2019

Programmazione Concorrente, Parallela e su Cloud

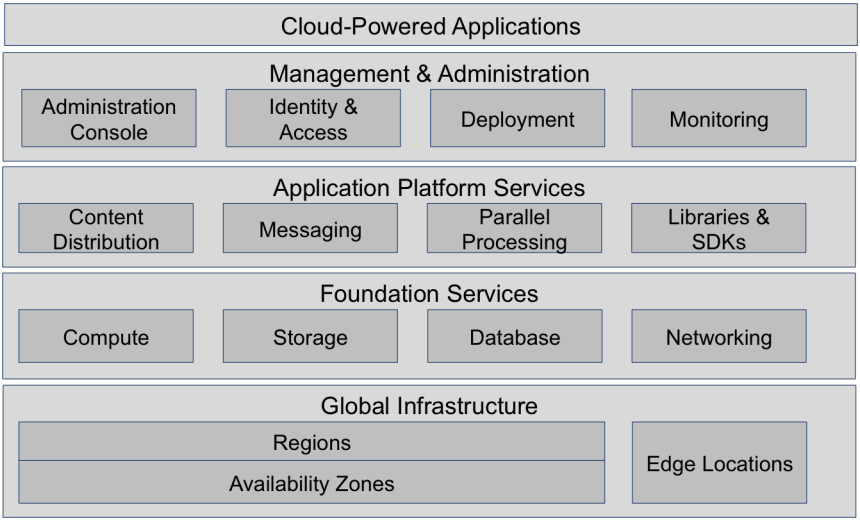
Amazon in Practice for HPC

Carmine Spagnuolo, Ph.D.

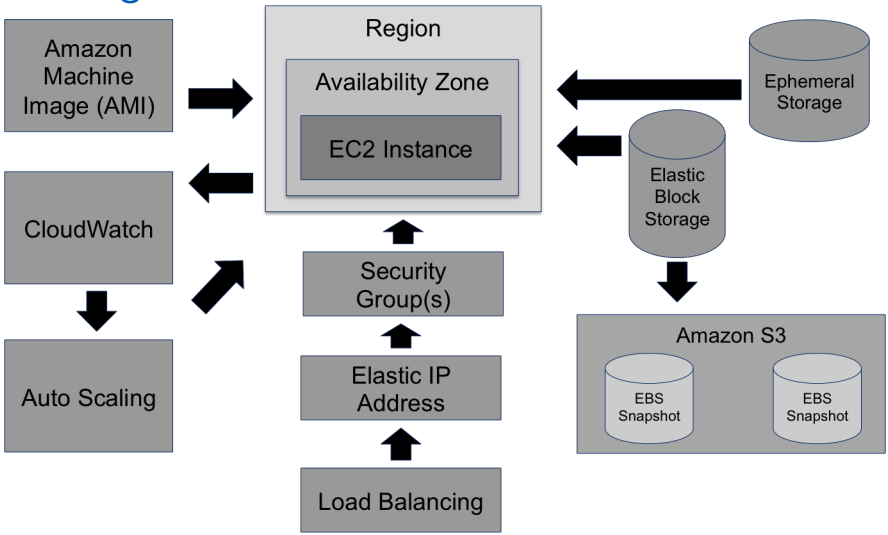
Outline

AWS Management Introduction

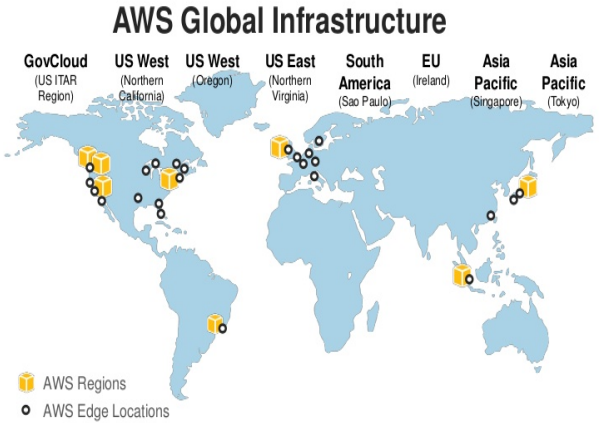
AWS Management



AWS Management



AWS Management

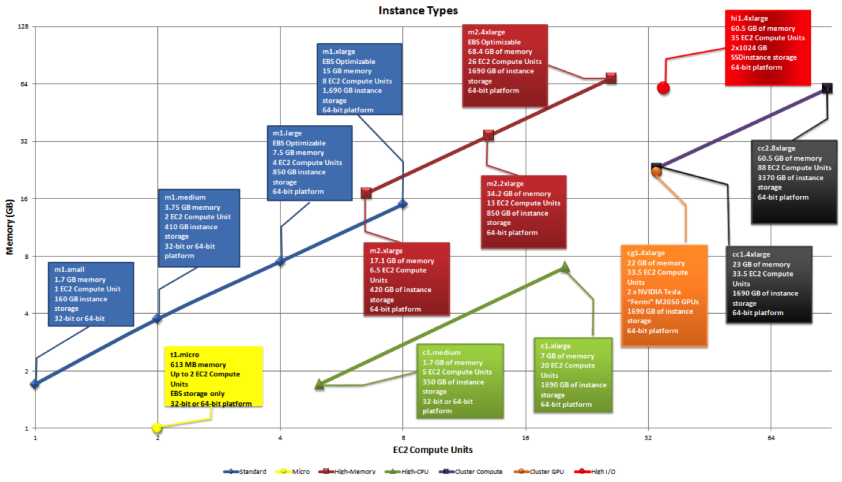


- **7 Regions**
- **Availability Zones**:
  - Physical infrastructure – 1 or more data centers;
  - 2 or more AZ's per Region;
  - Fault tolerance across AZ's.

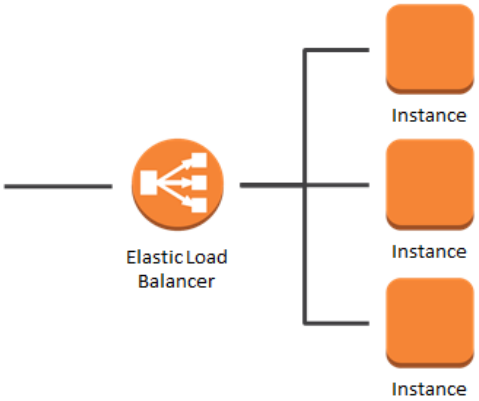
AWS Management

- **Security group** acts as a virtual firewall that controls the traffic for one or more instances:
  - each instances have one or more security groups;
  - rules defines the traffic allowed by a security group;
  - rules can be modified at any time; new rules are automatically applied to all instances that are associated with the security group.
- **Elastic IP address** is a static IPv4 address designed for dynamic cloud computing:
  - is associated on an AWS account;
  - is possible to easily manage a failure of an instance or software by rapidly remapping the address to another instance.

AWS Management

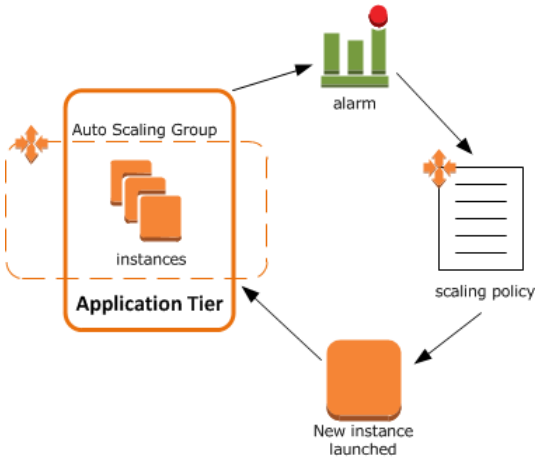


AWS Management



- ELB automatically distributes incoming application traffic across multiple Amazon EC2 instances.
- Enables the user to achieve fault tolerance in applications.

AWS Management



- Allows the user to scale on Amazon EC2 capacity up or down automatically according to defined conditions.
- Automatically increases the number of Amazon EC2 instances according to the demanding.
- Based on demanding patterns or experience hourly, daily, or weekly

AWS Management

- Currently no direct console UI is available:
  - Command Line Interface;
  - API;
  - Elastic Beanstalk, that is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go and on familiar servers such as Apache, Nginx.

AWS Management

- Amazon EC2 Command Line Interface.
- Amazon EC2 Web Console.

Amazon EC2 Command Line Interface

Amazon EC2 CLI

AWS Command Line Interface (CLI):

- unified tool to manage your AWS services;
- allows the user to download and configure multiple AWS services from the command line and automate them through scripts.

AWS security credentials:

- allows to verify who you are and whether you have permission to access the resources that you are requesting;
- AWS uses the security credentials to authenticate and authorize your requests.

Amazon EC2 CLI

- Reference: `https://goo.gl/YnyAvJ`
- AWS Security Credentials, Account Identifiers: `https://goo.gl/TUYMQU`
- Simple way to install using Python:
  - **curl "https://bootstrap.pypa.io/get-pip.py" -o "get-pip.py"**
  - **sudo python get-pip.py**
  - **sudo pip install awscli**

[`http://docs.aws.amazon.com/cli/latest/userguide/tutorial-ec2-ubuntu.html`]

Amazon EC2 CLI

Execute in your command line the command ''`aws configure`'':

- AWS Access Key ID [None]: AKIAIOSFODNN7EXAMPLE
- AWS Secret Access Key [None]: wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY
- Default region name [None]: us-east-1
- Default output format [None]: json

[Find your Credentials on Access Keys (Access Key ID and Secret Access Key)]

Amazon EC2 CLI

Create a Security Group

```
aws ec2 create-security-group --group-name devenv-sg
--description "security group for development environment in
EC2"
```

Authorize a Security Group for SSH connection

```
aws ec2 authorize-security-group-ingress --group-name devenv-sg
--protocol tcp --port 22 --cidr 0.0.0.0/0
```

Amazon EC2 CLI

Create and Download SSH credential

```
aws ec2 create-key-pair --key-name devenv-key --query
'KeyMaterial' --output text > devenv-key.pem
```

Change permission in the way that only you have access to the key file

```
chmod 400 devenv-key.pem
```

Amazon EC2 CLI

Run an instance of Ubuntu Server 16.04 LTS – don't forget to change the security group

```
aws ec2 run-instances --image-id ami-f4cc1de2
--security-group-ids sg-98790ee7 --count 1
--instance-type t2.micro --key-name devenv-key --query
'Instances[0].InstanceId'
```

Get the IP of the running instance

```
aws ec2 describe-instances --instance-ids i-ec3e1e2k --query
'Reservations[0].Instances[0].PublicIpAddress'
```

Amazon EC2 CLI

Connect to the instance by SSH

```
ssh -i devenv-key.pem ubuntu@54.236.37.209
```

Amazon EC2 Web Console

AWS Console Home

AWS services

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

Recently visited services

- Support
- IAM
- Billing
- EC2

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

Learn to build

See all

Learn to deploy your solutions through step-by-step guides, labs, and videos.

Websites	DevOps	Backup and recovery
3 videos, 3 tutorials, 3 labs	6 videos, 2 tutorials, 3 labs	3 videos, 2 tutorials, 3 labs

Big data	Databases	Mobile
3 videos, 2 tutorials, 3 labs	3 videos, 5 tutorials, 3 labs	3 videos, 1 lab

Helpful tips

Manage your costs

Get real-time billing alerts based on your cost and usage budgets. Start now

Create an organization

Use AWS Organizations for policy-based management of multiple AWS accounts. Start now

What's new?

Announcing Amazon Chime

Learn how this new communication service makes it easy for employees to communicate with voice, video and chat. Learn more

Introducing Elastic Volumes for Amazon EBS

Learn how this new capability allows you to modify configurations of live volumes with a simple API call or a few console clicks. Learn more

See all

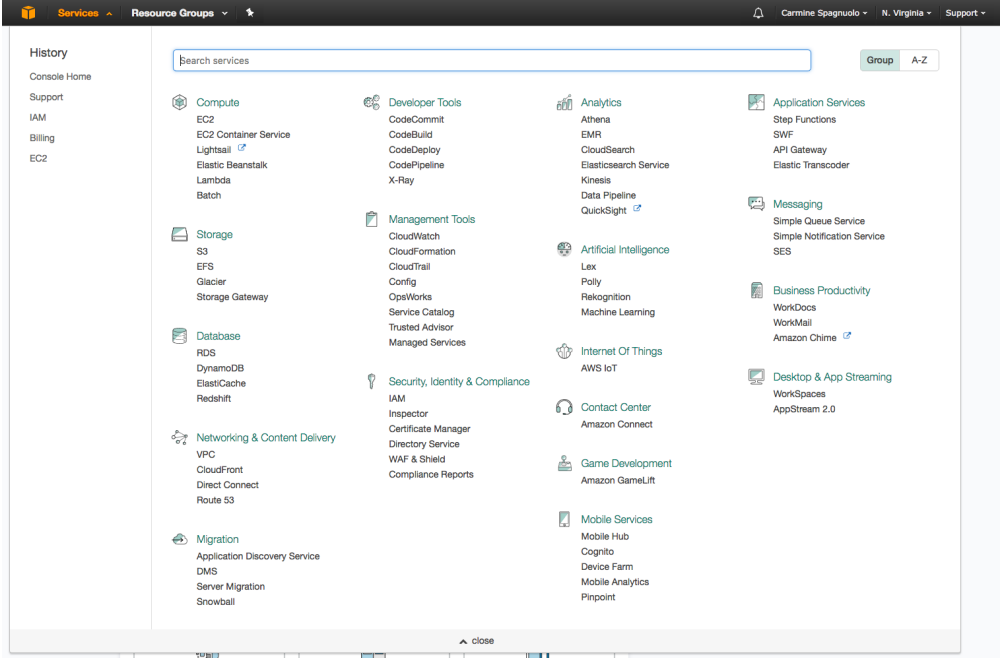
AWS Marketplace

Discover, procure, and deploy popular software products that run on AWS.

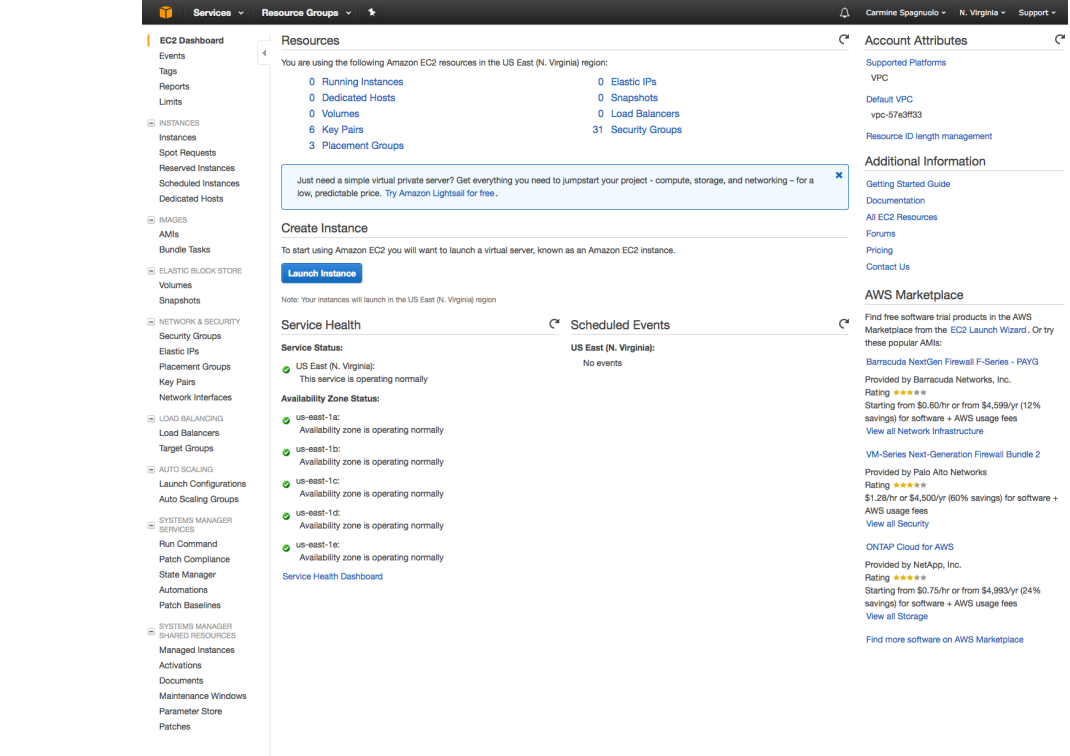
Have feedback?

Submit feedback to tell us about your experience with the AWS Management Console.

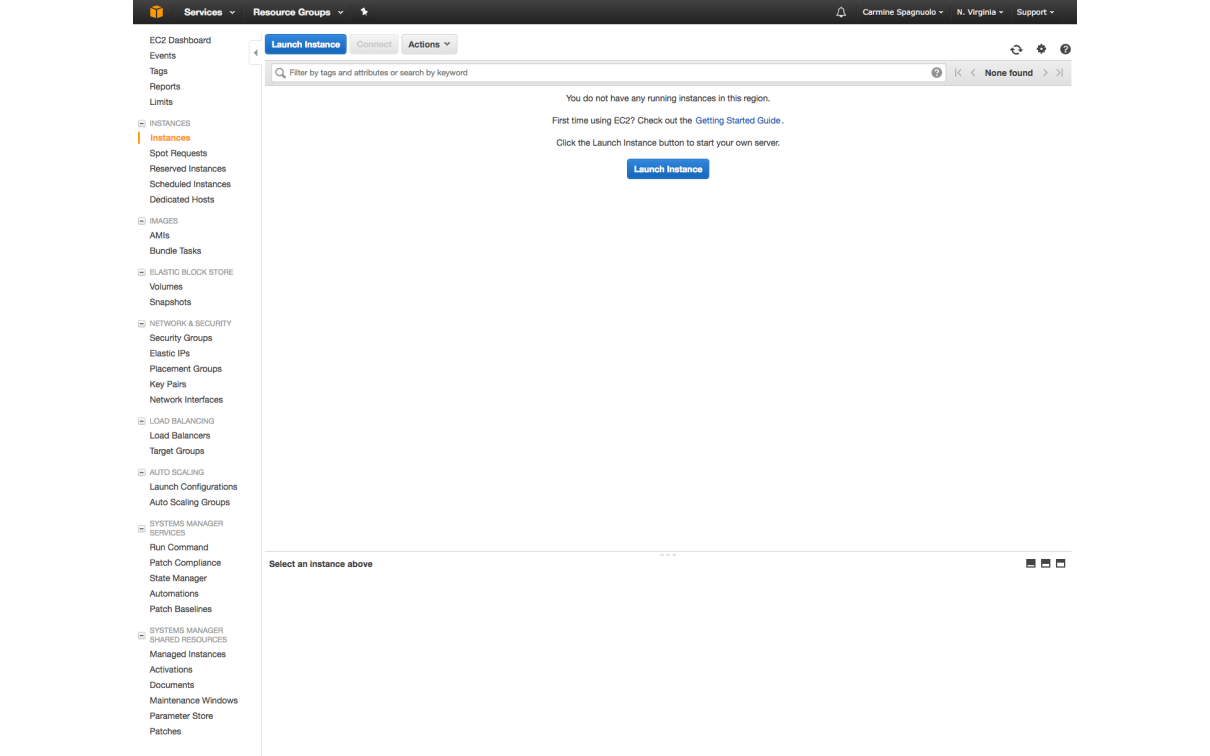
AWS Services


Services
Resource Groups
Carmine Spagnuolo
N. Virginia
Support
History
Console Home
Support
IAM
Billing
EC2
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 & Content Delivery
VPC
CloudFront
Direct Connect
Route 53
Migration
Application Discovery Service
DMS
Server Migration
Snowball
Developer Tools
CodeCommit
CodeBuild
CodeDeploy
CodePipeline
X-Ray
Management Tools
CloudWatch
CloudFormation
CloudTrail
Config
OpsWorks
Service Catalog
Trusted Advisor
Managed Services
Security, Identity & Compliance
IAM
Inspector
Certificate Manager
Directory Service
WAF & Shield
Compliance Reports
Analytics
Athena
EMR
CloudSearch
Elasticsearch Service
Kinesis
Data Pipeline
QuickSight
Artificial Intelligence
Lex
Polly
Rekognition
Machine Learning
Internet Of Things
AWS IoT
Contact Center
Amazon Connect
Game Development
Amazon GameLift
Mobile Services
Mobile Hub
Cognito
Device Farm
Mobile Analytics
Pinpoint
Application Services
Step Functions
SWF
API Gateway
Elastic Transcoder
Messaging
Simple Queue Service
Simple Notification Service
SES
Business Productivity
WorkDocs
WorkMail
Amazon Chime
Desktop & App Streaming
WorkSpaces
AppStream 2.0
close
3 videos, 2 tutorials, 3 labs
3 videos, 5 tutorials, 3 labs
3 videos, 1 lab

AWS EC2 Console Home


Services
Resource Groups
Carmine Spagnuolo
N. Virginia
Support
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
Network Interfaces
LOAD BALANCING
Load Balancers
Target Groups
AUTO SCALING
Launch Configurations
Auto Scaling Groups
SYSTEMS MANAGER SERVICES
Run Command
Patch Compliance
State Manager
Automations
Patch Baselines
SYSTEMS MANAGER SHARED RESOURCES
Managed Instances
Activations
Documents
Maintenance Windows
Parameter Store
Patches
Resources
You are using the following Amazon EC2 resources in the US East (N. Virginia) region:
0 Running Instances
0 Dedicated Hosts
0 Volumes
6 Key Pairs
3 Placement Groups
0 Elastic IPs
0 Snapshots
0 Load Balancers
31 Security 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
Availability Zone Status:
us-east-1a:
Availability zone is operating normally
us-east-1b:
Availability zone is operating normally
us-east-1c:
Availability zone is operating normally
us-east-1d:
Availability zone is operating normally
us-east-1e:
Availability zone is operating normally
Service Health Dashboard
Scheduled Events
US East (N. Virginia):
No events
Account Attributes
Supported Platforms
VPC
Default VPC
vpc-57e3ff33
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:
Barracuda NextGen Firewall F-Series - PAYG
Provided by Barracuda Networks, Inc.
Rating
Starting from $0.60/hr or from $4,599/yr (12% savings) for software + AWS usage fees
View all Network Infrastructure
VM-Series Next-Generation Firewall Bundle 2
Provided by Palo Alto Networks
Rating
$1.28/hr or $4,500/yr (60% savings) for software + AWS usage fees
View all Security
ONTAP Cloud for AWS
Provided by NetApp, Inc.
Rating
Starting from $0.75/hr or from $4,993/yr (24% savings) for software + AWS usage fees
View all Storage
Find more software on AWS Marketplace

AWS EC2 Launch Instances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SYSTEMS MANAGER SHARED RESOURCES
Managed Instances
Activations
Documents
Maintenance Windows
Parameter Store
Patches
Launch Instance
Connect
Actions
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

Choose an AMI

Step 1: Choose an Amazon Machine Image (AMI)

Cancel and Exit

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.

Quick Start

1 to 31 of 31 AMIs

My AMIs

AWS Marketplace

Community AMIs

Free tier only

Amazon Linux AMI 2017.03.0 (HVM), SSD Volume Type - ami-22ce4934
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.
Root device type: ebs Virtualization type: hvm
Select 64-bit

Red Hat Enterprise Linux 7.3 (HVM), SSD Volume Type - ami-b63769a1
Red Hat — Free tier eligible
Red Hat Enterprise Linux version 7.3 (HVM), EBS General Purpose (SSD) Volume Type
Root device type: ebs Virtualization type: hvm
Select 64-bit

SUSE Linux Enterprise Server 12 SP2 (HVM), SSD Volume Type - ami-fde4ebea
SUSE Linux — Free tier eligible
SUSE Linux Enterprise Server 12 Service Pack 2 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.
Root device type: ebs Virtualization type: hvm
Select 64-bit

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-f4cc1de2
Free tier eligible
Ubuntu Server 16.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).
Root device type: ebs Virtualization type: hvm
Select 64-bit

Microsoft Windows Server 2016 Base - ami-b6a1f04a0
Windows — Free tier eligible
Microsoft Windows 2016 Datacenter edition. [English]
Root device type: ebs Virtualization type: hvm
Select 64-bit

Are you launching a database instance? Try Amazon RDS. Hide
Amazon RDS
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 deploy **Amazon Aurora, MariaDB, MySQL, Oracle, PostgreSQL, and SQL Server** databases on AWS. Aurora is a MySQL-compatible, enterprise-class database at 1/10th the cost of commercial databases. Learn more about RDS
Launch a database using RDS

Microsoft Windows Server 2016 Base with Containers - ami-2dae053b
Windows — Free tier eligible
Microsoft Windows 2016 Datacenter edition with Containers. [English]
Root device type: ebs Virtualization type: hvm
Select 64-bit

Microsoft Windows Server 2016 Base Nano - ami-2931863f
Windows — Free tier eligible
Microsoft Windows 2016 Datacenter Edition Nano. [English]
Root device type: ebs Virtualization type: hvm
Select 64-bit

Microsoft Windows Server 2016 with SQL Server Express - ami-f7a209e1
Windows
Microsoft Windows 2016 Datacenter edition, Microsoft SQL Server 2016 Express. [English]
Root device type: ebs Virtualization type: hvm
Select 64-bit

Choose an Instance Type

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
☐	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
☑	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
☐	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
☐	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
☐	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes
☐	General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes
☐	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
☐	General purpose	m4.large	2	8	EBS only	Yes	Moderate	Yes
☐	General purpose	m4.xlarge	4	16	EBS only	Yes	High	Yes
☐	General purpose	m4.2xlarge	8	32	EBS only	Yes	High	Yes
☐	General purpose	m4.4xlarge	16	64	EBS only	Yes	High	Yes
☐	General purpose	m4.10xlarge	40	160	EBS only	Yes	10 Gigabit	Yes
☐	General purpose	m4.16xlarge	64	256	EBS only	Yes	20 Gigabit	Yes
☐	General purpose	m3.medium	1	3.75	1 x 4 (SSD)	-	Moderate	-
☐	General purpose	m3.large	2	7.5	1 x 32 (SSD)	-	Moderate	-
☐	General purpose	m3.xlarge	4	15	2 x 40 (SSD)	Yes	High	-
☐	General purpose	m3.2xlarge	8	30	2 x 80 (SSD)	Yes	High	-
☐	Compute optimized	c4.large	2	3.75	EBS only	Yes	Moderate	Yes
☐	Compute optimized	c4.xlarge	4	7.5	EBS only	Yes	High	Yes
☐	Compute optimized	c4.2xlarge	8	15	EBS only	Yes	High	Yes
☐	Compute optimized	c4.4xlarge	16	30	EBS only	Yes	High	Yes

Review Instance Launch

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.

⚠ Improve your instances' security. Your security group, launch-wizard-18, is open to the world.

Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.

You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. Edit security groups

AMI Details

Edit AMI

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-f4cc1de2

Free tier eligible

Ubuntu Server 16.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

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-18

Description launch-wizard-18 created 2017-04-06T09:56:24.292+02:00

Type	Protocol	Port Range	Source
SSH	TCP	22	0.0.0.0/0

Instance Details

Edit instance details

Storage

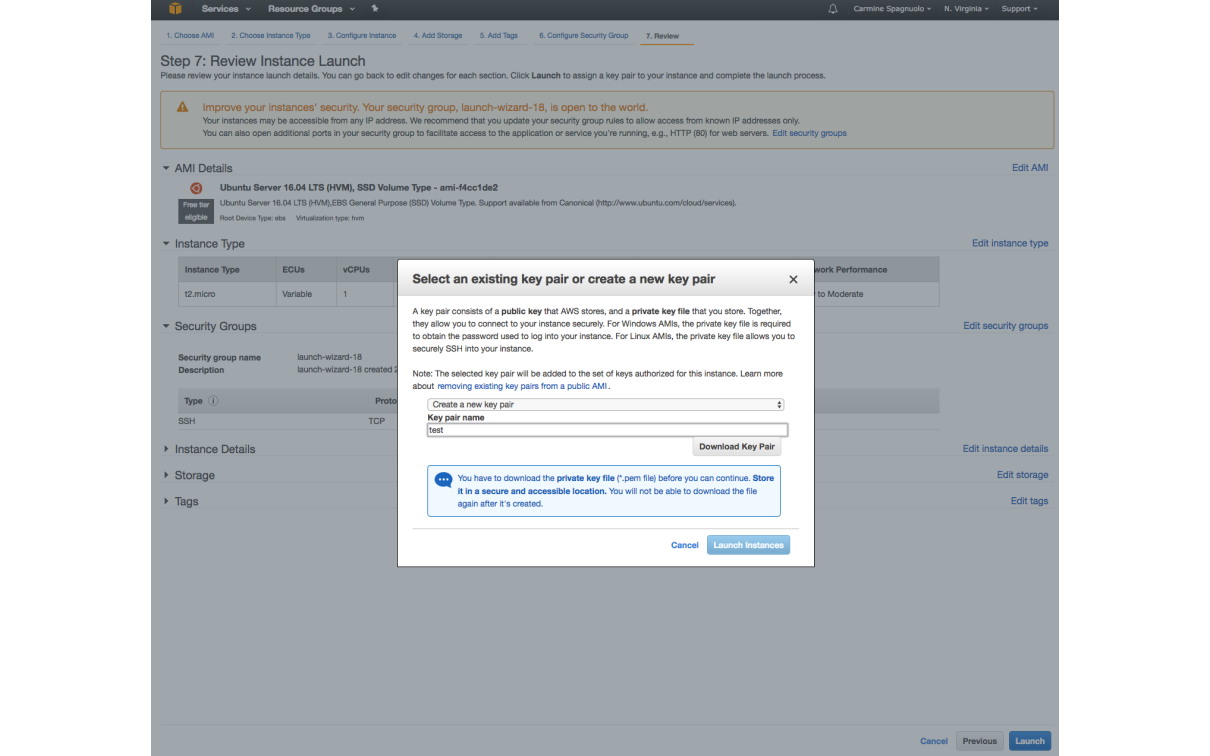
Edit storage

Tags

Edit tags

Cancel Previous Launch

Select an existing key pair or create a new key pair


Services
Resource Groups
Carmine Spagnuolo
N. Virginia
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. 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.
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AMI Details
Edit AMI
Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-f4cc1de2
Free tier eligible
Ubuntu Server 16.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).
Root Device Type: ebs
Virtualization type: hvm
Instance Type
Edit instance type
Instance Type
ECUs
vCPUs
Network Performance
t2.micro
Variable
1
Low to Moderate
Security Groups
Edit security groups
Security group name
launch-wizard-18
Description
launch-wizard-18 created
Type
Protocol
SSH
TCP
Instance Details
Edit instance details
Storage
Edit storage
Tags
Edit tags
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.
Create a new key pair
Key pair name
test
Download Key Pair
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.
Cancel
Launch Instances
Cancel
Previous
Launch

Launch Status

Launch Status

Your instances are now launching
The following instance launches have been initiated: i-0e47d6090737f083e View launch log

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

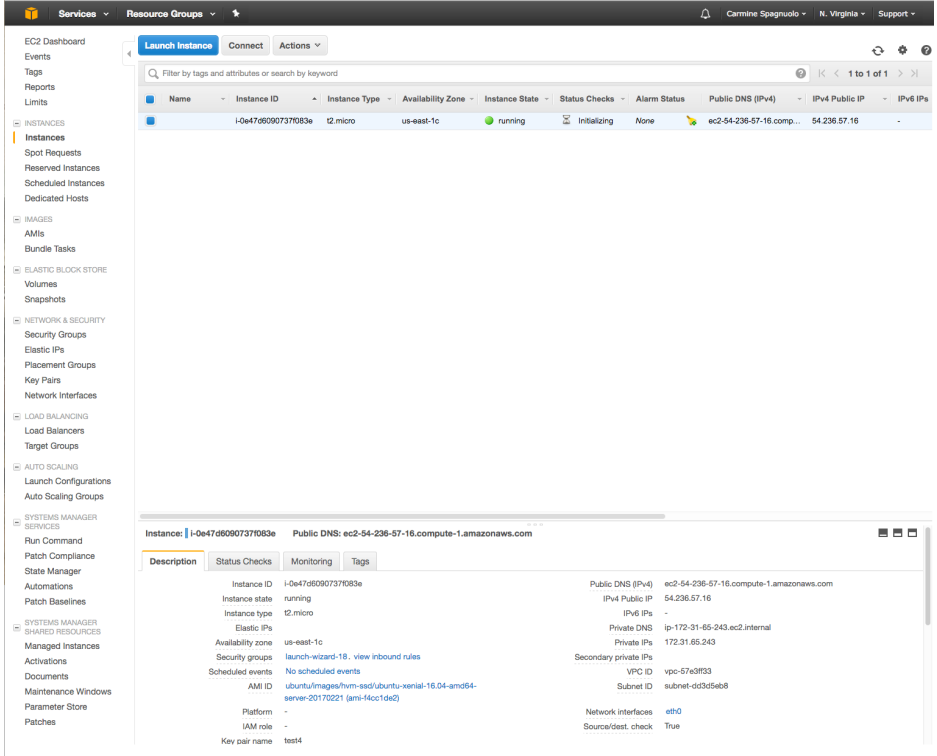
- How to connect to your Linux instance
- Learn about AWS Free Usage Tier
- Amazon EC2: User Guide
- Amazon EC2: Discussion Forum

While your instances are launching you can also

Create status check alarms to be notified when these instances fail status checks. (Additional charges may apply)
Create and attach additional EBS volumes (Additional charges may apply)
Manage security groups

View Instances

Running Instances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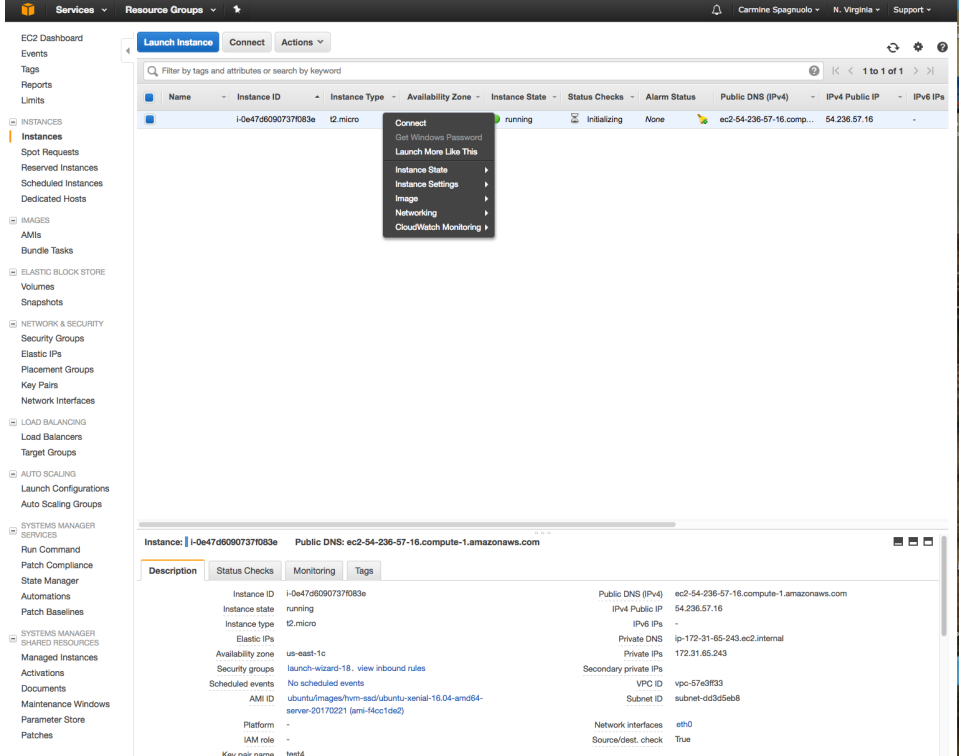
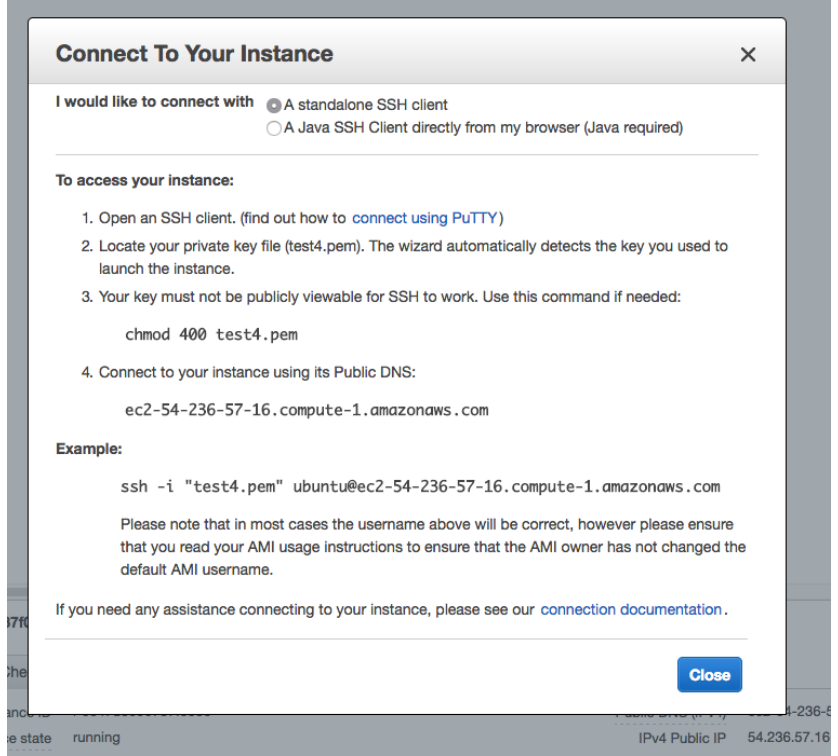
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
LOAD BALANCING
Load Balancers
Target Groups
AUTO SCALING
Launch Configurations
Auto Scaling Groups
SYSTEMS MANAGER SERVICES
Run Command
Patch Compliance
State Manager
Automations
Patch Baselines
SYSTEMS MANAGER SHARED RESOURCES
Managed Instances
Activations
Documents
Maintenance Windows
Parameter Store
Patches
Launch Instance
Connect
Actions
Filter by tags and attributes or search by keyword
1 to 1 of 1
Name
Instance ID
Instance Type
Availability Zone
Instance State
Status Checks
Alarm Status
Public DNS (IPv4)
IPv4 Public IP
IPv6 IPs
i-0e47d60907371f083e
t2.micro
us-east-1c
running
Initializing
None
ec2-54-236-57-16.comp...
54.236.57.16
-
Instance: i-0e47d60907371f083e
Public DNS: ec2-54-236-57-16.compute-1.amazonaws.com
Description
Status Checks
Monitoring
Tags
Instance ID
i-0e47d60907371f083e
Instance state
running
Instance type
t2.micro
Elastic IPs
Availability zone
us-east-1c
Security groups
launch-wizard-18. view inbound rules
Scheduled events
No scheduled events
AMI ID
ubuntu/images/hvm-ssd/ubuntu-xenial-16.04-amd64-server-20170221 (ami-f4cc1de2)
Platform
-
IAM role
-
Key pair name
test4
Public DNS (IPv4)
ec2-54-236-57-16.compute-1.amazonaws.com
IPv4 Public IP
54.236.57.16
IPv6 IPs
-
Private DNS
ip-172-31-65-243.ec2.internal
Private IPs
172.31.65.243
Secondary private IPs
VPC ID
vpc-57e3ff33
Subnet ID
subnet-dd3d5eb8
Network interfaces
eth0
Source/dest. check
True

Options of an Instance


Services
Resource Groups
Carmine Spagnuolo
N. Virginia
Support
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
Network Interfaces
LOAD BALANCING
Load Balancers
Target Groups
AUTO SCALING
Launch Configurations
Auto Scaling Groups
SYSTEMS MANAGER SERVICES
Run Command
Patch Compliance
State Manager
Automations
Patch Baselines
SYSTEMS MANAGER SHARED RESOURCES
Managed Instances
Activations
Documents
Maintenance Windows
Parameter Store
Patches
Launch Instance
Connect
Actions
Filter by tags and attributes or search by keyword
1 to 1 of 1
Name
Instance ID
Instance Type
Availability Zone
Instance State
Status Checks
Alarm Status
Public DNS (IPv4)
IPv4 Public IP
IPv6 IPs
i-0e47d6090737f083e
t2.micro
running
Initializing
None
ec2-54-236-57-16.comp...
54.236.57.16
Connect
Get Windows Password
Launch More Like This
Instance State
Instance Settings
Image
Networking
CloudWatch Monitoring
Instance: i-0e47d6090737f083e
Public DNS: ec2-54-236-57-16.compute-1.amazonaws.com
Description
Status Checks
Monitoring
Tags
Instance ID i-0e47d6090737f083e
Instance state running
Instance type t2.micro
Elastic IPs
Availability zone us-east-1c
Security groups launch-wizard-18. view inbound rules
Scheduled events No scheduled events
AMI ID ubuntu/images/hvm-ssd/ubuntu-xenial-16.04-amd64-server-20170221 (ami-f4cc1de2)
Platform -
IAM role -
Key pair name test4
Public DNS (IPv4) ec2-54-236-57-16.compute-1.amazonaws.com
IPv4 Public IP 54.236.57.16
IPv6 IPs -
Private DNS ip-172-31-65-243.ec2.internal
Private IPs 172.31.65.243
Secondary private IPs
VPC ID vpc-57e3ff33
Subnet ID subnet-dd3d5eb8
Network interfaces eth0
Source/dest. check True

Connect to an Instance


Connect To Your Instance
I would like to connect with
A standalone SSH client
A Java SSH Client directly from my browser (Java required)
To access your instance:
1. Open an SSH client. (find out how to connect using PuTTY)
2. Locate your private key file (test4.pem). The wizard automatically detects the key you used to launch the instance.
3. Your key must not be publicly viewable for SSH to work. Use this command if needed:
chmod 400 test4.pem
4. Connect to your instance using its Public DNS:
ec2-54-236-57-16.compute-1.amazonaws.com
Example:
ssh -i "test4.pem" ubuntu@ec2-54-236-57-16.compute-1.amazonaws.com
Please note that in most cases the username above will be correct, however please ensure that you read your AMI usage instructions to ensure that the AMI owner has not changed the default AMI username.
If you need any assistance connecting to your instance, please see our connection documentation.
Close
running
IPv4 Public IP
54.236.57.16

Our Environment

Ubuntu with OpenMPI and OpenMP

- Ubuntu with OpenMPI and OpenMP
- https://github.com/spagnuolocarmine/ubuntu-openmpi-openmp
- Ubuntu Linux 18.04 LTS Server Edition: AMI ID `ami-0f65671a86f061fcd`.
- SSH Key: eseguire il comando `ssh-keygen` e modificare il valore della chiave pubblica e privata nello script install.sh (la chiave generata si trova nei file `.ssh/id_rsa` e `.ssh/id_rsa.pub`.
- Una volta generata la chiave sul nodo master usare sempre la medesima chiave per l'installazione su tutti gli altri nodi.

Ubuntu with OpenMPI and OpenMP

- **Our Environment**:
  - user: pcpc
  - vim
  - htop
  - OpenMPI 4.0
  - OpenMP included in the GNU GCC

Amazon AWS CLI & Web Console Exercises

Exercise 1

1. Personal Home Page:
   - start from CLI a new t2.micro instance of Ubuntu;
   - install Apache Web Server:
     `$ sudo apt-get install apache2`;
   - if you have your personal homepage migrate on this server or add an index.html that is describing yourself;
   - add a rules to access on port 80 from Web Console;
   - check the page using the public Amazon DNS;
   - terminate the instance from the Web Console.

Exercise 2

1. Ripetere l'esercizio 1 utilizzando la Web Console.

Exercise 3

1. Creare un cluster di 4 macchine $C = (0, 1, 2, 3)$:
   - installare l'ambiente di programmazione utilizzando lo script di installazione;
   - verificare che lo scambio di chiavi sia corretto, quindi ogni macchina può eseguire ssh IP su tutte le altre.
   - creare un file, su macchina 0, di nome `a.txt` utilizzando il comando `vim a.txt`.
   - copiare il file a.txt utilizzando il comando `scp` su macchina 1.
   - modificare il file `a.txt` su macchina 1 e copiarlo su macchina 2 e 3.