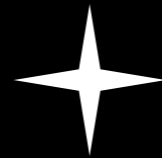
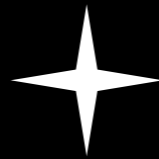


Deploying Web Applications to the Cloud



ThoughtWorks®



Cosmin Stejerean

@offbytwo

AWS Console

The screenshot displays the AWS Management Console interface for the Amazon RDS service. At the top, there is a navigation bar with various AWS services: Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS (highlighted), and SNS. Below this is the 'Amazon RDS Console Dashboard' header.

Navigation: The left sidebar shows the 'Region' set to 'US East'. Under 'Databases', the following items are listed: RDS Dashboard, DB Instances, Reserved DB Instances, DB Snapshots, DB Security Groups, DB Parameter Groups, and DB Events.

Getting Started: This section provides instructions on how to launch a database instance. It includes a prominent 'Launch DB Instance' button and a note stating: 'Note: Your DB Instances will launch in the US East (Virginia) region.'

Service Health: This section shows the current status of the service. A table indicates that 'Amazon RDS (US East - N. Virginia)' is 'Service is operating normally'. A link is provided to 'View complete service health details'.

My Resources: This section displays the user's current RDS resources in the US East (Virginia) region. The resources are as follows:

Resource Type	Count
DB Instances	0
Reserved DB Instances	0
DB Snapshots	0
DB Security Groups	1
DB Parameter Groups	1
Recent Events	0

A 'Refresh' button is available to update the resource counts.

Related Links: This section provides quick access to various resources:

- 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

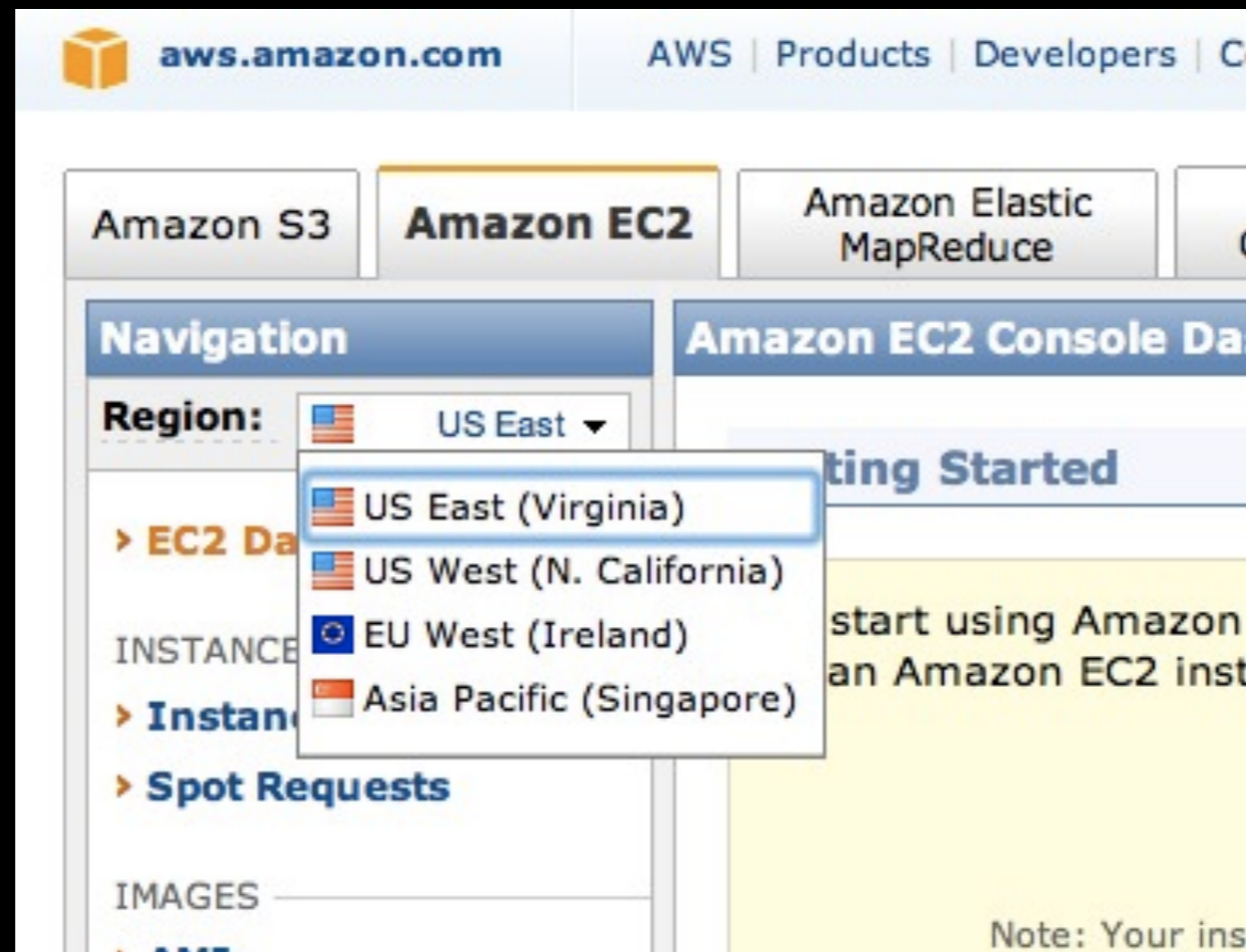
Before we begin

- 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

Navigation

Region:
US East (Virginia) ▼

EC2 Dashboard

INSTANCES

Key Pairs

Create Key Pair Delete

Viewing: All Key Pairs

	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

Create Key Pair Cancel X

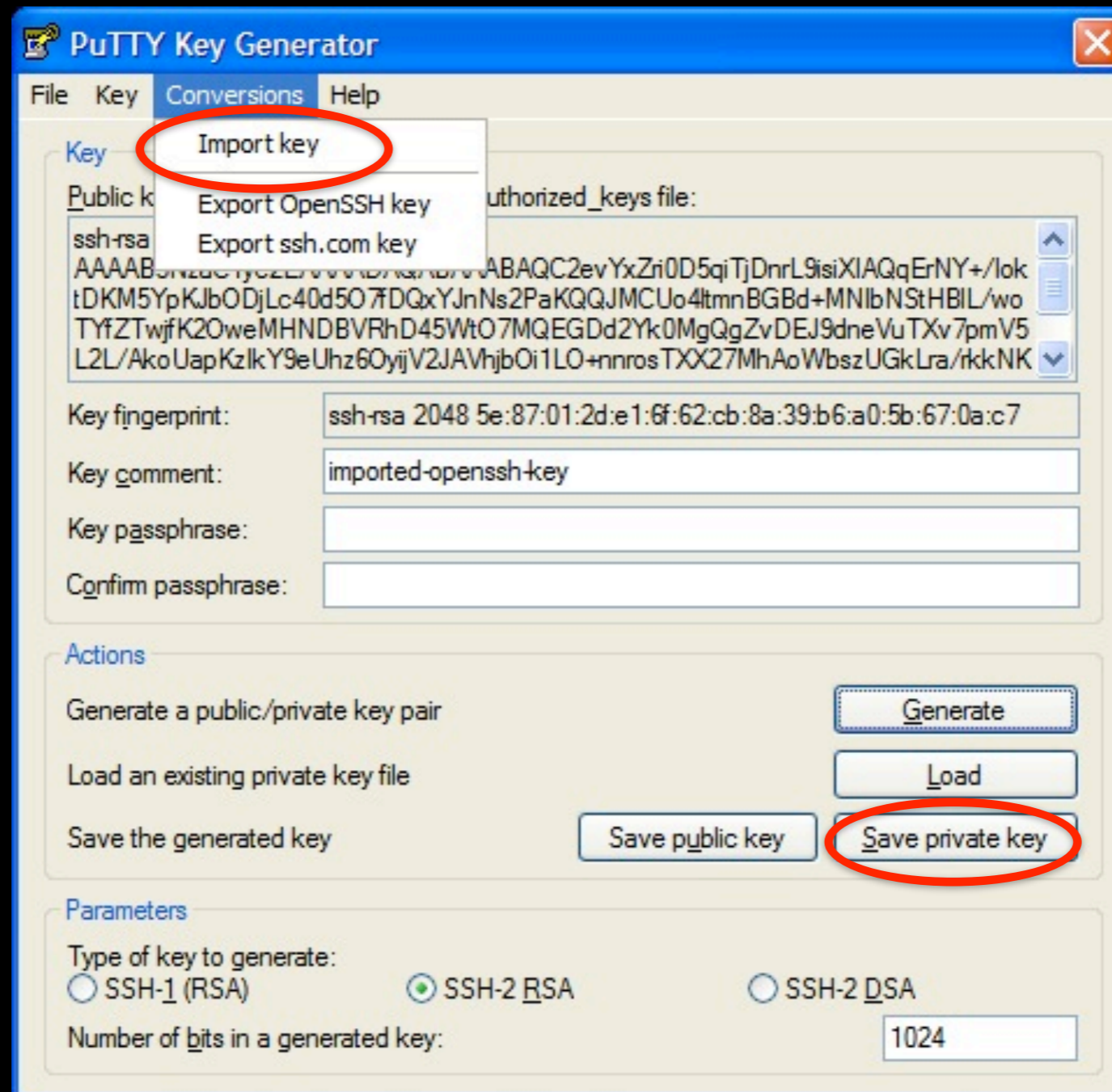
Key Pair Name:

Windows Users

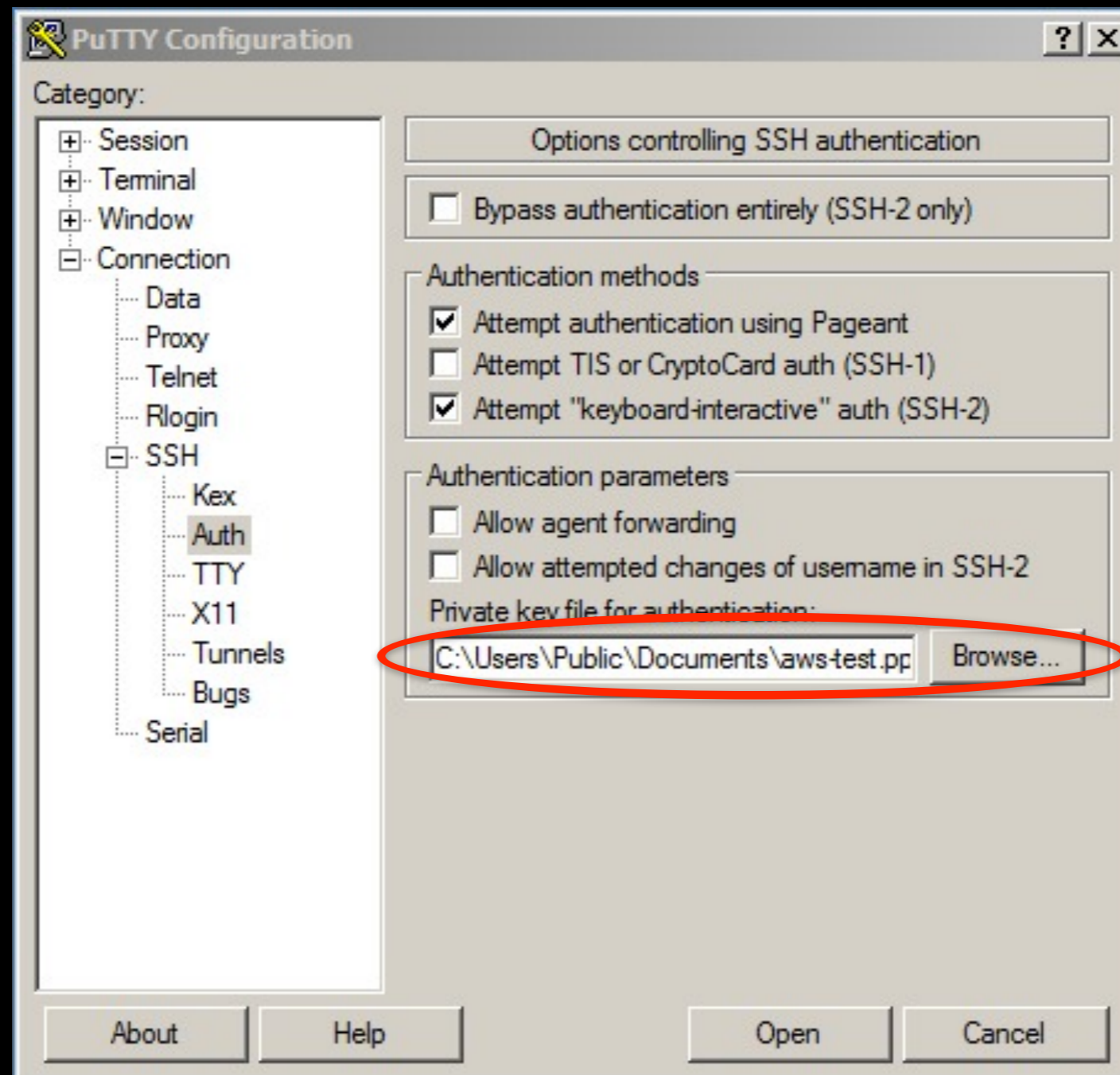
- <http://bit.ly/awspuTTY>

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)

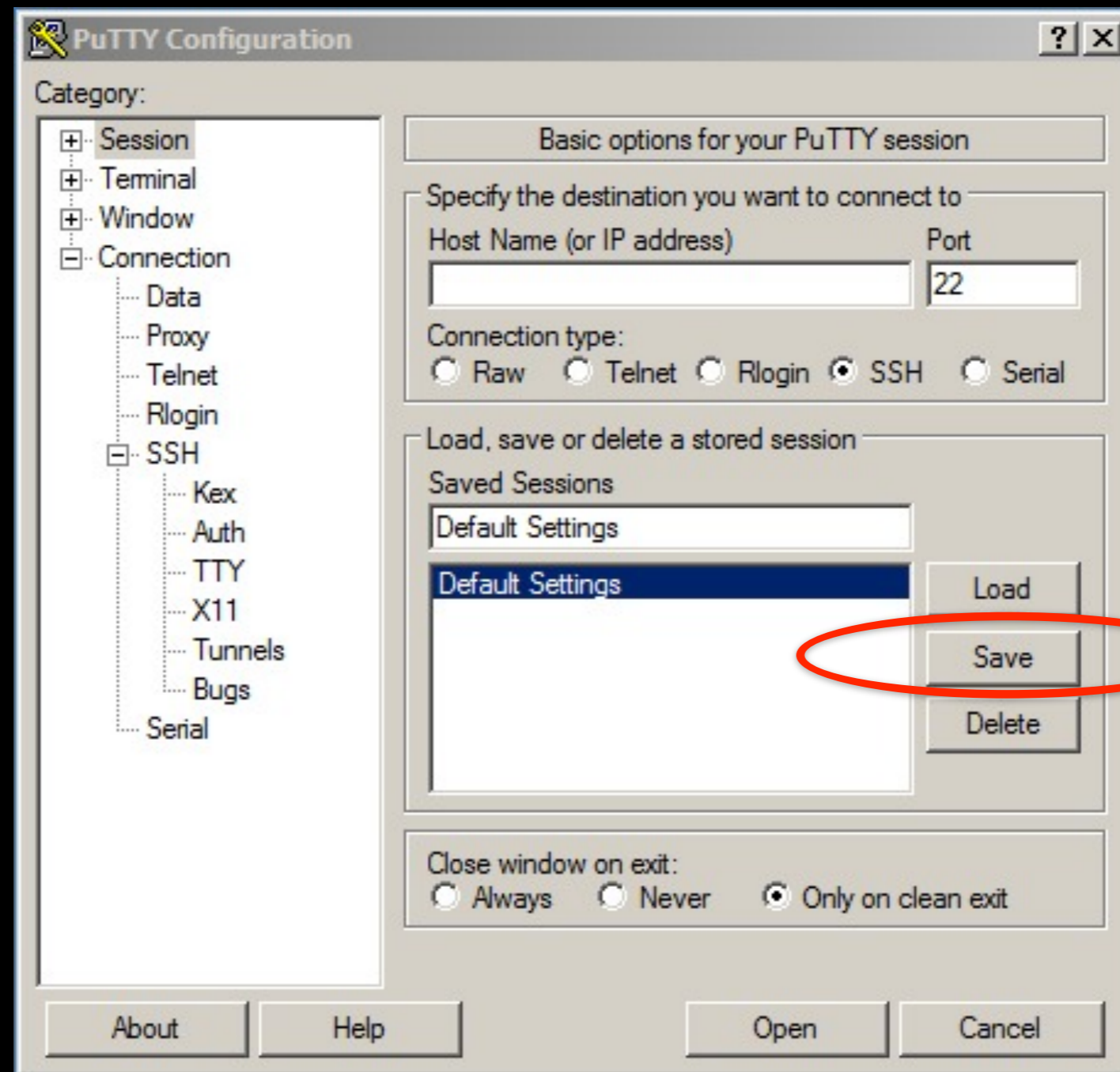
Key Conversion puttygen.exe



PuTTY Configuration



PuTTY Configuration



Database Instance

- Ubuntu 10.10 with MySQL on EBS

Launch Instance

Navigation

Region: US East (Virginia) ▼

► **EC2 Dashboard**

INSTANCES

► **Instances**

► Spot Requests

My Instances

Launch Instance Instance Actions Reserved Instances

Viewing: All Instances All Instance Types

	Name	Instance	AMI ID	Root Device	Type	Status
<input type="checkbox"/>	eversink.com	i-5506d939	ami-ccf405a5	ebs	t1.micro	running

Find the AMI

a6f5

Request Instances Wizard Cancel

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

Quick Start My AMIs **Community AMIs**

Viewing: All Images 1 to 1 of 1 Items

AMI ID	Root Device	Manifest	Platform	
ami-1a837773	instance-store	ubuntu-images-us/ubuntu-maverick-10.10-i386-server-2010	Ubuntu	Select

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 X

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
<input type="text" value="Name"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	

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

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

Select Key Pair

Request Instances Wizard Cancel X

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 >](#)


Configure Firewall

Request Instances Wizard Cancel X

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: 

(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 !\[\]\(9255d04e742e62906414430aacfc8ff2_img.jpg\)](#)

Wait until it is running


My Instances

Launch Instance Instance Actions Reserved Instances Show/Hide Refresh Help

Viewing: All Instances All Instance Types 1 to 1 of 1 Instances

Name	Instance	AMI ID	Root Device	Type	Status	Monitoring	Virtualization	Placement
<input type="checkbox"/> 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**

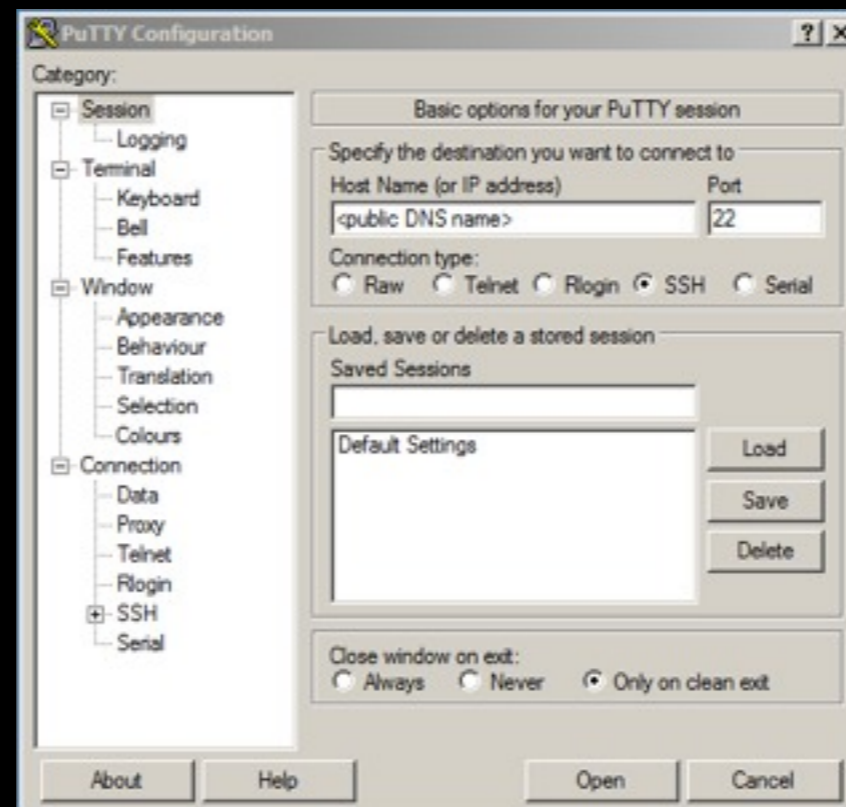
NETWORKING & SECURITY

- › **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	--	<input type="text"/>	<input type="text"/>	<input type="text"/>	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

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**

EBS Volumes

Create Volume Delete Attach Volume Detach Volume Force Detach Create S

Viewing: All Volumes

Name	Volume ID	Capacity	Snapshot	Created
No Items found.				

Select the correct Availability Zone

Same as your instance!

Create Volume Cancel

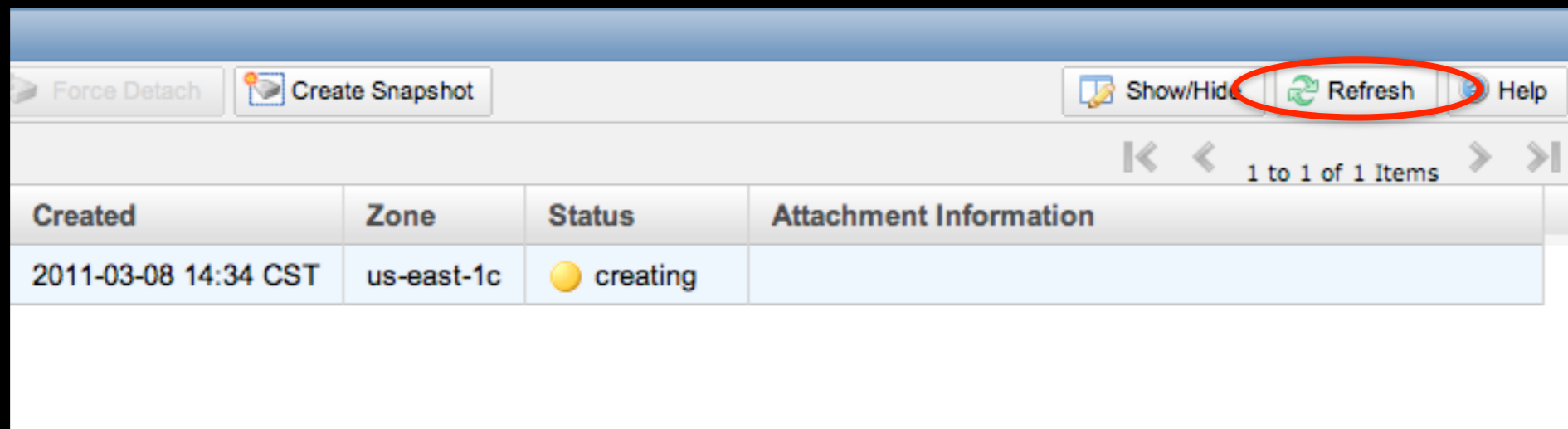
Size: 1 GiB

Availability Zone: us-east-1c

Snapshot: ---- No Snapshot ----

Create

Might need to refresh




The screenshot shows a web interface with a toolbar at the top containing buttons for 'Force Detach', 'Create Snapshot', 'Show/Hide', 'Refresh', and 'Help'. The 'Refresh' button is circled in red. Below the toolbar is a table with the following data:

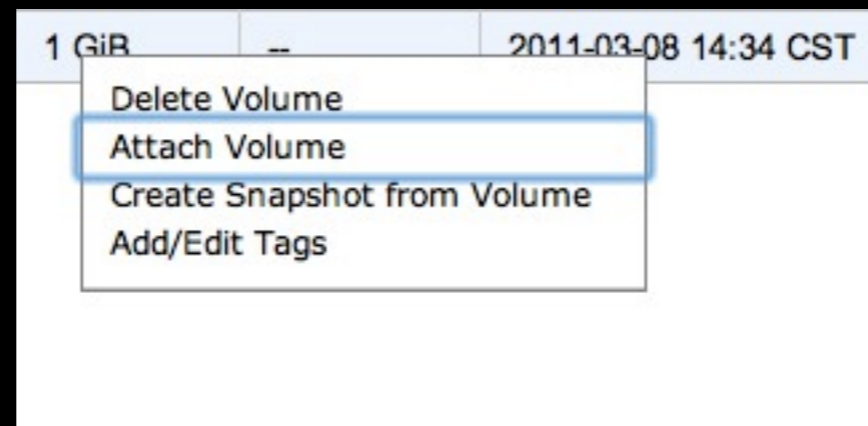
Created	Zone	Status	Attachment Information
2011-03-08 14:34 CST	us-east-1c	● creating	

Wait for available

The screenshot shows a web interface with a table of data. At the top, there are several buttons: 'Force Detach', 'Create Snapshot', 'Show/Hide', 'Refresh', and 'Help'. Below these is a navigation bar with '1 to 1 of 1 Items'. The table has four columns: 'Created', 'Zone', 'Status', and 'Attachment Information'. The first row of data shows '2011-03-08 14:34 CST' in the 'Created' column, 'us-east-1c' in the 'Zone' column, and 'available' in the 'Status' column. A blue dot is positioned to the left of the word 'available', and the entire 'Status' cell is circled in red.

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

Attach Volume



/dev/sdf



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

The screenshot shows the AWS Management Console interface for 'My Instances'. The left navigation pane has 'Instances' highlighted. The main content area shows a 'Launch Instance' button circled in red. Below it, a table lists instances with columns for Name, Instance, AMI ID, Root Device, Type, and Status.

Name	Instance	AMI ID	Root Device	Type	Status
eversink.com	i-5506d939	ami-ccf405a5	ebs	t1.micro	running

Find the AMI

a6f5




Request Instances Wizard Cancel

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

Quick Start My AMIs **Community AMIs**

Viewing: All Images 1 to 1 of 1 Items

AMI ID	Root Device	Manifest	Platform	
 ami-1a837773	instance-store	ubuntu-images-us/ubuntu-maverick-10.10-i386-server-2010	 Ubuntu	Select 

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 X

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
<input type="text" value="Name"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	

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

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

Select Key Pair

Request Instances Wizard Cancel X

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 >](#)


Configure Firewall

Request Instances Wizard Cancel X

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: 

(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 !\[\]\(f2975838ab6906b24a31c0126b2f0464_img.jpg\)](#)

Wait until it is running


My Instances

Launch Instance Instance Actions Reserved Instances Show/Hide Refresh Help

Viewing: All Instances All Instance Types 1 to 1 of 1 Instances

Name	Instance	AMI ID	Root Device	Type	Status	Monitoring	Virtualization	Placement
<input type="checkbox"/> test-database	 i-55726739	ami-1a837773	instance-store	m1.small	 running	basic	paravirtual	

Get DNS name

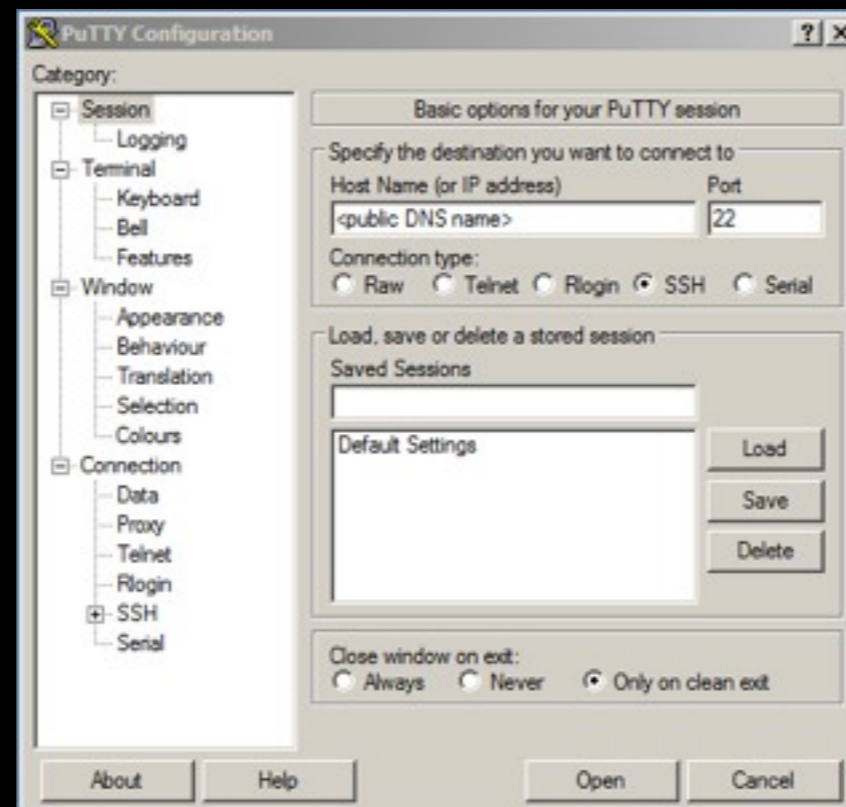
 **EC2 Instance: i-55726739**

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>`



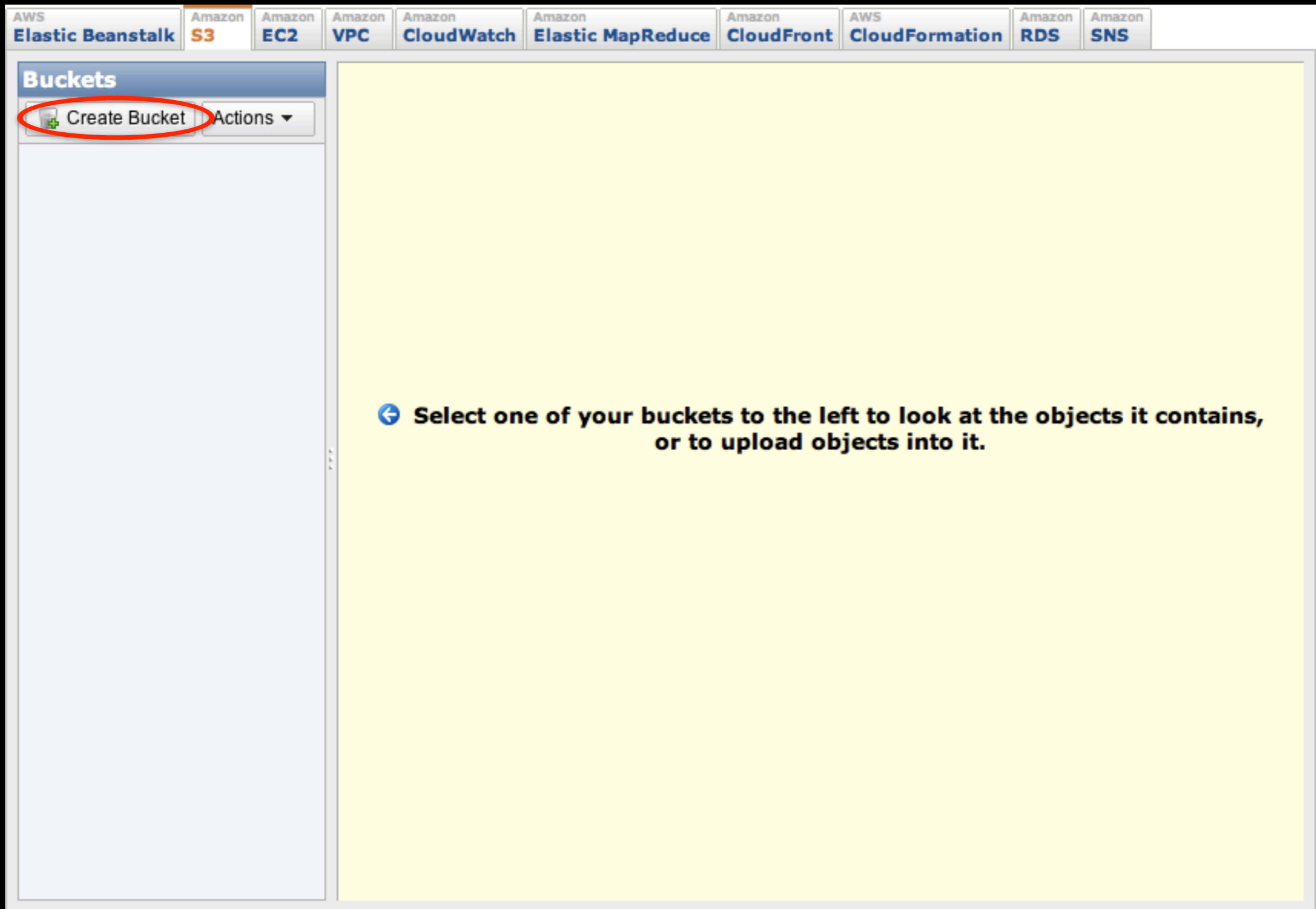
Install Django

- `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



The screenshot shows the AWS Management Console interface for the S3 service. At the top, there is a navigation bar with tabs for various AWS services: Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. The S3 tab is currently selected. Below the navigation bar, the main content area is divided into two sections. On the left, there is a sidebar titled 'Buckets' which contains a 'Create Bucket' button (circled in red) and an 'Actions' dropdown menu. The right section is a large yellow area with a blue arrow icon pointing left and the text: 'Select one of your buckets to the left to look at the objects it contains, or to upload objects into it.'

Pick a name

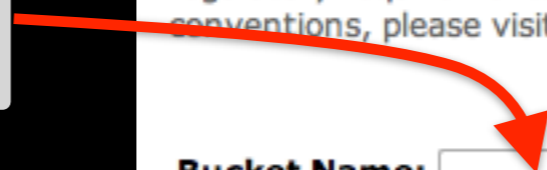
DNS friendly name

Create a Bucket - Select a Bucket Name and Region Cancel

A bucket is a container for objects stored in Amazon S3. When creating a bucket, you can choose a Region to optimize for latency, minimize costs, or address regulatory requirements. For more information regarding bucket naming conventions, please visit the [Amazon S3 documentation](#).

Bucket Name:

Region:



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

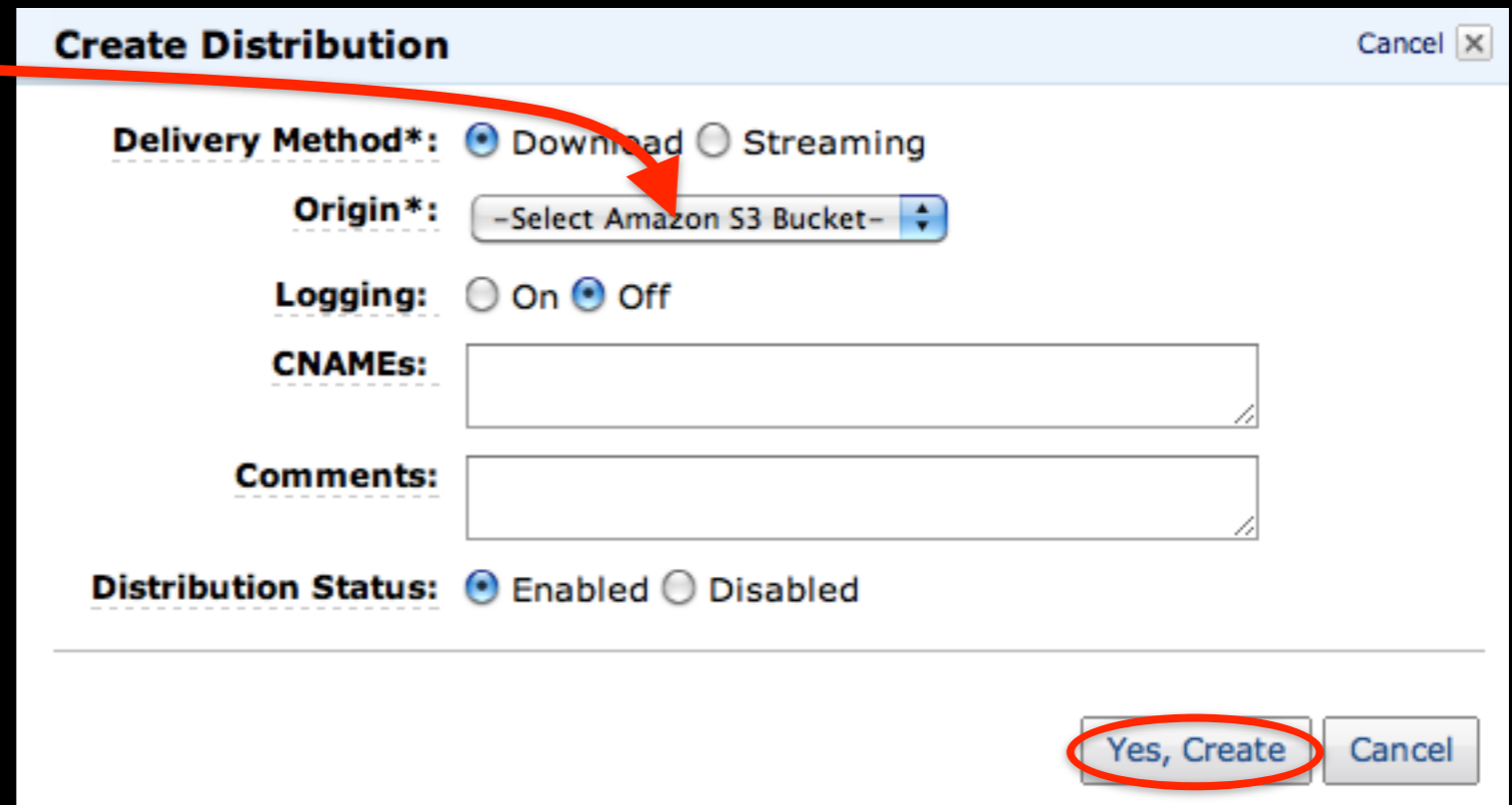
Create CF Distribution

The screenshot shows the AWS Management Console interface for CloudFront Distributions. At the top, there are navigation tabs for various AWS services, with 'Amazon CloudFront' selected. The main heading is 'CloudFront Distributions'. Below this, there is a toolbar with buttons for 'Create Distribution' (circled in red), 'Edit', 'Delete', 'Enable', and 'Disable'. To the right of these buttons are 'Show/Hide', 'Refresh', and 'Help' buttons. Below the toolbar, there are filters for 'Viewing: Any Delivery Method' and 'Any Status'. A pagination indicator shows '1 to 3 of 3 Items'. Below the filters is a table with columns: Delivery Method, Domain Name, Comment, Origin Bucket, Status, State, and Last Modified. The table is currently empty. Below the table, there is a section titled '3 Distributions selected' which displays the details for a selected distribution:

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

S3 bucket



The screenshot shows a 'Create Distribution' dialog box with the following fields and options:

- Delivery Method*:** Download Streaming
- Origin*:** A dropdown menu currently showing '-Select Amazon S3 Bucket-'. A red arrow points from the 'S3 bucket' text box to this dropdown.
- Logging:** On Off
- CNAMEs:** An empty text input field.
- Comments:** An empty text input field.
- Distribution Status:** Enabled Disabled

At the bottom right, there are two buttons: 'Yes, Create' (circled in red) and 'Cancel'.

In Progress

AWS Elastic Beanstalk Amazon S3 Amazon EC2 Amazon VPC Amazon CloudWatch Amazon Elastic MapReduce Amazon CloudFront AWS CloudFormation Amazon RDS Amazon SNS

CloudFront Distributions

Create Distribution Edit Delete Enable Disable Show/Hide Refresh Help

Viewing: Any Delivery Method Any Status 1 to 1 of 1 Items

Delivery Method	Domain Name	Origin Bucket	Status	State	Last Modified
Download	du49h7drvjfaj.cloudfront.net	cf-templates-fj8q	InProgress	Enabled	2011-03-09 22:39 CST

0 Distributions selected

Select a distribution above

Get Domain Name

The screenshot shows the AWS Management Console interface for CloudFront Distributions. At the top, there are navigation tabs for various AWS services, with 'Amazon CloudFront' selected. Below the tabs is a header for 'CloudFront Distributions' with several action buttons: 'Create Distribution', 'Edit', 'Delete', 'Enable', 'Disable', 'Show/Hide', 'Refresh', and 'Help'. A 'Viewing:' section shows filters for 'Any Delivery Method' and 'Any Status', along with a search box and pagination controls indicating '1 to 1 of 1 Items'. A table lists the distribution details:

Delivery Method	Domain Name	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 section titled '1 Distribution selected' provides detailed information for the chosen distribution:

- Distribution ID:** E3J5OGX0R8538R
- Distribution Status:** Enabled
- Delivery Method:** Download
- Domain Name:** du49h7drvjfaj.cloudfront.net (circled in red)
- State:** InProgress
- CNAMEs:** -
- Comments:** -
- Origin Bucket:** cf-templates-fj8qrablo7a3-us-east-1.s3.amazonaws.com
- Log Bucket:** -

Security Credentials



aws.amazon.com

[AWS](#) | [Products](#) | [Developers](#) | [Community](#) | [Support](#) | [Account](#)

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

- Browse 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

a6f5

Request Instances Wizard Cancel

CHOOSE AN AMI INSTANCE DETAILS CREATE KEY PAIR CONFIGURE FIREWALL REVIEW

Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

Quick Start My AMIs **Community AMIs**

Viewing: All Images 1 to 1 of 1 Items

AMI ID	Root Device	Manifest	Platform	
ami-1a837773	instance-store	ubuntu-images-us/ubuntu-maverick-10.10-i386-server-2010	Ubuntu	Select

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
<input type="text" value="Name"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	

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

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

Select Key Pair

Request Instances Wizard Cancel X

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 >](#)


Configure Firewall

Request Instances Wizard Cancel X

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: 

(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 displays the AWS Management Console interface for the 'My DB Instances' page. The top navigation bar includes various AWS services, with 'Amazon RDS' highlighted. The left sidebar shows the 'Navigation' menu with 'RDS Dashboard' and 'DB Instances' selected. The main content area shows a table of DB instances. The 'Launch DB Instance' button is circled in red. Below the table, the details for the selected instance 'testdb' are shown.

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

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:* GB (Minimum: 5 GB, Maximum 1024 GB)

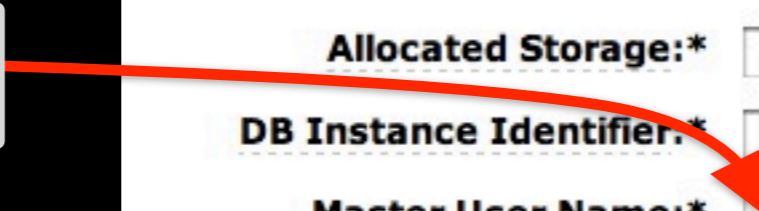
DB Instance Identifier:* (e.g. mydbinstance)

Master User Name:* (e.g. awsuser)

Master User Password:* (e.g. mypassword)

Continue

clktc



Database Name

clktc

Launch DB Instance Wizard Cancel

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

Provide the optional additional configuration details below.

Database Name: (e.g. mydatabase)

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

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

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:	*****

Database Name:	
Database Port:	3306
Availability Zone:	I have no preference
DB Parameter Group:	default
DB Security Group(s):	default

Backup Retention Period:	1
Backup Window:	No Preference
Maintenance Window:	No Preference

[< Back](#) **Launch DB Instance** ▶

Database is creating

The screenshot shows the AWS Management Console interface for the Amazon RDS service. The top navigation bar includes links for various AWS services: Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS (highlighted), and SNS. The left-hand navigation pane shows the 'RDS Dashboard' with sub-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 features a toolbar with actions: 'Launch DB Instance', 'Create Read Replica', 'Modify', 'Delete', 'Reboot', and 'Take Snapshot'. Below the toolbar, there is a 'Viewing:' dropdown set to 'All Instances' and a search input field. A table displays one database instance with the following details:

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

Below the table, a message states '0 DB Instances selected' and 'Select a db instance above'.

Configure DB security

The screenshot shows the AWS Management Console interface for configuring DB security. The top navigation bar includes links for various AWS services: Elastic Beanstalk, Amazon S3, Amazon EC2, Amazon VPC, Amazon CloudWatch, Amazon Elastic MapReduce, Amazon CloudFront, AWS CloudFormation, Amazon RDS, and Amazon SNS. The main content area is titled 'My DB Security Groups' and features a 'Create DB Security Group' button and a 'Delete' button. Below this, there is a 'Viewing:' dropdown menu set to 'All DB Security Groups' and a search input field. The table below shows one entry: 'default' with a description of 'default'. The bottom of the page indicates '0 DB Security Groups selected' and prompts the user to 'Select a db security group above'.

Navigation

Region: US East ▾

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

My DB Security Groups

Create DB Security Group Delete Show/Hide Refresh Help

Viewing: All DB Security Groups [input] 1 to 1 of 1 Items

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

0 DB Security Groups selected

Select a db security group above

Security Credentials



aws.amazon.com

[AWS](#) | [Products](#) | [Developers](#) | [Community](#) | [Support](#) | [Account](#)

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 Management Console interface for editing a DB Security Group. The top navigation bar includes services like Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. The left sidebar shows the navigation menu with 'DB Security Groups' highlighted. The main content area is titled 'My DB Security Groups' and shows a list of security groups. The 'default' group is selected, and the 'Description' tab is active, displaying a table for 'No Authorizations' with an 'Add' button.

Navigation
Region: US East

My DB Security Groups
Create DB Security Group Delete Show/Hide Refresh Help

Viewing: All DB Security Groups 1 to 1 of 1 Items

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

1 DB Security Group selected

DB Security Group: default

Description Recent Events

Connection Type	Details	Status	Actions
No Authorizations			
Select...			Add

EC2 Security Group

default

DB Security Group: default

Description Recent Events

Connection Type	Details	Status	Actions
No Authorizations			
EC2 Security Group	Security Group: <input type="text"/> AWS Account ID: <input type="text"/>		Add

account id (no dashes)

Wait for RDS to finish

The screenshot shows the AWS Management Console interface for the 'My DB Instances' page. The navigation pane on the left includes 'RDS Dashboard', 'DB Instances', 'Reserved DB Instances', 'DB Snapshots', 'DB Security Groups', 'DB Parameter Groups', and 'DB Events'. The main content area displays a table of database instances. The 'test-rds' instance is highlighted, with its status 'available' circled in red. Below the table, the instance details are shown, with the endpoint 'test-rds.crvuful1br2x.us-east-1.rds.amazonaws.com' also circled in red.

DB Instance	Multi-AZ	Class	Status	Storage	Security Groups	Engine
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

The screenshot shows the AWS Management Console interface for 'My DB Instances'. At the top, there are several action buttons: 'Launch DB Instance', 'Create Read Replica', 'Modify', 'Delete', 'Reboot', and 'Take Snapshot'. Below these buttons, there is a 'Viewing:' section with a dropdown menu set to 'All Instances' and a search box. To the right of the search box, there are navigation arrows and the text '1 to 1 of 1 Items'. The main content is a table with the following columns: 'DB Instance', 'Multi-AZ', 'Class', 'Status', 'Storage', and 'Security Groups'. The table contains one row for the instance 'foobar', which is checked with a blue checkmark. The instance is not Multi-AZ, has a class of 'db.m1_small', a status of 'available', 5 GiB of storage, and is in the 'default' security group. A context menu is open over the 'foobar' instance, listing the following actions: 'Create Read Replica', 'Modify', 'Delete', 'Reboot', and 'Take Snapshot'. The 'Create Read Replica' option is highlighted with a blue border.

	DB Instance	Multi-AZ	Class	Status	Storage	Security Groups
<input checked="" type="checkbox"/>	foobar	No	db.m1_small	available	5 GiB	default

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:

Replica is now creating

The screenshot shows the AWS Management Console interface for Amazon RDS. The top navigation bar includes links for Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. The left sidebar contains a 'Navigation' menu with 'Region: US East' and a list of RDS-related options: RDS Dashboard, 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 features a toolbar with actions like 'Launch DB Instance', 'Create Read Replica', 'Modify', 'Delete', 'Reboot', and 'Take Snapshot'. Below the toolbar, a 'Viewing:' dropdown is set to 'All Instances', and a pagination control shows '1 to 2 of 2 Items'. A table lists two database instances:

	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 the table, a section titled '1 DB Instance selected' shows details for the 'DB Instance: foobar'. The 'Description' tab is active, displaying the following information:

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

a6f5

Request Instances Wizard Cancel

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

Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

Quick Start | My AMIs | **Community AMIs**

Viewing: All Images 1 to 1 of 1 Items

AMI ID	Root Device	Manifest	Platform	
ami-1a837773	instance-store	ubuntu-images-us/ubuntu-maverick-10.10-i386-server-2010	Ubuntu	Select

Instance Details

2

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>/"  
-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
<input type="text" value="Name"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	

[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 >](#)


Configure Firewall

Request Instances Wizard Cancel X

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: 

(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 displays the AWS Management Console interface for the 'Load Balancers' section. At the top, a navigation bar lists various AWS services: Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. On the left, a 'Navigation' sidebar shows the 'Region' set to 'US East (Virginia)' and a list of services including EC2 Dashboard, INSTANCES (Instances, Spot Requests), IMAGES (AMIs, Bundle Tasks), ELASTIC BLOCK STORE (Volumes, Snapshots), and NETWORKING & SECURITY (Security Groups, Placement Groups, Elastic IPs, Load Balancers, Key Pairs). The main content area, titled 'Load Balancers', features a toolbar with 'Create Load Balancer' (circled in red), 'Delete', 'Show/Hide', 'Refresh', and 'Help'. Below the toolbar, 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.' A 'Create Load Balancer' button is centered below the message.

Name and ports

Create a New Load Balancer Cancel X

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"/>
<input type="text" value="Custom..."/>	<input type="text" value="--"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Save"/>

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: HTTP

Ping Port: 80

Ping Path: /

Advanced Options:

Response Timeout: 5 Seconds

Health Check Interval: 0.1 Minutes

Unhealthy Threshold: 3

Healthy Threshold: 3

[Time to wait when receiving a response from the health check \(2 sec - 60 sec\).](#)

[Amount of time between health checks \(0.1 min - 5 min\)](#)

[Number of consecutive health check failures before declaring an EC2 instance unhealthy.](#)

[Number of consecutive health check successes before declaring an EC2 instance healthy.](#)

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

Select Instances

Create a New Load Balancer Cancel X

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-00716255	● running	default	us-east-1c

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

Availability Zone Distribution:

No instances selected

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

Verify ELB details

Create a New Load Balancer Cancel

DEFINING LOAD BALANCER CONFIGURING HEALTH CHECK ADDING EC2 INSTANCES REVIEWING

DEFINE LOAD BALANCER

Load Balancer Name: my-load-balancer
Port Configuration: 80 forwarding to 80 (HTTP)

[Edit Load Balancer Definition](#)

CONFIGURE HEALTH CHECK

Ping Target: HTTP:80:/
Timeout: 5
Interval: 0.1

Unhealthy Threshold: 2
Healthy Threshold: 3

[Edit Health Check](#)

ADD EC2 INSTANCES

EC2 Instances: No instances

[Edit EC2 Instance Selection](#)

[< Back](#) 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 Management Console interface. At the top, there are navigation tabs for various AWS services: Elastic Beanstalk, S3, EC2, VPC, CloudWatch, Elastic MapReduce, CloudFront, CloudFormation, RDS, and SNS. The 'EC2' tab is currently selected.

On the left side, there is a 'Navigation' sidebar with a 'Region:' dropdown set to 'US East (Virginia)'. Below this, there are several categories of services with expandable options:

- EC2 Dashboard
 - 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 contains a table with the following columns: 'Load Balancer Name', 'DNS Name', 'Port Configuration', and 'Availability'. There is one entry in the table:

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, there is a section for the selected load balancer: '1 Load Balancer selected'. Underneath, the load balancer is identified as 'Load Balancer: my-load-balancer'. There are three tabs: 'Description', 'Instances', and 'Health Check'. The 'Description' tab is active, and the 'DNS Name:' is listed as 'my-load-balancer-558405260.us-east-1.elb.amazonaws.com', which is circled in red. A note below 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 service, you can create a CNAME record that points to the LoadBalancer DNS name.'

Wait for health checks

The screenshot shows the AWS Management Console interface for Load Balancers. The navigation pane on the left includes sections for EC2 Dashboard, INSTANCES, IMAGES, ELASTIC BLOCK STORE, and NETWORKING & SECURITY. The main content area is titled 'Load Balancers' and shows a table with one load balancer named 'my-load-balancer'. Below this, the 'Instances' tab is selected, showing a table with one instance in an 'Out of Service' state. A red circle highlights the 'us-east-1c' availability zone and the 'Out of Service (why?)' status. Below the instances table, the 'Availability Zones' section shows that the 'us-east-1c' zone has 1 instance, which is not healthy.

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

Load Balancers

Create Load Balancer Delete Show/Hide Refresh Help

Load Balancer Name	DNS Name	Port Configuration	Availability Zones
my-load-balancer	my-load-balancer-558405260.u	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?

- @offbytwo
- <http://offbytwo.com>