knowledge15

April 19–24, 2015 • Mandalay Bay • Las Vegas, NV

Lab Guide

Orchestration 302:

AWS Integration Deep Dive

Chris Maloy & Mike Jones

Default Login / Password:

admin / Knowledge15

itil / Knowledge15

employee / Knowledge15

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Lab Goal

This lab explains account setup values and discovers AWS resources.

Lab 1.1 Account Setup & Discovery

Log on to Your Training Instance

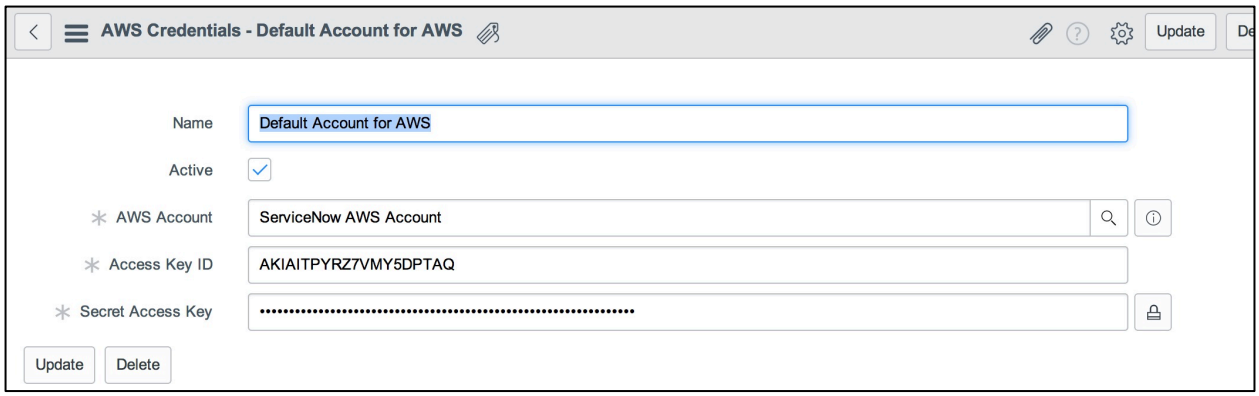
1. Navigate to the unique instance URL provided.
2. Log on with provided credentials.

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Verify AWS Account Configuration

1. Navigate to **Amazon Configuration> Accounts**.

2. Open the Default Account for AWS already provided. Note that you have an access key. This account and key are deactivated after this lab. You must supply a key to continue using AWS.



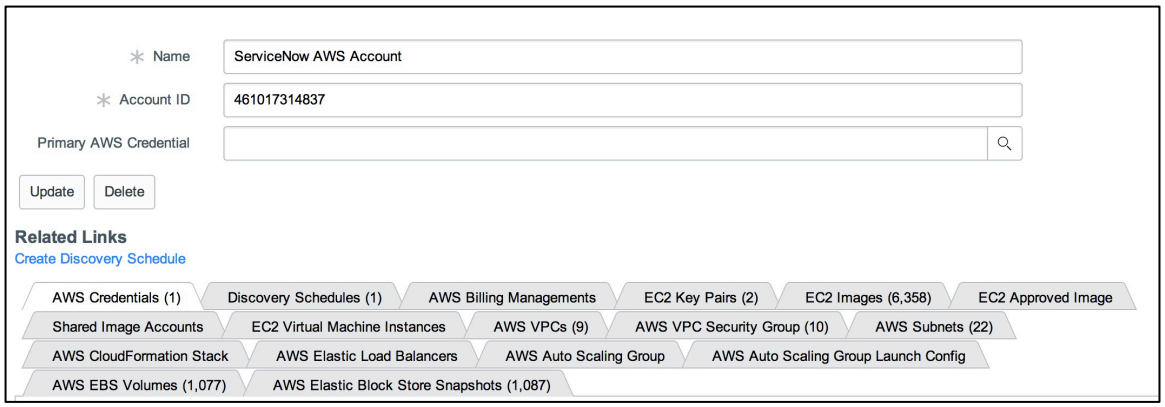
Discovery

1. Due to timing of the Discovery Process in the Lab environment, the Discovery process was completed prior to the lab.

2. The Discovery process is run in a later lab to populate new details and data after you provision new resources.

Lab Success Verification

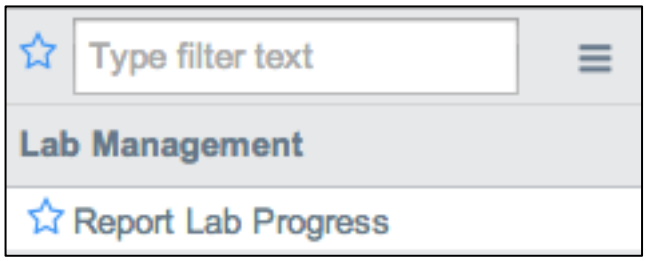
1. The Accounts screen should look similar to the example (there are a lot of tabs).



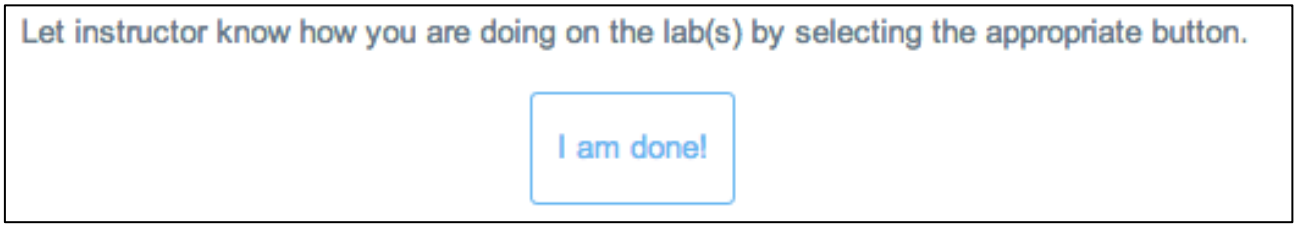
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Progress Report

1. Navigate to **Lab Management> Report Lab Progress**.



2. Click **I am done!**



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Lab Goal

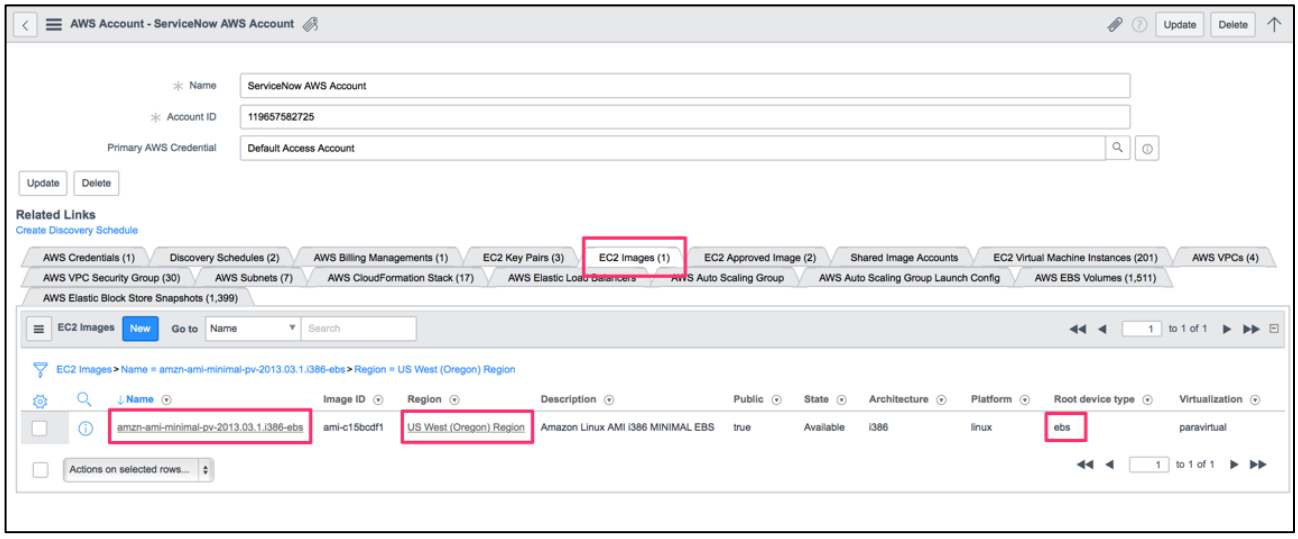
This lab explains how to create a catalog offering for Approved Images.

Lab 2.1 Service Provisioning with Images

Approve an AMI

1. Navigate to **Amazon Configuration> Accounts**.

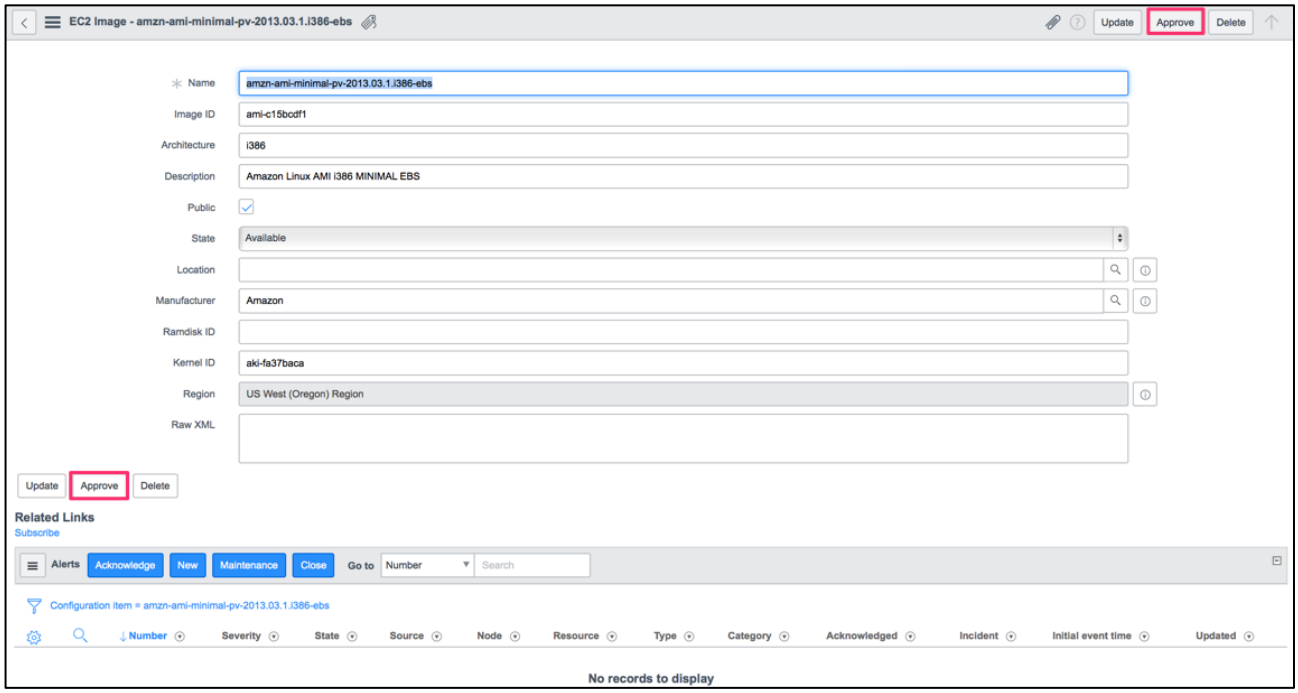
2. Open the Default Account for AWS already provided. Click the **EC2** tab. Search for an image in the **US West (Oregon) Region** with the name **amzn-ami-minimal-hvm-2014.03.2.x86_64-ebs.**



Note: AMI is based on the region of the account setup.

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3. Click the image selected and click **Approve.**



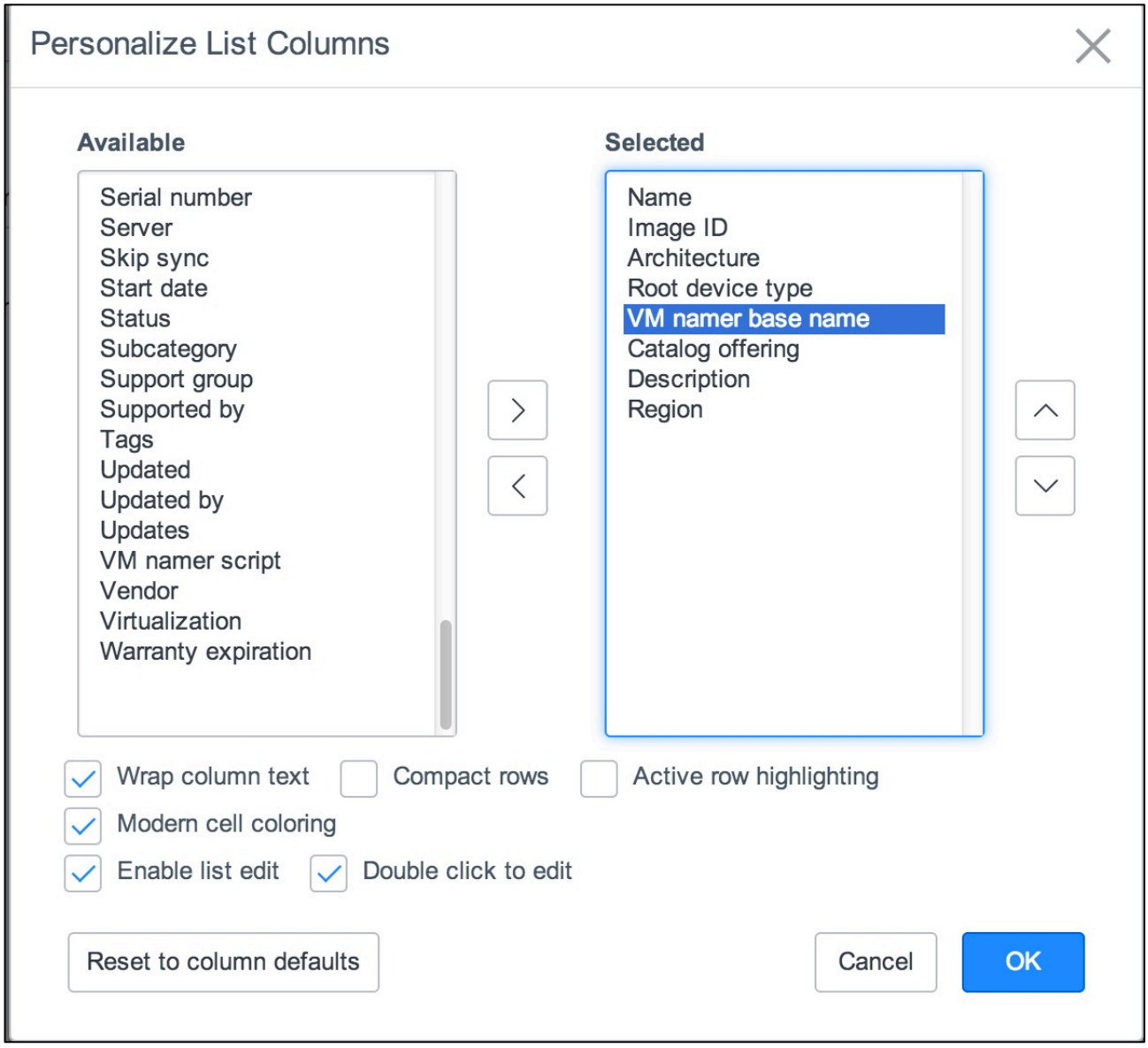
Update the Approved Image with Appropriate Naming on Amazon

1. In Approved Images list, select the **gear** icon.



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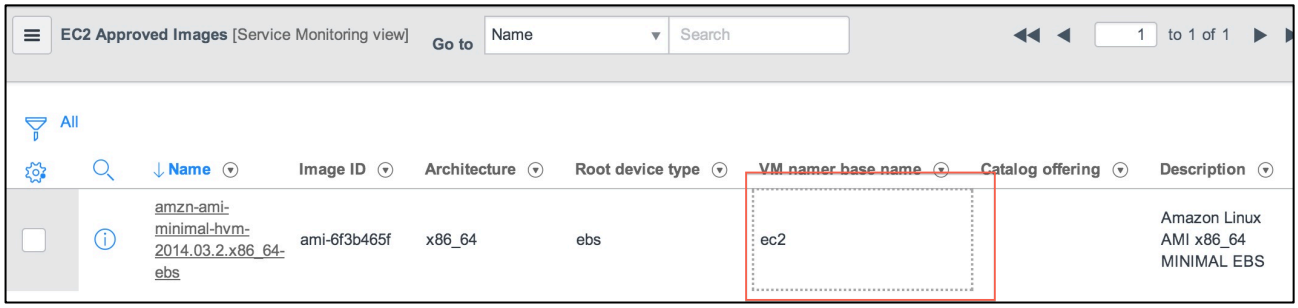
2. Add **VM namer base name** to the right side, and move it up before Catalog offering.



3. Click **OK**.

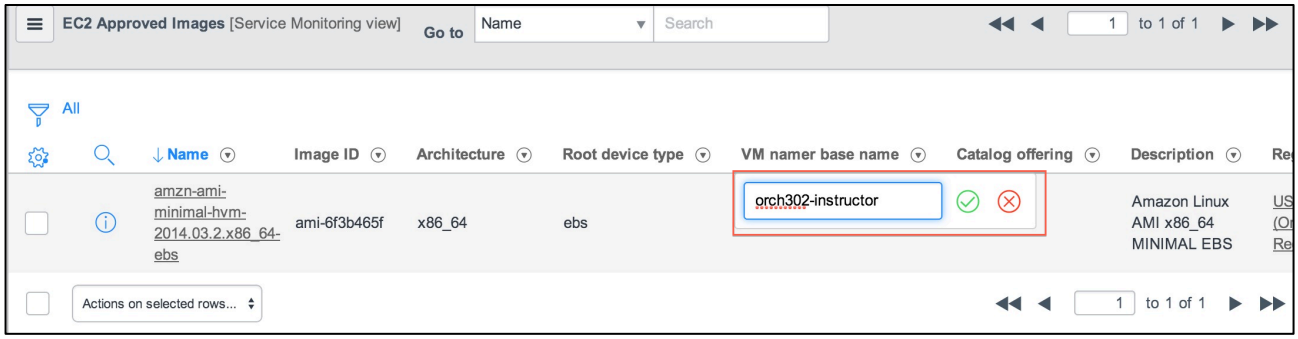
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4. The list now has a Base Name for the instance creation.



5. Double-click the column for **VM namer base name**, and change **ec2** to the name of your lab instance.

6. Click the **green check mark**.

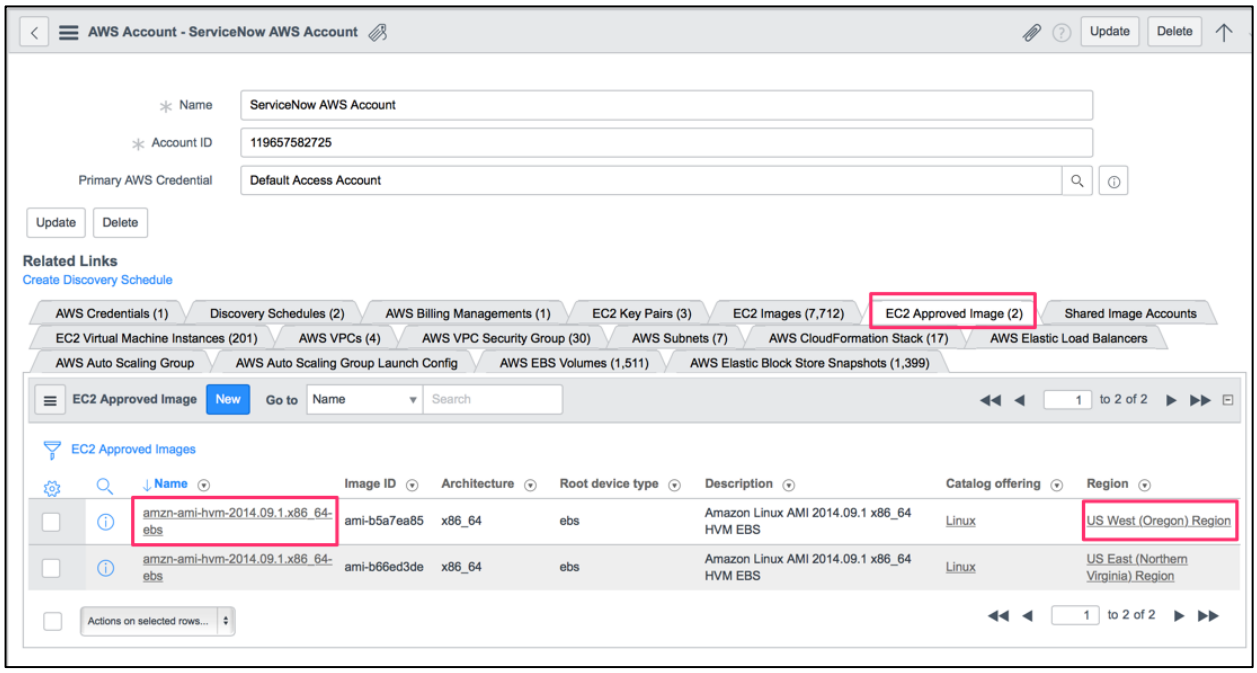


Now all ec2 instances have the name of the lab instance, with the initials of the user and a numeric setting (e.g., **orch302-instructor-pa-1**).

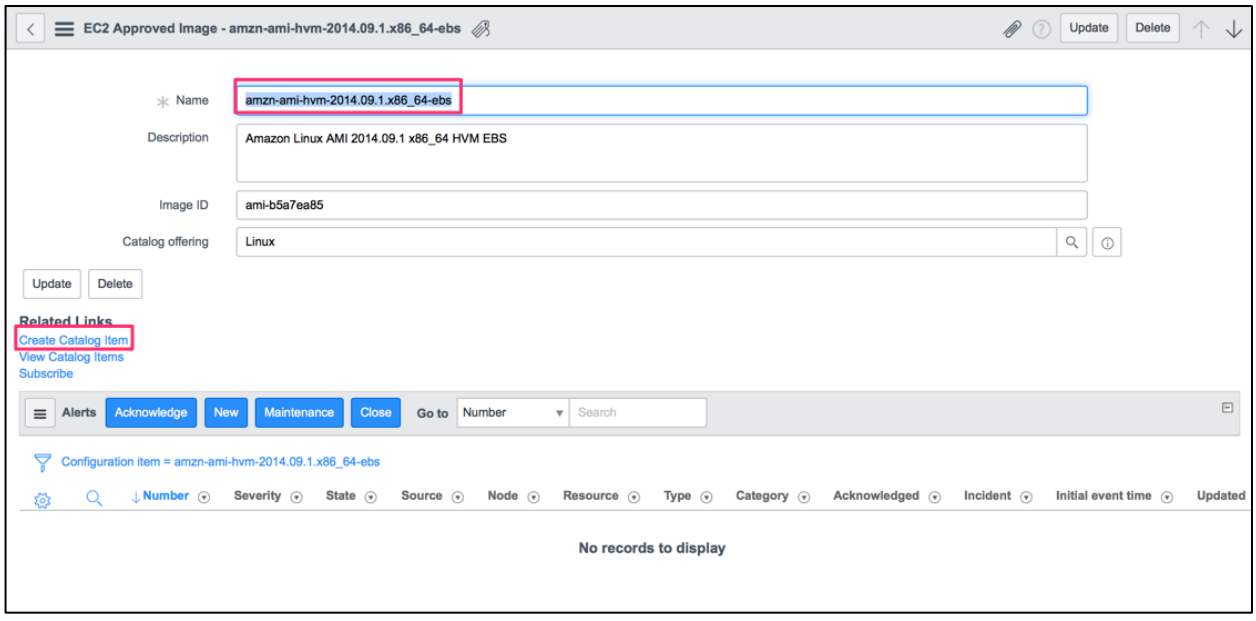
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Create a Catalog Item for Approved AMI

1. Reopen the **Amazon > Accounts** module and click the **EC2 Approved Images** tab.

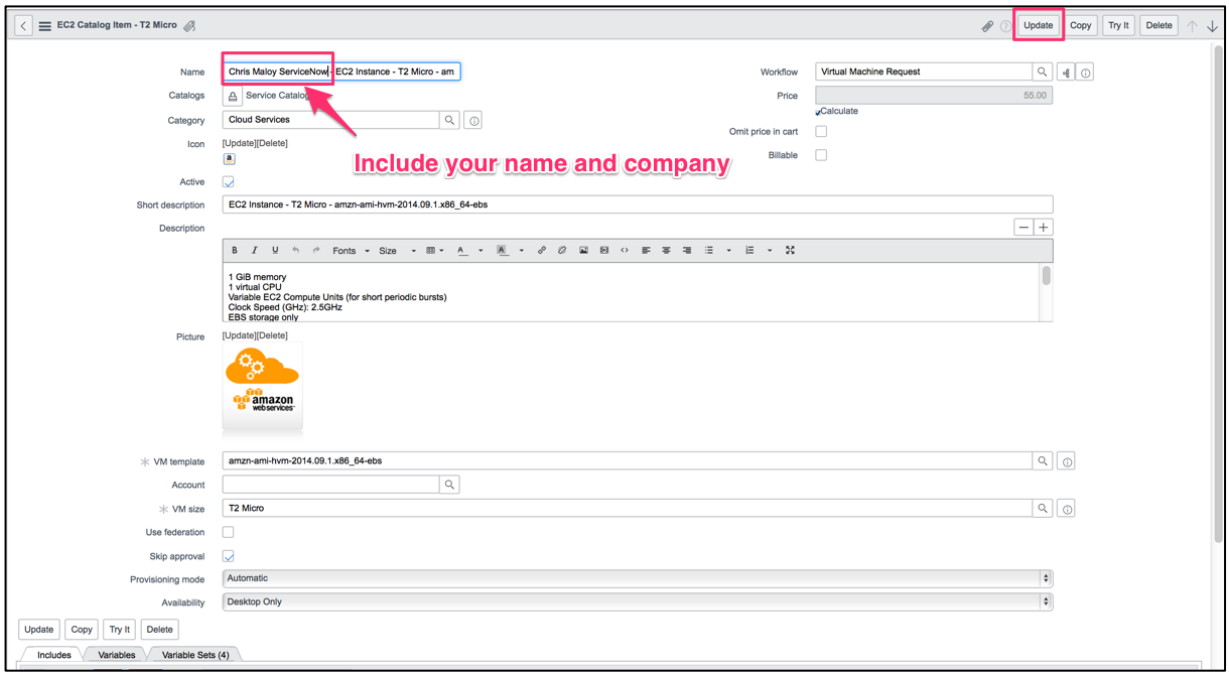


2. Click on the image just approved and click the **Create Catalog Item** related link action.



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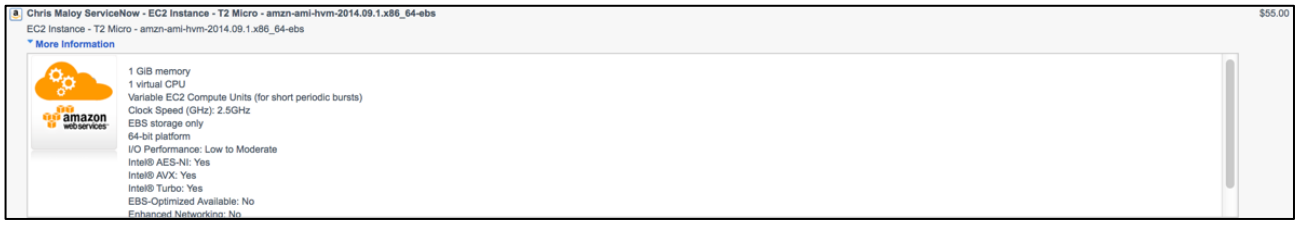
3. After you create the Catalog Item, change the name of the offering. Include your name and Company in the name. Then click **Update**.



Note: You can update several features of this catalog item during this step (e.g., VM size, description details, price, or picture).

Lab Success Verification

1. The service catalog should now contain the newly created item created from your image. Verify this by going into Service Catalog. The new Offering should appear in the Virtual Resources list.



Progress Report

1. Navigate to **Lab Management> Report Lab Progress**.
2. Click **I am done!**

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Lab Goal

Lab 2.2 Service Provisioning with Cloud Formation

Most customers want to deploy more than just a simple VM—they want an environment.

This lab explains how to create something more substantial with Amazon Cloud Formation. Cloud Formation is a service of Amazon that allows organizations to deploy complete environments into the AWS Cloud using what is called "stacks."

These stacks are JSON-defined configuration files that can deploy a complete environment, including images, software, applications, storage, network, and security components in one request.

Create a Cloud Formation LAMP Stack Template

1. Use a sample LAMP stack for this portion of the exercise. In a separate browser tab, navigate to the **URL** and copy and paste the JSON content:

   https://s3-us-west-2.amazonaws.com/cloudformation-templates-us-west-2/LAMP_Single_Instance.template

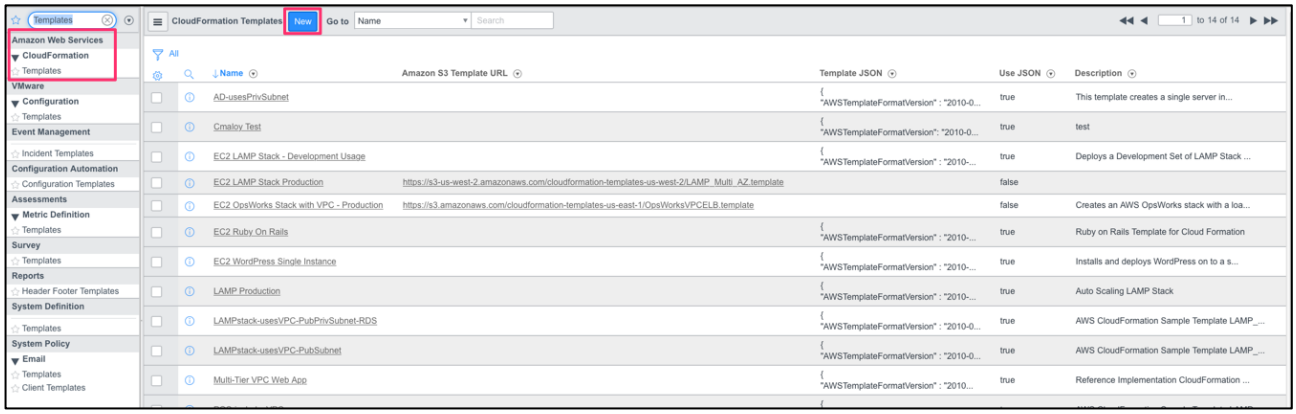
   It looks scary, but do not be afraid – ServiceNow reads and maintains the content of this JSON file for you.

   Note: Amazon has a large list of sample stacks available on their site (you can start with one of these and modify as needed):

   http://aws.amazon.com/cloudformation/aws-cloudformation-templates/

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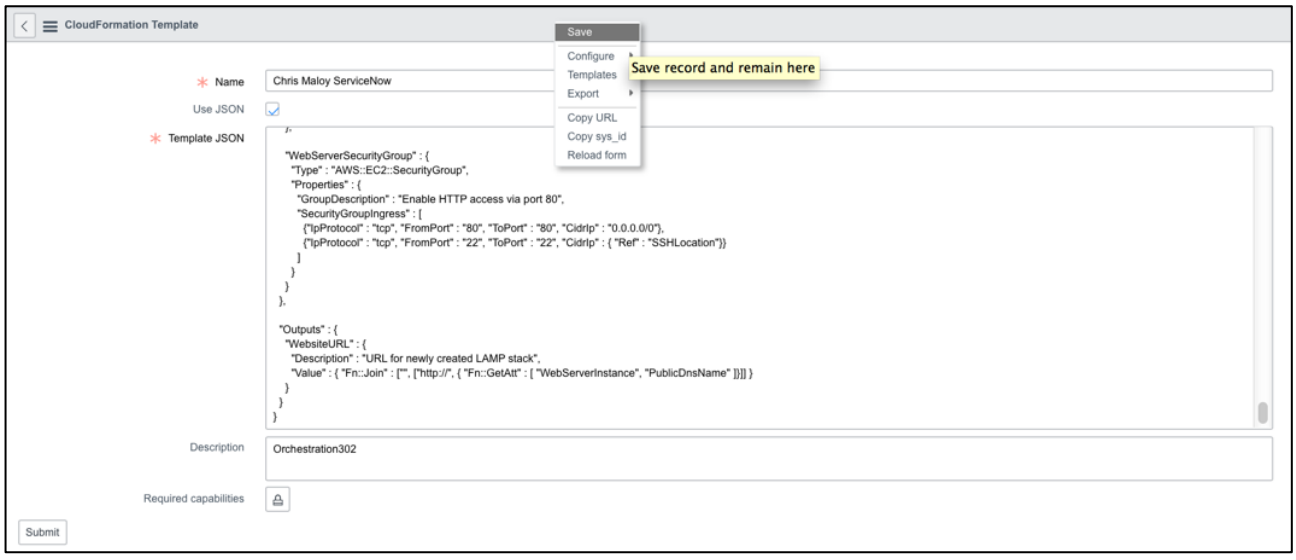
2. Navigate to **Amazon Web Services > Cloud Formation** and click on **Templates**. Click **New**.



3. Enter the following information in the **Application** form:

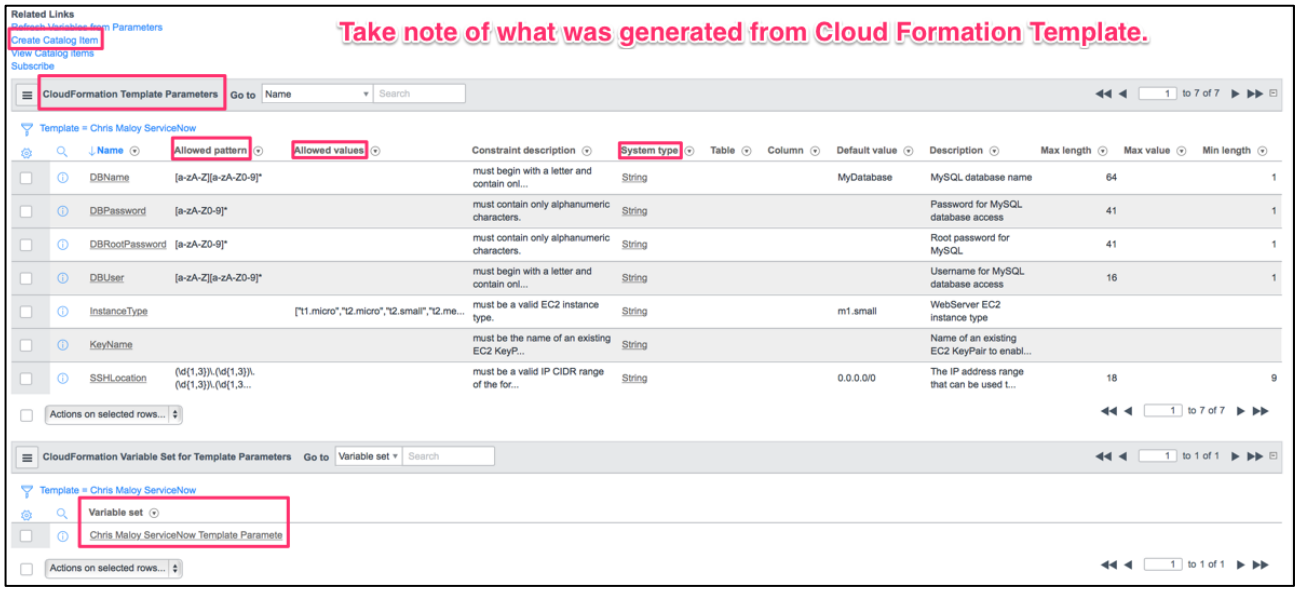
   Name: **Your Name and Company** (example: **Chris Maloy ServiceNow**)
   Use JSON: **Check**
   Template JSON: **Paste the JSON text copied from Amazon LAMP Stack Sample**
   Description: **Orchestration302**

4. Right-click in header of form and **Save**.



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5. After saving, the JSON is parsed. Look at the parameters listed. Note what the ServiceNow parser did for you based on that Cloud Formation Template. There is a **Create Catalog Item** related link. The patterns allowed for a particular parameter are enforced based on what is defined in the CFT as well as the allowed values. The system type defaults to a string, but can now (at this step) be changed to make it a reference lookup instead. A variable set was created so that when a catalog item is created, the parameters necessary for the request are included on the item form.



Note: Pay close attention to the examples. Some templates only work in specific regions. If your ID is in the **EAST**, make sure you grab the example from the EAST. For this lab you do not have to worry about that.

6. Before creating a Catalog Item for this new Cloud Formation Template, you must make modifications to the JSON.

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7. Inside the JSON area, scroll down to the section that looks like this:



```
"Fn::FindInMap": [
"AWSInstanceType2Arch",
{
"Ref": "InstanceType"
},
"Arch"
]
}
]
},
"InstanceType": {
"Ref": "InstanceType"
},
"SecurityGroups": [
{
"Ref": "WebServerSecurityGroup"
}
],
"KeyName": {
"Ref": "KeyName"
},
"UserData": {
"Fn::Base64": {
"Fn::Join": [
```

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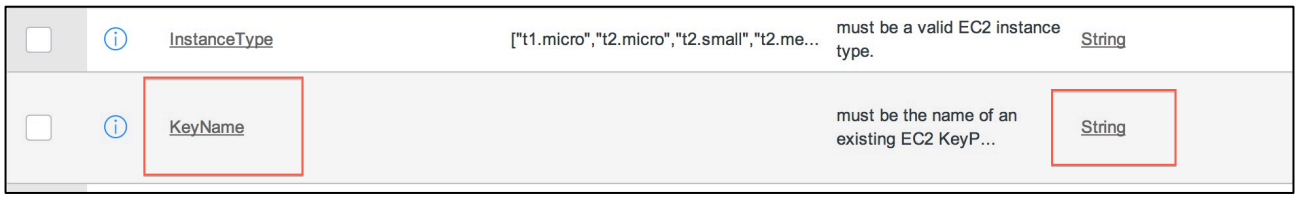
8. Insert the following code below the **}**, after **"Ref": "KeyName"**

```
"Tags" : [
          {"Key" : "Name", "Value" : {"Ref" : "AWS::StackName" }}],
```

The JSON should look like the example.

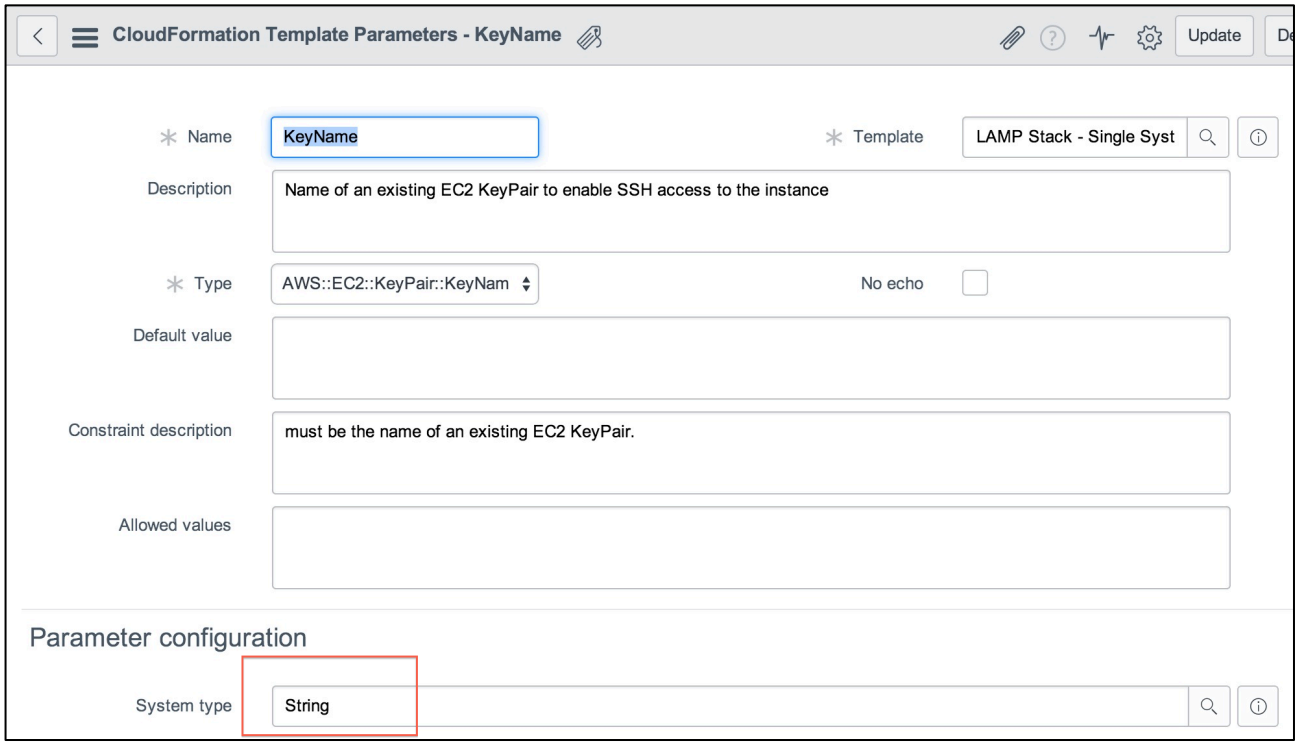
```
"KeyName": {
"Ref": "KeyName"
},
"Tags" : [
          {"Key" : "Name", "Value" : {"Ref" : "AWS::StackName" }}],
"UserData": {
"Fn::Base64": {
"Fn::Join": [
```

9. To change parameters for the JSON to be referenced from the ServiceNow environment, such as the **KeyName**, the parameter must be changed from string to reference and the appropriate table selected.



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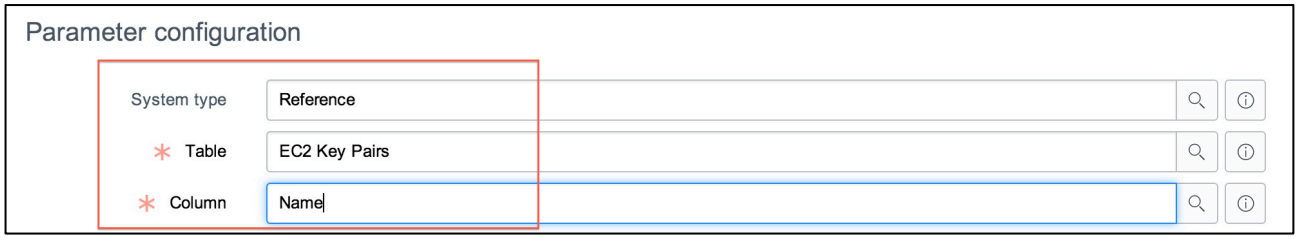
10. Click **KeyName**.



11. Change the String to **Reference** using the Magnifying glass icon.

12. Search the table choice for **ec2** and select **EC2 Key Pairs**.

13. Select **Name** in the Column choice. The parameter configuration should look like the example.



14. Click **Update**, and return to the template.

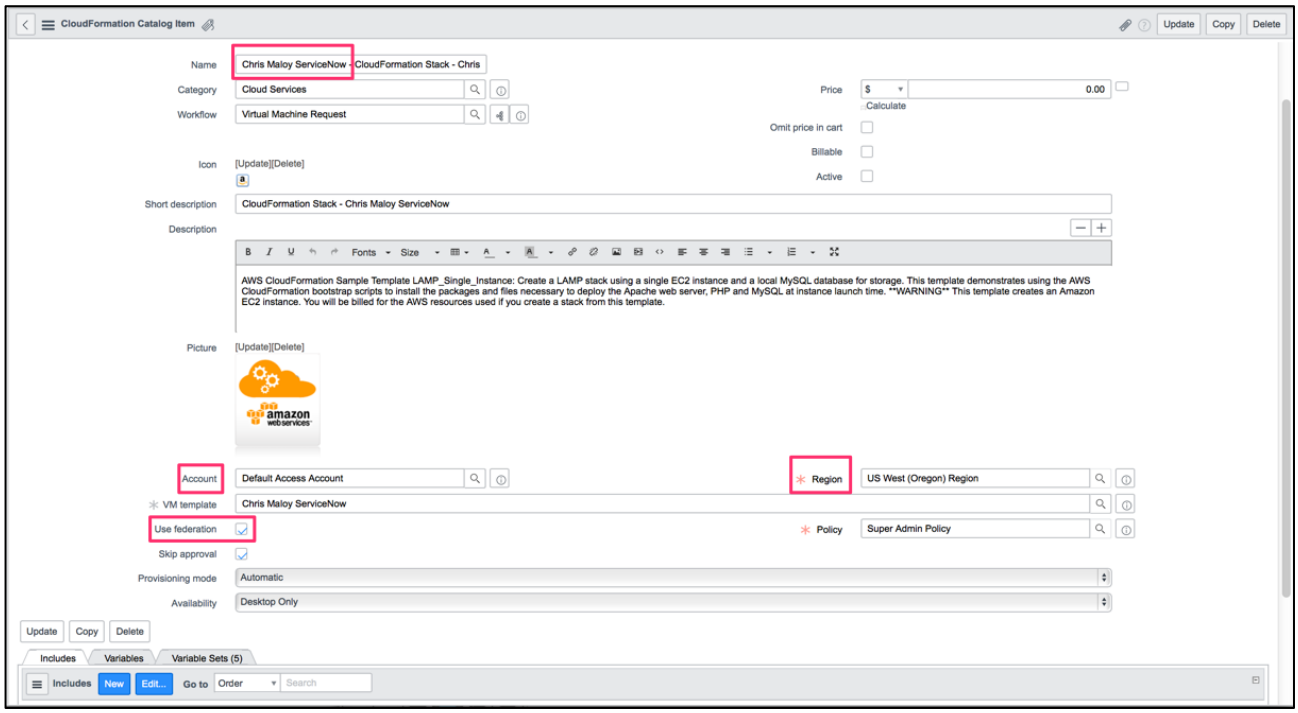
15. In the Gray area of the template, right-click, and click **Save**.

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Create a Catalog Item for Cloud Formation Template

1. Click **Create Catalog Item** and modify the details below. Click **Update**.

   Name: **Prefix with Your Name and Company (example: Chris Maloy ServiceNow)**
   Account: **Default Account**
   Region: **US West (Oregon) Region**
   Use federation: **Active**

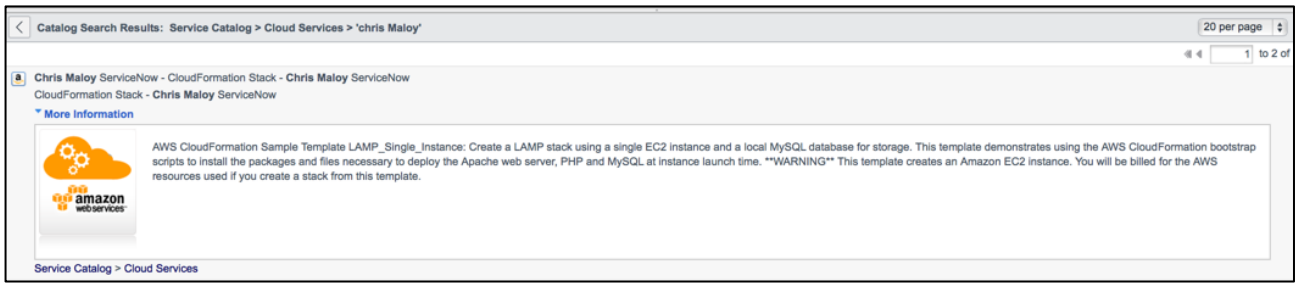


2. You have created a catalog offering from your Cloud Formation Template.

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Lab Success Verification

1. The service catalog should now contain the newly created item created from your image.



Progress Report

1. Navigate to **Lab Management> Report Lab Progress**.
2. Click **I am Done!**

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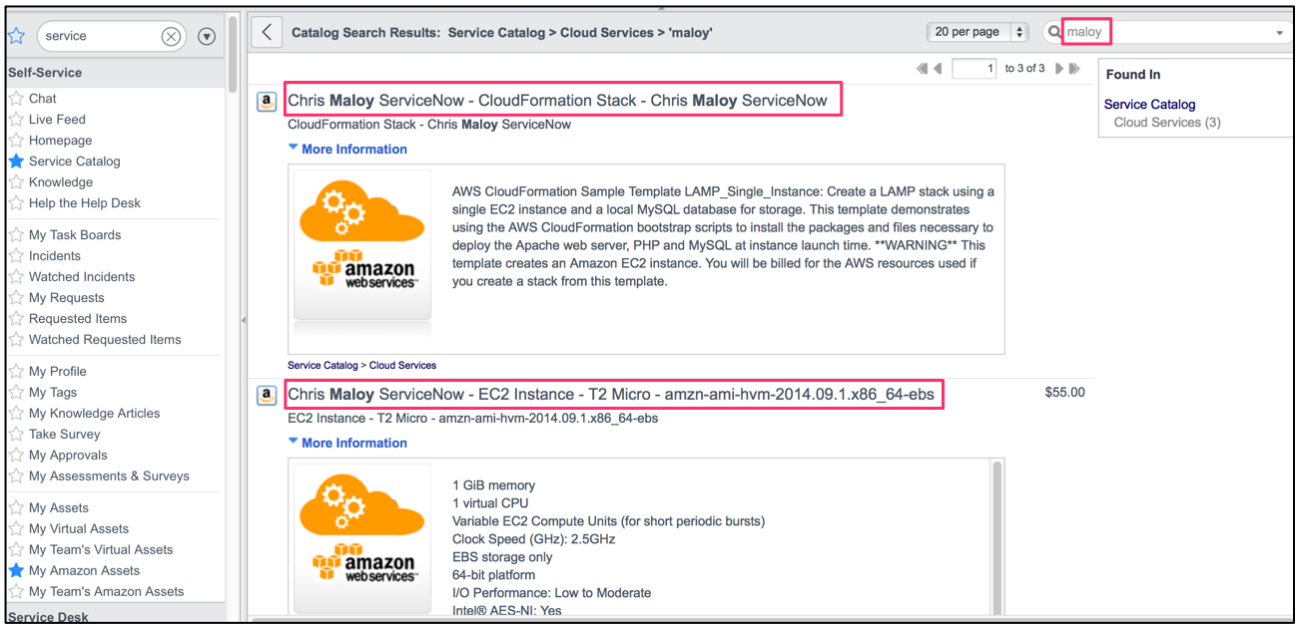
Lab Goal

This lab explains how to request the resources just configured in the catalog for (both) the EC2 instance and LAMP stack items.

Lab 2.3
Make the Service Provisioning Request

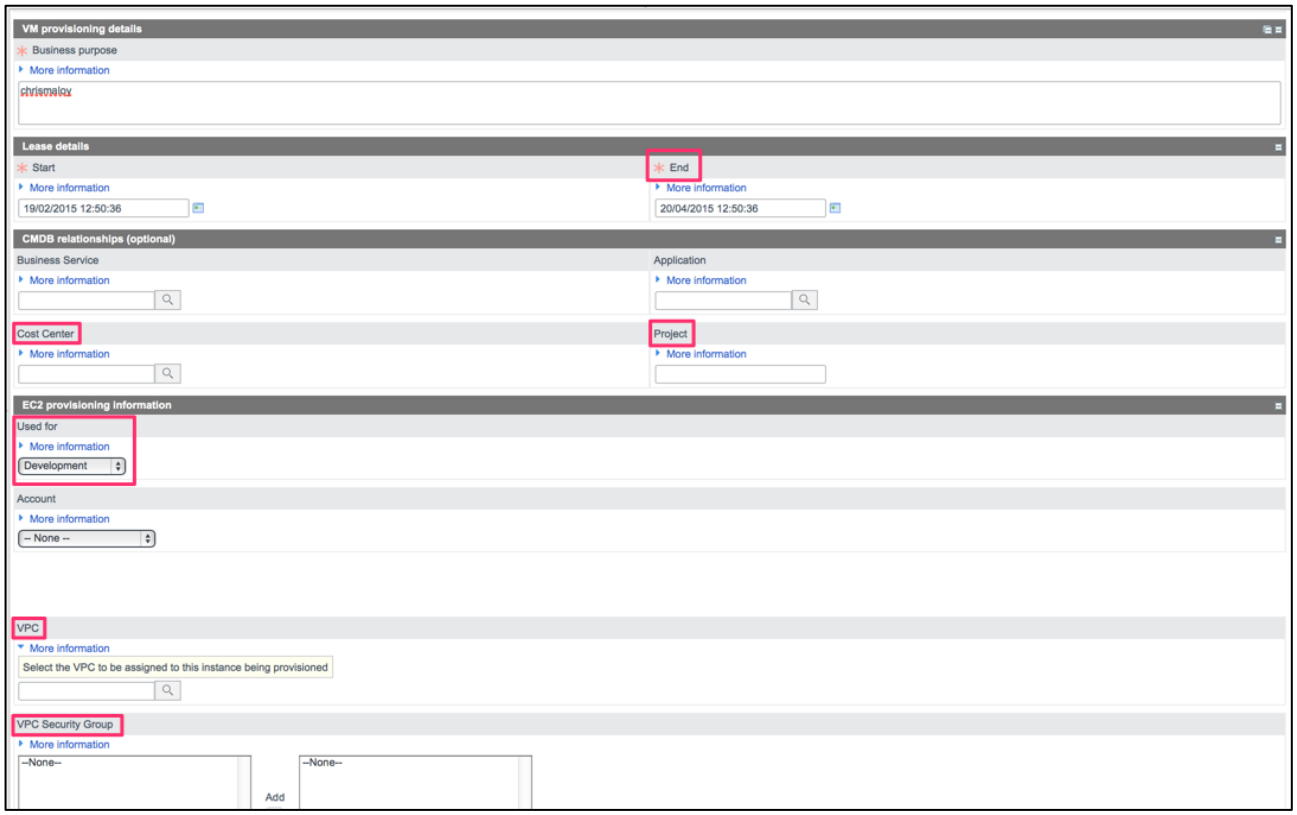
Use the Catalog to Request the AWS Resources

1. Go into the Service Catalog and search for your last name to retrieve the most recently created AWS items.



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2. Request the **EC2 Instance** first. Note several fields on the catalog request form. **Lease details** helps ServiceNow keep resources from running forever**. Cost Center** and **Project** fields are used to tag the Amazon resources (this topic is covered later, in the discussion of how to show the billing information). Use this field for controlling the type of environment and change management process needed to govern that environment. Use **VPC** to add this EC2 Instance to a private cloud network. The VPC security group helps manage the security policy for this resource.



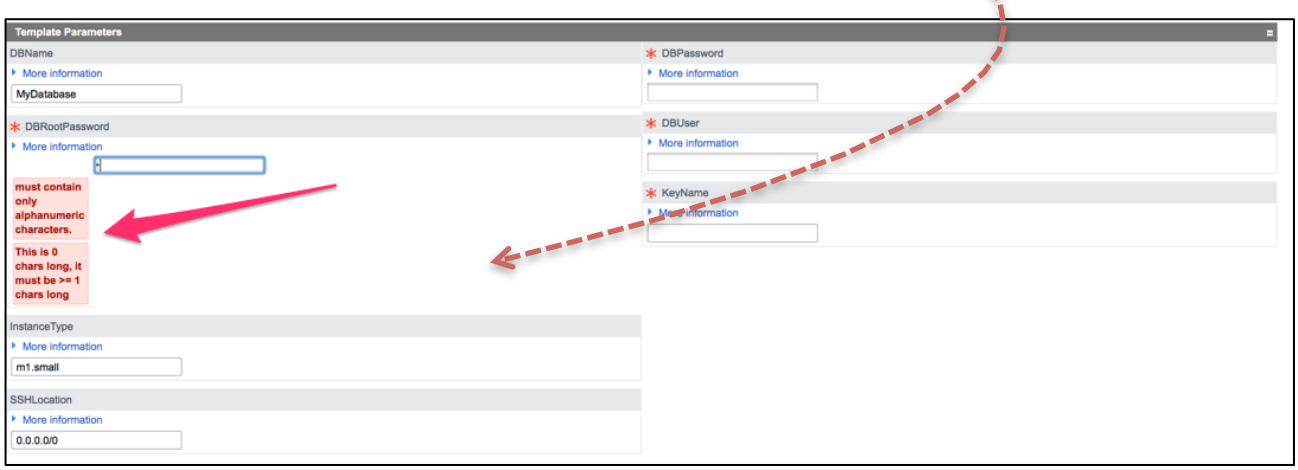
3. Fill out the form with some of the following details:

   Business purpose: **Anything you want**
   Busines Service: **SAP Financial Accounting**
   Application: **Java Application Server FLX**
   Cost Center: **IT**
   Project: **Anything you want**
   Used for: **Production**
   Account: **Default Account we configured previously**

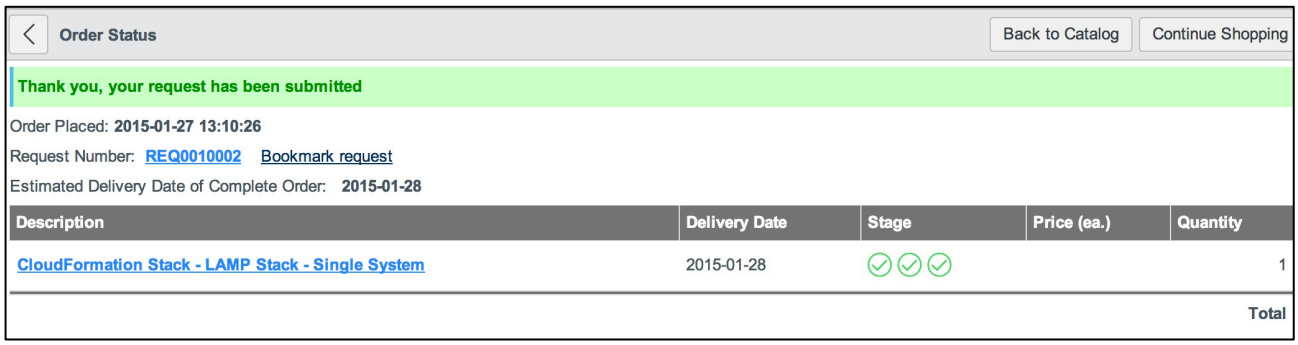
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4. Next request the Cloud Formation Stack. **Note:** In the **Template Parameters** section of the catalog item, those fields are created by the Cloud Formation template. The fields are also checked in real time for validity if the Cloud Formation Template indicated to do so. **Try typing a space in the DB Password Field.** Fill out the form with the following details:

   Business purpose: **Anything you want**
   Business Service: **E-Commerce**
   Application: **Java Application Server FLX**
   Stack Name: **(INSTANCENAME-LAMP) eg. Orch302-instructor-LAMP**
   Cost Center: **IT**
   Project: **K15**
   Used for: **Production**
   Account: **Only Account Currently Available**
   Template Parameters: **Update the Passwords and User definition (simple password and dbuser)**
   KeyName: **This is a reference now, there is only one choice**



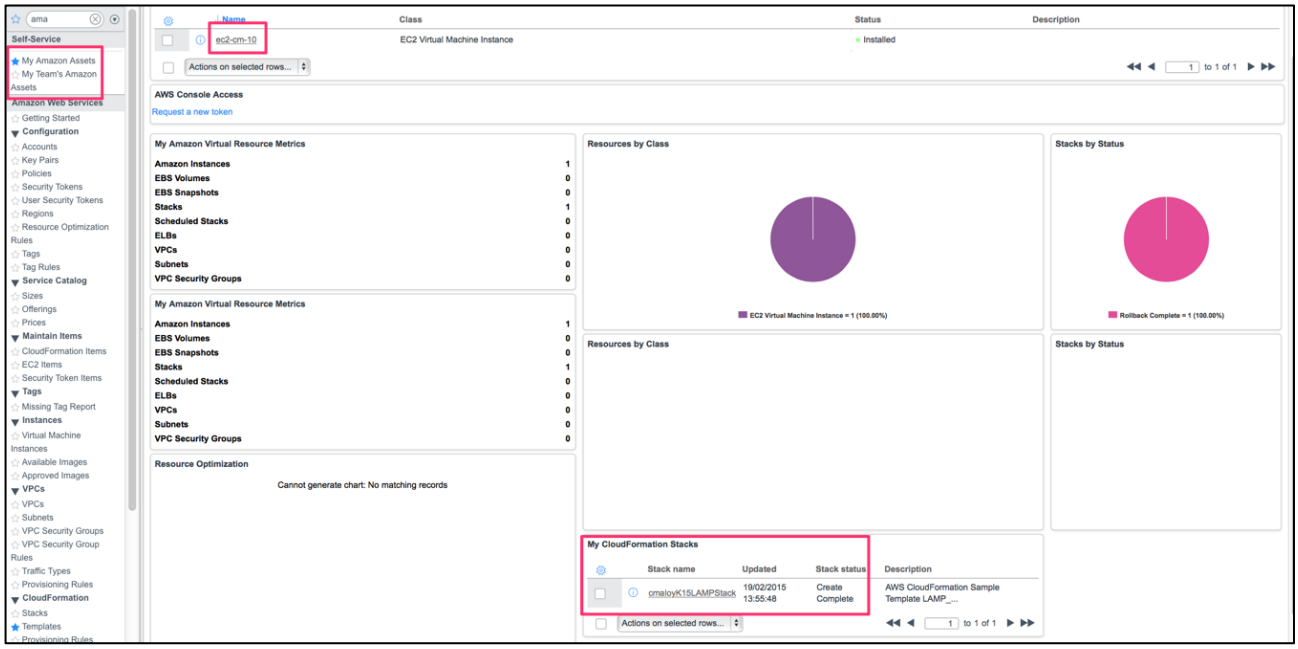
5. Click **Order Now**.



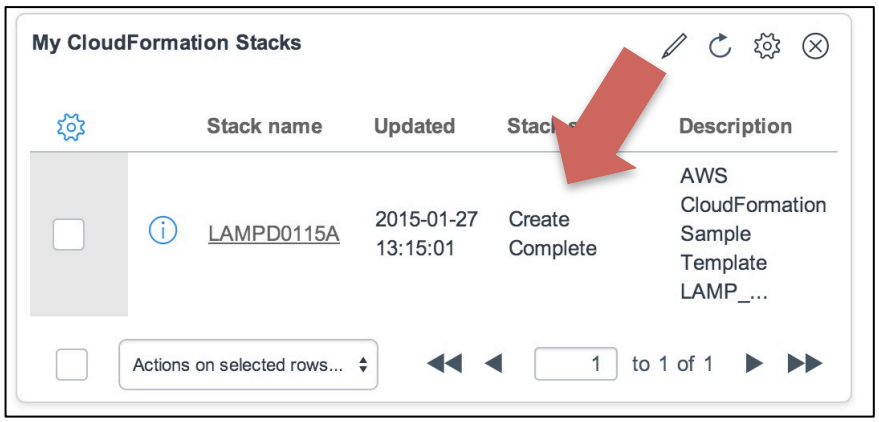
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Lab Success Verification

1. Navigate to **Self Service > My Amazon Assets** and notice the Stack and EC2. Also note the request you made from here as well at the bottom of this portal.

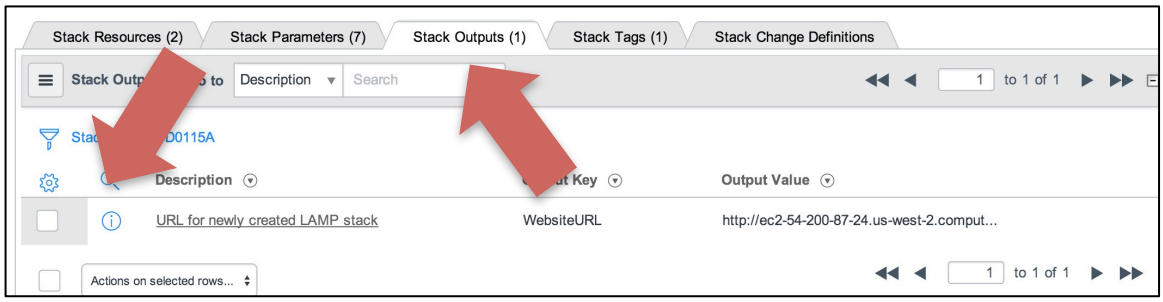


2. Once the Stack status is **Create Complete,** click into it to see the deployed resources.



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3. Click into the Stack name and scroll to the **Stack Ouputs** tab. Note the **WebsiteURL** to the resource. Select the **information** icon to get the details; it is easier to copy the URL.



4. Copy and paste the URL into a new browser tab. The screen should be similar to the example.

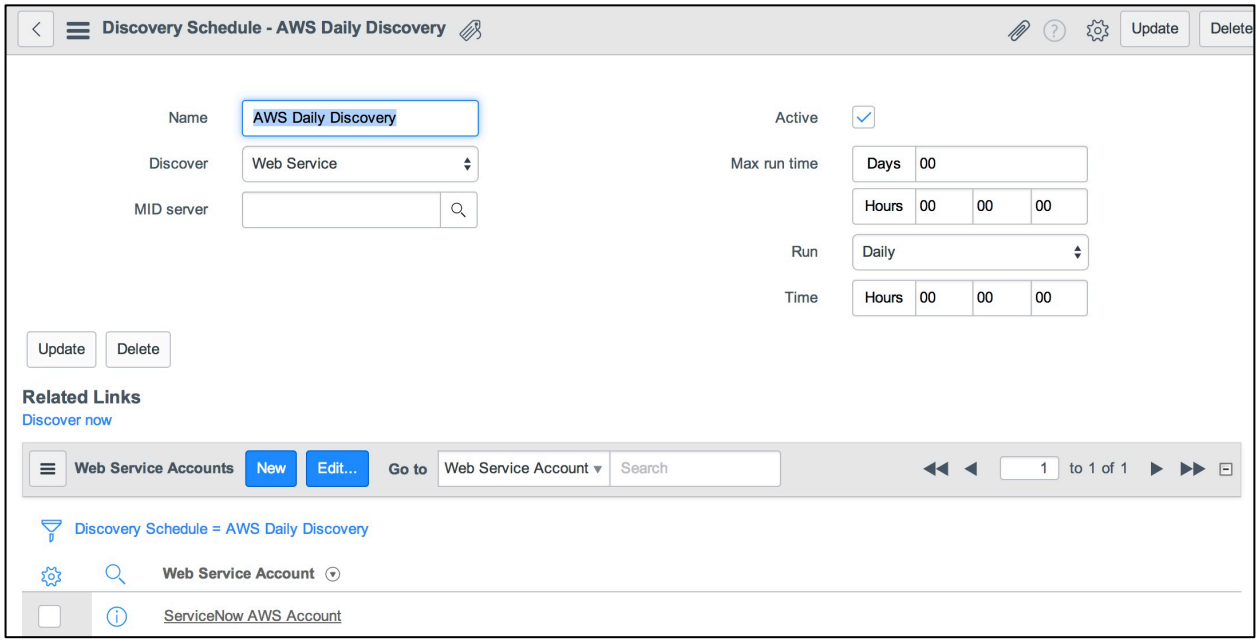


5. Once the stack is provisioned, the instance and the stack need to be aligned. The stack and instance name are the same; however, the linkage in ServiceNow needs to be updated.

6. Go to **AWS Discovery Schedules** and select the **AWS Account – ServiceNow AWS Lab Account**.

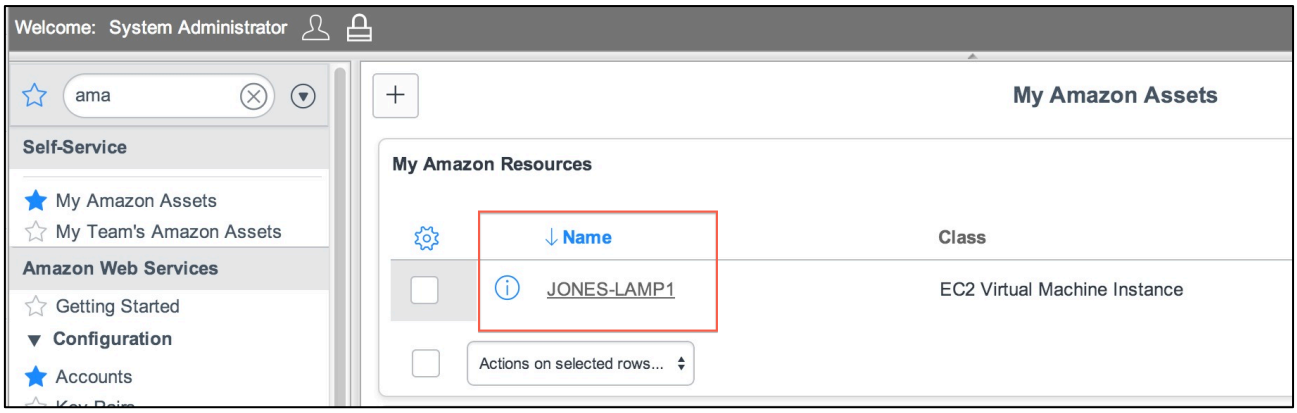
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7. Click **Discover Now**.



Note: After clicking **Discover now**, the process takes about 5-10 minutes in normal environments. In the lab environment and with the number of discoveries running, the process could take up to 40 minutes total.

8. To see the updates from Discovery, go to **Self Service > My Amazon Assets** to validate that the instance attached to the stack has the name updated appropriately. You can refresh this page intermittently until the "empty" instance is updated to the stack name created.



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Progress Report

1. Navigate **to Lab Management> Report Lab Progress**.
2. Click **I am done!**

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Lab Goal

After deploying some instances into the Amazon environment, they can now be managed. This lab explains how to define and manage instances through the change process.

When the Cloud Formation Stack was **Ordered**, **Production** was indicated in the **Used for** field. This marks the Stack for **Production** usage.

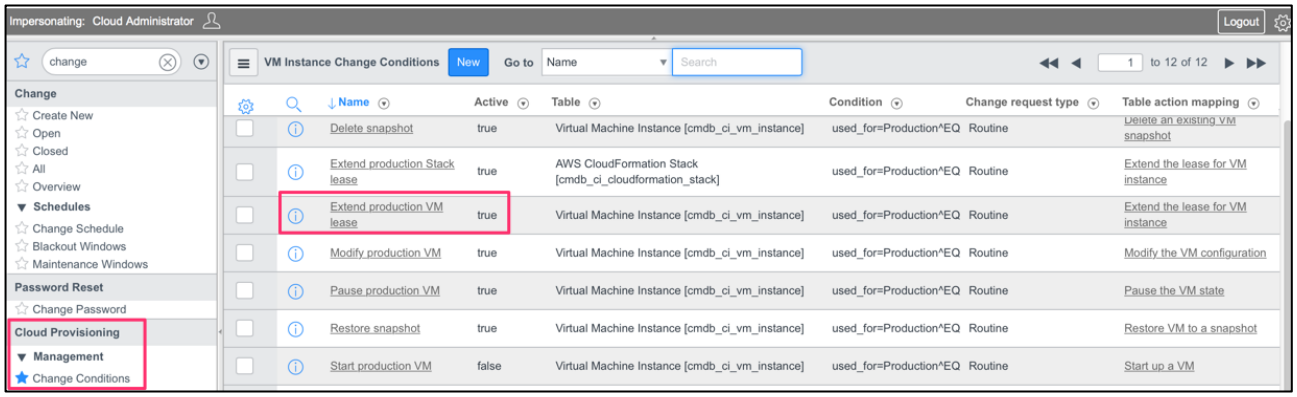
Use **Change Conditions** to show how VM resources are tied into a Change Management process.

Lab 3.0
Change Management

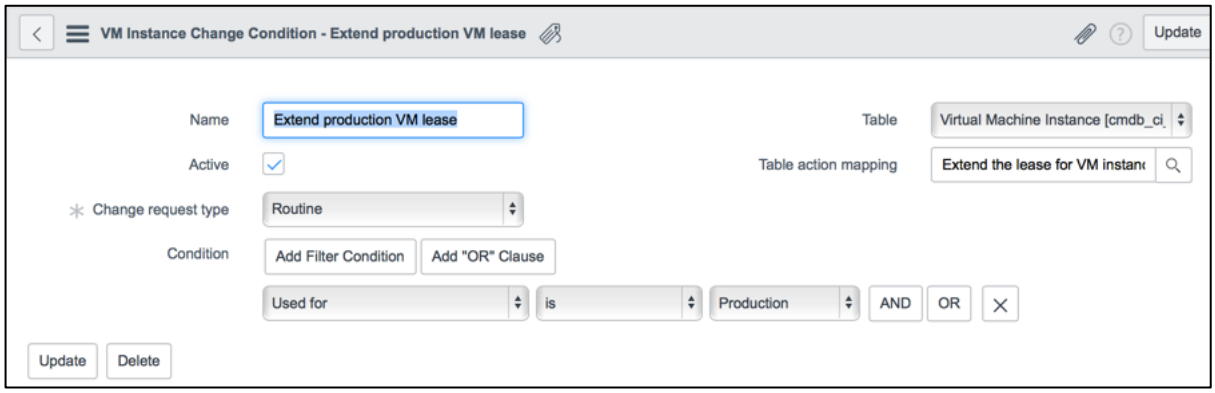
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Explore the Change Conditions Table

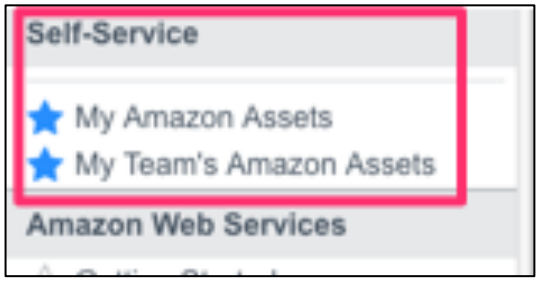
1. Go to the **Cloud Provisioning > Management > Change Conditions** menu item and click the **Extend production Stack lease** record.



This table lets you control what behavior determines that a particular VM resource warrants a change request. Changing the end lease date for the production resources requires a change record. This rule determines and creates that record as part of the process.

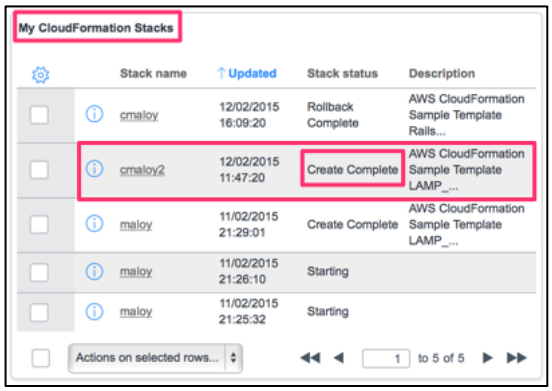


2. Navigate to **Self-Service > My Amazon Assets**.

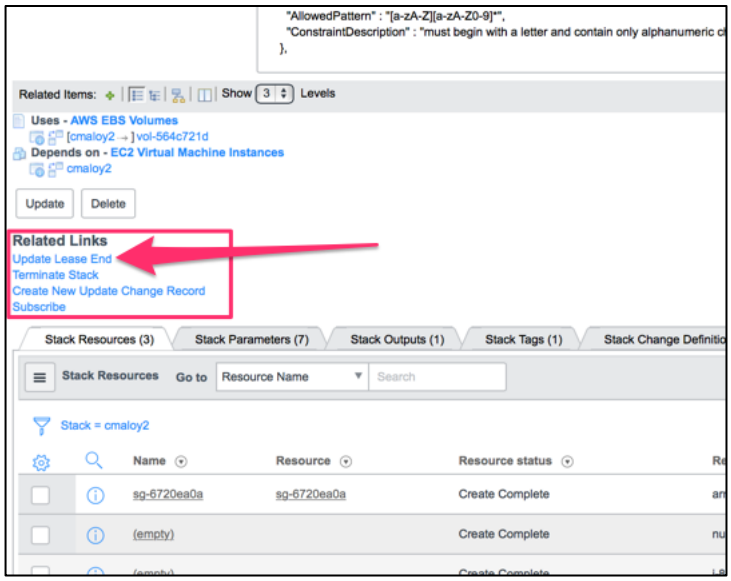


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3. From this dashboard find the **My CloudFormation Stacks** section and click on the stack just ordered. The Stack Status should be **Create Complete** (hopefully).

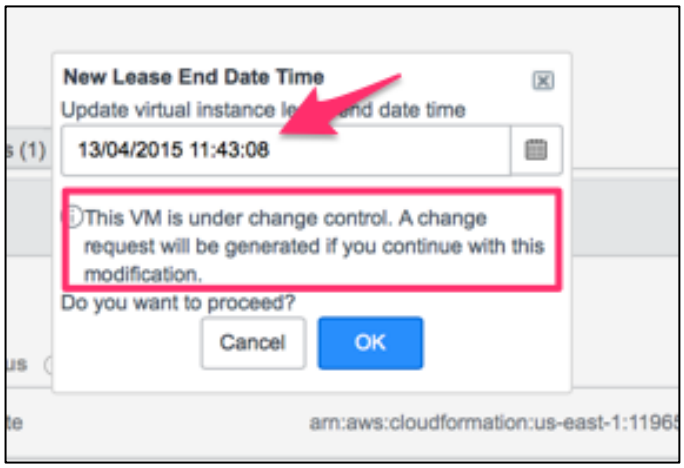


4. After the record is open, scroll to the **Related Links** section and click the **Update Lease End**.

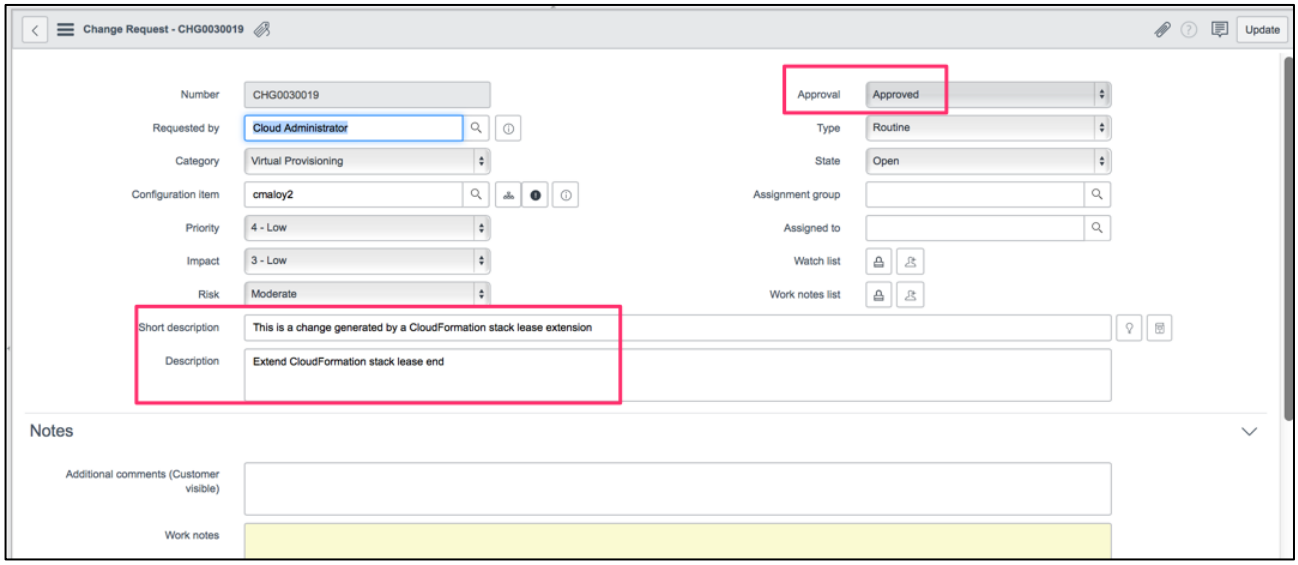


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5. A prompt appears with a change request message. Update the lease end date by one day and click **OK**.



6. A change request generates and is automatically approved because you are the Cloud Administrator. There is a record now tracking a change to this production resource.

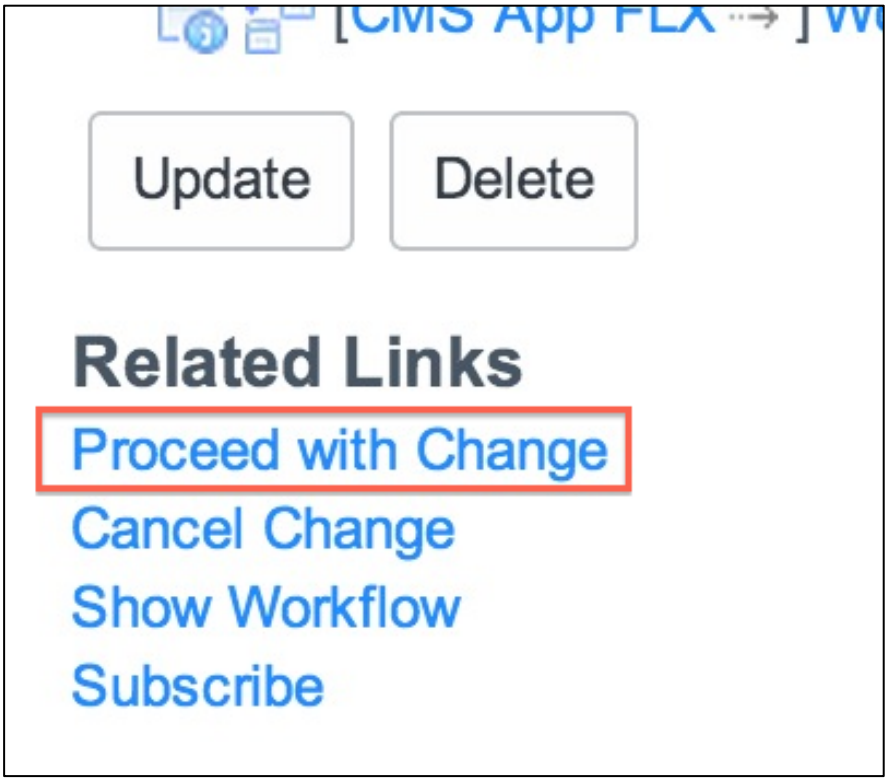


7. Navigate back to the **Cloud Formation Stack**.

8. There is now a Change Request entered in the form and a new “related link” to proceed with change.

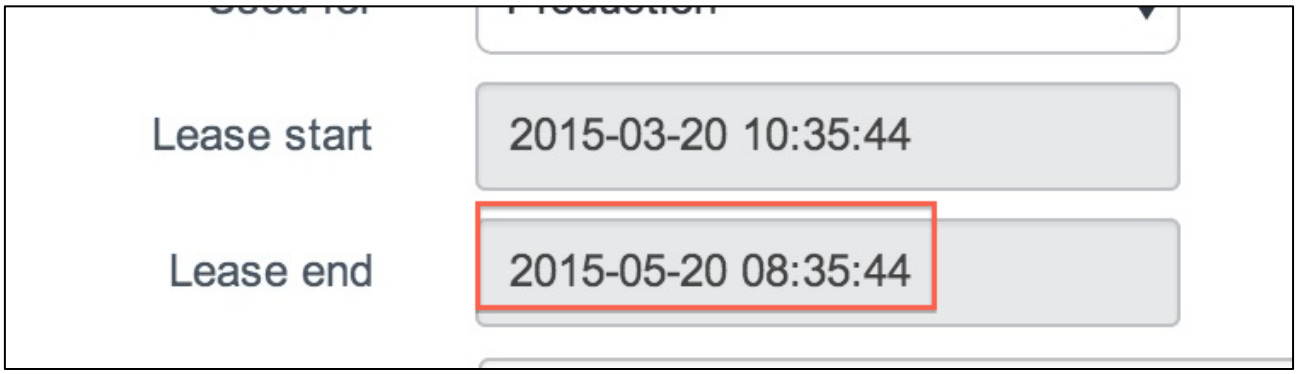
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9. Select **Proceed With Change**.



10. The screen returns to **My Amazon Assets** and a **blue** pop-up shows that the Change is processing and that an email will be sent when complete.

11. To validate that the change did take effect, select the **Cloud Formation Stack** again and validate the **End of Lease** date.



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Lab Success Verification

1. If the change took effect on your stack, the change was successful.

Progress Report

1. Navigate to **Lab Management> Report Lab Progress**.
2. Click **I am done!**

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Lab Goal

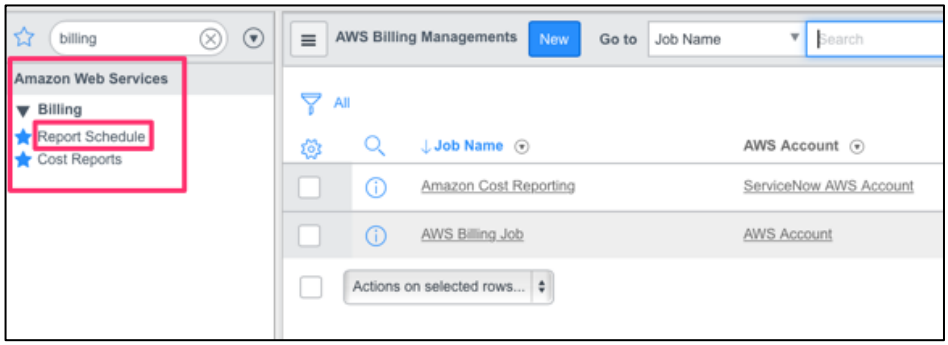
This lab explains how to consume the Amazon billing data into ServiceNow for reporting and align it to the cost centers.

You must have already configured AWS correctly for this integration to work.

Lab 4.0 Cost Management and Amazon Billing

Setting up Cost Reporting in ServiceNow

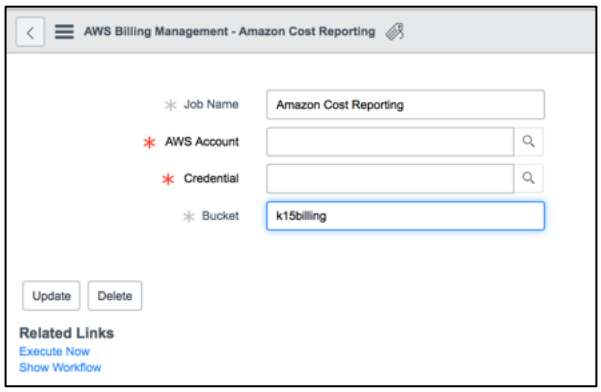
1. Navigate to the **Amazon Web Services > Billing > Report Schedule** menu item and click on it.



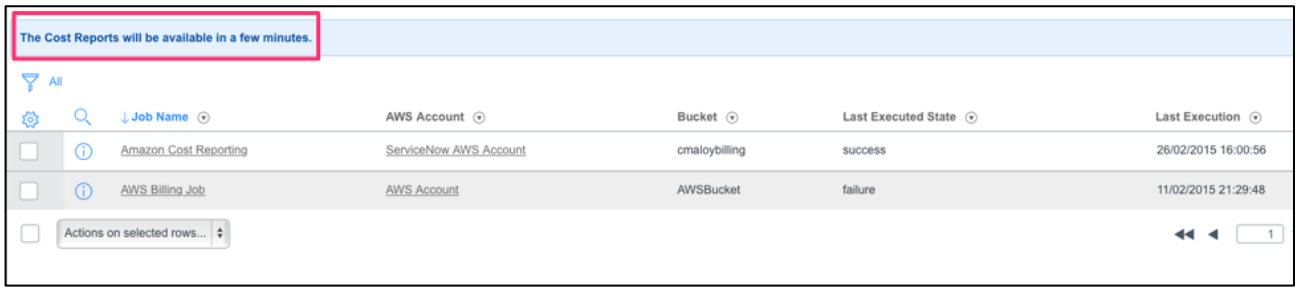
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2. Click **New** and Fill out the form with some of the following details:

   Job Name: **K15 Cost Report**
   AWS Account: **Use the lookup to find account**
   Credential: **Use the lookup to find the credential**
   Bucket: **snowbilling**



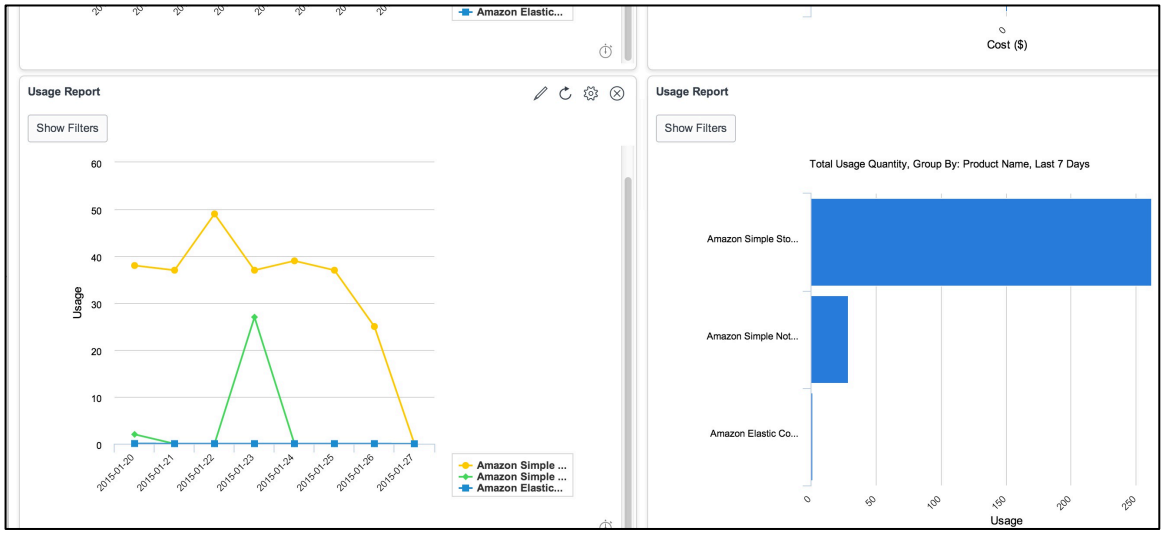
3. Click **Execute Now** when the form is filled out. This message appears:



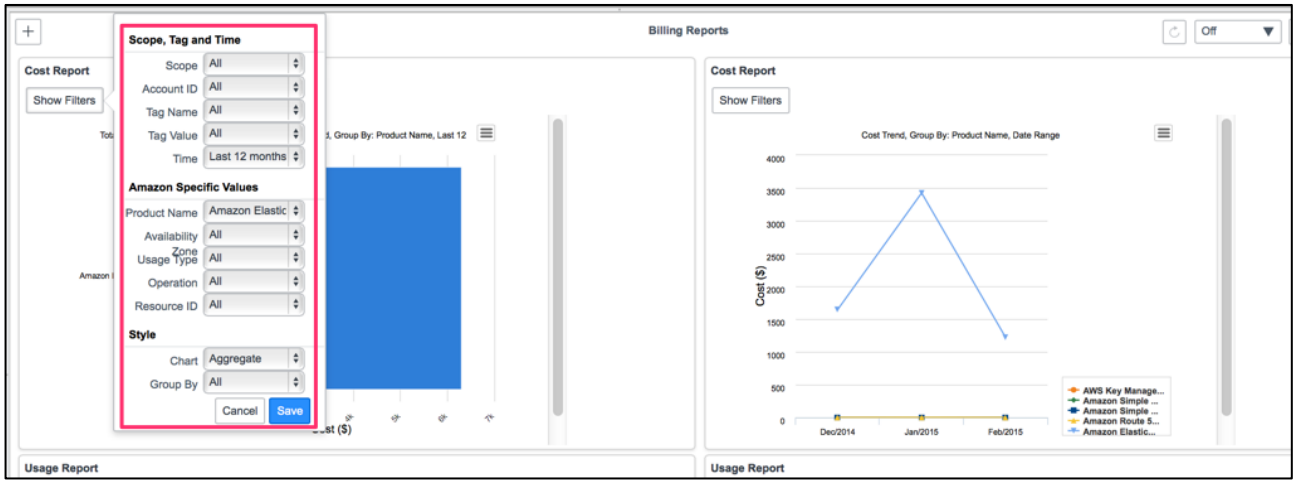
   Refresh the page until you see **success** in the **Last Executed State** and **Last Execution** time matches the **time now**.

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4. Click the **Cost Reports**. Several reports appear showing usage and cost details. These details are pulled directly in from the ability to tag resources.
   Note: The data in the lab looks simple, since the environment is newly built and newly utilized.



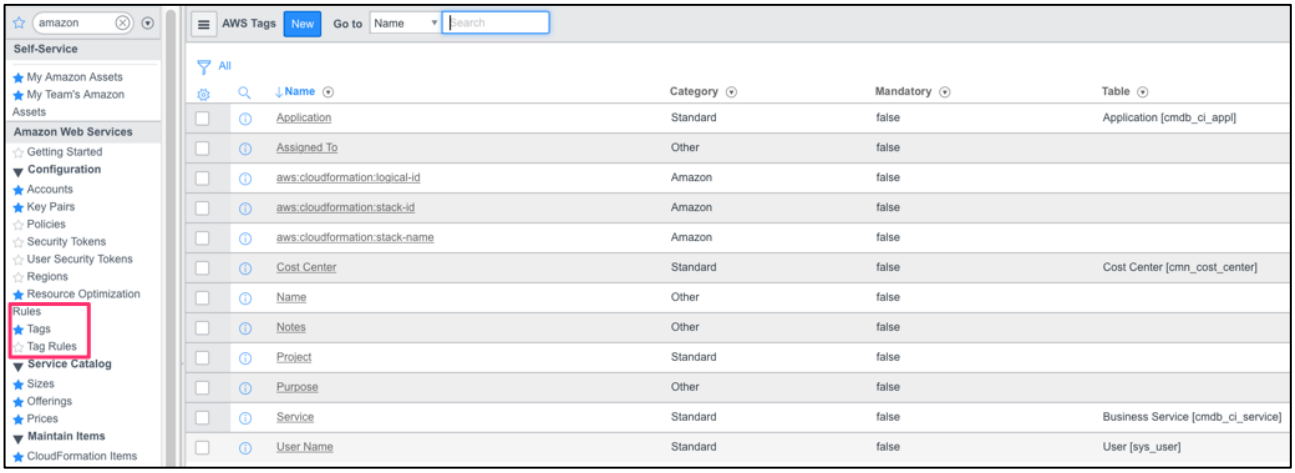
5. Filter the information in this cost dashboard by using the Filter control.



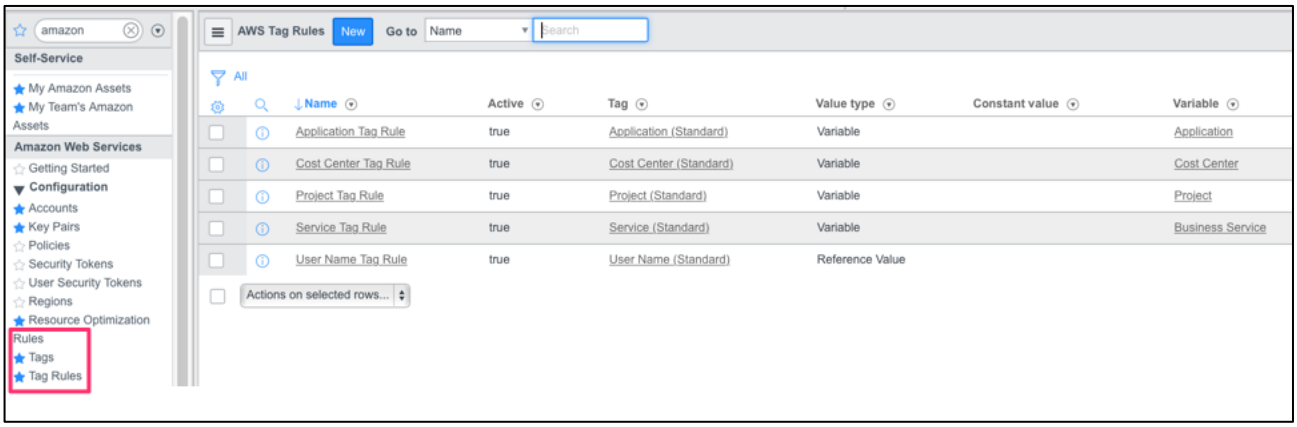
6. Note that the Amazon billing data parses based on tags. Create any tag in the **Amazon Web Services > Rules > Tags** menu item. These tags can be configured and applied to AWS resources when ordered out of the ServiceNow catalog. This simplifies the billing process.

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TAGS

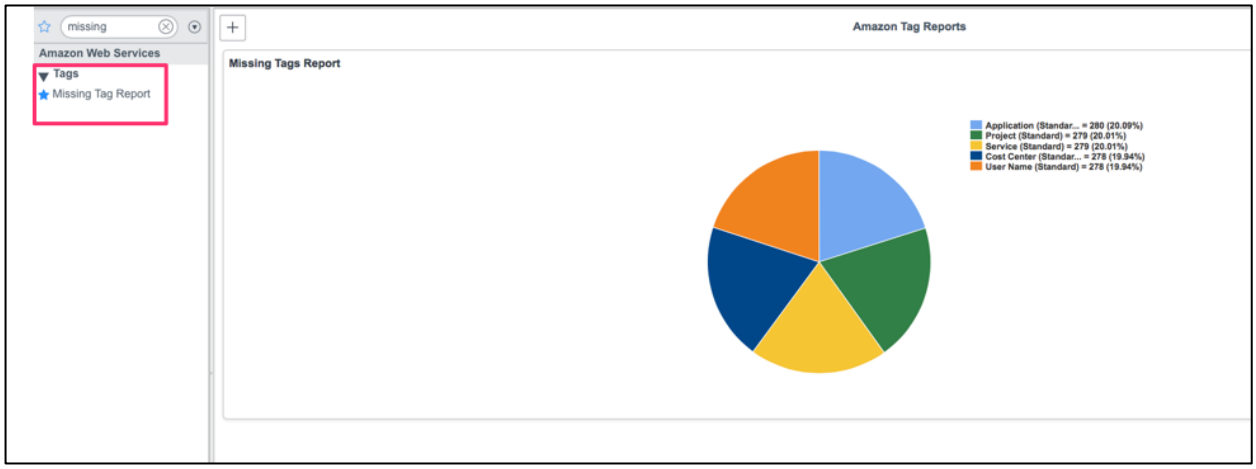


TAG RULES



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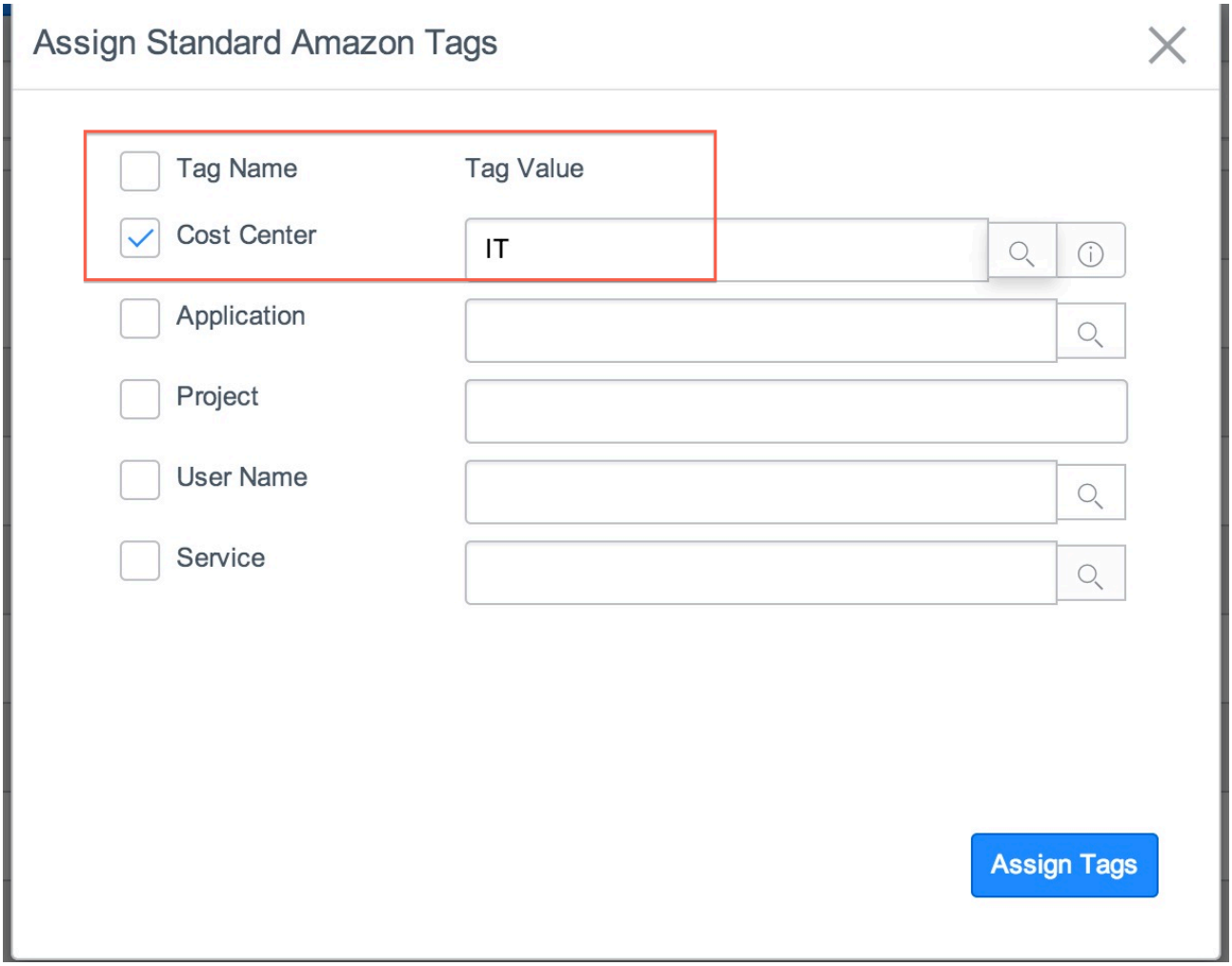
7. There are times when someone does not go through the ServiceNow catalog to request a resource. ServiceNow can still discover those resources and produce a **Missing Tags Report** with the right information, which is then reflected correctly on the Amazon Cost Report.



8. Select the one instance at the top called **orch302dev-sa-1**.

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9. At the bottom, select **Actions on selected rows…** and select **Assign Tags** to selected items.

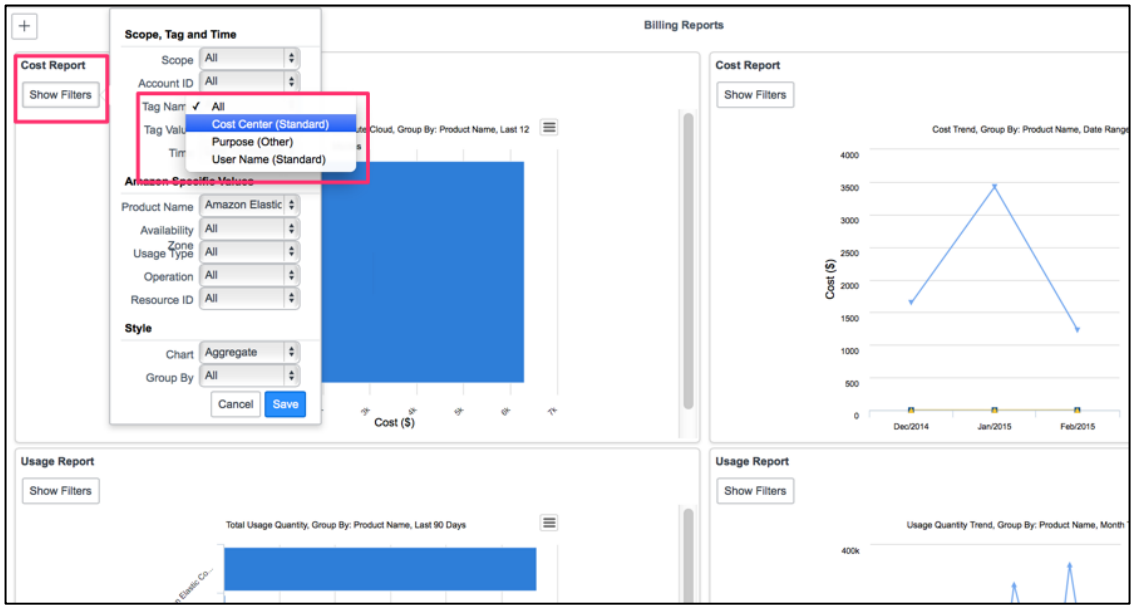


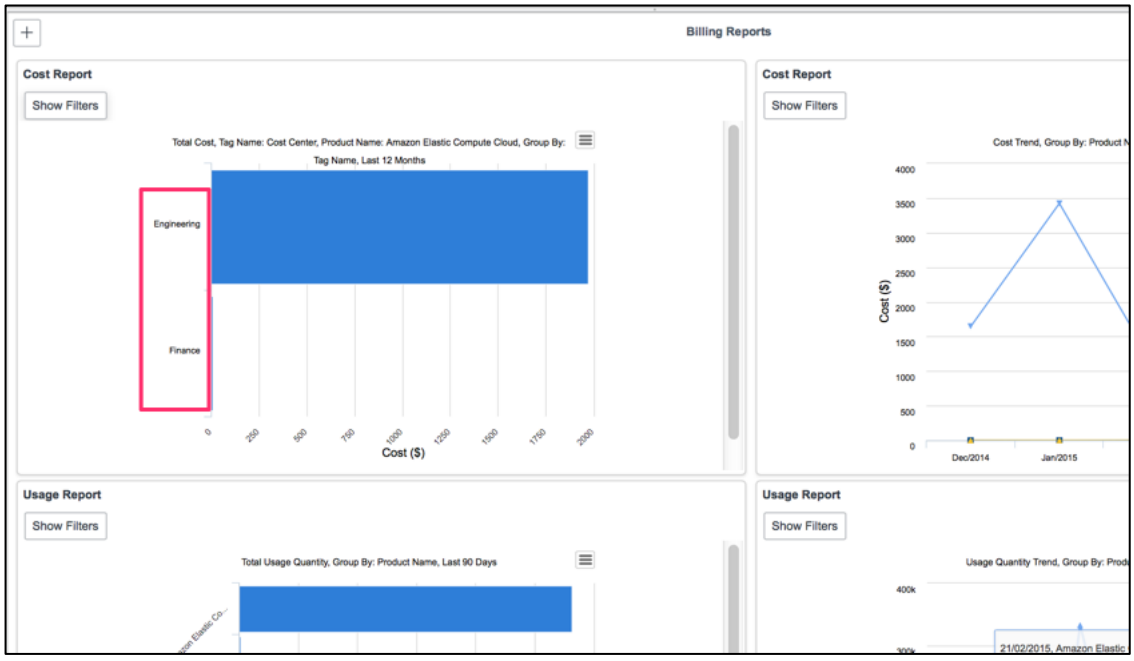
10. Click **Assign Tags**. This updates the tags in AWS appropriately. Now when cost reports run against the environment, the filters for the report will not represent the data appropriately.

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Lab Success Verification

1. To confirm success, return to the **Amazon Web Services > Cost Reports** dashboard and filter on **Cost Center.** See the newly assigned missing resource with a new **Cost Center** tag.





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Progress Report

1. Navigate **to Lab Management> Report Lab Progress**.
2. Click **I am done!**

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Lab Goal

Because we cannot have everyone logging into AWS to set this up and because that would not be a good use of your time in this short class, this lab demonstrates the Cloud Watch Event Management integration.

DEMONSTRATION

Lab 5.0
Event
Management

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