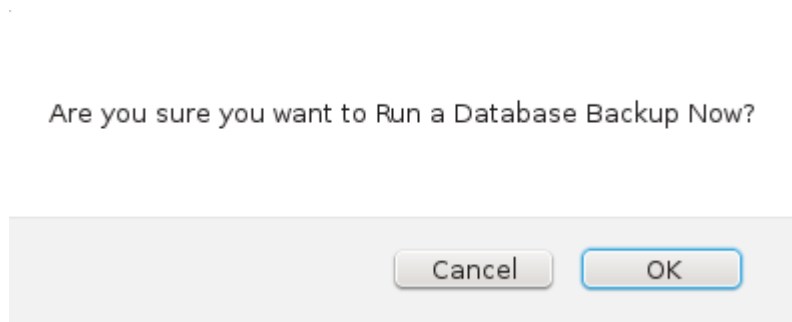
- 1) RECOMMENDED: This method is done through the Web UI and allows you to set up schedules and to have the backups be on an NFS or Samba share.
- 2) Manually through the DB Appliance SSH session

3.16.1 Web UI: Single Run Database Backup

- Go to Configure > Configuration > Diagnostics (Left hand navigation menu) > Select Region (i.e. Region 10) > Click on Database Tab
- in the Database Backup Settings enter the following:

Type:	Network File System
URI: nfs://	ATLNetApp05data01:/vol/cloudforms_backups

- Click on Submit
- Click OK in the pop-up "Are you sure you want to Run a Database Backup Now?"



3.16.2 Web UI: Scheduled Database Backup

- Go to Configure > Configuration > Settings > Select Schedules within the Left Hand Menu
- Fill out the settings as show in the image

Basic Information	
Name	Database Backup
Description	Database Backup
Active	<input checked="" type="checkbox"/>
Action	Database Backup ▼

Database Backup Settings	
Type	Network File System ▼
URI	nfs:// c3pudrnas1:drnas/cloudforms

Timer	
Run	Daily ▼ every Day ▼
Time Zone	(GMT-05:00) Eastern Time (US & Canada) ▼ * Changing the Time Zone will reset the Starting Date and Time fields below
Starting Date	07/11/2014
Starting Time (EDT)	22 ▼ h 0 ▼ m

- Click Add

3.16.3 SSH: Manual Database Backup

- SSH into the appliance
- switch to postgres user

```
su - postgres
```

- Run backup command

```
pg_dump vmdb_production | gzip > /tmp/postgres_db_backup.gz
```

- To restore

```
cat /tmp/postgres_db_backup.gz | gunzip | psql vmdb_production
```

3.17 Member Groups

3.17.1 Creating/Importing Group from LDAP/Active Directory

- Go to Configure > Configuration > Access Control > Click on Groups
- Click on the Configuration Button > Select Add New Group
- In the Group Information enter the following:

Description:	<Name of LDAP Group>
Role:	<Select appropriate Role that was created>

- Select Filters for this group on the right.
- Click on Save



Important

The filters selected is what will determine what objects the user in this group will be able to see. Example: If the user is part of Department A, and you select "Department > Department A" this user will only EVER see any objects that are tagged with the "Department A" tag.

Example:

Note

You may also leave the Description Blank and then check the "(Look Up LDAP Groups)" check-box and in the "LDAP Group Look Up" section enter a User to Look up and use your LDAP user / password to retrieve all of the groups this member is a part of. Then select from the Drop Down in "Group Information" with the according LDAP/AD Group that you want to create. Once the group is select it will automatically replace the contents of the "Description" Field. After this is done, select the according Filters on the right side.


3.17.2 Adding Smart Management Tag to Group

- Select the Group that was previously created
- Click on Policy
- Click on "Edit Premier, Inc's Tags for this Group"
- in the "Select a customer tag to assign" select Department, then select the appropriate Department
- in the "Select a customer tag to assign" select Cost Center, then select the appropriate Cost Center

Example:

Tag Assignment

Select a customer tag to assign:
Cost Center *
<Select a value to assign>

	Category	Assigned Value
	Cost Center *	Unix Team
	Department	Unix Team

* Only a single value can be assigned from these categories

- Click Save

3.18 Tag Taxonomy

3.18.1 Environment

Name	Display
dev	Development
preprod	PreProd
prod	Production
qa	QA
test	Test

3.18.2 Locations

Name	Display
Atlanta	Atlanta

3.18.3 Owners

Name	Display
developers	Developers
engineer	Engineer
unixteam	Unix Team
windowsteam	Windows Team

3.18.4 Provisioning Scope

Name	Display
all	All

Note

Additional Provisioning Scopes to be added at a later time

3.18.5 Storage Types

Name	Display
tier1	Tier 1
tier2	Tier 2
tier3	Tier 3

3.18.6 Cost Center

Name	Display
database_team	Database Team
department_a	Department A
department_b	Department B
department_c	Department C
engineering	Engineering
finance	Financial Services
hr	Human Resources
infrastructure	Infrastructure
marketing	Marketing
network_team	Network Team
unix_team	Unix Team
windows_team	Windows Team

Note

Additional Cost Center to be added at a later time

3.18.7 Department

Name	Display
database_team	Database Team
department_a	Department A
department_b	Department B
department_c	Department C
engineering	Engineering
finance	Financial Services
hr	Human Resources
infrastructure	Infrastructure
marketing	Marketing
network_team	Network Team
unix_team	Unix Team
windows_team	Windows Team

Note

Additional Departments to be added at a later time

3.18.8 Workload

Name	Display
active_directory	Active Directory Server
application_servers	Application Servers

Name	Display
cognos	Cognos
database	Database
db2_server	IBM DB2
desktop	Desktop
dhcp	DHCP Server
evm_appliance	EVM Appliance
hadoop	Hadoop
infrastructure	Virtual Infrastructure Management
jboss_server	JBOSS Server
messaging	Messaging
oracle_server	Oracle Database
proxy_server	Proxy Server
security	Security
web_server	Web Server
websphere_server	Websphere

Note

Additional Cost Center to be added at a later time

3.18.9 Service Level

Name	Display
gold	Gold
platinum	Platinum
silver	Silver

3.18.10 Auto Approve - Max CPU

Name	Display
1	1
2	2
3	3
4	4
5	5

3.18.11 Auto Approve - Max Memory

Name	Display
1024	1GB
2048	2GB
4096	4GB
8192	8GB

3.18.12 Auto Approve - Retirement Days

Name	Display
30	30

Name	Display
60	60
90	90
180	180

3.18.13 Auto Approve - Max VM

Name	Display
1	1
2	2
3	3
4	4
5	5

3.18.14 Quota - Max Memory

Name	Display
1024	1GB
2048	2GB
4096	4GB
8192	8GB
10240	10GB
16384	16GB

3.18.15 Quota - Max Storage

Name	Display
10	10GB
20	20GB
40	40GB
80	80GB
100	100GB
200	200GB
400	400GB
1000	1TB

3.18.16 Quota - Max CPU

Name	Display
1	1
2	2
3	3
4	4
5	5
10	10
20	20
30	30

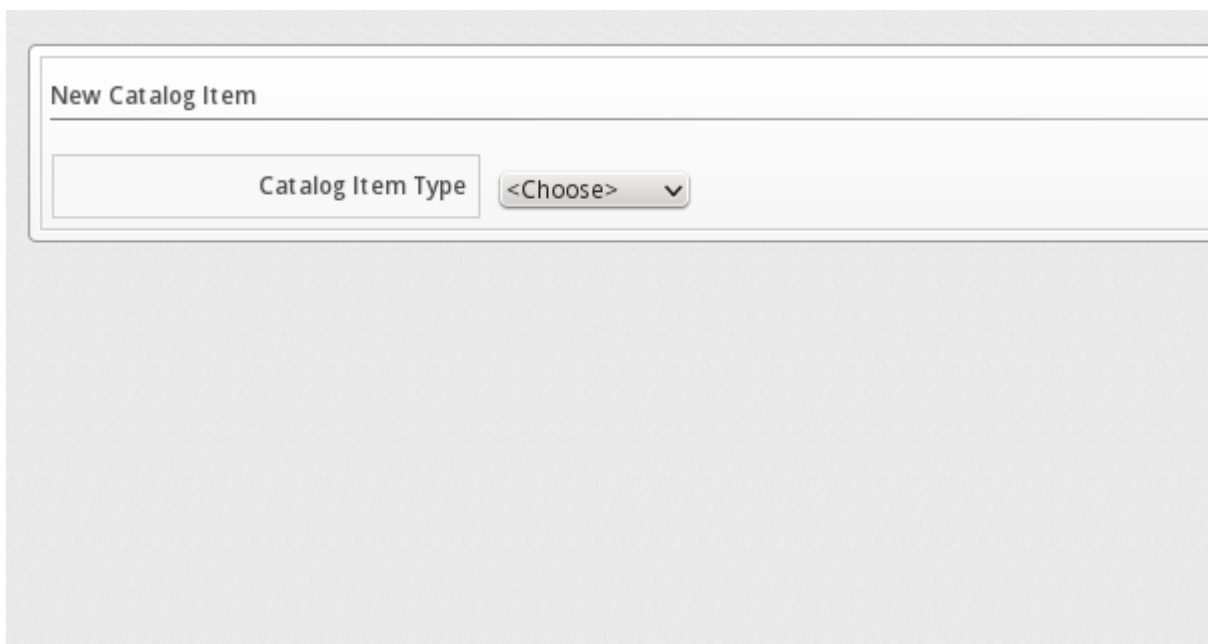
3.19 Service Catalog

3.19.1 Create new Catalogs

- Go to Services > Catalog > Click on "Catalogs" menu on the left hand side
- Click the "Configuration" Button
- Select "Add a New Catalog"
- Enter the Name of the Catalog
- Enter the Description of the Catalog

3.19.2 Create New Catalog Item

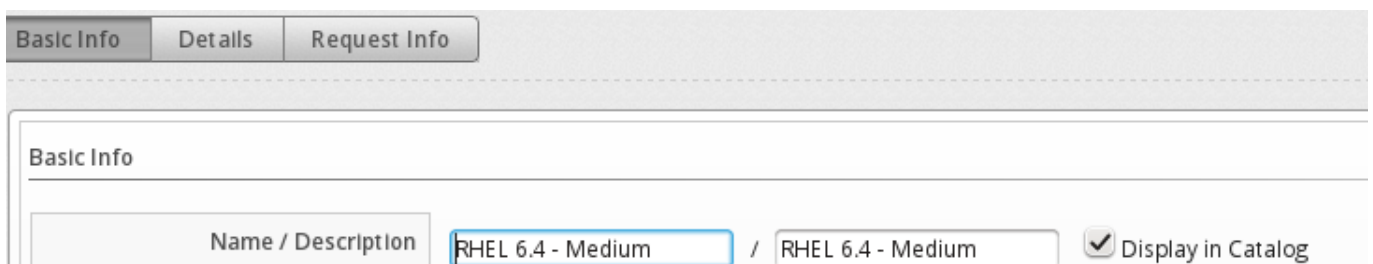
- Go to Services > Catalog > Click on "Catalog Items" menu on the left hand side
- Select the Catalog that was previously created
- Click the "Configuration" Button
- Select "Add a New Catalog Item"
- Should bring you to the "Basic Info" Tab
 - Choose the Catalog Item Type, i.e. Openstack



New Catalog Item

Catalog Item Type <Choose> ▼

- Enter the Name and Description and Check the "Display in Catalog"

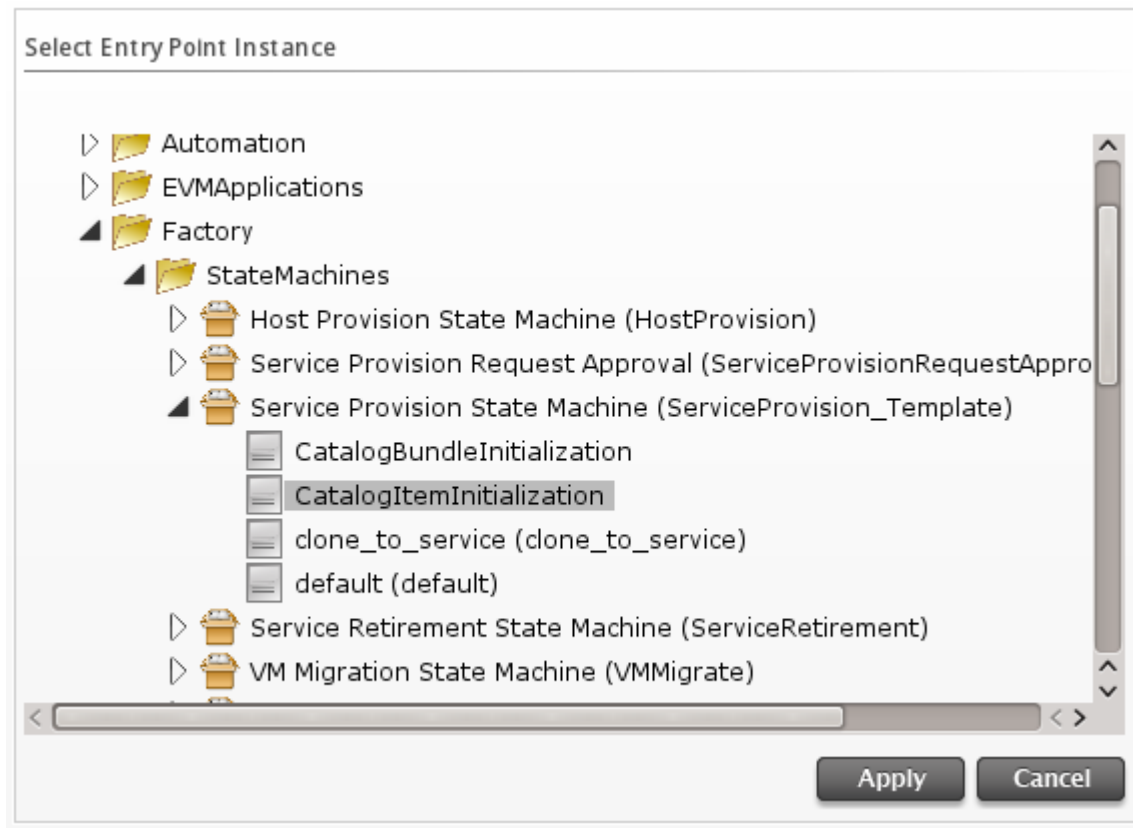


Basic Info Details Request Info

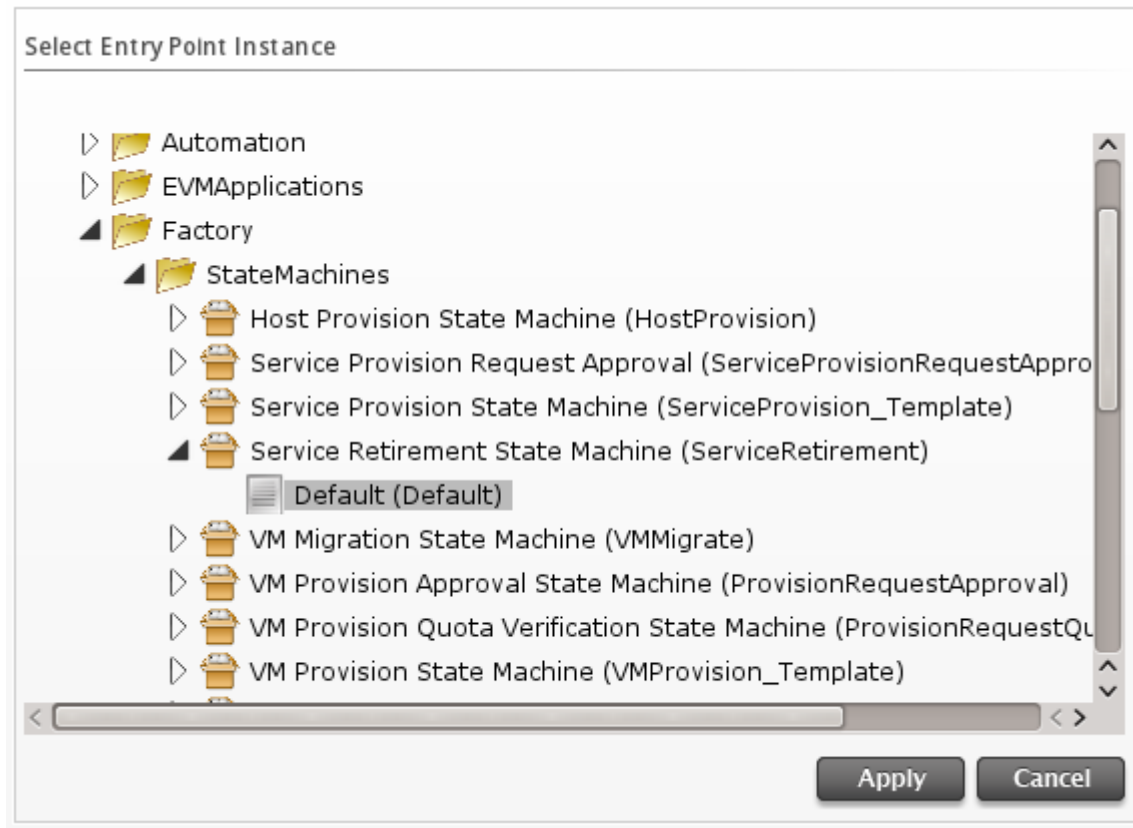
Basic Info

Name / Description RHEL 6.4 - Medium / RHEL 6.4 - Medium ☒ Display in Catalog

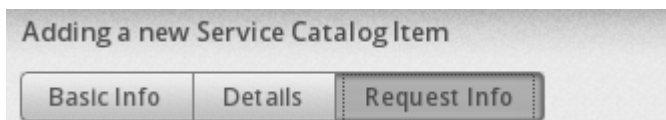
- Once the rest of the view is expanded Select the Catalog, i.e. 001-Dev
- Select the Dialog i.e. Basic VM
- Provisioning Entry Point (NS/CIs/Inst): /Factory/StateMachines/ServiceProvision_Template/CatalogItemInitialization



- Click Apply
- Retirement Entry Point (NS/CIs/Inst): /Factory/StateMachines/ServiceRetirement/Default



- Click Apply
 - Click on the "Request Info" Tab



- Request Info: Catalog
 - Select Name of the Template (i.e. rhel6)
 - Enter Instance Name "changeme" (note: this will be changed later using the Service Dialog, just leave it as changeme)

Request Info

Catalog

Environment

Properties

Customize

Schedule

Select

Name *

Name ▲	Operating System	Platform	C
<None>			
cirros		unknown	0
rhel6		linux	0

Naming

Instance Name *

changeme

- Request Info: Click on the Environment Tab
 - Placement Options: Availability Zones: **nova**
 - Placement Options: Cloud Network: **publicnet**

Request Info

Catalog Environment **Properties** Customize Schedule

Placement

Choose Automatically ☐

Placement - Options

Availability Zones	nova ▾
Cloud Network	publicnet ▾
Security Groups	<None> default: default
Public IP Address	<No Choices Available> ▾

- Request Info: Click on the Properties Tab
 - Properties: Instance Type: i.e. m1.medium
 - Properties: Guest Access Key Pair: devops

Request Info

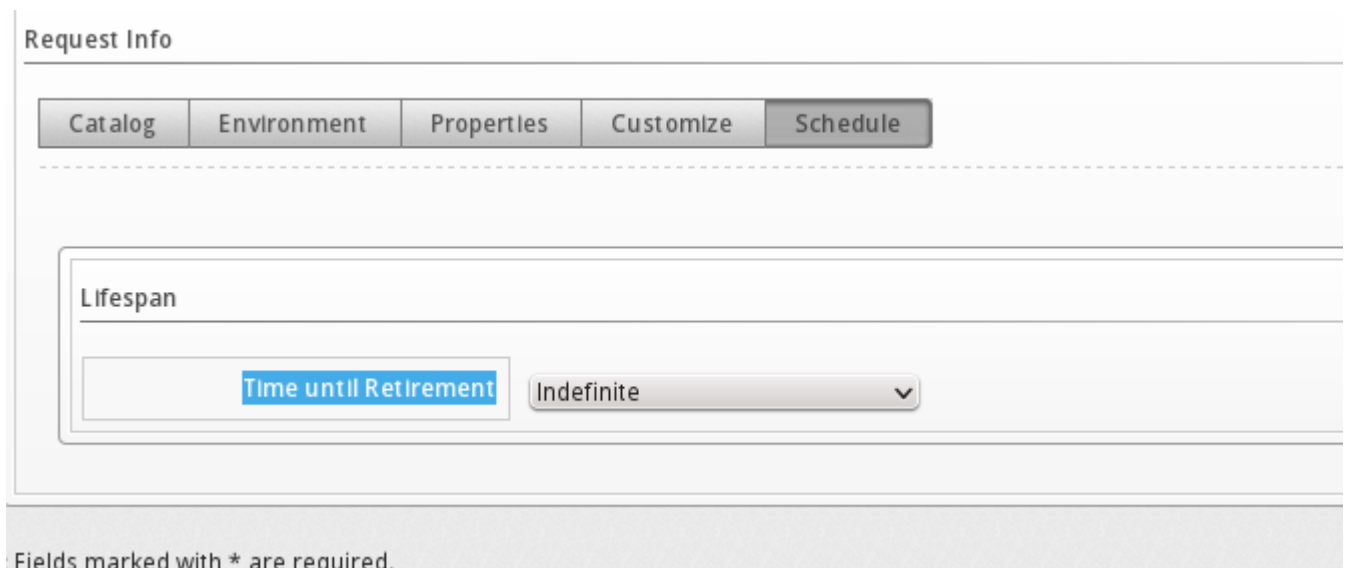
Catalog Environment **Properties** Customize Schedule

Properties

Instance Type *	m1.medium ▾
Guest Access Key Pair	devops ▾

- Request Info: Click on the Schedule Tab

- Schedule: Time until Retirement: i.e. Indefinite



Request Info

Catalog Environment Properties Customize **Schedule**

Lifespan

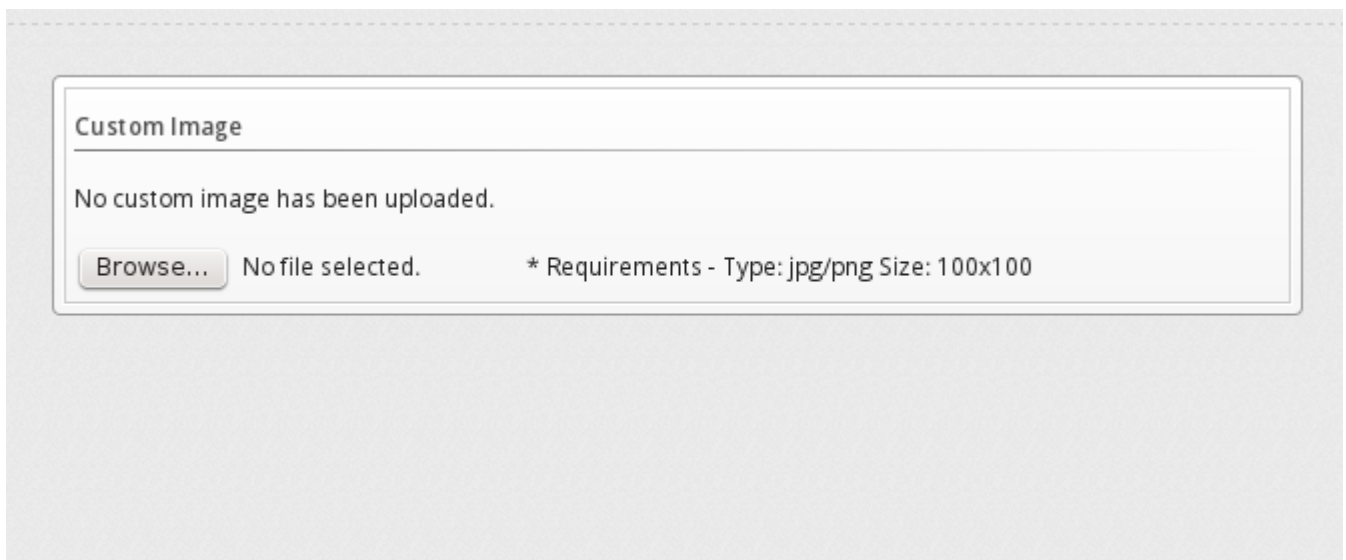
Time until Retirement Indefinite ▼

Fields marked with * are required.

- Click Add

3.19.3 Change the Catalog Item Custom Image

- Select the Catalog Item to upload a custom image to
- Click on Browse and select Image to use




Custom Image

No custom image has been uploaded.

No file selected. * Requirements - Type: jpg/png Size: 100x100

- Now you will see the custom image for the Catalog Item be updated

Custom Image



Browse...

No file selected.

* Requirements - Type: jpg/png Size: 100x100

3.19.4 Create New Catalog Bundle

- Go to Services > Catalog > Click on "Catalog Items" menu on the left hand side
- Select the Catalog that was previously created
- Click the "Configuration" Button
- Select "Add a New Catalog Bundle"
- Should bring you to the "Basic Info" Tab
 - Enter the Name and Description and Check the "Display in Catalog"

Basic Info

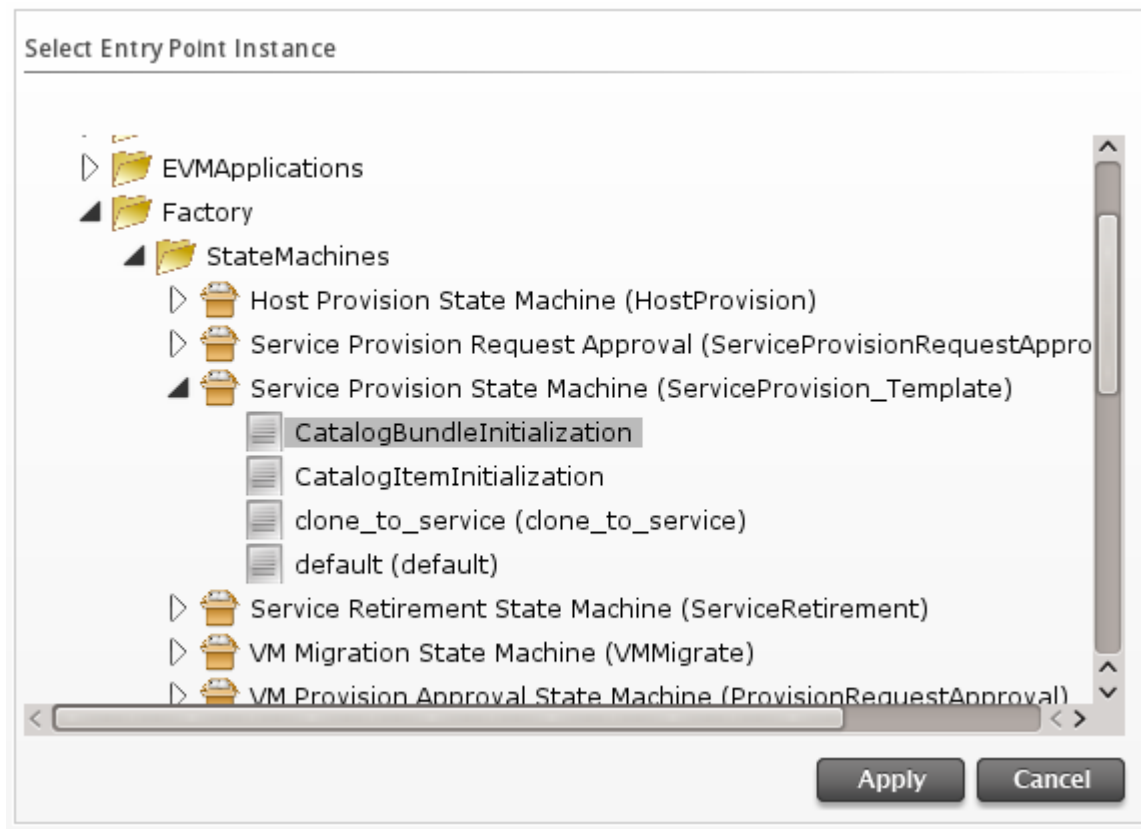
Name / Description	Catalog Bundle Example / Catalog Bundle Example	<input checked="" type="checkbox"/> Display in Catalog
Catalog	001-Dev	
Dialog	blank	
Provisioning Entry Point (NS/Cls/Inst)		
Retirement Entry Point (NS/Cls/Inst)		

- Once the rest of the view is expanded Select the Catalog, i.e. 001-Dev
- Select the Dialog <Blank>

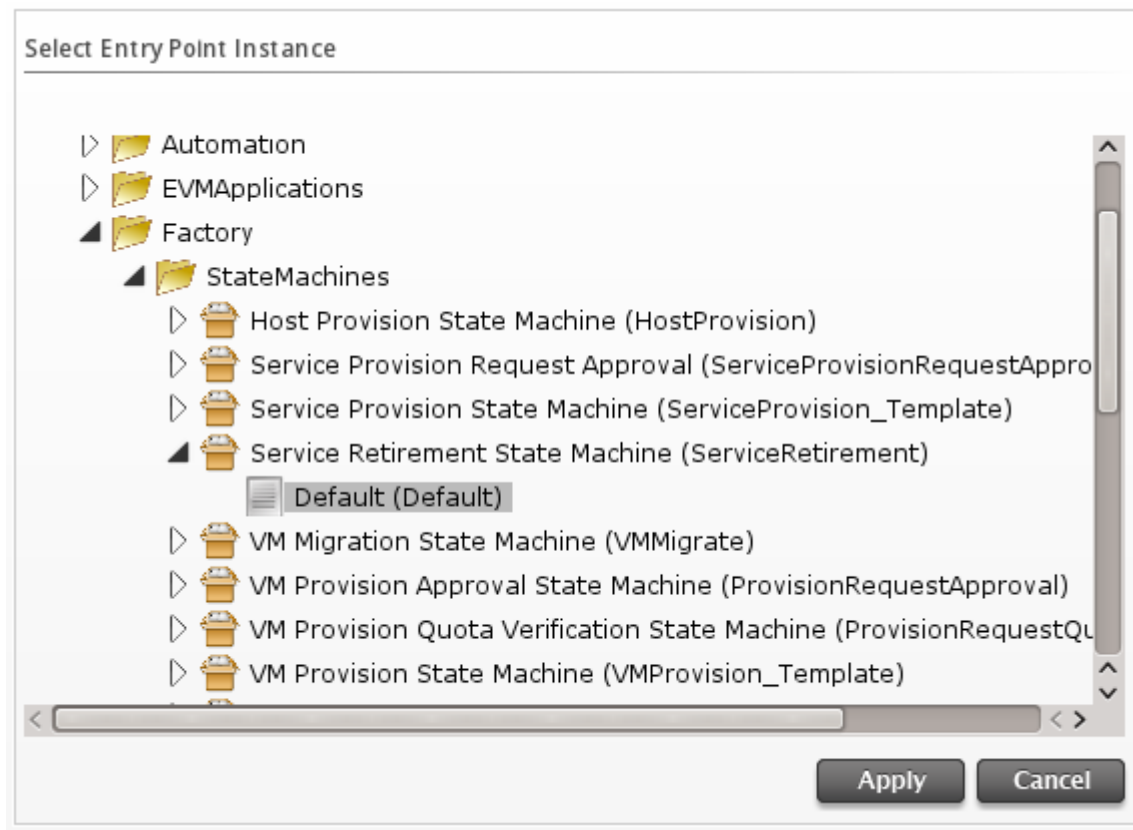
**Important**

You can select another Dialog, but you have to make sure it is for a Bundle and not a single Item)

- Provisioning Entry Point (NS/CIs/Inst): /Factory/StateMachines/ServiceProvision_Template/CatalogBundleInitialization



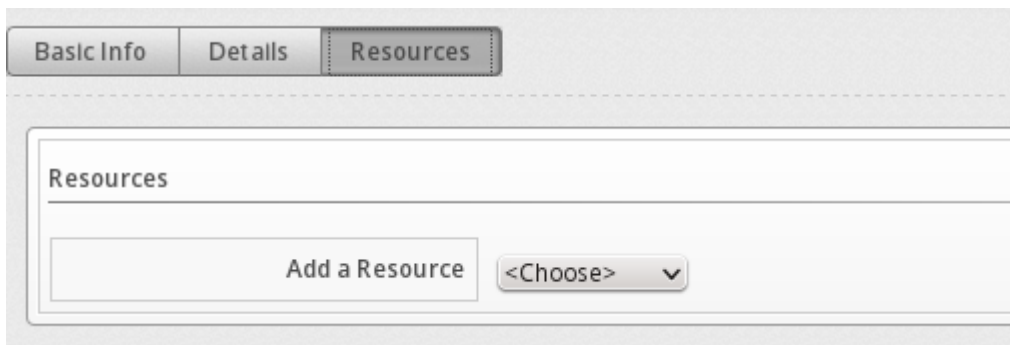
- Click Apply
- Retirement Entry Point (NS/CIs/Inst): /Factory/StateMachines/ServiceRetirement/Default



- Click Apply

Basic Info		
Name / Description	Catalog Bundle Example / Catalog Bundle Example	<input checked="" type="checkbox"/> Display in Catalog
Catalog	001-Dev	
Dialog	blank	
Provisioning Entry Point (NS/CIs/Inst)	Factory/StateMachines/ServiceProvision_Template/Ca	X
Retirement Entry Point (NS/CIs/Inst)	Factory/StateMachines/ServiceRetirement/Default	X

- Click on the "Resources" Tab



The screenshot shows the 'Resources' tab in the CloudForms interface. At the top, there are three tabs: 'Basic Info', 'Details', and 'Resources'. The 'Resources' tab is selected. Below the tabs, there is a section titled 'Resources'. Inside this section, there is a button labeled 'Add a Resource' and a dropdown menu labeled '<Choose>' with a downward arrow.

- Select an existing Catalog Item Resource (i.e. RHEL 6.4 - Small)
- Select an additional Catalog Item Resource (i.e. RHEL 6.4 - Medium)
- Repeat the previous 2 steps as many times as needed for all of the resources required for this bundle
- If needed, modify the Action Order or Provision Order:

Note

Provision Order will only worry about in which order it will actually provision the instance/vm. The Action Order is done once the provisioning is completed it will then perform the action specified in that order. Example: You can have the same Provision Order, but only care about the order that things are powered on.

Selected Resources							
	Name	Action Order	Provision Order	Action		Delay (mins)	
				Start	Stop	Start	Stop
	RHEL 6.4 - Small	1 ▼	1 ▼	Power On ▼	Shutdown ▼	None ▼	None ▼
	RHEL 6.4 - Medium	2 ▼	1 ▼	Power On ▼	Shutdown ▼	None ▼	None ▼

- In the above screenshot, "RHEL 6.4 - Small" will power on before "RHEL 6.4 - Medium"
 - Click Add