

# Assignment on:

## IoT(Internet of Things) Wireless & Cloud Computing Emerging Technologies.

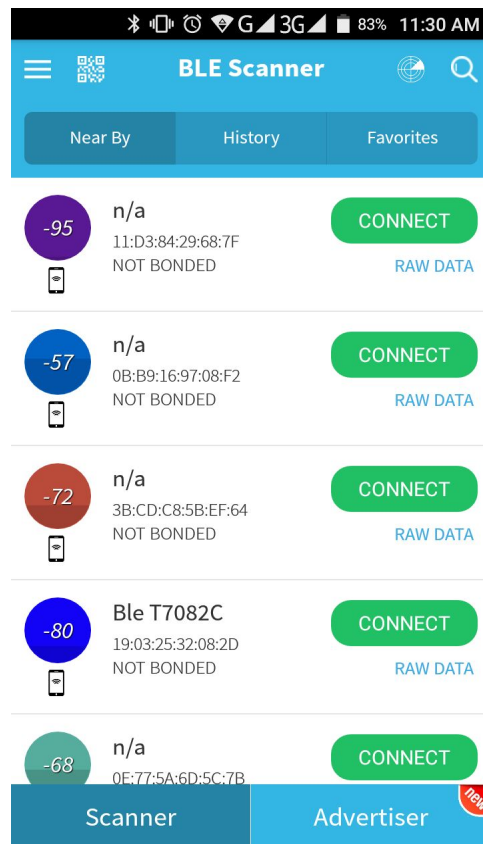
### Topics covered:

- Analyze Bluetooth devices and connection using BLE Scanner.
- Analyze WiFi devices and connection using Net Analyzer.
- Using Amazon EC2 cloud services for cloud computing.

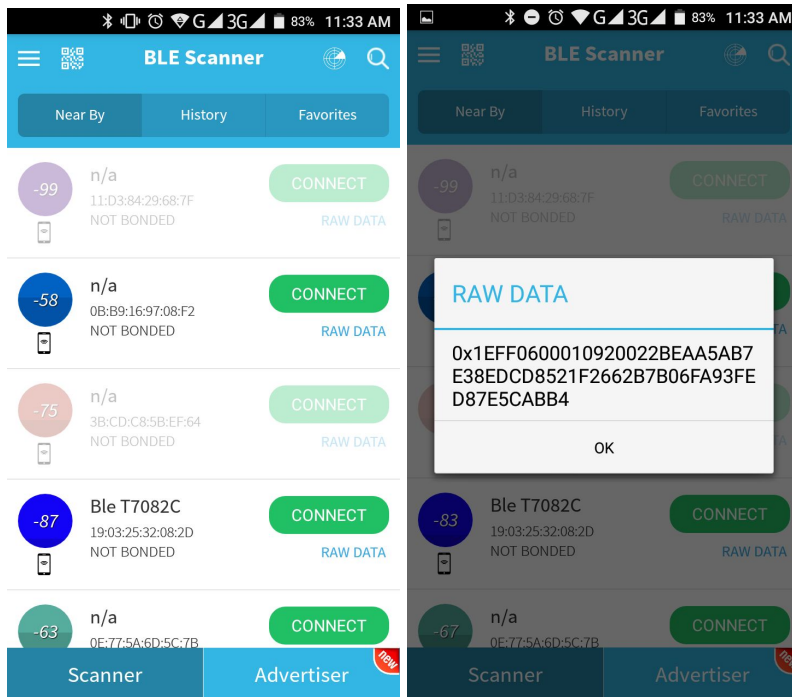
### ❖ Analyze Bluetooth:

We can analyze the nearby bluetooth devices and their connection level using BLE Scanner that are described below:

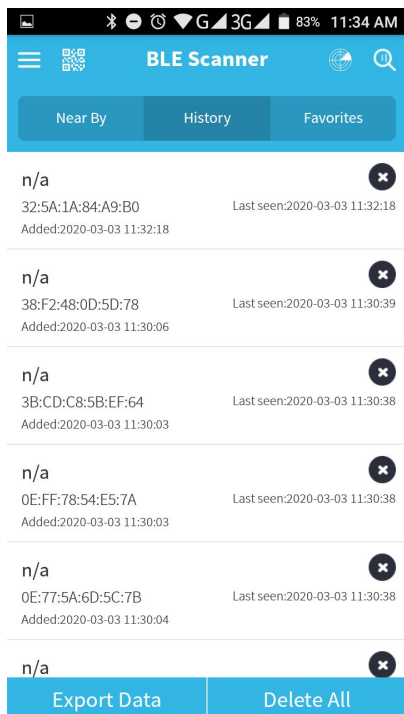
- Nearby bluetooth devices monitoring



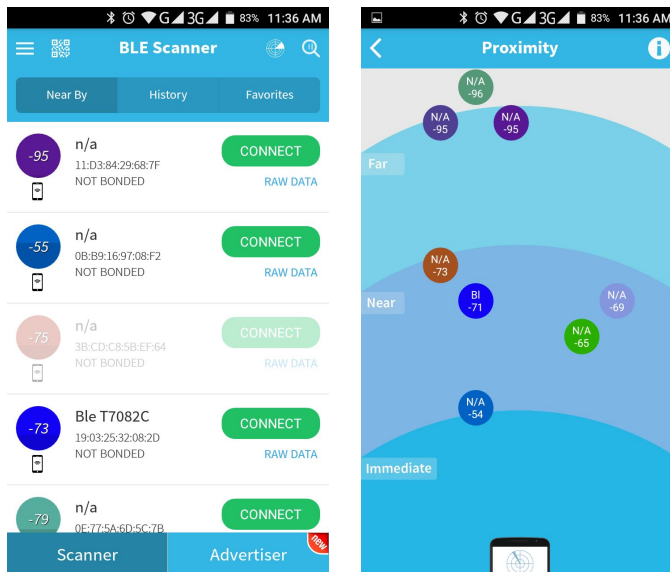
- Raw data of bluetooth devices.



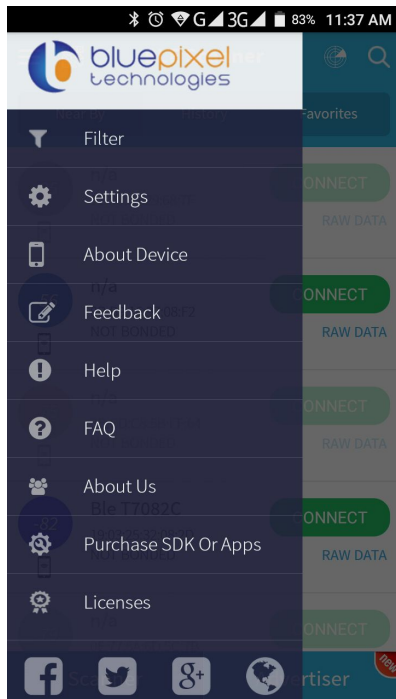
- History of Bluetooth devices availability with time and date.



- Bluetooth devices proximity connection that are Immediate, near and far bluetooth devices.

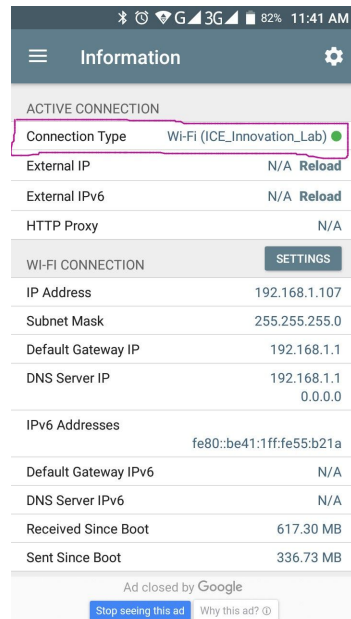


- We can filtering our nearby bluetooth devices.

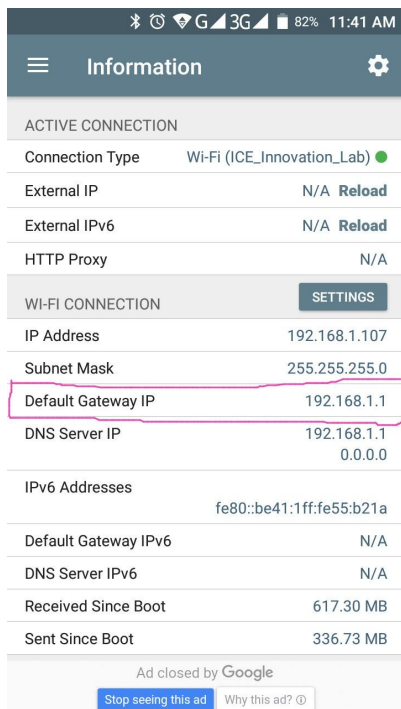


## ❖ Analyze WiFi using Net Analyzer.

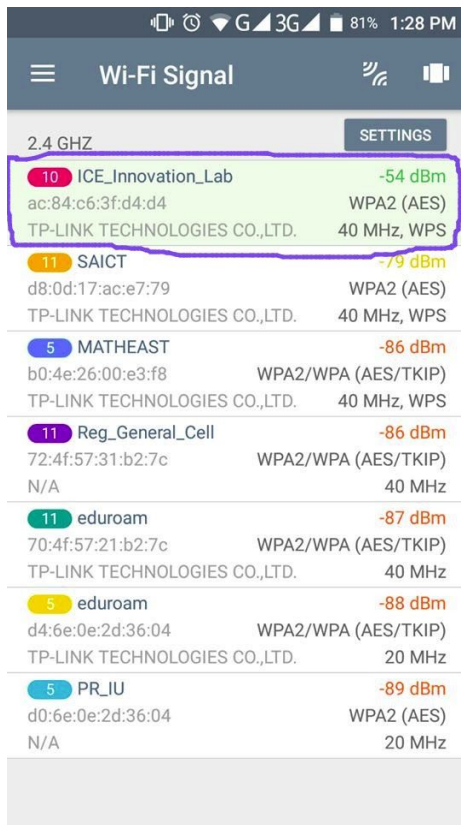
- Monitoring Devices using Net analyzer.



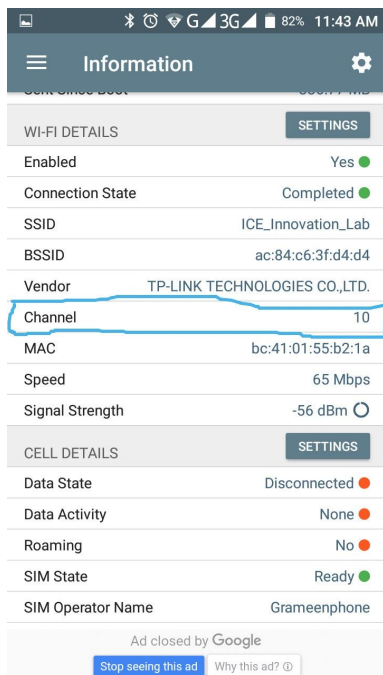
- Gateway address.



- Data rate in wifi Bandwidth measurment



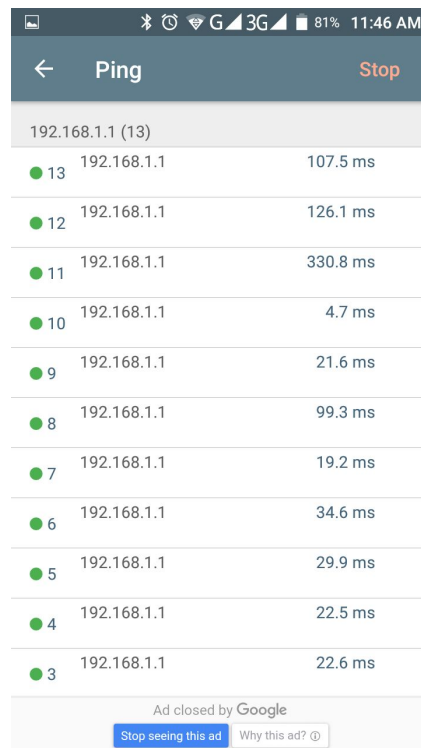
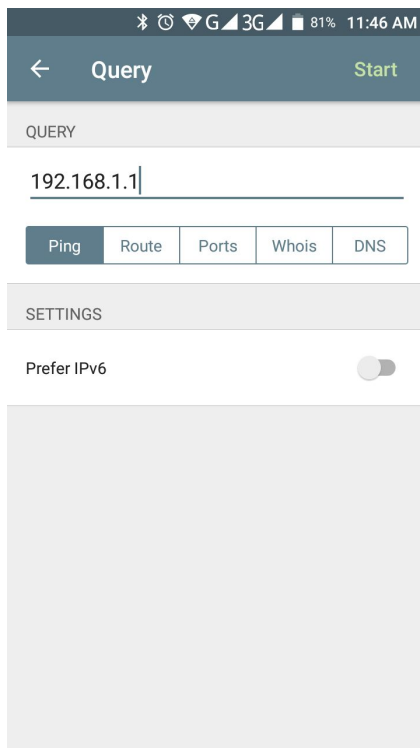
- Data passing channel.



- Lan scan using Net Analyzer.

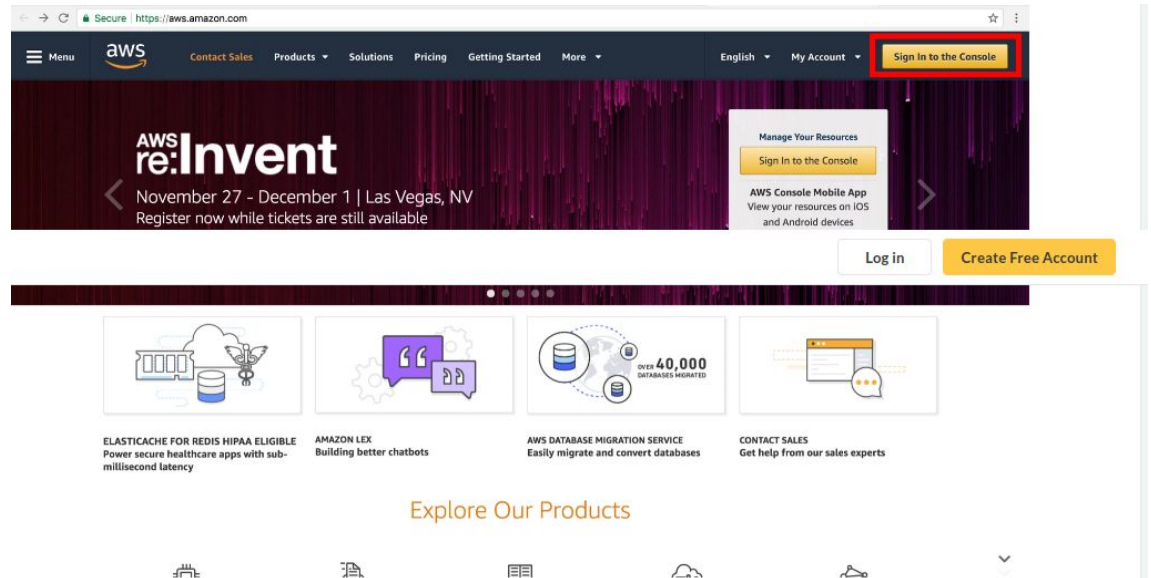


- Query checking using Net Analyzer.

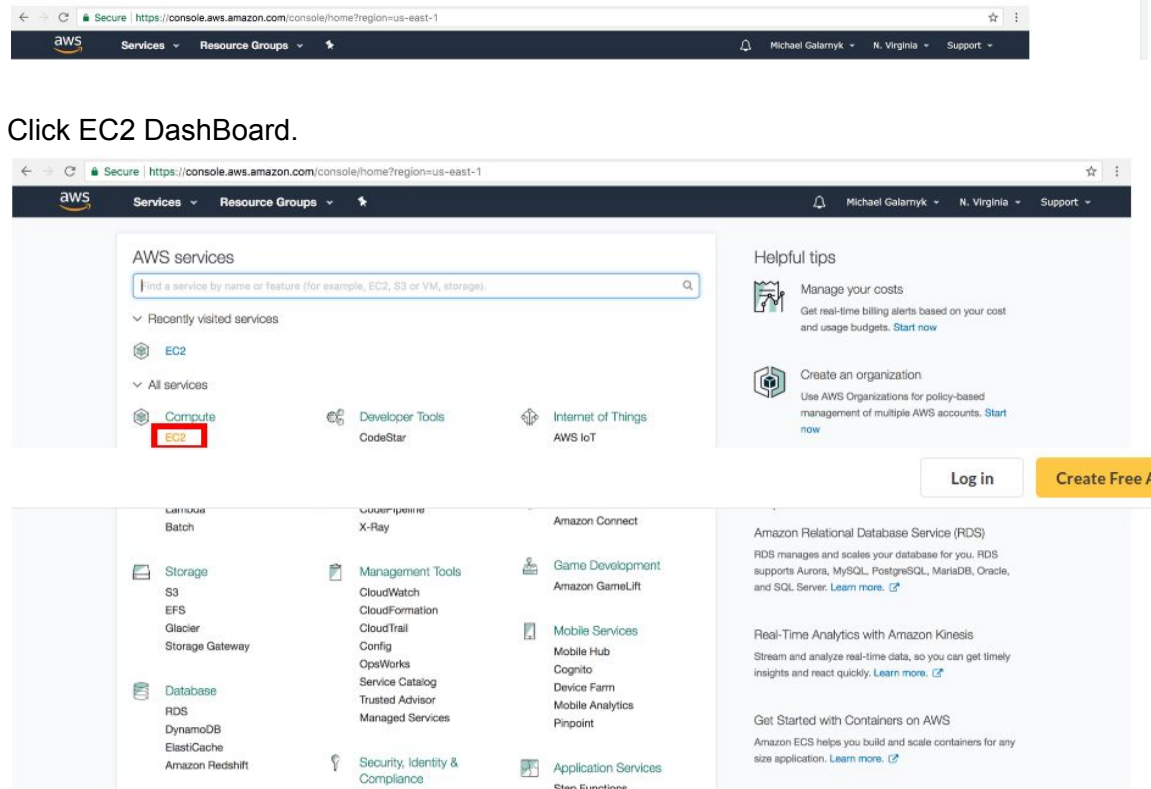


## ❖ Setup amazon EC2 cloud service for cloud computing.

- Create an AWS Account and Sign into AWS



2. On the EC2 Dashboard, click on EC2.



- Create and Instance.

The screenshot shows the AWS Management Console interface. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information. The left sidebar lists various services like EC2 Dashboard, Events, and Tags. The main content area displays a 'Launch Instance' button, which is highlighted with a red rectangular box. Below the button, there is a search bar and a 'Log in' button. The footer contains feedback links, language settings, and copyright information.

The screenshot shows the 'Step 1: Choose an Amazon Machine Image (AMI)' screen of the AWS Launch Instance Wizard. The URL in the browser address bar is <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>. The page includes a progress bar with steps: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. The main content area lists several AMIs from the AWS Marketplace and Community AMIs. The 'Microsoft Windows Server 2016 Base' AMI is highlighted with a red rectangular box. The footer contains feedback links, language settings, and copyright information.

AMI Name	AMI ID	Architecture	Root Device Type	Virtualization Type	ENA Enabled	Action
Amazon Linux	ami-999b6b2	64-bit	efs	hvm	Yes	Select
Red Hat Enterprise Linux 7.4 (HVM), SSD Volume Type	ami-c998b6b2	64-bit	efs	hvm	Yes	Select
SUSE Linux Enterprise Server 12 SP3 (HVM), SSD Volume Type	ami-3943f043	64-bit	efs	hvm	Yes	Select
Ubuntu Server 16.04 LTS (HVM), SSD Volume Type	ami-da05a4a0	64-bit	efs	hvm	Yes	Select
Microsoft Windows Server 2016 Base	ami-e3bb7399	64-bit	efs	hvm	Yes	Select



Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>

Services Resource Groups

Michael Galarmyk 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 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.xlarge	4	16	EBS only	-	Moderate	Yes
<input 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

Log in Create Free Account

Cancel Previous Review and Launch Next: Configure Instance Details

Feedback English (US) © 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>

Services Resource Groups

Michael Galarmyk 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 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

Log in Create Free Account

	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
<input type="checkbox"/>	General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input 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

Cancel Previous Review and Launch Next: Configure Instance Details

Feedback English (US) © 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Secure https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

Services Resource Groups

Michael Galarayk 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

[Log in](#) [Create Free Account](#)

**Improve your instances' security.** Your security group, launch-wizard-4, 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](#)

**Microsoft Windows Server 2016 Base - ami-e3bb7399**

Free tier eligible Microsoft Windows 2016 Datacenter edition. [English]  
Root Device Type: ebs Virtualization type: hvm

If you plan to use this AMI for an application that benefits from Microsoft License Mobility, fill out the [License Mobility Form](#). Don't show me this again

**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 2017-11-09T12:13:45.100-08:00

[Cancel](#) [Previous](#) [Launch](#)

Feedback English (US) © 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Secure https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

Services Resource Groups

Michael Galarayk 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

**Microsoft Windows Server 2016 Base - ami-e3bb7399**

[Log in](#) [Create Free Account](#)

**Instance Type** [Edit instance type](#)

Instance Type	ECUs	vCPUs
t2.micro	Variable	1

**Security Groups** [Edit security groups](#)

Security group name: launch-wizard-4  
Description: launch-wizard-4 created 2017-11-09T12:13:45.100-08:00

Type: RDP Protocol: TCP

**Instance Details** [Edit instance details](#)

**Storage** [Edit storage](#)

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: DataCampTutorial

[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](#)

Feedback English (US) © 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>

Services Resource Groups

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

Microsoft Windows Server 2016 Base - ami-e3bb7399  
Microsoft Windows 2016 Datacenter edition. [English]

Free tier eligible Root Device Type: ebs Visualization type: hvm

Log in Create Free Account

Instance Type	ECUs	vCPUs
t2.micro	Variable	1

Security Groups

Security group name: launch-wizard-4  
Description: launch-wizard-4 ch

Type: RDP Protocol: TCP

Instance Details

Storage

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: DataCampTutorial

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

Network Performance: Low to Moderate

Edit security groups

Description: 1

Edit instance details

Edit storage

Cancel Previous Launch

Feedback English (US) © 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>

Log in Create Free Account

### Launch Status

✓ Your instances are now launching  
The following instance launches have been initiated: **i-0029f691b76a7c52f** 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

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

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)

Feedback English (US) © 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#instances:search=i-0029f691bf6a7c52f;sort=instanceid>

aws Services Resource Groups

Michael Galamyk N. Virginia Support

EC2 Dashboard

Launch Instance Connect Actions

search: i-0029f691bf6a7c52f Add filter

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
	i-0029f691bf6a7c52f	t2.micro	us-east-1a	running	2/2 checks ...	None	ec2-52-91-34-110.com...	52.91.34.110

Log in Create Free Account

ELASTIC BLOCK STORE  
Volumes  
Snapshots

NETWORK & SECURITY  
Security Groups  
Elastic IPs  
Placement Groups  
Key Pairs  
Network Interfaces

Instance: i-0029f691bf6a7c52f Public DNS: ec2-52-91-34-110.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID i-0029f691bf6a7c52f Public DNS (IPv4) ec2-52-91-34-110.compute-1.amazonaws.com  
Instance state running IPv4 Public IP 52.91.34.110  
Instance type t2.micro IPv6 IPs -  
Private DNS in-179-91-80-98.us-east-1b.amazonaws.com

Feedback English (US) © 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use

Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#instances:search=i-0029f691bf6a7c52f;sort=instanceid>

aws Services Resource Groups

Michael Galamyk N. Virginia Support

EC2 Dashboard

Launch Instance Connect Actions

search: i-0029f691bf6a7c52f Add filter

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
	i-0029f691bf6a7c52f	t2.micro	us-east-1a	running	2/2 checks ...	None	ec2-52-91-34-110.com...	52.91.34.110

Log in Create Free Account

ELASTIC BLOCK STORE  
Volumes  
Snapshots

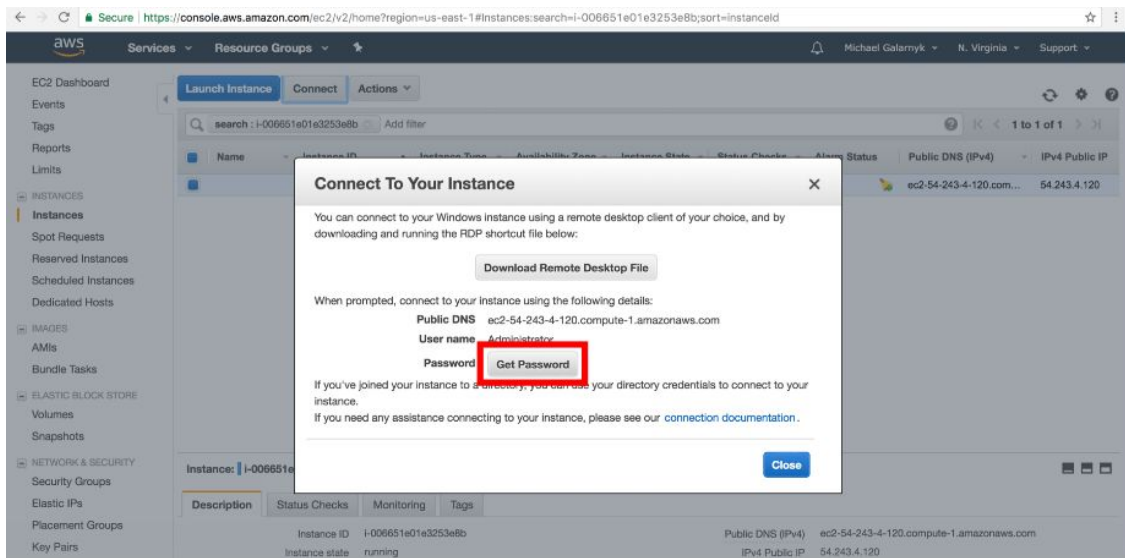
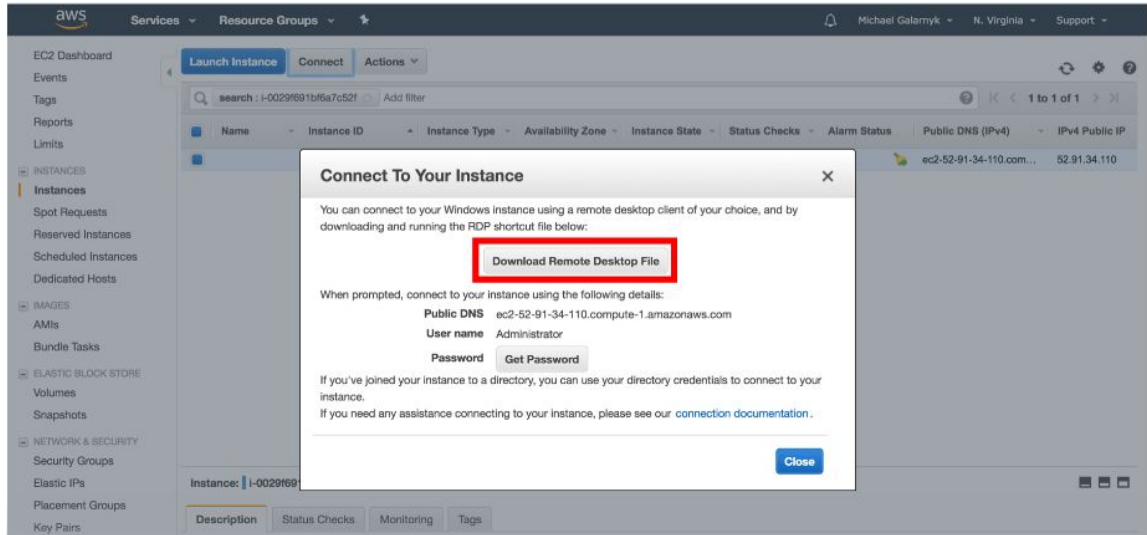
NETWORK & SECURITY  
Security Groups  
Elastic IPs  
Placement Groups  
Key Pairs  
Network Interfaces

Instance: i-0029f691bf6a7c52f Public DNS: ec2-52-91-34-110.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID i-0029f691bf6a7c52f Public DNS (IPv4) ec2-52-91-34-110.compute-1.amazonaws.com  
Instance state running IPv4 Public IP 52.91.34.110  
Instance type t2.micro IPv6 IPs -  
Private DNS in-179-91-80-98.us-east-1b.amazonaws.com

Feedback English (US) © 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use



aws Services Resource Groups

EC2 Dashboard

Launch Instance Connect Actions

search: i-0029f691bf6a7c52f Add filter

Name Instance ID Instance Type Availability Zone Instance State Status Checks Alarm Status Public DNS (IPv4) IPv4 Public IP

ec2-54-175-183-69.co... 54.175.183.69

### Connect To Your Instance > Get Password

The following Key Pair was associated with this instance when it was created.

**Key Name** DataCampTutorial.pem

In order to retrieve your password you will need to specify the path of this Key Pair on your local machine:

**Key Pair Path** choose file DataCampTutorial.pem

Or you can copy and paste the contents of the Key Pair below:

```
-----BEGIN RSA PRIVATE KEY-----
MIIEpAIBAAKCAQEAQhABDeWxgDLVf+Kepz46KiEIT3hEx/1dfwCMHKBcJiULHY7T/ZWcwjrv3
yoPoQAv7AJWID0BVW212hKv5NLHWe4UitKEsgrdJ2+pDQ5IDHOfGvmzVcpUFTIFub2OKIVT/
/KhyutD5BhoYcDmGF5EQKc9AAQM+/+V8oJZyeSiDyitdRSvr9AfgFRbkzbxFog5nSajaAA5BH5
vdQ6ZNHfyUmCPKINnoE05hxsUG2OieTF2iEtSEJQTM5XikZ7xFlbh/XSVVQ8EQ/kosaiDEBy
-----
```

**Decrypt Password**

Back Close

Instance: i-0029f691bf6a7c52f Public DNS: ec2-54-175-183-69.compute-1.amazonaws.com

aws Services Resource Groups

EC2 Dashboard

Launch Instance Connect Actions

search: i-0029f691bf6a7c52f Add filter

Name Instance ID Instance Type Availability Zone Instance State Status Checks Alarm Status Public DNS (IPv4) IPv4 Public IP

ec2-54-175-183-69.co... 54.175.183.69

### Connect To Your Instance

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

**Download Remote Desktop File**

When prompted, connect to your instance using the following details:

**Public DNS** ec2-54-175-183-69.compute-1.amazonaws.com

**User name** Administrator

**Password** C=45Z3&&G/DI&YSa@7tDu9okinFVF5vm

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.

If you need any assistance connecting to your instance, please see our [connection documentation](#).

Close

Instance: i-0029f691bf6a7c52f Public DNS: ec2-54-175-183-69.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID i-0029f691bf6a7c52f Public DNS (IPv4) ec2-54-175-183-69.compute-1.amazonaws.com

Feedback English (US)

© 2008 - 2017, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Policy Terms of Use





Negotiating Credentials ...