

# AWS EC2 installation

CS336 – Spring 2019

# Go to: <https://aws.amazon.com/>

The screenshot shows the official AWS website homepage. At the top, there's a dark navigation bar with the AWS logo, a search bar, and links for Contact Sales, Support, English, My Account, and Sign In to the Console (which is highlighted with a red box). Below the header is a large orange banner for the "aws INNOVATE ONLINE CONFERENCE | AI EDITION" held on MARCH 5, 2019. It encourages users to "Build AI-Enabled Applications and Train Models" and provides a "Register now" link. To the right of the banner is a stylized graphic of interconnected hexagons representing a neural network or complex system. Below the banner, there are four cards showcasing AWS services: Lightsail (a robot icon), Migrating SQL Server 2008 (a database icon with arrows), Try AWS IoT Things Graph (an icon showing a lightbulb, camera, lock, and bell), and 110,000+ Databases Migrated to AWS (a binary code icon). At the bottom, there's a footer section for AWS Customer News and a news item about Choice Hotels International.

aws

Contact Sales Support English ▾ My Account ▾ [Sign In to the Console](#)

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# aws INNOVATE

ONLINE CONFERENCE | AI EDITION

MARCH 5, 2019

Build AI-Enabled Applications and Train Models

Register now »

Lightsail

Everything you need to get started on AWS—for a low, predictable price

Migrating SQL Server 2008

Expedia migrated from SQL Server to AWS to improve scale and performance

Try AWS IoT Things Graph

Connect devices and web services to automate operations

110,000+ Databases Migrated to AWS

Save time & cost—migrate to fully managed databases

AWS Customer News

Choice Hotels International is going all in on AWS to boost its technology leadership position in the hotel industry.

[Read the press release](#) X

# Login with your amazon account



## Sign In or Create an AWS Account

What is your email (phone for mobile accounts)?

E-mail or mobile number:

I am a new user.

I am a returning user  
and my password is:

[Sign in using our secure server](#)

[Forgot your password?](#)

Run Production Docker Workloads with

## Amazon EC2 Container Service



[Try Today »](#)

Learn more about [AWS Identity and Access Management](#) and [AWS Multi-Factor Authentication](#), features that provide additional security for your AWS Account. View full [AWS Free Usage Tier](#) offer terms.

[Services](#) ▾[Resource Groups](#) ▾

Valia ▾

N. Virginia ▾

Support ▾

## AWS services

Find a service by name (for example, EC2, S3, Elastic Beanstalk).



### Recently visited services

[RDS](#)[EC2](#)[VPC](#)[IAM](#)

### All services

## Build a solution

Get started with simple wizards and automated workflows.

[Launch a virtual machine](#)

With EC2  
~1 minute

[Build a web app](#)

With Elastic Beanstalk  
~6 minutes

[Deploy a serverless microservice](#)

With Lambda, API Gateway  
~2 minutes

[Host a static website](#)

With S3, CloudFront, Route 53  
~5 minutes

[Create a backend for your mobile app](#)

With Mobile Hub  
~5 minutes

[Register a domain](#)

With Route 53  
~3 minutes

## Featured next steps

[Manage your costs](#)

Get real-time billing alerts based on your cost and usage budgets. [Start now](#)

[Get best practices](#)

Use AWS Trusted Advisor for security, performance, cost and availability best practices. [Start now](#)

## What's new?

### Announcing AWS Batch

Now generally available, AWS Batch enables developers, scientists, and engineers to process large-scale batch jobs with ease. [Learn more](#)

### Announcing Amazon Lightsail

See how this new service allows you to launch and manage your VPS with AWS for a low, predictable price. [Learn more](#)

[See all](#)



Services

Resource Groups



Valia

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## History

Console Home

Billing

RDS

EC2

VPC

IAM

Search services

Group A-Z

## Compute

EC2

- EC2 Container Service
- Lightsail
- Elastic Beanstalk
- Lambda
- Batch

## Storage

- S3
- EFS
- Glacier
- Storage Gateway

## Database

- RDS
- DynamoDB
- ElastiCache
- Redshift

## Networking &amp; Content Deli...

## Migration

- Application Discovery Service
- DMS
- Server Migration
- Snowball

## Developer Tools

- CodeCommit
- CodeBuild
- CodeDeploy
- CodePipeline

## Management Tools

- CloudWatch
- CloudFormation
- CloudTrail
- Config
- OpsWorks
- Service Catalog
- Trusted Advisor
- Managed Services

## Analytics

- Athena
- EMR
- CloudSearch
- Elasticsearch Service
- Kinesis
- Data Pipeline
- QuickSight

## Artificial Intelligence

- Lex
- Polly
- Rekognition
- Machine Learning

## Internet Of Things

- AWS IoT

## Game Development

- GameLift

## Application Services

- Step Functions
- SWF
- API Gateway
- Elastic Transcoder

## Messaging

- SQS
- SNS
- SES

## Business Productivity

- WorkDocs
- WorkMail
- Amazon Chime

## Desktop &amp; App Streaming

- WorkSpaces
- AppStream 2.0



Services ▾

Resource Groups ▾



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## EC2 Dashboard

[Events](#)[Tags](#)[Reports](#)[Limits](#)

### Instances

[Instances](#)[Spot Requests](#)[Reserved Instances](#)[Scheduled Instances](#)[Dedicated Hosts](#)

### Images

[AMIs](#)[Bundle Tasks](#)

### Elastic Block Store

[Volumes](#)[Snapshots](#)

### Network & Security

[Security Groups](#)[Elastic IPs](#)[Placement Groups](#)[Key Pairs](#)

## Resources

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

[0 Running Instances](#)[0 Elastic IPs](#)[0 Dedicated Hosts](#)[0 Snapshots](#)[0 Volumes](#)[0 Load Balancers](#)[1 Key Pairs](#)[4 Security Groups](#)[0 Placement Groups](#)

Just need a simple virtual private server? Get everything you need to jumpstart your project - compute, storage, and networking – for a low, predictable price. [Try Amazon Lightsail for free.](#)

## Create Instance

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

[Launch Instance](#)

Note: Your instances will launch in the US East (N. Virginia) region

## Service Health

### Service Status:

US East (N. Virginia):

This service is operating normally

## Scheduled Events

### US East (N. Virginia):

No events

## Account Attributes

### Supported Platforms

[VPC](#)[Default VPC](#)[vpc-f2366995](#)[Resource ID length management](#)

## Additional Information

[Getting Started Guide](#)[Documentation](#)[All EC2 Resources](#)[Forums](#)[Pricing](#)[Contact Us](#)

## AWS Marketplace

Find free software trial products in the AWS Marketplace from the [EC2 Launch Wizard](#). Or try these popular AMIs:

[Cisco Cloud Services Router \(CSR\) 1000V - Direct Connect Multi-Gig](#)

Provided by Cisco Systems, Inc.

Services ▾ Resource Groups ▾ ★

EC2 Dashboard      Launch Instance Connect Actions ▾

Events      Tags      Reports      Limits

INSTANCES

Instances

Spot Requests      Reserved Instances      Scheduled Instances      Dedicated Hosts

IMAGES

AMIs      Bundle Tasks

ELASTIC BLOCK STORE

Volumes      Snapshots

NETWORK & SECURITY

Security Groups      Elastic IPs      Placement Groups      Key Pairs

Filter by tags and attributes or search by keyword

None found

You do not have any running instances in this region.

First time using EC2? Check out the [Getting Started Guide](#).

Click the Launch Instance button to start your own server.

Launch Instance

Select an instance above

☰



1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

[Cancel and Exit](#)

## Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

 Search for an AMI by entering a search term e.g. "Windows" X

### Quick Start

◀ ▶ 1 to 36 of 36 AMIs

My AMIs

**Amazon Linux 2 AMI (HVM), SSD Volume Type** - ami-0ed72083dbed1d548 (64-bit x86) / ami-07413a099547ecc89 (64-bit Arm)[Select](#)

AWS Marketplace

**Amazon Linux**

Free tier eligible

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.

 64-bit (x86) 64-bit (Arm)

Community AMIs

 Free tier only (i)**Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type** - ami-0cd3dfa4e37921605[Select](#)**Amazon Linux**

Free tier eligible

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

64-bit (x86)

Root device type: ebs Virtualization type: hvm

**Red Hat Enterprise Linux 7.6 (HVM), SSD Volume Type** - ami-0b500ef59d8335eee (64-bit x86) / ami-0302c1ecc74930ba5 (64-bit Arm)[Select](#)**Red Hat**

Free tier eligible

Red Hat Enterprise Linux version 7.6 (HVM), EBS General Purpose (SSD) Volume Type

 64-bit (x86) 64-bit (Arm)

Root device type: ebs Virtualization type: hvm

**SUSE Linux Enterprise Server 15 (HVM), SSD Volume Type** - ami-0eb9f58db22854f8f[Select](#)**SUSE Linux**

Free tier eligible

SUSE Linux Enterprise Server 15 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.

64-bit (x86)

Root device type: ebs Virtualization type: hvm

**Ubuntu Server 18.04 LTS (HVM), SSD Volume Type** - ami-0f65671a86f061fcd (64-bit x86) / ami-0f2057f28f0a44d06 (64-bit Arm)[Select](#)

Free tier eligible

Ubuntu Server 18.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>). 64-bit (x86) 64-bit (Arm)

Root device type: ebs Virtualization type: hvm

**Are you launching a database instance? Try Amazon RDS.**[Hide](#)

Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale your database on AWS by automating time-consuming database management tasks. With RDS, you can easily



1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

## Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance types

Current generation

Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes

Cancel

Previous

Review and Launch

Next: Configure Instance Details

1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review

## Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

### AMI Details

[Edit AMI](#)**Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0ed72083dbed1d548****Free tier  
eligible**

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.

Root Device Type: ebs Virtualization type: hvm

### Instance Type

[Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

### Security Groups

[Edit security groups](#)**Security group name**

launch-wizard-4

**Description**

launch-wizard-4 created 2019-02-27T15:23:25.307-05:00

Type	Protocol	Port Range	Source	Description
------	----------	------------	--------	-------------

*This security group has no rules*

### Instance Details

[Edit instance details](#)

### Storage

[Edit storage](#)

### Tags

[Edit tags](#)



Services

Resource Groups



Valia

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Support

1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

## Step 7: Review Instance Launch

Please review your instance launch details.



### Improve your instances'

Your instances may be accessible from the internet. You can also open additional ports.

#### AMI Details

**Amazon Linux AMI 2016**

Free tier eligible

The Amazon Linux AMI is an ideal choice for web servers, databases, and other applications built on Linux. It includes pre-installed software such as Apache, MySQL, and Python, and provides tools for Docker, PHP, MySQL, PostgreSQL, and more.

Root Device Type: ebs Virtualization:

#### Instance Type

Instance Type	ECUs
t2.micro	Variable

#### Security Groups

### Select an existing key pair or create a new key pair



A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

**Key pair name**

MyPrivateKeyPair

1

2



You have to download the **private key file** (\*.pem file) before you can continue. **Store it in a secure and accessible location**. You will not be able to download the file again after it's created.

3

Complete the launch process.

IP addresses only. You can't connect to your instance from the internet. To connect to your instance, you must open a port in its security group. Edit security groups

[Edit AMI](#)

The repositories include

[Edit instance type](#)[Network Performance](#)

Low to Moderate

[Edit security groups](#)



## Launch Status

✓ Your instances are now launching

The following instance launches have been initiated: [i-041bcc8100316ec18](#) [View launch log](#)

ℹ Get notified of estimated charges

Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

### How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click [View Instances](#) to monitor your instances' status. Once your instances are in the **running** state, you can **connect** to them from the Instances screen. Find out how to connect to your instances.

▼ Here are some helpful resources to get you started

- [How to connect to your Linux instance](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: User Guide](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

# The Public DNS of your instance is below.

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with links like EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (with Instances selected), SPOT REQUESTS, Reserved Instances, Scheduled Instances, Dedicated Hosts, IMAGES (with AMIs selected), Bundle Tasks, ELASTIC BLOCK STORE (with Volumes and Snapshots selected), and NETWORK & SECURITY (with Security Groups, Elastic IPs, Placement Groups, and Key Pairs selected). The main content area has tabs for Launch Instance, Connect, and Actions. A search bar at the top right says "search : i-041bcc8100316ec18". Below it is a table with columns: Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, and Public DNS (IPv4). One row is shown: i-041bcc8100316ec18, t2.micro, us-east-1d, running, 2/2 checks ..., None, ec2-52-206-88-120. At the bottom, there's a detailed view for the instance i-041bcc8100316ec18, showing fields like Instance ID, Instance state, Instance type, Elastic IPs, Availability zone, Security groups, Scheduled events, AMI ID, Platform, and Network interfaces. The Public DNS (IPv4) field, which contains "ec2-52-206-88-120.compute-1.amazonaws.com", is highlighted with a red box.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
	i-041bcc8100316ec18	t2.micro	us-east-1d	running	2/2 checks ...	None	ec2-52-206-88-120

Instance: i-041bcc8100316ec18    Public DNS: ec2-52-206-88-120.compute-1.amazonaws.com

Description	Status Checks	Monitoring	Tags
Instance ID	i-041bcc8100316ec18		
Instance state	running		
Instance type	t2.micro		
Elastic IPs			
Availability zone	us-east-1d		
Security groups	launch-wizard-2, view inbound rules		
Scheduled events	No scheduled events		
AMI ID	amzn-ami-hvm-2016.09.1.20170119-x86_64-gp2 (ami-0b33d91d)		
Platform	-		
Public DNS (IPv4)	ec2-52-206-88-120.compute-1.amazonaws.com		
IPv4 Public IP	52.206.88.120		
IPv6 IPs	-		
Private DNS	ip-172-31-28-19.ec2.internal		
Private IPs	172.31.28.19		
Secondary private IPs			
VPC ID	vpc-f2366995		
Subnet ID	subnet-4d21ce16		
Network interfaces	eth0		

# For Windows Users (1)

- Go to <http://www.putty.org> and download Putty.



## Download PuTTY

PuTTY is an SSH and telnet client, developed originally by Simon Tatham for the Windows platform. PuTTY is open source software that is available with source code and is developed and supported by a group of volunteers.

You can download PuTTY [here](#).

---

Below suggestions are independent of the authors of PuTTY. They are *not* to be seen as endorsements by the PuTTY project.

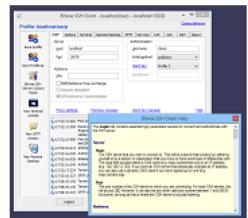
---

## Bitvise SSH Client

Bitvise SSH Client is an SSH and SFTP client for Windows. It is developed and supported professionally by Bitvise. The SSH Client is robust, easy to install, easy to use, and supports all features supported by PuTTY, as well as the following:

- graphical SFTP file transfer;
- single-click Remote Desktop tunneling;
- auto-reconnecting capability;
- dynamic port forwarding through an integrated proxy;
- an FTP-to-SFTP protocol bridge.

Bitvise SSH Client is **free to use**. You can [download it here](#).

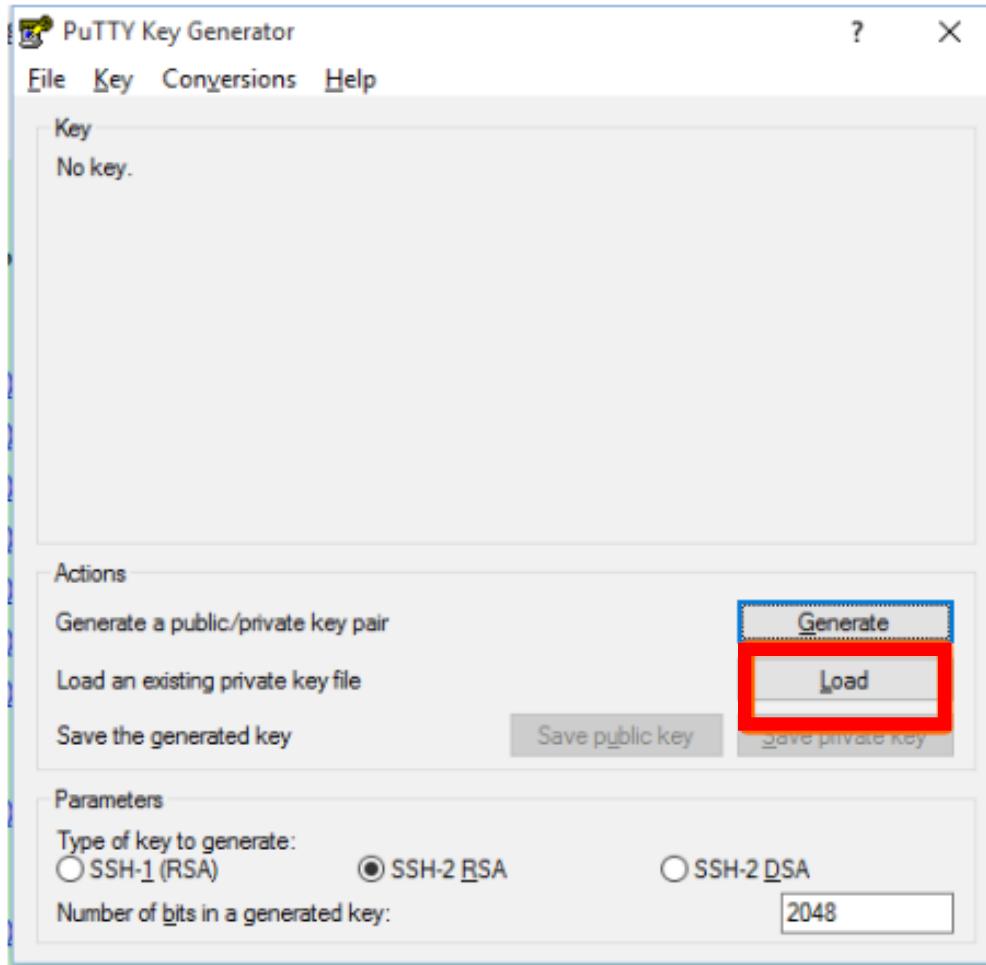


## Bitvise SSH Server

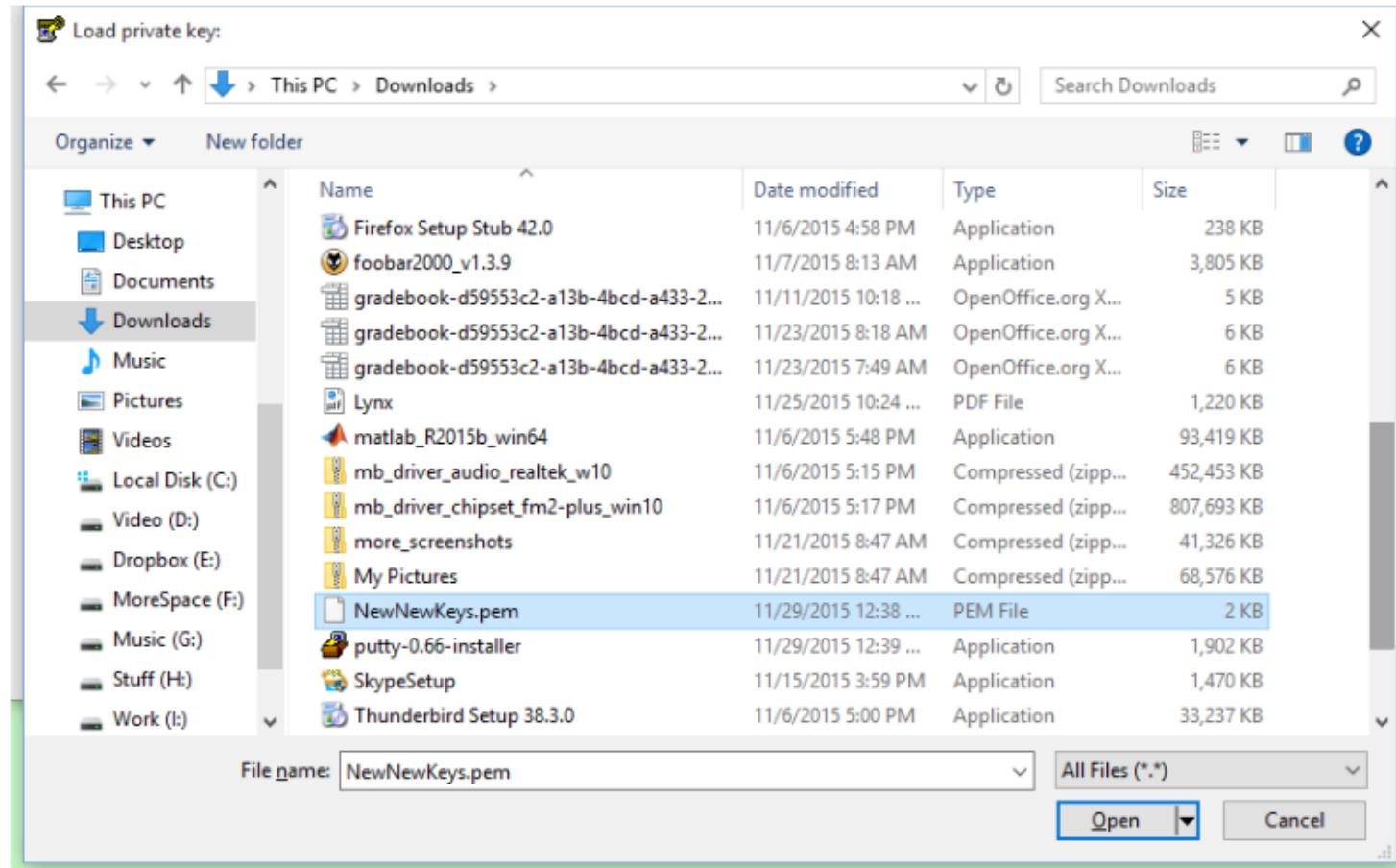
Bitvise SSH Server is an SSH, SFTP and SCP server for Windows. It is robust, easy to install, easy to use, and includes



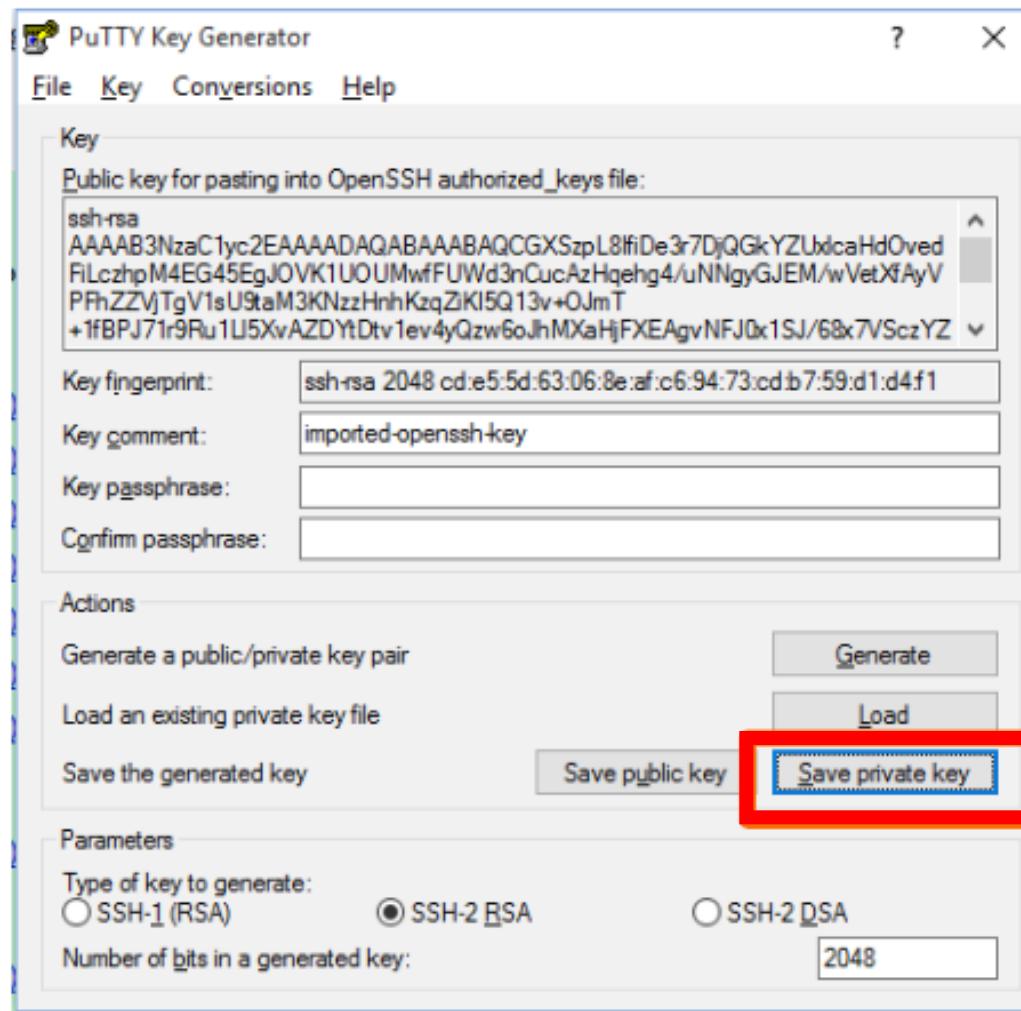
# Open the PuTTY Key Generator application (2)



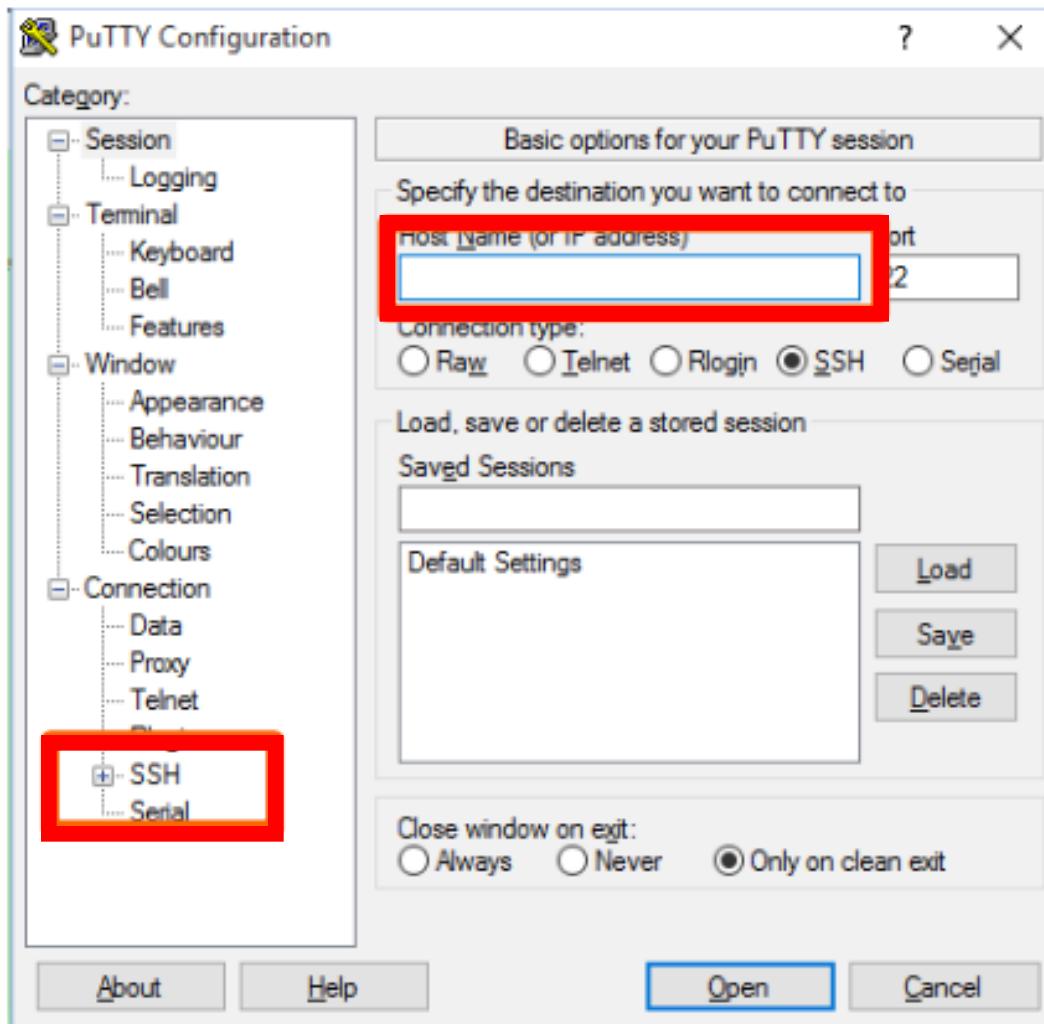
# Select the key you downloaded before (3)



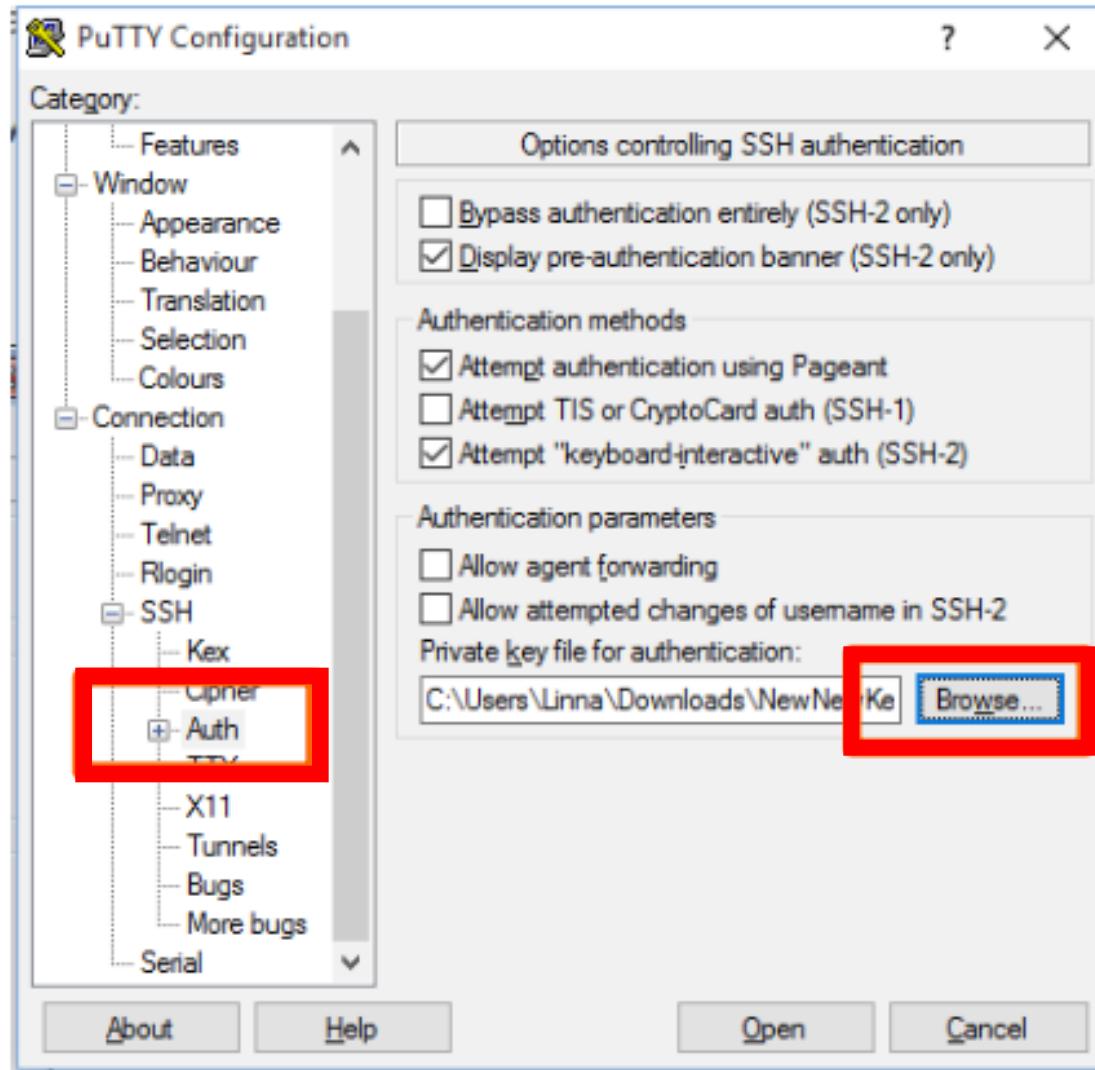
# Save the private key (4)



Open Putty and under hostname write:  
ec2-user@Public\_DNS (e.g. [ec2-user@ec2-52-206-88-120.compute-1.amazonaws.com](mailto:ec2-user@ec2-52-206-88-120.compute-1.amazonaws.com)) (5)



# Under Auth load the private key you just saved (6)



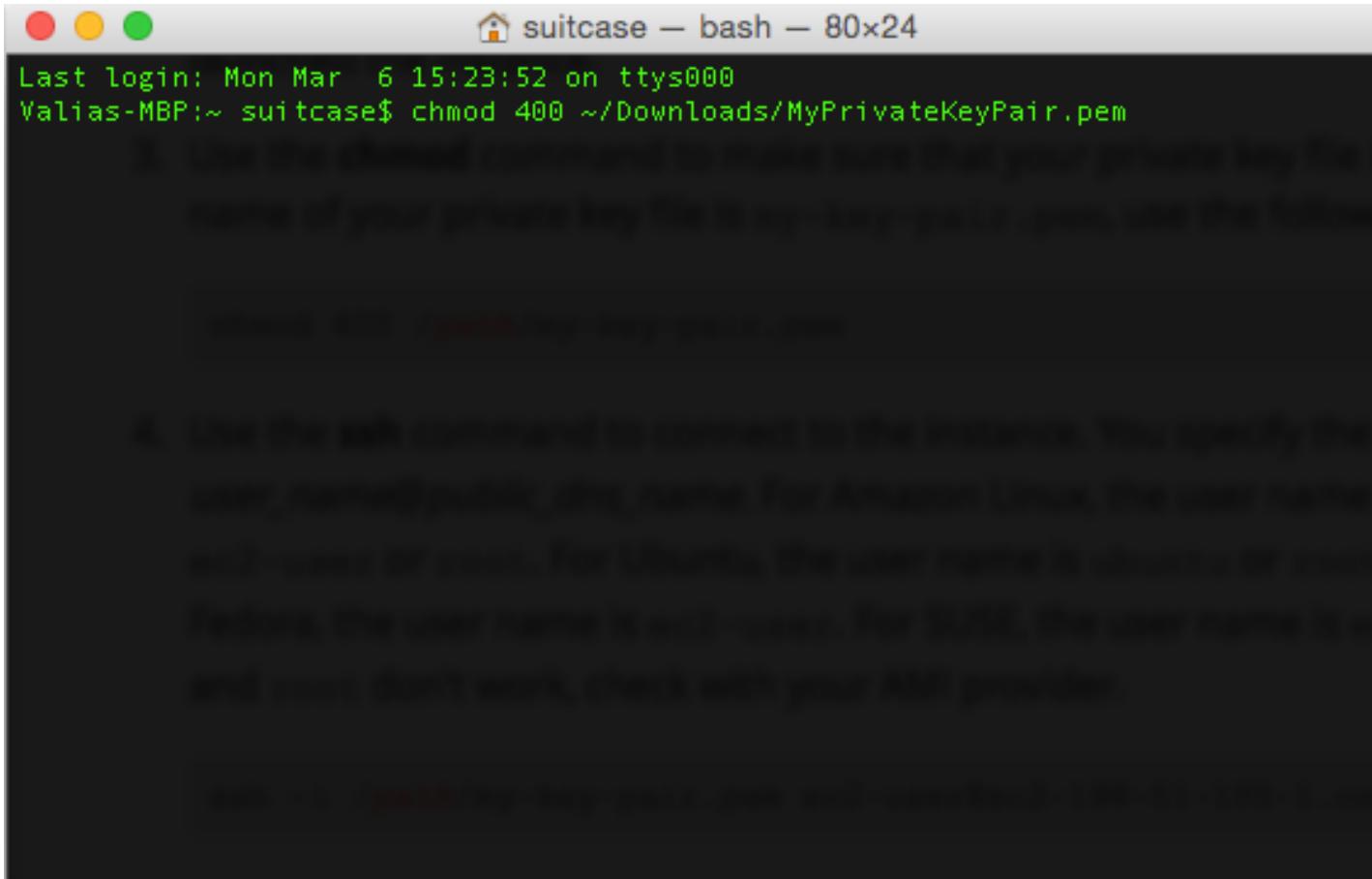
# For Linux and Mac Users (1)

Valias-MBP:~ suitcase\$

is the TA's computer and prompt.  
Do not try to type it - you should  
have your own Linux/Mac  
prompt. For example, the Prof's  
prompt is

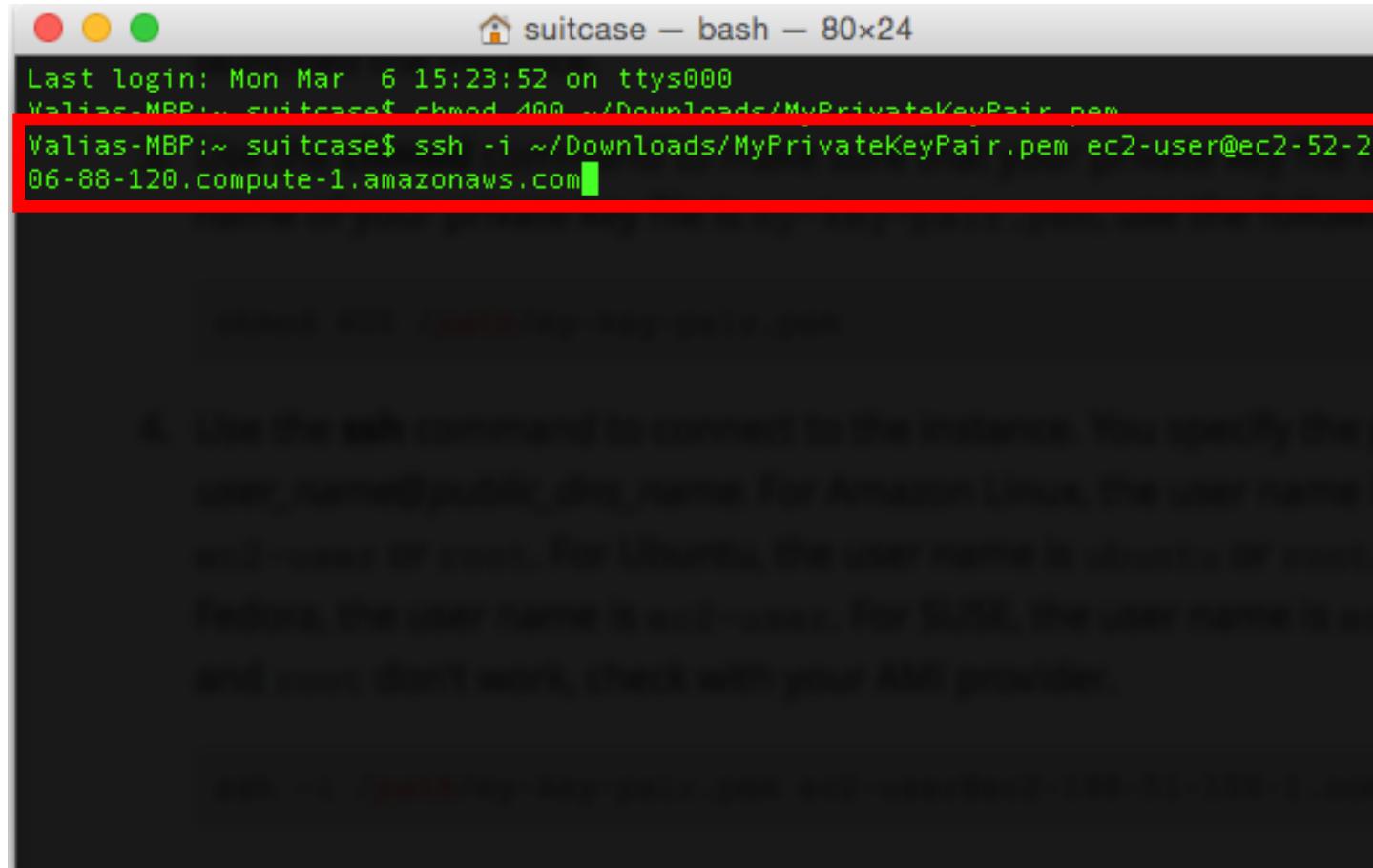
[alex-borgidas-mac:~] alex%

You should only be typing what  
is after the \$ above and the  
following slides.



The screenshot shows a terminal window on a Mac OS X desktop. The window title is "suitcase — bash — 80x24". The terminal content starts with the system message "Last login: Mon Mar 6 15:23:52 on ttys000". Below it, the user has typed the command "chmod 400 ~/Downloads/MyPrivateKeyPair.pem". The terminal is dark-themed with light-colored text. The background of the slide shows a blurred view of a classroom or lecture hall.

# For Linux and Mac Users (2)

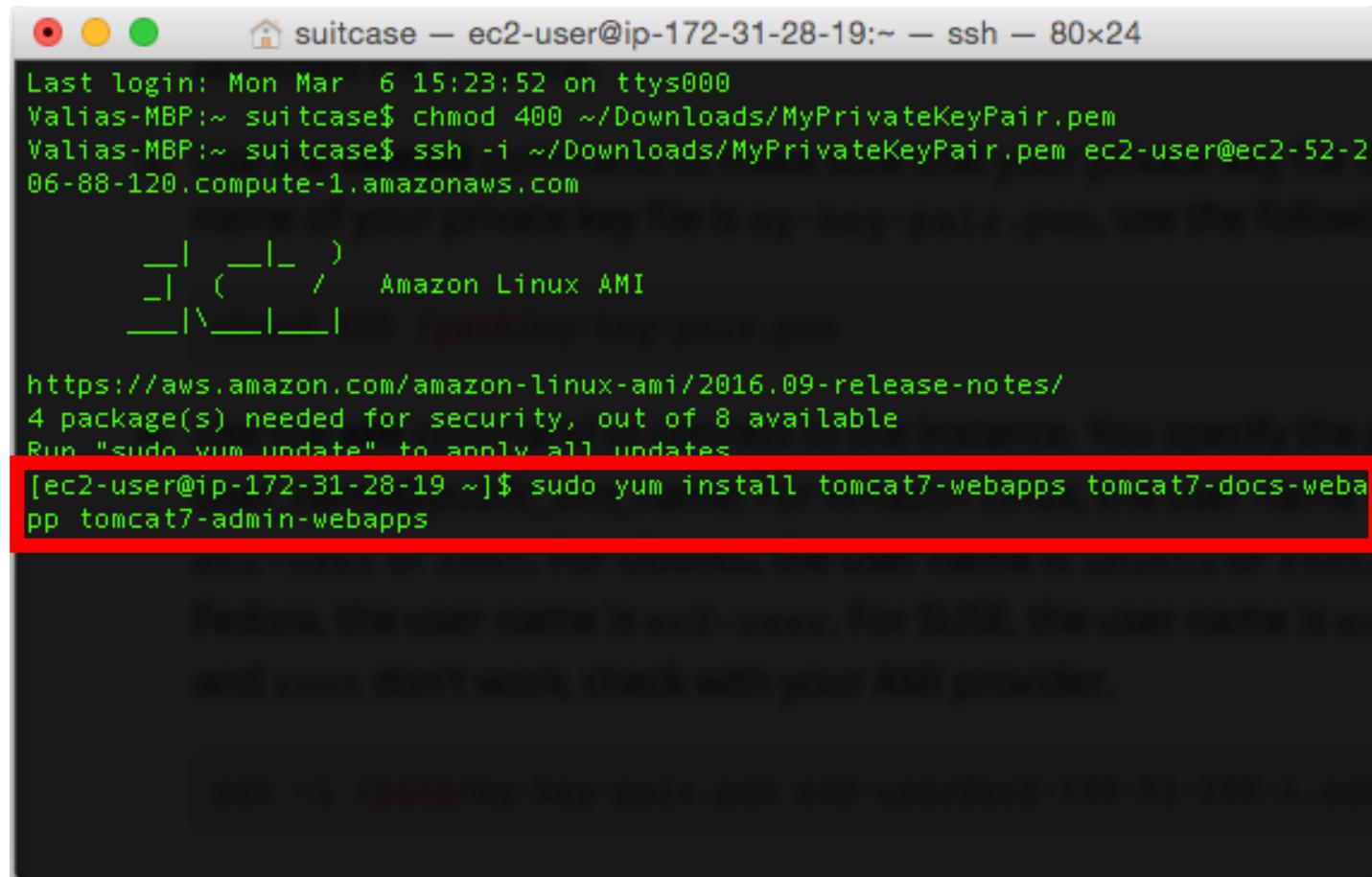


The screenshot shows a macOS terminal window titled "suitcase" with the command line interface "bash" running in a 80x24 terminal session. The window has the standard OS X title bar with red, yellow, and green buttons. The terminal output is as follows:

```
Last login: Mon Mar  6 15:23:52 on ttys000
Valias-MBP:~ suitcase$ chmod 400 ~/Downloads/MyPrivateKeyPair.pem
Valias-MBP:~ suitcase$ ssh -i ~/Downloads/MyPrivateKeyPair.pem ec2-user@ec2-52-2
06-88-120.compute-1.amazonaws.com
```

The last line of the command, "ssh -i ~/Downloads/MyPrivateKeyPair.pem ec2-user@ec2-52-206-88-120.compute-1.amazonaws.com", is highlighted with a thick red border.

# For all the users (Linux, Mac, Windows)



The screenshot shows a terminal window titled "suitcase" running on an Amazon Linux AMI instance. The session is connected via SSH from a Mac (Valias-MBP) to an EC2 instance (ip-172-31-28-19). The terminal displays the user's login information, the command to change file permissions, and the command to establish an SSH connection to the EC2 instance. It also shows the Amazon Linux AMI logo. Below this, it lists available security updates and provides a link to the release notes. The final command to install Tomcat 7 components is highlighted with a red box.

```
Last login: Mon Mar  6 15:23:52 on ttys000
Valias-MBP:~ suitcase$ chmod 400 ~/Downloads/MyPrivateKeyPair.pem
Valias-MBP:~ suitcase$ ssh -i ~/Downloads/MyPrivateKeyPair.pem ec2-user@ec2-52-2
06-88-120.compute-1.amazonaws.com

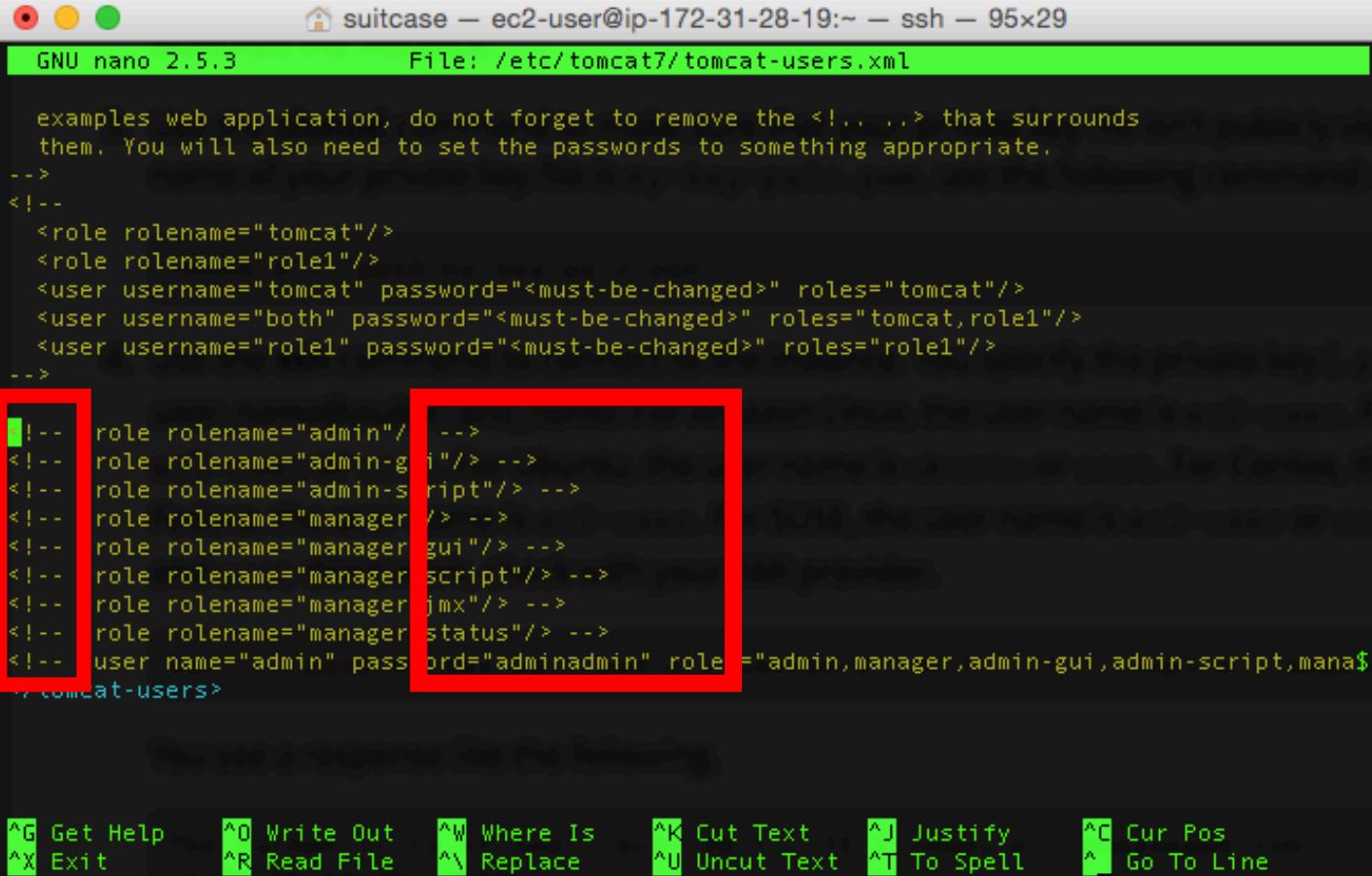
              _\   _/_ )  Amazon Linux AMI
             _\ \_ |__|_|
https://aws.amazon.com/amazon-linux-ami/2016.09-release-notes/
4 package(s) needed for security, out of 8 available
Run "sudo yum update" to apply all updates
[ec2-user@ip-172-31-28-19 ~]$ sudo yum install tomcat7-webapps tomcat7-docs-weba
pp tomcat7-admin-webapps
```

```
suitcase — ec2-user@ip-172-31-28-19:~ — ssh — 80x24
tomcat7-docs-webapp.noarch 0:7.0.75-1.25.amzn1
tomcat7-webapps.noarch 0:7.0.75-1.25.amzn1

Dependency Installed:
apache-commons-collections.noarch 0:3.2.2-3.10.amzn1
apache-commons-daemon.x86_64 0:1.0.7-1.6.amzn1
apache-commons-dbcp.noarch 0:1.4-7.7.amzn1
apache-commons-logging.noarch 0:1.1.1-16.8.amzn1
apache-commons-pool.noarch 0:1.5.6-1.7.amzn1
apache-tomcat-apis.noarch 0:0.1-1.6.amzn1
ecj.x86_64 1:4.2.1-4.15.amzn1
jakarta-taglibs-standard.noarch 0:1.1.1-11.7.9.amzn1
tomcat7.noarch 0:7.0.75-1.25.amzn1
tomcat7-el-2.2-api.noarch 0:7.0.75-1.25.amzn1
tomcat7-jsp-2.2-api.noarch 0:7.0.75-1.25.amzn1
tomcat7-lib.noarch 0:7.0.75-1.25.amzn1
tomcat7-servlet-3.0-api.noarch 0:7.0.75-1.25.amzn1
xalan-j2.noarch 0:2.7.0-9.9.10.amzn1
xerces-j2.noarch 0:2.7.1-12.7.19.amzn1
xml-commons-apis.noarch 0:1.3.04-3.6.9.amzn1
xml-commons-resolver.noarch 0:1.1-4.18.10.amzn1

Complete!
[ec2-user@ip-172-31-28-19 ~]$ sudo nano /etc/tomcat7/tomcat-users.xml
```

Scroll down at the end of the file and delete the comment tags both from the beginning and the end of each line.

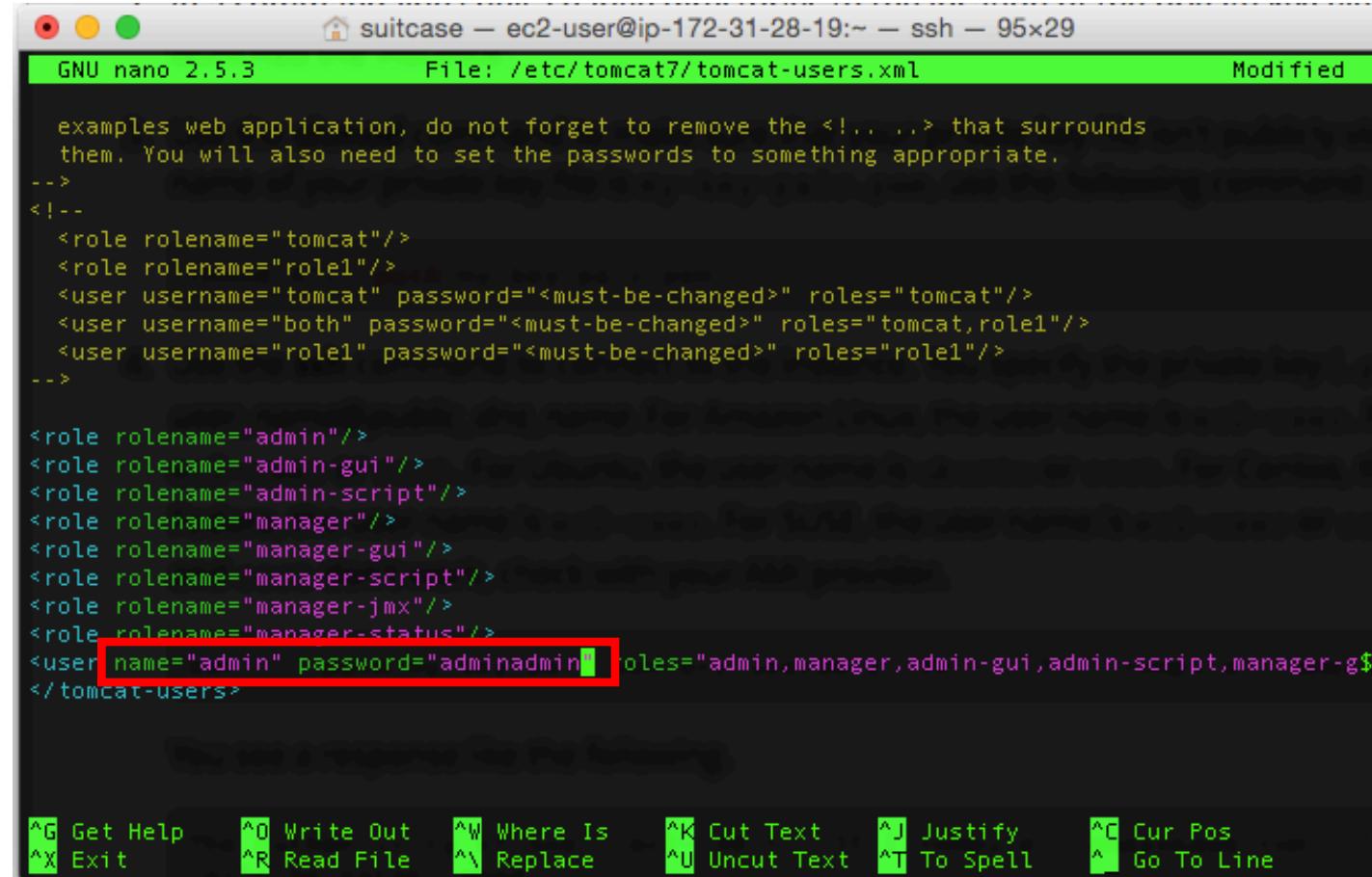


```
examples web application, do not forget to remove the <!...> that surrounds them. You will also need to set the passwords to something appropriate.
-->
<!--
<role rolename="tomcat"/>
<role rolename="role1"/>
<user username="tomcat" password="" roles="tomcat"/>
<user username="both" password="" roles="tomcat,role1"/>
<user username="role1" password="" roles="role1"/>
-->
<!--
<role rolename="admin"/> -->
<!--
<role rolename="admin-gui"/> -->
<!--
<role rolename="admin-script"/> -->
<!--
<role rolename="manager"/> -->
<!--
<role rolename="manager-gui"/> -->
<!--
<role rolename="manager-script"/> -->
<!--
<role rolename="manager-jmx"/> -->
<!--
<role rolename="manager-status"/> -->
<!--
<user name="admin" password="adminadmin" role ="admin,manager,admin-gui,admin-script,manager,jmx,manager-status"/>
-->
-->
```

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos  
^X Exit ^R Read File ^V Replace ^U Uncut Text ^T To Spell ^L Go To Line

Note: Be careful to uncomment the end of the last line.

You can change the username and password of your Tomcat administrator. Then press Ctrl+o for saving and then Ctrl+x for exiting the nano editor.



The screenshot shows a terminal window titled "suitcase" with the command "ec2-user@ip-172-31-28-19:~ ssh 95x29". The file being edited is "/etc/tomcat7/tomcat-users.xml". The nano editor interface includes a green header bar with "GNU nano 2.5.3", "File: /etc/tomcat7/tomcat-users.xml", and "Modified". The main text area contains XML configuration for Tomcat users and roles. A specific line for the "admin" user is highlighted with a red box:

```
examples web application, do not forget to remove the <!.. .> that surrounds
them. You will also need to set the passwords to something appropriate.
-->
<!--
<role rolename="tomcat"/>
<role rolename="role1"/>
<user username="tomcat" password="" roles="tomcat"/>
<user username="both" password="" roles="tomcat,role1"/>
<user username="role1" password="" roles="role1"/>
-->

<role rolename="admin"/>
<role rolename="admin-gui"/>
<role rolename="admin-script"/>
<role rolename="manager"/>
<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="manager-jmx"/>
<role rolename="manager-status"/>
<user name="admin" password="adminadmin" roles="admin,manager,admin-gui,admin-script,manager-g$>
</tomcat-users>
```

The bottom of the terminal shows the nano editor's command-line interface with various keyboard shortcuts.

```
suitcase — ec2-user@ip-172-31-28-19:~ — ssh — 95x29
Verifying : xml-commons-resolver-1.1-4.18.10.amzn1.noarch          20/20

Installed:
  tomcat7-admin-webapps.noarch 0:7.0.75-1.25.amzn1
  tomcat7-docs-webapp.noarch 0:7.0.75-1.25.amzn1
  tomcat7-webapps.noarch 0:7.0.75-1.25.amzn1

Dependency Installed:
  apache-commons-collections.noarch 0:3.2.2-3.10.amzn1
  apache-commons-daemon.x86_64 0:1.0.7-1.6.amzn1
  apache-commons-dbcpc.noarch 0:1.4-7.7.amzn1
  apache-commons-logging.noarch 0:1.1.1-16.8.amzn1
  apache-commons-pool.noarch 0:1.5.6-1.7.amzn1
  apache-tomcat-apis.noarch 0:0.1-1.6.amzn1
  ejc.x86_64 1:4.2.1-4.15.amzn1
  jakarta-taglibs-standard.noarch 0:1.1.1-11.7.9.amzn1
  tomcat7.noarch 0:7.0.75-1.25.amzn1
  tomcat7-el-2.2-api.noarch 0:7.0.75-1.25.amzn1
  tomcat7-jsp-2.2-api.noarch 0:7.0.75-1.25.amzn1
  tomcat7-lib.noarch 0:7.0.75-1.25.amzn1
  tomcat7-servlet-3.0-api.noarch 0:7.0.75-1.25.amzn1
  xalan-j2.noarch 0:2.7.0-9.9.10.amzn1
  xerces-j2.noarch 0:2.7.1-12.7.19.amzn1
  xml-commons-apis.noarch 0:1.3.04-3.6.9.amzn1
  xml-commons-resolver.noarch 0:1.1-4.18.10.amzn1

Complete!
[ec2-user@ip-172-31-28-19 ~]$ sudo nano /etc/tomcat7/tomcat-users.xml
[ec2-user@ip-172-31-28-19 ~]$ sudo service tomcat7 start
```

Services ▾ Resource Groups ▾

EC2 Dashboard Events Tags Reports Limits

INSTANCES Instances 1 Spot Requests Reserved Instances Scheduled Instances Dedicated Hosts

IMAGES AMIs Bundle Tasks

ELASTIC BLOCK STORE Volumes Snapshots

NETWORK & SECURITY Security Groups Elastic IPs Placement Groups Key Pairs

Launch Instance Connect Actions ▾

search : i-041bcc8100316ec18 Add filter

1 to 1 of 1

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
	i-041bcc8100316ec18	t2.micro	us-east-1d	running	2/2 checks ...	None	ec2-52-206-88-120

Instance: i-041bcc8100316ec18 Public DNS: ec2-52-206-88-120.compute-1.amazonaws.com

Description	Status Checks	Monitoring	Tags
Instance ID	i-041bcc8100316ec18		
Instance state	running		
Instance type	t2.micro		
Elastic IPs			
Availability zone	us-east-1d 2		
Security groups	launch-wizard-2. <a href="#">View inbound rules</a>		
Scheduled events	No scheduled events		
AMI ID	amzn-ami-hvm-2016.09.1.20170119-x86_64-gp2 (ami-0b33d91d)		
Platform	-		
Public DNS (IPv4)	ec2-52-206-88-120.compute-1.amazonaws.com		
IPv4 Public IP	52.206.88.120		
IPv6 IPs	-		
Private DNS	ip-172-31-28-19.ec2.internal		
Private IPs	172.31.28.19		
Secondary private IPs			
VPC ID	vpc-f2366995		
Subnet ID	subnet-4d21ce16		
Network interfaces	eth0		

Services ▾ | Resource Groups ▾ | ★

EC2 Dashboard Events Tags Reports Limits

INSTANCES Instances Spot Requests Reserved Instances Scheduled Instances Dedicated Hosts

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NETWORK & SECURITY Security Groups Elastic IPs Placement Groups Key Pairs

Create Security Group Actions ▾

Group ID : sg-4f996c30 Add filter ? K < 1 to 1 of 1 > >

Name	Group ID	Group Name	VPC ID	Description
sg-4f996c30	launch-wizard-2	vpc-f2366995	launch-wizard-2 created 2017-03-06T15:1...	

Security Group: sg-4f996c30

Description Inbound Outbound Tags

Edit

Type	Protocol	Port Range	Source
SSH	TCP	22	0.0.0.0/0



EC2 Dashboard

Events

Tags

Reports

Limits

## INSTANCES

Instances

Launch Templates

Spot Requests

Reserved Instances

Dedicated Hosts

Capacity Reservations

## IMAGES

AMIs

Bundle Tasks

## ELASTIC BLOCK STORE

Volumes

Snapshots

Lifecycle Manager

## NETWORK &amp; SECURITY

## Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

## LOAD BALANCING

Load Balancers

Target Groups

## AUTO SCALING

Launch Configurations

Auto Scaling Groups

Create Security Group

Actions ▾

Group ID : sg-0c4e8984ecd31621e Add filter



? K &lt; 1 to 1 of 1 &gt; |

Name	Group ID	Group Name	VPC ID	Description
	sg-0c4e8984ecd31621e	launch-wizard-5	vpc-903714f9	launch-wizard-5 created 2019-02-27T15:54:14.871-05:00

## Edit inbound rules

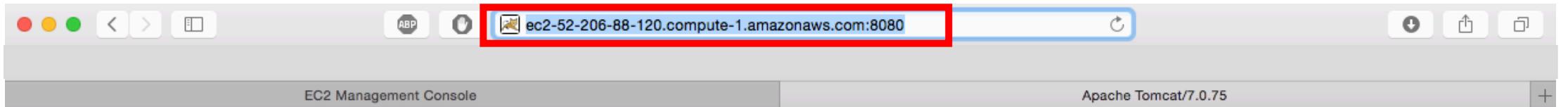
Type	Protocol	Port Range	Source	Description	
SSH	TCP	22	Anywhere  0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop	
HTTP	TCP	80	Anywhere  0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop	
HTTPS	TCP	443	Anywhere  0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop	
Custom TCP Rule	TCP	8080	Anywhere  0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop	

Add Rule

NOTE: Any edits made on existing rules will result in the edited rule being deleted and a new rule created with the new details. This will cause traffic that depends on that rule to be dropped for a very brief period of time until the new rule can be created.

Cancel

Save



# Apache Tomcat/7.0.75



If you're seeing this, you've successfully installed Tomcat. Congratulations!



## Recommended Reading:

[Security Considerations HOW-TO](#)

[Manager Application HOW-TO](#)

[Clustering/Session Replication HOW-TO](#)

[Server Status](#)

[Manager App](#)

[Host Manager](#)

## Developer Quick Start

[Tomcat Setup](#)

[First Web Application](#)

[Realms & AAA](#)

[JDBC DataSources](#)

[Examples](#)

[Servlet Specifications](#)

[Tomcat Versions](#)

## Managing Tomcat

For security, access to the [manager webapp](#) is restricted. Users are defined in:

`$CATALINA_HOME/conf/tomcat-users.xml`

In Tomcat 7.0 access to the manager application is split between different users.  
[Read more...](#)

[Release Notes](#)

[Changelog](#)

[Migration Guide](#)

[Community](#)

## Documentation

[Tomcat 7.0 Documentation](#)

[Tomcat 7.0 Configuration](#)

[Tomcat Wiki](#)

Find additional important configuration information in:

`$CATALINA_HOME RUNNING.txt`

Developers may be interested in:

[Tomcat 7.0 Bug Database](#)

[Tomcat 7.0 JavaDocs](#)

[Tomcat 7.0 Gantt Chart](#)

## Getting Help

[FAQ and Mailing Lists](#)

The following mailing lists are available:

[tomcat-announce](#)

Important announcements, releases, security vulnerability notifications. (Low volume).

[tomcat-users](#)

User support and discussion

[taglibs-user](#)

User support and discussion for [Apache Taglibs](#)

[tomcat-dev](#)

Development mailing list, including commit messages

[Home](#) [Documentation](#) [Configuration](#)

## Apache Tomcat/7.0.75

If you're seeing this page, it means you're trying to access a manager application.



[Recommended Security Configuration](#)  
[Manager Applications](#)  
[Clustering/Session Replication HOW-TO](#)



To view this page, you must log in to  
ec2-52-206-88-120.compute-1.amazonaws.com:  
8080.

Your password will be sent unencrypted.

Name:

Password:

Remember this password in my keychain

[Cancel](#)

[Log In](#)

[Find Help](#)

Congratulations!

[Server Status](#)  
[Manager App](#)  
[Host Manager](#)

### Developer Quick Start

[Tomcat Setup](#)[First Web Application](#)[Realms & AAA](#)[JDBC DataSources](#)[Examples](#)[Servlet Specifications](#)[Tomcat Versions](#)

### Managing Tomcat

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[Tomcat 7.0 Documentation](#)[Tomcat 7.0 Configuration](#)[Tomcat Wiki](#)

Find additional important configuration information in:

`$CATALINA_HOME/RUNNING.txt`

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[Tomcat 7.0 Bug Database](#)[Tomcat 7.0 JavaDocs](#)[Tomcat 7.0 SVN Repository](#)

### Getting Help

[FAQ and Mailing Lists](#)

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User support and discussion for [Apache Taglibs](#)

[tomcat-dev](#)

Development mailing list, including commit messages



## Tomcat Web Application Manager

Message: **OK**

### Manager

[List Applications](#) [HTML Manager Help](#) [Manager Help](#) [Server Status](#)

### Applications

Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Undeploy
					Expire sessions with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy
					Expire sessions with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy
					Expire sessions with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy
					Expire sessions with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy
					Expire sessions with idle ≥ 30 minutes
					Start Stop Reload Undeploy

EC2 Management Console			/manager		
/host-manager	None specified	Tomcat Host Manager Application	true	0	Expire sessions with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/sample	None specified	Hello, World Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

### Deploy

Deploy directory or WAR file located on server

Context Path (required):

XML Configuration file URL:

WAR or Directory URL:

WAR file to deploy

Select WAR file to upload   cs336Final.war

### Diagnostics

Check to see if a web application has caused a memory leak on stop, reload or undeploy

This diagnostic check will trigger a full garbage collection. Use it with extreme caution on production systems.

Server Information								
Tomcat Version	JVM Version	JVM Vendor	OS Name	OS Version	OS Architecture	Hostname	IP Address	
Apache Tomcat/7.0.75	1.7.0_131-mockbuild_2017_02_15_02_03-b00	Oracle Corporation	Linux	4.4.41-36.55.amzn1.x86_64	amd64	ip-172-31-28-19	172.31.28.19	



## Tomcat Web Application Manager

<b>Message:</b>	OK
-----------------	----

Manager					
<a href="#">List Applications</a>		<a href="#">HTML Manager Help</a>		<a href="#">Manager Help</a>	
<a href="#">Server Status</a>					

Applications					
Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/cs336Final	None specified	HelloWorld	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a> <a href="#">Expire sessions</a> with idle ≥ 30 minutes
					<a href="#">Start</a> <a href="#">Stop</a> <a href="#">Reload</a> <a href="#">Undeploy</a>

The url of your application is something like:

- **http://<ec2\_publicDNS>:8080/<project\_name>/**
  - E.g. http://ec2-52-206-88-120.compute-1.amazonaws.com:8080/cs336Final/