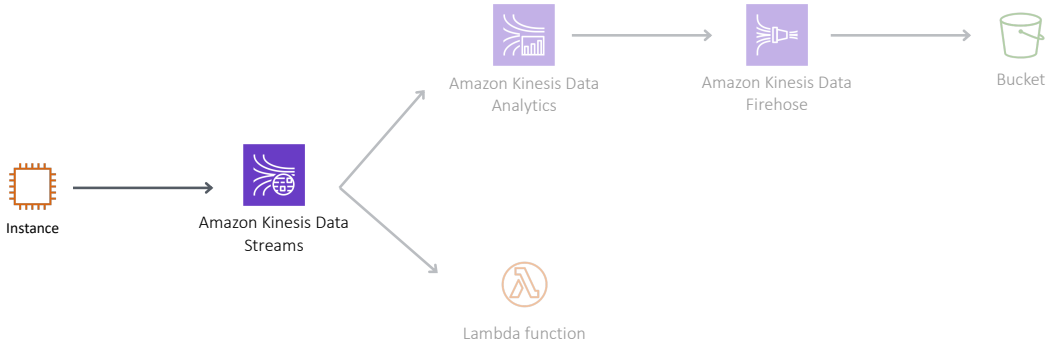
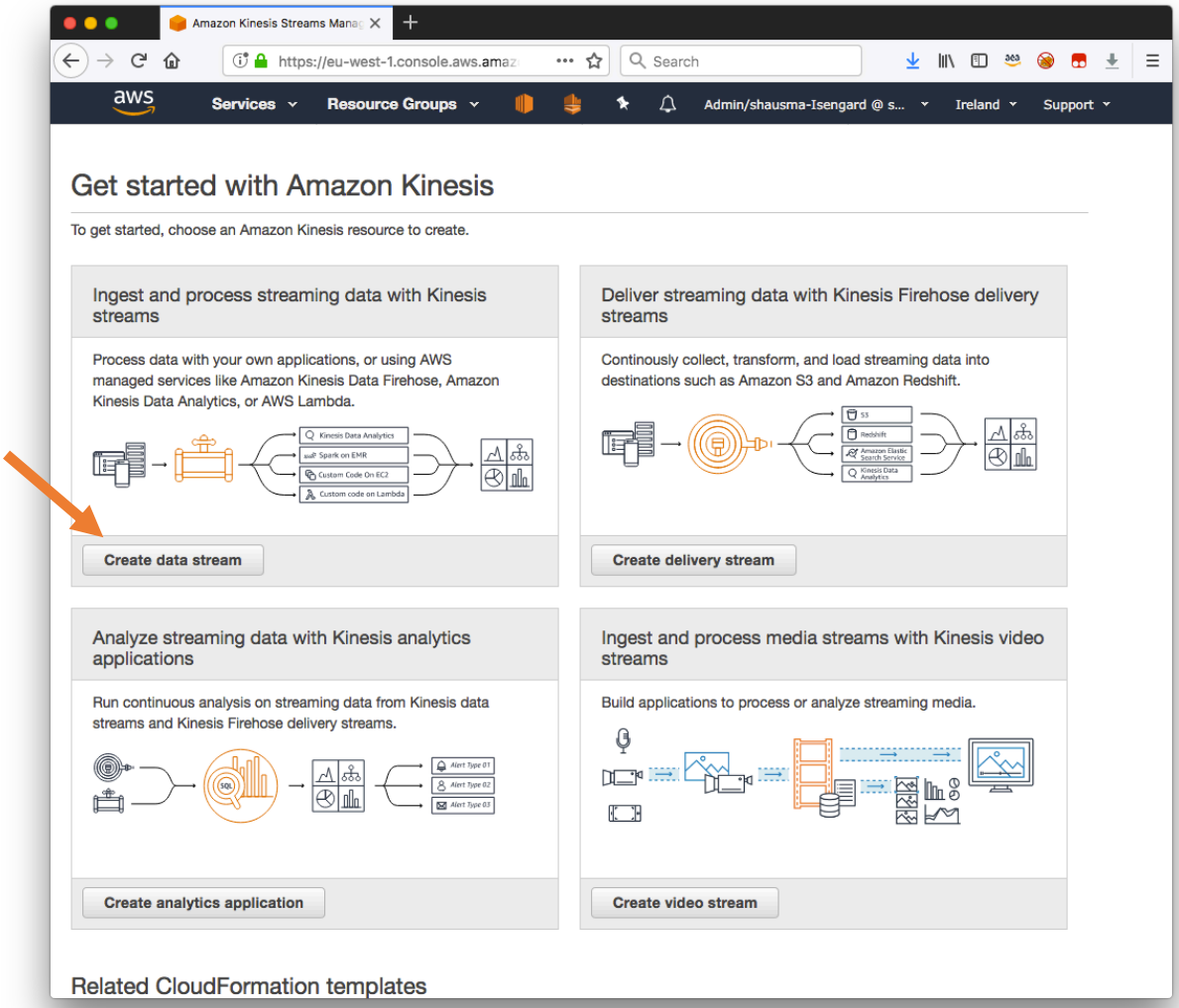
Section 1: Ingest data into a Kinesis Data Stream

In this section, we create an Amazon Kinesis Data Stream and populate the stream using a historic data set of taxi trips made in NYC.

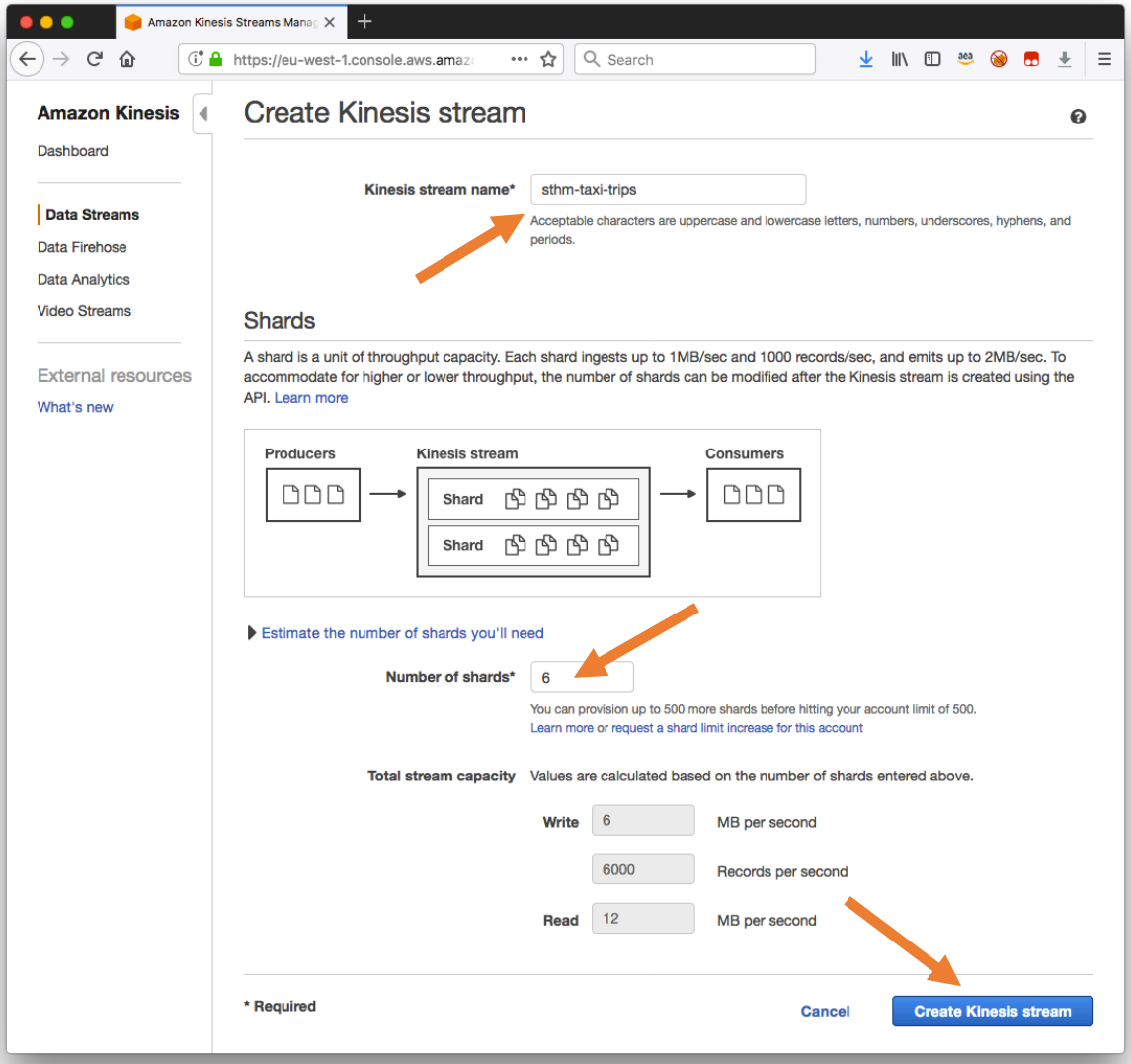


1. Navigate to the Amazon Kinesis services and press **Get Started** when prompted (you may not need to complete this, if you have already used Amazon Kinesis). Select **Create data stream** to navigate to the Amazon Kinesis Data Stream service.



2. When prompted, enter a unique name for the Kinesis data stream, eg, *initials-taxi-trips*, as **Kinesis stream name.** Enter *6* as the **Number of shards** and select **Create Kinesis**

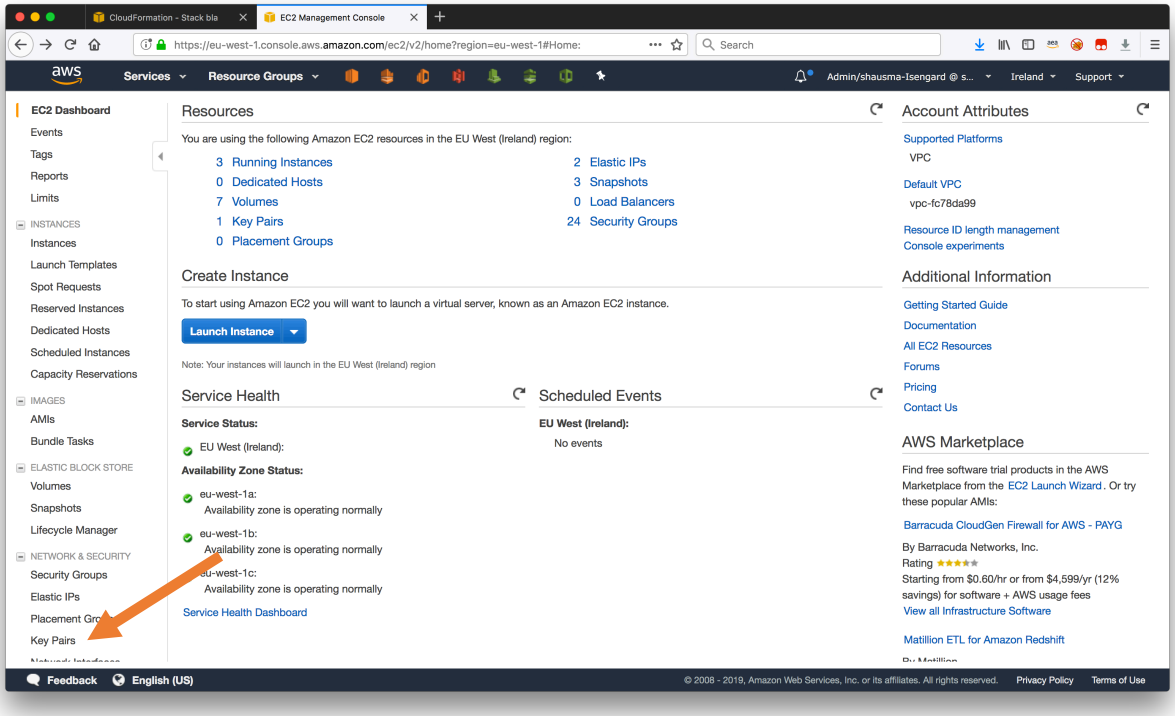
stream at the bottom of the page.



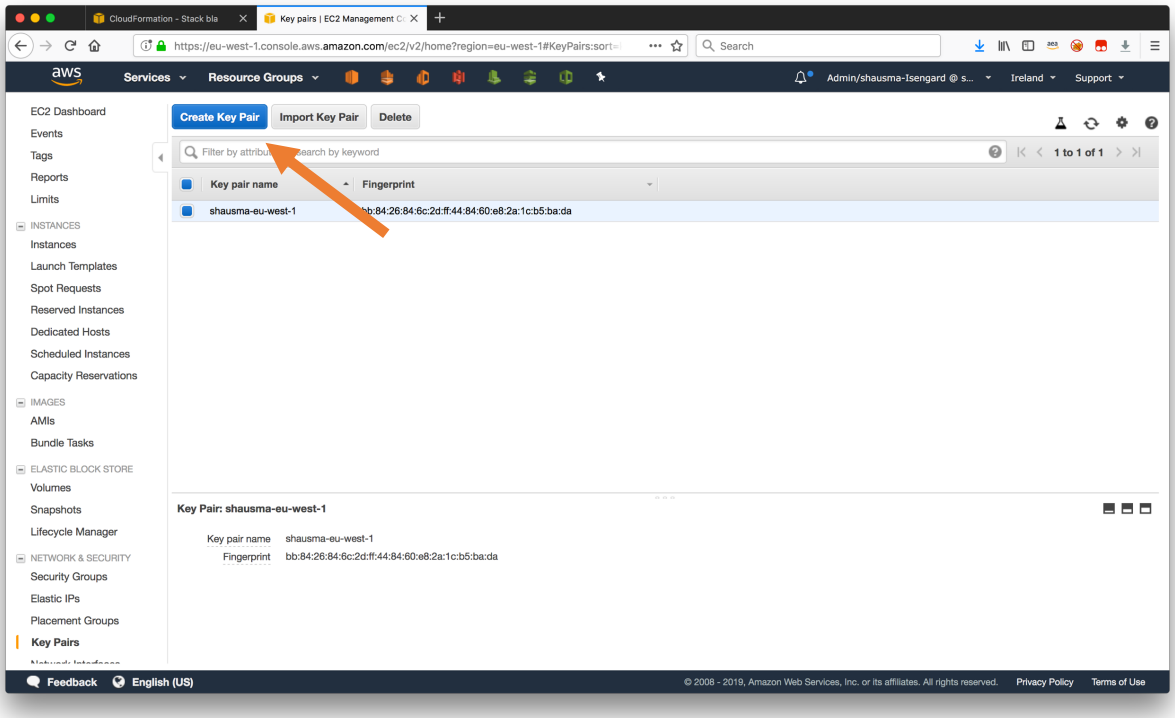
Now that the Kinesis data stream has been created, we want to ingest historic taxi trip events into the data stream. To this end, we compile the kinesis replay Java application and load it onto an EC2 instance.

We start with creating an SSH key pair so that we can connect to the instance over SSH. You can skip to the next section if you have created an SSH key pair previously.

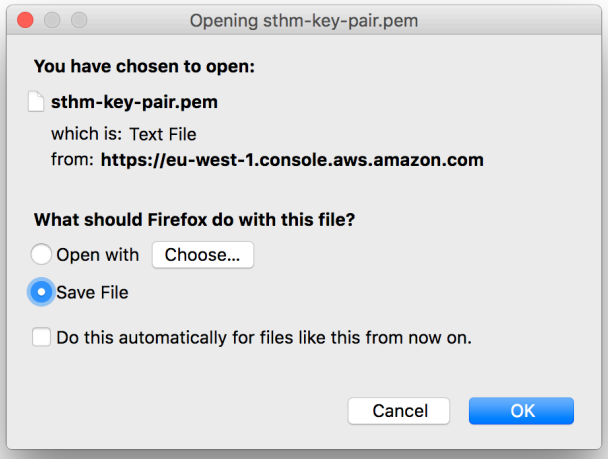
1. Navigate to the EC2 service and choose Key Pairs in the navigation bar on the left.



2. Click **Create Key Pair** and enter a name for the SSH key pair in the resulting dialog box, eg, initals-key-pair and select **Create**.



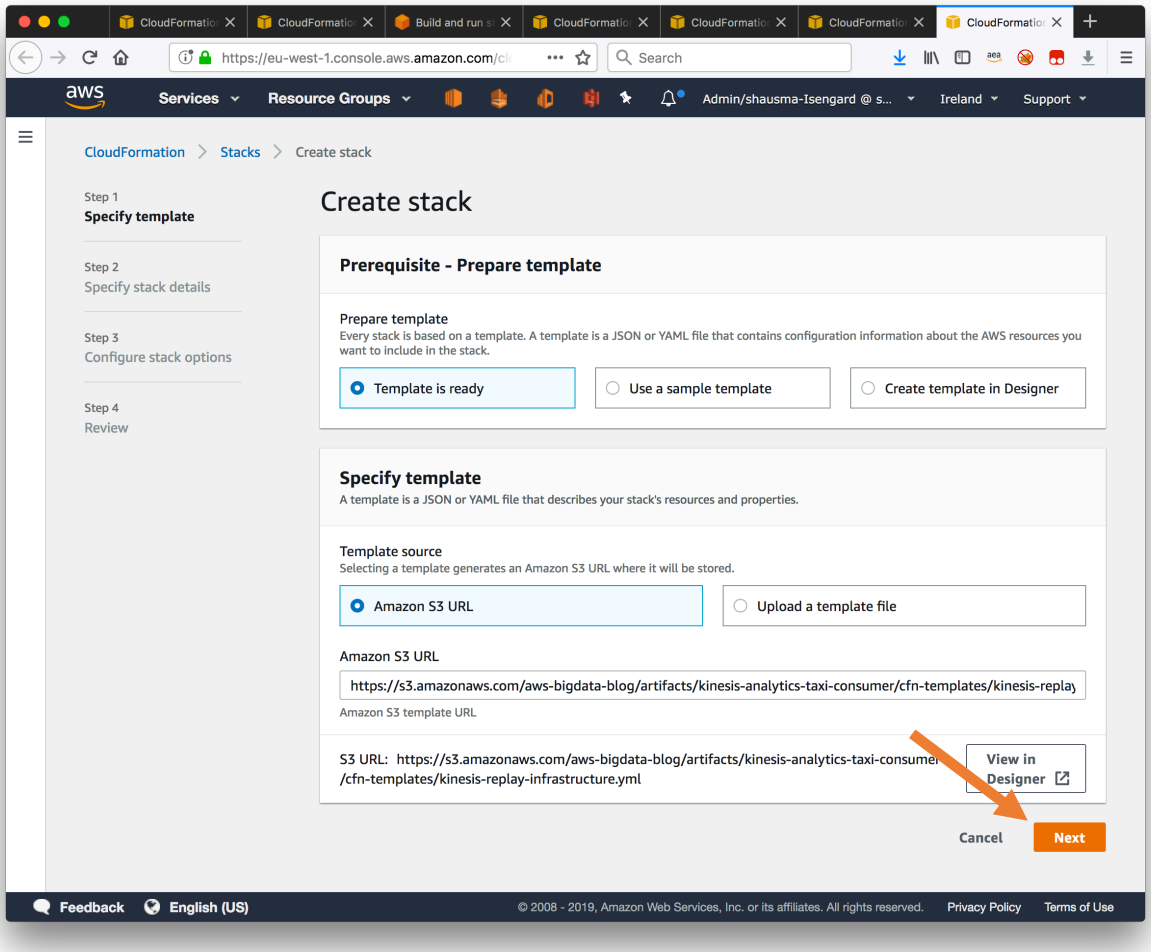
3. Confirm the download of the generated .pem file to your local machine.



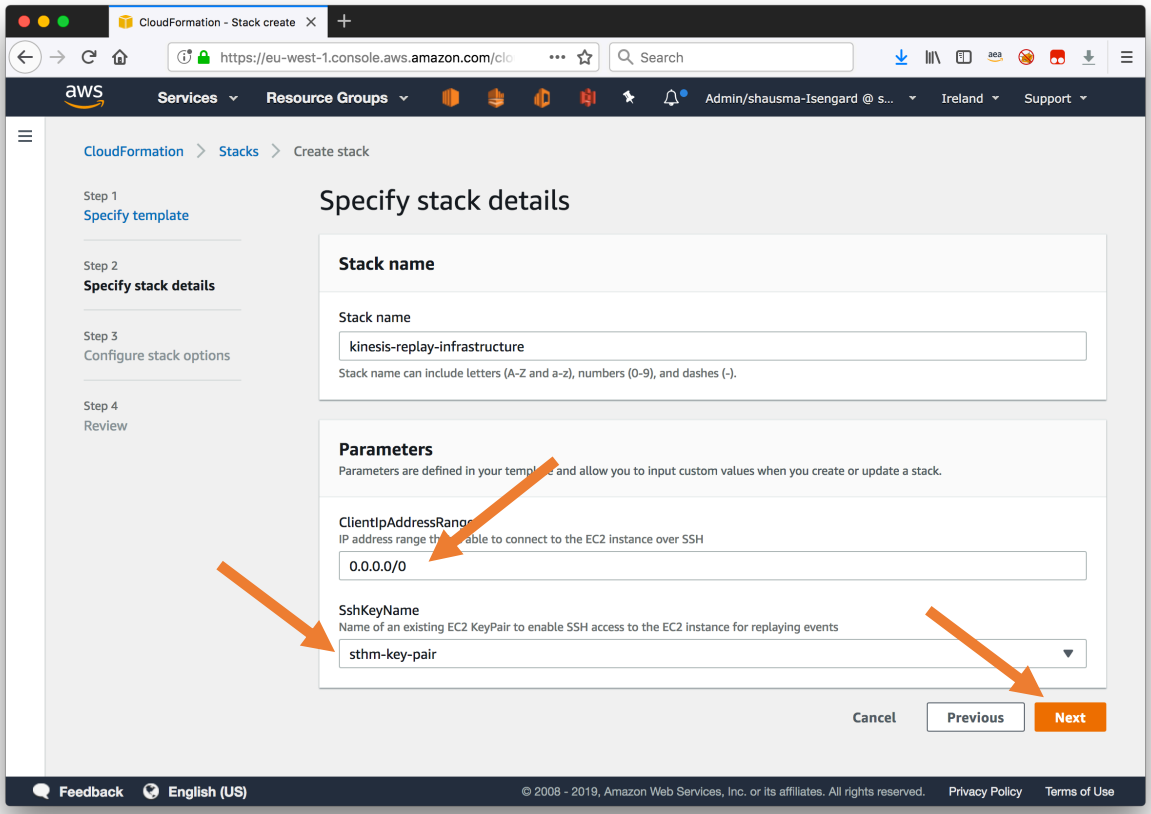
Now that you have successfully created an SSH key pair, you can create the EC2 instance that you will use to ingest taxi trip events into the previously created Kinesis data stream.

1. Follow this link to execute CloudFormation template that uses CodePipeline and CodeBuild to compile the kinesis replay Java application and to provision a EC2 instance.

Select **Next** on the resulting dialog.

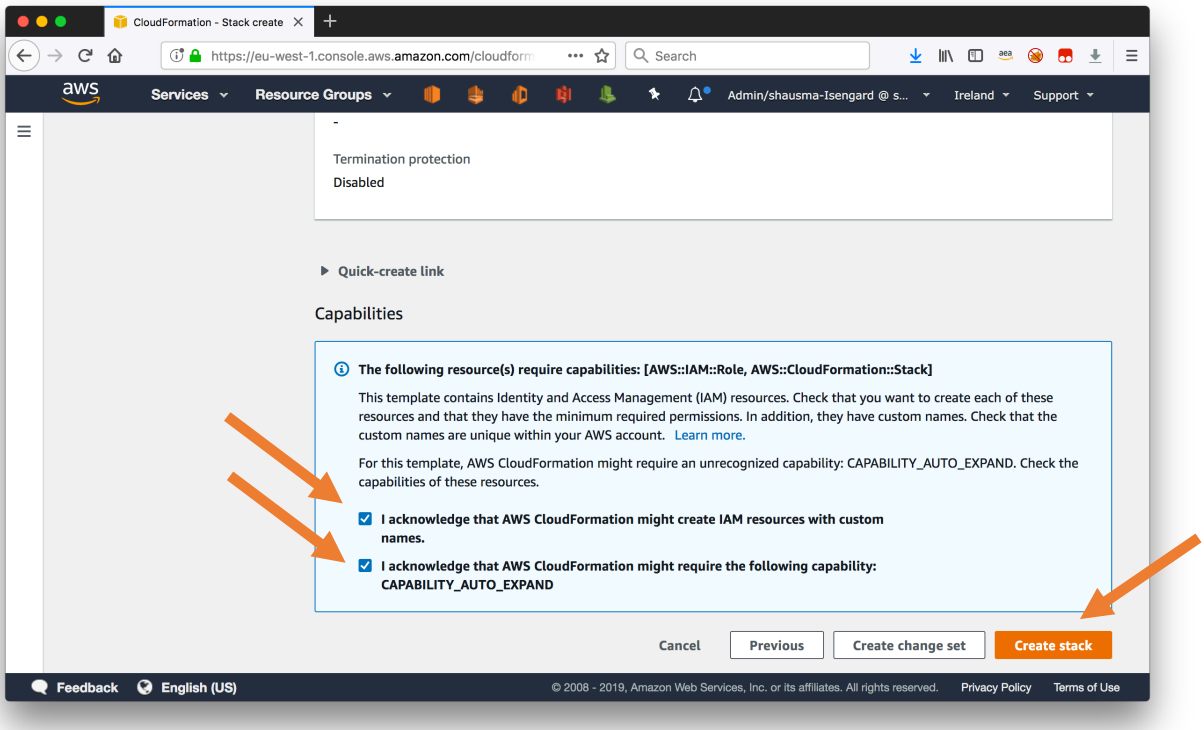


2. On the next page of the dialog, specify an appropriate CIDR range to that is able to connect to the EC2 instance over SSH as the **ClientIpAddressRange** parameter. Moreover, select the previously created SSH key pair from the **SshKeyName** dropdown menu.

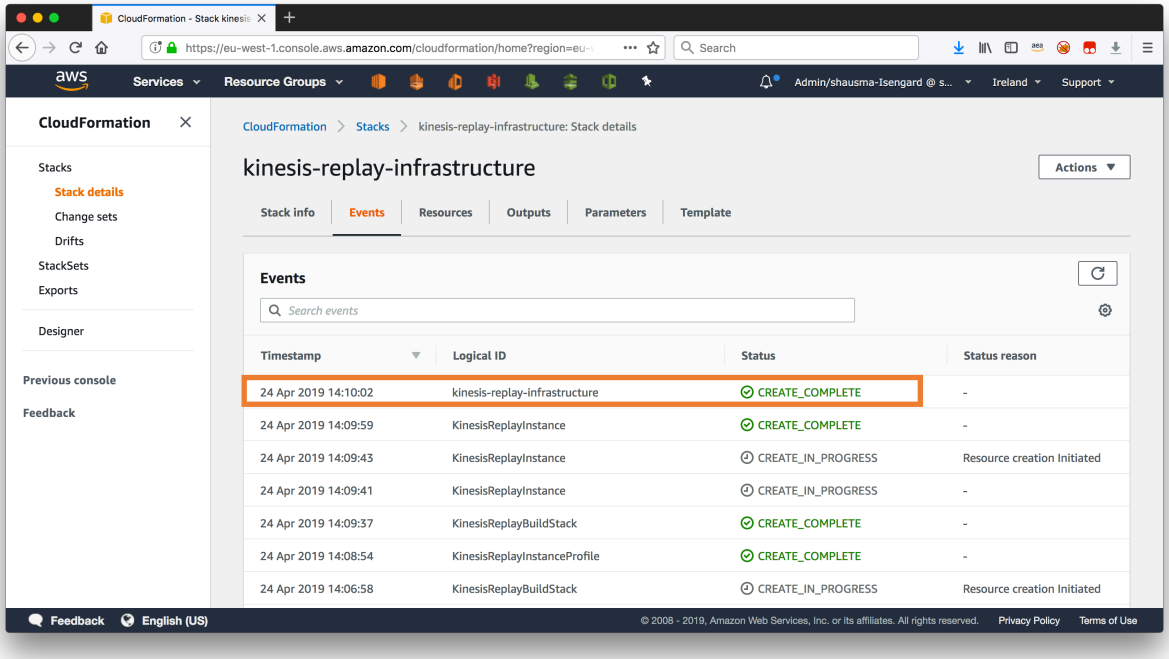


3. On the next dialog for **Step 3**, leave all parameters set to their default and select **Next**.
4. On the last page of the dialog, confirm that CloudFormation may create IAM resource and create nested CloudFormation stacks by selecting the checkbox **I acknowledge that AWS CloudFormation might create IAM resources** and **I acknowledge that AWS CloudFormation might require the following capability: CAPABILITY_AUTO_EXPAND**.

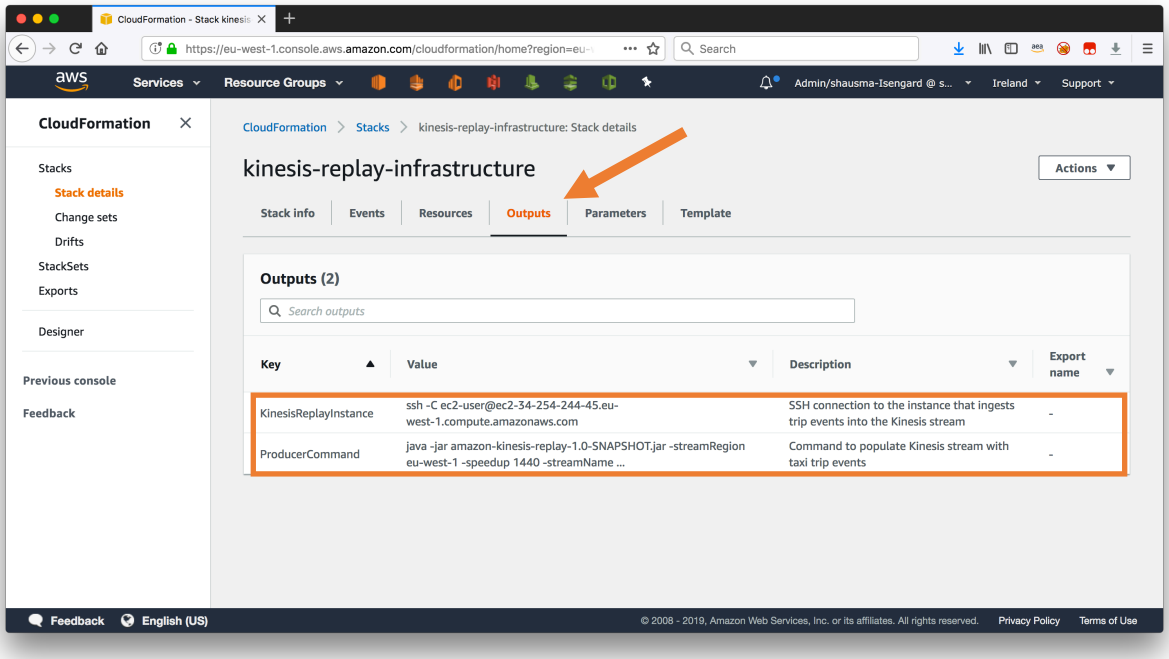
Finally select **Create stack** at the bottom of the page.



5. Wait until the CloudFormation template has been successfully been created. This may take around 5 minutes.



6. Navigate to the **Outputs** section of the CloudFormation template and take a note of the outputs for **KinesisReplayInstance** and **ProducerCommand**.



The CloudFormation template has created and configured an EC2 instance so that we can now start to ingest taxi trip events into the Kinesis data stream.

1. Connect to the EC2 instance via SSH. You can obtain the command including the correct parameters from the **Outputs** section of the CloudFromation template.

   ```
   $ ssh -C ec2-user@ec2-34-254-244-45.us-east-1.compute.amazonaws.com
   ```

2. Once the connection has been established, start ingesting events into the Kinesis data stream by executing the jar file that has already been downloaded to the Ec2 instance.

   ```
   $ java -jar amazon-kinesis-replay-1.0-SNAPSHOT.jar -streamRegion us-east-1 -speedup 1440 -streamName initials-taxi-trips
   ```

   The correct command is again available from the **Outputs** section of the CloudFromation template, but this time you need to fill in the name of Kinesis data stream you have created earlier as the `streamName` parameter.