

Deploying Web Applications to the Cloud



ThoughtWorks®



Cosmin Stejerean

@offbytwo

AWS Console

The screenshot shows the Amazon RDS Console Dashboard. At the top, there is a navigation bar with various AWS services: AWS Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Amazon CloudWatch Metrics, Amazon CloudWatch Logs, CloudFront, AWS CloudFormation, Amazon RDS (which is highlighted in orange), and Amazon SNS.

Navigation

Region: US East

- > RDS Dashboard
- Databases
 - > DB Instances
 - > Reserved DB Instances
 - > DB Snapshots
 - > DB Security Groups
 - > DB Parameter Groups
 - > DB Events

Amazon RDS Console Dashboard

Getting Started

To start using Amazon RDS you will want to launch a database instance, known as an Amazon RDS DB instance.

Launch DB Instance

Note: Your DB Instances will launch in the US East (Virginia) region.

Service Health

Current Status	Details
Green checkmark Amazon RDS (US East - N. Virginia)	Service is operating normally

[View complete service health details](#)

My Resources

You are using the following Amazon RDS resources in the US East (Virginia) region:

DB Instances 0 DB Instances Reserved DB Instances 0 Reserved DB Instances

DB Snapshots 0 DB Snapshots DB Security Groups 1 DB Security Groups

DB Parameter Groups 1 DB Parameter Groups Recent Events 0 Recent Events

Related Links

- > Documentation
- > All Amazon RDS Resources
- > Forums
- > Feedback
- > Report an Issue

Today's goals

- Deploy sample Django application to EC2
- Serve static assets from CloudFront CDN
- Move database to RDS
- Load balance using ELB

Before we begin

- Download <http://bit.ly/pycon-type-this>

Exercise I

- Create EBS volume
- Configure Database
- Deploy Django app

Select Region



Key Pairs

Navigation

Region: US East (Virginia)

EC2 Dashboard

INSTANCES

Instances

Spot Requests

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

NETWORKING & SECURITY

Security Groups

Placement Groups

Elastic IPs

Load Balancers

Key Pairs

or

My Resources

You are using the following Amazon EC2 resources in the US East (Virginia) region:

Refresh

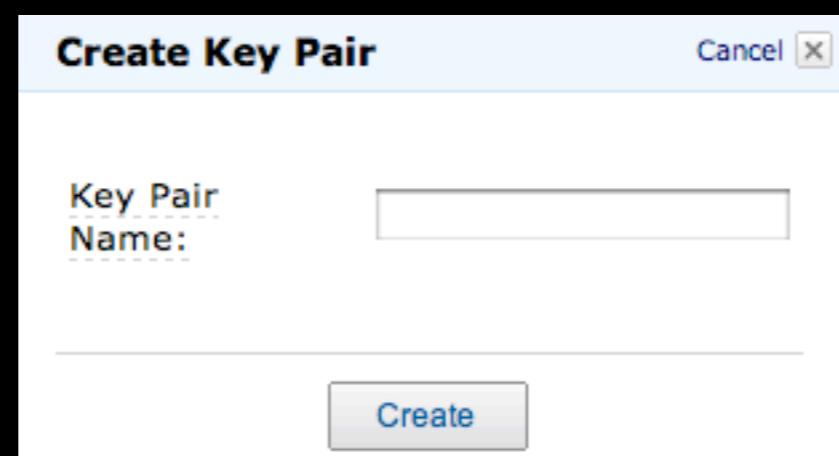
1 Running Instance	1 Elastic IP
2 EBS Volumes	1 EBS Snapshot
1 Key Pair	1 Security Group
0 Load Balancers	0 Placement Groups

Generate Key Pair



The screenshot shows the AWS EC2 Key Pairs management interface. On the left, there's a navigation sidebar with a 'Region' dropdown set to 'US East (Virginia)'. Below it are links for 'EC2 Dashboard' and 'INSTANCES'. The main area is titled 'Key Pairs' and contains a table with one row. The table has columns for 'Key Pair Name' and 'Fingerprint'. The single entry is 'personal' with the fingerprint 'fe:54:f1:3f:7b:75:a5:28:a1:60:05:c2:47:a1:12:6f:56:d8:d0:08'. At the top of this section, there are two buttons: 'Create Key Pair' (highlighted with a red circle) and 'Delete'.

	Key Pair Name	Fingerprint
<input type="checkbox"/>	personal	fe:54:f1:3f:7b:75:a5:28:a1:60:05:c2:47:a1:12:6f:56:d8:d0:08



The dialog box is titled 'Create Key Pair' and has a 'Cancel' button in the top right corner. It contains a single input field labeled 'Key Pair Name:' with a dashed placeholder. Below the input field is a 'Create' button.

Key Pair Name:

Create

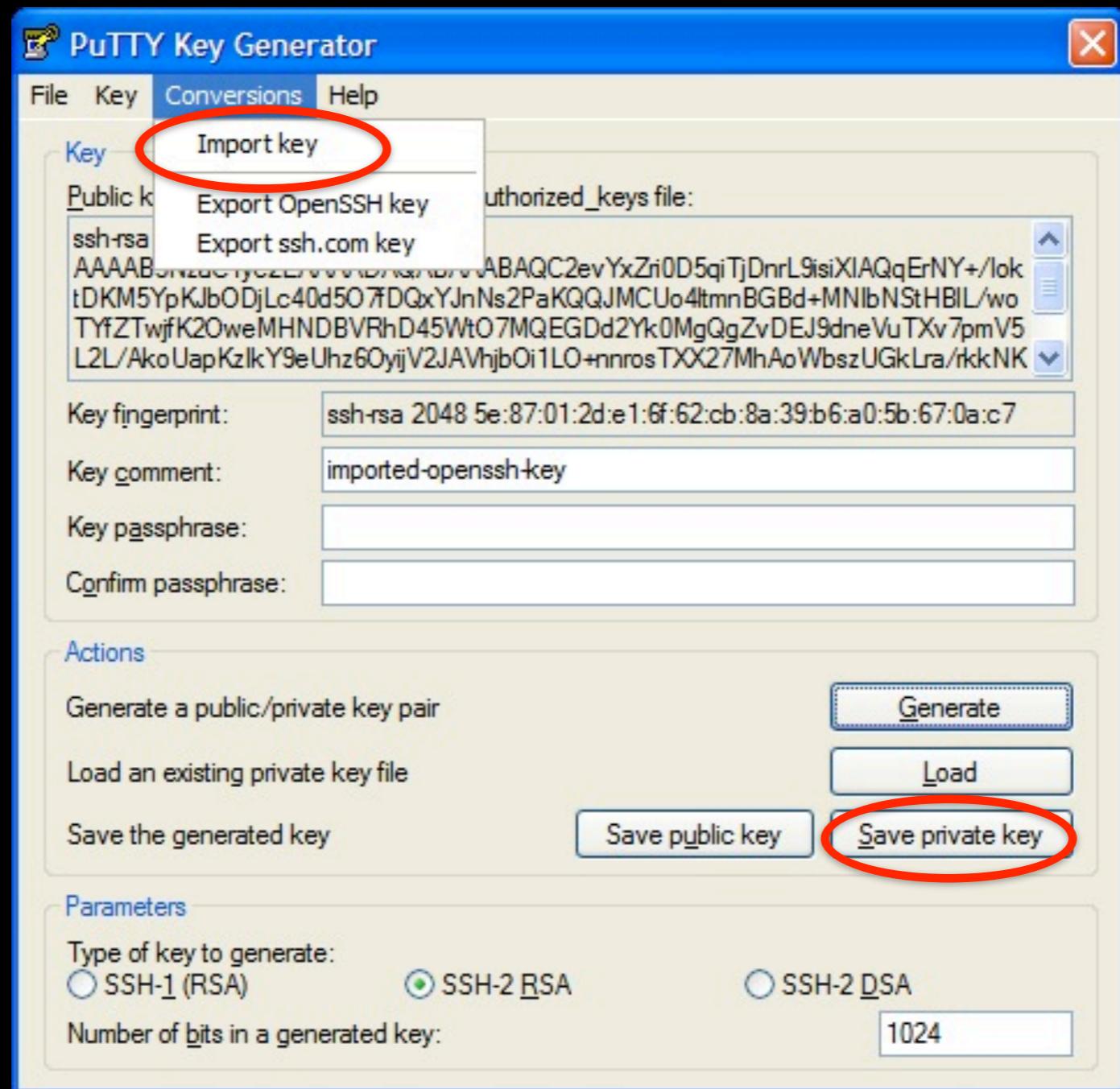
Windows Users

- <http://bit.ly/awsputty>

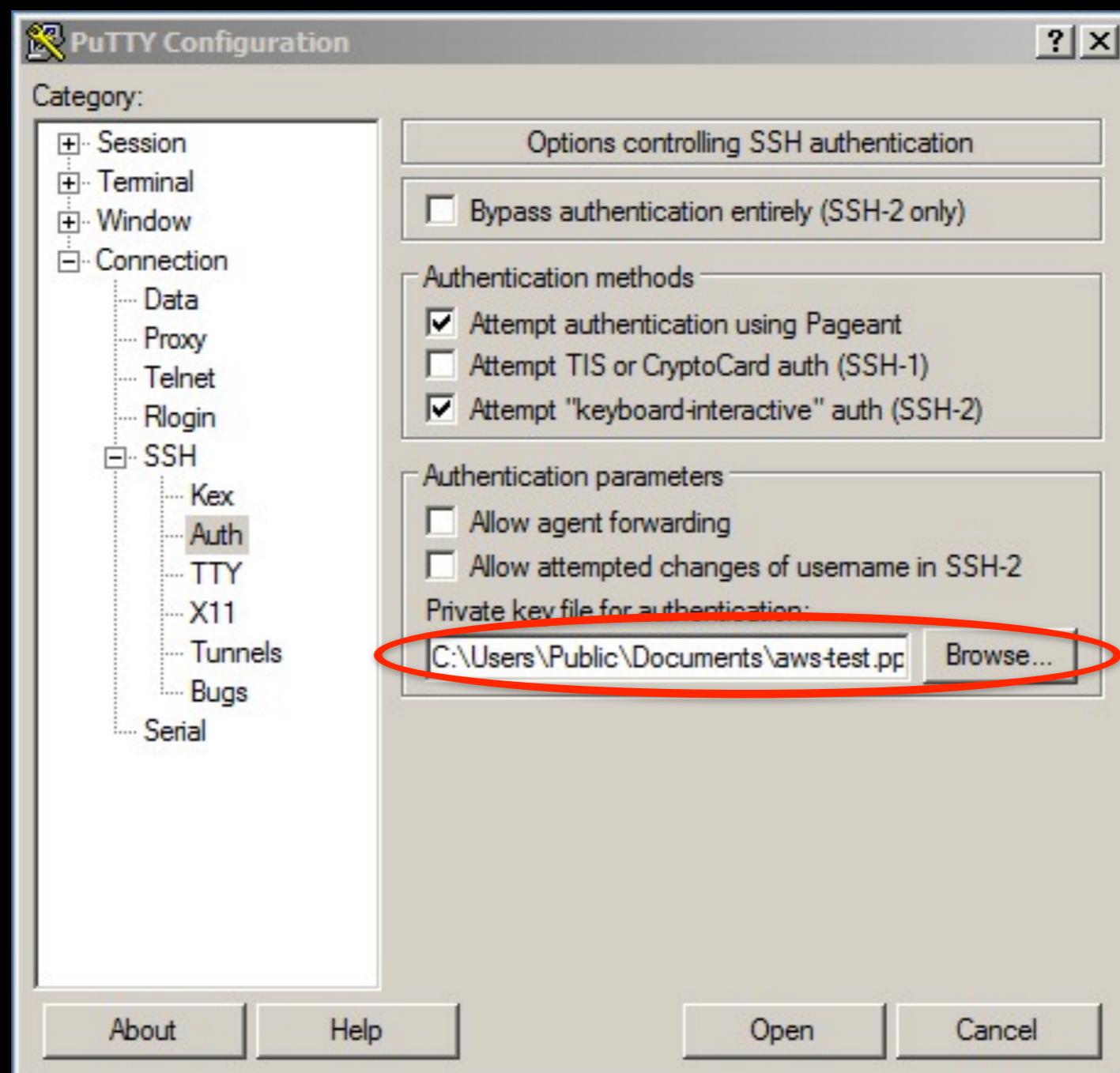
For Windows on Intel x86				
PuTTY:	putty.exe	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYtel:	puttytel.exe	(or by FTP)	(RSA sig)	(DSA sig)
PSCP:	pscp.exe	(or by FTP)	(RSA sig)	(DSA sig)
PSFTP:	psftp.exe	(or by FTP)	(RSA sig)	(DSA sig)
Plink:	plink.exe	(or by FTP)	(RSA sig)	(DSA sig)
Pageant:	pageant.exe	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYgen:	puttygen.exe	(or by FTP)	(RSA sig)	(DSA sig)
A .ZIP file containing all the binaries (except PuTTYtel), and also the help files				
Zip file:	putty.zip	(or by FTP)	(RSA sig)	(DSA sig)
A Windows installer for everything except PuTTYtel				
Installer:	putty-0.60-installer.exe	(or by FTP)	(RSA sig)	(DSA sig)
MD5 checksums for all the above files				
MD5sums:	md5sums	(or by FTP)	(RSA sig)	(DSA sig)

Key Conversion

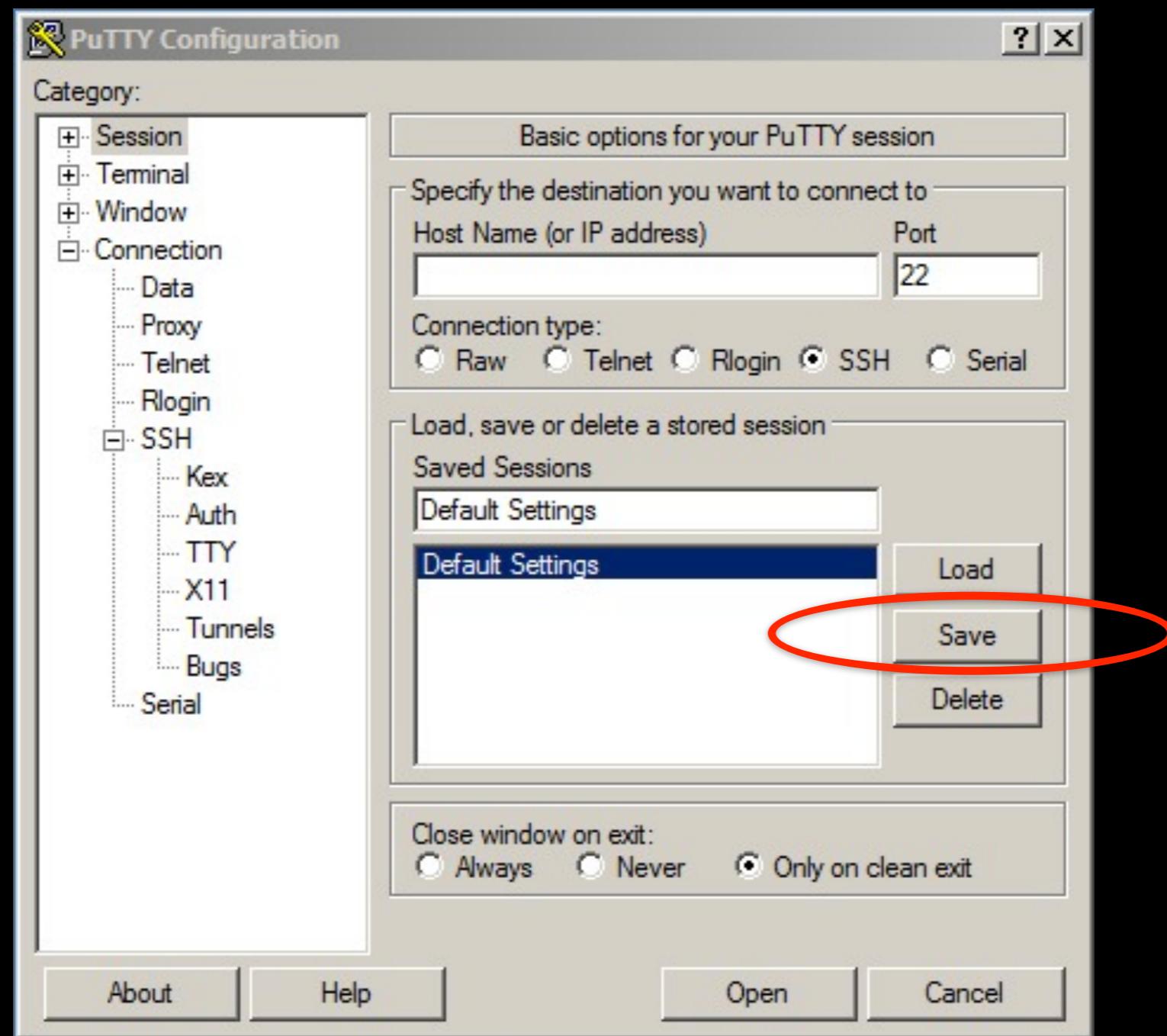
puttygen.exe



PuTTY Configuration



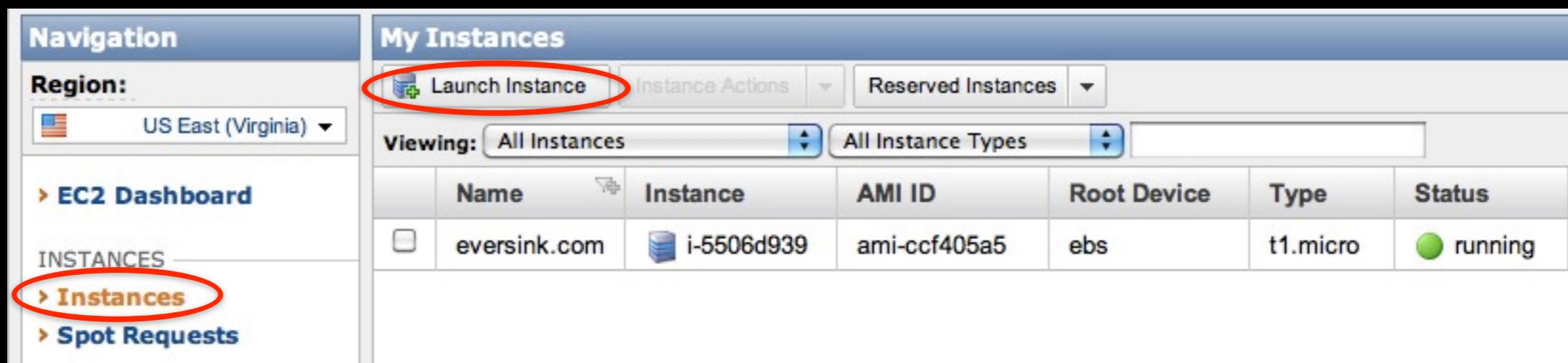
PuTTY Configuration



Database Instance

- Ubuntu 10.10 with MySQL on EBS

Launch Instance



Find the AMI



Instance Details

Request Instances Wizard

Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances: **Availability Zone:**

Instance Type:

Termination Protection: Prevention against accidental termination.

Note, launching a **t1.micro** instance requires that you select an AMI with an EBS-backed root device.

Launch Instances
EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs.

Request Spot Instances

Launch Instances Into Your Virtual Private Cloud

[« Back](#)

Instance Details

Request Instances Wizard

Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Number of Instances: 1

Availability Zone: No Preference

Advanced Instance Options

Here you can choose a specific [kernel](#) or [RAM disk](#) to use with your instances. You can also choose to enable CloudWatch Detailed Monitoring or enter data that will be available from your instances once they launch.

Kernel ID:

RAM Disk ID:

Monitoring: Enable CloudWatch detailed monitoring for this instance
(additional charges will apply)

User Data:

base64 encoded

[Back](#)

Tags for Identification

Request Instances Wizard Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Add tags to your instance to simplify the administration of your EC2 infrastructure. A form of metadata, tags consist of a case-sensitive key/value pair, are stored in the cloud and are private to your account. You can create user-friendly names that help you organize, search, and browse your resources. For example, you could define a tag with key = Name and value = Webserver. You can add up to 10 unique keys to each instance along with an optional value for each key. For more information, go to [Using Tags in the EC2 User Guide](#).

Key	(127 characters maximum)	Value	(255 characters maximum)	Remove
Name				
				

[Add another Tag.](#) (Maximum of 10)

[Back](#) [Continue](#) 

Select Key Pair

Request Instances Wizard Cancel 

CHOOSE AN AMI ▼ INSTANCE DETAILS ▼ CREATE KEY PAIR ▼ CONFIGURE FIREWALL ▼ REVIEW

Public/private key pairs allow you to securely connect to your instance after it launches. To create a key pair, enter a name and click **Create & Download your Key Pair**. You will then be prompted to save the private key to your computer. Note, you only need to generate a key pair once - not each time you want to deploy an Amazon EC2 instance.

Choose from your existing Key Pairs

Your existing Key Pairs*:

Create a new Key Pair

Proceed without a Key Pair

[< Back](#) [Continue !\[\]\(52d98511638023d969d5839d61327315_img.jpg\)](#)

Configure Firewall

Request Instances Wizard

[Cancel](#)

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR **CONFIGURE FIREWALL** REVIEW

Security groups determine whether a network port is open or blocked on your instances. You may use an existing security group, or we can help you create a new security group to allow access to your instances using the suggested ports below. Add additional ports now or update your security group anytime using the Security Groups page. All changes take effect immediately.

Choose one or more of your existing Security Groups

Security Groups: default

(Selected groups: default)

Create a new Security Group

[Back](#) [Continue](#)

Launch

Request Instances Wizard

Cancel 

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL  REVIEW

Please review the information below, then click **Launch**.

AMI:  Ubuntu AMI ID ami-1a837773 (i386) [Edit AMI](#)

Number of Instances: 1

Availability Zone: No Preference

Instance Type: Small (m1.small)

Instance Class: On Demand

Termination Protection: Disabled [Edit Instance Details](#)

Monitoring: Disabled

Kernel ID: Use Default

RAM Disk ID: Use Default

User Data: [Edit Advanced Details](#)

Key Pair Name: personal [Edit Key Pair](#)

Security Group(s): default [Edit Firewall](#)

[Back](#) 

Wait until it is running

My Instances									
		Launch Instance		Instance Actions		Reserved Instances			
								Show/Hide	Refresh
Viewing:		All Instances		All Instance Types				1 to 1 of 1 Instances	
Name	Instance	AMI ID	Root Device	Type	Status	Monitoring	Virtualization	Place	
test-database	i-55726739	ami-1a837773	instance-store	m1.small	 running	basic	paravirtual		

Get DNS name

EC2 Instance: i-55726739			
Description	Monitoring	Tags	
AMI ID:	ami-1a837773	Zone:	us-east-1c
Security Groups:	default	Type:	m1.small
Status:	running	Owner:	479107200387
VPC ID:	-	Subnet ID:	-
Source/Dest. Check:		Virtualization:	paravirtual
Placement Group:		Reservation:	r-24c25249
RAM Disk ID:	-	Platform:	-
Key Pair Name:	personal	Kernel ID:	aki-407d9529
Monitoring:	basic	AMI Launch Index:	0
Elastic IP:	-	Root Device:	-
Root Device Type:	instance-store		
Block Devices:	N/A - Instance Store		
Lifecycle:	normal		
Public DNS:	ec2-50-17-22-1.compute-1.amazonaws.com		
Private DNS:	ip-10-245-197-221.ec2.internal		
Private IP Address:	10.245.197.221		
Launch Time:	2011-03-08 13:58 CST		
State Transition Reason:			
Termination Protection:	Disabled		

Configure Firewall

Navigation

Region: US East (Virginia)

EC2 Dashboard

INSTANCES

Instances

Spot Requests

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

NETWORKING & SECURITY

Security Groups

Placement Groups

Elastic IPs

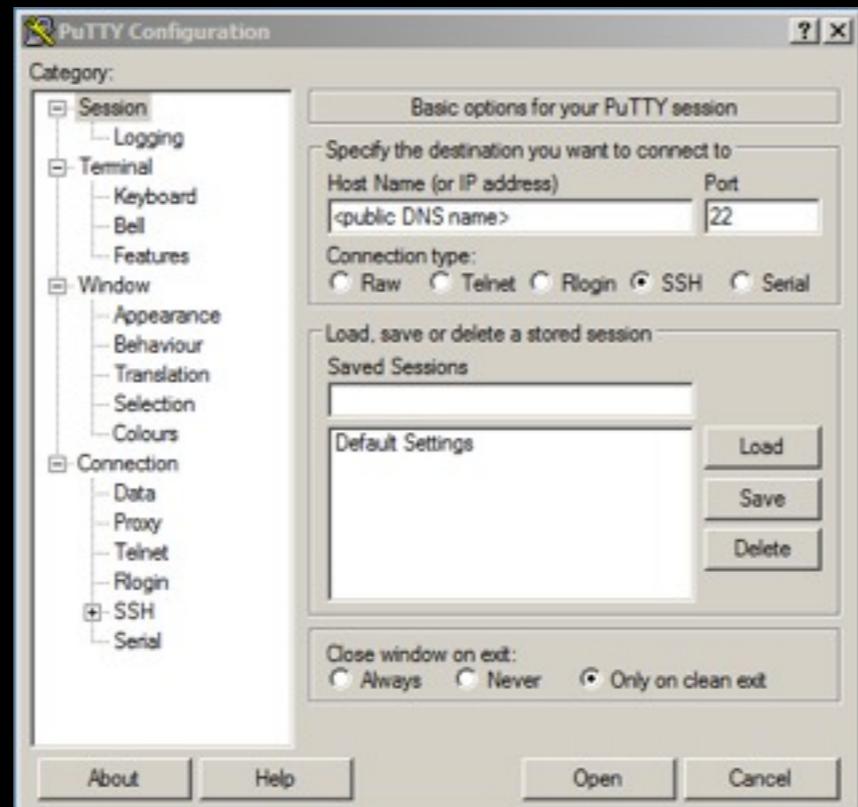
Load Balancers

Key Pairs

Connection Method	Protocol	From Port	To Port	Source (IP or group)	Actions
All	tcp	0	65535	default group	Remove
All	udp	0	65535	default group	Remove
SSH	tcp	22	22	0.0.0.0/0	Remove
HTTPS	tcp	443	443	0.0.0.0/0	Remove
HTTP	tcp	80	80	0.0.0.0/0	Remove
SSH	--				Save

Connect via SSH

- chmod 600 <privatekey>
- ssh -i <privatekey> **ubuntu@<publicdnsname>**



Update the system

- `sudo aptitude update`
- `sudo aptitude -y safe-upgrade`

Availability Zone

EC2 Instance: i-55726739		
Description	Monitoring	Tags
AMI ID:	ami-1a837773	Zone: us-east-1c
Security Groups:	default	Type: m1.small
Status:	running	Owner: 479107200387
VPC ID:	-	Subnet ID: -
Source/Dest. Check:		Virtualization: paravirtual
Placement Group:		Reservation: r-24c25249
RAM Disk ID:	-	Platform: -
Key Pair Name:	personal	Kernel ID: aki-407d9529
Monitoring:	basic	AMI Launch Index: 0
Elastic IP:	-	Root Device: -
Root Device Type:	instance-store	
Block Devices:	N/A - Instance Store	
Lifecycle:	normal	
Public DNS:	ec2-50-17-22-1.compute-1.amazonaws.com	
Private DNS:	ip-10-245-197-221.ec2.internal	
Private IP Address:	10.245.197.221	
Launch Time:	2011-03-08 13:58 CST	
State Transition Reason:		
Termination Protection:	Disabled	

Create EBS Volume

The screenshot shows the AWS EC2 console navigation bar on the left and the EBS Volumes page on the right.

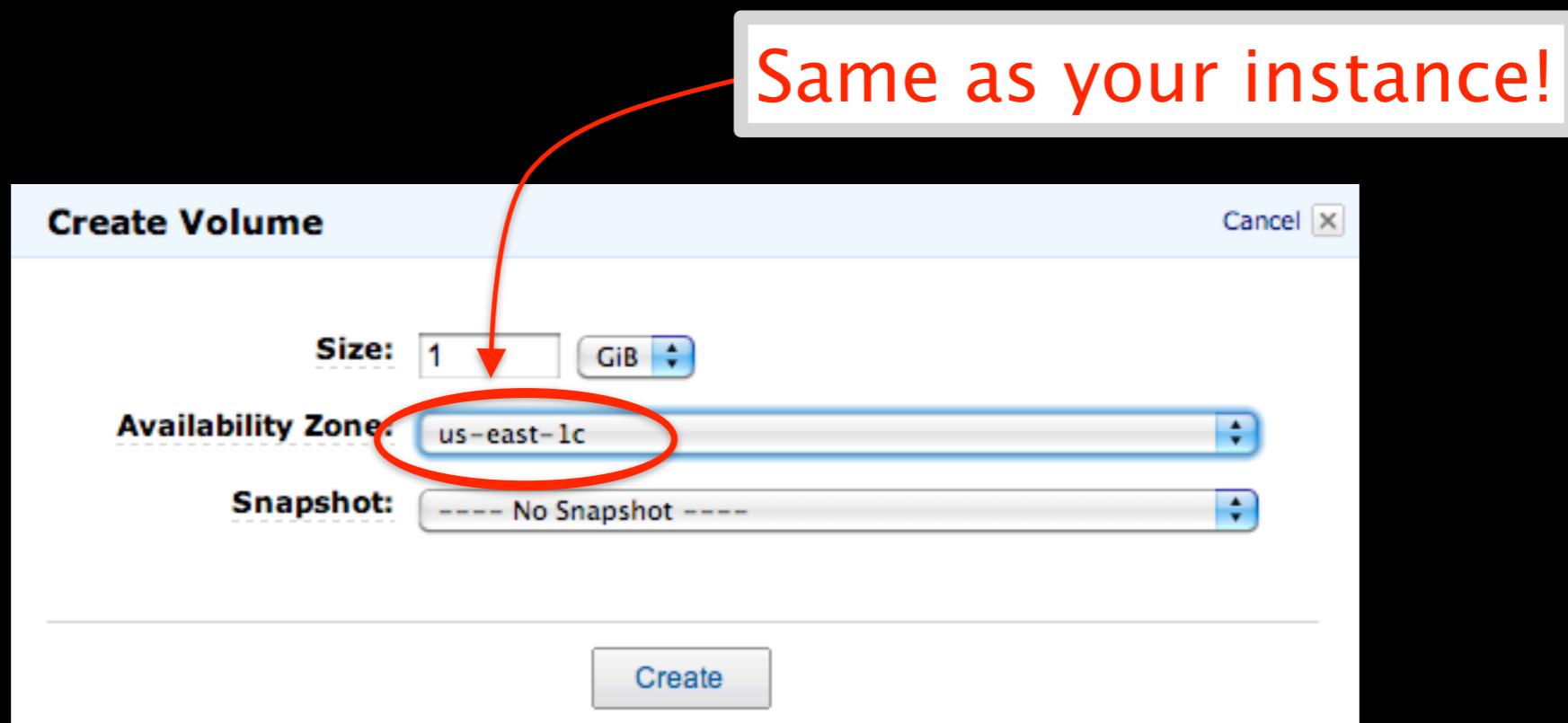
Navigation Bar:

- Region:** US East (Virginia)
- EC2 Dashboard**
- Instances**
- Spot Requests**
- Images**
- AMIs**
- Bundle Tasks**
- ELASTIC BLOCK STORE**
 - Volumes** (highlighted with a red circle)
 - Snapshots**
- NETWORKING & SECURITY**
 - Security Groups**
 - Placement Groups**
 - Elastic IPs**
 - Load Balancers**
 - Key Pairs**

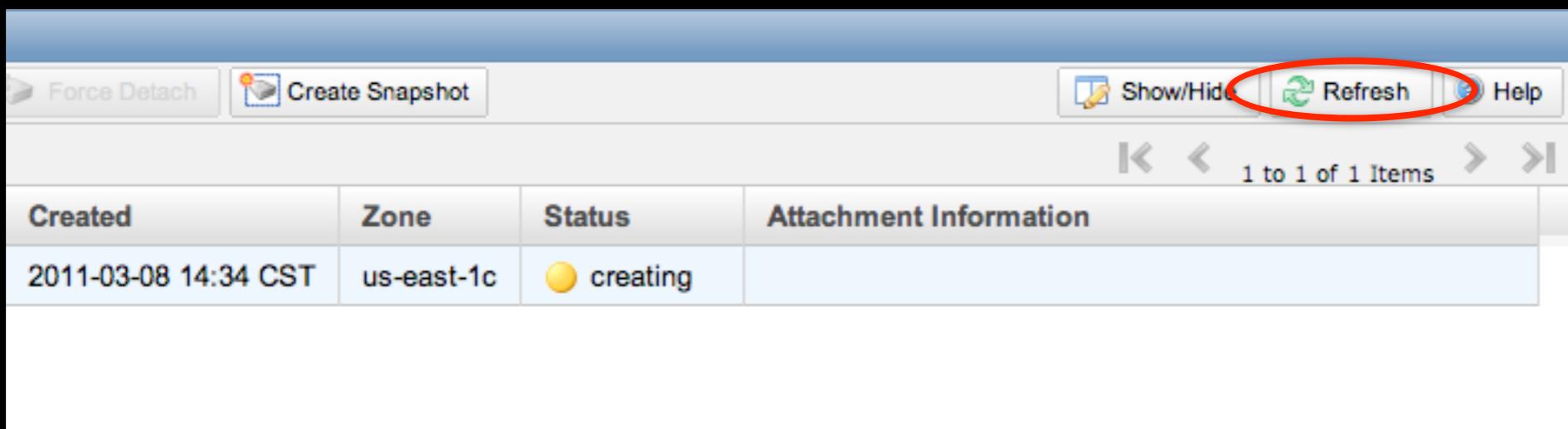
EBS Volumes Page:

- Buttons:** Create Volume (highlighted with a red circle), Delete, Attach Volume, Detach Volume, Force Detach, Create Snapshot.
- Filter:** Viewing: All Volumes
- Table Headers:** Name, Volume ID, Capacity, Snapshot, Created.
- Message:** No Items found.

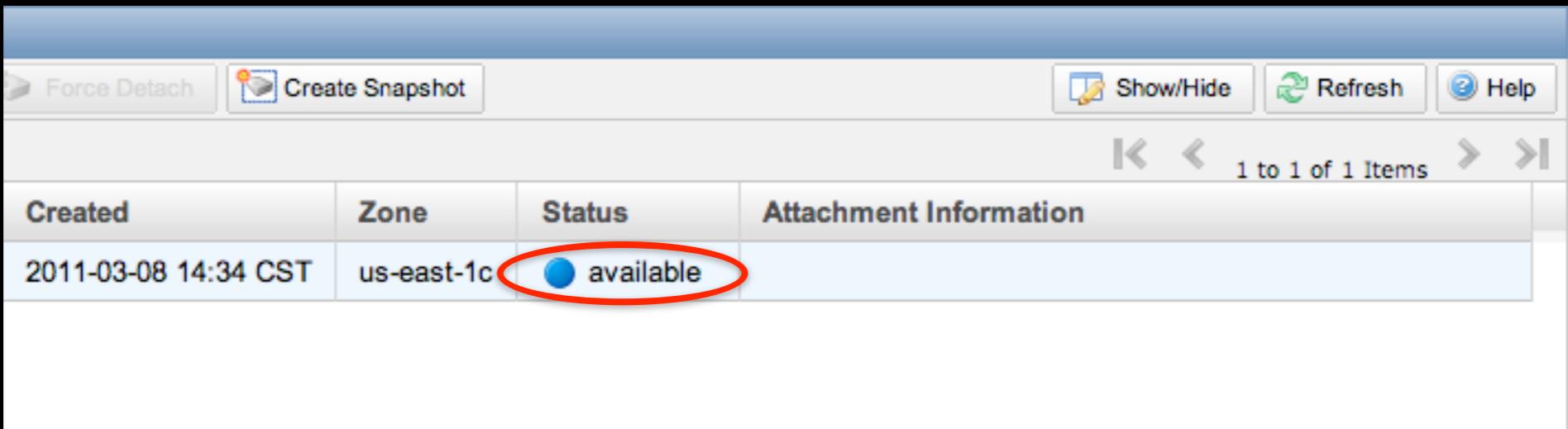
Select the correct Availability Zone



Might need to refresh



Wait for available



A screenshot of a software application window, likely an AWS Management Console, showing a table of data. The table has four columns: 'Created', 'Zone', 'Status', and 'Attachment Information'. There is one row of data. The 'Status' column contains the word 'available' next to a blue circular icon. This entire cell is highlighted with a thick red oval. The rest of the table and the surrounding interface are standard grey and white colors.

Created	Zone	Status	Attachment Information
2011-03-08 14:34 CST	us-east-1c	 available	

Attach Volume



Install MySQL on EBS

- wget <http://bit.ly/pycon-mysql-ebs>
- bash pycon-mysql-ebs /dev/sdf
- mysqlshow --user=root

Create Application DB

- `wget http://bit.ly/pycon-init-db`
- `bash pycon-init-db`
 `-D clktc`
 `-l http://bit.ly/pycon-db-dump`

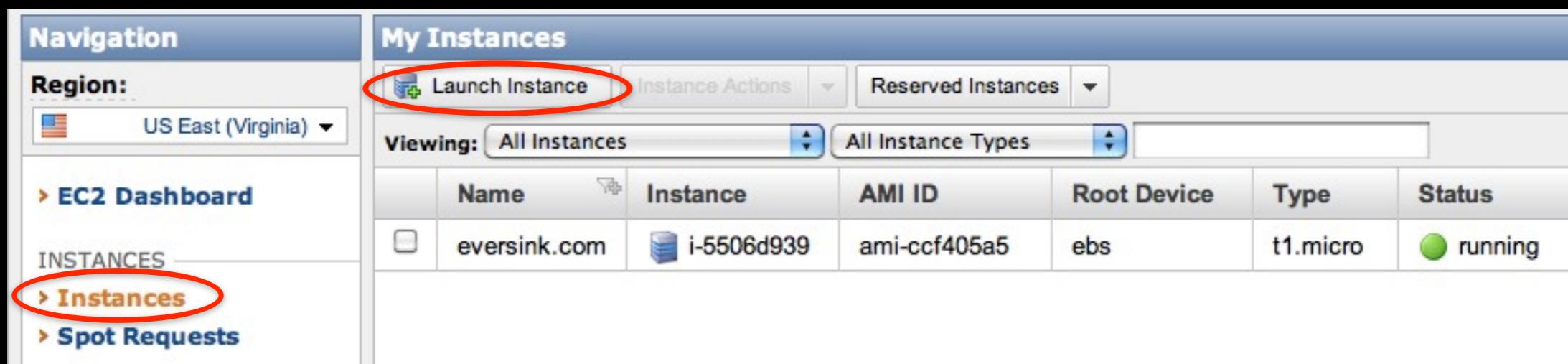
Save DB output

- -H ec2-50-17-77-46.compute-1.amazonaws.com
-D demo -U demo -P b513a23d199c848

Django Instance

- Ubuntu 10.10 with Apache/mod_wsgi

Launch Instance



Find the AMI



Instance Details

Request Instances Wizard

Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances: **Availability Zone:**

Instance Type:

Termination Protection: Prevention against accidental termination.

Note, launching a **t1.micro** instance requires that you select an AMI with an EBS-backed root device.

Launch Instances
EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs.

Request Spot Instances

Launch Instances Into Your Virtual Private Cloud

[« Back](#)

Instance Details

Request Instances Wizard

Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Number of Instances: 1

Availability Zone: No Preference

Advanced Instance Options

Here you can choose a specific [kernel](#) or [RAM disk](#) to use with your instances. You can also choose to enable CloudWatch Detailed Monitoring or enter data that will be available from your instances once they launch.

Kernel ID: [Use Default](#)

RAM Disk ID: [Use Default](#)

Monitoring: Enable CloudWatch detailed monitoring for this instance
(additional charges will apply)

User Data:

 base64 encoded

[Back](#) [Continue](#) 

Tags for Identification

Request Instances Wizard Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Add tags to your instance to simplify the administration of your EC2 infrastructure. A form of metadata, tags consist of a case-sensitive key/value pair, are stored in the cloud and are private to your account. You can create user-friendly names that help you organize, search, and browse your resources. For example, you could define a tag with key = Name and value = Webserver. You can add up to 10 unique keys to each instance along with an optional value for each key. For more information, go to [Using Tags in the EC2 User Guide](#).

Key (127 characters maximum)	Value (255 characters maximum)	Remove
Name		
		

[Add another Tag. \(Maximum of 10\)](#)

[!\[\]\(3ae2f424ae6cb191ec1956414efba864_img.jpg\) Back](#) [Continue !\[\]\(5fd25703e0186f60382fa94f21bed81d_img.jpg\)](#)

Select Key Pair

Request Instances Wizard Cancel 

CHOOSE AN AMI ▼ INSTANCE DETAILS ▼ CREATE KEY PAIR ▼ CONFIGURE FIREWALL ▼ REVIEW

Public/private key pairs allow you to securely connect to your instance after it launches. To create a key pair, enter a name and click **Create & Download your Key Pair**. You will then be prompted to save the private key to your computer. Note, you only need to generate a key pair once - not each time you want to deploy an Amazon EC2 instance.

Choose from your existing Key Pairs

Your existing Key Pairs*:

Create a new Key Pair

Proceed without a Key Pair

[< Back](#) [Continue !\[\]\(6a561fd4d75d39dc5c7ad377b572350e_img.jpg\)](#)

Configure Firewall

Request Instances Wizard

[Cancel](#)

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR **CONFIGURE FIREWALL** REVIEW

Security groups determine whether a network port is open or blocked on your instances. You may use an existing security group, or we can help you create a new security group to allow access to your instances using the suggested ports below. Add additional ports now or update your security group anytime using the Security Groups page. All changes take effect immediately.

Choose one or more of your existing Security Groups

Security Groups: default

(Selected groups: default)

Create a new Security Group

[Back](#) [Continue](#)

Launch

Request Instances Wizard

Cancel 

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL  REVIEW

Please review the information below, then click **Launch**.

AMI:  Ubuntu AMI ID ami-1a837773 (i386) [Edit AMI](#)

Number of Instances: 1

Availability Zone: No Preference

Instance Type: Small (m1.small)

Instance Class: On Demand

Termination Protection: Disabled [Edit Instance Details](#)

Monitoring: Disabled

Kernel ID: Use Default

RAM Disk ID: Use Default

User Data: [Edit Advanced Details](#)

Key Pair Name: personal [Edit Key Pair](#)

Security Group(s): default [Edit Firewall](#)

[Back](#)

Launch 

Wait until it is running

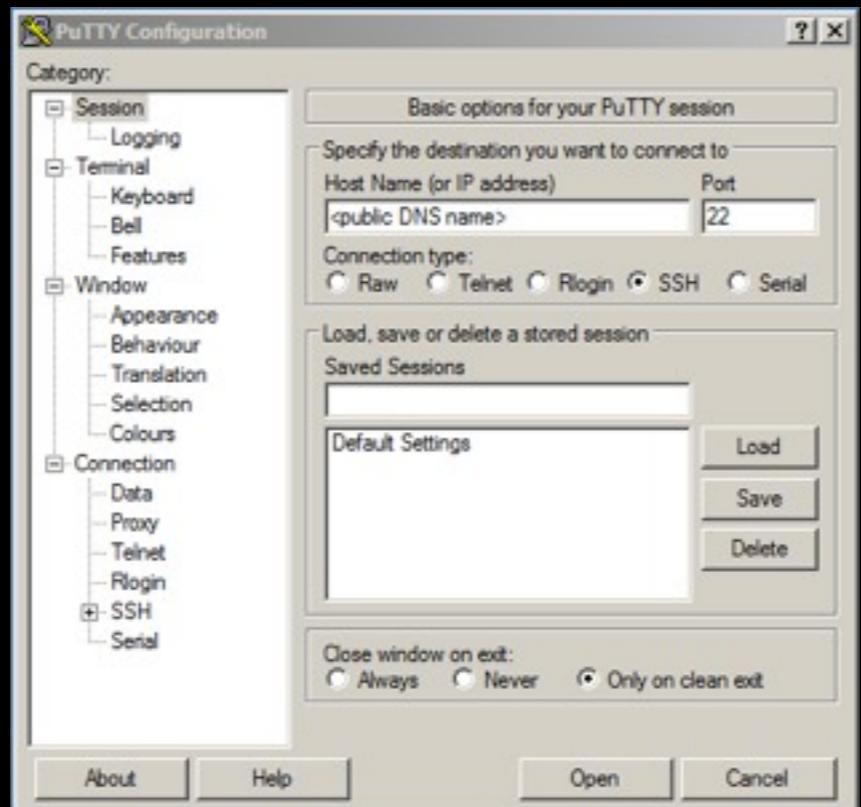
My Instances									
		Launch Instance		Instance Actions		Reserved Instances			
								Show/Hide	Refresh
Viewing:		All Instances		All Instance Types				1 to 1 of 1 Instances	
Name	Instance	AMI ID	Root Device	Type	Status	Monitoring	Virtualization	Place	
test-database	i-55726739	ami-1a837773	instance-store	m1.small	 running	basic	paravirtual		

Get DNS name

EC2 Instance: i-55726739			
Description	Monitoring	Tags	
AMI ID:	ami-1a837773	Zone:	us-east-1c
Security Groups:	default	Type:	m1.small
Status:	running	Owner:	479107200387
VPC ID:	-	Subnet ID:	-
Source/Dest. Check:		Virtualization:	paravirtual
Placement Group:		Reservation:	r-24c25249
RAM Disk ID:	-	Platform:	-
Key Pair Name:	personal	Kernel ID:	aki-407d9529
Monitoring:	basic	AMI Launch Index:	0
Elastic IP:	-	Root Device:	-
Root Device Type:	instance-store		
Block Devices:	N/A - Instance Store		
Lifecycle:	normal		
Public DNS:	ec2-50-17-22-1.compute-1.amazonaws.com		
Private DNS:	ip-10-245-197-221.ec2.internal		
Private IP Address:	10.245.197.221		
Launch Time:	2011-03-08 13:58 CST		
State Transition Reason:			
Termination Protection:	Disabled		

Connect via SSH

- `chmod 600 <privatekey>`
- `ssh -i <privatekey> ubuntu@<publicdnsname>`



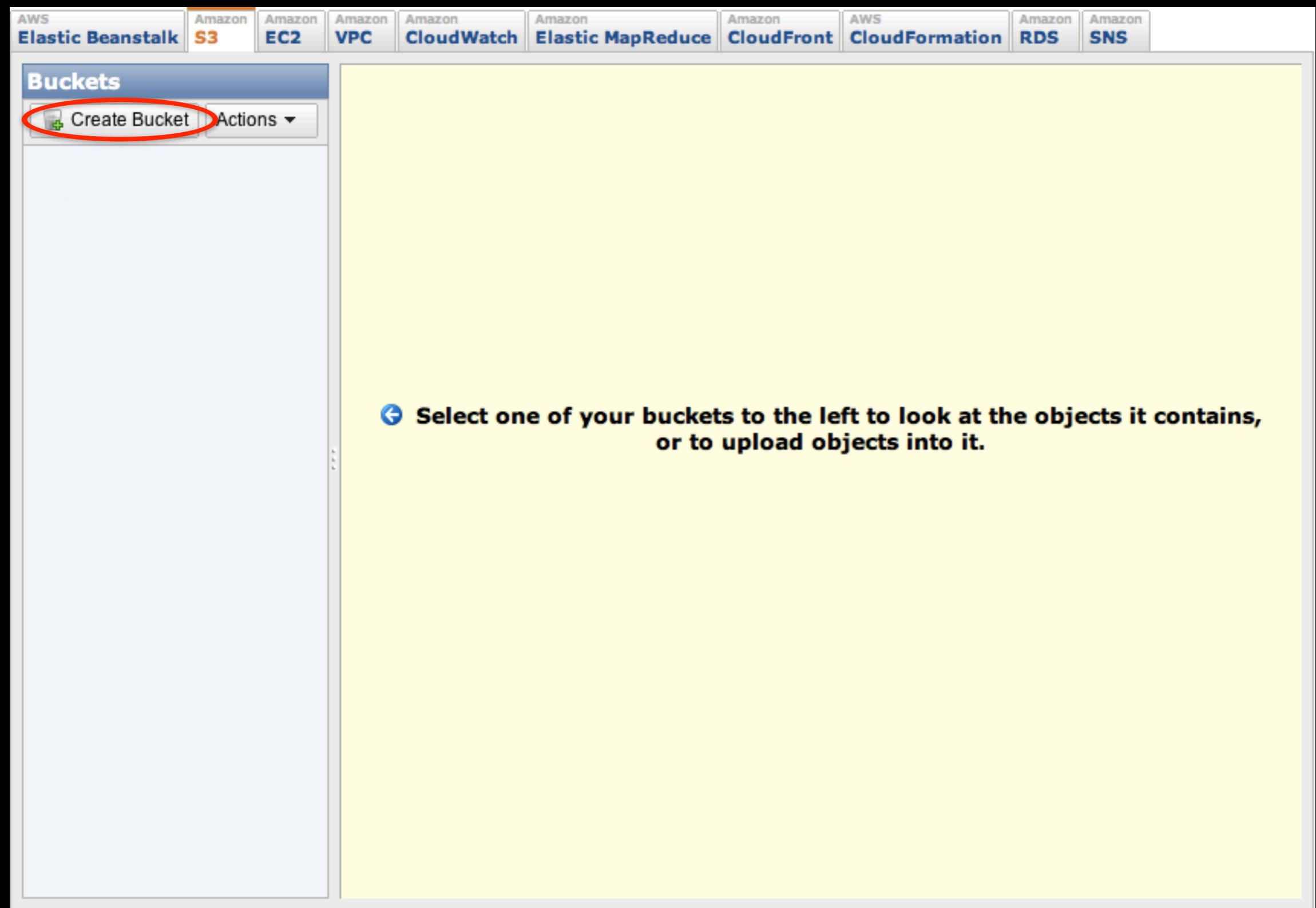
Install Django

- `wget http://bit.ly/pycon-aws-django`
- `sudo bash pycon-aws-django`
 `-n clktc`
 `-d http://bit.ly/pycon-clktc`
 `-s "/s/"`
`<output from database>`

Exercise 2

- Create S3 bucket
- Create CF distribution
- Upload static assets
- Deploy with new STATIC_URL

Create S3 bucket



Pick a name



DNS friendly name

- Start with a letter or number
- Can also contain dashes and periods
 - but
- No dashes next to periods
- No leading or trailing periods
- No underscores

Create CF Distribution

Screenshot of the AWS CloudFront Distributions management console.

The top navigation bar includes links for AWS, Elastic Beanstalk, Amazon S3, Amazon EC2, Amazon VPC, Amazon CloudWatch, Amazon Elastic MapReduce, **Amazon CloudFront**, AWS CloudFormation, Amazon RDS, and Amazon SNS.

The main heading is "CloudFront Distributions". A red circle highlights the "Create Distribution" button, which has a globe icon.

Below the heading are buttons for Edit, Delete, Enable, Disable, Show/Hide, Refresh, and Help.

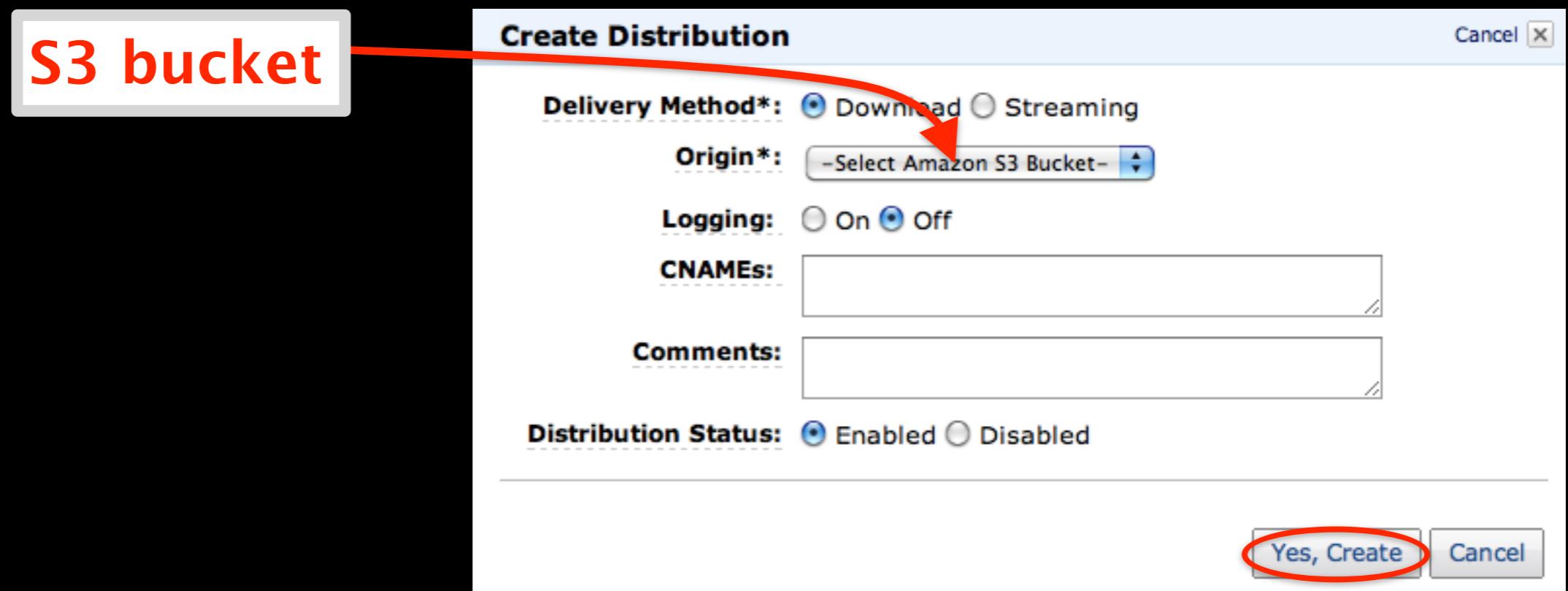
The "Viewing:" dropdown shows "Any Delivery Method" and "Any Status". The status bar indicates "1 to 3 of 3 Items".

A table header row includes columns for Delivery Method, Domain Name, Comment, Origin Bucket, Status, State, and Last Modified.

The "3 Distributions selected" section displays the following details:

Distribution ID:	EVZIMCR40ETGZ	CNAMEs:	-
Distribution Status:	Disabled	Comments:	SWA Images CDN
Delivery Method:	Download	Origin Bucket:	ec2-50-17-72-2.compute-1.amazonaws.com
Domain Name:	d3rtgno3yf6izc.cloudfront.net	Log Bucket:	-
State:	InProgress	Log Prefix:	-
Last Modified:	2011-03-09 15:06 CST		

Pick source bucket



In Progress

The screenshot shows the AWS CloudFront Distributions page. At the top, there is a navigation bar with links to various AWS services: Elastic Beanstalk, Amazon S3, Amazon EC2, Amazon VPC, Amazon CloudWatch, Amazon Elastic MapReduce, **Amazon CloudFront** (which is highlighted in orange), AWS CloudFormation, Amazon RDS, and Amazon SNS.

The main content area is titled "CloudFront Distributions". It includes a toolbar with buttons for "Create Distribution", "Edit", "Delete", "Enable", "Disable", "Show/Hide", "Refresh", and "Help". There are also filtering options for "Viewing: Any Delivery Method" and "Any Status". A status message at the top right indicates "1 to 1 of 1 Items".

A table displays the distribution details:

	Delivery Method	Domain Name	C	Origin Bucket	Status	State	Last Modified
	Download	du49h7drvjfaj.cloudfront.net	--	cf-templates-fj8qr	InProgress		2011-03-09 22:39 CST

Below the table, a message states "0 Distributions selected" and "Select a distribution above".

Get Domain Name

The screenshot shows the AWS CloudFront Distributions console. At the top, there is a navigation bar with links to various AWS services: Elastic Beanstalk, Amazon S3, Amazon EC2, Amazon VPC, Amazon CloudWatch, Amazon Elastic MapReduce, Amazon CloudFront (which is highlighted in orange), AWS CloudFormation, Amazon RDS, and Amazon SNS.

The main area is titled "CloudFront Distributions". It includes a toolbar with buttons for "Create Distribution", "Edit", "Delete", "Enable", "Disable", "Show/Hide", "Refresh", and "Help". There are also filtering options for "Viewing: Any Delivery Method" and "Any Status". A progress indicator shows "1 to 1 of 1 Items".

A table displays the distribution details:

Delivery Method	Domain Name	C	Origin Bucket	Status	State	Last Modified
Download	du49h7drvjfaj.cloudfront.net	--	cf-templates-fj8qr	InProgress	Enabled	2011-03-09 22:39 CST

Below the table, a summary section titled "1 Distribution selected" provides the following information:

Distribution ID:	E3J5OGX0R8538R
Distribution Status:	Enabled
Delivery Method:	Download
Domain Name:	du49h7drvjfaj.cloudfront.net
State:	InProgress
CNAMEs:	-
Comments:	-
Origin Bucket:	cf-templates-fj8qrabl07a3-us-east-1.s3.amazonaws.com
Log Bucket:	-

The "Domain Name" field is circled in red.

Security Credentials



Your Account

- » Account Activity**

View current charges and account activity, itemized by service and by usage type. Previous months' billing statements are also available.
- » Usage Reports**

Download usage reports for each service you are subscribed to. Reports can be customized by specifying usage types, timeframe, service operations, and more.
- » Security Credentials**

Amazon Web Services uses access identifiers to authenticate requests to AWS and to identify the sender of a request. Three types of identifiers are available: (1) AWS Access Key Identifiers, (2) X.509 Certificates, and (3) Key pairs
- » Personal Information**

View and edit personal contact information, such as address and phone number. Set communication preferences for email subscriptions.

Get Access Keys

Access Credentials

There are three types of access credentials used to authenticate your requests to AWS services: (a) access keys, (b) X.509 certificates, and (c) key pairs. Each access credential type is explained below.

 **Access Keys**  X.509 Certificates  Key Pairs

Use access keys to make secure REST or Query protocol requests to any AWS service API. We create one for you when your account is created — see your access key below.

Your Access Keys

Created	Access Key ID	Secret Access Key	Status
November 7, 2010	AKIAIBZ57QE6YLAOWS5A	Show	Active (Make Inactive)

[Create a new Access Key](#)

[View Your Deleted Access Keys](#)

For your protection, you should never share your secret access keys with anyone. In addition, industry best practice recommends frequent key rotation.

 [Learn more about Access Keys](#)

Checkpoint

- Browe to public DNS name of last instance

Upload static assets

- `wget http://bit.ly/pycon-to-s3`
- `bash pycon-to-s3`
 `-b BUCKET_NAME`
 `-l /home/clktc/clktc/media`
 `-k ACCESS_KEY -s SECRET_KEY`

Checkpoint

- Verify everything worked by browsing to
- `http://<CLOUDFRONTDOMAIN>/css/common.css`

Launch New Instance

- Use user data to run a script on boot
- Automate deployment of the application

Find the AMI



Instance Details

Request Instances Wizard

Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances: **Availability Zone:**

Instance Type:

Termination Protection: Prevention against accidental termination.

Note, launching a **t1.micro** instance requires that you select an AMI with an EBS-backed root device.

Launch Instances
EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs.

Request Spot Instances

Launch Instances Into Your Virtual Private Cloud

[« Back](#)

Instance Details

Request Instances Wizard

Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Number of Instances: 1

Availability Zone: No Preference

Advanced Instance Options

Here you can choose a specific [kernel](#) or [RAM disk](#) to use with your instances. You can also choose to enable CloudWatch Detailed Monitoring or enter data that will be available from your instances once they launch.

Kernel ID:

RAM Disk ID:

Monitoring: Enable CloudWatch detailed monitoring for this instance
(additional charges will apply)

User Data:

base64 encoded

[< Back](#)

Paste in User Data

- `#!/bin/sh`

```
wget http://bit.ly/pycon-aws-django
bash pycon-aws-django
-n clktc
-d http://bit.ly/pycon-clktc
-s "http://<cloudfront_dns_name>/"
<output from database>
2>&1 | tee /root/install.log
```

Tags for Identification

Request Instances Wizard Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Add tags to your instance to simplify the administration of your EC2 infrastructure. A form of metadata, tags consist of a case-sensitive key/value pair, are stored in the cloud and are private to your account. You can create user-friendly names that help you organize, search, and browse your resources. For example, you could define a tag with key = Name and value = Webserver. You can add up to 10 unique keys to each instance along with an optional value for each key. For more information, go to [Using Tags in the EC2 User Guide](#).

Key (127 characters maximum)	Value (255 characters maximum)	Remove
Name		
		

[Add another Tag. \(Maximum of 10\)](#)

[Back](#) [Continue !\[\]\(2de393db9377f76dea48953d1f612d6e_img.jpg\)](#)

Select Key Pair

Request Instances Wizard Cancel 

CHOOSE AN AMI ▼ INSTANCE DETAILS ▼ CREATE KEY PAIR ▼ CONFIGURE FIREWALL ▼ REVIEW

Public/private key pairs allow you to securely connect to your instance after it launches. To create a key pair, enter a name and click **Create & Download your Key Pair**. You will then be prompted to save the private key to your computer. Note, you only need to generate a key pair once - not each time you want to deploy an Amazon EC2 instance.

Choose from your existing Key Pairs

Your existing Key Pairs*:

Create a new Key Pair

Proceed without a Key Pair

[< Back](#) [Continue !\[\]\(7bd4a587ec06429114bbc976b29a75db_img.jpg\)](#)

Configure Firewall

Request Instances Wizard

[Cancel](#)

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR **CONFIGURE FIREWALL** REVIEW

Security groups determine whether a network port is open or blocked on your instances. You may use an existing security group, or we can help you create a new security group to allow access to your instances using the suggested ports below. Add additional ports now or update your security group anytime using the Security Groups page. All changes take effect immediately.

Choose one or more of your existing Security Groups

Security Groups: default

(Selected groups: default)

Create a new Security Group

[Back](#) [Continue](#)

Launch

Request Instances Wizard

Cancel 

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL  REVIEW

Please review the information below, then click **Launch**.

AMI:  Ubuntu AMI ID ami-1a837773 (i386) [Edit AMI](#)

Number of Instances: 1

Availability Zone: No Preference

Instance Type: Small (m1.small)

Instance Class: On Demand

Termination Protection: Disabled [Edit Instance Details](#)

Monitoring: Disabled

Kernel ID: Use Default

RAM Disk ID: Use Default

User Data: [Edit Advanced Details](#)

Key Pair Name: personal [Edit Key Pair](#)

Security Group(s): default [Edit Firewall](#)

[Back](#)

Launch 

Exercise 3

- Create RDS database
- Move data from current MySQL instance
- Create read-replica
- Re-launch Django instance

Launch DB Instance

The screenshot shows the AWS RDS (Relational Database Service) console. The top navigation bar includes links for Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. On the left, a navigation sidebar for the RDS Dashboard lists options: Databases, DB Instances (which is selected and highlighted in orange), Reserved DB Instances, DB Snapshots, DB Security Groups, DB Parameter Groups, and DB Events. The main content area is titled "My DB Instances". A toolbar at the top of this section includes buttons for Launch DB Instance (which is circled in red), Create Read Replica, Modify, Delete, Reboot, and Take Snapshot. Below the toolbar is a table header with columns: DB Instance, Multi-AZ, Class, Status, Storage, and Security Groups. A single row in the table shows a database named "testdb" with the following details: Multi-AZ: No, Class: db.m1.small, Status: deleting, Storage: 5 GiB, and Security Groups: default. At the bottom of the main content area, a message states "1 DB Instance selected" and provides a summary for the selected instance "testdb". The "Description" tab is active, showing the instance name, engine, version, security groups, and status.

Navigation

Region: US East

RDS Dashboard

Databases

DB Instances

Reserved DB Instances

DB Snapshots

DB Security Groups

DB Parameter Groups

DB Events

My DB Instances

Viewing: All Instances

Launch DB Instance (circled in red)

Create Read Replica

Modify

Delete

Reboot

Take Snapshot

	DB Instance	Multi-AZ	Class	Status	Storage	Security Groups
testdb	No	db.m1.small	deleting	5 GiB	default	

1 DB Instance selected

DB Instance: testdb

Description Monitoring Recent Events

DB Instance Name: testdb **DB Engine:** mysql
DB Engine Version: 5.1.50 **Auto Minor Ver. Upgrade:** Yes
DB Security Groups: default **DB Status:** deleting

Username & Password

Launch DB Instance Wizard Cancel X

DB INSTANCE DETAILS ADDITIONAL CONFIGURATION MANAGEMENT OPTIONS REVIEW

To get started, choose a DB Instance engine and class below

Engine: mysql

DB Instance Class: db.m1.small

DB Engine Version: default

Auto Minor Version Upgrade: Yes No

Multi-AZ Deployment: Yes No

Provide the details for your RDS Database Instance.

Allocated Storage: * [input field] GB (Minimum: 5 GB, Maximum 1024 GB)

DB Instance Identifier: * [input field] (e.g. mydbinstance)

Master User Name: * [input field] (e.g. awsuser)

Master User Password: * [input field] (e.g. mypassword)

Continue >



Database Name

clktc

Launch DB Instance Wizard

DB INSTANCE DETAILS ADDITIONAL CONFIGURATION MANAGEMENT OPTIONS REVIEW

Provide the optional additional configuration details below.

Database Name: (e.g. mydatabase) (highlighted)

Note: if no database name is specified then no initial mysql database will be created on the DB Instance.

Database Port: (e.g. 3306)

Availability Zone:

If you have custom DB Parameter Groups or DB Security Groups you would like to associate with this DB Instance, select them below, otherwise proceed with default settings.

DB Parameter Group: default

DB Security Groups: default

[Back](#) [Continue >](#)

Management Options

Launch DB Instance Wizard Cancel 

 ● MANAGEMENT OPTIONS

The number of days for which automated backups are retained. Setting this parameter to a positive number enables backups. Setting this parameter to 0 disables automated backups.

Backup Retention Period: days

The daily time range during which automated backups are created if automated backups are enabled

Backup Window: No Preference Select Window

The weekly time range (in UTC) during which system maintenance can occur.

Maintenance Window: No Preference Select Window

[◀ Back](#) Continue 

Review RDS details

Launch DB Instance Wizard

Cancel

DB INSTANCE DETAILS ADDITIONAL CONFIGURATION MANAGEMENT OPTIONS **REVIEW**

Please review the information below, then click **Launch**

Engine:	mysql
Engine Version:	default
Auto Minor Ver. Upgrade:	Yes
DB Instance Class:	db.m1.small
Multi-AZ Deployment:	No
Allocated Storage:	5
DB Instance Identifier:	foobar
Master User Name:	foouser
Master User Password:	*****
<hr/>	
Database Name:	
Database Port:	3306
Availability Zone:	I have no preference
DB Parameter Group:	default
DB Security Group(s):	default
<hr/>	
Backup Retention Period:	1
Backup Window:	No Preference
Maintenance Window:	No Preference
<hr/>	
Back	Launch DB Instance

Database is creating

The screenshot shows the AWS RDS Management Console. The top navigation bar includes links for Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. The left sidebar, titled 'Navigation', shows the 'RDS Dashboard' selected under 'Databases'. Below it are links for DB Instances, Reserved DB Instances, DB Snapshots, DB Security Groups, DB Parameter Groups, and DB Events. The main content area is titled 'My DB Instances' and displays a table with one row. The table columns are: DB Instance, Multi-AZ, Class, Status, Storage, and Security Groups. The single entry is 'foobar', which is 'No' for Multi-AZ, 'db.m1.small' for Class, 'creating' for Status (indicated by a yellow circle), '5 GiB' for Storage, and 'default' for Security Groups. At the bottom, a message says '0 DB Instances selected' and 'Select a db instance above'.

	DB Instance	Multi-AZ	Class	Status	Storage	Security Groups
foobar	No	db.m1.small	creating	5 GiB	default	

Configure DB security

The screenshot shows the AWS RDS management console. The top navigation bar includes links for Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. The main content area is titled "My DB Security Groups". On the left, a navigation sidebar lists "RDS Dashboard", "Databases", and several sub-options: "DB Instances", "Reserved DB Instances", "DB Snapshots", "DB Security Groups" (which is highlighted in orange), "DB Parameter Groups", and "DB Events". The main panel displays a table with one row:

	DB Security Group Name	Description
<input type="checkbox"/>	default	default

Below the table, a message states "0 DB Security Groups selected" and "Select a db security group above".

Security Credentials



Your Account

» Account Activity
View current charges and account activity, itemized by service and by usage type. Previous months' billing statements are also available.

» Usage Reports
Download usage reports for each service you are subscribed to. Reports can be customized by specifying usage types, timeframe, service operations, and more.

» Security Credentials
Amazon Web Services uses access identifiers to authenticate requests to AWS and to identify the sender of a request. Three types of identifiers are available: (1) AWS Access Key Identifiers, (2) X.509 Certificates, and (3) Key pairs

» Personal Information
View and edit personal contact information, such as address and phone number. Set communication preferences for email subscriptions.

Get Account ID

Account Identifiers

AWS uses two types of account identifiers — canonical user ID and AWS account ID. These account identifiers are used to share resources between accounts.

The canonical user ID can be used exclusively for Amazon S3 resources such as buckets or files.

The AWS account ID can be used for all AWS service resources except Amazon S3. These resources include Amazon EC2 AMIs, Amazon EBS snapshots, Amazon SQS queues, etc.

AWS Account ID: 4791-0720-0387

Canonical User ID: [View canonical user ID](#)

 [Learn more about Account Identifiers](#)

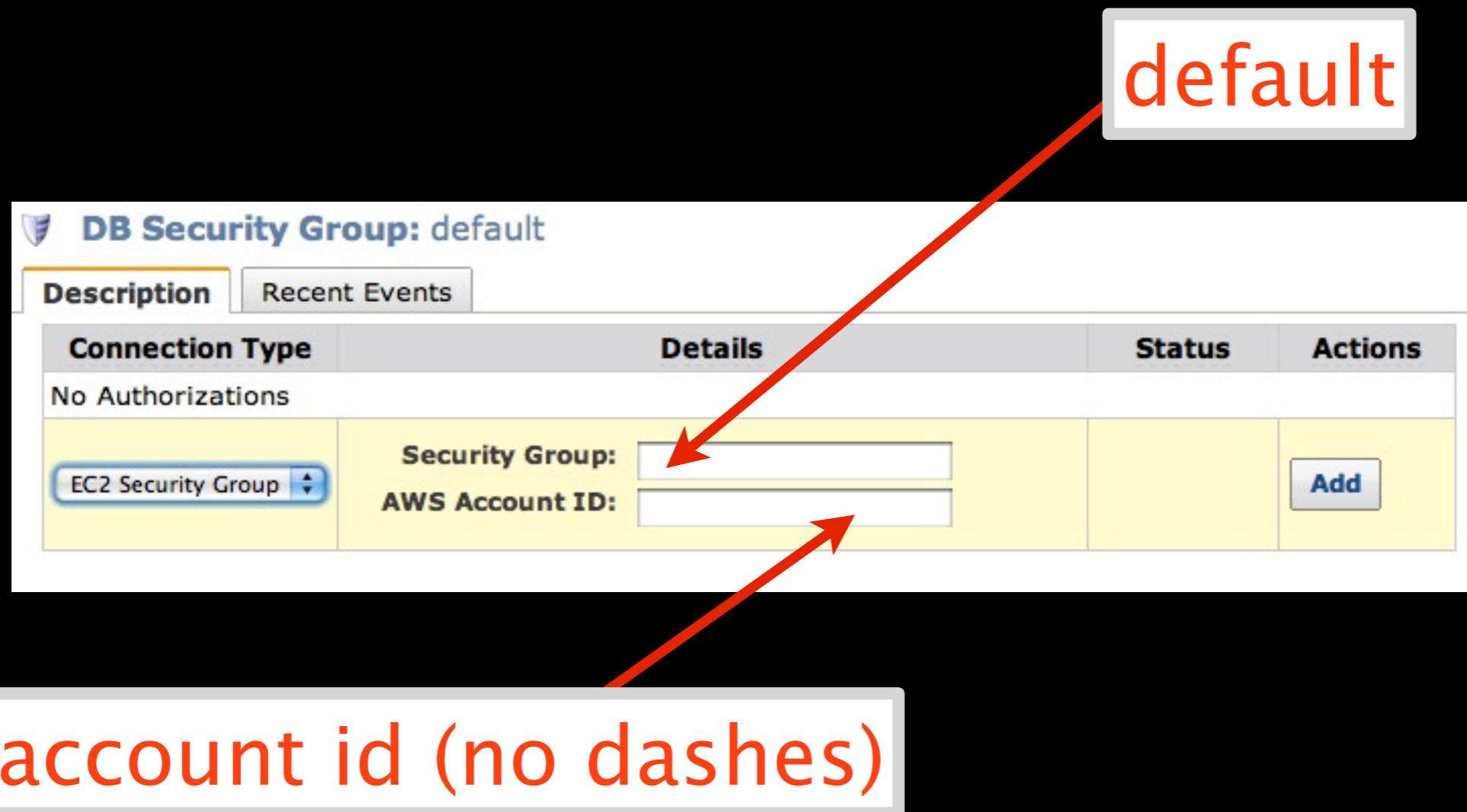
Edit the default group

The screenshot shows the AWS RDS DB Security Groups interface. The top navigation bar includes links for Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. The left sidebar has a 'Navigation' section with a 'Region' dropdown set to 'US East'. Below it is a tree view with 'RDS Dashboard' expanded, showing 'Databases', 'DB Instances', 'Reserved DB Instances', 'DB Snapshots', 'DB Security Groups' (which is selected and highlighted in orange), 'DB Parameter Groups', and 'DB Events'. The main content area is titled 'My DB Security Groups' and shows a table with one item:

	DB Security Group Name	Description
<input checked="" type="checkbox"/>	default	default

Below the table, a message says '1 DB Security Group selected'. A detailed view for the 'default' group is shown, with tabs for 'Description' (selected) and 'Recent Events'. The 'Description' tab displays 'Connection Type' as 'No Authorizations' and a dropdown menu with 'Select...'. The 'Actions' column contains a blue 'Add' button.

EC2 Security Group



Wait for RDS to finish

The screenshot shows the AWS RDS console interface. The top navigation bar includes links for Elastic Beanstalk, Amazon S3, Amazon EC2, Amazon VPC, Amazon CloudWatch, Amazon Elastic MapReduce, Amazon CloudFront, AWS CloudFormation, Amazon RDS, and Amazon SNS. The left sidebar has a 'Navigation' section with a 'Region' dropdown set to 'US East' and a 'RDS Dashboard' link. Below that is a 'Databases' section with links for 'DB Instances', 'Reserved DB Instances', 'DB Snapshots', 'DB Security Groups', 'DB Parameter Groups', and 'DB Events'. The main content area is titled 'My DB Instances' and contains a table with one row. The row details a DB instance named 'test-rds' with the following attributes: Multi-AZ: No, Class: db.m1.small, Status: available (highlighted with a red circle), Storage: 5 GiB, Security Groups: default, and Engine: mysql. Below this table is a detailed view of the 'test-rds' instance with fields like DB Instance Name, DB Engine, DB Security Groups, DB Status, Endpoint (highlighted with a red circle), Zone, and DB Storage.

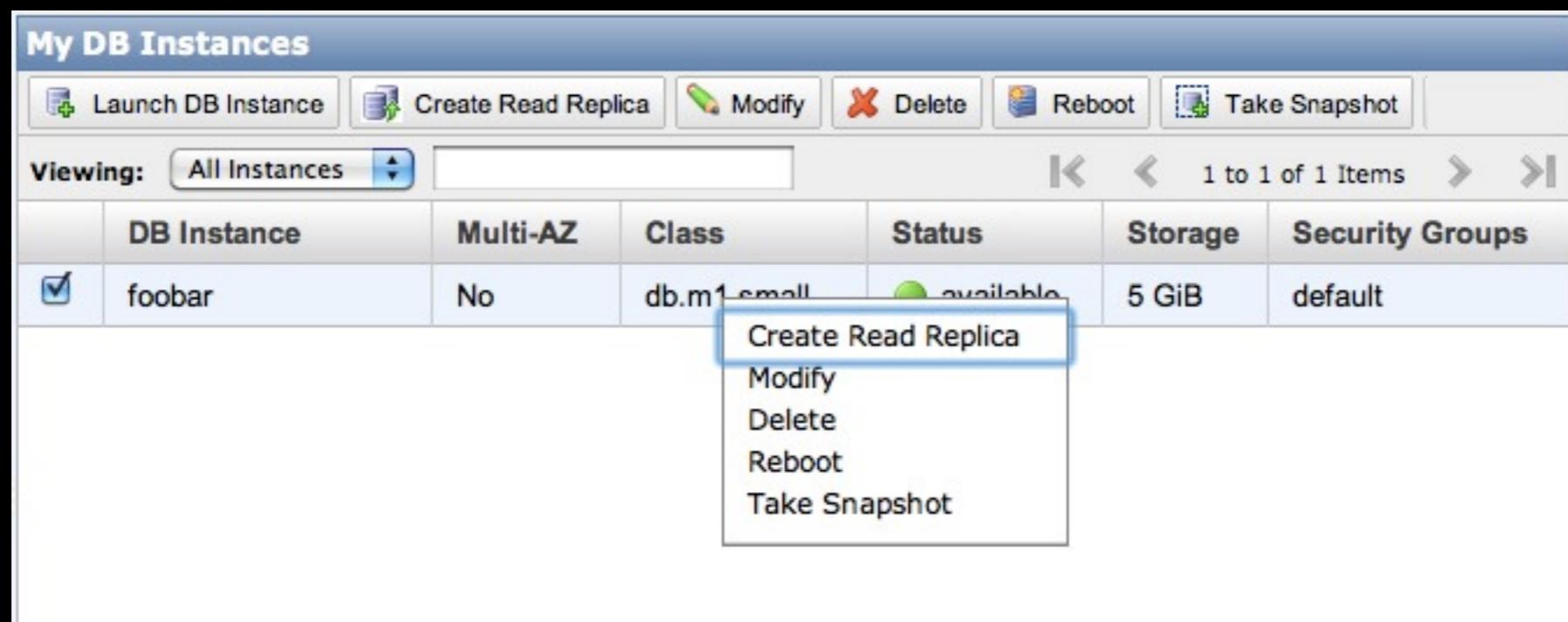
	DB Instance	Multi-AZ	Class	Status	Storage	Security Groups	Engine
<input checked="" type="checkbox"/>	test-rds	No	db.m1.small	available	5 GiB	default	mysql

DB Instance Name:	test-rds	DB Engine:	mysql
DB Engine Version:	5.1.50	Auto Minor Ver. Upgrade:	Yes
DB Security Groups:	default	DB Status:	available
DB Instance Class:	db.m1.small	Endpoint:	test-rds.crvuful1br2x.us-east-1.rds.amazonaws.com
Port:	3306	Zone:	us-east-1b
Multi-AZ Deployment:	No	DB Storage:	5 GiB

On MySQL instance

- `wget http://bit.ly/pycon-to-rds`
- `bash pycon-to-rds`
 - `-U clktc`
 - `-D clktc`
 - `-P <password>`
 - `-H <rds_endpoint>`

Create read replica



Read replica settings

Create Read Replica DB Instance Cancel 

You are creating a replica DB Instance from a source DB Instance. This new DB Instance will have source DB Instance's DB Security Groups and DB Parameter Groups.

Read Replica Source: ▼

DB Instance Identifier:* (e.g. mydbinstance)

DB Instance Class: ▼

Auto Minor Version Upgrade: Yes No

Database Port: (e.g. 3306)

Availability Zone: ▼

Cancel Yes, Create

Replica is now creating

The screenshot shows the AWS RDS Management Console interface. The top navigation bar includes links for Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. The left sidebar, titled 'Navigation', shows the 'RDS Dashboard' selected, with links for Databases, DB Instances, Reserved DB Instances, DB Snapshots, DB Security Groups, DB Parameter Groups, and DB Events. The main 'My DB Instances' section displays two entries:

	DB Instance	Multi-AZ	Class	Status	Storage	Security Groups
	foo-replica-1	No	db.m1.small	creating	5 GiB	default
	foobar	No	db.m1.small	modifying	5 GiB	default

Below this, a detailed view for the 'foobar' instance is shown, indicating it is currently being modified. The 'Description' tab is active.

DB Instance Name:	foobar	DB Engine:	mysql
DB Engine Version:	5.1.50	Auto Minor Ver. Upgrade:	Yes
DB Security Groups:	default	DB Status:	modifying

Launch New Instances

- Configured to point at RDS
- If we had more time we could also point it at the read replicas

Find the AMI



Instance Details

2

Request Instances Wizard

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances: **Availability Zone:**

Instance Type:

Termination Protection: Prevention against accidental termination.

Note, launching a **t1.micro** instance requires that you select an AMI with an EBS-backed root device.

Launch Instances
EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs.

Request Spot Instances

Launch Instances Into Your Virtual Private Cloud

[« Back](#)

Instance Details

Request Instances Wizard

Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Number of Instances: 1

Availability Zone: No Preference

Advanced Instance Options

Here you can choose a specific [kernel](#) or [RAM disk](#) to use with your instances. You can also choose to enable CloudWatch Detailed Monitoring or enter data that will be available from your instances once they launch.

Kernel ID:

RAM Disk ID:

Monitoring: Enable CloudWatch detailed monitoring for this instance
(additional charges will apply)

User Data:

base64 encoded

[< Back](#)

Paste in User Data

- `#!/bin/sh`

```
wget http://bit.ly/pycon-aws-django
bash pycon-aws-django
-n clktc
-d http://bit.ly/pycon-clktc
-s "http://<cloudfront_dns_name>/"
-U clktc -D clktc -P <password>
-H <rds_endpoint>
2>&1 | tee /root/install.log
```

Tags for Identification

Request Instances Wizard Cancel 

CHOOSE AN AMI **INSTANCE DETAILS** CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Add tags to your instance to simplify the administration of your EC2 infrastructure. A form of metadata, tags consist of a case-sensitive key/value pair, are stored in the cloud and are private to your account. You can create user-friendly names that help you organize, search, and browse your resources. For example, you could define a tag with key = Name and value = Webserver. You can add up to 10 unique keys to each instance along with an optional value for each key. For more information, go to [Using Tags in the EC2 User Guide](#).

Key (127 characters maximum)	Value (255 characters maximum)	Remove
Name		
		

[Add another Tag. \(Maximum of 10\)](#)

[Back](#) [Continue !\[\]\(1e3caebfb59f93f848e9298813995020_img.jpg\)](#)

Select Key Pair

Request Instances Wizard Cancel 

CHOOSE AN AMI ▼ INSTANCE DETAILS ▼ CREATE KEY PAIR ▼ CONFIGURE FIREWALL ▼ REVIEW

Public/private key pairs allow you to securely connect to your instance after it launches. To create a key pair, enter a name and click **Create & Download your Key Pair**. You will then be prompted to save the private key to your computer. Note, you only need to generate a key pair once - not each time you want to deploy an Amazon EC2 instance.

Choose from your existing Key Pairs

Your existing Key Pairs*:

Create a new Key Pair

Proceed without a Key Pair

[< Back](#) [Continue !\[\]\(25cff5410d0ef60e4e55d8a9991c254e_img.jpg\)](#)

Configure Firewall

Request Instances Wizard

[Cancel](#)

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR **CONFIGURE FIREWALL** REVIEW

Security groups determine whether a network port is open or blocked on your instances. You may use an existing security group, or we can help you create a new security group to allow access to your instances using the suggested ports below. Add additional ports now or update your security group anytime using the Security Groups page. All changes take effect immediately.

Choose one or more of your existing Security Groups

Security Groups: default

(Selected groups: default)

Create a new Security Group

[Back](#) [Continue](#)

Launch

Request Instances Wizard

Cancel 

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL  REVIEW

Please review the information below, then click **Launch**.

AMI:  Ubuntu AMI ID ami-1a837773 (i386) [Edit AMI](#)

Number of Instances: 1

Availability Zone: No Preference

Instance Type: Small (m1.small)

Instance Class: On Demand

Termination Protection: Disabled [Edit Instance Details](#)

Monitoring: Disabled

Kernel ID: Use Default

RAM Disk ID: Use Default

User Data: [Edit Advanced Details](#)

Key Pair Name: personal [Edit Key Pair](#)

Security Group(s): default [Edit Firewall](#)

[Back](#)

Launch 

Checkpoint

- Save instance ids of new RDS instances
- Wait for RDS backed instance to launch
- Verify in browser that new instances works

Exercise 4

- Create elastic load balancer
- Add instances to ELB

Create ELB

The screenshot shows the AWS Management Console interface for the EC2 service. The top navigation bar includes links for Elastic Beanstalk, S3, EC2 (which is selected and highlighted in orange), VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS.

The left sidebar, titled "Navigation", contains several sections with links:

- Region:** US East (Virginia)
- EC2 Dashboard**
- INSTANCES**
 - Instances
 - Spot Requests
- IMAGES**
 - AMIs
 - Bundle Tasks
- ELASTIC BLOCK STORE**
 - Volumes
 - Snapshots
- NETWORKING & SECURITY**
 - Security Groups
 - Placement Groups
 - Elastic IPs
 - Load Balancers
 - Key Pairs

The main content area is titled "Load Balancers". It features a toolbar with the following buttons: Create Load Balancer (highlighted with a red circle), Delete, Show/Hide, Refresh, and Help. A message states: "You have not yet started using a load balancer. If you want to use a load balancer to distribute traffic across your instances, click the button below." Below the message is a large "Create Load Balancer" button.

Name and ports

Create a New Load Balancer Cancel 

—
DEFINE LOAD BALANCER CONFIGURE HEALTH CHECK ADD EC2 INSTANCES REVIEW

This wizard will walk you through setting up a new load balancer. Begin by giving your new load balancer a unique name so that you can identify it from other load balancers you might create. You will also need to configure ports and protocols for your load balancer. Traffic from your clients can be routed from any load balancer port to any port on your EC2 instances. By default, we've configured your load balancer with a standard web server on port 80. We also provide several application examples to assist you in opening up the right ports.

Load Balancer Name:

Listener Configuration:

Common Applications	Protocol	Load Balancer Port	EC2 Instance Port	Actions
Apache HTTP Server	HTTP	80	80	<input type="button" value="Remove"/>
Custom... 	-- 	<input type="text"/>	<input type="text"/>	<input type="button" value="Save"/>

Continue 

Health Check

Create a New Load Balancer Cancel

DEFINE LOAD BALANCER **CONFIGURE HEALTH CHECK** ADD EC2 INSTANCES REVIEW

Your load balancer will automatically perform health checks on your EC2 instances and only route traffic to instances that pass the health check. If an instance fails the health check, it is automatically removed from the load balancer. Customize the health check to meet your specific needs.

Configuration Options:

Ping Protocol:

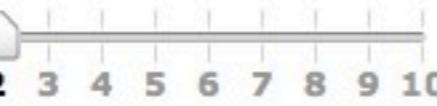
Ping Port:

Ping Path:

Advanced Options:

Response Timeout: Seconds Time to wait when receiving a response from the health check (2 sec - 60 sec).

Health Check Interval: Minutes Amount of time between health checks (0.1 min - 5 min)

Unhealthy Threshold:  Number of consecutive health check failures before declaring an EC2 instance unhealthy.

Healthy Threshold:  Number of consecutive health check successes before declaring an EC2 instance healthy.

[« Back](#) Continue

Select Instances

Create a New Load Balancer

Cancel

Define Load Balancer Configure Health Check Add EC2 Instances Review

The table below lists all your running EC2 Instances that are not already behind another load balancer or part of an auto-scaling capacity group. Check the boxes in the Select column to add those instances to this load balancer.

Manually Add Instances to Load Balancer:

Select	Instance	State	Security Groups	Availability Zone
<input type="checkbox"/>	i-5506d939	running	default	us-east-1c
<input type="checkbox"/>	i-2771624b	running	default	us-east-1c
<input type="checkbox"/>	i-2171624d	running	default	us-east-1c
<input type="checkbox"/>	i-2371624f	running	default	us-east-1c
<input type="checkbox"/>	i-3d716251	running	default	us-east-1c
<input type="checkbox"/>	i-3f716253	running	default	us-east-1c
<input type="checkbox"/>	i-30716255

[select all](#) | [select none](#)

Availability Zone Distribution:

No instances selected

[Back](#) [Continue](#)

Verify ELB details

Create a New Load Balancer

Cancel 

◀ ▶ ▶  REVIEW

DEFINE LOAD BALANCER

Load Balancer Name: my-load-balancer [Edit Load Balancer Definition](#)

Port Configuration: 80 forwarding to 80 (HTTP)

CONFIGURE HEALTH CHECK

Ping Target: HTTP:80:/ **Unhealthy Threshold:** 2
Timeout: 5 **Healthy Threshold:** 3
Interval: 0.1 [Edit Health Check](#)

ADD EC2 INSTANCES

EC2 Instances: No instances [Edit EC2 Instance Selection](#)

[Back](#)

Create 

Please review your selections on this page.
Clicking "Create" will launch your load balancer.
Check the Amazon EC2 product page for load balancer pricing info

Get DNS name

The screenshot shows the AWS EC2 Load Balancers console. The navigation bar at the top includes links for Elastic Beanstalk, Amazon S3, Amazon EC2 (highlighted in orange), Amazon VPC, Amazon CloudWatch, Amazon Elastic MapReduce, Amazon CloudFront, AWS CloudFormation, Amazon RDS, and Amazon SNS.

The main interface has a 'Navigation' sidebar on the left with sections for EC2 Dashboard, Instances, Spot Requests, AMIs, Bundle Tasks, Elastic Block Store, Volumes, Snapshots, Networking & Security, Security Groups, Placement Groups, Elastic IPs, Load Balancers (highlighted in orange), and Key Pairs. The 'Region' dropdown is set to US East (Virginia).

The 'Load Balancers' section displays a table with one row:

	Load Balancer Name	DNS Name	Port Configuration	Availability
<input checked="" type="checkbox"/>	my-load-balancer	my-load-balancer-558405260.us-east-1.elb.amazonaws.com	80 forwarding to 80 (HTTP)	us-east-1a

Below the table, a message indicates "1 Load Balancer selected" and provides details for the selected load balancer: "Load Balancer: my-load-balancer". It shows tabs for Description (selected), Instances, and Health Check. The "DNS Name" field is highlighted with a red oval, containing the value "my-load-balancer-558405260.us-east-1.elb.amazonaws.com". A note at the bottom states: "Note: Because the set of IP addresses associated with a LoadBalancer can change over time, you should never create an "A" record with any specific IP address. If you want to use a friendly DNS name for your LoadBalancer instead of the name generated by the Elastic Load Balancing".

Wait for health checks

The screenshot shows the AWS EC2 Load Balancers console. The navigation bar at the top includes links for Elastic Beanstalk, Amazon S3, Amazon EC2, Amazon VPC, Amazon CloudWatch, Amazon Elastic MapReduce, Amazon CloudFront, AWS CloudFormation, Amazon RDS, and Amazon SNS. The main interface is titled "Load Balancers". A table lists one load balancer named "my-load-balancer" with a DNS name of "my-load-balancer-558405260.i". The "Instances" tab is selected, showing a table with one row for instance "i-8bcad8e7" in the "us-east-1c" availability zone, which is listed as "Out of Service (why?)". A red circle highlights this row. The "Health Check" tab is also visible.

Load Balancer Name	DNS Name	Port Configuration	Availability Zones
my-load-balancer	my-load-balancer-558405260.i	80 forwarding to 80 (HTTP)	us-east-1c

1 Load Balancer selected

Load Balancer: my-load-balancer

Description Instances Health Check

Instances			
Instance	Availability Zone	Status	Actions
i-8bcad8e7	us-east-1c	Out of Service (why?)	Remove from Load Balancer

Availability Zones

Availability Zone	Instance Count	Healthy?	Actions
us-east-1c	1	No (why?)	-

Checkpoint

- Wait for load balancer to add instances
- Browse through load balancer URL

Shut down
EVERYTHING!

Questions?

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