

Assignment #01

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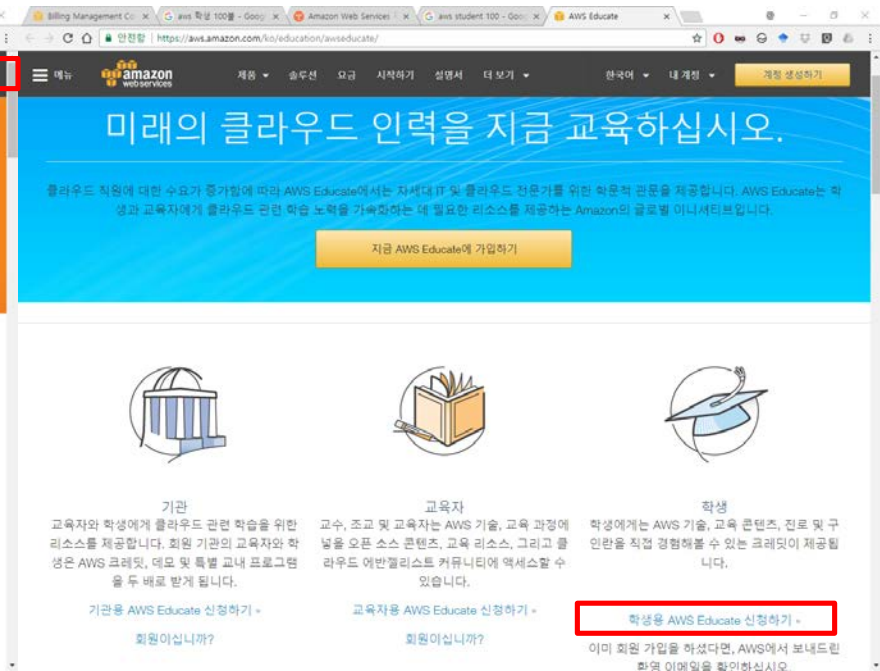
AWS - Amazon Web Services

- <https://imyeonn.github.io/blog/web/42/> (In Korean)
- 1. <https://aws.amazon.com/ko/>
- 2. <https://aws.amazon.com/ko/education/awseducate/>

1. Join AWS



2. Join AWS Educate



Login to AWS

The screenshot displays the AWS Management Console interface. At the top, the browser address bar shows the URL `https://ap-northeast-2.console.aws.amazon.com/console/home?region=ap-northeast-2#`. The console header includes navigation tabs for 'Services' and 'Resource Groups', along with a 'Welcome to AWS' message and regional settings for 'Seoul'.

The main content area is titled 'AWS services' and features a search bar. Below the search bar, the 'Recently visited services' section is visible, with 'EC2' highlighted by a red rectangular box. To the right of 'EC2' are links for 'Billing' and 'Support'. Below this, the 'All services' section is organized into a grid of categories:

- Compute:** EC2, EC2 Container Service, Lightsail, Elastic Beanstalk, Lambda, Batch.
- Storage:** S3, EFS, Glacier, Storage Gateway.
- Database:** RDS, DynamoDB, ElastiCache, Amazon Redshift.
- Networking & Content Delivery:** VPC, CloudFront, Direct Connect, Route 53.
- Developer Tools:** CodeStar, 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, Artifact.
- Internet of Things:** AWS IoT, AWS Greengrass.
- 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:** (Link to messaging services).

On the right side of the console, there are 'Helpful tips' and 'Explore AWS' sections. The 'Helpful tips' section includes links for 'Manage your costs' and 'Create an organization'. The 'Explore AWS' section features links for 'Apache MXNet', 'Build Applications with AWS Lambda', 'Amazon DynamoDB', and 'AWS Marketplace'.

EC2 dashboard

The screenshot displays the AWS Management Console for the EC2 service in the Asia Pacific (Seoul) region. The interface includes a top navigation bar with 'Services', 'Resource Groups', and a 'Welcome to AWS' message. A left-hand navigation pane lists various EC2-related services, with 'Key Pairs' highlighted by a red rectangular box. The main content area is divided into several sections: 'Resources' showing counts for Running Instances, Elastic IPs, Snapshots, Load Balancers, Security Groups, and Placement Groups; a 'Create Instance' section with a 'Launch Instance' button; 'Service Health' and 'Scheduled Events' status sections; and 'Account Attributes' on the right, including supported platforms, default VPC, and resource ID length management. A bottom footer contains a 'Feedback' link, 'English (US)' language selection, and copyright information for Amazon Web Services, Inc.

Create Key Pair

The screenshot displays the AWS Management Console interface for the 'ap-northeast-2' region. The left-hand navigation pane lists various services, with 'Key Pairs' highlighted under the 'NETWORK & SECURITY' category. The main content area shows a message: 'You do not have any Key Pairs in this region. Click the "Create Key Pair" button to create your first Key Pair.' A red rectangular box is drawn around the 'Create Key Pair' button. Above this message, there are tabs for 'Create Key Pair', 'Import Key Pair', and 'Delete'. A search bar at the top of the main area contains the text 'Filter by attributes or search by keyword' and shows 'None found'. The bottom of the console features a footer with 'Feedback', 'English (US)', and copyright information for Amazon Web Services, Inc. (© 2008 - 2017).

EC2 Management Console

Services Resource Groups

Welcome to AWS Seoul Support

EC2 Dashboard
Events
Tags
Reports
Limits

INSTANCES
Instances
Spot Requests
Reserved 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

Create Key Pair Import Key Pair Delete

Filter by attributes or search by keyword

Key pair name Fingerprint

AwsSeoul

Key Pair: AwsSeoul

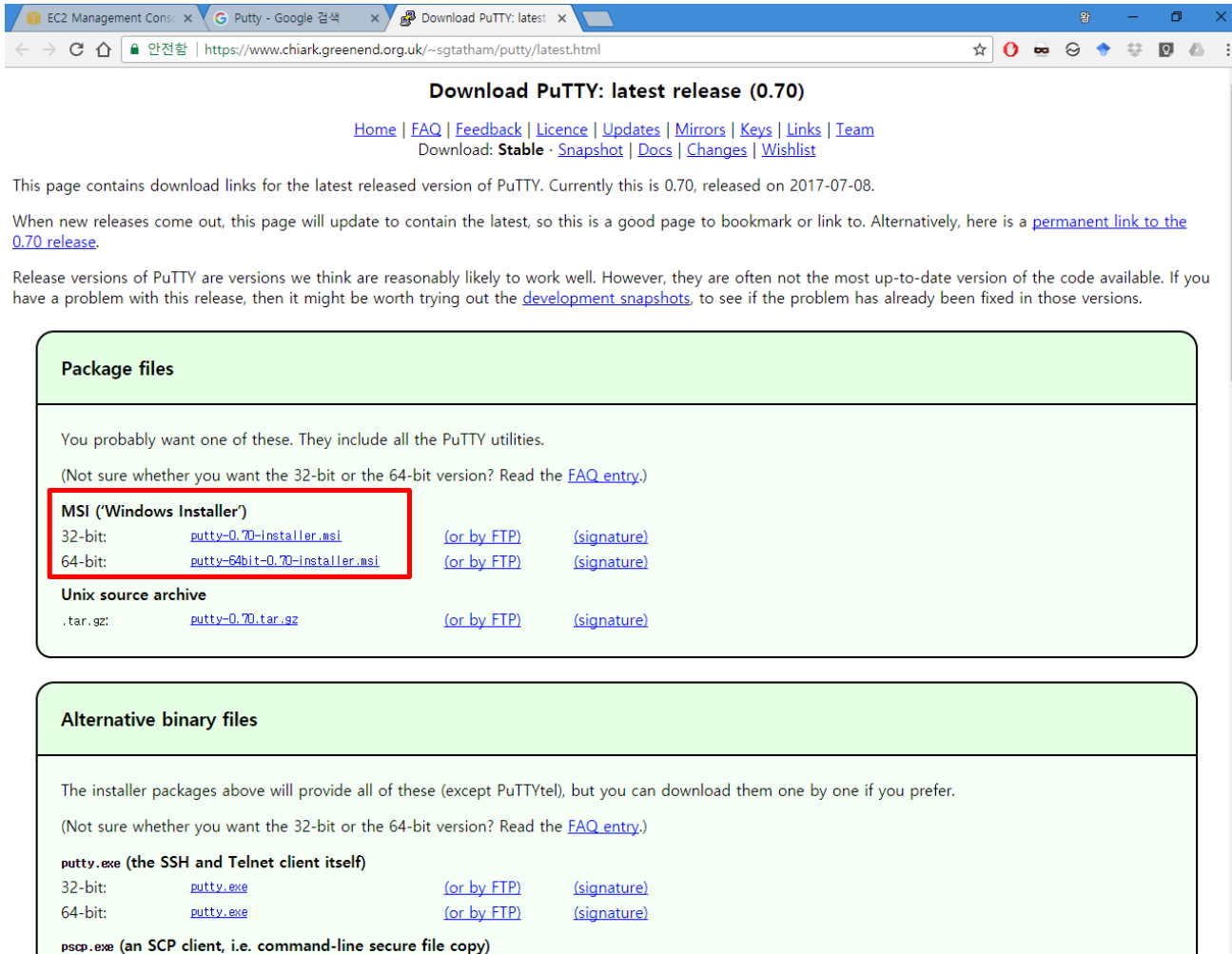
Key pair name	AwsSeoul
Fingerprint	47:50:7b:90:5e:5b:cb:14:0c:42:51:e8:f5:7d:33:71:b9:ba:20:fb

Feedback English (US)

AwsSeoul.pem

전체 보기

Install Putty when using Windows OS



Download PuTTY: latest release (0.70)

[Home](#) | [FAQ](#) | [Feedback](#) | [Licence](#) | [Updates](#) | [Mirrors](#) | [Keys](#) | [Links](#) | [Team](#)
Download: [Stable](#) · [Snapshot](#) | [Docs](#) | [Changes](#) | [Wishlist](#)

This page contains download links for the latest released version of PuTTY. Currently this is 0.70, released on 2017-07-08.

When new releases come out, this page will update to contain the latest, so this is a good page to bookmark or link to. Alternatively, here is a [permanent link to the 0.70 release](#).

Release versions of PuTTY are versions we think are reasonably likely to work well. However, they are often not the most up-to-date version of the code available. If you have a problem with this release, then it might be worth trying out the [development snapshots](#), to see if the problem has already been fixed in those versions.

Package files

You probably want one of these. They include all the PuTTY utilities.

(Not sure whether you want the 32-bit or the 64-bit version? Read the [FAQ entry](#).)

MSI ('Windows Installer')

32-bit:	putty-0.70-installer.msi	(or by FTP)	(signature)
64-bit:	putty-64bit-0.70-installer.msi	(or by FTP)	(signature)

Unix source archive

.tar, gz:	putty-0.70.tar.gz	(or by FTP)	(signature)
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Alternative binary files

The installer packages above will provide all of these (except PuTTYtel), but you can download them one by one if you prefer.

(Not sure whether you want the 32-bit or the 64-bit version? Read the [FAQ entry](#).)

putty.exe (the SSH and Telnet client itself)

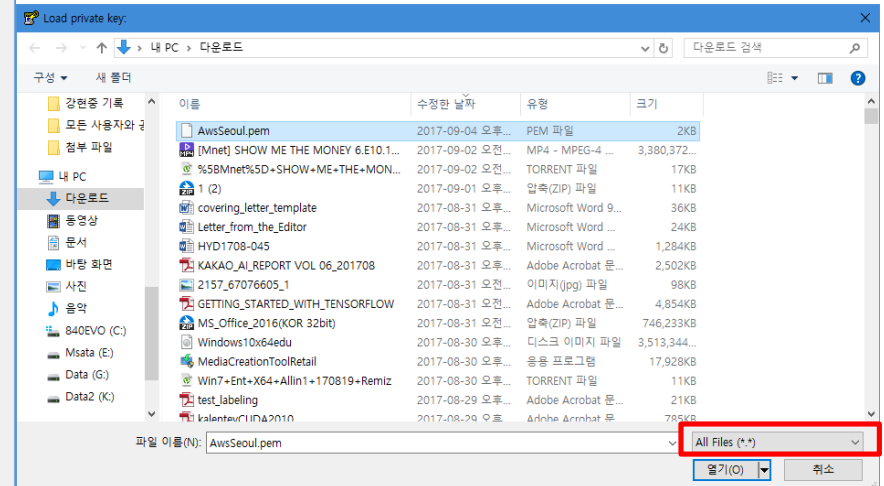
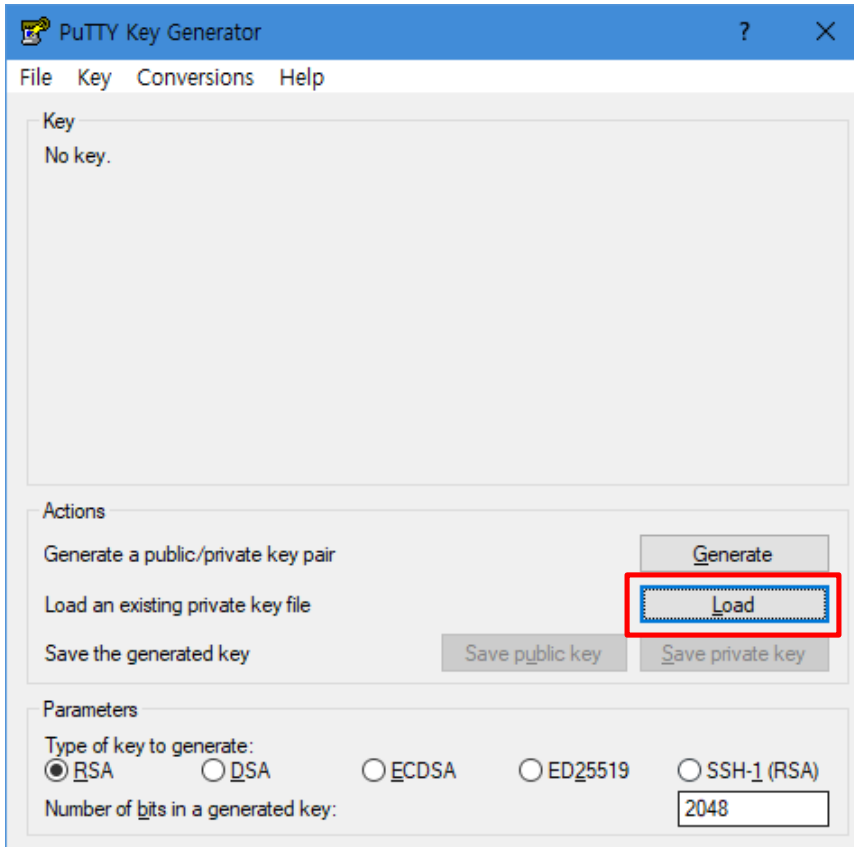
32-bit:	putty.exe	(or by FTP)	(signature)
64-bit:	putty.exe	(or by FTP)	(signature)

pscp.exe (an SCP client, i.e. command-line secure file copy)

Using Puttygen to convert *.pem to *.ppk

Load Key

Load Key



Using Puttygen to convert *.pem to *.ppk

Save Private Key

puTTY Key Generator

File Key Conversions Help

Key

Public key for pasting into OpenSSH authorized_keys file:

Key fingerprint:

Key comment: imported-openssh-key

Key passphrase:

Confirm passphrase:

Actions

Generate a public/private key pair **Generate**

Load an existing private key file **Load**

Save the generated key **Save public key** **Save private key**

Parameters

Type of key to generate:
☒ RSA ☐ DSA ☐ ECDSA ☐ ED25519 ☐ SSH-1 (RSA)

Number of bits in a generated key: 2048

Save Private Key

Save private key as:

내 PC > 다운로드

이름	수정된 날짜	유형	크기
AwsSeoul	2017-09-04 오후...	puTTY Private Key...	2KB
Aws-NVirginia	2017-05-24 오후...	puTTY Private Key...	2KB
Win7 Ent X64 Allin1 170819 Remiz	2017-08-30 오후...	파일 폴더	
2017_특성화사업단_거울방학특강	2017-08-23 오후...	파일 폴더	
Release	2017-08-04 오후...	파일 폴더	
[HorribleSubs] Mobile Suit Gundam Thu...	2017-07-29 오전...	파일 폴더	
마이클션널 정의한 무엇인가	2017-07-17 오전...	파일 폴더	
Adobe Photoshop CS6 (KOR)	2017-07-06 오후...	파일 폴더	
ToolBox_4911mf18_Win_EN	2017-07-04 오후...	파일 폴더	
NetworkUSBScanPatchEN	2017-07-04 오후...	파일 폴더	
MF8000_Series_MFDrivers_V2005b_W6...	2017-07-04 오후...	파일 폴더	
ethereum-mining-windows	2017-06-26 오후...	파일 폴더	
tesseract-master	2017-06-14 오후...	파일 폴더	
laelun Yoo's Playground (하글 버전) A	2017-06-10 오후...	파일 폴더	

파일 이름(N):

파일 형식(T): PuTTY Private Key Files (*.ppk)

폴더 숨기기 저장(S) 취소

Make EC2 instance

The screenshot shows the AWS Management Console for the Asia Pacific (Seoul) region. The left-hand navigation menu has the 'Instances' link highlighted with a red rectangular box. The main area is titled 'Resources' and lists the following counts: 0 Running Instances, 0 Elastic IPs, 0 Dedicated Hosts, 0 Snapshots, 0 Volumes, 0 Load Balancers, 1 Key Pairs, and 1 Security Groups. Below this is a 'Create Instance' section with a 'Launch Instance' button. The 'Service Health' section shows that the Asia Pacific (Seoul) service is operating normally. The right-hand sidebar contains 'Account Attributes' and 'Additional Information' links, as well as 'AWS Marketplace' offers.

Resources

You are using the following Amazon EC2 resources in the Asia Pacific (Seoul) region:

- 0 Running Instances
- 0 Elastic IPs
- 0 Dedicated Hosts
- 0 Snapshots
- 0 Volumes
- 0 Load Balancers
- 1 Key Pairs
- 1 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 Asia Pacific (Seoul) region

Service Health

Service Status:

- Asia Pacific (Seoul): This service is operating normally

Availability Zone Status:

- ap-northeast-2a: Availability zone is operating normally
- ap-northeast-2c: Availability zone is operating normally

[Service Health Dashboard](#)

Scheduled Events

Asia Pacific (Seoul):

- No events

Account Attributes

Supported Platforms

- VPC
- Default VPC
- vpc-f7b2ef9e
- 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/vr (60% savings) for

[Feedback](#) [English \(US\)](#)

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Launch Instance

EC2 Management Console

Services Resource Groups

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
	i-0379400a1a046bfc3	t2.micro	ap-northeast-2a	terminated		None	

Instance: i-0379400a1a046bfc3 Public DNS: -

Description Status Checks Monitoring Tags

Instance ID i-0379400a1a046bfc3

Instance state terminated

Instance type t2.micro

Elastic IPs

Availability zone ap-northeast-2a

Security groups -

Scheduled events -

Public DNS (IPv4) -

IPv4 Public IP -

Secondary private IPs -

VPC ID -

The public hostname of the instance, which resolves to the public IP address or Elastic IP address of the instance.

Any secondary private IP addresses assigned to a network interface attached to the instance.

Feedback English (US)

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Select Ubuntu 16.04 LTS

The screenshot shows the AWS Management Console interface for the EC2 Instance Wizard. The browser address bar shows the URL: <https://ap-northeast-2.console.aws.amazon.com/ec2/v2/home?region=ap-northeast-2#LaunchInstanceWizard>. The console header includes navigation tabs for Services, Resource Groups, and a welcome message. The wizard progress bar shows seven steps: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. Step 1 is currently active.

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.

Quick Start

- My AMIs
- AWS Marketplace
- Community AMIs
- ☒ Free tier only ⓘ

1 to 32 of 32 AMIs

	Amazon Linux AMI 2017.03.1 (HVM), SSD Volume Type - ami-8663bae8	Select
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		
	SUSE Linux Enterprise Server 12 SP2 (HVM), SSD Volume Type - ami-5060b73e	Select
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		
	Red Hat Enterprise Linux 7.4 (HVM), SSD Volume Type - ami-0f5a8361	Select
Red Hat Enterprise Linux version 7.4 (HVM), EBS General Purpose (SSD) Volume Type		
Root device type: ebs Virtualization type: hvm		
	Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-d28a53bc	Select
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		
	Microsoft Windows Server 2016 Base - ami-e04d948e	Select
Microsoft Windows 2016 Datacenter edition. [English]		
Root device type: ebs Virtualization type: hvm		

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

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Select H/W Type

EC2 Management Console

← → ↻ 🔒 안전함 | https://ap-northeast-2.console.aws.amazon.com/ec2/v2/home?region=ap-northeast-2#LaunchInstanceWizard: ☆ 🔔 🔍 📄 📱 🌐 🌍 🌐 🌍

Services ▾ Resource Groups ▾ ☆ 🔔 Welcome to AWS ▾ Seoul ▾ Support ▾

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: t2.2xlarge (Variable ECUs, 8 vCPUs, 2.4 GHz, Intel Xeon Family, 32 GiB memory, EBS only)

	Family ▾	Type ▾	vCPUs (i) ▾	Memory (GiB) ▾	Instance Storage (GB) ▾	EBS-Optimized Available (i) ▾	Network Performance (i) ▾	IPv6 Support (i) ▾
For Free tier use, 1 Core								
<input type="checkbox"/>	General purpose	t2.micro Free tier eligible	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	4	8	EBS only	-	Low to Moderate	Yes
For MPI Study, 8 Core								
<input checked="" type="checkbox"/>	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
<input type="checkbox"/>	General purpose	m4.large	2	8	EBS only	Yes	Moderate	Yes
<input type="checkbox"/>	General purpose	m4.xlarge	4	16	EBS only	Yes	High	Yes
<input type="checkbox"/>	General purpose	m4.2xlarge	8	32	EBS only	Yes	High	Yes
<input type="checkbox"/>	General purpose	m4.4xlarge	16	64	EBS only	Yes	High	Yes

Cancel Previous **Review and Launch** Next: Configure Instance Details

Feedback English (US)

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\$0.512 시간당

Launch EC2

EC2 Management Console

← → ↻

안전함

https://ap-northeast-2.console.aws.amazon.com/ec2/v2/home?region=ap-northeast-2#LaunchInstanceWizard:

☆

Services

Resource Groups

Welcome to AWS

Seoul

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.

⚠

Improve your instances' security. Your security group, launch-wizard-1, 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](#)

⚠

Your instance configuration is not eligible for the free usage tier

To launch an instance that's eligible for the free usage tier, check your AMI selection, instance type, configuration options, or storage devices. Learn more about [free usage tier](#) eligibility and usage restrictions.

Don't show me this again

AMI Details

⚙

Free tier eligible

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-d28a53bc

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

Edit AMI

Instance Type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.xlarge	Variable	8	32	EBS only	-	Moderate

Edit instance type

Security Groups

Security group name

launch-wizard-1

Description

launch-wizard-1 created 2017-09-04T12:57:09.354+09:00

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	0.0.0.0/0	

Edit security groups

Cancel

Previous

Launch

Feedback

English (US)

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Select Key Pair

The screenshot shows the AWS Management Console interface for launching an EC2 instance. The main window displays 'Step 7: Review Instance Launch' with various configuration details like AMI (Ubuntu Server 16.04 LTS), Instance Type (t2.xlarge), and Security Groups. A modal dialog is overlaid on top, titled 'Select an existing key pair or create a new key pair'. This dialog explains that a key pair consists of a public key stored by AWS and a private key file stored by the user. It provides two options: 'Choose an existing key pair' (with a dropdown menu showing 'AwsSeoul') and 'Select a key pair' (with a dropdown menu showing 'AwsSeoul'). Below these options is a checkbox labeled 'I acknowledge that I have access to the selected private key file (AwsSeoul.pem), and that without this file, I won't be able to log into my instance.' The 'Launch Instances' button is highlighted with a red box, and the 'Cancel' button is also visible.

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.

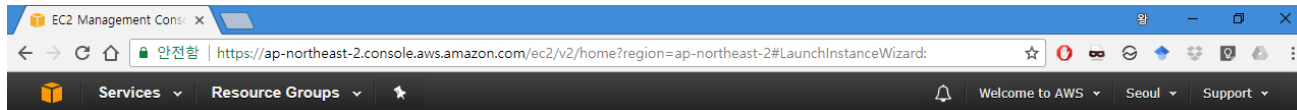
Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Choose an existing key pair
Select a key pair
AwsSeoul

☒ I acknowledge that I have access to the selected private key file (AwsSeoul.pem), and that without this file, I won't be able to log into my instance.

Cancel Launch Instances

After Launch



Launch Status

✓ **Your instances are now launching**
The following instance launches have been initiated: [i-0a0d2148cd056433a](#) [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](#)
- [Amazon EC2: User Guide](#)
- [Learn about AWS Free Usage Tier](#)
- [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](#)

Check IP

The screenshot shows the AWS Management Console for the EC2 service. The left sidebar contains navigation links for various AWS services. The main content area displays a list of EC2 instances. One instance, i-0a0d2148cd056433a, is selected and its details are shown in a modal window below the list. The instance is a t2.xlarge type in the ap-northeast-2 region, currently in a 'running' state. The IPv4 Public IP is 13.124.227.81, which is highlighted with a red box.

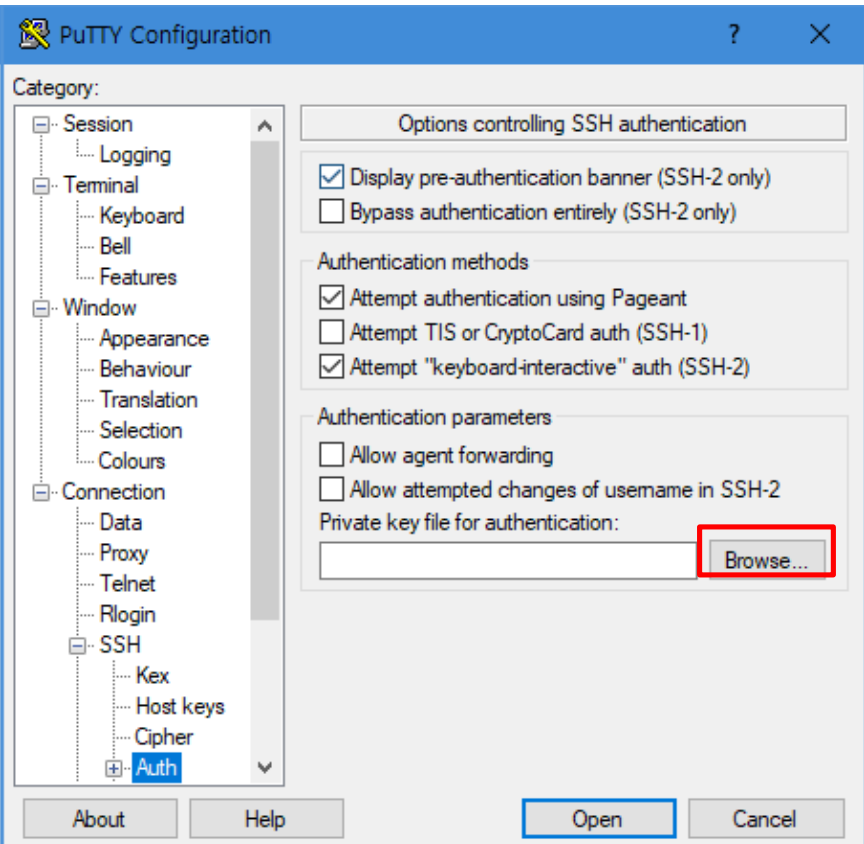
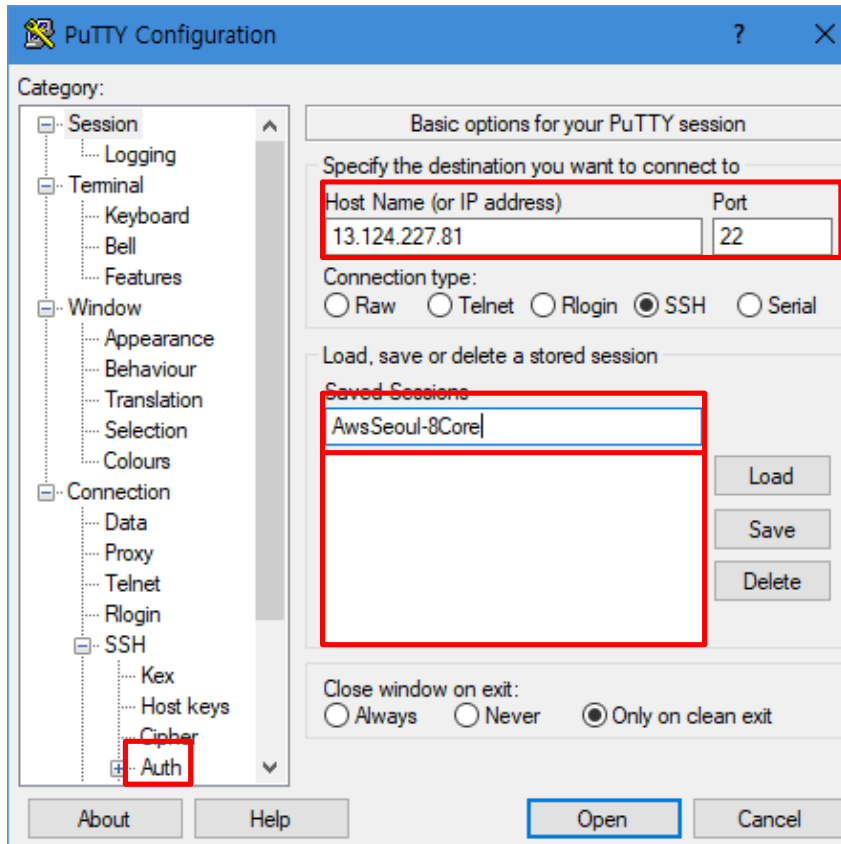
Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
	i-0379400a1a046bfc3	t2.micro	ap-northeast-2a	terminated		None	
	i-0a0d2148cd056433a	t2.xlarge	ap-northeast-2a	running	Initializing	None	ec2-13-124-227-81

Instance: i-0a0d2148cd056433a		Public DNS: ec2-13-124-227-81.ap-northeast-2.compute.amazonaws.com	
<div> <div>Description</div> <div>Status Checks</div> <div>Monitoring</div> <div>Tags</div> </div>			
Instance ID	i-0a0d2148cd056433a	Public DNS (IPv4)	ec2-13-124-227-81.ap-northeast-2.compute.amazonaws.com
Instance state	running	IPv4 Public IP	13.124.227.81
Instance type	t2.xlarge	Private DNS	ip-172-31-9-239.ap-northeast-2.compute.internal
Elastic IPs		Private IPs	172.31.9.239
Availability zone	ap-northeast-2a		

Putty Configuration

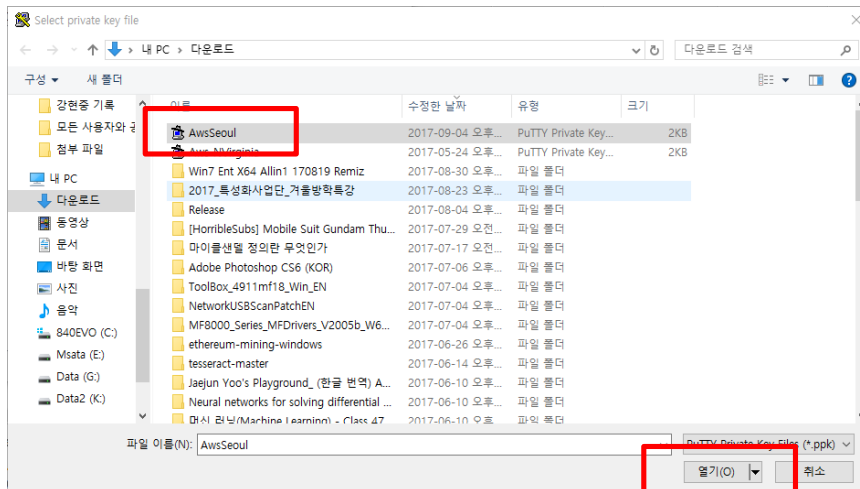
Input IP and Port

Input Private Key

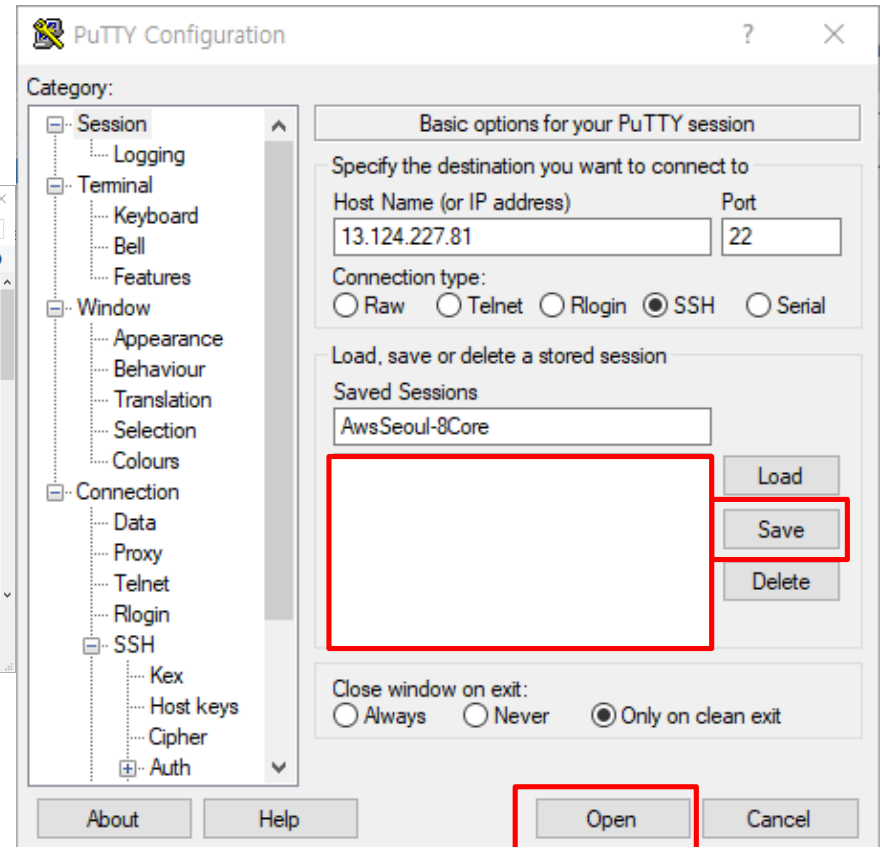


Putty Configuration

Input Private Key



Save and Open



SSH Login

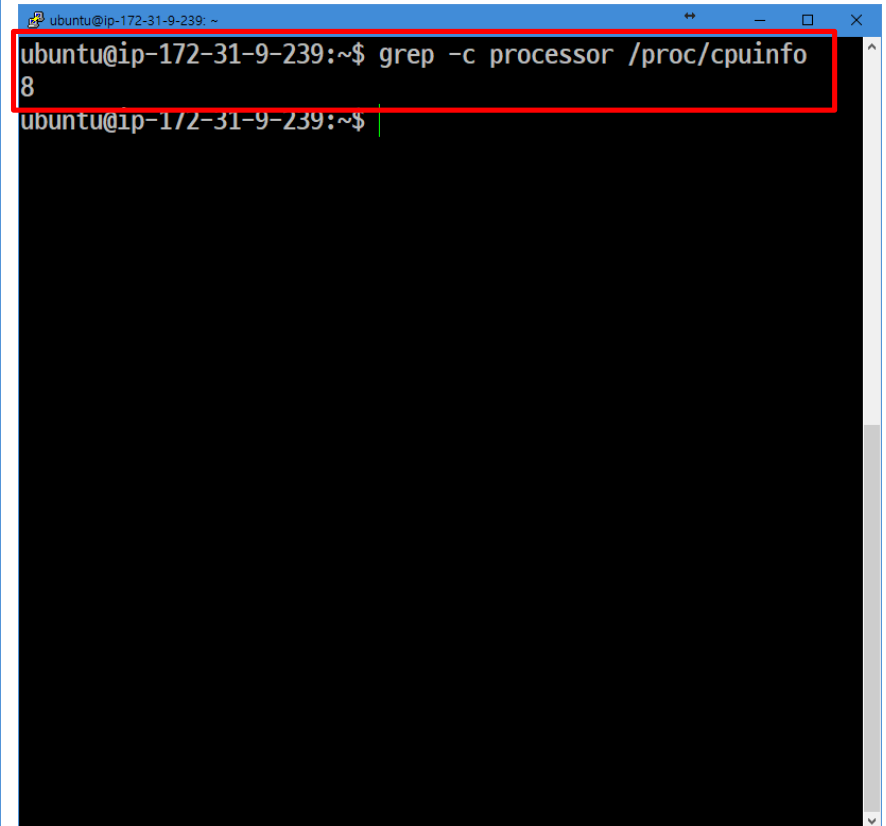
Login as ubuntu



A terminal window titled "13.124.227.81 - PuTTY" with a black background. The text "login as: ubuntu" is displayed in white, with a red rectangular box highlighting it.

```
login as: ubuntu
```

8 Core CPU

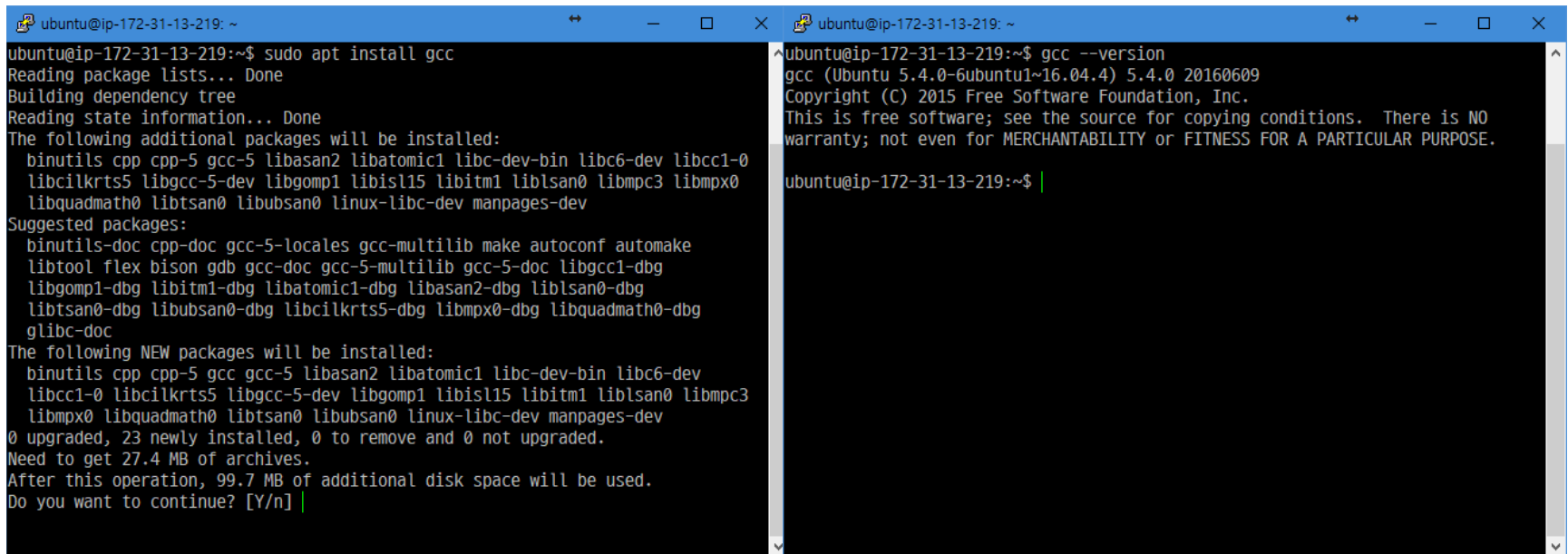


A terminal window titled "ubuntu@ip-172-31-9-239: ~" with a black background. The command "grep -c processor /proc/cpuinfo" is entered, and the output "8" is displayed. A red rectangular box highlights the command and its output.

```
ubuntu@ip-172-31-9-239:~$ grep -c processor /proc/cpuinfo
8
ubuntu@ip-172-31-9-239:~$
```

Install gcc

- `sudo apt update`
- `sudo apt install gcc -y`
- `gcc --version`



```

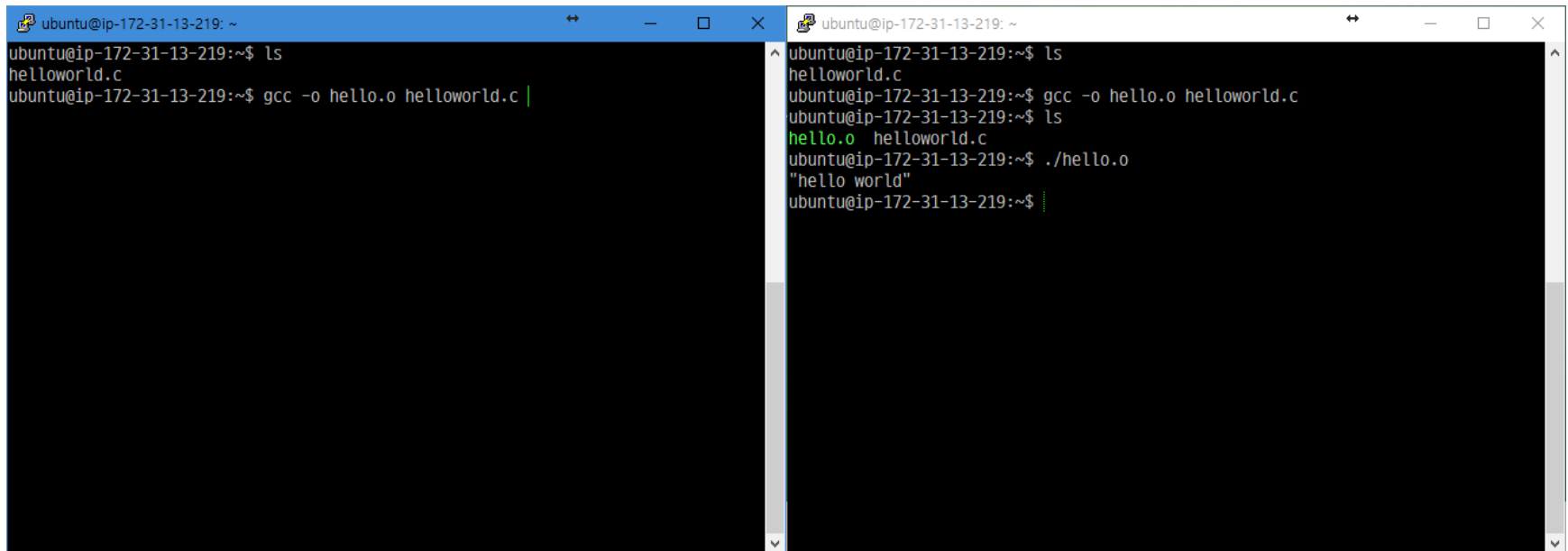
ubuntu@ip-172-31-13-219: ~
ubuntu@ip-172-31-13-219:~$ sudo apt install gcc
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  binutils cpp cpp-5 gcc-5 libasan2 libatomic1 libc-dev-bin libc6-dev libcc1-0
  libcilkrts5 libgcc-5-dev libgomp1 libisl15 libitm1 liblsan0 libmpc3 libmpx0
  libquadmath0 libtsan0 libubsan0 linux-libc-dev manpages-dev
Suggested packages:
  binutils-doc cpp-doc gcc-5-locales gcc-multilib make autoconf automake
  libtool flex bison gdb gcc-doc gcc-5-multilib gcc-5-doc libgcc1-dbg
  libgomp1-dbg libitm1-dbg libatomic1-dbg libasan2-dbg liblsan0-dbg
  libtsan0-dbg libubsan0-dbg libcilkrts5-dbg libmpx0-dbg libquadmath0-dbg
  glibc-doc
The following NEW packages will be installed:
  binutils cpp cpp-5 gcc gcc-5 libasan2 libatomic1 libc-dev-bin libc6-dev
  libcc1-0 libcilkrts5 libgcc-5-dev libgomp1 libisl15 libitm1 liblsan0 libmpc3
  libmpx0 libquadmath0 libtsan0 libubsan0 linux-libc-dev manpages-dev
0 upgraded, 23 newly installed, 0 to remove and 0 not upgraded.
Need to get 27.4 MB of archives.
After this operation, 99.7 MB of additional disk space will be used.
Do you want to continue? [Y/n] |

ubuntu@ip-172-31-13-219:~$ gcc --version
gcc (Ubuntu 5.4.0-6ubuntu1~16.04.4) 5.4.0 20160609
Copyright (C) 2015 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

ubuntu@ip-172-31-13-219:~$
  
```


Compile code

- `gcc -o hello.o helloworld.c`
- `./hello.o`



The image shows two terminal windows side-by-side. The left window shows the compilation of a C program. The right window shows the execution of the compiled program.

```

ubuntu@ip-172-31-13-219: ~
ubuntu@ip-172-31-13-219:~$ ls
helloworld.c
ubuntu@ip-172-31-13-219:~$ gcc -o hello.o helloworld.c

```

```

ubuntu@ip-172-31-13-219:~$ ls
helloworld.c
ubuntu@ip-172-31-13-219:~$ gcc -o hello.o helloworld.c
ubuntu@ip-172-31-13-219:~$ ls
hello.o  helloworld.c
ubuntu@ip-172-31-13-219:~$ ./hello.o
"hello world"
ubuntu@ip-172-31-13-219:~$

```

Basic commands

Commands

- pwd
 - Show path of working directory
- mkdir test
 - Make directory named test
- ls
 - Show what is in this directory
- rmdir test
 - Remove directory named test

behavior

```
ubuntu@ip-172-31-9-239: ~  
ubuntu@ip-172-31-9-239:~$ grep -c processor /proc/cpuinfo  
8  
ubuntu@ip-172-31-9-239:~$ pwd  
/home/ubuntu  
ubuntu@ip-172-31-9-239:~$ mkdir test  
ubuntu@ip-172-31-9-239:~$ ls  
test  
ubuntu@ip-172-31-9-239:~$ rmdir test  
ubuntu@ip-172-31-9-239:~$ ls  
ubuntu@ip-172-31-9-239:~$
```


Basic commands

Commands

- clear
 - Clear the screen
- top
 - Show cpu workload
- cp a b
 - Copy a to b
- mv a b
 - Move a to b
- Ctrl + C
 - Cancel job running on the terminal
- Ctrl + D
 - Cancel connection

Behavior when input top

```

top - 04:19:33 up 20 min, 1 user, load average: 0.00, 0.00, 0.01
Tasks: 158 total, 1 running, 157 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni,100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 32946584 total, 32485076 free, 111816 used, 349692 buff/cache
KiB Swap: 0 total, 0 free, 0 used. 32474808 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM     TIME+ COMMAND
    1 root        20   0   37916 5872 3892 S   0.0   0.0   0:02.04 systemd
    2 root        20   0         0     0     0 S   0.0   0.0   0:00.00 kthreadd
    3 root        20   0         0     0     0 S   0.0   0.0   0:00.00 ksoftirqd/0
    5 root         0 -20         0     0     0 S   0.0   0.0   0:00.00 kworker/0:0
    6 root        20   0         0     0     0 S   0.0   0.0   0:00.01 kworker/u3:0
    7 root        20   0         0     0     0 S   0.0   0.0   0:00.01 rcu_sched
    8 root        20   0         0     0     0 S   0.0   0.0   0:00.00 rcu_bh
    9 root        rt    0         0     0     0 S   0.0   0.0   0:00.00 migration/0
   10 root        rt    0         0     0     0 S   0.0   0.0   0:00.01 watchdog/0
   11 root        rt    0         0     0     0 S   0.0   0.0   0:00.00 watchdog/1
   12 root        rt    0         0     0     0 S   0.0   0.0   0:00.00 migration/1
   13 root        20   0         0     0     0 S   0.0   0.0   0:00.00 ksoftirqd/1
   14 root        20   0         0     0     0 S   0.0   0.0   0:00.01 kworker/1:0
   15 root         0 -20         0     0     0 S   0.0   0.0   0:00.00 kworker/1:1
   16 root        rt    0         0     0     0 S   0.0   0.0   0:00.00 watchdog/2
   17 root        rt    0         0     0     0 S   0.0   0.0   0:00.00 migration/2
   18 root        20   0         0     0     0 S   0.0   0.0   0:00.00 ksoftirqd/2

```

After use, You must stop instance to save the money

The screenshot shows the AWS Management Console for the EC2 service. The left sidebar contains navigation links for various AWS services. The main content area displays a list of EC2 instances. A context menu is open over the instance with ID 'i-0a0d2148cd056433a', which is in the 'running' state. The 'Stop' option is highlighted in red. Below the instance list, the details for the selected instance are shown, including its ID, public DNS, instance state, type, and availability zone.

Name	Instance ID	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
	i-0379400...	us-east-2a	terminated		None	
	i-0a0d2148cd056433a	us-east-2a	running	2/2 checks ...	None	ec2-13-124-227-81

Instance: i-0a0d2148cd056433a		Public DNS: ec2-13-124-227-81.ap-northeast-2.compute.amazonaws.com	
<div> <div>Description</div> <div>Status Checks</div> <div>Monitoring</div> <div>Tags</div> </div>			
Instance ID	i-0a0d2148cd056433a	Public DNS (IPv4)	ec2-13-124-227-81.ap-northeast-2.compute.amazonaws.com
Instance state	running	IPv4 Public IP	13.124.227.81
Instance type	t2.xlarge	IPv6 IPs	-
Elastic IPs		Private DNS	ip-172-31-9-239.ap-northeast-2.compute.internal
Availability zone	ap-northeast-2a	Private IPs	172.31.9.239

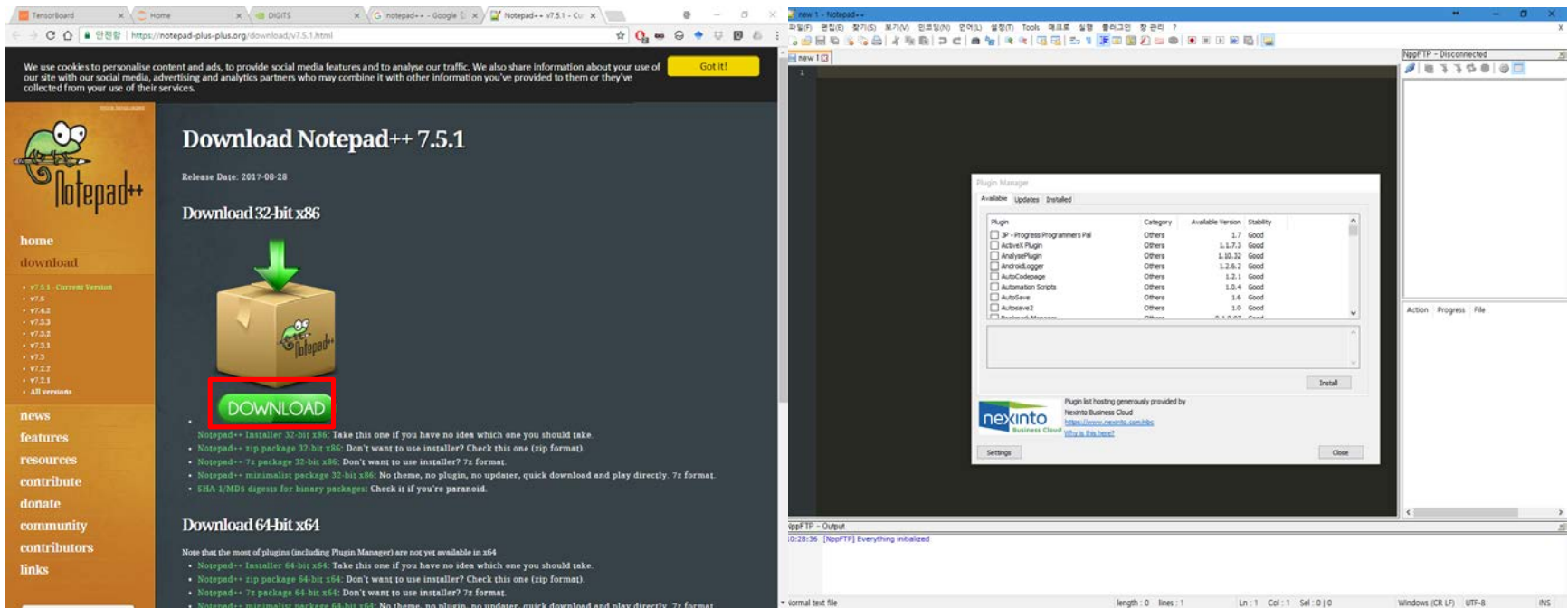
If you are not familiar with VIM

Install Notepad++

- <https://notepad-plus-plus.org/download/v7.5.1.html>

Install Plugin named NppFTP

- Plugin – Plugin Manager – Show Plugin Manager
- Install NppFTP

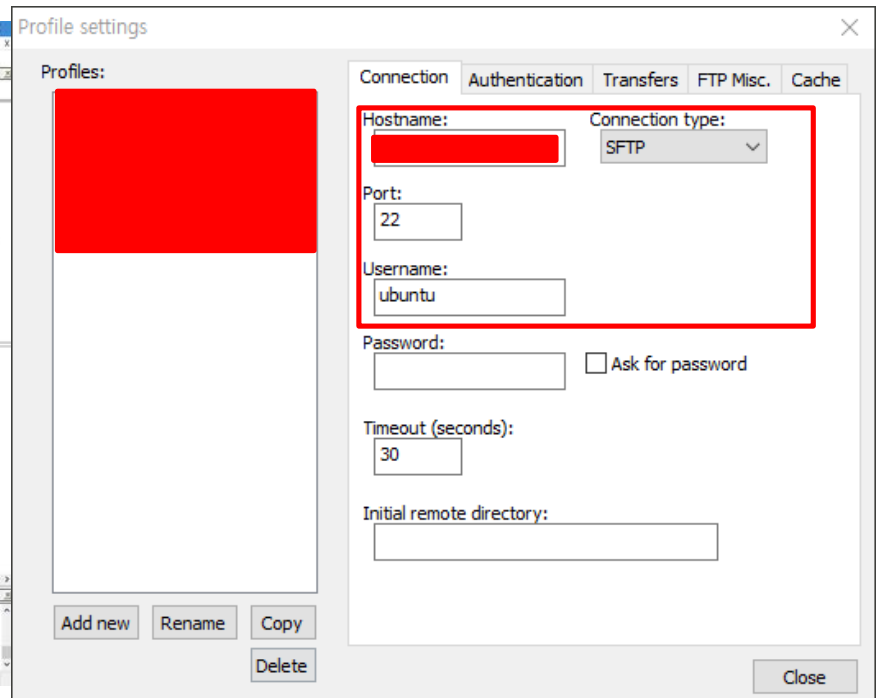
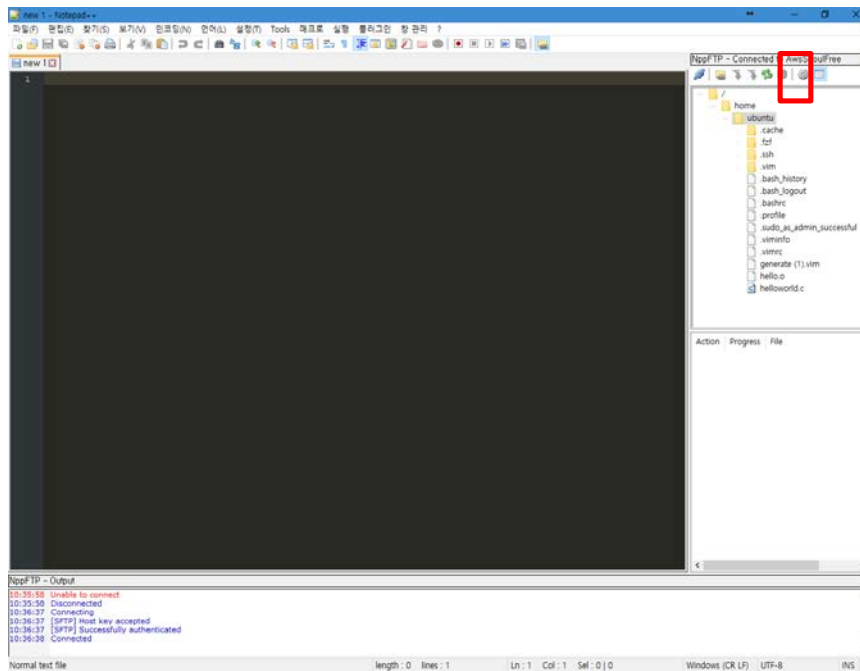


If you are not familiar with VIM

Profile settinge

Input Options

- IP, Port, Username



If you are not familiar with VIM

Input Optins

- Select Keyfile *.pem

Connect and Write Code

- Compile and execution by Putty

