JASPERSOFT PROFESSIONAL FOR AWS GUIDE

RELEASE 5.0.3

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This is version 0213-JSP50-1 of the *Jaspersoft Professional for AWS Guide*.

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CHAPTER 1 INSTALLATION AND CONFIGURATION

1.1 Prerequisites

This chapter assumes you have basic knowledge of JasperReports Server. You can find Jaspersoft's documentation on the Community Site: http://community.jaspersoft.com/documentation.

1.1.1 Amazon Web Services Account

Before you can use Jaspersoft on Amazon Web Services, you need an AWS account.

1. Go to Amazon Marketplace: https://aws.amazon.com/marketplace/ref=csl_ec2_dash
2. Select **I am a new user** to set up an account. You must accept the terms of service available to read here: http://aws.amazon.com/terms/

   Note that if you have a personal amazon.com account stored in your browser, AWS uses that account. You need to sign out from Amazon, or preferably use a different browser, to set up an AWS account not associated with your personal account.

   If you already have an Amazon Marketplace account, you need to accept our agreement before you can use the product.
3. Subscribe to our Marketplace AMI by clicking the **Accept** button on our page.

1.1.2 Required Permissions

Depending on how you use Jaspersoft Professional for AWS, there are two permission sets you might need.

1.1.2.1 Using Our CloudFormation (CF) Templates

Using our CF templates typically requires some admin permissions. AWS permissions required to launch a new JasperReports Server instance include:

- CloudFormation create stack and events
- Create and run EC2 instances
- Create EC2 security groups
- Create IAM resources
- Grant access to RDS, Redshift, and EC2

AWS permissions required to launch the template to create a new JasperReports Server role include:

- Create IAM resources
- Grant access to RDS, Redshift, and EC2

AWS permissions required to launch the template to create a new JasperReports Server user include:

- Create IAM resources
- Grant access to RDS, Redshift, and EC2

1.1.2.2 Connecting to the Data Source

To connect to the data source, you need access to RDS and/or Redshift, permissions to create and modify the database security groups in each, as well as permissions to create and modify EC2 security groups.

1.2 Launching

Before you begin this process, make sure you have a valid key pair. If you do not have one, follow the instructions on the AWS documentation site: http://docs.aws.amazon.com/gettingstarted/latest/wah/getting-started-create-key-pair.html.

1.2.1 Creating a JasperReports Server Instance

A stack is a collection of AWS resources you create and delete as a single unit. Our CloudFormation template will create the following:

- IAM role with permissions on RDS and Redshift
- EC2 instance with JasperReports Server installed and configured and using this role in order to have appropriate credentials.

To create a new JasperReports Server instance:

1. Navigate to the URL for your region:

Region	URL
US East (N. Virginia)	http://www.jaspersoft.com/jrs-launch-instance?region=us-east-1
US West (Oregon)	http://www.jaspersoft.com/jrs-launch-instance?region=us-west-2
US West (N. California)	http://www.jaspersoft.com/jrs-launch-instance?region=us-west-1
EU (Ireland)	http://www.jaspersoft.com/jrs-launch-instance?region=eu-west-1
Asia Pacific (Singapore)	http://www.jaspersoft.com/jrs-launch-instance?region=ap-southeast-1
Asia Pacific (Tokyo)	http://www.jaspersoft.com/jrs-launch-instance?region=ap-northeast-1
Asia Pacific (Sydney)	http://www.jaspersoft.com/jrs-launch-instance?region=ap-southeast-2
South America (São Paulo)	http://www.jaspersoft.com/jrs-launch-instance?region=sa-east-1

The **Create Stack - Select Template** dialog appears.

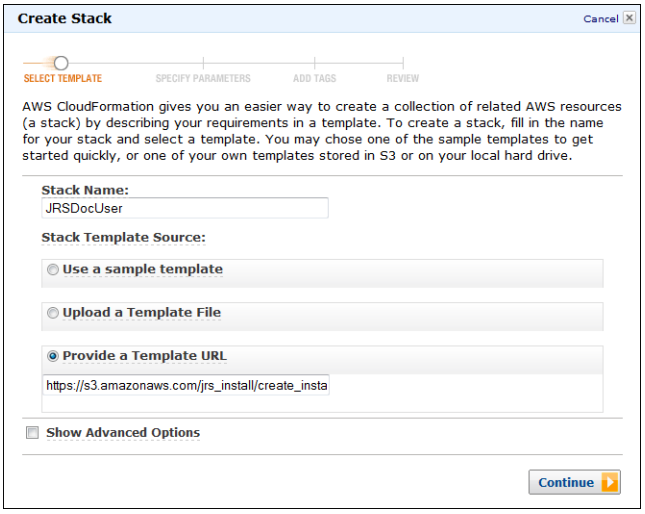

Figure 1-1 Create Stack - Select Template Window

2. In the **Create Stack - Select Template** dialog:
   a. Give your CloudFormation stack a unique name.
   b. By default, AWS provides a stack template source URL. Do not change this selection.
3. Click **Continue**. The **Create Stack - Specify Parameters** window appears.

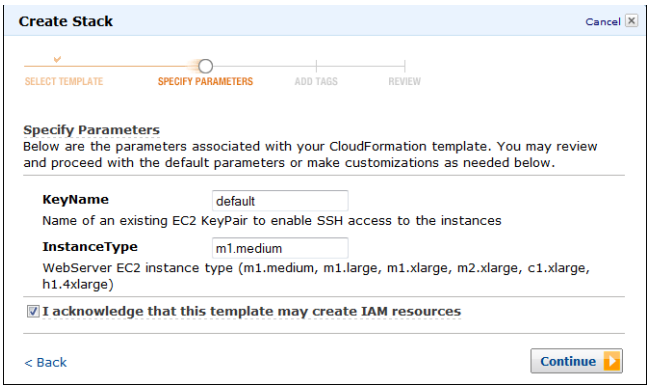

Figure 1-2 Create Stack - Specify Parameters Window

4. In the **Create Stack - Specify Parameters** window:
   a. Enter an existing key pair name.
   b. The **Instance Type** defaults to medium, which is the smallest supported EC2 instance type. You can choose from any of the supported instance types:
      - m1.medium
      - m1.large
      - m1.xlarge
      - m2.xlarge
      - m2.2xlarge
      - m2.4xlarge
      - m3.xlarge
      - c1.xlarge

If you want to change the instance type, copy and paste from the description to the **Instance Type** field.

For more information about EC2 instance types, see the AWS documentation: http://docs.aws.amazon.com/AWSEC2/latest/UserGuide/instance-types.html

c. Check the box to acknowledge that the template can create IAM (Identity and Access Management) resources. Checking the box is mandatory for creating this stack.

5. Click **Continue**. The **Create Stack - Add Tags** window appears.

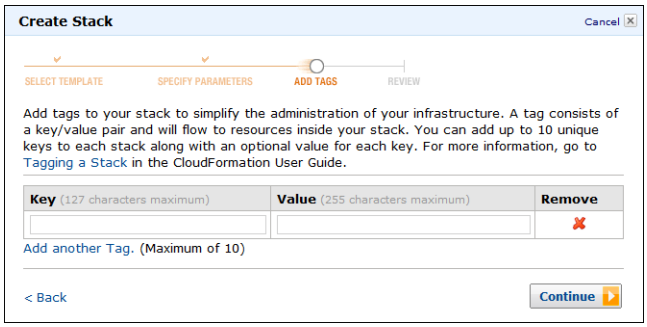

Figure 1-3 Create Stack - Add Tags Window

6. In the **Create Stack - Add Tags** window add any tags you want to simplify administration of your infrastructure.

A tag consists of a key/value pair and will flow to resources inside your stack. You can add up to 10 unique keys to each instance, along with an optional value for each key.

7. Click **Continue**. The **Create Stack - Review** window appears.

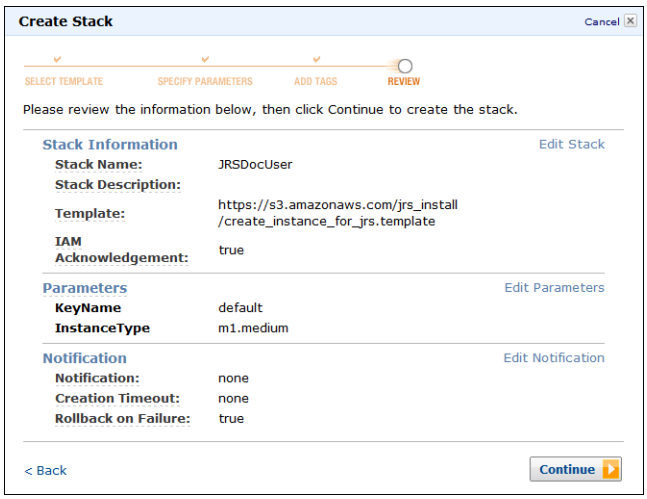

Figure 1-4 Create Stack - Review Window

Double-check your information and parameters.

8. Click **Continue**.

   A message apears telling you that that your stack has been created. On the Services web page, your stack probably says "`CREATE_IN_PROGRESS`". It generally takes two to four minutes for the status to change to "`CREATE_COMPLETE`".

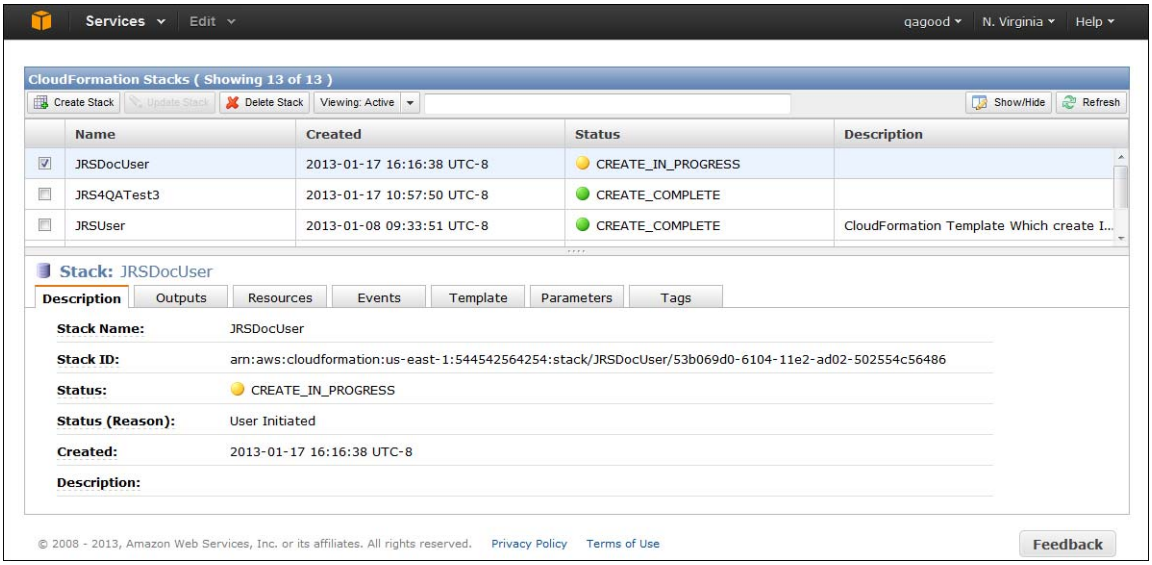

Figure 1-5 CREATE_IN_PROGRESS Message

It can still take another few minutes for the JasperReports Server URL to become available after the stack shows `create_complete`. If you get a message saying "Unable to Connect", try again in a few minutes.

9. Select your new instance once its status is `create_complete`, and then click the **Outputs** tab.

   Your URLs for Getting Started and for logging in to Jaspersoft appear.

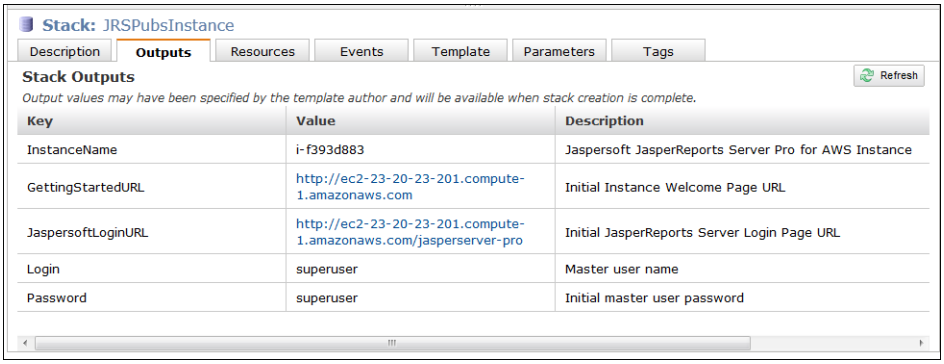

Figure 1-6 Outputs Tab Showing Getting Started and Login URLs

1.2.2 Creating a JasperReports Server Instance from the EC2 Console

If you have a complex network topology, special volume requirements, or if your instance needs to be in VPC, you might need to create your instance from the EC2 Console.

Before you can create a JasperReports Server instance from the EC2 console, you need to create a CloudFormation role.

To create a CloudFormation role:

1. Sign in with your AWS account.
2. Navigate to: http://www.jaspersoft.com/jrs-create-role.

   The **Create Stack - Select Template** dialog appears.

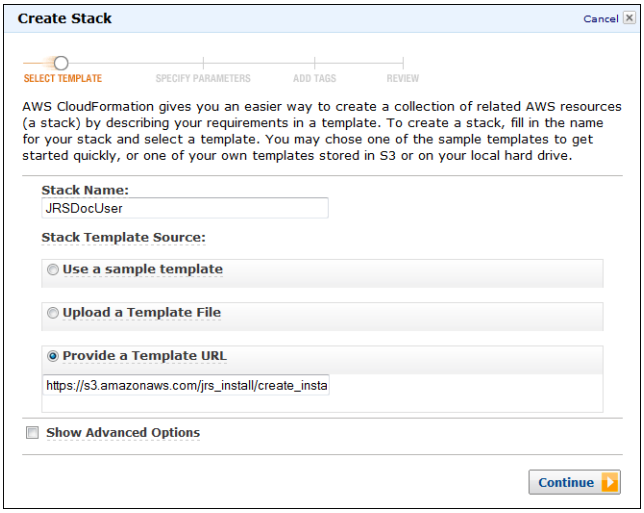

Figure 1-7 Create Stack - Select Template Window

3. In the **Create Stack - Select Template** dialog:
   a. Give your CloudFormation stack a unique name.
   b. By default, AWS provides a stack template source URL. Do not change this selection.
4. Click **Continue**. The **Create Stack - Specify Parameters** window appears.

Figure 1-8 Create-Stack - Specify Parameters Window

5. In the **Create Stack - Specify Parameters** window check the box to acknowledge that the template can create IAM (Identity and Access Management) resources.

   Checking the box is mandatory.

6. Click **Continue**. The **Create Stack - Add Tags** window appears.

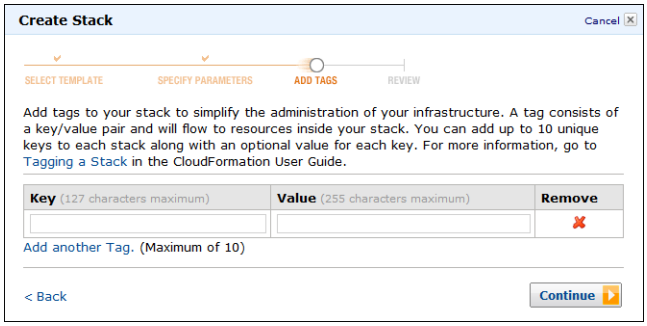

Figure 1-9 Create Stack - Add Tags Window

7. In the **Create Stack - Add Tags** window add any tags you want to simplify administration of your infrastructure.

   A tag consists of a key/value pair and will flow to resources inside your stack. You can add up to 10 unique keys to each stack along with an optional value for each key.

8. Click **Continue**. The **Create Stack - Review** window appears.

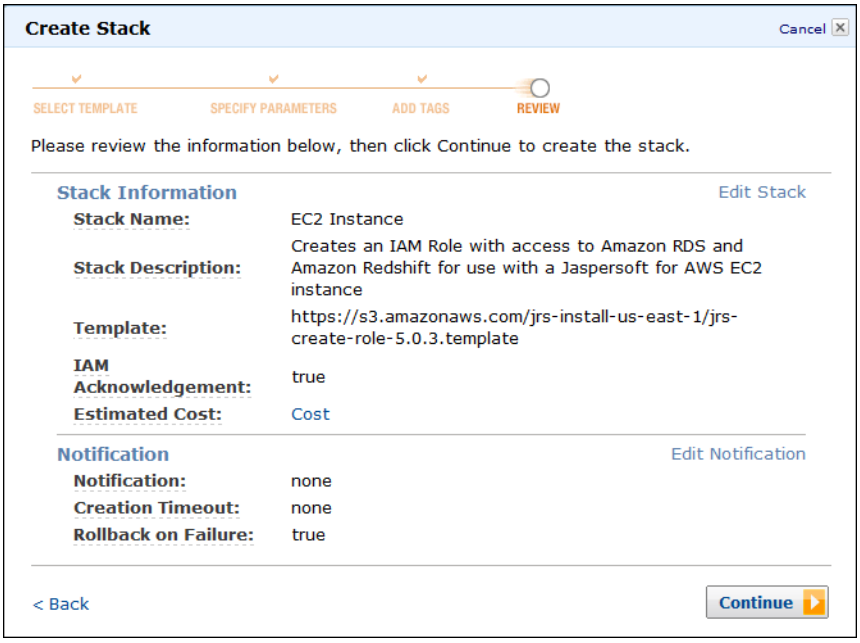

Figure 1-10 Create Stack - Review Window

Double-check your information and parameters.

9. Click **Continue**. A window appears to say your stack is being created.

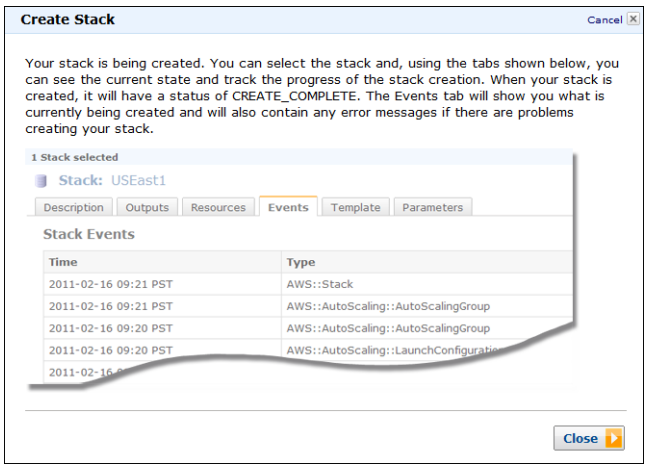

Figure 1-11 "Being Created" Message

10. Click **Close**. The **CloudFormation Stacks** page appears. Your new stack will say `CREATE_IN_PROGRESS` until it is finished being created and `CREATE_COMPLETE` once it is ready to be used.

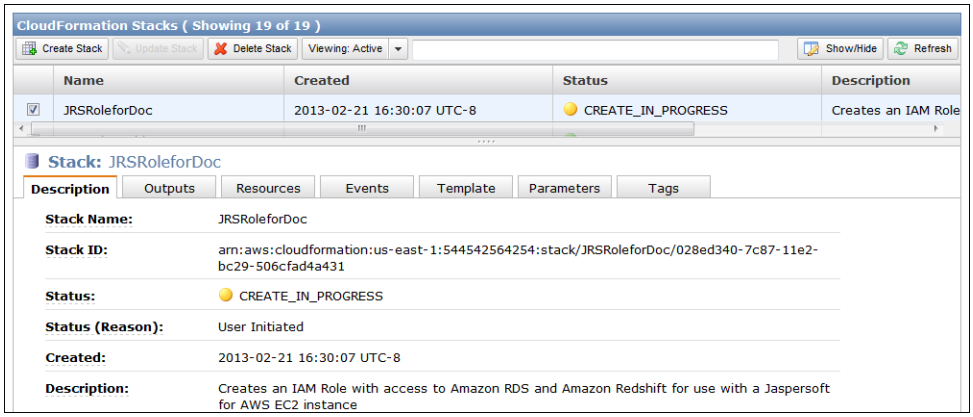

Figure 1-12 CREATE_IN_PROGRESS Message

11. Click the **Outputs** tab.

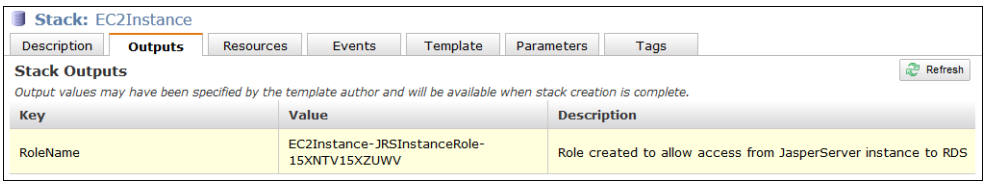

Figure 1-13 Outputs Tab Showing RoleName and Description

You see the **RoleName** for the stack you created. Note it carefully, because you need it in the next procedure.

To create a JasperReports Server instance from the EC2 console:

1. Navigate to:http://aws.amazon.com/console/.
2. Sign in with your AWS account.
3. Go to **Services > EC2**.

   The Resources screen appears.
4. On the left, click **Images > AMIs**.

   Make sure that the **All Images** option is selected.
5. Enter **Jaspersoft BI Professional for AWS** in the **Search** box.
6. Select the AMI **Jaspersoft BI Professional for AWS** and click the **Launch** button.

   The **Request Instances** wizard opens.

Figure 1-14 Request Instances Wizard

7. Use the drop-down to choose an **Instance Type**.

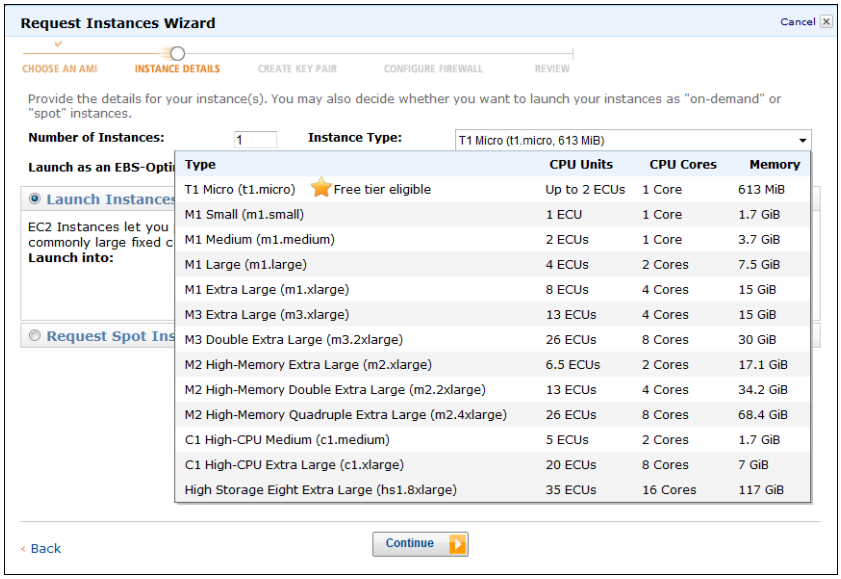

Figure 1-15 Instance Type Drop-Down

Supported instance types are:

- Standard Medium (m1.medium)
- Standard Large (m1.large)
- Standard XL (m1.xlarge)
- High-Memory XL (m2.xlarge)
- High-Memory 2XL (m2.2xlarge)
- High-Memory 4XL (m2.4xlarge)
- High-CPU XL (c1.xlarge)

If you choose an unsupported instance type, you receive an error message. Just click the drop-down again and choose one of the supported options.

8. Choose whether you are using EC2 or VPC.
   a. If you are using EC2, select your **Availability Zone**.
   b. If you are using VPC, select your **Subnet**.
9. Click **Continue**.

   The **Advanced Instance Options** window appears.

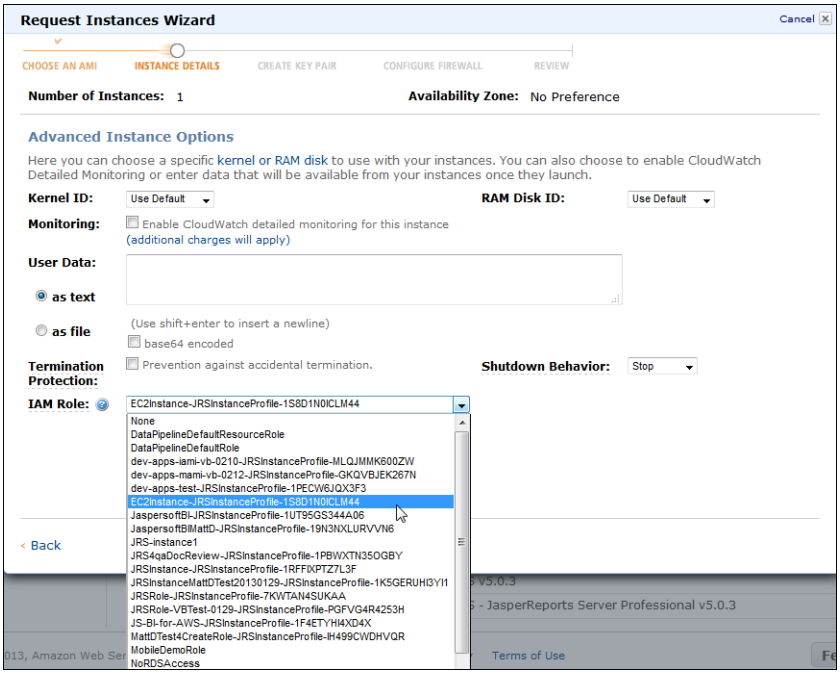

Figure 1-16 Advanced Instance Options

10. Click the **IAM Role** drop-down, and choose the role you created in the previous procedure.

11. Click **Continue**.

    The **Storage Device Configuration** window appears.

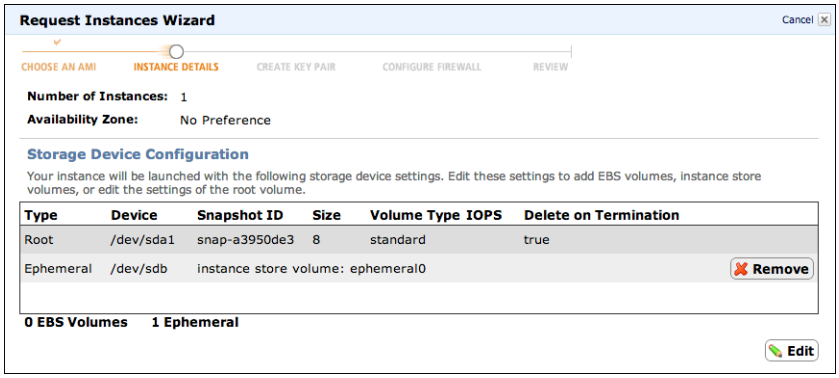

Figure 1-17 Storage Device Configuration

12. If you want to make any changes, click the **Edit** button. You can add or make changes to EBS and instance store volumes or edit the settings of your root volume.
13. Click **Continue**.

    Add any tags you want to simplify administration of your infrastructure.

    A tag consists of a key/value pair and will flow to resources inside your stack. You can add up to 10 unique keys to each instance, along with an optional value for each key.
14. Click **Continue**.

    The **Create Key Pair** window appears.

Figure 1-18 Create Key Pair

15. In the **Create Key Pair** window you can:
    - Choose from your existing key pairs.
    - Create a new key pair.
    - Choose to proceed without a key pair.

      If you choose not to install a key pair on your instance, you will not be able to connect to the instance unless you know the password built in to the AMI.

16. Click **Continue**.

    The **Configure Firewall** window appears.

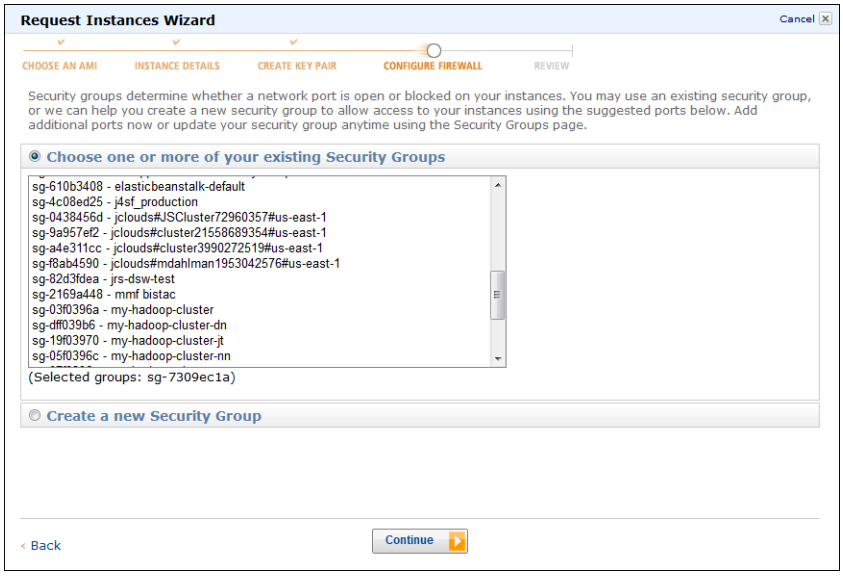

Figure 1-19 Configure Firewall

17. Choose an existing security group or create a new security group.

We set up one AWS DB Security Group (using IP address) in each RDS region, per JasperReports Server instance. The security group allows connections from the specific JRS instance to the specified AWS database instance.

18. Click **Continue**. The **Review** window appears.

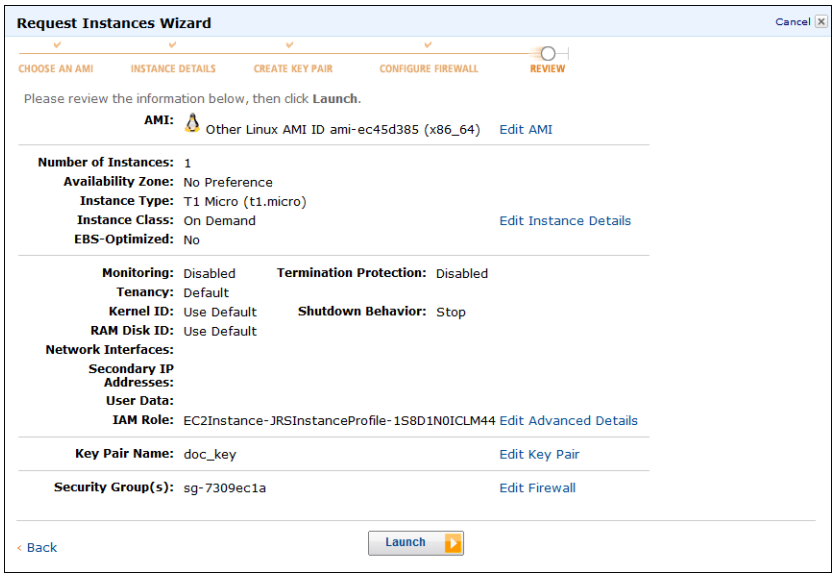

Figure 1-20 Review

Double-check your information and parameters.

19. Click **Launch**.

    You will see a message telling you that your instance is now launching.

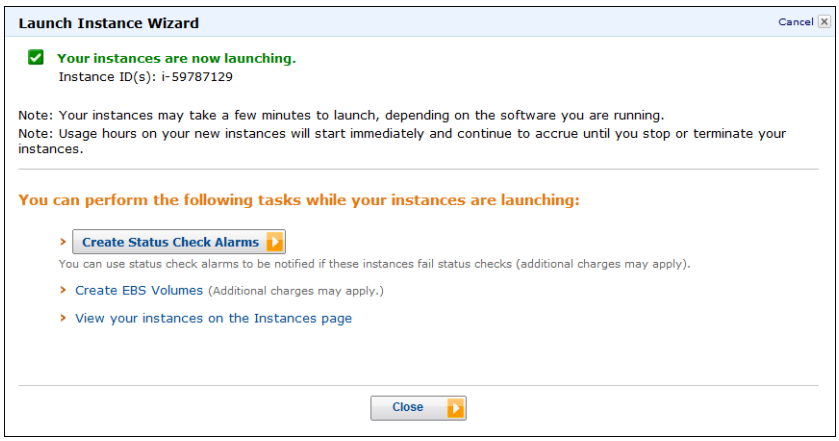

Figure 1-21 Launching Message

    Your instances may take a few minutes to launch, depending on the software you are running.

Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

20. Click **Close**.

1.2.3 Logging in to JasperReports Server

When logging in to JasperReports Server you must use the URL as shown in **Figure 1-6**.

The initial user is `superuser` and password is `superuser`. You must change the password in order to log in.

To log in to JasperReports Server the first time:

1. Click the **GettingStartedURL** link in your **Outputs** tab.

   The **Welcome** page appears.

Figure 1-22 Welcome to Your Jaspersoft BI Server

2. On the **Welcome** page:
   a. Click the **Get Support** button to register to have access to Jaspersoft support.
   b. Click the **Explore Resources** button to visit the Community site.
   c. Click the **Get Started** button to watch a short video that shows you how to quickly connect to your AWS data sources.
   d. Click the **Login** button.

The **Welcome to Jaspersoft** window appears.

Figure 1-23 Login Screen

Before you click the Login button on this page:

The initial `password` for superuser is `superuser`, but it is pre-configured to be expired. You much change the password before your first login.

1. Enter the User ID `superuser` and password `superuser`.
2. Click **Change password**.
3. Set the new password to any password you will remember.

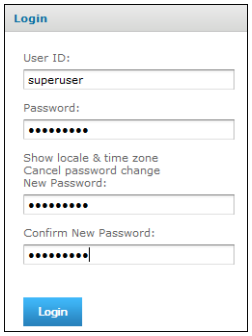

Figure 1-24 Change Password

4. Now, click the **Login** button.
   The **Home** screen appears.

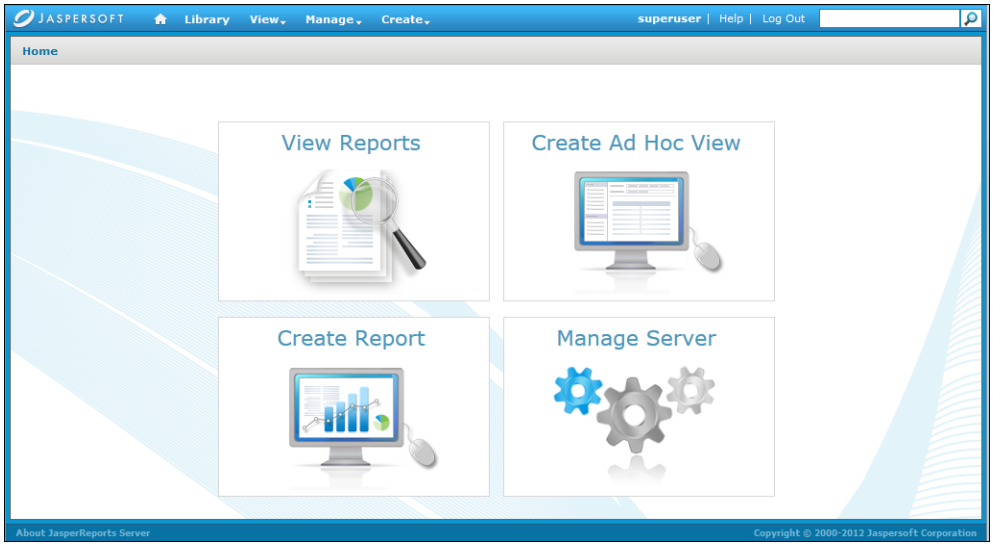

Figure 1-25 Home Screen

If you use PostgreSQL as your database, note that not all PostgreSQL-supported functions will work with Redshift. See the Redshift documentation for details about supported functions.

1.3 AWS Settings Page

The AWS settings page enables you to change Security Group settings without restarting the server. This page is accesible only if logged in with the Jaspersoft role `superuser`.

To reach the AWS Settings page:

1. Click **Manage > Server Settings**.
   The **Log Settings** page appears.
2. Click **AWS Settings** in the left-hand menu.
   The **AWS Settings** page appears

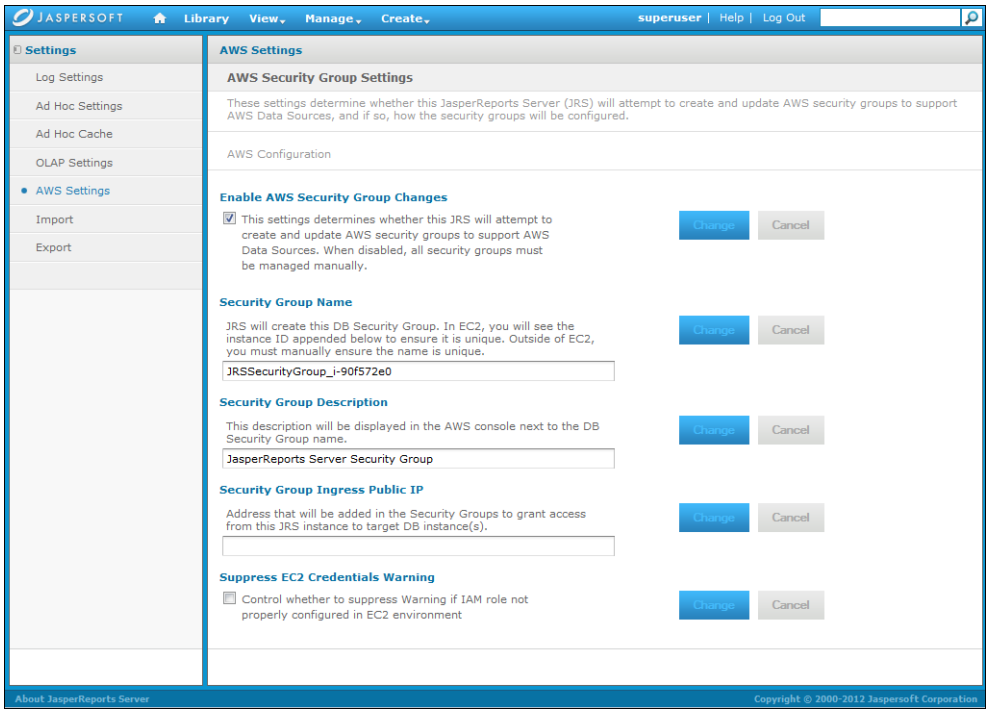

Figure 1-26 AWS Settings Page

From this page you can enable AWS Security Group changes for the following settings:

- Security Group Name
- Security Group Description
- Security Group Ingress Public IP
- Suppress EC2 Credentials Warning

We set up one AWS DB Security Group (using IP address) in each RDS region, per JasperReports Server instance. The security group allows connections from the specific JRS instance to the specified AWS database instance.

Enable AWS Security Group Changes: This checkbox is generally left checked. When checked the JasperReports Server will use the instance credentials which it assumes from the IAM role to grant itself access to RDS and Redshift data services. For example, you stop your EC2 instance with JasperReports Server on Friday. You restart it on Monday, and the instance gets a new IP address. JasperReports Server then re-grants itself access to RDS. If you want to manage the security groups manually, un-check this box.

Security Group Name: When JasperReports Server creates security groups to support AWS data sources on this instance, it will use this name as the basis of the security group name. When the JasperReports Server instance is running on EC2, the EC2 instance ID will be appended. When running outside of EC2, you must make sure that name is unique between JasperReports

Server instances (*i.e.* each one should have its own name), so that the IP addresses are properly granted access to the appropriate database instances.

Security Group Description: This text will be used for the description field next to security group or groups in the AWS console.

Security Group Ingress Public IP: Most users on EC2 should leave the this field empty. JasperReports Server determines the IP address automatically. If you are running JasperReports Server outside of EC2, then you must determine your IP address manually and enter it in this field. It is also possible with complex EC2 topology involving Virtual Private Clouds (VPCs) that you need to provide your IP address manually.

Suppress EC2 Credentials Warning: If your JasperReports Server instance was created with no IAM role, when you go to the data source wizard to add a data source with EC2 credentials there will be a warning message saying there is no proper role set. Checking this box suppresses the warning and disables the option.

CHAPTER 2 AWS DATA SOURCE

JasperReports Server for Amazon Web Services includes a new data source type, the AWS Data Source.

There are two ways to add an AWS data source: either using AWS credentials or EC2 instance credentials. It is strongly recommended that you use EC2 Credentials.

This chapter assumes you have basic knowledge of JasperReports Server. You can find Jaspersoft's documentation on the Community Site: http://community.jaspersoft.com/documentation.

2.1 Adding an AWS Data Source Using EC2 Credentials

Using the default credentials requires that the role was properly set up and assigned when the instance was created.

To use the AWS Data Source with EC2 instance credentials:

1. From the main page, choose **Create > Data Source**.

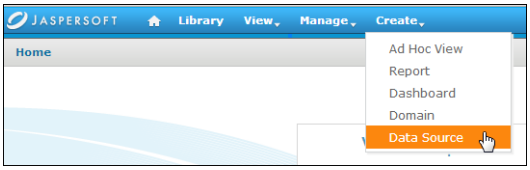

Figure 2-1 Create Menu

The **Set Data Source Type and Properties** page appears.

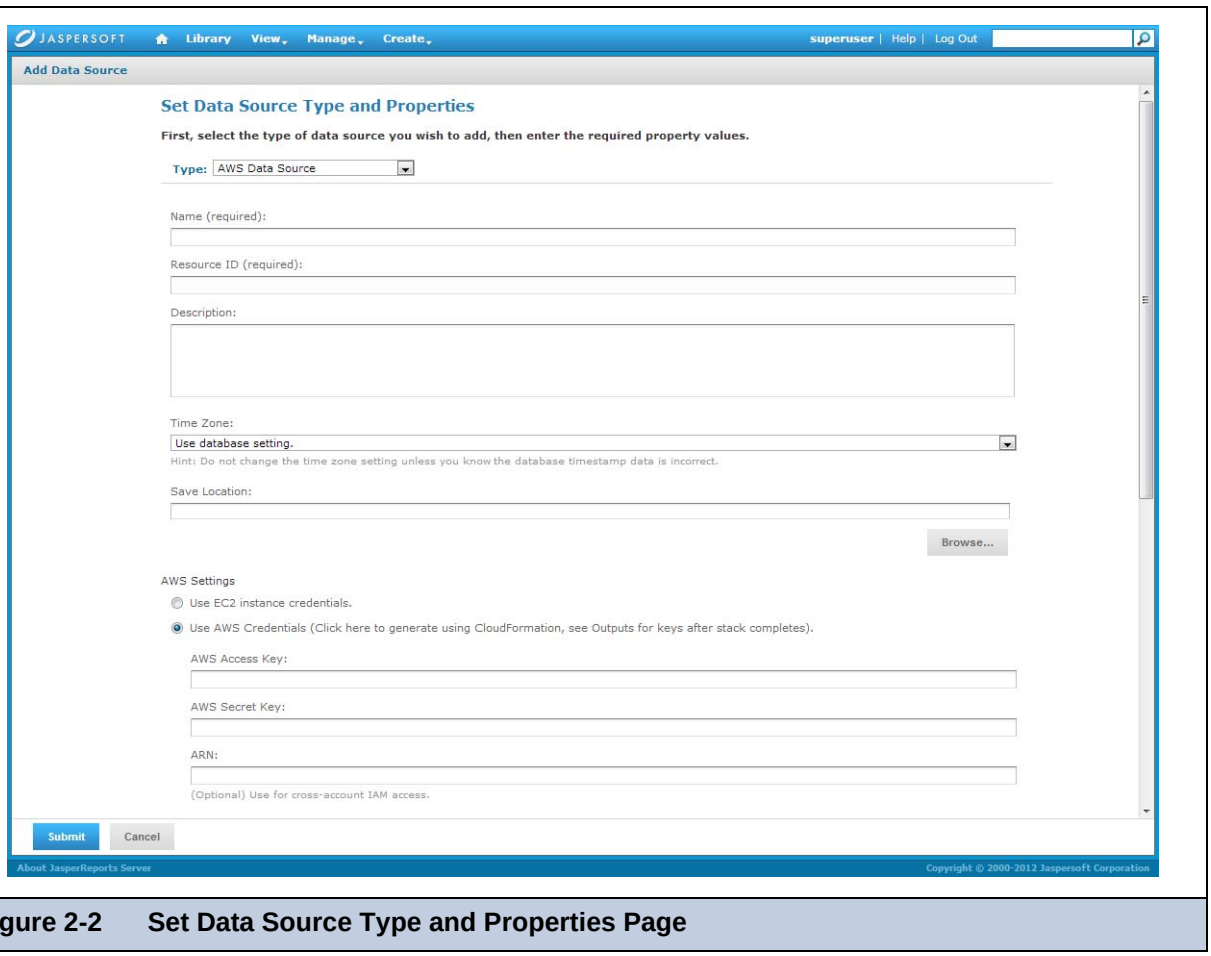

Figure 2-2 Set Data Source Type and Properties Page

2. At the top of the Set Data Source Type and Properties page:
   a. In the **Type** drop-down, choose **AWS Data Source**. If an alert appears, click **Close**.
   b. **Name** the data source. By default, **Resource ID** matches the name. You can change **Resource ID** if you want to.
3. Under **AWS Settings** choose **Use EC2 instance credentials**.

4. Under **Select an AWS Data Source**:

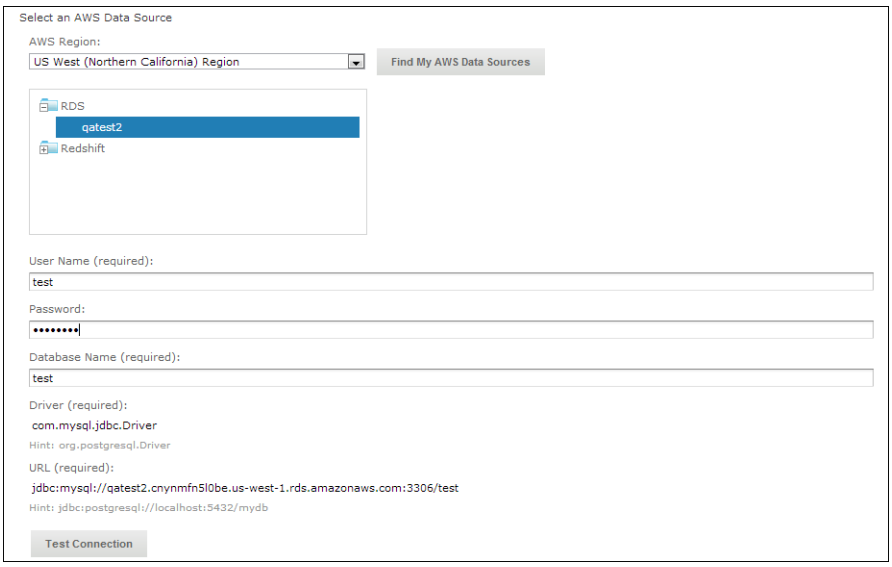

Figure 2-3 Select an AWS Data Source Section

a. Select your AWS Region from the drop-down.

b. Click the **Find My AWS Data Sources** button.

   The AWS data source queries your environment and displays your available data sources.

c. Choose your data source.

d. Enter your user name, password, and database name.

   The AWS data source queries your environment and adds the appropriate driver.

e. Click **Test Connection**.

   Testing accomplishes the following:

   - Creates a database security group
   - Adds the internal IP of the EC2 instance to the security group to authorize ingress to RDS
   - Provides the instance with credentials like "rds:CreateDBSecurityGroup" and "redshift:AuthorizeClusterSecurityGroupIngress"

   If you want to control details of the security group name or specify the IP address manually because you have a complex VPC Topology, see **1.3, "AWS Settings Page," on page 19**.

   If your connection is successful, a message appears at the top of the screen.

   Sometimes the process takes a few minutes. In that case you will see an alert. Try the test again after one or two minutes.

5. Click **Submit**.

The new data source appears in the repository.

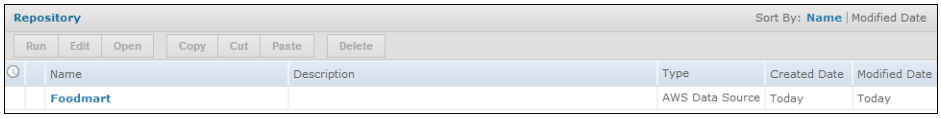

Figure 2-4 Repository Containing the New Data Source

2.2 Adding an AWS Data Source Using AWS Credentials

It is strongly recommended that you use EC2 Credentials.

To use the AWS Data Source wizard with AWS credentials:

1. From the main page, choose **Create > Data Source**.

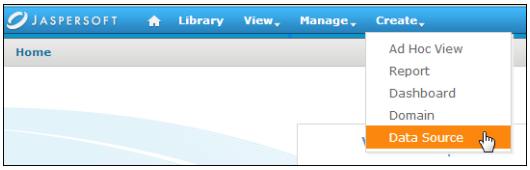

Figure 2-5 Create Menu

The **Set Data Source Type and Properties** page appears.

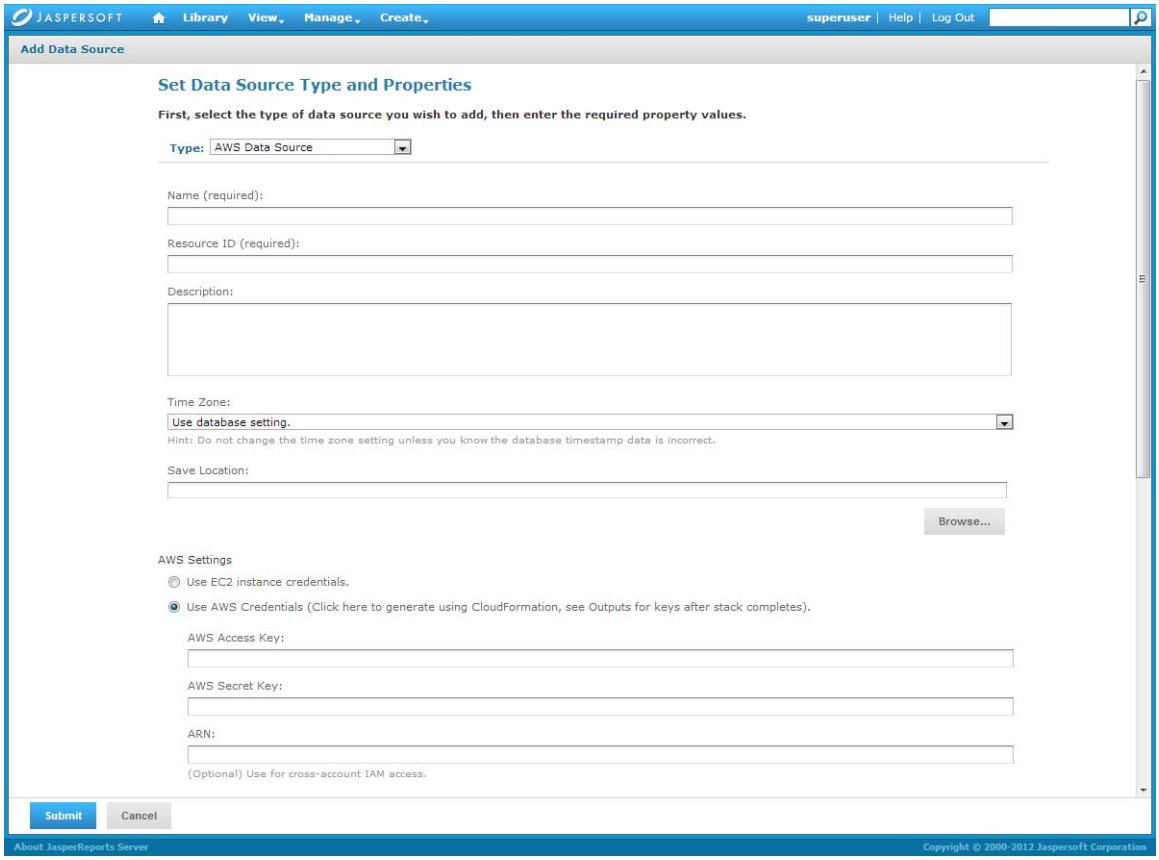

Figure 2-6 Set Data Source Type and Properties Page

2. At the top of the Set Data Source Type and Properties page:
   a. In the **Type** drop-down, choose **AWS Data Source**. If an alert appears, click **Close**.
   b. **Name** the data source. By default, **Resource ID** matches the name. You can change **Resource ID** if you want to.

3. Under **AWS Settings**:
   a. Select **Use AWS Credentials**.
   b. If you do not already have an AWS Access Key and AWS Secret Key, use the **Click here** link to generate them.
      The keys can be found on the **Outputs** tab for your Stack.

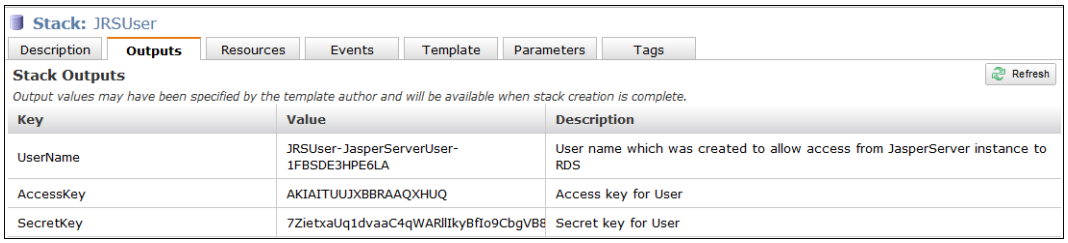

Figure 2-7 AWS Access and Secret Keys

   c. Enter your AWS Access Key, which will appear in plain text, and AWS Secret Key, which will be hidden.

4. Under **Select an AWS Data Source**:

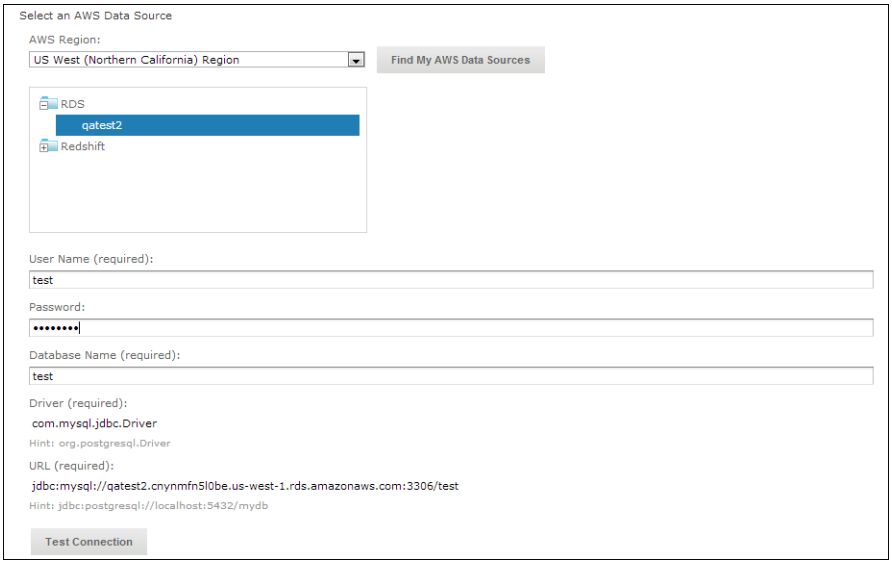

Figure 2-8 Select an AWS Data Source section

   a. Select your AWS Region from the drop-down.
   b. Click the **Find My AWS Data Sources** button.
      The AWS data source will query your environment and pull in what you have available.
   c. Choose your data source.
   d. Enter your user name, password, and database name.
      The AWS data source queries your environment and adds the appropriate driver.
   e. Click **Test Connection**.
      If your connection is successful, a message appears at the top of the screen.
      Sometimes the process takes a few minutes. In that case you will see an alert. Try the test again after one or two minutes.

5. Click **Submit**.

   The new data source appears in the repository.

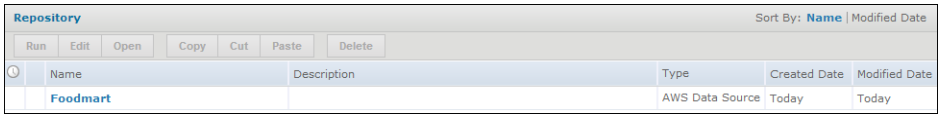

Figure 2-9 Repository containing the new data source

GLOSSARY

Amazon Machine Image (AMI)

A supported and maintained Linux provided by Amazon Web Services for use on Amazon Elastic Compute Cloud (Amazon EC2). It is designed to provide a stable, secure, and high performance execution environment for applications running on Amazon EC2. It also includes several packages that enable easy integration with AWS, including launch configuration tools and many popular AWS libraries and tools. Amazon Web Services also provides ongoing security and maintenance updates to all instances running the Amazon AMI.

Amazon Web Services (AWS)

Cloud platform, used to provide and host a family of services, such as RDS, S3, EC2, DynamoDB.

AWS Console

The user interface Amazon has built around the available services offered. Within the AWS Console, there are sub-consoles for individual services (EC2, S3, RDS, CloudFront, DynamoDB, etc.)

AWS Marketplace

Storefront for commercial AMIs provided and managed by Amazon, which bills customer for usage and keeps a percentage of sales proceeds.

CloudFormation (CF)

AWS CloudFormation gives developers and systems administrators an easy way to create and manage a collection of related AWS resources, provisioning and updating them in an orderly and predictable fashion.

AWS Identity and Access Management (IAM)

AWS Identity and Access Management (IAM) enables you to create multiple users and manage the permissions for each of these users within your AWS Account. A user is an identity within your AWS account with unique security credentials that can be used to access AWS Services. IAM eliminates the need to share passwords or access keys, and makes it easy to enable or disable a user’s access as appropriate.

Marketplace AMI

An AMI that is distributed through the AWS Marketplace.

Public AMI

AMI configured as public by any Amazon user, and listed in everyone's AWS EC2 console AMI area.

RDS

Amazon's Relational Database Service, which makes it easy to run MySQL, Oracle, or SQL Server database servers in the cloud. The servers are managed, upgraded, and backed up by Amazon.

Stack

A collection of AWS resources you create and delete as a single unit