

Install Apache Hadoop for Development/Production using Opensource Distributions

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Agenda

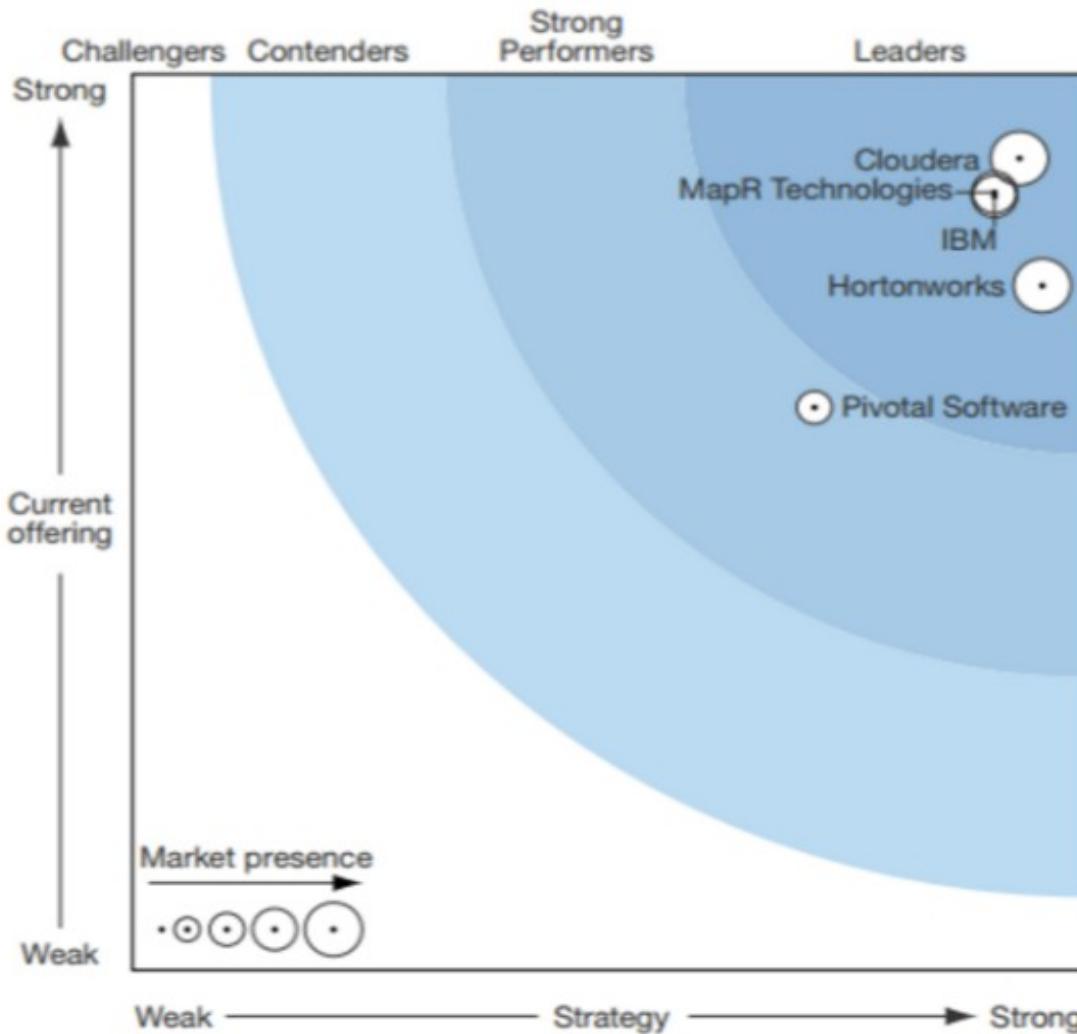
- Introduction
- Part 1: Hadoop Development Installation
 - Part 1A: Cloudera Quickstart on Cloud
 - Part 1B: Hortonworks Sandbox on Azure
- Part 2: Hadoop Production
 - Install Cloudera Express Cluster on AWS
- Part 3: Hadoop as a Service
 - Launch EMR cluster on AWS

**This hands-on lab aims to guide
a student to install Hadoop
for development using Sandbox
and for production on Clusters**

Hadoop Distribution

- On-Premise
 - Pure Apache Hadoop
 - Cloudera
 - Hortonworks
 - MapR
 - Pivotal
 - IBM Infosphere BigInsight
- On-Cloud (Hadoop as a Service)
 - Amazon EMR
 - Microsoft Azure HDInsight
 - Google Cloud Platform

The Forrester Wave: Big Data Hadoop Distributions Q1 2016



The Forrester Wave: Big Data Hadoop Cloud Q1 2016



Part 1: Hadoop Development

Hadoop Development: Sandbox

- Recommended
 - Cloudera Quickstart
 - Hortonworks Sandbox
- On PC/Mac
 - Require to install VMWare Player or VirtualBox
- On Linux Virtual Server
 - Need to install Docker Engine
 - Microsoft Azure has a Hortonworks Sandbox Image which can easily launched.

<http://hortonworks.com/downloads/#sandbox>

SANDBOX DATAFLOW DATA PLATFORM TECH PREVIEW

Hortonworks Sandbox

Hortonworks Sandbox on a VM

HDP® 2.5 on Hortonworks Sandbox

[Tutorials](#) | [Release Notes](#) | [Import on Virtual Box](#) | MD5 : b08f1dce17ab3ae2431532be74bdbbbb

[DOWNLOAD FOR VIRTUALBOX](#)

[Tutorials](#) | [Release Notes](#) | [Import on VMware](#) | MD5 : fe1e91bc26e6879fdc6dde6e3778c262

[DOWNLOAD FOR VMWARE](#)

[Tutorials](#) | [Release Notes](#) | [Import on Docker](#) | MD5 : 2a710f236135e620ec8488a1229af07e

[DOWNLOAD FOR DOCKER](#)

Hortonworks Sandbox in the Cloud

HDP 2.4 on Azure with Hortonworks Sandbox

[Tutorial: Sandbox on Azure](#) | Try it one month for free

[ONE MONTH TRIAL](#)

<http://www.cloudera.com/downloads.html>

QuickStart Downloads for CDH 5.8

Virtualized clusters for easy installation on your desktop!

Cloudera QuickStart for Docker (multi-node cluster) and Cloudera QuickStart VM (single-node cluster) make it easy to quickly get hands-on with CDH for testing, demo, and self-learning purposes, and include Cloudera Manager for managing your cluster. Cloudera QuickStart VM also includes a tutorial, sample data, and scripts for getting started. Cloudera QuickStart is not intended or supported for use in production.

Get Started

QUICKSTART DOWNLOADS FOR CDH 5.8 ▾

SELECT A PLATFORM ▾

Docker Image

KVM

Virtual Box

VMWare

Part 1A: Install Cloudera Quickstart on Cloud Virtual Server

Hands-On Launch a virtual server (EC2) on Amazon Web Services

(Note: You can skip this session if you use your own computer or another cloud service)

Amazon Web Services

Compute

 **EC2**
Virtual Servers in the Cloud

 **Lambda** PREVIEW
Run Code in Response to Events

Storage & Content Delivery

 **S3**
Scalable Storage in the Cloud

 **Storage Gateway**
Integrates On-Premises IT Environments with Cloud Storage

 **Glacier**
Archive Storage in the Cloud

 **CloudFront**
Global Content Delivery Network

Database

 **RDS**
MySQL, Postgres, Oracle, SQL Server, and Amazon Aurora

 **DynamoDB**
Predictable and Scalable NoSQL Data Store

 **ElastiCache**
In-Memory Cache

 **Redshift**
Managed Petabyte-Scale Data Warehouse Service

Administration & Security

 **Directory Service**
Managed Directories in the Cloud

 **Identity & Access Management**
Access Control and Key Management

 **Trusted Advisor**
AWS Cloud Optimization Expert

 **CloudTrail**
User Activity and Change Tracking

 **Config**
Resource Configurations and Inventory

 **CloudWatch**
Resource and Application Monitoring

Deployment & Management

 **Elastic Beanstalk**
AWS Application Container

 **OpsWorks**
DevOps Application Management Service

 **CloudFormation**
Templated AWS Resource Creation

 **CodeDeploy**
Automated Deployments

Analytics

 **EMR**
Managed Hadoop Framework

Application Services

 **SQS**
Message Queue Service

 **SWF**
Workflow Service for Coordinating Application Components

 **AppStream**
Low Latency Application Streaming

 **Elastic Transcoder**
Easy-to-use Scalable Media Transcoding

 **SES**
Email Sending Service

 **CloudSearch**
Managed Search Service

Mobile Services

 **Cognito**
User Identity and App Data Synchronization

 **Mobile Analytics**
Understand App Usage Data at Scale

 **SNS**
Push Notification Service

Enterprise Applications

 **WorkSpaces**
Desktops in the Cloud

 **WorkDocs**
Secure Enterprise Storage and Sharing

Resource Groups

A resource group is a collection of resources that share one or more tags. Create a group for each project, application, or environment in your account.

[Create a Group](#)

[Tag Editor](#)

Additional Resources

Getting Started

See our documentation to get started and learn more about how to use our services.

AWS Console Mobile App

View your resources on the go with our AWS Console mobile app, available from [Amazon Appstore](#), [Google Play](#), or [iTunes](#).

AWS Marketplace

Find and buy software, launch with 1-Click and pay by the hour.

Service Health

Amazon Web Services

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Service Health

Virtual Server

This lab will use a EC2 virtual server to install a Cloudera Cluster using the following features:

Ubuntu Server 14.04 LTS

One m3.xLarge 4vCPU, 15 GB memory, 80 GB SSD

Security group: default

Keypair: imchadoop

Select a EC2 service and click on Launch Instance

AWS | Services | Edit | IMC Institute | Oregon | Support

EC2 Dashboard

- Events
- Tags
- Reports
- Limits

INSTANCES

- Instances
- Spot Requests
- Reserved Instances

IMAGES

- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE

- Volumes
- Snapshots

NETWORK & SECURITY

- Security Groups
- Elastic IPs
- Placement Groups

Resources

You are using the following Amazon EC2 resources in the US West (Oregon) region:

0 Running Instances	0 Elastic IPs
1 Volumes	1 Snapshots
8 Key Pairs	0 Load Balancers
0 Placement Groups	11 Security Groups

Easily deploy Ruby, PHP, Java, .NET, Python, Node.js & Docker applications with [Elastic Beanstalk](#).

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 West (Oregon) region

Service Health

Scheduled Events

Service Status: US West (Oregon):

Feedback



Select an Amazon Machine Image (AMI) and Ubuntu Server 14.04 LTS (PV)

AWS Services Edit IMC Institute Oregon Support

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

Step 1: Choose an Amazon Machine Image (AMI)

Amazon Linux AMI 2014.09.2 (PV) - ami-9fc29baf

Amazon Linux Free tier eligible

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

Root device type: ebs Virtualization type: paravirtual

SUSE Linux Enterprise Server 11 SP3 (PV), SSD Volume Type - ami-5df2ab6d

SUSE Linux Enterprise Server 11 Service Pack 3 (PV), EBS General Purpose (SSD) Volume Type. Amazon EC2 AMI Tools preinstalled; Apache 2.2, MySQL 5.5, PHP 5.3, and Ruby 1.8.7 available.

Root device type: ebs Virtualization type: paravirtual

Ubuntu Server 14.04 LTS (PV), SSD Volume Type - ami-23ebb513

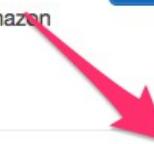
Ubuntu Server 14.04 LTS (PV), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Root device type: ebs Virtualization type: paravirtual

Cancel and Exit Select 64-bit

Select 64-bit

Select 64-bit



Choose m3.xlarge Type virtual server

Screenshot of the AWS Step 2: Choose an Instance Type configuration page.

The page shows a list of instance types categorized by usage type (Micro instances, General purpose) and size (t1.micro, t2.micro, t2.small, t2.medium, m3.medium, m3.large, m3.xlarge, m3.2xlarge). The m3.xlarge row is highlighted with a red oval.

						Available	
<input type="checkbox"/>	Micro instances	t1.micro Free tier eligible	1	0.613	EBS only	-	Very Low
<input type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	m3.medium	1	3.75	1 x 4 (SSD)	-	Moderate
<input type="checkbox"/>	General purpose	m3.large	2	7.5	1 x 32 (SSD)	-	Moderate
<input checked="" type="checkbox"/>	General purpose	m3.xlarge	4	15	2 x 40 (SSD)	Yes	High
<input type="checkbox"/>	General purpose	m3.2xlarge	8	30	2 x 80 (SSD)	Yes	High

Buttons at the bottom:

- Cancel
- Previous
- Review and Launch** (highlighted in blue)
- Next: Configure Instance Details



AWS

Services

Edit

IMC Institute

N. Virginia

Support

1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Tag Instance

6. Configure Security Group

7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances



1

Launch into Auto Scaling Group



Purchasing option

 Request Spot instances

Network



vpc-ccdf24a9 (172.31.0.0/16) (default)

[Create new VPC](#)

Subnet



No preference (default subnet in any Availability Zone)

[Create new subnet](#)

Auto-assign Public IP



Use subnet setting (Enable)



IAM role



None

[Create new IAM role](#)

Shutdown behavior



Stop



Enable termination protection

 Protect against accidental termination[Cancel](#)[Previous](#)[Review and Launch](#)[Next: Add Storage](#)

Add Storage: 80 GB

AWS Services Edit IMC Institute Oregon Support

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

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Delete on Termination	Encrypted
Root	/dev/sda1	snap-306df873	80	General Purpose S	240 / 3000	<input checked="" type="checkbox"/>	Not Encrypted
Instance Store 0	/dev/sdb	N/A	N/A	N/A	N/A	N/A	Not Encrypted 
Instance Store 1	/dev/sdc	N/A	N/A	N/A	N/A	N/A	Not Encrypted 

Add New Volume

Cancel Previous **Review and Launch** Next: Tag Instance

Name the instance

The screenshot shows the AWS EC2 instance creation process at Step 5: Tag Instance. The top navigation bar includes AWS, Services, Edit, IMC Institute, Oregon, and Support. Below the navigation is a progress bar with steps 1 through 7. Step 5, "Tag Instance," is highlighted with an orange underline. The main area contains fields for Key and Value. A single tag named "Name" with the value "Cloudera-Demo" is listed. A "Create Tag" button is available for adding more tags. At the bottom are buttons for Cancel, Previous, Review and Launch (which is blue and bold), and Next: Configure Security Group.

AWS Services Edit IMC Institute Oregon Support

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

Step 5: Tag Instance

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. [Learn more](#) about tagging your Amazon EC2 resources.

Key	(127 characters maximum)	Value	(255 characters maximum)
Name	Cloudera-Demo	X	

Create Tag (Up to 10 tags maximum)

Cancel Previous Review and Launch Next: Configure Security Group

Select Create an existing security group > Default

AWS Services Edit IMC Institute Oregon Support

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

Step 6: Configure Security Group

<input type="checkbox"/> sg-f5468393 awseb-e-yus3d2g5qk-stack-AWSEBSecurityGroup-YKZSMZVQZY90	SecurityGroup for ElasticBeanstalk environment
<input type="checkbox"/> sg-e4271581Cassandra Security	Security Group for Cassandra
<input type="checkbox"/> sg-1adbf77d cloudera-sgp	launch-wizard-35 created 2016-04-23T09:00:00Z
<input type="checkbox"/> sg-36fe2d50 cluster2-2-ClusterNodeSecurityGroup-H1QQUXYP4C2E	Allow access from web and bastion as well as
<input type="checkbox"/> sg-2f23b84b Danairat_SecureGroup	launch-wizard-5 created 2015-10-07T04:40:54Z
<input type="checkbox"/> sg-793ef81f DBServerSG	Security
<input checked="" type="checkbox"/> sg-2e1cff41 default	default VPC security group
<input type="checkbox"/> sg-46638029ElasticMapReduce-master	Master group for Elastic MapReduce

Inbound rules for sg-2e1cff41 (Selected security groups: sg-2e1cff41)

Type	Protocol	Port Range	Source
HTTP	TCP	80	0.0.0.0/0

Cancel Previous Review and Launch

Click Launch and choose imchadoop as a key pair

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

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

imchadoop

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

[Cancel](#) [Launch Instances](#)

Review an instance and rename one instance as a master / click **Connect** for an instruction to connect to the instance

The screenshot shows the AWS EC2 Instances page. The top navigation bar includes AWS, Services, Edit, IMC Institute (selected), Oregon, and Support. On the left, a sidebar lists EC2 Dashboard, Events, Tags, Reports, Limits, and sections for INSTANCES (Instances, Spot Requests, Reserved Instances, Scheduled Instances, Commands, Dedicated Hosts). The main content area displays a table of instances:

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status
Cloudera-Demo	i-783431a2	m3.xlarge	us-west-2c	running	2/
Cloudera-Demo	i-7e3431a4	m3.xlarge	us-west-2c	running	2/
Cloudera-Demo-Master	i-7f3431a5	m3.xlarge	us-west-2c	running	2/
Cloudera-Demo	i-793431a3	m3.xlarge	us-west-2c	running	2/

Below the table, it says "Instance: i-7f3431a5 (Cloudera-Demo-Master)" and "Public DNS: ec2-54-201-147-59.us-west-2.compute.amazonaws.com". The "Connect" button in the top navigation bar has a red arrow pointing to it. The "Cloudera-Demo-Master" instance is circled in red.

Connect to an instance from Mac/Linux

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 (imchadoop.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 imchadoop.pem`
4. Connect to your instance using its Public DNS:
`ec2-54-201-147-59.us-west-2.compute.amazonaws.com`

Example:

`ssh -i "imchadoop.pem" ubuntu@ec2-54-201-147-59.us-west-2.compute.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

Can also view details of the instance such as Public IP and Private IP

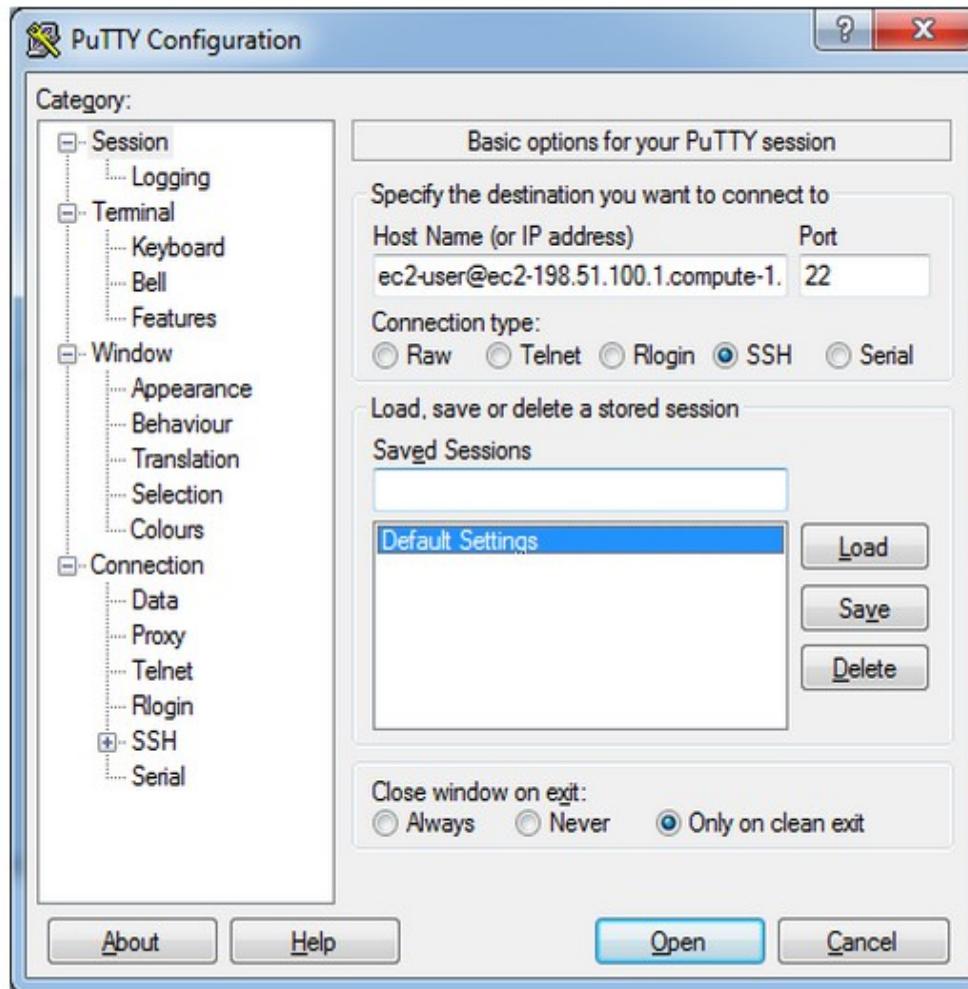
The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with navigation links like EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (with Instances selected), Spot Requests, Reserved Instances, Scheduled Instances, Commands, Dedicated Hosts, and IMAGES (with AMIs selected). The main content area has tabs for Launch Instance, Connect, and Actions. Below that is a search bar and a table with columns for Name, Instance ID, Instance Type, Availability Zone, Instance State, and Status. One row is selected for 'Cloudera-Demo-Master'. The table provides detailed information for this instance, including its state, type, DNS names, and network details. Two specific fields, 'Private IPs' (172.31.10.53) and 'Public IP' (54.201.147.59), are highlighted with red circles.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status
Cloudera-Demo-Master	i-7f3431a5	m3.xlarge	us-west-2c	running	2/2

Instance state: running
Instance type: m3.xlarge
Private DNS: ip-172-31-10-53.us-west-2.compute.internal
Public IP: 54.201.147.59
Elastic IP: -
Availability zone: us-west-2c
Security groups: default, view rules
Scheduled events: No scheduled events
AMI ID: ubuntu-trusty-14.04-amd64-server-20160114.5 (ami-)

Private IPs: 172.31.10.53
Secondary private IPs:
VPC ID: vpc-cd510ca5

Connect to an instance from Windows using Putty



Connect to the instance

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

WARNING! Your environment specifies an invalid locale.

This can affect your user experience significantly, including the ability to manage packages. You may install the locales by running:

```
sudo apt-get install language-pack-UTF-8
or
sudo locale-gen UTF-8
```

To see all available language packs, run:

```
apt-cache search "^language-pack-[a-z][a-z]$"
```

To disable this message for all users, run:

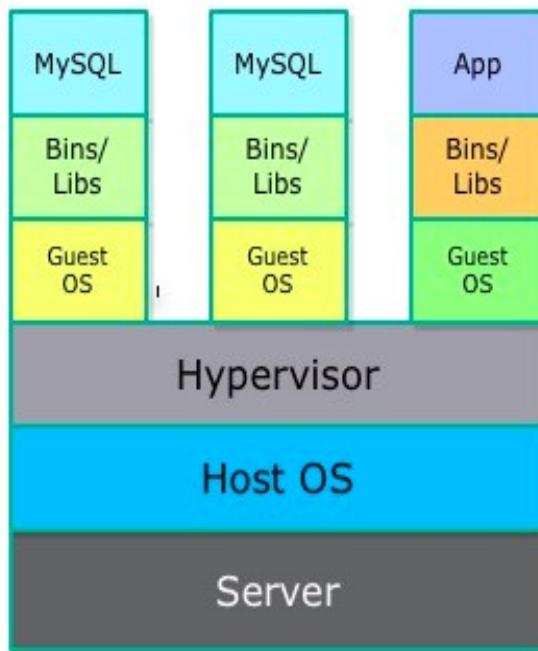
```
sudo touch /var/lib/cloud/instance/locale-check.skip
```

```
ubuntu@ip-172-31-1-242:~$
```

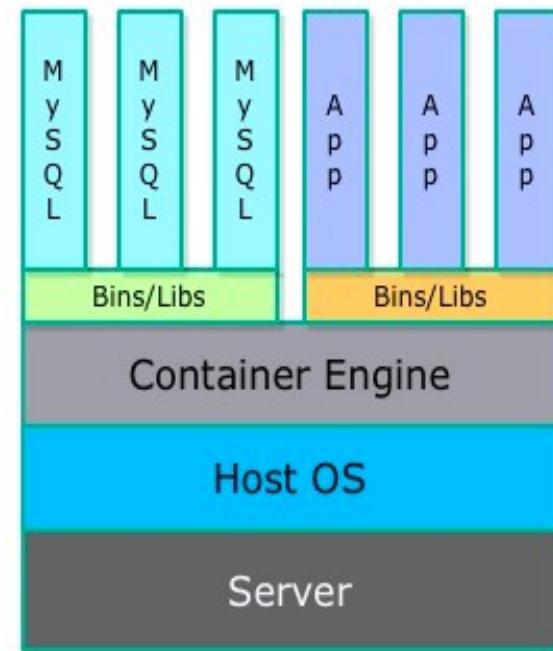
Hands-On: Install a Docker Engine

Docker v.s. Hypervisor

Virtual Machines



Containers



Update OS (Ubuntu)

- Command: sudo apt-get update

```
ubuntu@ip-172-31-30-238:~$ sudo apt-get update
Ign http://us-east-1.ec2.archive.ubuntu.com trusty InRelease
Get:1 http://us-east-1.ec2.archive.ubuntu.com trusty-updates InRelease [65.9 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com trusty-backports InRelease [65.9 kB]
Hit http://us-east-1.ec2.archive.ubuntu.com trusty Release.gpg
Hit http://us-east-1.ec2.archive.ubuntu.com trusty Release
Get:3 http://security.ubuntu.com trusty-security InRelease [65.9 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com trusty-updates/main Sources [277 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com trusty-updates/restricted Sources [535
2 B]
Get:6 http://us-east-1.ec2.archive.ubuntu.com trusty-updates/universe Sources [156 k
B]
Get:7 http://us-east-1.ec2.archive.ubuntu.com trusty-updates/multiverse Sources [593
9 B]
Get:8 http://us-east-1.ec2.archive.ubuntu.com trusty-updates/main amd64 Packages [78
1 kB]
```

Docker Installation

- Command: sudo apt-get install docker.io

```
ubuntu@ip-172-31-30-238:~$ sudo apt-get install docker.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  aufs-tools cgroup-lite git git-man liberror-perl
Suggested packages:
  btrfs-tools debootstrap lxc rinse git-daemon-run git-daemon-sysvinit git-doc
  git-el git-email git-gui gitk gitweb git-arch git-bzr git-cvs git-mediawiki
  git-svn
The following NEW packages will be installed:
  aufs-tools cgroup-lite docker.io git git-man liberror-perl
0 upgraded, 6 newly installed, 0 to remove and 84 not upgraded.
Need to get 8150 kB of archives.
After this operation, 51.4 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu/ trusty/universe aufs-tools amd
64 1:3.2+20130722-1.1 [92.3 kB]
```

Docker commands:

- *docker images*
- *docker ps*
- *docker attach id*
- *docker kill id*
- *docker commit id*
- *Exit from container*
 - *exit (exit & kill the running image)*
 - *Ctrl-P, Ctrl-Q (exit without killing the running image)*

Install Cloudera Quickstart on Docker Container

Pull Cloudera Quickstart

```
$ sudo docker pull cloudera/quickstart:latest
```

```
ubuntu@ip-172-31-30-238:~$ sudo docker pull cloudera/quickstart:latest
latest: Pulling from cloudera/quickstart
2cda82941cb7: Already exists
Digest: sha256:f91bee4cdfa2c92ea3652929a22f729d4d13fc838b00f120e630f91c941acb63
Status: Downloaded newer image for cloudera/quickstart:latest
ubuntu@ip-172-31-30-238:~$ █
```

Verify the image was successfully pulled

```
$ sudo docker images
```

```
ubuntu@ip-172-31-30-238:~$ sudo docker images
REPOSITORY          TAG      IMAGE ID      CREATED
VIRTUAL SIZE
cloudera/quickstart    latest  2cda82941cb7  9 weeks ago
6.336 GB
```

Run Cloudera quickstart

```
$ sudo docker run --hostname=quickstart.cloudera  
--privileged=true -t -i [OPTIONS] [IMAGE]  
/usr/bin/docker-quickstart
```

Example: sudo docker run
--hostname=quickstart.cloudera --privileged=true -t -i -p
8888:8888 cloudera/quickstart /usr/bin/docker-quickstart

```
ubuntu@ip-172-31-30-238:~$ sudo docker run --hostname=quickstart.cloudera --privileged=true -t -i -p 8888:8888 -p 7180:7180 cloudera/quickstart /usr/bin/docker-quickstart
Starting mysqld: [ OK ]  
  
if [ "$1" == "start" ] ; then
  if [ "${EC2}" == 'true' ] ; then
    FIRST_BOOT_FLAG=/var/lib/cloudera-quickstart/.ec2-key-installed
    if [ ! -f "${FIRST_BOOT_FLAG}" ] ; then
      METADATA_API=http://169.254.169.254/latest/meta-data
      KEY_URL=${METADATA API}/public-keys/0/openssh-key
```

Finding the EC2 instance's DNS

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To access your instance:

1. Open an SSH client. (find out how to [connect using PuTTY](#))
2. Locate your private key file (cloudera.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 cloudera.pem`
4. Connect to your instance using its Public DNS:
`ec2-54-173-154-79.compute-1.amazonaws.com`

Example:

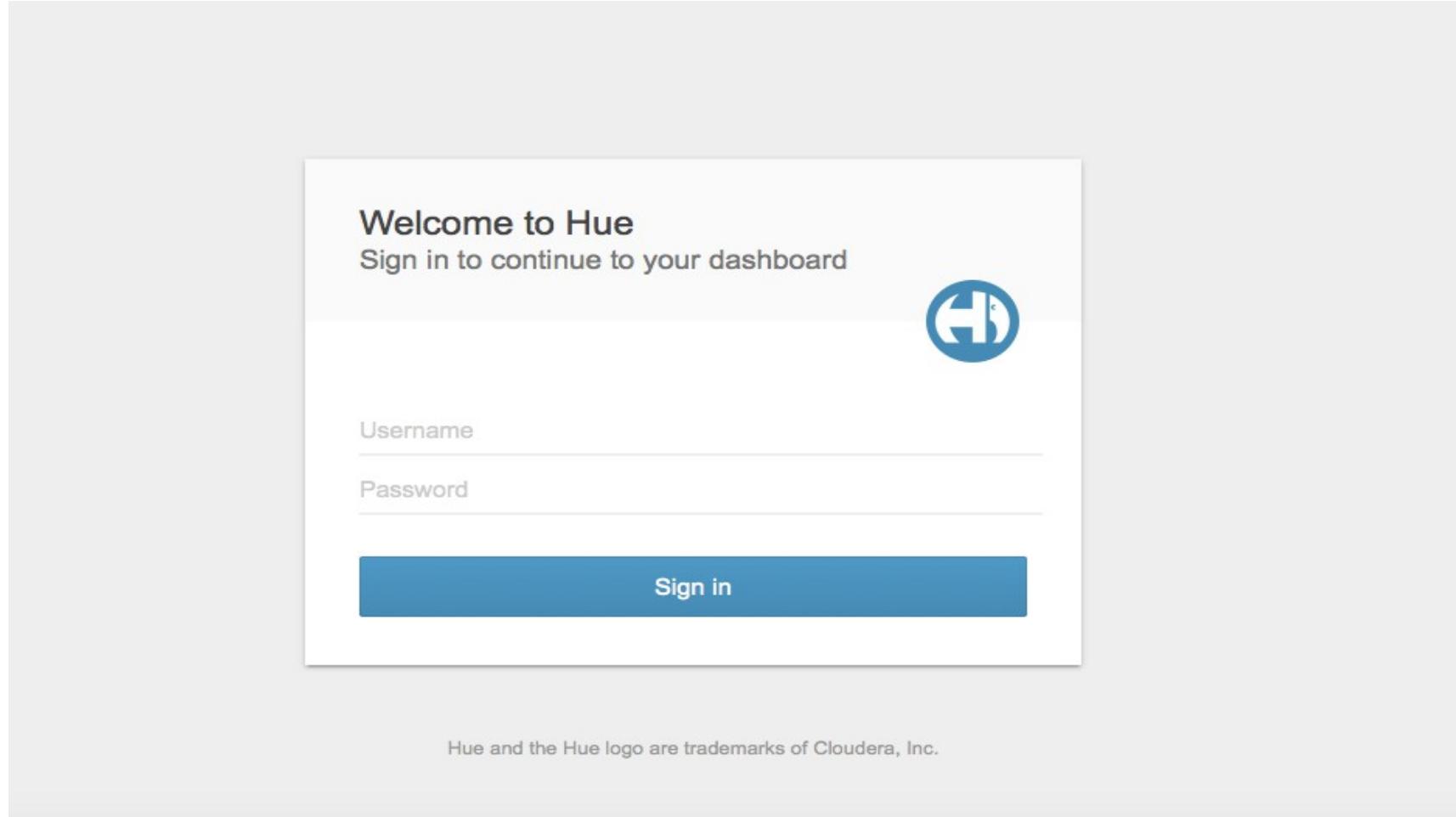
```
ssh -i "cloudera.pem" ubuntu@ec2-54-173-154-79.compute-1.amazonaws.com
```

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](#).

Login to Hue

http://ec2-54-173-154-79.compute-1.amazonaws.com:8888



Option: Launch a virtual server on Microsoft Azure for Cloudera Sandbox

**(Note: You do not need to do this if you use your
own computer or another cloud service)**

Sign up for Visual Studio Dev Essential to get free Azure credit.

Showing: Visual Studio Dev Essentials

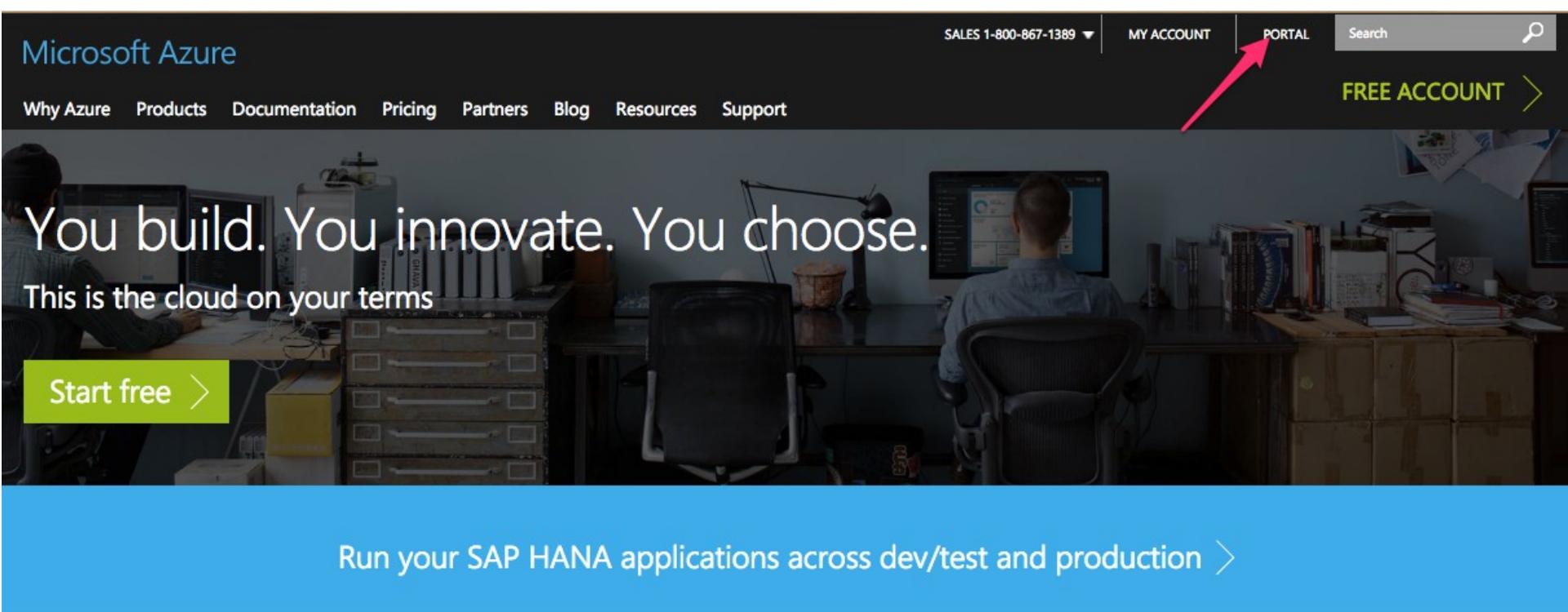
Visual Studio Dev Essentials



Featured (6)

 Visual Studio Community Full-featured, extensible IDE Free for individuals, open source or small teams. Create apps for Windows, iOS, Andro... See more	 Visual Studio Code Modern lightweight editor A powerful, streamlined code editor for your favorite platform - Linux, Mac OS X, and... Windows	 Visual Studio Team Services Basic level Free Git repos, Agile planning tools and hosted builds, for any language – it's the perfect... complement to your IDE	 Azure \$25 monthly credit for 1 year Your own personal sandbox for dev/test! VMs, cloud services, and more. Credit cannot be... applied to existing Azure	 Xamarin University Training Free on-demand access Build native iOS and Android apps in C# with expert getting-started videos (subset of class... videos and materials)	 Pluralsight 3-month subscription World-class training taught by an elite group of industry leaders.
Download 	Download 	Get started 	Activate 	Get Code 	Get Code 

Sign in to Azure Portal



The screenshot shows the Microsoft Azure homepage. At the top, there's a dark header bar with the "Microsoft Azure" logo on the left, a "SALES 1-800-867-1389" link, and "MY ACCOUNT" and "PORTAL" buttons. A red arrow points from the bottom right towards the "PORTAL" button. On the right side of the header, there's a "Search" bar and a "FREE ACCOUNT" link. Below the header is a large banner with the text "You build. You innovate. You choose." and "This is the cloud on your terms". To the left of the banner is a green button labeled "Start free >". The main background image shows a person working at a desk in an office environment.

SALES 1-800-867-1389 ▾

MY ACCOUNT

PORTAL

Search

FREE ACCOUNT >

You build. You innovate. You choose.

This is the cloud on your terms

Start free >

Run your SAP HANA applications across dev/test and production >

Microsoft Azure ▾

Search resources

New dashboard Edit dashboard Share Fullscreen Clone Delete

contact@imcinstitute....
DEFAULT DIRECTORY

Dashboard

All resources ALL SUBSCRIPTIONS

- hdp41n71a7p
- imclabstorage
- egahdpstorage

Service health MY RESOURCES



Marketplace

Subscriptions Forecast expenses and costs to optimize your apps

Help + support

Feedback

Information icons

The Microsoft Azure dashboard interface. At the top, there's a search bar and various navigation icons. Below the header, the title 'Dashboard' is displayed with options to 'New dashboard', 'Edit dashboard', 'Share', 'Fullscreen', 'Clone', and 'Delete'. On the left, a sidebar lists 'All resources' under 'ALL SUBSCRIPTIONS' with three items: 'hdp41n71a7p', 'imclabstorage', and 'egahdpstorage'. To the right of this is a 'Service health' section titled 'MY RESOURCES' showing a world map with green checkmarks indicating healthy services. The main area is divided into several sections: 'Marketplace' (with a shopping bag icon), 'Subscriptions' (with a pie chart icon and text about forecasting expenses), 'Help + support' (with a lock icon), and 'Feedback' (with a heart icon). At the bottom, there are four large blue circular icons containing white letters: 'i', 'i', 'i', and a gear.

Virtual Server

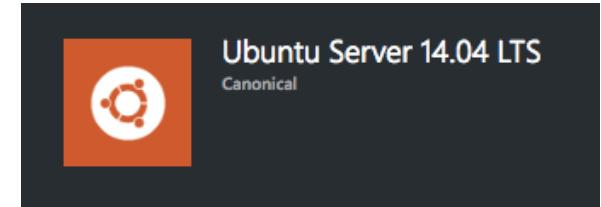
This lab will use an Azure virtual server to install a Cloudera Quickstart Docker using the following features:

Ubuntu Server 14.04 LTS

DS3_V2 Standard 4 Core, 14 GB memory, 28 GB SSD

Select New => Virtual Machines => Virtual Machines

The screenshot shows the Microsoft Azure portal interface. On the left, there's a sidebar with various icons and a search bar labeled "Search the marketplace". Below the search bar, under "MARKETPLACE", the "Virtual Machines" option is highlighted with a pink arrow. The main area is titled "Virtual Machines" and displays a list of "FEATURED APPS". The first item is "Windows Server 2012 R2 Datacenter". The second item, "Ubuntu Server 14.04 LTS", is also highlighted with a pink arrow. Below it are "SQL Server 2014 Enterprise on Windows Server 2012 R2" and "SharePoint 2013 HA Farm".



Ubuntu Server 14.04.4 LTS (amd64 20160516) for Microsoft popular Linux for cloud environments. Updates and patches until 2019-04-17. Ubuntu Server is the perfect virtual machine for web applications to NoSQL databases and Hadoop. For more information, visit [the documentation](#) or [using Juju to deploy your workloads](#).

Legal Terms

By clicking the Create button, I acknowledge that I am getting the [legal terms](#) of Canonical apply to it. Microsoft does not accept responsibility for the content of these pages. Also see the [privacy statement](#) from Canonical.

This screenshot shows the final steps of creating a virtual machine. At the top, there are social sharing icons. Below them is a dropdown menu labeled "Select a deployment model" with "Resource Manager" selected. A pink arrow points to this dropdown. At the bottom is a large blue "Create" button, which also has a pink arrow pointing to it.

On the Basics page, enter:

1. a name for the VM
2. a username for the Admin User
3. the Authentication Type set to password
4. a password
5. a resource group name

Microsoft Azure New > Virtual Machines > Ubuntu Server 14.04 LTS > Create virtual machine > Basics

☰
+ New

Resource groups
All resources
Recent
App Services
SQL databases
Virtual machines (classic)
Virtual machines
Cloud services (classic)
Subscriptions
Storage accounts (classic...
Browse >

Create virtual machine

1 Basics
Configure basic settings

2 Size
Choose virtual machine size

3 Settings
Configure optional features

4 Summary
Ubuntu Server 14.04 LTS

Basics

* Name
clouderadocker ✓

* User name
imcinstitute ✓

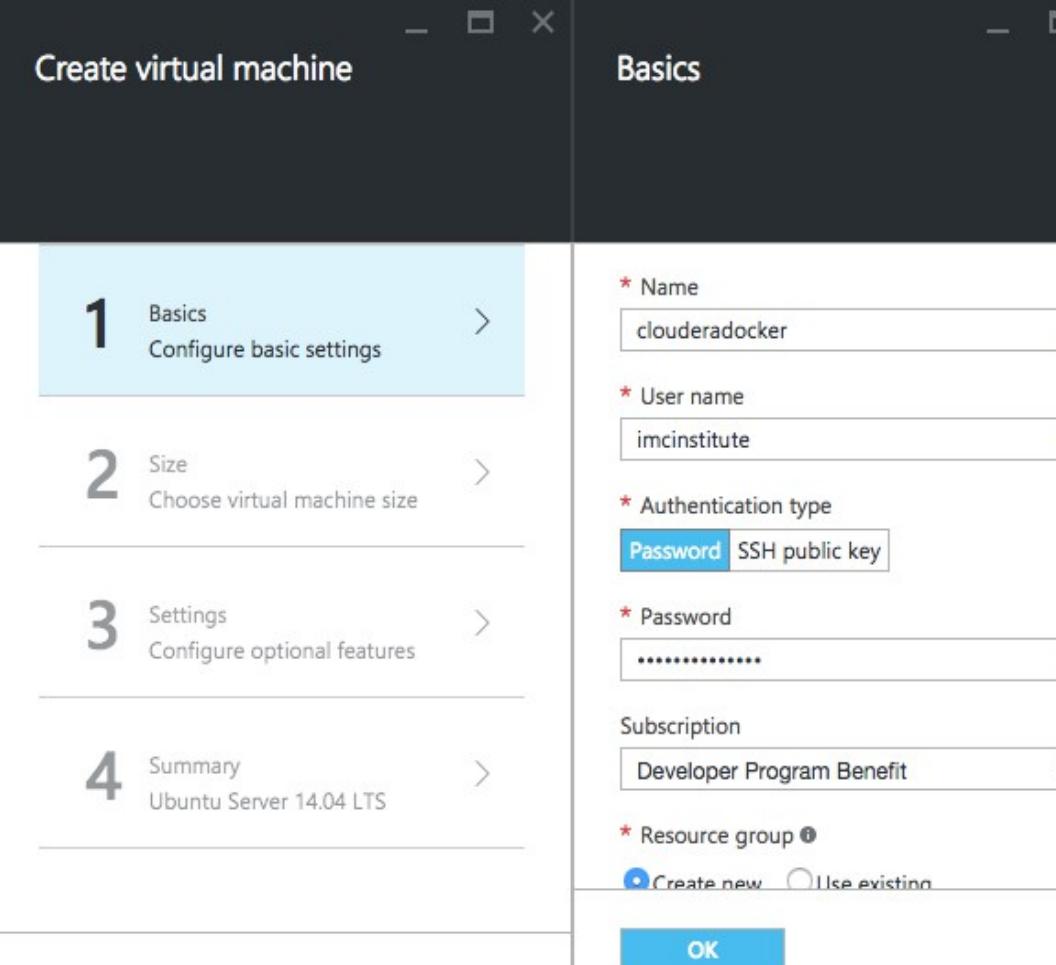
* Authentication type
Password SSH public key

* Password
..... ✓

Subscription
Developer Program Benefit

* Resource group ⓘ
 Create new Use existing

OK



Choose DS3_v2 Standard

Microsoft Azure Virtual Machines > Ubuntu Server 14.04 LTS > Create virtual machine > Choose a size

Create virtual machine

Choose a size

Browse the available sizes and their features

world's most available loads from Azure and

al and that software.

1 Basics Done ✓

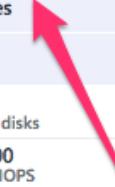
2 Size Choose virtual machine size >

3 Settings Configure optional features >

4 Summary Ubuntu Server 14.04 LTS >

DS1_V2 Standard	DS2_V2 Standard	DS3_V2 Standard
1 Core	2 Cores	4 Cores
3.5 GB	7 GB	14 GB
2 Data disks	4 Data disks	8 Data disks
3200 Max IOPS	6400 Max IOPS	12800 Max IOPS
7 GB Local SSD	14 GB Local SSD	28 GB Local SSD
Load balancing	Load balancing	Load balancing
Auto scale	Auto scale	Auto scale
Premium disk suppo...	Premium disk suppo...	Premium disk suppo...
67.70 USD/MONTH (ESTIMATED)	128.71 USD/MONTH (ESTIMATED)	257.42 USD/MONTH (ESTIMATED)

Select



Microsoft Azure New > Virtual Machines > Ubuntu Server 14.04 LTS > Create virtual machine

The screenshot shows the Microsoft Azure 'Create virtual machine' wizard. The left sidebar lists various service icons. The main window displays four steps:

- 1 Basics Done ✓
- 2 Size Done ✓
- 3 Settings Configure optional features >
- 4 Summary Ubuntu Server 14.04 LTS >

The 'Settings' tab is active. Under 'Storage', the 'Disk type' dropdown is set to 'Premium (SSD)', which is highlighted with a blue border and a red arrow pointing to it. Other options shown are 'Standard'. The 'Network' section shows a 'Virtual network' named '(new) Default-Storage-SouthCentralUS' and a 'Subnet' named 'default (10.0.0.0/24)'. An 'OK' button is at the bottom.

Microsoft Azure New > Virtual Machines > Ubuntu Server 14.04 LTS > Create virtual machine > Summary

Create virtual machine

Summary

Validation passed

Basics

Subscription	Developer Program Benefit
Resource group	Default-MachineLearning-SouthCentralUS
Location	South Central US

Settings

Computer name	clouderadocker
User name	imcinstitute
Size	Standard DS11 v2
Disk type	Premium (SSD)
Storage account	(new) defaultmachinelearn2038
Virtual network	(new) Default-MachineLearning-SouthCentralUS
Subnet	(new) default (10.1.0.0/24)

OK



Microsoft Azure cluderadocker > Settings

cluderadocker

Virtual machine

Settings Connect Start Restart Stop Delete

Essentials

Resource group
[Default-MachineLearning-SouthCentralU...](#)

Status
Running

Location
South Central US

Subscription name
[Developer Program Benefit](#)

Subscription ID
59cbb519-5261-48e5-9825-9df96f8302a9

Computer name
cluderadocker

Operating system
Linux

Size
Standard DS11 v2 (2 cores, 14 GB memory)

Public IP address/DNS name label
[104.210.146.182/<none>](#)

Virtual network/subnet
[Default-MachineLearning-SouthCentralUS/...](#)

All settings →

Monitoring

Add tiles +

CPU percentage

100%

Settings

cluderadocker

Filter settings

SUPPORT + TROUBLESHOOTING

Troubleshoot

Audit logs

Resource health

Boot diagnostics

Reset password

Redeploy

New support request

GENERAL

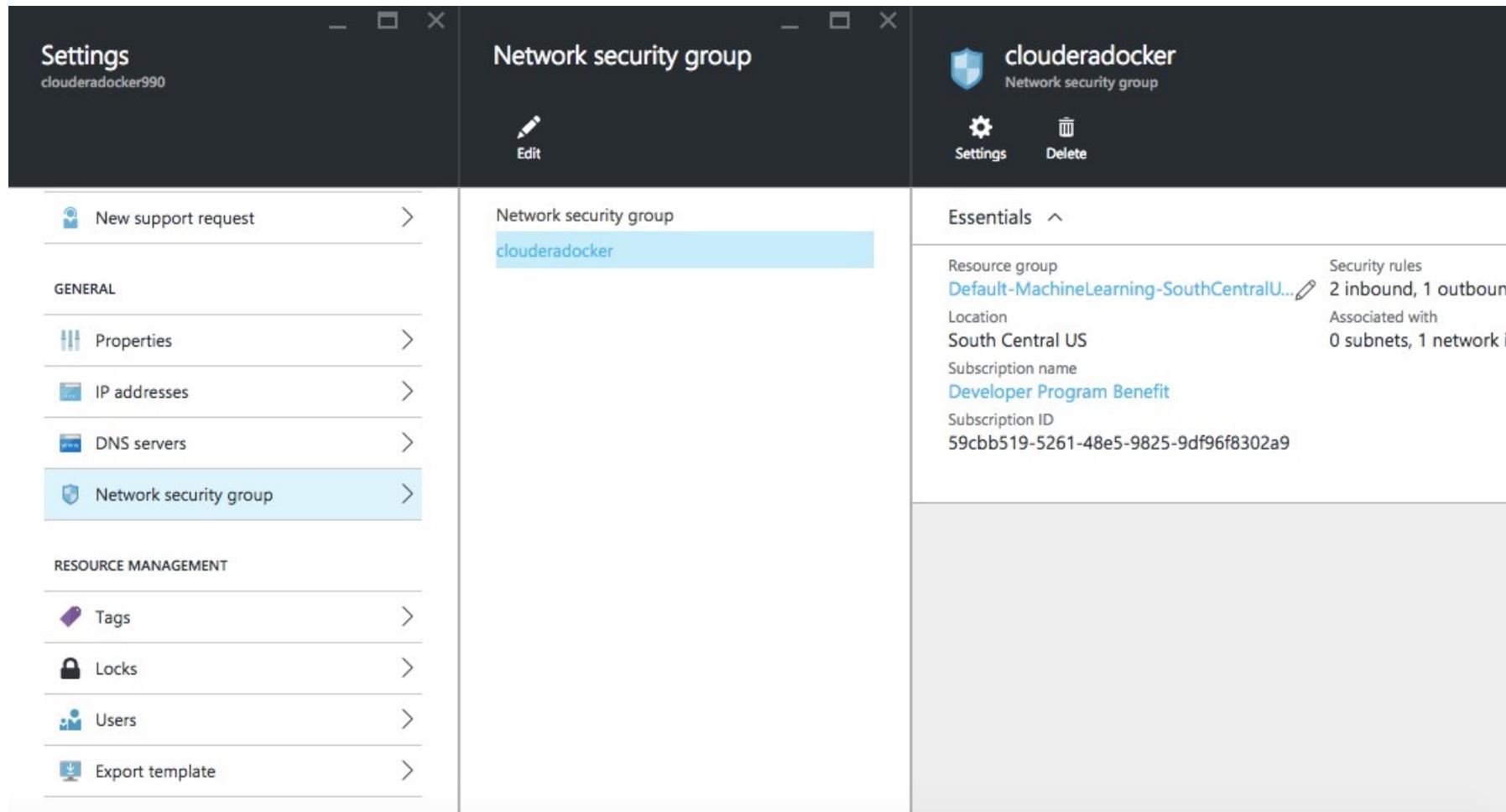
Setting the inbound port for Hue (8888)

The screenshot shows the Azure portal interface with two main windows:

- Left Window (Settings):** Shows a navigation menu with the following items:
 - Properties
 - Disks
 - Network interfaces** (highlighted in blue)
 - Availability set
 - Extensions
 - Size

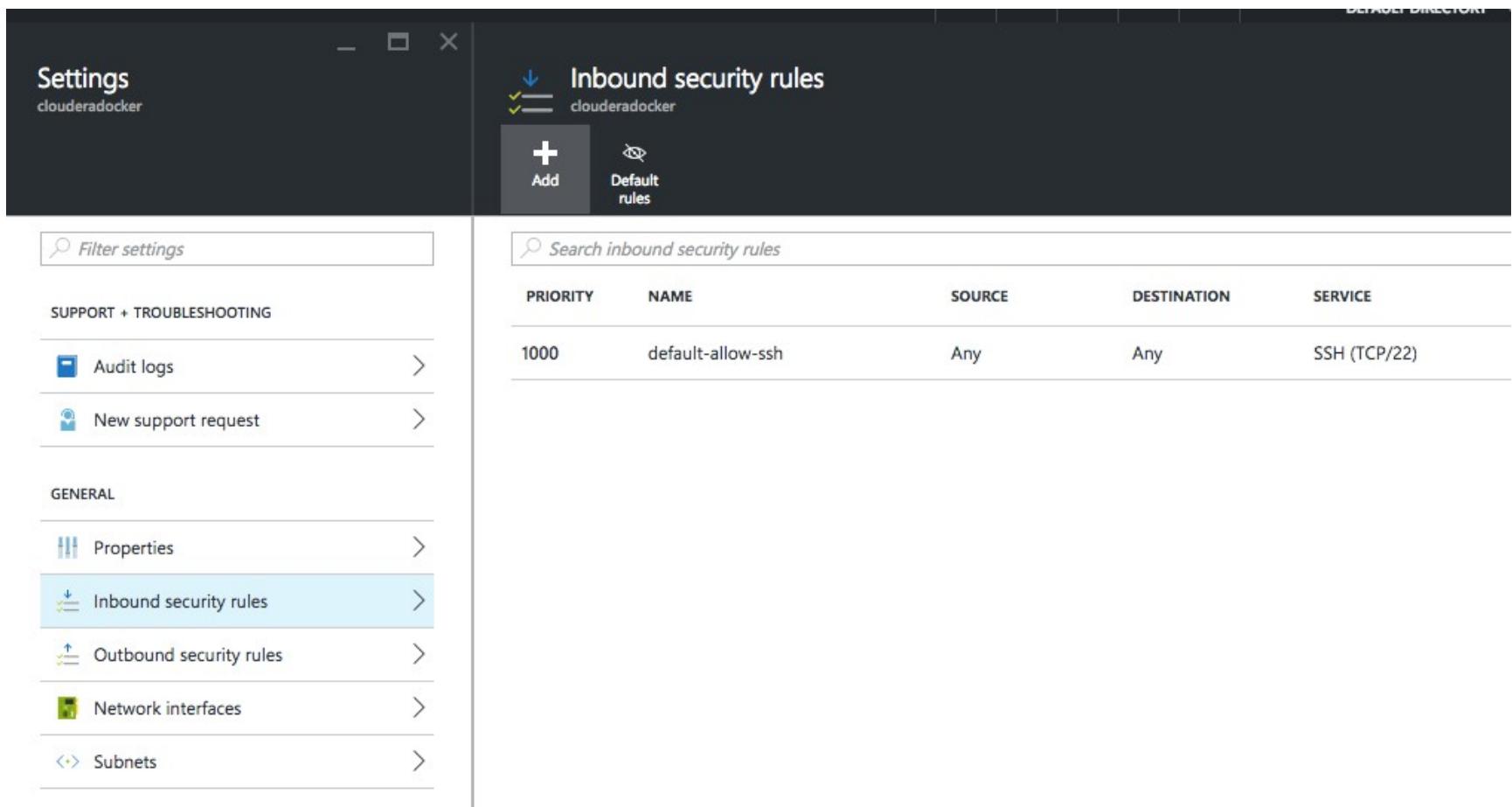
Below this is a section titled "MONITORING" with "Alert rules" and "Diagnostics".
- Right Window (Network interfaces):** Displays a table of network interfaces for the VM "clouderadocker".

NAME	PUBLIC IP ADDRE...	PRIVATE IP ADDR...	SECURITY GROUP	...
clouderadocker990	104.210.146.182	10.1.0.4	clouderadocker	...



The screenshot shows three windows from the Microsoft Azure portal:

- Left Window (Settings):** A general settings page for a resource group named "cluderadocker990". It includes sections for New support request, GENERAL (Properties, IP addresses, DNS servers), and RESOURCE MANAGEMENT (Tags, Locks, Users, Export template).
- Middle Window (Network security group):** A detailed view of a Network security group named "cluderadocker". It shows the group name, an "Edit" button, and a "Delete" button.
- Right Window (cluderadocker):** A summary view of the "cluderadocker" resource group. It displays the following details:
 - Resource group:** Default-MachineLearning-SouthCentralU... (with a pencil icon)
 - Location:** South Central US
 - Subscription name:** Developer Program Benefit
 - Subscription ID:** 59cbb519-5261-48e5-9825-9df96f8302a9
 - Security rules:** 2 inbound, 1 outbound (with a pencil icon)
 - Associated with:** 0 subnets, 1 network interface



The screenshot shows the Azure portal interface with the following details:

Left Sidebar (Settings):

- Title:** Settings
- Resource Name:** clouderadocker
- Filter settings:** A search bar.
- SUPPORT + TROUBLESHOOTING:**
 - Audit logs**
 - New support request**
- GENERAL:**
 - Properties**
 - Inbound security rules** (highlighted in light blue)
 - Outbound security rules**
 - Network interfaces**
 - Subnets**

Right Panel (Inbound security rules):

- Title:** Inbound security rules
- Resource Name:** clouderadocker
- Add:** A button to add a new rule.
- Default rules:** A link to view default security rules.
- Search bar:** Search inbound security rules.
- Table:** A list of security rules.

PRIORITY	NAME	SOURCE	DESTINATION	SERVICE
1000	default-allow-ssh	Any	Any	SSH (TCP/22)

Settings

clouderadocker

SUPPORT + TROUBLESHOOTING

- Audit logs >
- New support request >

GENERAL

- Properties >
- Inbound security rules > hue
- Outbound security rules >
- Network interfaces >
- Subnets >

Inbound security rules

clouderadocker

+
Add
Default rules

■ Search inbound security rules

PRIORITY	NAME	SOURCE	DESTINATION	SERVICE
1000	default-allow-ssh	Any	■ hue Default-MachineLearning-SouthCentralUS	■ Save ■ Discard ■ Delete

■ Name

■ Priority

■ Source CIDR block Tag

■ Protocol TCP UDP

■ Source port range

■ Destination CIDR block Tag

■ Destination port range

■ Action

Get the IP address

The screenshot displays two side-by-side views in the Azure portal:

Left View: Virtual Machine Details

- Resource group:** Default-MachineLearning-SouthCentralU...
- Status:** Running
- Location:** South Central US
- Subscription name:** Developer Program Benefit
- Subscription ID:** 59ccb519-5261-48e5-9825-9df96f8302a9
- Computer name:** cluderadocker
- Operating system:** Linux
- Size:** Standard DS11 v2 (2 cores, 14 GB memory)
- Public IP address/DNS name label:** 104.210.146.182/<none>
- Virtual network/subnet:** Default-MachineLearning-SouthCentralUS/...

Right View: Public IP Address Configuration

- Resource group:** Default-MachineLearning-SouthCentralU...
- Location:** South Central US
- Subscription name:** Developer Program Benefit
- Subscription ID:** 59ccb519-5261-48e5-9825-9df96f8302a9
- IP address:** 104.210.146.182
- DNS name:** -
- Associated to:** cluderadocker990
- Virtual machine:** cluderadocker

Connect to an instance from Mac/Linux

```
ssh -i ~/.ssh/id_rsa imcinstigate@104.210.146.182
```

WARNING! Your environment specifies an invalid locale.

This can affect your user experience significantly, including the ability to manage packages. You may install the locales by running:

```
sudo apt-get install language-pack-UTF-8  
or  
sudo locale-gen UTF-8
```

To see all available language packs, run:

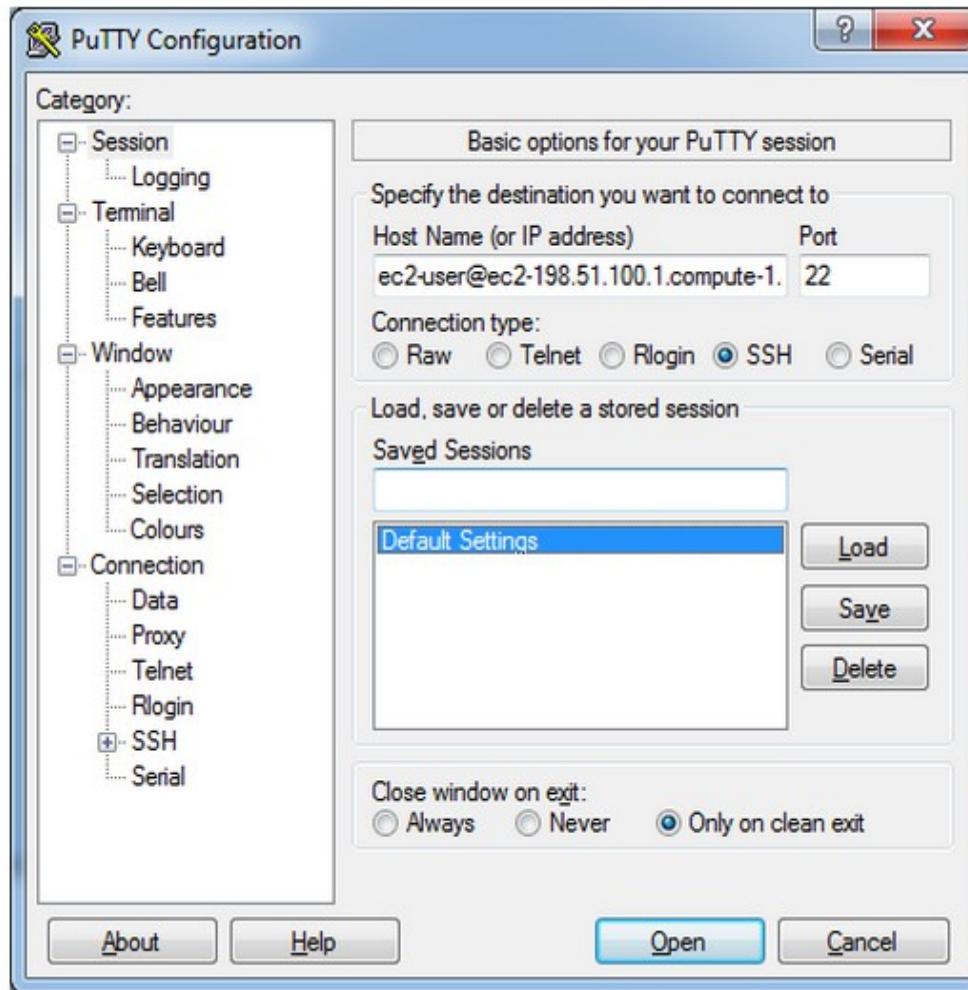
```
apt-cache search "^language-pack-[a-z][a-z]$"
```

To disable this message for all users, run:

```
sudo touch /var/lib/cloud/instance/locale-check.skip
```

```
imcinstigate@clouderadocker:~$ █
```

Connect to an instance from Windows using Putty



Part 1B: Install Hortonworks Sandbox on Azure

Sign up for Visual Studio Dev Essential to get free Azure credit.

Showing: Visual Studio Dev Essentials

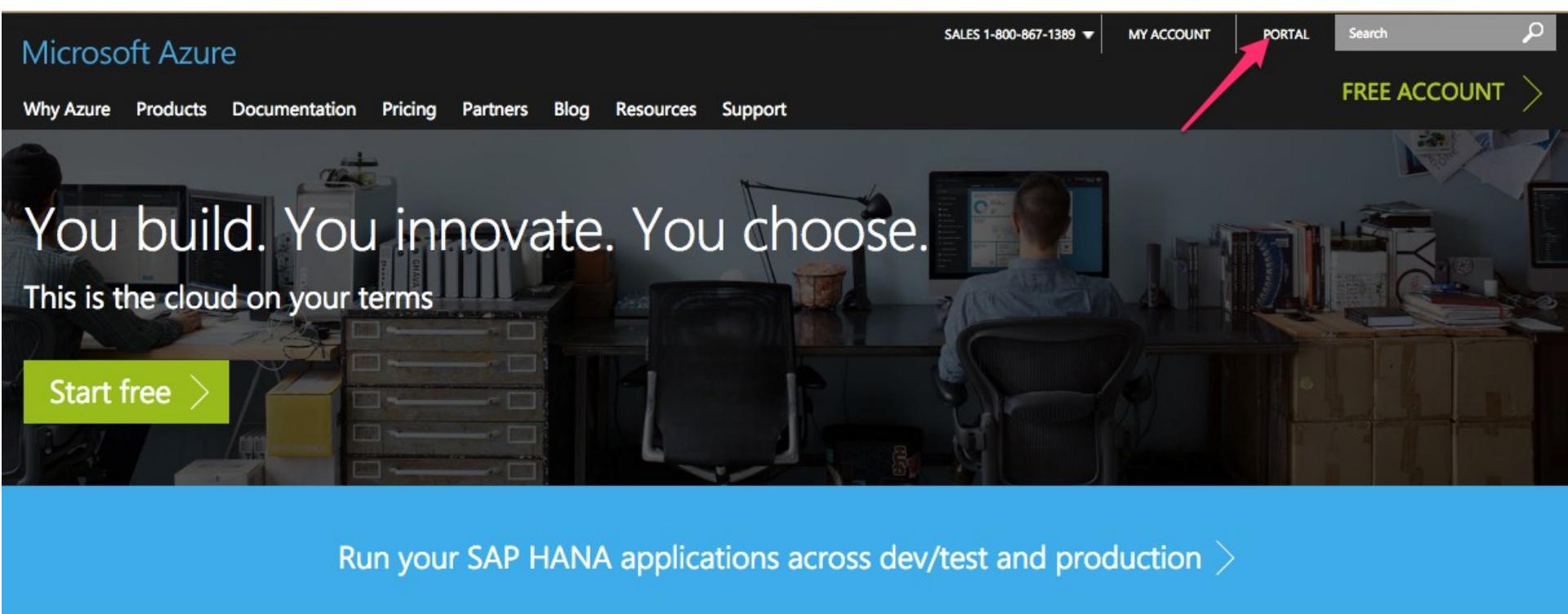
Visual Studio Dev Essentials



Featured (6)

 Visual Studio Community Full-featured, extensible IDE Free for individuals, open source or small teams. Create apps for Windows, iOS, Andro... See more	 Visual Studio Code Modern lightweight editor A powerful, streamlined code editor for your favorite platform - Linux, Mac OS X, and... Windows	 Visual Studio Team Services Basic level Free Git repos, Agile planning tools and hosted builds, for any language – it's the perfect... complement to your IDE	 Azure \$25 monthly credit for 1 year Your own personal sandbox for dev/test! VMs, cloud services, and more. Credit cannot be... applied to existing Azure	 Xamarin University Training Free on-demand access Build native iOS and Android apps in C# with expert getting-started videos (subset of class... videos and materials)	 Pluralsight 3-month subscription World-class training taught by an elite group of industry leaders.
Download 	Download 	Get started 	Activate 	Get Code 	Get Code 

Sign in to Azure Portal



The screenshot shows the Microsoft Azure homepage. At the top, there's a dark header bar with the "Microsoft Azure" logo on the left, a "SALES 1-800-867-1389" link, and "MY ACCOUNT" and "PORTAL" buttons. A red arrow points from the bottom right towards the "PORTAL" button. On the far right of the header is a "Search" bar with a magnifying glass icon. To the right of the search bar is a "FREE ACCOUNT" button with a right-pointing arrow. Below the header is a large banner featuring a man working at a desk with multiple monitors, surrounded by books and papers. The banner has the text "You build. You innovate. You choose." and "This is the cloud on your terms". At the bottom left of the banner is a green button labeled "Start free >". Below the banner is a blue footer bar with the text "Run your SAP HANA applications across dev/test and production >".

Uncompress the docker zip file

```
$ gunzip HDP_2.5_docker.tar.gz
```

Load the Docker image

```
$ sudo docker load < HDP_2.5_docker.tar
```

(This may take several minutes)

Microsoft Azure ▾

Search resources

New dashboard Edit dashboard Share Fullscreen Clone Delete

contact@imcinstitute....
DEFAULT DIRECTORY

Dashboard

All resources ALL SUBSCRIPTIONS

- hdp41n71a7p
- imclabstorage
- egahdpstorage

Service health MY RESOURCES



Marketplace

Subscriptions Forecast expenses and costs to optimize your apps

Help + support

Feedback

Information icons

The Microsoft Azure dashboard interface. It features a top navigation bar with search, resource management, and account information. Below is a main dashboard area with a sidebar of service icons. The main area includes a 'Service health' section with a world map of resource locations, and four large cards: 'Marketplace', 'Subscriptions' (with a pie chart icon), 'Help + support', and 'Feedback'. At the bottom, there are three blue circular icons with white letter 'i' symbols.

Virtual Server

This lab will use an Azure virtual server to install a Hortonworks Sandbox using the following features:

Hortonworks Sandbox with HDP 2.4

DS3_V2 Standard 4 Core, 14 GB memory, 28
GB SSD

Select New => Search => Hortonworks Sandbox

The screenshot shows the Microsoft Azure interface. On the left, a sidebar lists various service categories like Compute, Networking, Storage, etc. A red arrow points to the 'New' button at the top of this sidebar. The main area is titled 'Marketplace' and shows a search bar with 'Hortonworks Sandbox' typed in. Below the search bar is a list of categories: Everything, Compute, Networking, Storage, Web + mobile, Databases, Intelligence + analytics, Internet of things, Enterprise integration, Security + identity, and Developer tools. To the right of the search bar, there's a detailed search results panel for 'Hortonworks Sandbox'. It shows a single result: 'Hortonworks Sandbox with HDP 2.4', accompanied by its icon and provider information.

Microsoft Azure

New

Hortonworks Sandbox

Marketplace

Everything

Compute

Networking

Storage

Web + mobile

Databases

Intelligence + analytics

Internet of things

Enterprise integration

Security + identity

Developer tools

Results

NAME

Hortonworks Sandbox with HDP 2.4

Related to your search

MapR Sandbox, Version 5.0.0

Dataiku DSS (Linux)

Dataiku

Select Create

Microsoft Azure New > Marketplace > Everything > Hortonworks Sandbox with HDP 2.4

Hortonworks Sandbox with HDP 2.4

Bring Your Own License enabled.

Learn Hadoop

Sandbox comes with over fifty hands-on [tutorials](#) that will guide you through the Hadoop, Spark, Storm, HBase, Kafka, Hive, Ambari and YARN; tutorials built on the experience gained from training thousands of people in our [Hortonworks University Training classes](#).

If you are new to Hadoop, HDP and the Sandbox we suggest sequence of tutorials to get started:

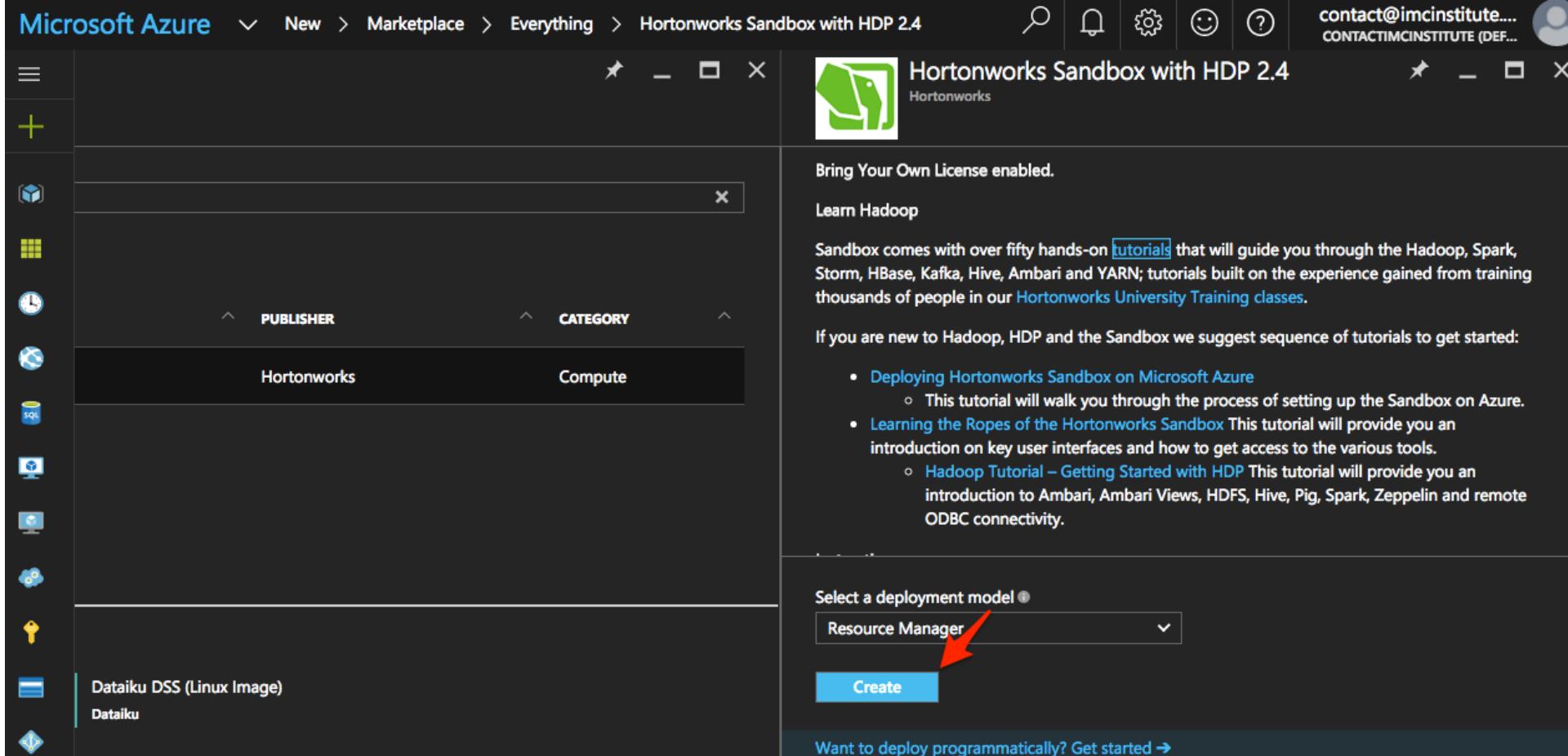
- [Deploying Hortonworks Sandbox on Microsoft Azure](#)
 - This tutorial will walk you through the process of setting up the Sandbox on Azure.
- [Learning the Ropes of the Hortonworks Sandbox](#) This tutorial will provide you an introduction on key user interfaces and how to get access to the various tools.
 - [Hadoop Tutorial – Getting Started with HDP](#) This tutorial will provide you an introduction to Ambari, Ambari Views, HDFS, Hive, Pig, Spark, Zeppelin and remote ODBC connectivity.

Select a deployment model

Resource Manager

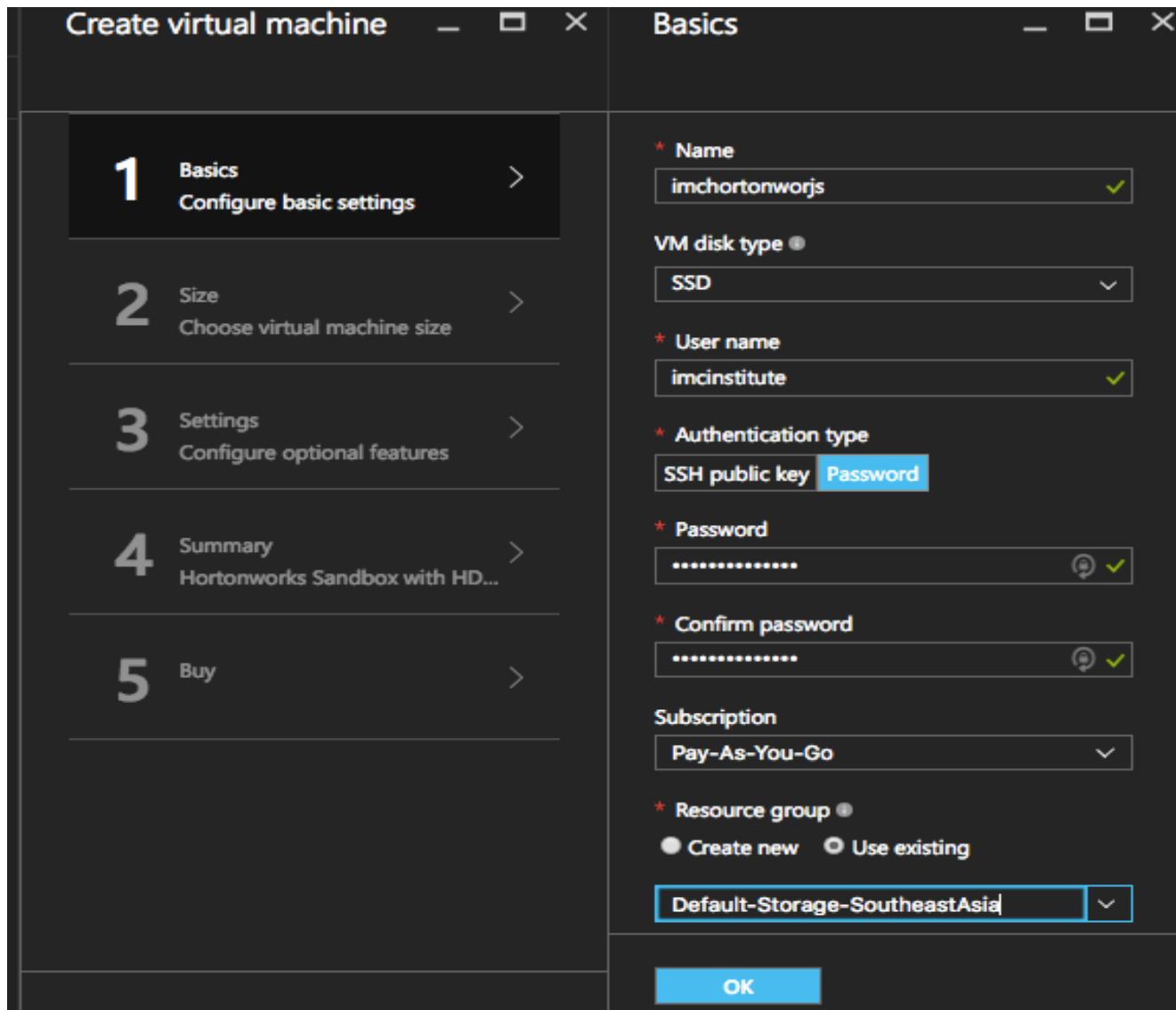
Create

Want to deploy programmatically? [Get started →](#)



On the Basics page, enter:

1. a name for the VM
2. a username for the Admin User
3. the Authentication Type set to password
4. a password
5. a resource group name



Choose DS3_v2 Standard

Create virtual machine - X

Choose a size
Browse the available sizes and their features

Prices presented below are estimates in your local currency that include Azure infrastructure applicable software costs, as well as any discounts for the subscription and location.

DS1_V2 Standard	DS2_V2 Standard	DS3_V2 Standard
1 Core	2 Cores	4 Cores
3.5 GB	7 GB	14 GB
2 Data disks	4 Data disks	8 Data disks
3200 Max IOPS	6400 Max IOPS	12800 Max IOPS
7 GB Local SSD	14 GB Local SSD	28 GB Local SSD
Load balancing	Load balancing	Load balancing
Premium disk support	Premium disk support	Premium disk support
58.78 USD/MONTH (ESTIMATED)		
117.55 USD/MONTH (ESTIMATED)		
235.10 USD/MONTH (ESTIMATED)		
DS4_V2 Standard	DS11_V2 Standard	DS12_V2 Standard
8 Cores	2 Cores	4 Cores
28 GB	14 GB	28 GB
16 Data disks	4 Data disks	8 Data disks

Select

1 Basics Done

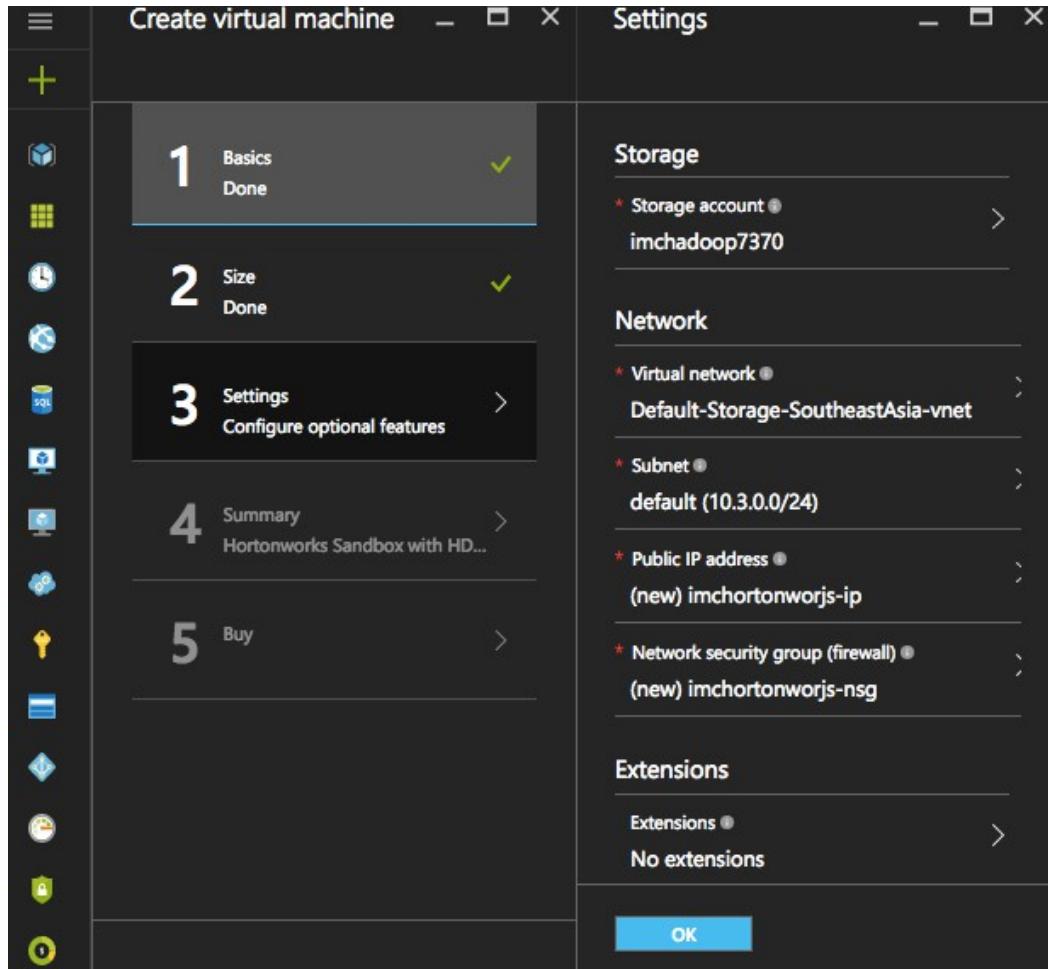
2 Size Choose virtual machine size

3 Settings Configure optional features

4 Summary Hortonworks Sandbox with HD...

5 Buy

Set configuration as default



Create virtual machine - □ X

Summary - □ X

1 Basics Done ✓

2 Size Done ✓

3 Settings Done ✓

4 Summary >
Hortonworks Sandbox with HD...

5 Buy >

Validation passed

Basics

Subscription	Pay-As-You-Go
Resource group	Default-Storage-SoutheastAsia
Location	Southeast Asia

Settings

Computer name	imchortonworjs
Disk type	SSD
User name	imcinstitute
Size	Standard DS3 v2
Storage account	imchadoop7370
Virtual network	Default-Storage-SoutheastAsia-vnet
Subnet	default (10.3.0.0/24)
Public IP address	(new) imchortonworjs-ip
Network security group (firewall)	(new) imchortonworjs-nsg
Availability set	None

OK Download template and parameters



Microsoft Azure

Dashboard

Search resources

All resources
ALL SUBSCRIPTIONS

- HortonworksDemo-ip Public IP address
- imcdocker Public IP address
- IMC-Hortonworks-ip Public IP address

Service health
MY RESOURCES

World map showing service health status.

Recent

App Services

SQL databases

Virtual machines (classic)

Virtual machines

Cloud services (classic)

Subscriptions

Storage accounts (class...)

Azure Active Directory

Monitor

Security Center

Marketplace

HortonworksDemo

Deleted

Deploying Hortonworks Sandbox with HDP 2.4

Help + support

Tour

What's new

Portal settings

Feedback

Azure classic portal

The screenshot shows the Microsoft Azure dashboard with a dark theme. On the left, a sidebar lists various services: Resource groups, All resources, Recent, App Services, SQL databases, Virtual machines (classic), Virtual machines, Cloud services (classic), Subscriptions, Storage accounts (classic), Azure Active Directory, Monitor, and Security Center. A modal window titled 'All resources' is open, displaying three entries under 'ALL SUBSCRIPTIONS': 'HortonworksDemo-ip' (Public IP address), 'imcdocker' (Public IP address), and 'IMC-Hortonworks-ip' (Public IP address). The main dashboard area contains several cards: 'Marketplace' (status: Deleted), 'Deploying Hortonworks Sandbox with HDP 2.4', 'Help + support', 'Tour', 'What's new', 'Portal settings', 'Feedback', and 'Azure classic portal'. At the top right, there are buttons for 'New dashboard', 'Edit dashboard', 'Share', 'Fullscreen', 'Clone', and 'Delete'. A search bar at the top right says 'Search resources'. The overall interface is clean and modern, designed for managing cloud resources.

Get a virtual server public IP

The screenshot shows the Microsoft Azure portal interface. On the left, there's a sidebar with various icons. The main area displays two tabs for a virtual machine named "imchortonworjs-ip".

Left Tab (Virtual Machine Overview):

- Essentials:**
 - Resource group: Default-Storage-SoutheastAsia
 - Status: Running
 - Location: Southeast Asia
 - Subscription name: Pay-As-You-Go
 - Subscription ID: a33f4ec6-0170-4052-83fc-38a33ffa6901
- Monitoring:** CPU percentage chart from 5:15 AM to 6 AM.

Right Tab (Public IP Address):

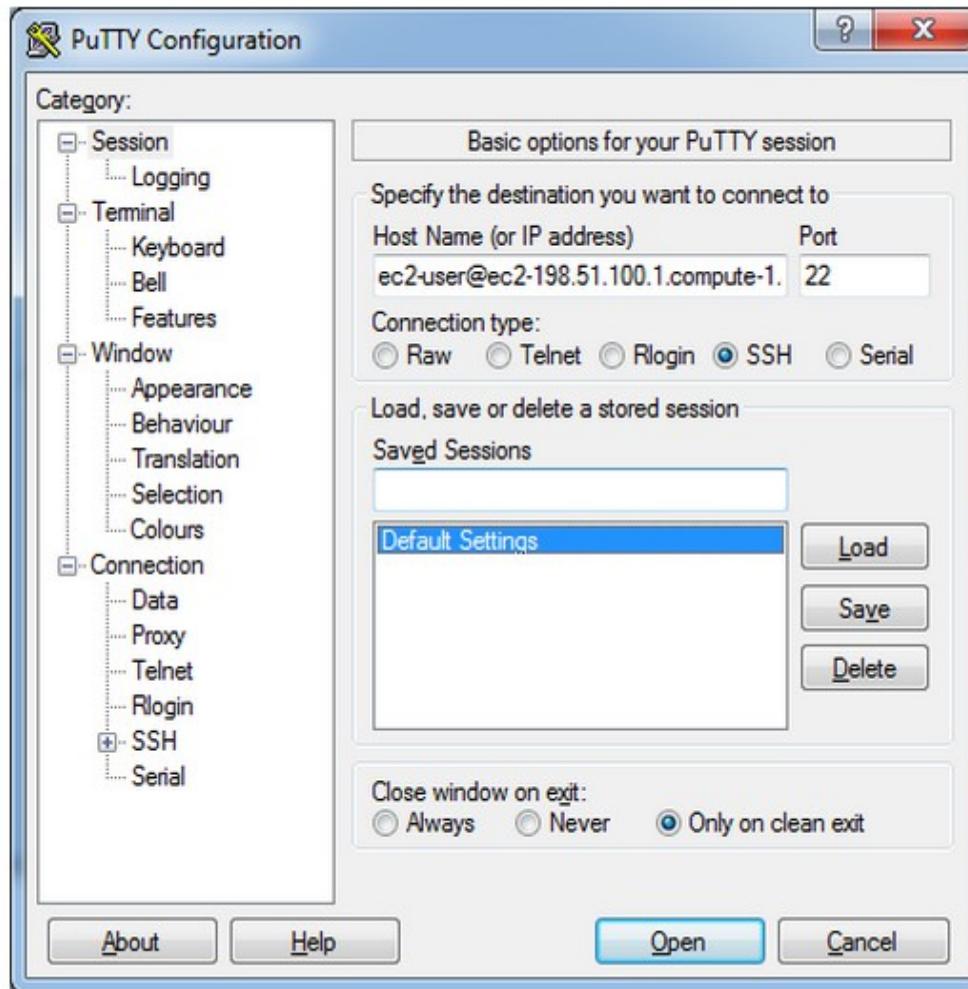
- Essentials:**
 - Resource group: Default-Storage-SoutheastAsia
 - Location: Southeast Asia
 - Subscription name: Pay-As-You-Go
 - Subscription ID: a33f4ec6-0170-4052-83fc-38a33ffa6901
- Public IP Address:** IP address: 52.163.63.141 (highlighted with a red oval).

Connect to an instance from Mac/Linux

ssh username@52.163.63.141

```
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
[imcinststitute@sandbox ~]$ █
```

Connect to an instance from Windows using Putty



Login to Hortonworks >> ip_address:8888

52.163.63.141:8888

ห้องพักราคาถูกที่สุดที่โรงแรมอารามิส (Aramis Hotel)
ในนครสวรรค์ + รีวิว

Hortonworks®

Hortonworks Sandbox

With **HDP 2.4** in a few simple steps

1 get started 2 try 3 what's new

Develop queries for data & manage your HDP cluster

Apache Ambari is the best way to get started with your HDP journey. It provides a user driven wizard interface to interact with HDP.

Try this simple tutorial to get started with HDP
[Hello HDP!](#)

url: <http://52.163.63.141:8080>
username: maria_dev
password: maria_dev

[View Advanced Options](#)

Login to Ambari >> ip_address:8080



The image shows the Ambari login interface. At the top, there is a dark header bar with the Ambari logo on the left and the word "Ambari" next to it. Below the header is a light gray sign-in form. The form has a title "Sign in" at the top center. It contains two input fields: "Username" with the value "maria_dev" and a password field with the value "*****". Both fields have a small "..." icon to their right. At the bottom of the form is a green "Sign in" button.

Licensed under the Apache License, Version 2.0.

See third-party tools/resources that Ambari uses and their respective authors

Ambari Sandbox 0 ops 0 alerts

Dashboard Services Hosts Alerts maria_dev

HDFS Metrics Heatmaps Config History

Metric Actions ▾ Last 1 hour ▾

HDFS Disk Usage 32%	DataNodes Live 1/1	HDFS Links NameNode Secondary NameNode 1 DataNodes More... ▾	Memory Usage No Data Available	Network Usage No Data Available
CPU Usage No Data Available	Cluster Load No Data Available	NameNode Heap 41%	NameNode RPC 0.50 ms	NameNode CPU WIO n/a
NameNode Uptime 17.2 min	HBase Master Heap n/a	HBase Links No Active Master 1 RegionServers n/a More... ▾	HBase Ave Load n/a	HBase Master Uptime n/a

Part 2: Hadoop Production on Cloud Cluster

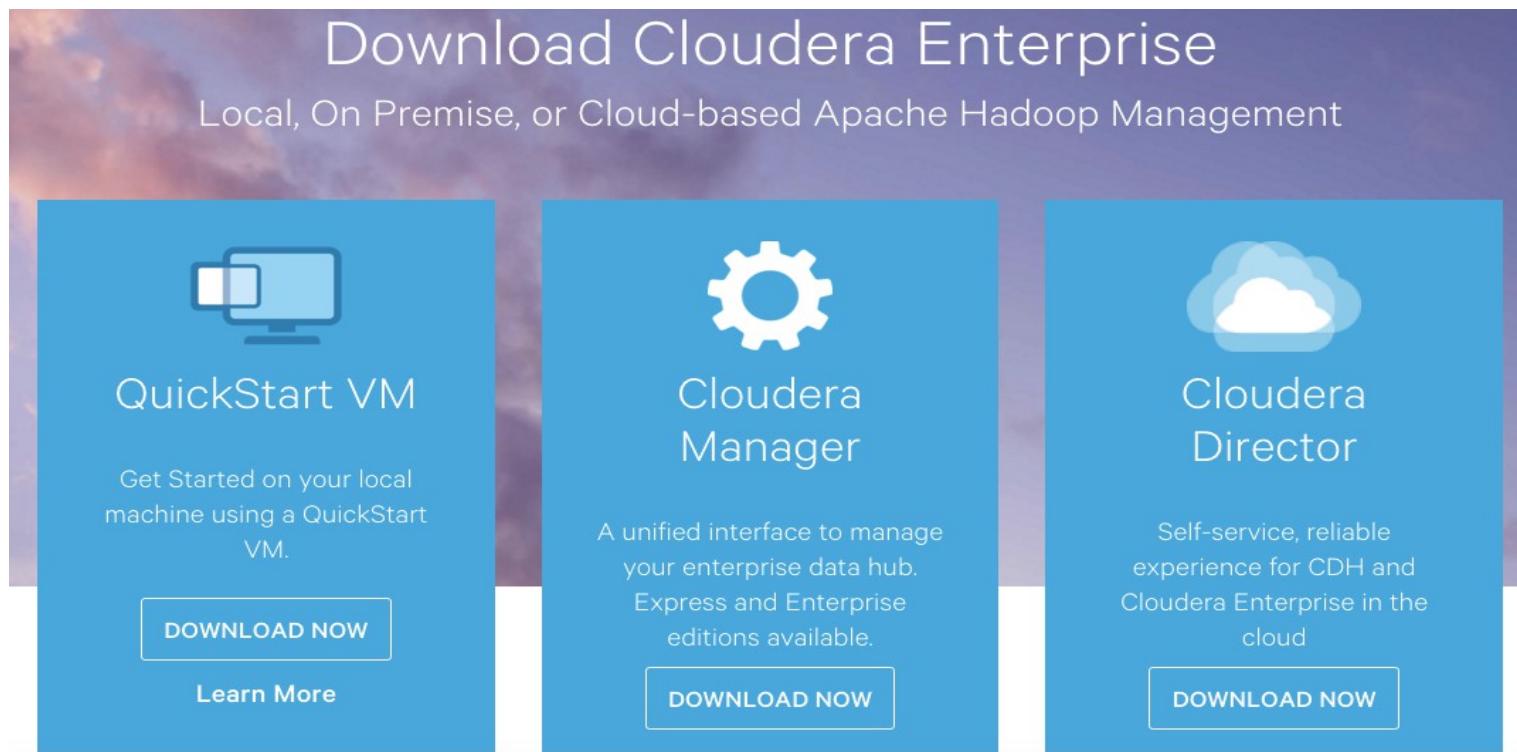
Hadoop Production: Cluster

- Recommended
 - Cloudera Express
 - Hortonworks
- Cloudera Express
 - Install a cluster on 4 EC2 AWS
- Hortonworks Data Platform
 - Install a cluster on Microsoft Azure using Marketplace

Install Cloudera Cluster on AWS

Cloudera VM

This lab will use a EC2 virtual server on AWS to install Cloudera.



Download Cloudera Enterprise
Local, On Premise, or Cloud-based Apache Hadoop Management

QuickStart VM
Get Started on your local machine using a QuickStart VM.
[DOWNLOAD NOW](#)
[Learn More](#)

Cloudera Manager
A unified interface to manage your enterprise data hub.
Express and Enterprise editions available.
[DOWNLOAD NOW](#)

Cloudera Director
Self-service, reliable experience for CDH and Cloudera Enterprise in the cloud
[DOWNLOAD NOW](#)

Hands-On: Launch a virtual server on EC2 Amazon Web Services

Hands-On: Launch a virtual server on EC2 Amazon Web Services

Amazon Web Services

Compute

 **EC2**
Virtual Servers in the Cloud

 **Lambda** PREVIEW
Run Code in Response to Events

Storage & Content Delivery

 **S3**
Scalable Storage in the Cloud

 **Storage Gateway**
Integrates On-Premises IT Environments with Cloud Storage

 **Glacier**
Archive Storage in the Cloud

 **CloudFront**
Global Content Delivery Network

Database

 **RDS**
MySQL, Postgres, Oracle, SQL Server, and Amazon Aurora

 **DynamoDB**
Predictable and Scalable NoSQL Data Store

 **ElastiCache**
In-Memory Cache

 **Redshift**
Managed Petabyte-Scale Data Warehouse Service

Administration & Security

 **Directory Service**
Managed Directories in the Cloud

 **Identity & Access Management**
Access Control and Key Management

 **Trusted Advisor**
AWS Cloud Optimization Expert

 **CloudTrail**
User Activity and Change Tracking

 **Config**
Resource Configurations and Inventory

 **CloudWatch**
Resource and Application Monitoring

Deployment & Management

 **Elastic Beanstalk**
AWS Application Container

 **OpsWorks**
DevOps Application Management Service

 **CloudFormation**
Templated AWS Resource Creation

 **CodeDeploy**
Automated Deployments

Analytics

 **EMR**
Managed Hadoop Framework

Application Services

 **SQS**
Message Queue Service

 **SWF**
Workflow Service for Coordinating Application Components

 **AppStream**
Low Latency Application Streaming

 **Elastic Transcoder**
Easy-to-use Scalable Media Transcoding

 **SES**
Email Sending Service

 **CloudSearch**
Managed Search Service

Mobile Services

 **Cognito**
User Identity and App Data Synchronization

 **Mobile Analytics**
Understand App Usage Data at Scale

 **SNS**
Push Notification Service

Enterprise Applications

 **WorkSpaces**
Desktops in the Cloud

 **WorkDocs**
Secure Enterprise Storage and Sharing

Resource Groups

A resource group is a collection of resources that share one or more tags. Create a group for each project, application, or environment in your account.

[Create a Group](#)

[Tag Editor](#)

Additional Resources

Getting Started

See our documentation to get started and learn more about how to use our services.

AWS Console Mobile App

View your resources on the go with our AWS Console mobile app, available from [Amazon Appstore](#), [Google Play](#), or [iTunes](#).

AWS Marketplace

Find and buy software, launch with 1-Click and pay by the hour.

Service Health

Virtual Server

This lab will use a EC2 virtual server to install a Cloudera Cluster using the following features:

Ubuntu Server 14.04 LTS

Four m3.xLarge 4vCPU, 15 GB memory, 80 GB SSD

Security group: default

Keypair: imchadoop

Select a EC2 service and click on Launch Instance

AWS | Services | Edit | IMC Institute | Oregon | Support

EC2 Dashboard

- Events
- Tags
- Reports
- Limits

INSTANCES

- Instances
- Spot Requests
- Reserved Instances

IMAGES

- AMIs
- Bundle Tasks

ELASTIC BLOCK STORE

- Volumes
- Snapshots

NETWORK & SECURITY

- Security Groups
- Elastic IPs
- Placement Groups

Resources

You are using the following Amazon EC2 resources in the US West (Oregon) region:

0 Running Instances	0 Elastic IPs
1 Volumes	1 Snapshots
8 Key Pairs	0 Load Balancers
0 Placement Groups	11 Security Groups

Easily deploy Ruby, PHP, Java, .NET, Python, Node.js & Docker applications with [Elastic Beanstalk](#).

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 West (Oregon) region

Service Health

Scheduled Events

Service Status: US West (Oregon):

Feedback



Select an Amazon Machine Image (AMI) and Ubuntu Server 14.04 LTS (PV)

AWS Services Edit IMC Institute Oregon Support

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

Step 1: Choose an Amazon Machine Image (AMI)

Amazon Linux AMI 2014.09.2 (PV) - ami-9fc29baf

Amazon Linux Free tier eligible

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

Root device type: ebs Virtualization type: paravirtual

SUSE Linux Enterprise Server 11 SP3 (PV), SSD Volume Type - ami-5df2ab6d

SUSE Linux Enterprise Server 11 Service Pack 3 (PV), EBS General Purpose (SSD) Volume Type. Amazon EC2 AMI Tools preinstalled; Apache 2.2, MySQL 5.5, PHP 5.3, and Ruby 1.8.7 available.

Root device type: ebs Virtualization type: paravirtual

Ubuntu Server 14.04 LTS (PV), SSD Volume Type - ami-23ebb513

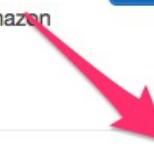
Ubuntu Server 14.04 LTS (PV), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Root device type: ebs Virtualization type: paravirtual

Cancel and Exit Select 64-bit

Select 64-bit

Select 64-bit



Choose m3.xlarge Type virtual server

Screenshot of the AWS Step 2: Choose an Instance Type configuration screen.

The table lists various instance types with their details:

						Available	
<input type="checkbox"/>	Micro instances	t1.micro Free tier eligible	1	0.613	EBS only	-	Very Low
<input type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
<input type="checkbox"/>	General purpose	m3.medium	1	3.75	1 x 4 (SSD)	-	Moderate
<input type="checkbox"/>	General purpose	m3.large	2	7.5	1 x 32 (SSD)	-	Moderate
<input checked="" type="checkbox"/>	General purpose	m3.xlarge	4	15	2 x 40 (SSD)	Yes	High
<input type="checkbox"/>	General purpose	m3.2xlarge	8	30	2 x 80 (SSD)	Yes	High

Buttons at the bottom:

- Cancel
- Previous
- Review and Launch** (highlighted in blue)
- Next: Configure Instance Details

Set the number of Instance to 4

AWS Services Edit IMC Institute Oregon Support

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

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances  Launch into Auto Scaling Group

You may want to consider launching these instances into an Auto Scaling Group to help you maintain application availability and for easy scaling in the future. [Learn how Auto Scaling can help your application stay healthy and cost effective.](#)

Purchasing option Request Spot instances

Network vpc-cd510ca5 (172.31.0.0/16) | default (default)

Subnet No preference (default subnet in any Availability Zone)

Auto-assign Public IP Use subnet setting (Enable)

IAM role None

Buttons: Cancel Previous **Review and Launch** Next: Add Storage

Add Storage: 80 GB

AWS Services Edit IMC Institute Oregon Support

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

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Delete on Termination	Encrypted
Root	/dev/sda1	snap-306df873	80	General Purpose S	240 / 3000	<input checked="" type="checkbox"/>	Not Encrypted
Instance Store 0	/dev/sdb	N/A	N/A	N/A	N/A	N/A	Not Encrypted 
Instance Store 1	/dev/sdc	N/A	N/A	N/A	N/A	N/A	Not Encrypted 

Add New Volume

Cancel Previous **Review and Launch** Next: Tag Instance

Name the instance

The screenshot shows the AWS EC2 instance creation process at Step 5: Tag Instance. The top navigation bar includes links for AWS, Services, Edit, IMC Institute, Oregon, and Support. Below the navigation is a progress bar with steps 1 through 7. Step 5, "Tag Instance," is highlighted with an orange underline. The main area is titled "Step 5: Tag Instance" and contains instructions about tagging EC2 resources. A table allows defining key-value pairs. One row is shown with the key "Name" and value "Cloudera-Demo". A "Create Tag" button is available for adding more tags. At the bottom are buttons for Cancel, Previous, Review and Launch (which is blue and bold), and Next: Configure Security Group.

Key	(127 characters maximum)	Value	(255 characters maximum)
Name	Cloudera-Demo	X	

Create Tag (Up to 10 tags maximum)

Cancel Previous **Review and Launch** Next: Configure Security Group

Select Create a new security group > Add Rule as follows

The screenshot shows the AWS EC2 instance creation wizard at Step 6: Configure Security Group. The top navigation bar includes AWS, Services, Edit, IMC Institute, Oregon, and Support. Below the navigation, a progress bar shows steps 1 through 7, with Step 6 highlighted. The main content area is titled "Step 6: Configure Security Group". It explains that a security group is a set of firewall rules that control traffic for your instance. It allows adding rules to allow specific traffic to reach the instance, such as HTTP and HTTPS ports. It also mentions creating a new security group or selecting an existing one. A link to learn more about Amazon EC2 security groups is provided.

Assign a security group: Create a new security group
 Select an existing security group

Security group name: cloudera-sgp

Description: launch-wizard-48 created 2015-05-09T06:32:38Z+07:00

Type	Protocol	Port Range	Source	Action
SSH	TCP	22	Anywhere	X
All TCP	TCP	0 - 65535	Anywhere	X
All ICMP	ICMP	0 - 65535	Anywhere	X

Add Rule

Warning

Cancel Previous Review and Launch

Click Launch and choose imchadoop as a key pair

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

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

imchadoop

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

[Cancel](#) [Launch Instances](#)

Review an instance and rename one instance as a master / click **Connect** for an instruction to connect to the instance

The screenshot shows the AWS EC2 Instances page. The top navigation bar includes AWS Services, Edit, IMC Institute (Oregon), Support, and various icons. On the left, a sidebar lists EC2 Dashboard, Events, Tags, Reports, Limits, and sections for INSTANCES, Instances, Spot Requests, Reserved Instances, Scheduled Instances, Commands, and Dedicated Hosts. The Instances section is currently selected. The main content area displays a table of five instances:

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status
Cloudera-Demo	i-783431a2	m3.xlarge	us-west-2c	running	2/
Cloudera-Demo	i-7e3431a4	m3.xlarge	us-west-2c	running	2/
Cloudera-Demo-Master	i-7f3431a5	m3.xlarge	us-west-2c	running	2/
Cloudera-Demo	i-793431a3	m3.xlarge	us-west-2c	running	2/

Below the table, it says "Instance: i-7f3431a5 (Cloudera-Demo-Master)" and "Public DNS: ec2-54-201-147-59.us-west-2.compute.amazonaws.com". There are three small square icons at the bottom right.

Connect to an instance from Mac/Linux

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 (imchadoop.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 imchadoop.pem`
4. Connect to your instance using its Public DNS:
`ec2-54-201-147-59.us-west-2.compute.amazonaws.com`

Example:

`ssh -i "imchadoop.pem" ubuntu@ec2-54-201-147-59.us-west-2.compute.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

Can also view details of the instance such as Public IP and Private IP

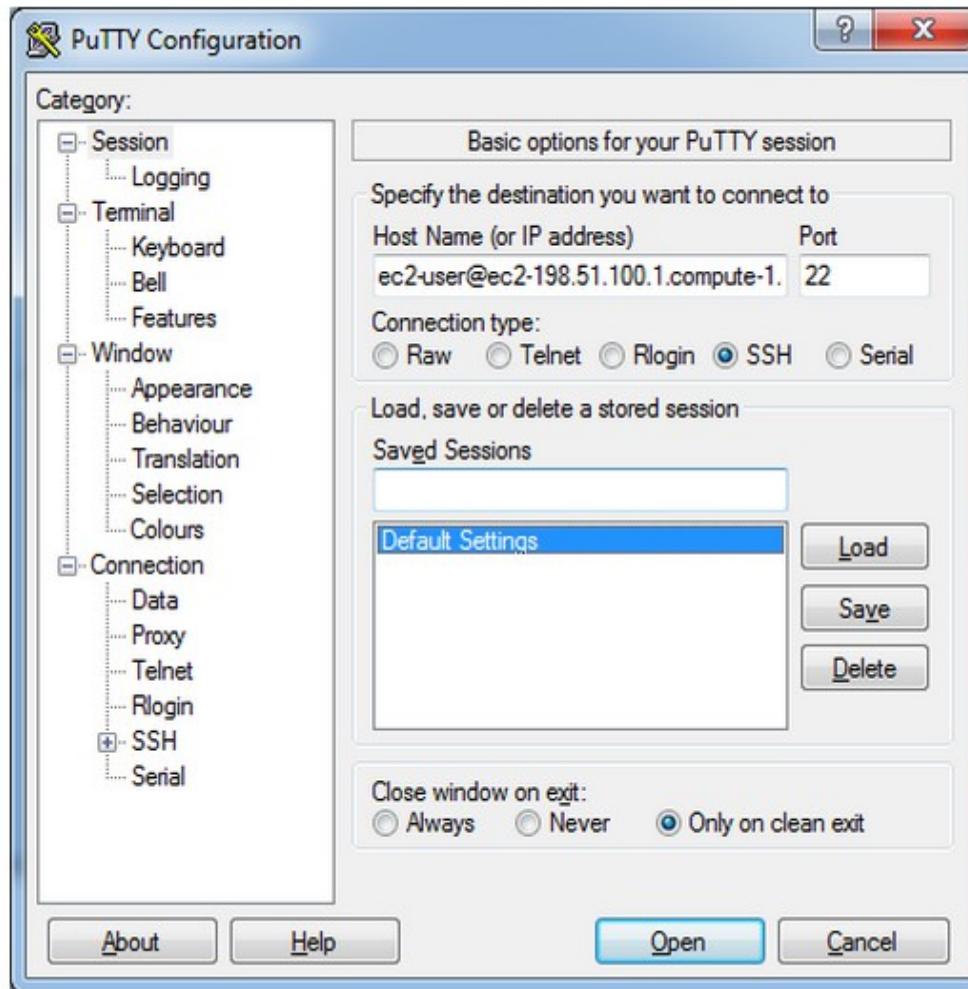
The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with navigation links like EC2 Dashboard, Events, Tags, Reports, Limits, INSTANCES (with Instances selected), Spot Requests, Reserved Instances, Scheduled Instances, Commands, Dedicated Hosts, and IMAGES (with AMIs selected). The main content area has tabs for Launch Instance, Connect, and Actions. Below that is a search bar and a table with columns for Name, Instance ID, Instance Type, Availability Zone, Instance State, and Status. One row is selected for 'Cloudera-Demo-Master'. The table provides detailed information for this instance, including its state, type, DNS names, and network details. Two specific fields, 'Private IPs' (172.31.10.53) and 'Public IP' (54.201.147.59), are highlighted with red circles.

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status
Cloudera-Demo-Master	i-7f3431a5	m3.xlarge	us-west-2c	running	2/2

Instance state: running
Instance type: m3.xlarge
Private DNS: ip-172-31-10-53.us-west-2.compute.internal
Public IP: 54.201.147.59
Elastic IP: -
Availability zone: us-west-2c
Security groups: default, view rules
Scheduled events: No scheduled events
AMI ID: ubuntu-trusty-14.04-amd64-server-20160114.5 (ami-)

Private IPs: 172.31.10.53
Secondary private IPs:
VPC ID: vpc-cd510ca5

Connect to an instance from Windows using Putty



Connect to the instance

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

WARNING! Your environment specifies an invalid locale.

This can affect your user experience significantly, including the ability to manage packages. You may install the locales by running:

```
sudo apt-get install language-pack-UTF-8
or
sudo locale-gen UTF-8
```

To see all available language packs, run:

```
apt-cache search "^language-pack-[a-z][a-z]$"
```

To disable this message for all users, run:

```
sudo touch /var/lib/cloud/instance/locale-check.skip
```

```
ubuntu@ip-172-31-1-242:~$
```

Hands-On: Installing Cloudera on EC2

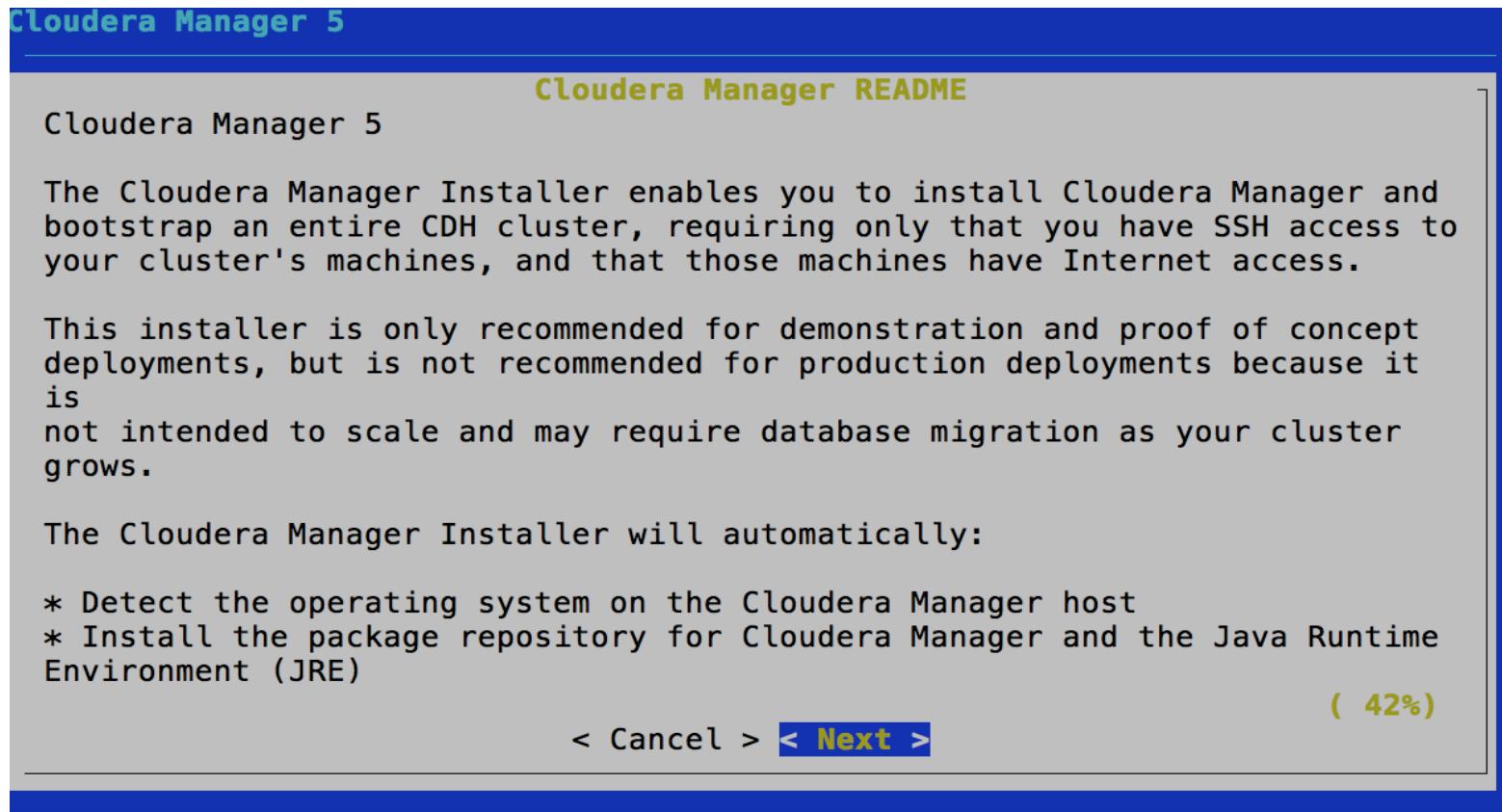
Download Cloudera Manager

1) Type command >`wget`

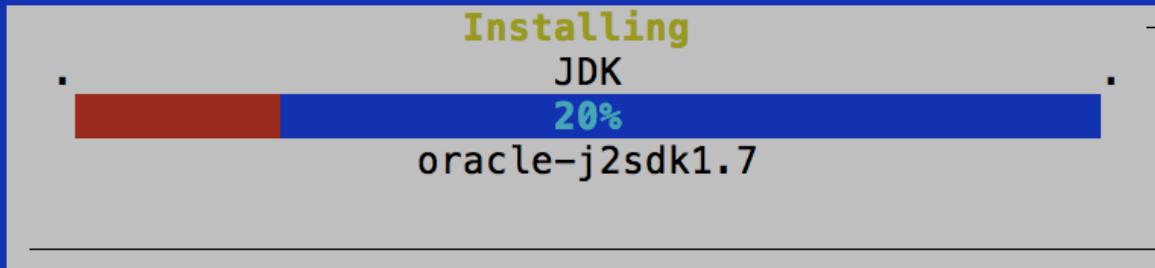
`http://archive.cloudera.com/cm5/installer/latest/cloudera-manager-installer.bin`

2) Type command > `chmod u+x cloudera-manager-installer.bin`

3) Type command > `sudo ./cloudera-manager-installer.bin`



Cloudera Manager 5



Cloudera Manager 5

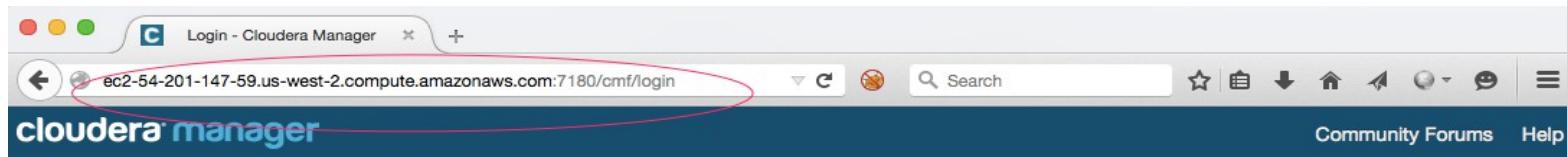
Next step

Point your web browser to `http://localhost:7180/`. Log in to Cloudera Manager with username: 'admin' and password: 'admin' to continue installation. (Note that the hostname may be incorrect. If the url does not work, try the hostname you use when remotely connecting to this machine.) If you have trouble connecting, make sure you have disabled firewalls, like iptables.

< OK >

Login to Cloudera Manager

**Wait several minutes for the Cloudera Manager Server to complete its startup.
Then running web browser: http:// public-dns: 7180**

A screenshot of the Cloudera Manager login interface. It features a light gray background with a central "Login" button at the top. Below it are two input fields: "Username:" and "Password:", each with a corresponding text input box. Underneath these fields is a checkbox labeled "Remember me on this computer." At the bottom of the form is a large, dark blue "Login" button.

Accept the User License terms

Welcome to Cloudera Manager

End User License Terms and Conditions

Cloudera Standard License

Version 2015-08-06

END USER LICENSE TERMS AND CONDITIONS

THESE TERMS AND CONDITIONS (THESE "TERMS") APPLY TO YOUR USE OF THE PRODUCTS (AS DEFINED BELOW) PROVIDED BY CLOUDERA, INC. ("CLOUDERA").

PLEASE READ THESE TERMS CAREFULLY.

IF YOU ("YOU" OR "CUSTOMER") PLAN TO USE ANY OF THE PRODUCTS ON BEHALF OF A COMPANY OR OTHER ENTITY, YOU REPRESENT THAT YOU ARE THE EMPLOYEE OR AGENT OF SUCH COMPANY (OR OTHER ENTITY) AND YOU HAVE THE AUTHORITY TO ACCEPT ALL OF THE TERMS AND CONDITIONS SET FORTH IN AN ACCEPTED REQUEST (AS DEFINED BELOW) AND THESE TERMS (COLLECTIVELY, THE "AGREEMENT") ON BEHALF OF SUCH COMPANY (OR OTHER ENTITY).

BY USING ANY OF THE PRODUCTS, YOU ACKNOWLEDGE AND AGREE THAT:

- (A) YOU HAVE READ ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT;
- (B) YOU UNDERSTAND ALL OF THE TERMS AND CONDITIONS OF THIS AGREEMENT;
- (C) YOU AGREE TO BE LEGALLY BOUND BY ALL OF THE TERMS AND CONDITIONS SET FORTH IN THIS AGREEMENT

Yes, I accept the End User License Terms and Conditions.

1 2

« Back

» Continue

Select Cloudera Express Edition

cloudera manager

Support  admin 

Welcome to Cloudera Manager. Which edition do you want to deploy?

Upgrading to **Cloudera Enterprise Data Hub Edition** provides important features that help you manage and monitor your Hadoop clusters in mission-critical environments.

	Cloudera Express	Cloudera Enterprise Data Hub Edition Trial	Cloudera Enterprise
License	Free 	60 Days After the trial period, the product will continue to function as Cloudera Express . Your cluster and your data will remain unaffected.	Annual Subscription Upload License
Node Limit	Unlimited	Unlimited	Unlimited
CDH			
Core Cloudera Manager Features			
Advanced Cloudera Manager Features			
Cloudera Navigator			

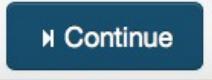
 Continue

Thank you for choosing Cloudera Manager and CDH.

This installer will install **Cloudera Express 5.4.0** and enable you to later choose packages for the services below (there may be some license implications).

- Apache Hadoop (Common, HDFS, MapReduce, YARN)
- Apache HBase
- Apache ZooKeeper
- Apache Oozie
- Apache Hive
- Hue (Apache licensed)
- Apache Flume
- Cloudera Impala (Apache licensed)
- Apache Sentry
- Apache Sqoop
- Cloudera Search (Apache licensed)
- Apache Spark

You are using Cloudera Manager to install and configure your system. You can learn more about Cloudera Manager by clicking on the **Support** menu above.

 Continue

Provide your 4 instances <private ip> addresses in the cluster

cloudera manager

Support ▾ admin ▾

Specify hosts for your CDH cluster installation.

Hosts should be specified using the same hostname (FQDN) that they will identify themselves with.

Cloudera recommends including Cloudera Manager Server's host. This also enables health monitoring for that host.

Hint: Search for hostnames and/or IP addresses using [patterns](#).

172.31.10.50, 172.31.10.51, 172.31.10.52, 172.31.10.53

SSH Port:

◀ Back

Continue ▶

Specify hosts for your CDH cluster installation.

Hosts should be specified using the same hostname (FQDN) that they will identify themselves with.

Cloudera recommends including Cloudera Manager Server's host. This also enables health monitoring for that host.

Hint: Search for hostnames and/or IP addresses using [patterns](#).

4 hosts scanned, 4 running SSH.

New Search

<input checked="" type="checkbox"/> Expanded Query	Hostname (FQDN)	IP Address	Currently Managed	Result
<input checked="" type="checkbox"/>	172.31.10.50	ip-172-31-10-50.us-west-2.compute.internal	172.31.10.50	No
<input checked="" type="checkbox"/>	172.31.10.51	ip-172-31-10-51.us-west-2.compute.internal	172.31.10.51	No
<input checked="" type="checkbox"/>	172.31.10.52	ip-172-31-10-52.us-west-2.compute.internal	172.31.10.52	No
<input checked="" type="checkbox"/>	172.31.10.53	ip-172-31-10-53.us-west-2.compute.internal	172.31.10.53	No

◀ Back

Continue ▶

Cluster Installation

Select Repository

Cloudera recommends the use of parcels for installation over packages, because parcels enable Cloudera Manager to easily manage the software on your cluster, automating the deployment and upgrade of service binaries. Electing not to use parcels will require you to manually upgrade packages on all hosts in your cluster when software updates are available, and will prevent you from using Cloudera Manager's rolling upgrade capabilities.

Choose Method

Use Packages ?

Use Parcels (Recommended) ? More Options

Select the version of CDH

CDH-5.6.0-1.cdh5.6.0.p0.45

CDH-4.7.1-1.cdh4.7.1.p0.47

Versions of CDH that are too new for this version of Cloudera Manager (5.6.0) will not be shown.

Additional Parcels

ACCUMULO-1.6.0-1.cdh5.1.4.p0.116

1 2 3 4 5 6 7 8

◀ Back

Continue ▶

Select install Oracle Java & Java unlimited

Cluster Installation

JDK Installation Options

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For inquiries please contact: Oracle America, Inc., 500 Oracle Parkway,

Redwood Shores, California 94065, USA.

Last updated 02 April 2013

Install Oracle Java SE Development Kit (JDK)

Check this box to accept the Oracle Binary Code License Agreement and install the JDK. Leave it unchecked to use a currently installed JDK.

Install Java Unlimited Strength Encryption Policy Files

Check this checkbox if local laws permit you to deploy unlimited strength encryption and you are running a secure cluster.

Cluster Installation

Enable Single User Mode

Only supported for CDH 5.2 and above.

By default, service processes run as distinct users on the system. For example, HDFS DataNodes run as user "hdfs" and HBase RegionServers run as user "hbase." Enabling "single user mode" configures Cloudera Manager to run service processes as a single user, by default "cloudera-scm", thereby prioritizing isolation between managed services and the rest of the system over isolation between the managed services.

The **major benefit** of this option is that the Agent does not run as root. However, this mode complicates installation, which is described fully in the [documentation](#). Most notably, directories which in the regular mode are created automatically by the Agent, must be created manually on every host with appropriate permissions, and sudo (or equivalent) access must be set up for the configured user.

Switching back and forth between single user mode and regular mode is not supported.

Single User Mode



1 2 3 4 5 6 7 8

« Back

« Continue



Define user as **ubuntu** & Browse the private key (imchadoop.pem) file which we have downloaded in the previous part. Keep Passphrase as blank

Cluster Installation

Provide SSH login credentials.

Root access to your hosts is required to install the Cloudera packages. This installer will connect to your hosts via SSH and log in either directly as root or as another user with password-less sudo/pbrun privileges to become root.

Login To All Hosts As:

- root
- Another user

ubuntu (with password-less sudo/pbrun to root)

You may connect via password or public-key authentication for the user selected above.

Authentication Method:

- All hosts accept same password
- All hosts accept same private key

Private Key File:

imchadoop.pem

Enter Passphrase:

Confirm Passphrase:

SSH Port:

22

1 2 3 4 5 6 7 8

Cluster Installation

Installation completed successfully.

4 of 4 host(s) completed successfully.

Hostname	IP Address	Progress	Status	
ip-172-31-10-50.us-west-2.compute.internal	172.31.10.50	<div style="width: 100%; background-color: #2e7131;"></div>	Installation completed successfully.	Details 
ip-172-31-10-51.us-west-2.compute.internal	172.31.10.51	<div style="width: 100%; background-color: #2e7131;"></div>	Installation completed successfully.	Details 
ip-172-31-10-52.us-west-2.compute.internal	172.31.10.52	<div style="width: 100%; background-color: #2e7131;"></div>	Installation completed successfully.	Details 
ip-172-31-10-53.us-west-2.compute.internal	172.31.10.53	<div style="width: 100%; background-color: #2e7131;"></div>	Installation completed successfully.	Details 



 Back

1 2 3 4 5 6 7 8

 Continue

Cluster Installation

Installing Selected Parcels

The selected parcels are being downloaded and installed on all the hosts in the cluster.

[◀ Back](#)[1](#) [2](#) [3](#) [4](#)[▶ Continue](#)

Cluster Installation

Inspect hosts for correctness

Validations

- ✓ Inspector ran on all 1 hosts.
 - ✓ The following failures were observed in checking hostnames...
 - ✓ No errors were found while looking for conflicting init scripts.
 - ✓ No errors were found while checking /etc/hosts.
 - ✓ All hosts resolved localhost to 127.0.0.1.
 - ✓ All hosts checked resolved each other's hostnames correctly and in a timely manner.
 - ✓ Host clocks are approximately in sync (within ten minutes).
 - ✓ Host time zones are consistent across the cluster.
 - ✓ No users or groups are missing.
 - ✓ No conflicts detected between packages and parcels.
 - ✓ No kernel versions that are known to be bad are running.
- ⚠** Cloudera recommends setting /proc/sys/vm/swappiness to at most 10. Current setting is 60. Use the `sysctl` command to change this setting at runtime and edit `/etc/sysctl.conf` for this setting to be saved after a reboot. You may continue with installation, but you may run into issues with Cloudera Manager reporting that your hosts are unhealthy because they are swapping. The following hosts are affected:

1 2 3 4

Back

Finish

Cluster Setup

Choose the CDH 5 services that you want to install on your cluster.

Choose a combination of services to install.

Core Hadoop

HDFS, YARN (MapReduce 2 Included), ZooKeeper, Oozie, Hive, Hue, and Sqoop

Core with HBase

HDFS, YARN (MapReduce 2 Included), ZooKeeper, Oozie, Hive, Hue, Sqoop, and HBase

Core with Impala

HDFS, YARN (MapReduce 2 Included), ZooKeeper, Oozie, Hive, Hue, Sqoop, and Impala

Core with Search

HDFS, YARN (MapReduce 2 Included), ZooKeeper, Oozie, Hive, Hue, Sqoop, and Solr

Core with Spark

HDFS, YARN (MapReduce 2 Included), ZooKeeper, Oozie, Hive, Hue, Sqoop, and Spark

All Services

HDFS, YARN (MapReduce 2 Included), ZooKeeper, Oozie, Hive, Hue, Sqoop, HBase, Impala, Solr, Spark, and Key-Value Store Indexer

Custom Services

Choose your own services. Services required by chosen services will automatically be included. Flume can be added after your initial cluster has been set up.

This wizard will also install the **Cloudera Management Service**. These are a set of components that enable monitoring, reporting, events, and alerts; these components require

Cluster Setup

Customize Role Assignments

You can customize the role assignments for your new cluster here, but if assignments are made incorrectly, such as assigning too many roles to a single host, this can impact the performance of your services. Cloudera does not recommend altering assignments unless you have specific requirements, such as having pre-selected a specific host for a specific role.

You can also view the role assignments by host. [View By Host](#)

H HBase

M Master × 1 New

ip-172-31-26-220.us-west-2.compute.i...

HBRES HBase REST Server

Select hosts

HBTS HBase Thrift Server

Select hosts

RS RegionServer × 3 New

Same As DataNode ▾

D HDFS

NN NameNode × 1 New

ip-172-31-26-220.us-west-2.compute.i...

SNN SecondaryNameNode × 1 New

ip-172-31-26-220.us-west-2.compute.i...

B Balancer × 1 New

ip-172-31-26-220.us-west-2.compute.i...

HFS HttpFS

Select hosts

NFSG NFS Gateway

Select hosts

DN DataNode × 3 New

ip-172-31-26-[221-223].us-west-2.compute.

Hive

1 2 3 4 5 6

◀ Back

▶ Continue

Cluster Setup

Database Setup

Configure and test database connections. If using custom databases, create the databases first according to the [Installing and Configuring an External Database](#) section of the [Installation Guide](#).

- Use Custom Databases
- Use Embedded Database

When using the embedded database, passwords are automatically generated. Please copy them down.

Hive

Database Host Name:

ip-172-31-1-242.us-west-2.compute.internal

Database Type:

PostgreSQL

Database Name :

hive

Username:

hive

Password:

bV6sUA8gPH

Oozie Server

Currently assigned to run on ip-172-31-1-242.us-west-2.compute.internal.

Database Host Name:

ip-172-31-1-242.us-west-2.compute.internal

Database Type:

PostgreSQL

Database Name :

oozie_oozie_se

Username:

oozie_oozie_se

Password:

6MvnYMQkTE



Test Connection

Cluster Setup

Database Setup

Configure and test database connections. If using custom databases, create the databases first according to the [Installing and Configuring an External Database](#) section of the [Installation Guide](#).

- Use Custom Databases
 Use Embedded Database

When using the embedded database, passwords are automatically generated. Please copy them down.

Hive

✓ Skipped. Cloudera Manager will create this database in a later step.

Database Host Name:

ip-172-31-1-242.us-west-2.compute.internal

Database Type:

PostgreSQL

Database Name :

hive

Username:

hive

Password:

bV6sUA8gPH

Oozie Server

✓ Skipped. Cloudera Manager will create this database in a later step.

Currently assigned to run on ip-172-31-1-242.us-west-2.compute.internal.

Database Host Name:

ip-172-31-1-242.us-west-2.compute.internal

Database Type:

PostgreSQL

Database Name :

oozie_oozie_se

Username:

oozie_oozie_se

Password:

6MvnYMQkTE

« Back

1 2 3 4 5 6

Test Connection

» Continue

Cluster Setup

Review Changes

HDFS Root Directory hbase.rootdir	Cluster 1 > HBase (Service-Wide) <input type="text" value="/hbase"/>	
Enable Replication hbase.replication	Cluster 1 > HBase (Service-Wide) <input checked="" type="checkbox"/>	
Enable Indexing	Cluster 1 > HBase (Service-Wide) <input checked="" type="checkbox"/>	
DataNode Data Directory dfs.data.dir, dfs.datanode.data.dir	Cluster 1 > DataNode Default Group <input type="text" value="/dfs/dn"/> <input type="text" value="/mnt/dfs/dn"/>	
DataNode Failed Volumes Tolerated dfs.datanode.failed.volumes.tolerated	Cluster 1 > DataNode Default Group <input type="text" value="1"/>	

Back 1 2 3 4 5 6 **Continue**

Cluster Setup

* First Run Command

Status: **Running** Start Time: Jan 20, 4:41:25 PM[Abort](#)

Details [Completed 5 of 9 step\(s\).](#)

 All Failed Only Running Only

Step	Context	Start Time	Duration	Actions
➤ ✓ Deploy Client Configuration Successfully deployed all client configurations.	Cluster 1	Jan 20, 4:41:25 PM	15.96s	
➤ ✓ Start Cloudera Management Service, ZooKeeper Successfully completed 2 steps.		Jan 20, 4:41:41 PM	25.72s	
➤ ✓ Start HDFS Successfully completed 1 steps.		Jan 20, 4:42:07 PM	40.62s	
➤ ✓ Start HBase, Solr Successfully completed 2 steps.		Jan 20, 4:42:48 PM	56.4s	
➤ ✓ Start YARN (MR2 Included), Key-Value Store Indexer Successfully completed 2 steps.		Jan 20, 4:43:44 PM	77.2s	
➤ ⚡ Start Spark 0/1 steps completed.		Jan 20, 4:45:01 PM		

[1](#) [2](#) [3](#) [4](#) [5](#) [6](#)[Back](#)[Continue](#)

Finish

- ✓ Creating Hive Metastore Database
Created Hive Metastore Database.
[Details ↗](#)
- ✓ Creating Hive user directory
Successfully created HDFS directory.
[Details ↗](#)
- ✓ Creating Hive warehouse directory
Successfully created HDFS directory.
[Details ↗](#)
- ✓ Starting Hive Service
Service started successfully.
[Details ↗](#)
- ✓ Creating Oozie database
Oozie database created successfully.
[Details ↗](#)
- ✓ Installing Oozie ShareLib in HDFS
Successfully installed Oozie ShareLib.
[Details ↗](#)
- ✓ Starting Oozie Service
Service started successfully.
[Details ↗](#)
- ✓ Starting Hue Service
Service started successfully.
[Details ↗](#)
- ✓ Deploying Client Configuration
Successfully deployed all client configurations.
[Details ↗](#)

Cluster Setup

Congratulations!

The services are installed, configured, and running on your cluster.



Search (Hotkey: /)

Support

admin

Home

30 minutes preceding January 20, 2016, 4:49 PM UTC

 Status All Health Issues Configuration X 5 All Recent Commands

Add Cluster

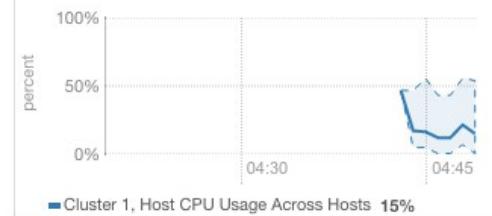
Try Cloudera Enterprise Data Hub Edition for 60 Days

Cluster 1 (CDH 5.5.1, Parcels)

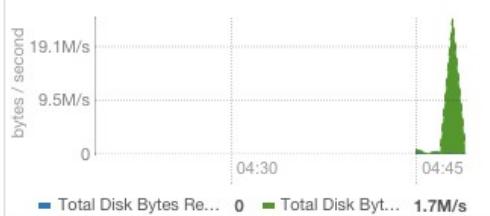
	Hosts	
	HBase	
	HDFS	X 1
	Hive	
	Hue	X 1
	Impala	
	Key-Value Store...	
	Oozie	
	Solr	
	Spark	
	YARN (MR2 Incl...)	
	ZooKeeper	X 1

Charts

Cluster CPU



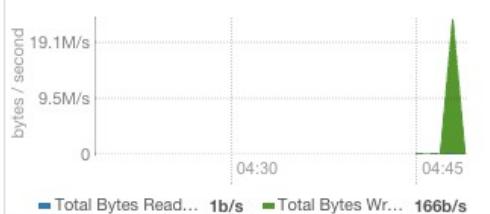
Cluster Disk IO



Cluster Network IO



HDFS IO



Cloudera Management Service

	Cloudera...	X 2
--	-------------	-----

Completed Impala Queries

Running Hue

cloudera manager Home Clusters Hosts Diagnostics Audits Charts Administration

8 Search (Hotkey: /) Support admin

30 minutes preceding May 9, 2015, 2:01 AM UTC

Home Status All Health Issues 1 Configuration 6 All Recent Commands Add Cluster

Try Cloudera Enterprise Data Hub Edition for 60 Days

Cluster 1 (CDH 5.4.0, Parcels)

- Hosts
- HBase
- HDFS 1 2
- Hive
- Hue** (circled)
- Impala
- Key-Value Store...
- Oozie
- Solr
- Spark
- Sqoop 2
- YARN (MR2 Incl...)
- ZooKeeper 1

Charts

Cluster CPU

percent Cluster 1, Host CPU Usage A... 3.6%

Cluster Disk IO

bytes / second Total Disk Bytes Rea... 0 Total Disk Byt... 86.3K/s

Cluster Network IO

bytes / second Total Bytes Re... 2.3K/s Total Bytes Tr... 12.8K/s

HDFS IO

bytes / second Total Bytes R... 0.98b/s Total Bytes W... 0.92b/s

Completed Impala Queries

Part 3: Hadoop as a Service

Hadoop Production: on Cloud

- Recommended
 - Amazon EMR
 - Azure HDInsight
- Amazon EMR
 - Install a cluster on 4 EC2 AWS
- Azure HD Insight
 - Install a cluster on 4 Virtual Servers Microsoft Azure

Hands-On: Launch a EMR Cluster

Select the EMR service

AWS Services

Storage Gateway Hybrid Storage Integration

Database

- RDS Managed Relational Database Service
- DynamoDB Managed NoSQL Database
- ElastiCache In-Memory Cache
- Redshift Fast, Simple, Cost-Effective Data Warehousing
- DMS Managed Database Migration Service

Networking

- VPC Isolated Cloud Resources
- Direct Connect Dedicated Network Connection to AWS
- Route 53 Scalable DNS and Domain Name Registration

Global and Local Standardized Products

Trusted Advisor Optimize Performance and Security

Security & Identity

- Identity & Access Management Manage User Access and Encryption Keys
- Directory Service Host and Manage Active Directory
- Inspector Analyze Application Security
- WAF Filter Malicious Web Traffic
- Certificate Manager Provision, Manage, and Deploy SSL/TLS Certificates

Analytics

- EMR  Managed Hadoop Framework
- Data Pipeline Orchestration for Data-Driven Workflows
- Elasticsearch Service Run and Scale Elasticsearch Clusters
- Kinesis Work with Real-Time Streaming Data
- Machine Learning Build Smart Applications Quickly and Easily

Application Services

- API Gateway Build, Deploy and Manage APIs
- AppStream Low Latency Application Streaming
- CloudSearch Managed Search Service
- Elastic Transcoder Easy-to-Use Scalable Media Transcoding
- SES Email Sending and Receiving Service
- SQS Message Queue Service
- SWF Workflow Service for Coordinating Application Components

Enterprise Applications

- WorkSpaces Desktops in the Cloud
- WorkDocs Secure Enterprise Storage and Sharing Service
- WorkMail Secure Email and Calendering Service

Resource Groups

AWS Marketplace 

Find and buy software, launch with 1-Click and pay by the hour.

AWS re:Invent Announcements 

Explore the next generation of AWS cloud capabilities. [See what's new](#)

Service Health

All services operating normally.

Updated: Oct 02 2016 07:40:00 GMT+0700

Service Health Dashboard

Select Create Cluster

The screenshot shows the AWS Amazon EMR service page. At the top, there is a navigation bar with icons for AWS, Services, Edit, and account information (IMC Institute, Oregon, Support). On the left, a sidebar lists options: Cluster list (selected), Security configurations, VPC subnets, and Help. The main content area has a title 'Amazon EMR' and a 'Create cluster' button. Below it is a table with one row of data. A red arrow points to the 'Create cluster' button.

	Name	ID	Status	Creation time (UTC+7)	Elapsed
<input type="checkbox"/>	ณ?ฉ ឧតិថតា	j-2RP8ZBKV4212P	Terminated User request	2016-09-15 18:46 (UTC+7)	55 min

Assign configuration

AWS Services Edit IMC Institute Oregon Support

Create Cluster - Quick Options [Go to advanced options](#)

General Configuration

Cluster name [i](#)

Logging [i](#)

S3 folder [i](#)

Launch mode Cluster [i](#) Step execution [i](#)

Software configuration

Vendor Amazon MapR

Release [i](#)

Applications Core Hadoop: Hadoop 2.7.2 with Ganglia 3.7.2, Hive 2.1.0, Hue 3.10.0, Mahout 0.12.2, Pig 0.16.0, and Tez 0.8.4 [i](#)

HBase: HBase 1.2.2 with Ganglia 3.7.2, Hadoop 2.7.2, Hive 2.1.0, Hue 3.10.0, Phoenix 4.7.0, and [i](#)

Choose EC2 key pair

Hardware configuration

Instance type m3.xlarge

Number of instances 3 (1 master and 2 core nodes)

Security and access

EC2 key pair imchadoop

[Learn how to create an EC2 key pair.](#)

Permissions Default Custom

Use default IAM roles. If roles are not present, they will be automatically created for you with managed policies for automatic policy updates.

EMR role EMR_DefaultRole [i](#)

EC2 instance profile EMR_EC2_DefaultRole [i](#)



[Cancel](#)

[Create cluster](#)

View SSH login instruction

AWS Services Edit IMC Institute Oregon Support

Amazon EMR Cluster: IMC EMR Cluster Starting Configuring cluster software

Connections: Enable Web Connection – Hue, Ganglia, Resource Manager ... (View All)

Master public DNS: ec2-54-201-140-96.us-west-2.compute.amazonaws.com [SSH](#)

Tags: -- View All / Edit

Summary

ID: j-1K796C99WZW2Z

Creation date: 2016-10-02 07:46 (UTC+7)

Elapsed time: 4 minutes

Auto- No
terminate:

Termination Off Change
protection:

Configuration Details

Release label: emr-5.0.0

Hadoop Amazon 2.7.2 distribution:

Applications: Ganglia 3.7.2, Hive 2.1.0, Hue 3.10.0, Mahout 0.12.2, Pig 0.16.0, Tez 0.8.4

Log URI: s3://aws-logs-178319184631-us-west-2/elasticmapreduce/

EMRFS Disabled
consistent
view:



SSH

X

Connect to the Master Node Using SSH

You can connect to the Amazon EMR master node using SSH to run interactive queries, examine log files, submit Linux commands, and so on. [Learn more.](#)

[Windows](#)[Mac / Linux](#)

1. Open a terminal window. On Mac OS X, choose Applications > Utilities > Terminal. On other Linux distributions, terminal is typically found at Applications > Accessories > Terminal.
2. To establish a connection to the master node, type the following command. Replace `~/imchadoop.pem` with the location and filename of the private key file (.pem) used to launch the cluster.

```
ssh -i ~/imchadoop.pem hadoop@ec2-54-201-140-96.us-west-2.compute.amazonaws.com
```

3. Type yes to dismiss the security warning.

[Close](#)

Connect to the instance

```
https://aws.amazon.com/amazon-linux-ami/2016.03-release-notes/  
26 package(s) needed for security, out of 34 available  
Run "sudo yum update" to apply all updates.  
Amazon Linux version 2016.09 is available.  
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file  
or directory
```

EEEEEEEEEEEEEEEEEE	MMMMMM	MMMMMM	RRRRRRRRRRRRRR		
E:::::::::::E	M:::::M	M:::::M	R:::::::::R		
EE:::::EEEEEEEEE:::E	M:::::::M	M:::::::M	R:::::RRRRRR:::::R		
E::::E	EEEEEE M:::::::M	M:::::::M	RR:::::R	R:::::R	
E::::E	M:::::::M:::::M	M::::M:::::M	R::::R	R:::::R	
E:::::EEEEEEEEE	M:::::M M:::M M:::M M:::::M	M:::::M	R::::RRRRRR:::::R		
E:::::::::::E	M:::::M M:::M:::::M	M:::::M	R:::::::::::RR		
E:::::EEEEEEEEE	M:::::M M:::::M	M:::::M	R::::RRRRRR:::::R		
E::::E	M:::::M M:::M	M:::::M	R::::R	R:::::R	
E::::E	EEEEEE M:::::M	MMM	M:::::M	R::::R	R:::::R
EE:::::EEEEEEEEE:::E	M:::::::M	M:::::::M	R:::::R	R:::::R	
E:::::::::::E	M:::::::M	M:::::::M	RR:::::R	R:::::R	
EEEEEEEEEEEEEEEEEE	MMMMMM	MMMMMM	RRRRRR	RRRRR	

```
[hadoop@ip-172-31-39-165 ~]$
```

IT Trends Strategic Planning 2017

Towards Thailand 4.0

www.imcinstitute.com/ittrends

14 - 15 December 2016
@Chaophya Ballroom
Chaophya Park Hotel



Keynote: คุณกรรณ์ จاتิกวณิช

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