

Microsoft Azure VM



School of Computer Science,
UCD

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UCD

Outline

- Create Account
- Create VM
- Connect (ssh)
- Install Hadoop on remote VM



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https://azure.microsoft.com/en-us/free/students/

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Microsoft Azure

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Quick Start - Microsoft Azure X +

https://portal.azure.com/?Microsoft_Azure_Education_correlationId=3982e090-81a0-43d0-8f3c-000000000000

Microsoft Azure

Search resources, services, and docs

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Home

Dashboard

All services

FAVORITES

All resources

Resource groups

App Services

Function Apps

SQL databases

Azure Cosmos DB

Virtual machines

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

Cost Management + Billing

Help + support

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Courses

Software

Learning

Quick Start

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Student FAQ

WELCOME

Get started developing your projects in the cloud and choose one of the learning paths below to build your Azure skills.

Welcome to Microsoft Azure

Let's show you around before you get started.

Start tour

Maybe later

Visual Studio Code

Visual Studio Community 2017

SQL Server 2017 Developer Edit...

Machine Learning Server

VIEW ALL

START LEARNING

Tour Azure services and featur...

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Microsoft Azure Search resources, services, and docs

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The next time you sign in, the default view will be Home. You can always change this in the [settings](#).

Azure services See all (+100) >

 Virtual machines  Storage accounts  App Services  SQL databases  Azure Database for PostgreSQL  Azure Cosmos DB  Kubernetes services  Function Apps  Azure Databricks  Cognitive Services

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NAME	TYPE	LAST VIEWED
 Azure for Students	Subscription	Sun 12:50 PM

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New - Microsoft Azure

https://portal.azure.com/#create/hub

Microsoft Azure

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Create a resource

Home > New

New

hadoop

HDInsight Hadoop Monitoring

Hadoop Certified by Bitnami

Recently created

Compute	Ubuntu Server 18.04 VM Learn more
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Blockchain	

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Everything - Microsoft Azure

https://portal.azure.com/#blade/Microsoft_Azure_Marketplace/GalleryFeaturedMenuBlade/Category/Everything

Microsoft Azure

Create a resource

Home

Dashboard

All services

Favorites

All resources

Resource groups

App Services

Function Apps

SQL databases

Azure Cosmos DB

Virtual machines

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

Cost Management + Billing

Help + support

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Marketplace

Everything

My Saved List 0

Compute

Networking

Storage

Web

Mobile

Containers

Databases

Analytics

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Security

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Developer Tools

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Search: hadoop

Pricing: All

Operating System: All

Publisher: All

Item	Publisher	Type
Dataiku DSS on HDInsight	Dataiku	Compute
Fluent Container Image	Bitnami	Containers
AtScale Intelligence Platform	AtScale	Compute
KAVE Analytics Platform DISCONTINUED	KAVE	Compute
MapR Converged Data Platform v5.2.2 BYOL	MapR Technologies, Inc	Compute
CDAP 4.2 for HDInsight	Cask	Compute
Ubuntu Server 18.04 LTS	Canonical	Compute
StreamSets Data Collector for HDInsight	StreamSets	Compute
MapR Converged Data Platform v6 BYOL	MapR Technologies, Inc	Compute
HFactory Tools (Sandbox)	Ubeeko	Compute
Cloudbreak for Hortonworks Data Platform	Hortonworks	Compute
Ubuntu Server 16.04 LTS	Canonical	Compute
Spark Job Server for KNIME Spark Executor	KNIME	Compute
Dataiku DSS (5.0.3)	Dataiku	Compute

https://portal.azure.com/#

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Ubuntu Server 18.04 LTS - Microsoft Azure

https://portal.azure.com/#blade/Microsoft_Azure_Marketplace/GalleryFeaturedMenuBlade

Search resources, services, and docs

Microsoft Azure

Create a resource

Home

Dashboard

All services

FAVORITES

All resources

Resource groups

App Services

Function Apps

SQL databases

Azure Cosmos DB

Virtual machines

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

Cost Management + Billing

Help + support

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Operating System

Publisher

All

All

Canonical

Ubuntu Server 18.04 LTS

Canonical

Ubuntu Server 18.04 LTS amd64 Public Azure, Azure Germany, Azure China. Ubuntu Server is the world's most popular Linux for cloud environments. Updates and patches for Ubuntu 18.04 will be available until April 2023. Ubuntu Server is the perfect virtual machine (VM) platform for all workloads from web applications to NoSQL databases and Hadoop. For more information see [Ubuntu on Azure](#) and [using Juju to deploy your workloads](#).

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PUBLISHER

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USEFUL LINKS

Linux VM Documentation
Ubuntu Documentation
FAQ
Pricing Details

Select a deployment model

Classic

Create

Recommended: Use Password (unless you're familiar with public/private keys)

Basics

Name: vm1

User name: anthony

Authentication type: **Password**

SSH public key: R+W3+tA4BTMWW+qRl0vgDEvTDbjY2br...
tQ+1EbovG6jn1zUBw+Q+B2iYYBH+yvUGR
Q2xmlIGCm6mA3 anthony@MacBook-

Subscription: Azure for Students

Resource group: (New) anthonyRG

Location: West Europe

Next

to generate a key on **Windows**: <https://docs.joyent.com/public-cloud/getting-started/ssh-keys/generating-an-ssh-key-manually/manually-generating-your-ssh-key-in-windows>

Lab 3 has the info necessary for **Mac OS/Linux** (you need to get the public key)



Choose your virtual machine size

https://portal.azure.com/#create/Canonical.UbuntuServer1804LTS

Microsoft Azure

Create a resource

Home

Dashboard

All services

Favorites

All resources

Resource groups

App Services

Function Apps

SQL databases

Azure Cosmos DB

Virtual machines

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

Cost Management + Billing

Help + support

Search resources, services, and docs

Search

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Create virtual machine

1 Basics Done

2 Size Choose virtual machine size

3 Settings Configure optional features

4 Summary Ubuntu Server 18.04 LTS

Choose your virtual machine size

Browse the available virtual machine sizes and their features

Prices presented below are estimates in your local currency that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Recommended sizes are determined by the publisher of the selected image based on hardware and software requirements.

★ Recommended | View all

D2S_V3 Standard	D4S_V3 Standard	D8S_V3 Standard
2 Cores	4 Cores	8 Cores
8 GiB	16 GiB	32 GiB
4 Data disks	8 Data disks	16 Data disks
3200 Max IOPS	6400 Max IOPS	12800 Max IOPS
16 GB Local SSD	32 GB Local SSD	64 GB Local SSD
Premium disk support	Premium disk support	Premium disk support
Load balancing	Load balancing	Load balancing
75.29 EUR/MONTH (ESTIMATED)	150.58 EUR/MONTH (ESTIMATED)	301.16 EUR/MONTH (ESTIMATED)

D16S_V3 Standard	E2S_V3 Standard	E4S_V3 Standard
16 Cores	2 Cores	4 Cores
64 GiB	16 GiB	32 GiB
32 Data disks	4 Data disks	8 Data disks
25600 Max IOPS	3200 Max IOPS	6400 Max IOPS
128 GB	32 GB	64 GB

Select



Settings - Microsoft Azure

https://portal.azure.com/#create/Canonical.UbuntuServer1804LTS

Microsoft Azure

Create a resource

Home

Dashboard

All services

FAVORITES

All resources

Resource groups

App Services

Function Apps

SQL databases

Azure Cosmos DB

Virtual machines

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

Cost Management + Billing

Help + support

DUBLIN

Search resources, services, and docs

Home > New > Marketplace > Everything > Ubuntu Server 18.04 LTS > Create virtual machine > Settings

Create virtual machine

1 Basics Done ✓

2 Size Standard D2s v3 ✓

3 Settings Configure optional features >

4 Summary Ubuntu Server 18.04 LTS

Settings

Storage

Disk type **Premium (SSD)**

* Storage account (new) anthonyrg4402

Network

* Cloud service (domain name) (new) anthonyvm1.cloudapp.net

* Virtual network (new) anthonyRG

* Subnet default (10.0.0.0/24)

* Private IP address Dynamic

* Virtual IP address Dynamic

* Endpoints 1 endpoints configured

Extensions

Extensions

OK

The screenshot shows the Microsoft Azure portal interface for creating a virtual machine. The main navigation bar at the top includes 'Settings - Microsoft Azure', the URL 'https://portal.azure.com/#create/Canonical.UbuntuServer1804LTS', and a search bar. On the left, there's a sidebar with various service icons and a 'DUBLIN' logo at the bottom. The main content area shows a 'Create virtual machine' wizard with four steps: 1. Basics (Done), 2. Size (Standard D2s v3), 3. Settings (Configure optional features, highlighted with a red box), and 4. Summary (Ubuntu Server 18.04 LTS). The 'Settings' step is expanded, showing options for storage (Disk type: Premium (SSD)), network (Cloud service: anthonyvm1.cloudapp.net, Virtual network: anthonyRG, Subnet: default (10.0.0.0/24), Private IP address: Dynamic), and endpoints (1 endpoint configured). An 'OK' button is at the bottom of the settings panel.

Microsoft Azure

anthonyvm1 - Microsoft Azure

https://portal.azure.com/#@ucd.ie/resource/subscriptions/f9d93b3a-d1a4-4fa5-984c-f1f34344e53c/resources

Search resources, services, and docs

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Create a resource

Home

Dashboard

All services

FAVORITES

All resources

Resource groups

App Services

Function Apps

SQL databases

Azure Cosmos DB

Virtual machines

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

Cost Management + Billing

Help + support

DUBLIN

All resources

University College Dublin

Add Edit columns More

Filter by name...

NAME ↑

anthonRG

anthonrg4402

anthonyvm1

anthonyvm1

Cloud service (classic)

Overview

Activity log

Access control (IAM)

Diagnose and solve problems

Operation log (classic)

Certificates

Roles and Instances

Scale

Properties

Locks

Monitoring

Metrics

Alerts (classic)

Support + troubleshooting

New support request

Stop Move Delete Refresh

Running (1 instance: 1 Unknown)

Resource group (change) anthonyRG

Status Running

Location West Europe

Subscription Azure for Students

Subscription ID f9d93b3a-d1a4-4fa5-984c-f1f34344e53c

Site URL <http://anthonyvm1.cloudapp.net/>

Public IP addresses 23.100.6.138

Deployment name anthonyvm1

Deployment label anthonyvm1

Deployment ID 81833cb478374e56b5cae5b30190194f

Search to filter items...

NAME	STATUS	SIZE	UPDATE	FAULT
vm1	Unknown	Standard_D... 0	0	0

Show data for last 1 hour 6 hours 12 hours 1 day 7 days

CPU percentage

100%

80%

60%

40%



anthony — anthony@vm1: ~ — ssh anthony@23.100.6.138 — 79x29

MacBook-Pro-5:~ anthony\$ ssh anthony@23.100.6.138

[Enter passphrase for key '/Users/anthony/.ssh/id_rsa':

Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-1036-azure x86_64)

- * Documentation: <https://help.ubuntu.com>
- * Management: <https://landscape.canonical.com>
- * Support: <https://ubuntu.com/advantage>

System information as of Sun Feb 3 20:39:52 UTC 2019

System load:	0.44	Processes:	121
Usage of /:	4.1% of 28.90GB	Users logged in:	0
Memory usage:	3%	IP address for eth0:	10.0.0.4
Swap usage:	0%		

Get cloud support with Ubuntu Advantage Cloud Guest:

<http://www.ubuntu.com/business/services/cloud>

0 packages can be updated.

0 updates are security updates.

Last login: Sun Feb 3 20:39:35 2019 from 89.100.150.232

To run a command as administrator (user "root"), use "sudo <command>".

See "man sudo_root" for details.

anthony@vm1:~\$



Back in a Terminal

- sudo apt-get update
- sudo apt-get install default-jdk
- wget
<http://ftp.heanet.ie/mirrors/www.apache.org/dist/hadoop/common/hadoop-2.9.2/hadoop-2.9.2.tar.gz>
- sudo mv hadoop-2.9.2 /usr/local/hadoop
- authentication:
 - ssh-keygen -t rsa -P ""
 - cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
 - test: ssh localhost





anthony — anthony@vm1: ~ — ssh anthony@23.100.6.138 — 79x29

<http://www.ubuntu.com/business/services/cloud>

26 packages can be updated.

5 updates are security updates.

Last login: Sun Feb 3 20:39:53 2019 from 89.100.150.232

[anthony@vm1:~\$ history

1 exit
2 history

[anthony@vm1:~\$ exit

logout

Connection to localhost closed.

[anthony@vm1:~\$ history

1 exit
2 sudo apt-get update
3 sudo apt-get install default-jdk
4 wget http://ftp.heanet.ie/mirrors/www.apache.org/dist/hadoop/common/hadoo
p-2.9.2/hadoop-2.9.2.tar.gz
5 ~~sudo mv hadoop-2.9.2 /usr/local/hadoop~~
6 ~~ls~~
7 tar xzvf hadoop-2.9.2.tar.gz
8 sudo mv hadoop-2.9.2 /usr/local/hadoop
9 ~~ls~~
10 ssh-keygen -t rsa -P ""
11 cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
12 ssh localhost
13 ~~history~~

anthony@vm1:~\$



Back in a Terminal (2)

- Now follow exactly Lab 5 Section 2



Endpoints - Microsoft Azure

https://portal.azure.com/#@ucd.ie/resource/subscriptions/f9d93b3a-d1a4-4fa5-984c-000000000000/resourceGroups/UniversityCollegeDublin/providers/Microsoft.Compute/virtualMachines/vm1/endpoints

Microsoft Azure

Dashboard > All resources > vm1 - Endpoints

All resources

University College Dublin

Add Edit columns More

Filter by name...

NAME

- anthonRG
- anthonrg4402
- anthonvml
- vm1

Overview

Activity log

Access control (IAM)

Diagnose and solve problems

Settings

Availability set

Disk

Security

Endpoints

Extensions

IP addresses

Load balanced sets

Migrate to ARM

Network security group

Size

Backup

Properties

Locks

Monitoring

Diagnostics

vm1 - Endpoints

Virtual machine (classic)

+ Add

Search endpoints

NAME	PROTOCOL	PUBLIC PORT	PRIVATE PORT	ACL RULES	...
LOAD-BALANCED					
No results					
STANDALONE					
HDFS	TCP	50070	50070	0	...
HServer	TCP	19888	19888	0	...
SSH	TCP	22	22	0	...
YARN	TCP	8088	8088	0	...

vm1 - Microsoft Azure

https://portal.azure.com/#@ucd.ie/resource/subscriptions/f9d93b3a-d1a4-4fa5-984c-f1f34344e53c

Microsoft Azure

Dashboard > All resources > vm1

vm1

Virtual machine (classic)

Search (Ctrl+/)

Connect Start Restart Stop Capture Reset Remote Access Move Delete

Resource group (change) : anthonyRG

Status : Running

Location : West Europe

Subscription (change) : Azure for Students

Subscription ID : f9d93b3a-d1a4-4fa5-984c-f1f34344e53c

DNS name : anthonyvm1.cloudapp.net

Operating system : Linux

Size : Standard D2s_v3 (2 Cores, 8 GiB memory)

Virtual IP address : 23.100.6.138

Virtual network/subnet : anthonyRG

Overview

Activity log

Access control (IAM)

Diagnose and solve problems

Settings

Availability set

Disks

Security

Endpoints

Extensions

IP addresses

Load balanced sets

Migrate to ARM

Network security group

Size

Backup

Properties

Locks

Monitoring

Diagnostics

CPU percentage last day

Percentage CPU (Avg) vm1 8.01 %

Network In and Network Out last day

Network In (Sum) vm1 945.33 MB

Network Out (Sum) vm1 167.85 GB

Disk bytes and Disk read last day

100MB/s 80MB/s 60MB/s 40MB/s

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