# Recipe for getting an EC2 instance running

Presented by Qing Zhang

# What is EC2?

- Elastic Cloud Computing
- Amazon's cloud computing service
- Dynamically allocate machine
- Virtual machines
  - Xen
- Talk summary: Get an instance running on EC2

# Getting Started

- Ingredients
  - EC2 account
  - S3 account
  - Firefox
  - Elasticfox
    - http://developer.amazonwebservices.com/connect/entry.jspa?externalID=609

# Step 1 Create an account

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http://aws.amazon.com/ec2/

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- Infrastructure Services
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  - Amazon SimpleDB
  - Amazon Simple Storage Service (Amazon S3)
  - Amazon CloudFront
  - Amazon Simple Queue Service (Amazon SQS)
  - Amazon Elastic MapReduce
  - AWS Premium Support
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Running Databases on EC2

Find tips and technical resources for running databases on Amazon EC2.

read more

Home > Products > Amazon Elastic Compute Cloud (Amazon EC2)

## Amazon Elastic Compute Cloud (Amazon EC2)

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers.

Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment. Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change. Amazon EC2 changes the economics of computing by allowing you to pay only for capacity that you actually use. Amazon EC2 provides developers the tools to build failure resilient applications and isolate themselves from common failure scenarios.

Sign Up For Amazon EC2

This page contains the following categories of information. Click to jump down:

- Amazon EC2 Functionality
- Service Highlights
- Pricing
- Resources

Find: Previous Next Highlight all Match case

Done

# Generate Certificate

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https://aws-portal.amazon.com/gp/aws/developer/account/index.html?awspid=0PX1ZoEtO

amazon ec2

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Do you want Firefox to remember this password? Remember | Never for This Site | Not Now

**Access Key ID**

Use your Access Key ID as the value of the AWSAccessKeyId parameter in requests you send to Amazon Web Services (when required). Your Access Key ID identifies you as the party responsible for the request.

**Your Access Key ID:**
AKIAJTCZMBLPR3GFSKWQ

**Secret Access Key**

Since your Access Key ID is not encrypted in requests to AWS, it could be discovered and used by anyone. Services that are not free require you to provide additional information, a request signature, to verify that a request containing your unique Access Key ID could only have come from you.

You use your Secret Access Key to calculate a signature to include in requests to web services that require authenticated requests. To learn more about request signatures, including when to use them and how you calculate them, please refer to the technical documentation for the specific web service(s) you are using.

**IMPORTANT:** Your Secret Access Key is a secret, and should be known only by you and AWS. You should never include your Secret Access Key in your requests to AWS. You should never e-mail your Secret Access Key to anyone. It is important to keep your Secret Access Key confidential to protect your account.

**Your Secret Access Key:**
+ Show

Generate

**Generate a new Secret Access Key**
(You will be asked to confirm this selection before a new Secret Access Key will be generated.)

**X.509 Certificate**

**Certificate File**

An X.509 Certificate consists of Public Key and a Private Key. The file containing the public key, the certificate file, must contain a base64-encoded DER certificate body. The file containing the private key, the Private Key file, must contain a base64-encoded PKCS#8 private key. The Private Key is used to authenticate requests to AWS.

AWS accepts any syntactically and cryptographically valid X.509 certificates. They do not need to be from a formal Certificate Authority (CA).

To learn more about how certificates are used to authenticate requests, please see the Developer Guide for services that support X.509 authentication.

**Your X.509 Certificate:**
cert-NJGP6AHRGHSQUGRXS532YZEC3PRGOB63.pem

Create New — Create a New X.509 Certificate

Download — Download Your X.509 Certificate

Upload — Upload Your Own X.509 Certificate

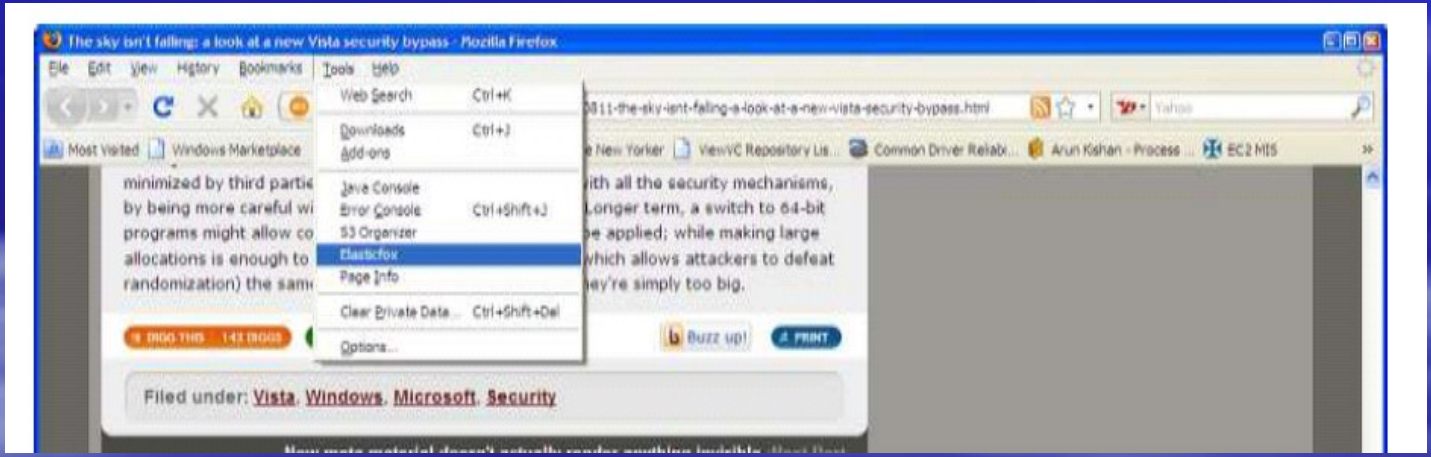
Delete — Delete Your Current X.509 Certificate from AWS

Find: request for | Previous | Next | Highlight all | Match case

Done | aws-portal.amazon.com

# ElasticFox

- Launch Elasticfox
  - “Tools” →“Elasticfox”.



# ElasticFox will want your credentials

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https://aws-portal.amazon.com/gp/aws/developer/account/index.html?ie=UTF8&action=access-

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**AWS supports two types of Request Identifiers:**

AWS Access Key Identifiers

X.509 Certificates

If you're not sure which type of identifier you should use, click here to see which identifiers can be used with which AWS Services.

**Access Key ID and Secret Access Key**

**Access Key ID**

Use your Access Key ID as the value of the AWSAccessKeyId parameter in requests you send to Amazon Web Services (when required). Your Access Key ID identifies you as the party responsible for the request.

**Your Access Key ID:**
AKIAJTCZMBLPR3GFSKWQ

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**Your Secret Access Key:**
a4cDg3QZzeqa91M/ZrNPlp53LMlqsTDK3GGfV5Um
- Hide

Generate

Generate a new Secret Access Key
(You will be asked to confirm this selection before a new Secret Access Key will be generated.)

Find: Previous Next Highlight all Match case

Done aws-portal.amazon.com

Help

c2ui/content/ec2ui_main_window.xul

what is AWS account id

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Credentials testing Account IDs Tools About

Elastic IPs Volumes and Snapshots Bundle Tasks Availability Zones

Manage EC2 Credentials

| Account Name | AWS Access Key ID |
|---|---|
| testing | AKIAJTCZMBLPR3GFSKWQ |

Account Name: lady

AWS Access Key: AKIAJTCZMBLPR3GFSKWQ

AWS Secret Access Key: ●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●

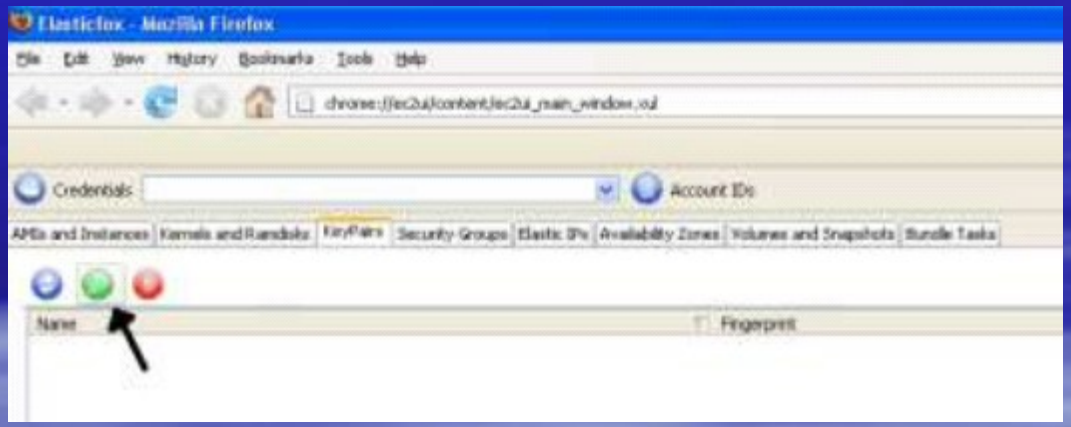
Remove Add Close

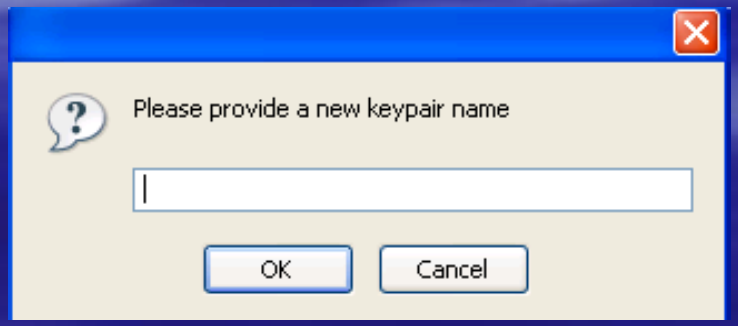
Find: AWS account Previous Next Highlight all Match case Phrase not found

Done

# Generate Key Pair

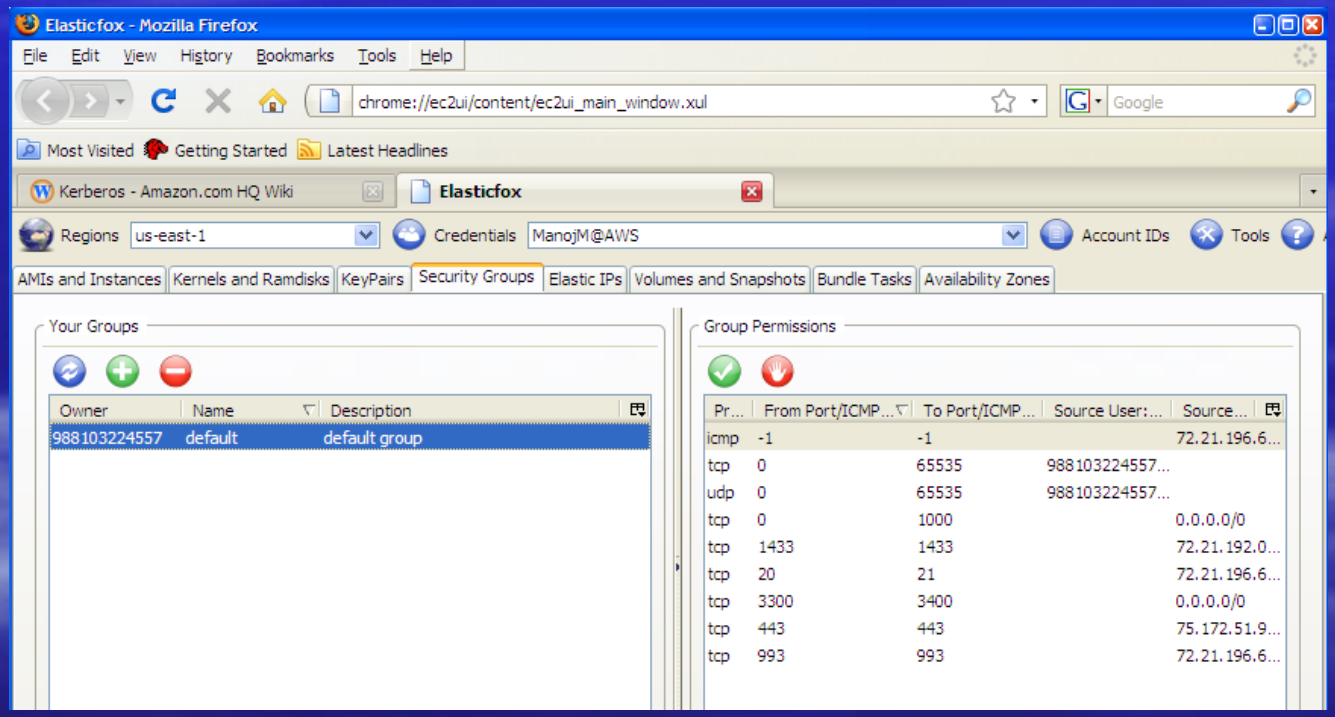
- Click on the “Key Pairs” tab in Elastic Fox.
- 2. Click on the green Key icon at the top of the tab.



# Set Security Groups

- Click on the “Security Groups” tab.



# Find Instance

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chrome://ec2ui/content/ec2ui_main_window.xul

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Welcome to Ubuntu 8.04 LTS! | Elasticfox

Regions: eu-west-1 | Credentials: ladyhacker | Account IDs | Tools | About

Instances | Images | KeyPairs | Security Groups | Elastic IPs | Volumes and Snapshots | Bundle Tasks | Availability Zones

**Machine Images (AMIs)**

| AMI ID | Manifest | State | Owner | Visibility | Platform | Tag |
|---|---|---|---|---|---|---|
| ami-00103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-00e1c9... | ec2-public-windows-i... | available | amazon | public | windows | |
| ami-02103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-02e1c9... | ec2-public-windows-i... | available | amazon | public | windows auth... | |
| ami-04e1c9... | ec2-public-windows-i... | available | amazon | public | windows | |
| ami-06103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-06e1c9... | ec2-public-windows-i... | available | amazon | public | windows auth... | |
| ami-08103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-0a103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-0e103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-0ef0d87a | mirial-bucket/DIC.ma... | available | 031819422... | public | windows | |
| ami-10103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-10163... | aws-toolkit-for-eclipse... | available | amazon | public | | |
| ami-10e1c9... | ec2-public-windows-i... | available | amazon | public | windows | |
| ami-12e1c9... | ec2-public-windows-i... | available | amazon | public | windows auth... | |
| ami-14103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-16103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-161c34... | scalr-images-eu/mys... | available | 919814621... | public | | |
| ami-18103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-18e1c9... | ec2-public-windows-i... | available | amazon | public | windows | |
| ami-1a103... | alestic-32-eu-west-1/... | available | 063491364... | public | | |
| ami-1ae1c9... | ec2-public-windows-i... | available | amazon | public | windows auth... | |

**Launch Permissions**

Kernel Images (AKIs) | Ramdisk Images (ARIs)

| AKI ID | Manifest | State | Owner | Visibility |
|---|---|---|---|---|
| aki-22123a56 | canonical-beta-eu/vmlinuz-2.6.27-22-xen-i386-eu.man... | available | 099720109477 | public |
| aki-28123a5c | canonical-beta-eu/vmlinuz-2.6.27-22-xen-i386-eu.man... | available | 099720109477 | public |
| aki-2a123a5e | canonical-beta-eu/vmlinuz-2.6.27-22-xen-amd64-eu.m... | available | 099720109477 | public |
| aki-540d2520 | ec2-public-images-eu/vmlinuz-2.6.18-xenU-ec2-v1.0.i3... | available | amazon | public |
| aki-550d2521 | ec2-public-images-eu/vmlinuz-2.6.18-xenU-ec2-v1.0.x... | available | amazon | public |
| aki-661c3412 | sun-osol-2008-11-eu/unix_32_1.0.manifest.xml | available | 327216928991 | public |
| aki-6a0d251e | ec2-public-images-eu/vmlinuz-2.6.20-1.3002.fc6xen.ak... | available | amazon | public |
| aki-780d250c | ec2-public-images-eu/ec2-vmlinuz-2.6.21.7-2.fc8xen.x... | available | amazon | public |
| aki-7e0d250a | ec2-public-images-eu/ec2-vmlinuz-2.6.21.7-2.fc8xen.i3... | available | amazon | public |
| aki-880028fc | rbuilder-online-eu/rpath-2.6.16.33-0.5.smp.gcc3.4.x86... | available | 941766519978 | public |

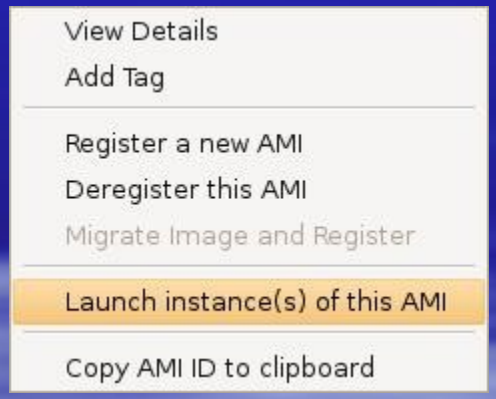
File Edit View

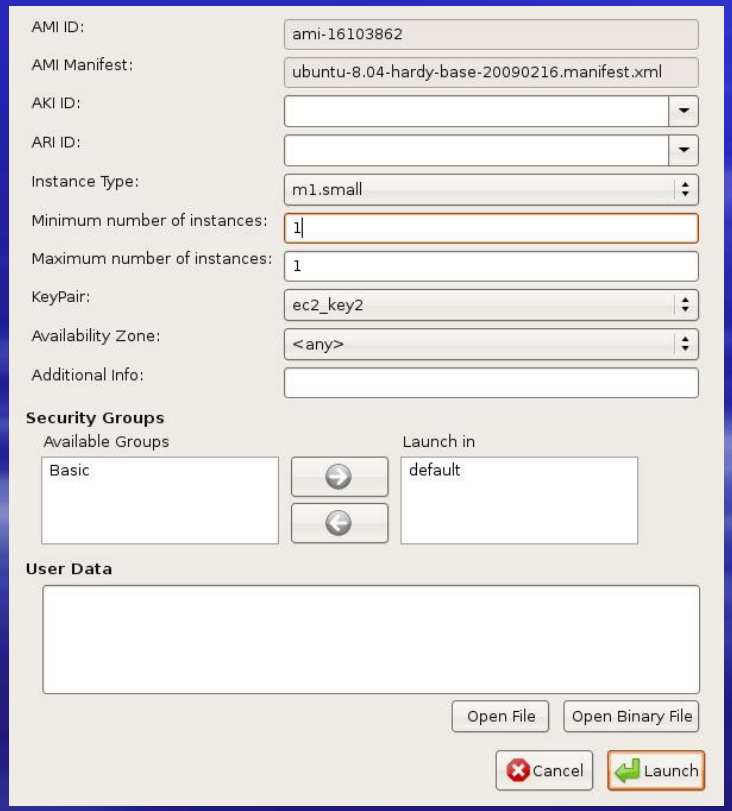
```
qzhang@lucky:~$
kbuildsycoca run
qzhang@lucky:~$
```

Done

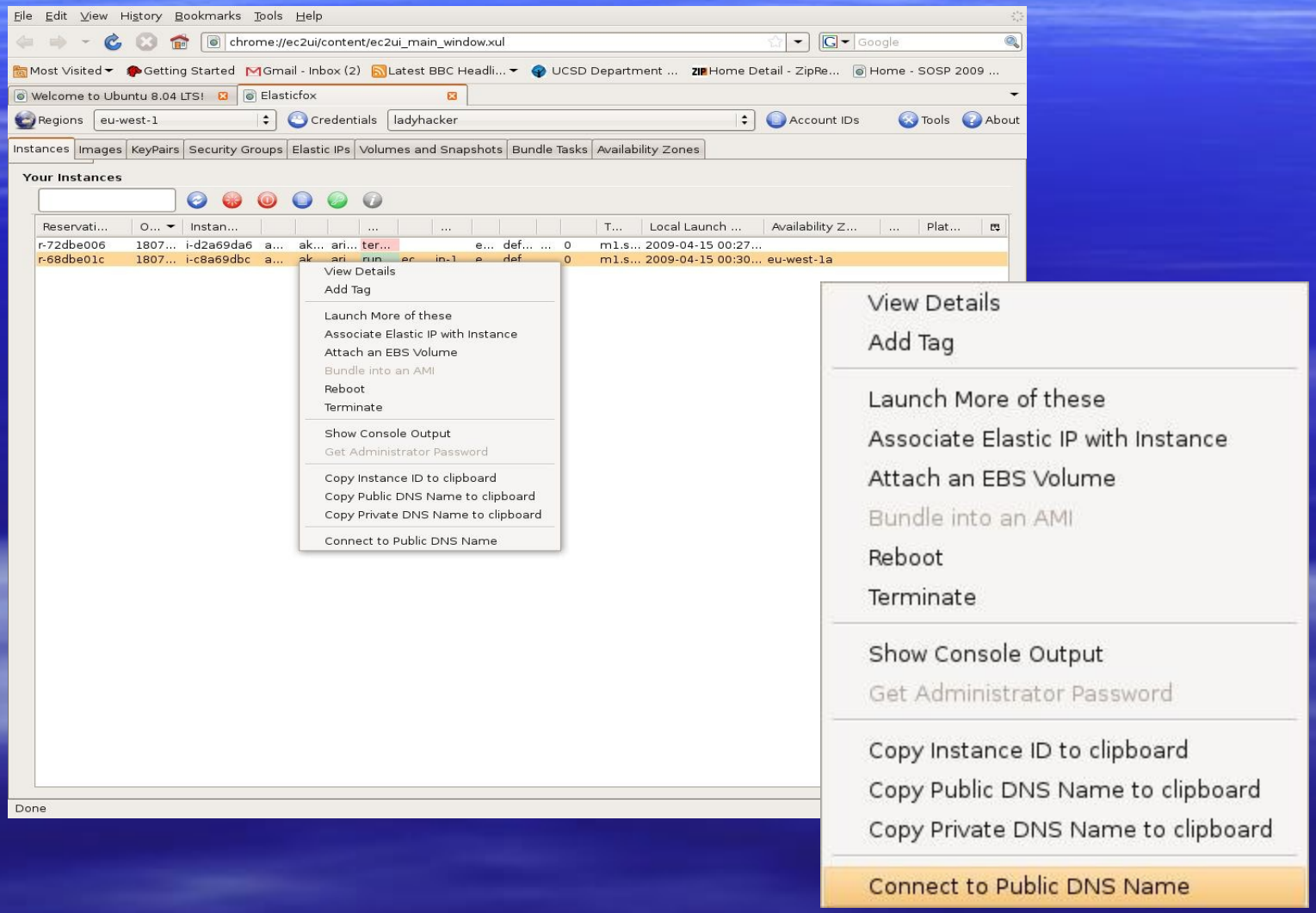
# Launch an instance

- Right click on the instance you want to connect to, and select the “launch”



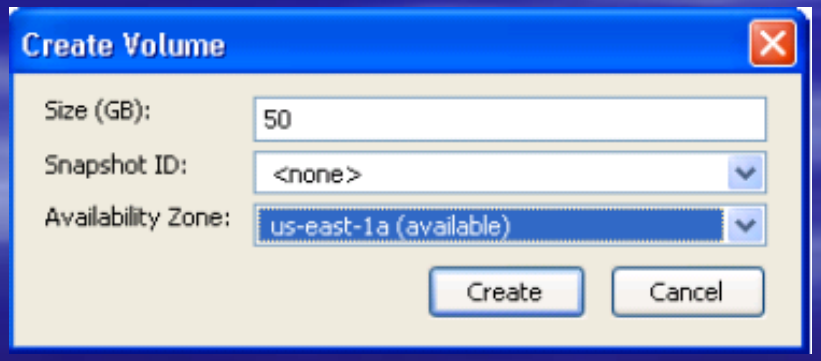
# Connecting to an Instance



# Demo

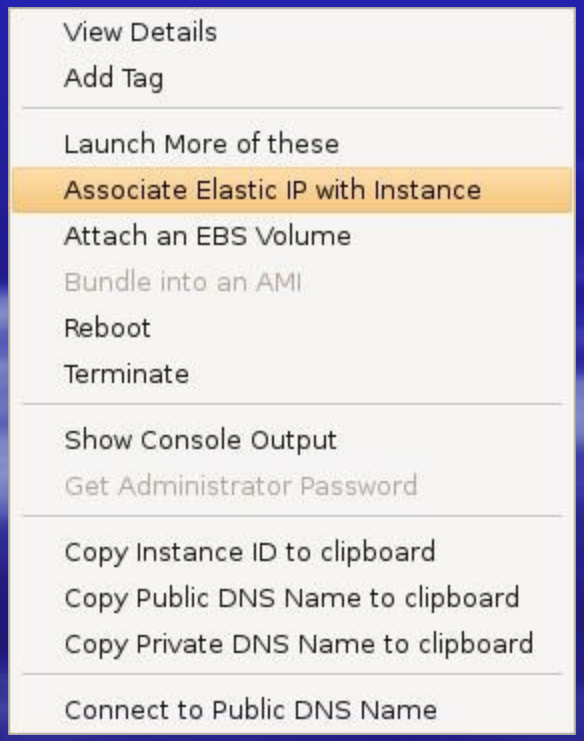
# Adding stable storage

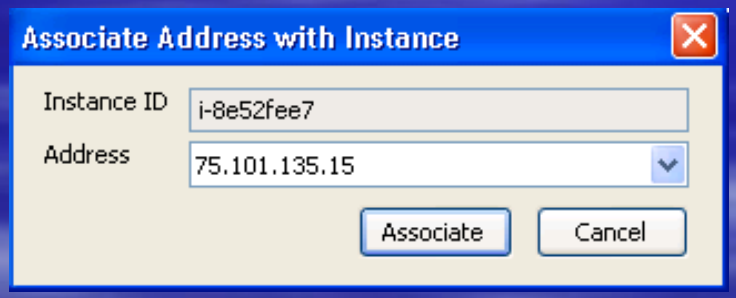
- Right click on the instance and select attach EBS Volume
- It will prompt you for a new volume
- Select the size and region



# Static IP

- Right click on instance
- Select associate Elastic IP with Instance



# Bundling

- Bundling is the process of saving your image to stable storage
- Does not work on Linux under Elasticfox
  - done inside of the VM via command line tools

  http://developer.amazonwebservices.com/connect/entry.jspa?externalID=2213&categoryID=87
- Windows right click and “Bundle into and AMI”

# Pricing

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http://aws.amazon.com/ec2/#pricing

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## Pricing

Pay only for what you use. There is no minimum fee. Estimate your monthly bill using AWS Simple Monthly Calculator.

### On-Demand Instances

United States | Europe

| Standard On-Demand Instances | Linux/UNIX Usage | Windows Usage |
|---|---|---|
| Small (Default) | $0.10 per hour | $0.125 per hour |
| Large | $0.40 per hour | $0.50 per hour |
| Extra Large | $0.80 per hour | $1.00 per hour |
| **High CPU On-Demand Instances** | **Linux/UNIX Usage** | **Windows Usage** |
| Medium | $0.20 per hour | $0.30 per hour |
| Extra Large | $0.80 per hour | $1.20 per hour |

Pricing is per instance-hour consumed for each instance type, from the time an instance is launched until it is terminated. Each partial instance-hour consumed will be billed as a full hour.

For more information on Windows options including Windows with Authentication Services and Windows SQL Server, please click here.

Find: 20 Previous Next Highlight all Match case

Done

# Pricing

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## Reserved Instances

Reserved Instances give you the option to make a low, one-time payment for each instance you want to reserve and in turn receive a significant discount on the hourly usage charge for that instance. After the one-time payment for an instance, that instance is reserved for you, and you have no further obligation; you may choose to run that instance for the discounted usage rate for the duration of your term, or when you do not use the instance, you will not pay usage charges on it.

**United States**

| Linux/UNIX | One-time Fee | | |
|---|---|---|---|
| **Standard Reserved Instances** | **1 yr Term** | **3 yr Term** | **Usage** |
| Small (Default) | $325 | $500 | $0.03 per hour |
| Large | $1300 | $2000 | $0.12 per hour |
| Extra Large | $2600 | $4000 | $0.24 per hour |
| **High CPU Reserved Instances** | **1 yr Term** | **3 yr Term** | **Usage** |
| Medium | $650 | $1000 | $0.06 per hour |
| Extra Large | $2600 | $4000 | $0.24 per hour |

Reserved Instances can be purchased for 1 or 3 year terms, and the one-time fee per instance is non-refundable. Usage pricing is per instance-hour consumed. Instance-hours are billed for the time that instances are in a running state; if you do not run the instance in an hour, there is zero usage charge. Partial instance-hours consumed are billed as full hours.

Find: 20 Previous Next Highlight all Match case

Done

# Pricing

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http://aws.amazon.com/ec2/#pricing

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## Data Transfer

### Internet Data Transfer

The pricing below is based on data transferred "in" and "out" of Amazon EC2.

| Data Transfer In | |
|---|---|
| All Data Transfer | $0.10 per GB |

| Data Transfer Out | |
|---|---|
| First 10 TB per Month | $0.17 per GB |
| Next 40 TB per Month | $0.13 per GB |
| Next 100TB per Month | $0.11 per GB |
| Over 150 TB per Month | $0.10 per GB |

Data transferred between two Amazon Web Services within the same region (i.e. between Amazon EC2 US and another AWS service in the US, or between Amazon EC2 Europe and another AWS service in Europe) is free of charge (i.e., $0.00 per GB). Data transferred between AWS services in different regions will be charged as Internet Data Transfer on both sides of the transfer.

Usage for other Amazon Web Services is billed separately from Amazon EC2.

### Availability Zone Data Transfer

- $0.00 per GB – all data transferred between instances in the same Availability Zone using private IP addresses.

Find: 20 Previous Next Highlight all Match case

Done

# Pricing

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http://aws.amazon.com/ec2/#pricing

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## Amazon Elastic Block Store

United States | Europe

### Amazon EBS Volumes

- $0.10 per GB-month of provisioned storage
- $0.10 per 1 million I/O requests

### Amazon EBS Snapshots to Amazon S3 (priced the same as Amazon S3)

- $0.15 per GB-month of data stored
- $0.01 per 1,000 PUT requests (when saving a snapshot)
- $0.01 per 10,000 GET requests (when loading a snapshot)

## Elastic IP Addresses

### No cost for Elastic IP addresses while in use

- $0.01 per non-attached Elastic IP address per complete hour
- $0.00 per Elastic IP address remap – first 100 remaps / month
- $0.10 per Elastic IP address remap – additional remap / month over 100

*(Amazon EC2 is sold by Amazon Web Services LLC.)*

Find: 20 Previous Next Highlight all Match case

Done

# Restrictions

- Only 20 VMS
  - request form for more instances

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http://aws.amazon.com/contact-us/ec2-request/

amazon ec2

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News & Events

Home > About AWS > Contact Us > Request to Increase the Amazon EC2 Instance Limit

## Contact Us

### Request to Increase the Amazon EC2 Instance Limit

By default, each Amazon EC2 customer has a limit of 20 instances that they can run at any one time. If you would like to increase this limit above 20 concurrent instances, please complete the form below to submit a request to have your maximum number of instances increased.

Company Name*

Email Address Associated with the EC2 Account*

Company Size* – select –

Your Name*

Your Phone Number*

Your Email Address*

Your Role*
- I am a Business Contact
- I am a Technical Contact
- Other

Requested New Instance Limit (Number)*

EC2 Regions* – select –

Operating System* – select –

Primary Instance Type* – select –

Use Case Description*

Find: request for | Previous | Next | Highlight all | Match case

http://aws.amazon.com/sqs

# Network performance

- EC2 to the outside world:
  about 3 seconds for the test above
  30 requests per second
  transfer rate: about 9Kbytes/sec

  EC2 to EC2 (separate instance):
  0.8 seconds for test
  1135 requests per second
  329 Kbps

- dreamhost.com:
  about 1 second for the thest
  86 requests per second
  transfer rate: about 34Kbytes/sec

  dreamhost to dreamhost (same account running ab from shell):
  about 0.2 seconds for the test
  470 requests per sec
  179 Kbytes/sec transfer

# Networking speeds

high volume web site hosting is most definitely one of our target markets, so yes, you can assume that we will provide sufficient bandwidth for that class of application. Having said that, we are very aware that we're not there yet, and are working on setting this right.

# Questions