

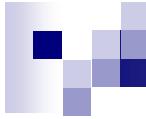


## **Module 2**

# **Big Data Processing using Cloudera Quickstart with a Docker Container**

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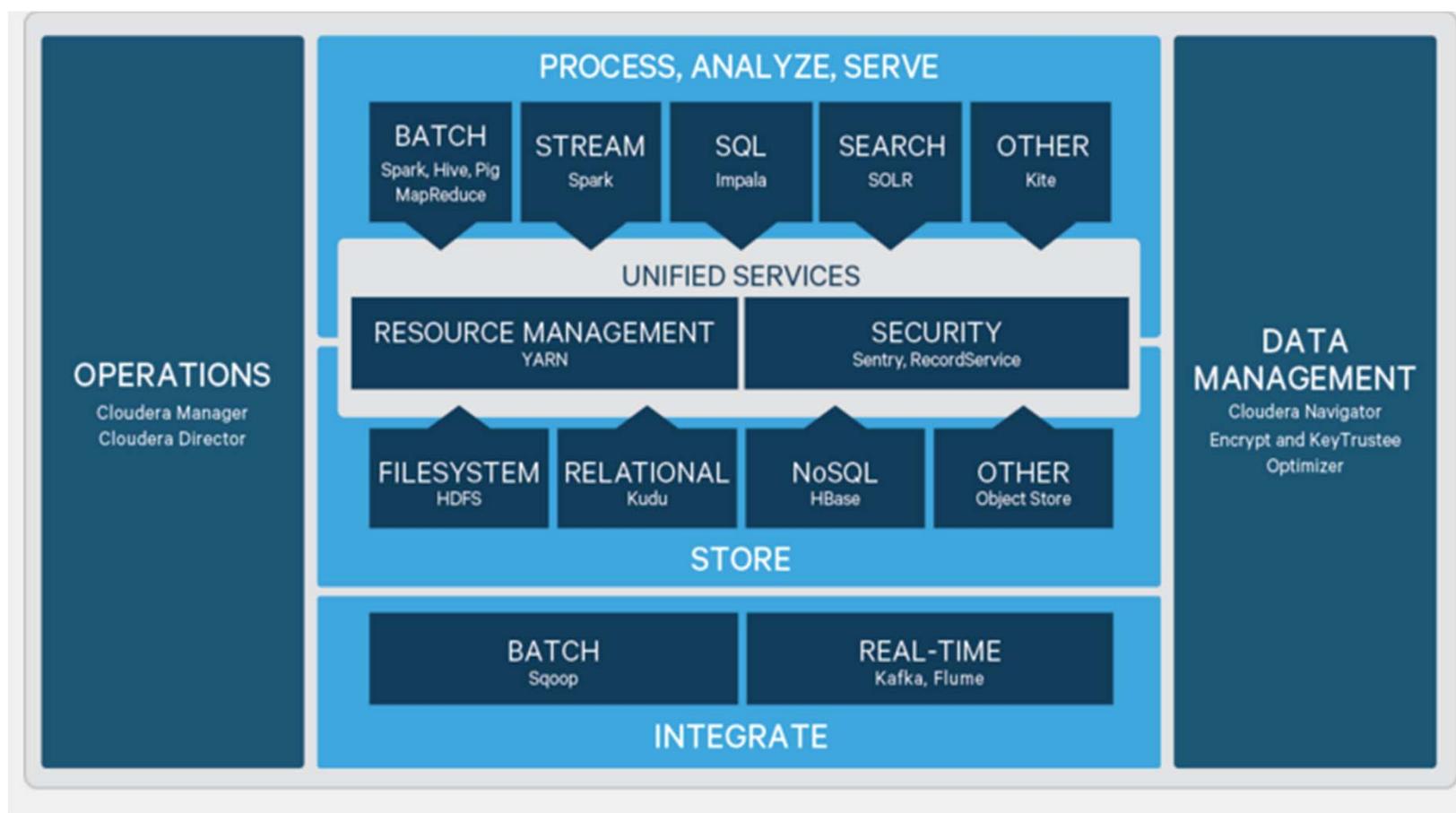
Thanisa Numnonda, Faculty of Information Technology,  
King Mongkut's Institute of Technology Ladkrabang



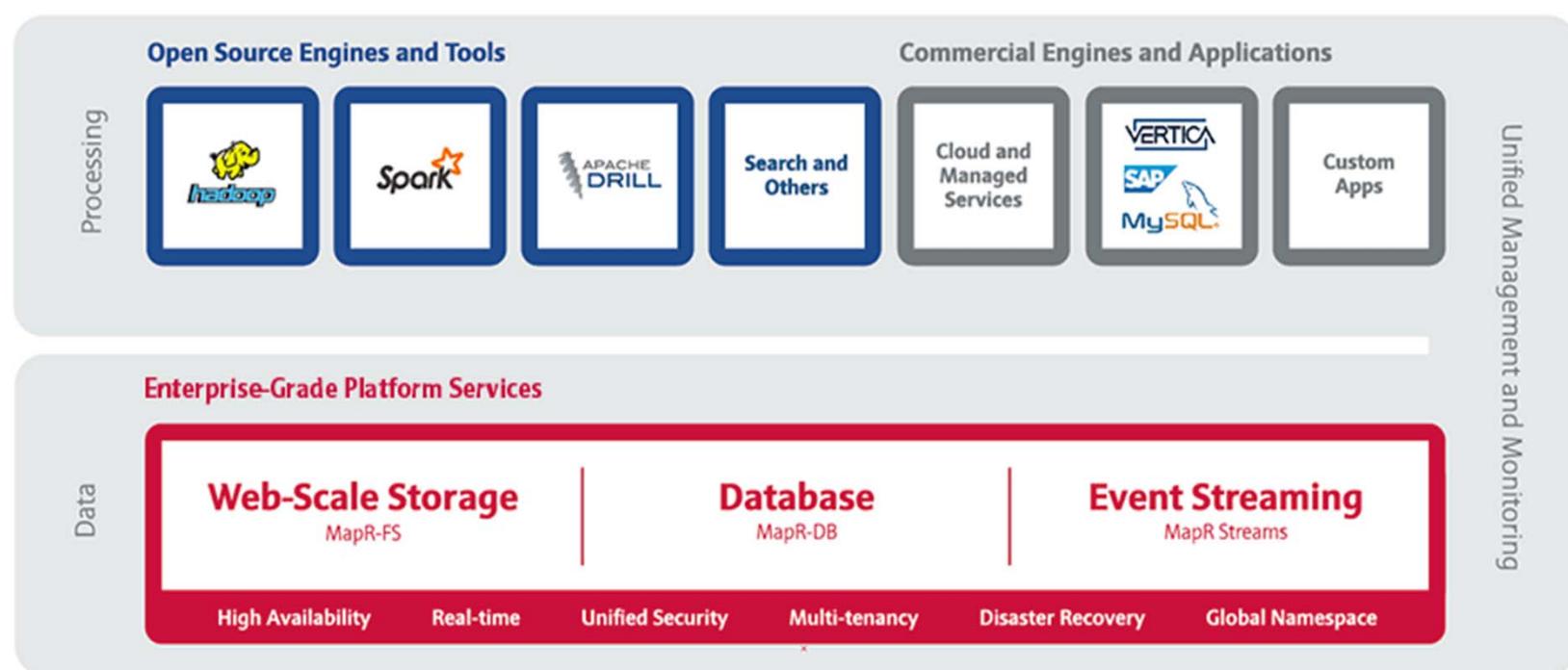
# Hadoop Distribution

- **On-Premise**
  - Pure Apache Hadoop
  - Cloudera
  - MapR
  - Hortonworks
- **On-Cloud (Hadoop as a Service)**
  - Amazon EMR
  - Microsoft Azure HDInsight
  - Google Cloud

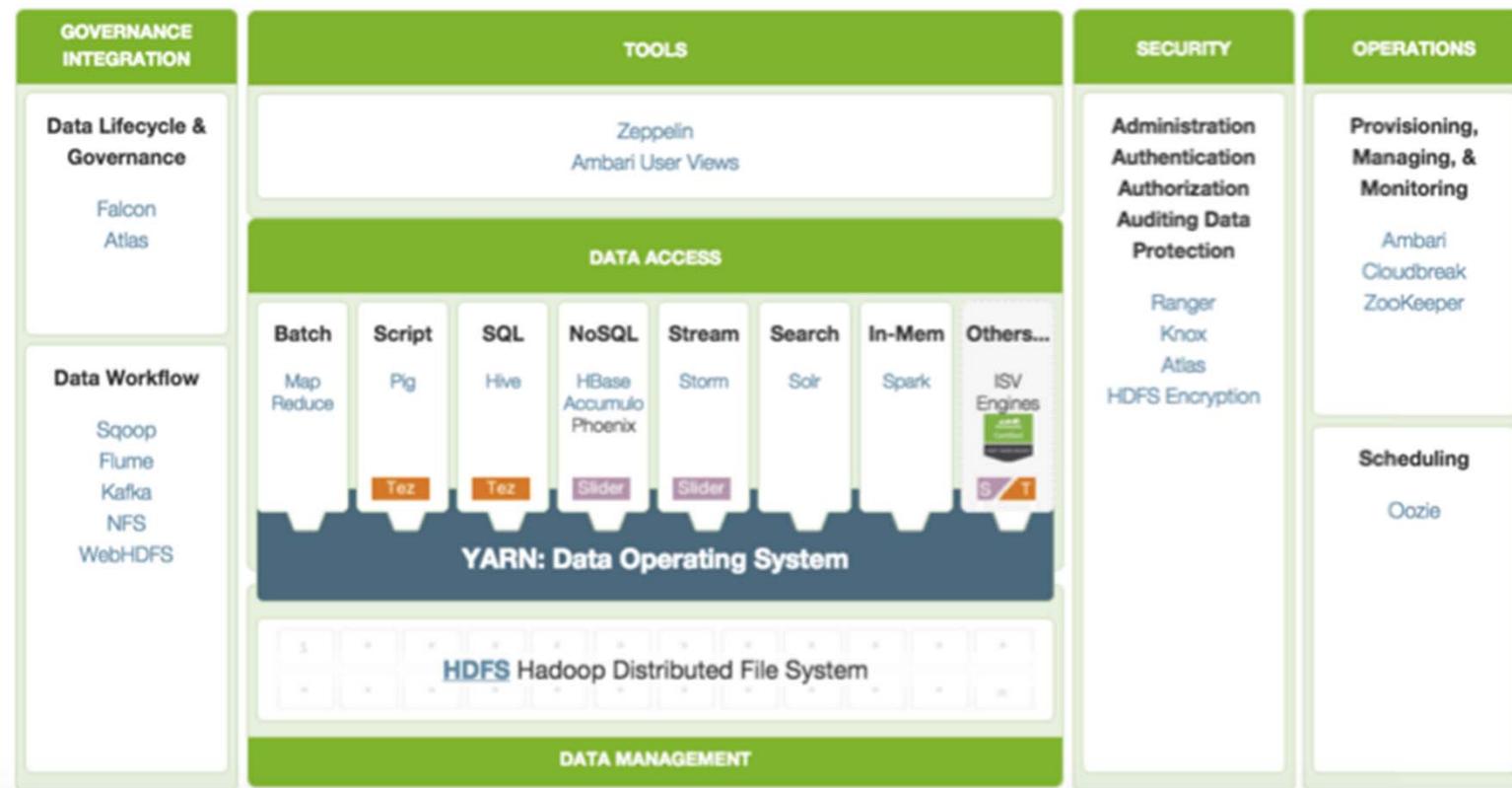
# Cloudera



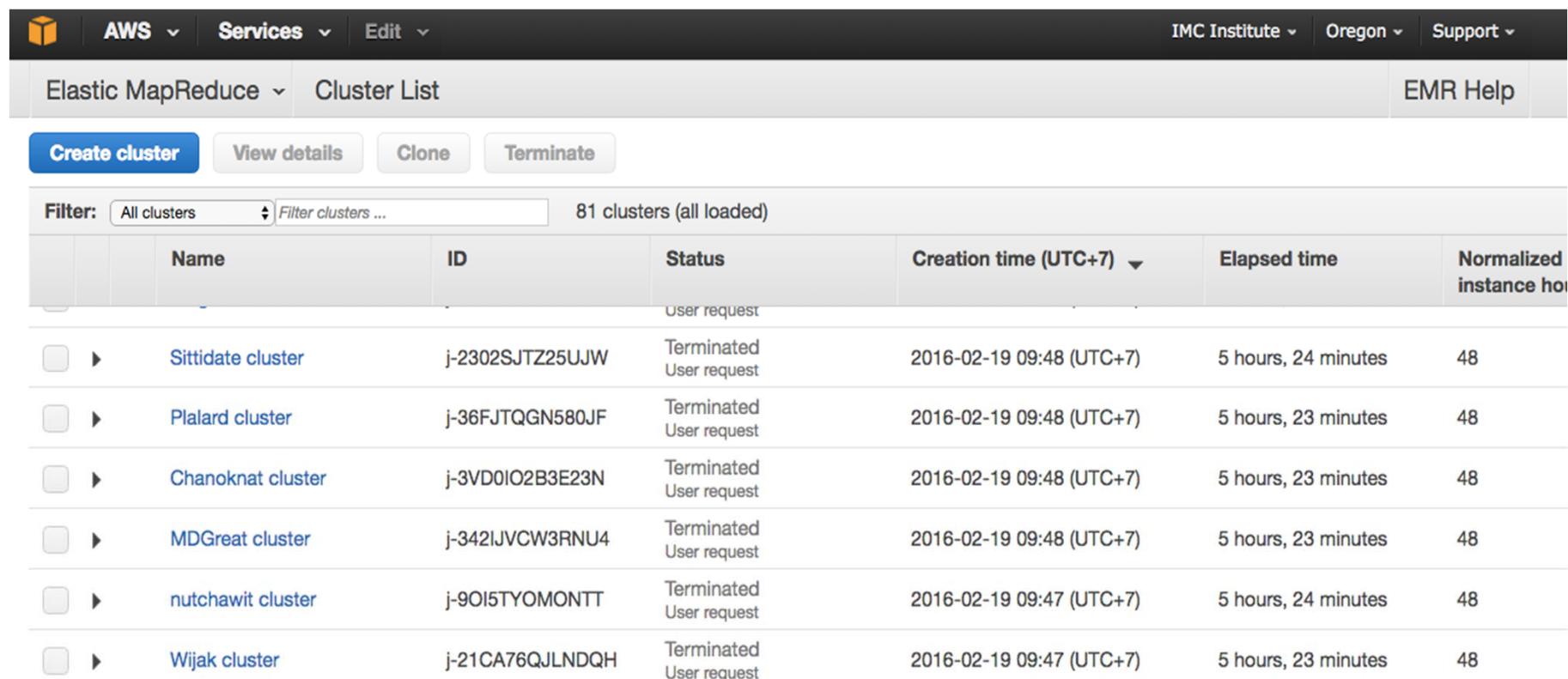
# MapR



# Hortonworks



# Amazon EMR



The screenshot shows the AWS Elastic MapReduce Cluster List interface. The top navigation bar includes links for AWS Services, Edit, IMC Institute, Oregon, and Support. Below the navigation is a toolbar with buttons for Create cluster, View details, Clone, and Terminate. A filter section allows filtering by cluster name or ID. The main table displays 81 clusters, all of which are terminated. The columns in the table are Name, ID, Status, Creation time (UTC+7), Elapsed time, and Normalized instance hours.

	Name	ID	Status	Creation time (UTC+7)	Elapsed time	Normalized instance hours
User request						
<input type="checkbox"/>	Sittidate cluster	j-2302SJTZ25UJW	Terminated User request	2016-02-19 09:48 (UTC+7)	5 hours, 24 minutes	48
<input type="checkbox"/>	Plalard cluster	j-36FJTQGN580JF	Terminated User request	2016-02-19 09:48 (UTC+7)	5 hours, 23 minutes	48
<input type="checkbox"/>	Chanoknat cluster	j-3VD0IO2B3E23N	Terminated User request	2016-02-19 09:48 (UTC+7)	5 hours, 23 minutes	48
<input type="checkbox"/>	MDGreat cluster	j-342IJVCW3RNU4	Terminated User request	2016-02-19 09:48 (UTC+7)	5 hours, 23 minutes	48
<input type="checkbox"/>	nutchawit cluster	j-90I5TYOMONTT	Terminated User request	2016-02-19 09:47 (UTC+7)	5 hours, 24 minutes	48
<input type="checkbox"/>	Wijak cluster	j-21CA76QJLNDQH	Terminated User request	2016-02-19 09:47 (UTC+7)	5 hours, 23 minutes	48

# Microsoft Azure HDInsight

 <p><b>Azure HDInsight</b></p> <ul style="list-style-type: none"><li>• Built on top of HDP</li><li>• Integration with Azure Blob Storage, Excel, PowerBI, HBase</li></ul>
 <p><b>Hortonworks Data Platform</b></p> <ul style="list-style-type: none"><li>• Enterprise Hadoop Platform (HDP)</li><li>• Leaders in Hadoop</li><li>• Key Code committers to Hadoop</li></ul>
 <p><b>Apache Hadoop</b></p> <ul style="list-style-type: none"><li>• Open Source Software</li><li>• Community Development</li></ul>



# Running Cloudera Docker on Google Cloud

cloudera



Google Cloud Platform



# Our Works

- Launch a Virtual Server (Ubuntu) on Google Cloud
- Install Docker on Ubuntu
- Pull Cloudera QuickStart to the Docker



cloud.google.com => Try free

The screenshot shows the Google Cloud homepage at https://cloud.google.com. The URL is visible in the browser bar along with a lock icon and the page's title. The page features a large headline "Make your next move here". Below it are two main sections: one for "Google Cloud Platform" and one for "G Suite". Each section has a "TRY GCP FREE" button, a "CONTACT SALES" link, and a "LEARN MORE" link. A red arrow points to the "Try free" button in the G Suite section.

← → ⌛ 🏠 https://cloud.google.com 110% ⋮ ⌂ ⭐ Search ⌚ ⌚ ⌚

Google Cloud Why Google Solutions Products Pricing Getting started Docs Support Console

Contact sales Try free

# Make your next move here

Build, innovate, and scale with Google Cloud Platform.

TRY GCP FREE CONTACT SALES

Collaborate and be more productive with G Suite.

LEARN MORE

## Get started with Google Cloud Platform

Sign up and get \$300 to spend on Google Cloud Platform over the next 12 months.

### Step 1 of 2

#### Country

Thailand

#### Terms of Service

- I have read and agree to the [Google Cloud Platform Free of Service](#).

Required to continue

[AGREE AND CONTINUE](#)

## Get started with Google Cloud Platform

Sign up and get \$300 to spend on Google Cloud Platform over the next 12 months.

### Step 2 of 2

#### Customer info



Account type



Individual



# cloud.google.com => Console

The screenshot shows the Google Cloud homepage. At the top is a navigation bar with links: Google Cloud, Why Google, Solutions, Products, Pricing, Getting started, a search icon, Docs, Support, and Console. A red arrow points to the 'Console' link. Below the navigation bar are two buttons: 'Contact sales' (white background) and 'Try free' (blue background). The main content area features the text 'Make your next move here' and two yellow callout boxes: one for Google Cloud Platform and one for G Suite.

Google Cloud Why Google Solutions Products Pricing Getting started > Docs Support Console

Contact sales Try free

# Make your next move here

Build, innovate, and scale with Google Cloud Platform.

Collaborate and be more productive with G Suite.

# Create Google Cloud Project

The screenshot shows the Google Cloud Platform dashboard. At the top, there is a notification bar with a gift icon and text: "Unlock more of Google Cloud Platform by upgrading now (\$300.00 credit and 364 days left in your free trial)." To the right are "DISMISS" and "UPGRADE" buttons. Below the notification is the navigation bar with the text "Google Cloud Platform" and "My First Project". A red arrow points to the "My First Project" dropdown menu. The dashboard has tabs for "DASHBOARD" (which is selected) and "ACTIVITY". On the left, a sidebar lists various services: Home, Pins appear here, Marketplace, Billing, APIs & Services, Support, IAM & admin, and Getting started. A red arrow also points to the "NEW PROJECT" button in the top right corner of the main content area.

Unlock more of Google Cloud Platform by upgrading now (\$300.00 credit and 364 days left in your free trial).

DISMISS UPGRADE

Google Cloud Platform My First Project DASHBOARD ACTIVITY CUSTOMIZE

Pins appear here Marketplace Billing APIs & Services Support IAM & admin Getting started

Select a project

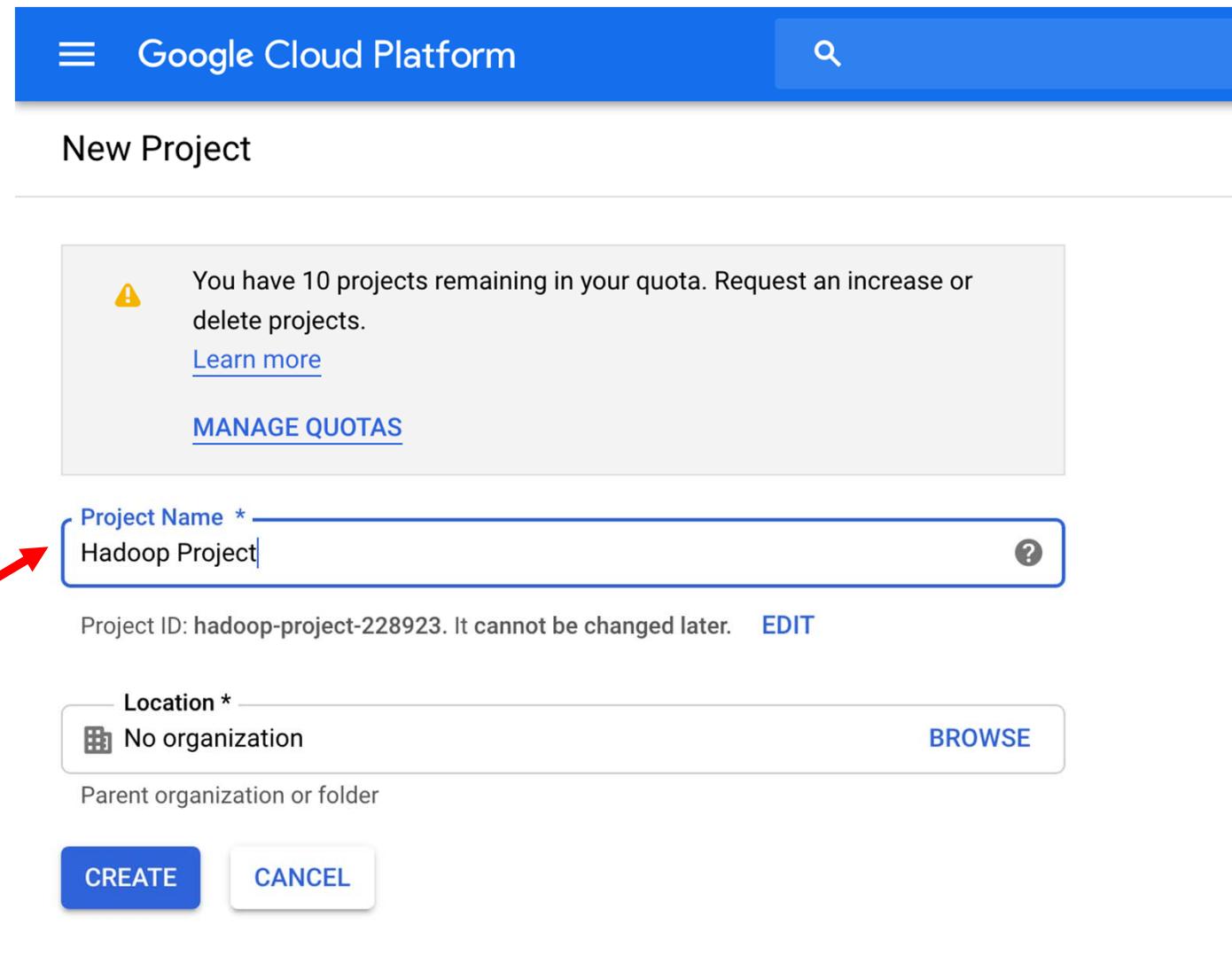
Search projects and folders

RECENT ALL

Name	ID
My First Project	molten-rex-228921

Reporting

# Create Google Cloud Project (Cont.)



Google Cloud Platform ≡ 🔍

## New Project

⚠️ You have 10 projects remaining in your quota. Request an increase or delete projects.  
[Learn more](#)

[MANAGE QUOTAS](#)

**Project Name \***  ?

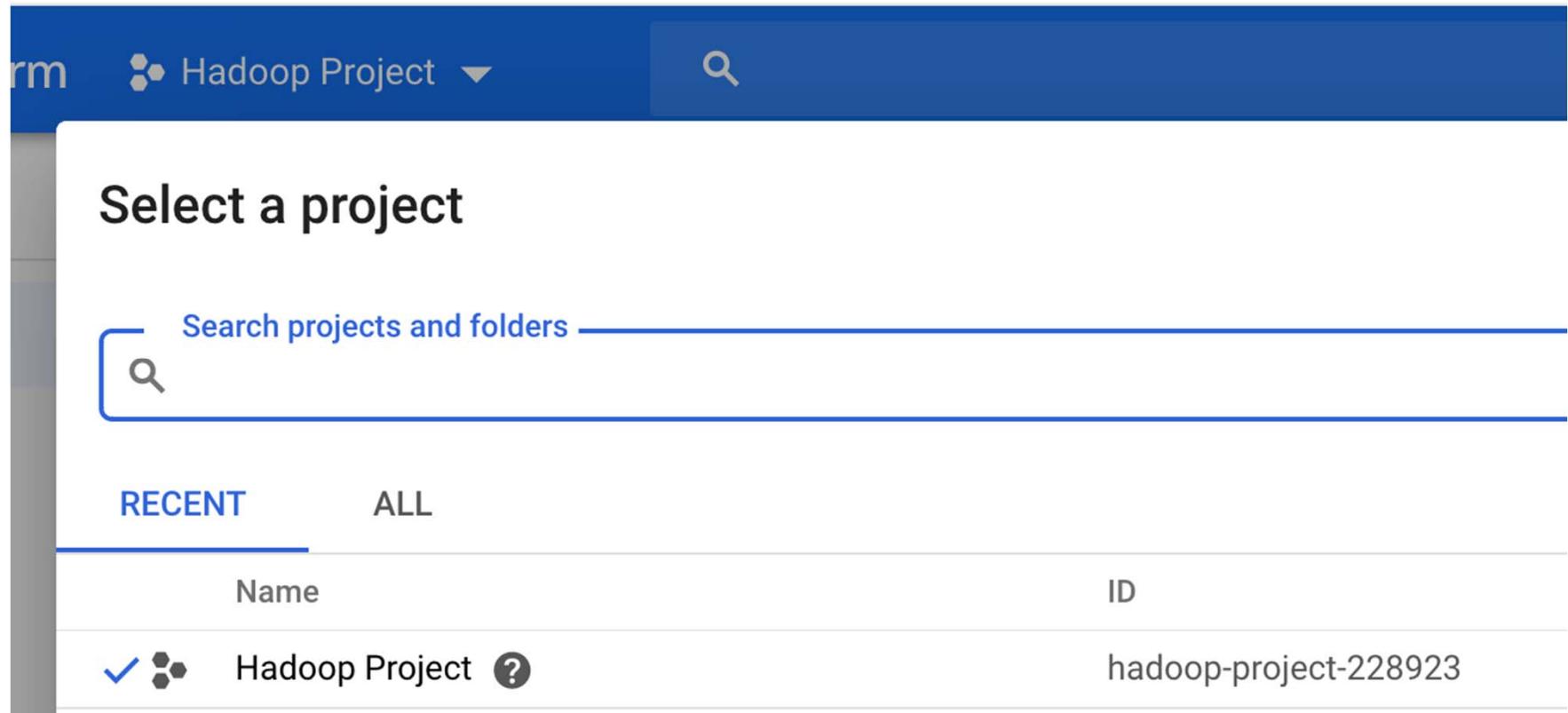
Project ID: hadoop-project-228923. It cannot be changed later. [EDIT](#)

**Location \***  [BROWSE](#)

Parent organization or folder

**CREATE** **CANCEL**

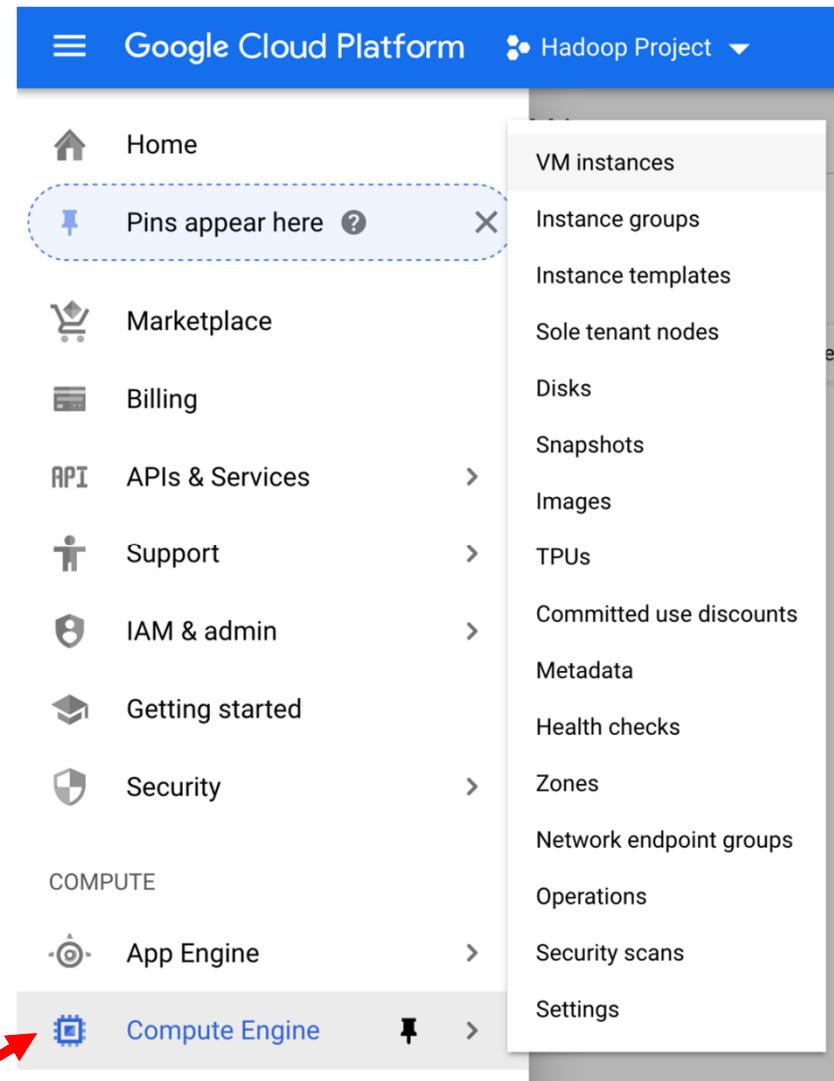
# Select Google Cloud Project to **Hadoop Project**



The screenshot shows a 'Select a project' dialog box from the Google Cloud Platform. At the top, there is a blue header bar with the text 'Hadoop Project' and a dropdown arrow. To the right of the header is a search bar with a magnifying glass icon. Below the header, the title 'Select a project' is displayed in bold black font. A search bar with the placeholder 'Search projects and folders' is followed by a magnifying glass icon. Below the search bar, there are two tabs: 'RECENT' (which is underlined) and 'ALL'. A table follows, showing a single row for the 'Hadoop Project'. The table has two columns: 'Name' and 'ID'. The 'Name' column contains 'Hadoop Project' with a question mark icon and a checkmark icon to its left. The 'ID' column contains 'hadoop-project-228923'. The entire dialog box is set against a white background.

Name	ID
Hadoop Project ?	hadoop-project-228923

# Select Compute Engine



# Create VM instances

The screenshot shows the Google Cloud Platform interface for Compute Engine VM instances. On the left, there's a sidebar with icons for Compute Engine, VM instances (which is selected and highlighted in blue), Instance groups, Instance templates, Sole tenant nodes, Disks, Snapshots, Images, and TPUs. The main area is titled 'VM instances' and contains a brief description of Compute Engine and three buttons: 'Create', 'Import', and 'Take the quickstart'. A red arrow points to the 'Create' button.

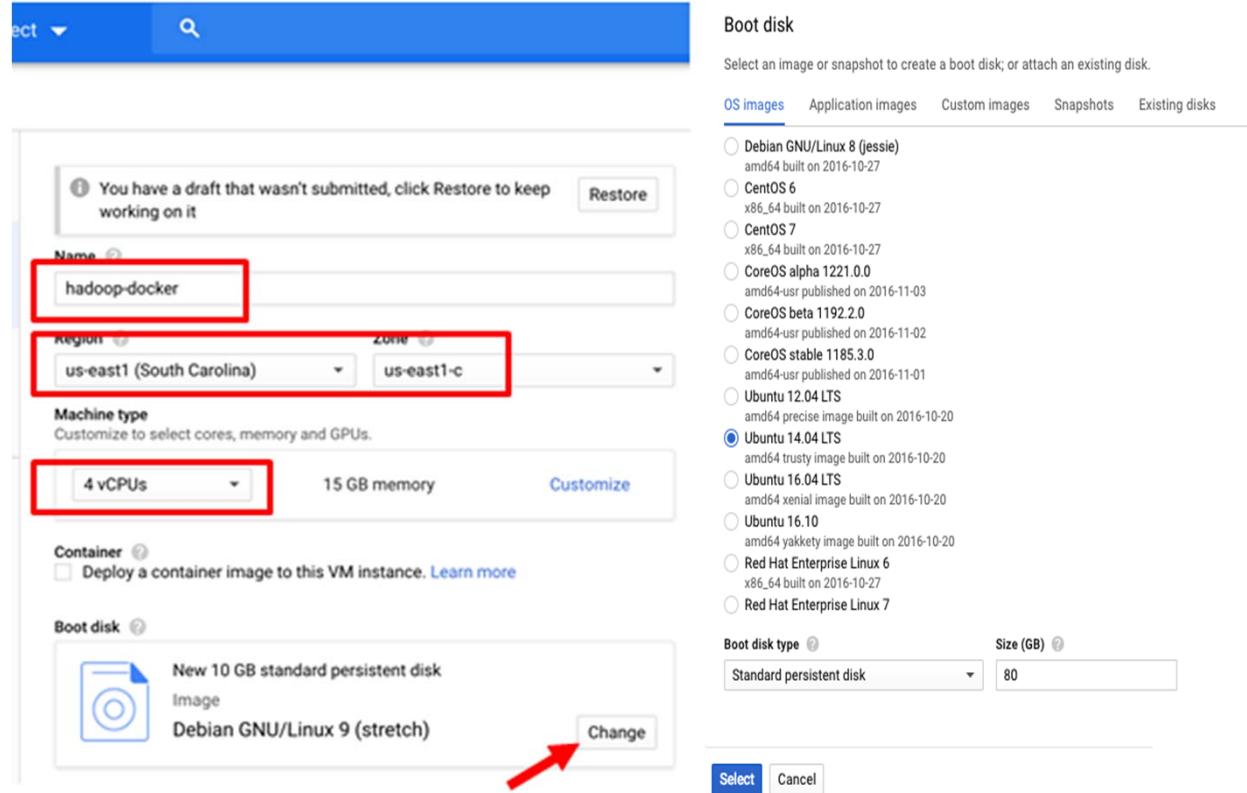
Compute Engine  
VM instances

Compute Engine lets you use virtual machines that run on Google's infrastructure. Create micro-VMs or larger instances running Debian, Windows, or other standard images. Create your first VM instance, import it using a migration service, or try the quickstart to build a sample app.

Create or Import or Take the quickstart

# Create an instance with the following configuration

- Name: **hadoop-docker**
- Region : **us-east1**
- Zone : **us-east1-c**
- Machine type : **4vCPUs**



- Boot disk : **Ubuntu Server 14.04 LTS**
- Size (GB) : **80**

# Config Firewall: Select the instance

The screenshot shows the Google Cloud Platform Compute Engine VM instances page. The left sidebar is titled 'Compute Engine' and includes links for VM instances, Instance groups, Instance templates, Disks, Snapshots, Images, Metadata, Health checks, Zones, Operations, Quotas, and Settings. The 'VM instances' link is currently selected, indicated by a blue background. The main content area is titled 'VM instances' and features several buttons: 'CREATE INSTANCE', 'CREATE INSTANCE GROUP', 'REFRESH', 'START', 'STOP', and a power icon. Below these buttons are filters for 'Filter by label or name', 'Columns', 'Labels', and 'Recommendations'. A dropdown menu for 'CPU utilization' is set to '1 hour'. A chart titled 'CPU % CPU' shows 'There is no data for this chart'. At the bottom, a table lists VM instances:

Name	Zone	Machine type	Recommendation	In use by	Internal IP	External IP	Connect
<input checked="" type="checkbox"/> hadoop-docker	asia-east1-c	4 vCPUs, 15 GB			10.140.0.2	104.155.230.62	SSH

A red arrow points to the 'Name' column header of the table.

# Config Firewall: Select the Network

← VM instance details

EDIT    RESET    CREATE SIMILAR    STOP    DELETE

---

Zone  
us-east1-c

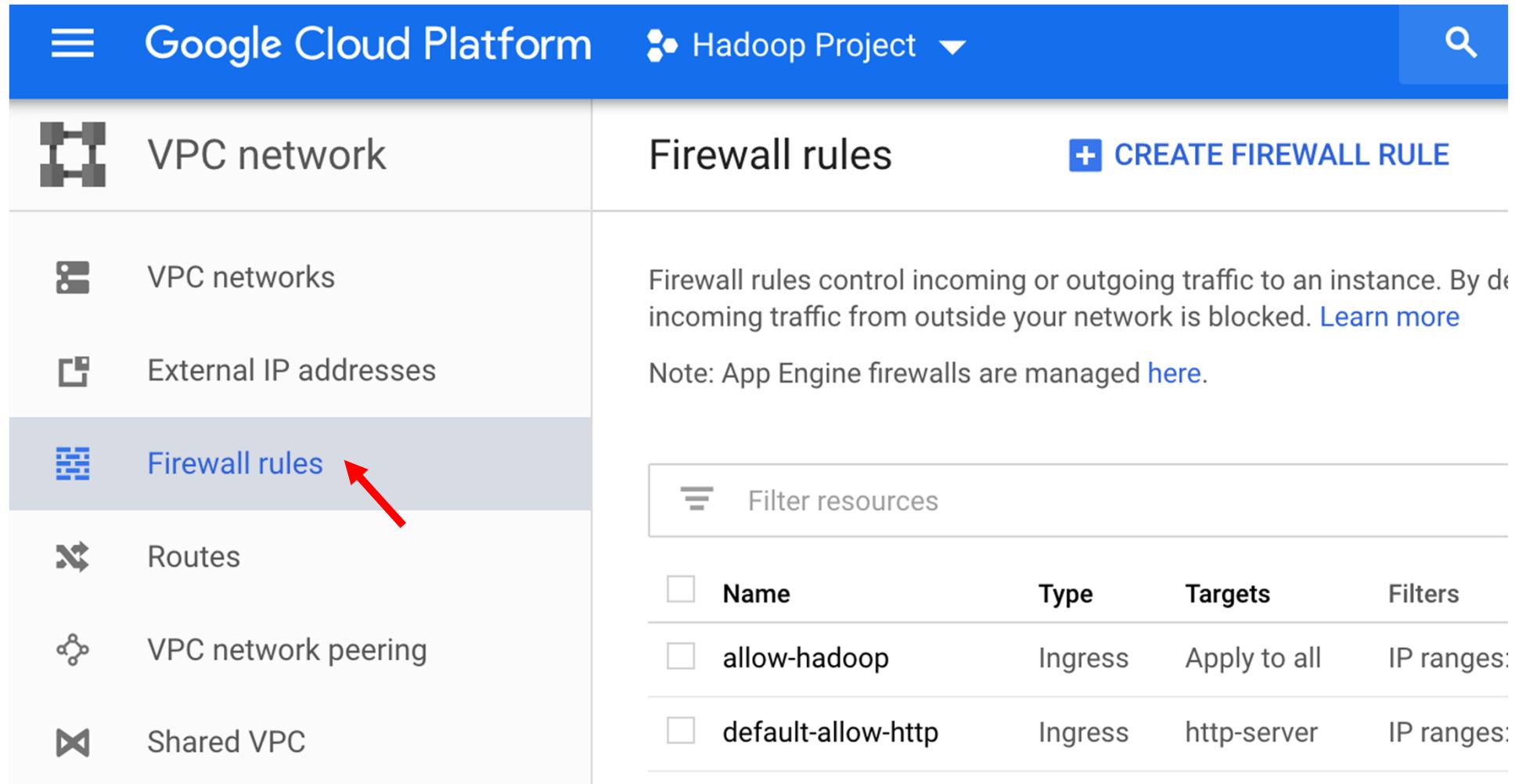
Labels  
None

Creation time  
Jan 18, 2019, 11:19:23 AM

Network interfaces

Name	Network	Subnetwork	Primary internal IP	Alias IP ranges	External IP	Network Tier	IP forwarding	Network details
nic0	<a href="#">default</a>	default	10.142.0.2	—	35.196.72.67 (ephemeral)	Premium	Off	<a href="#">View details</a>

# Config Firewall: Select Firewall rules



Google Cloud Platform Hadoop Project ▾

VPC network Firewall rules + CREATE FIREWALL RULE

VPC networks External IP addresses Firewall rules Firewall rules

Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked. [Learn more](#)

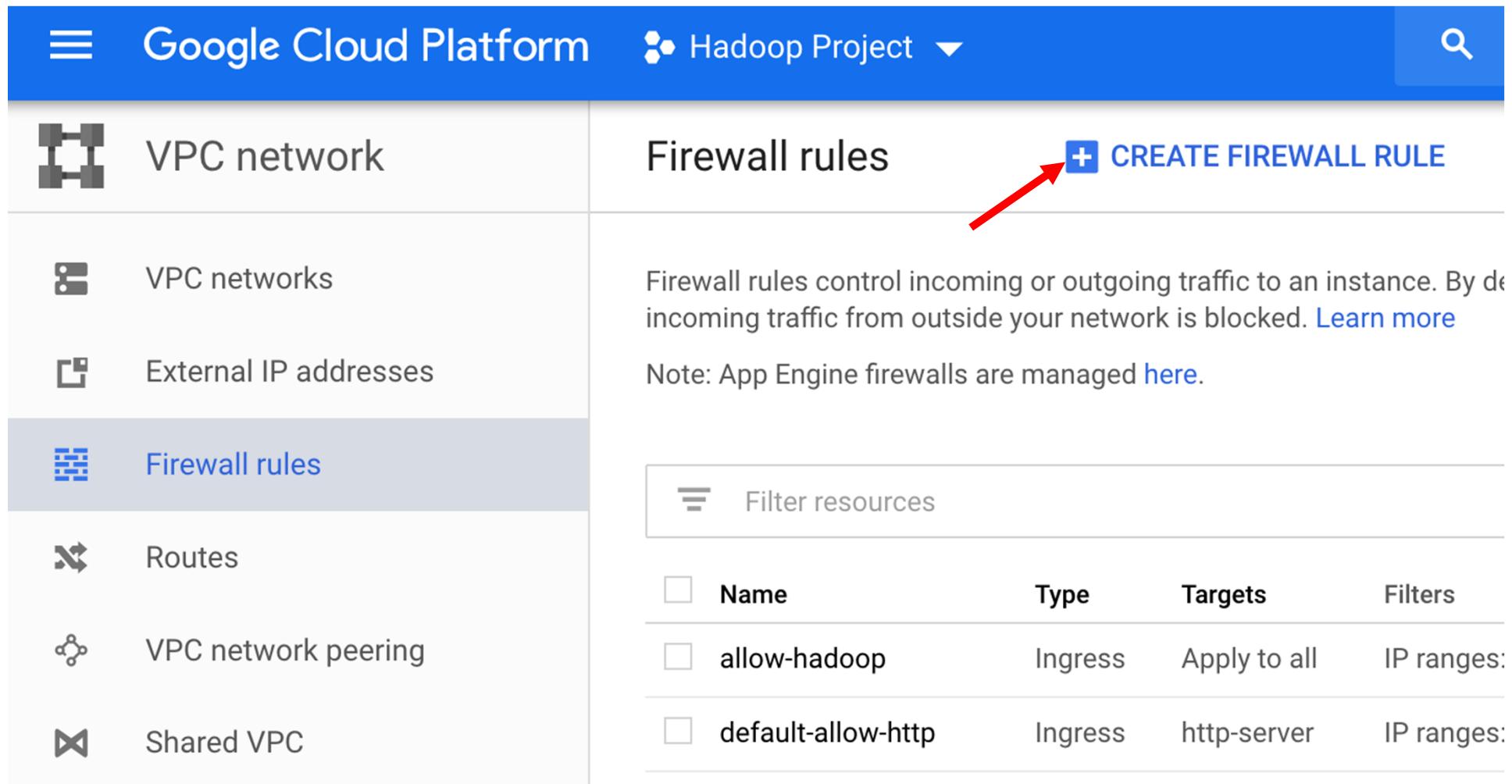
Note: App Engine firewalls are managed [here](#).

Filter resources

Name	Type	Targets	Filters
allow-hadoop	Ingress	Apply to all	IP ranges:
default-allow-http	Ingress	http-server	IP ranges:

Routes VPC network peering Shared VPC

# Create Firewall Rule



The screenshot shows the Google Cloud Platform interface for managing VPC networks. The left sidebar has a 'VPC network' section with links for 'VPC networks', 'External IP addresses', and 'Firewall rules'. The 'Firewall rules' link is highlighted in blue. The main content area is titled 'Firewall rules' and contains a brief description: 'Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked.' It also notes that App Engine firewalls are managed elsewhere. Below this is a table showing existing firewall rules:

Name	Type	Targets	Filters
allow-hadoop	Ingress	Apply to all	IP ranges: [redacted]
default-allow-http	Ingress	http-server	IP ranges: [redacted]

## Create a firewall rule

Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked. [Learn more](#)

Name 

allow-hadoop

:

Targets 

All instances in the network

Source filter 

IP ranges

Source IP ranges 

0.0.0.0/0 

Second source filter 

None

Protocols and ports 

Allow all

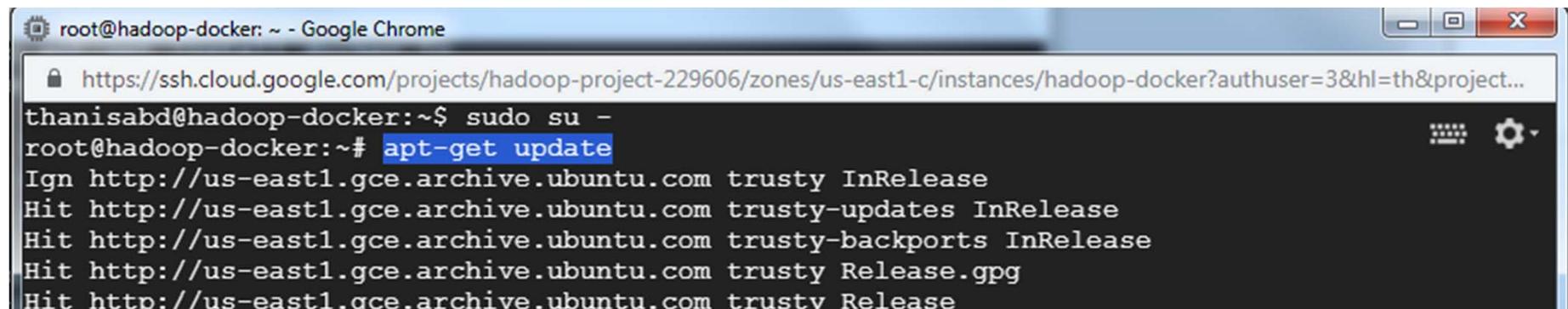
Specified protocols and ports

# Connect via SSH in browser window

The screenshot shows the Google Cloud Platform Compute Engine VM instances page. The left sidebar is collapsed, and the main header includes the project name "Hadoop Project", a search bar, and various navigation icons. The main content area is titled "VM instances" and features a "CREATE INSTANCE" button, a "CREATE INSTANCE GROUP" button, and a "REFRESH" button. Below these are filters for "CPU utilization" and time intervals from "1 hour" to "30d". A chart titled "CPU % CPU" displays the message "There is no data for this chart". On the far right, there is a context menu with options: "Open in browser window" (highlighted with a red arrow), "Open in browser window on custom port", "View gcloud command", and "Use another SSH client". The menu is overlaid on a table row for an instance named "hadoop-docker". The table columns include Name, Zone, Machine type, Recommendation, In use by, IP address, and SSH status. The "hadoop-docker" row shows "asia-east1-c" as the zone, "4 vCPUs, 15 GB" as the machine type, and "10.140.0.2" and "104.155.230.62" as IP addresses. The SSH status is set to "SSH".

## Update OS (Ubuntu)

```
$ sudo su -  
# apt-get update
```

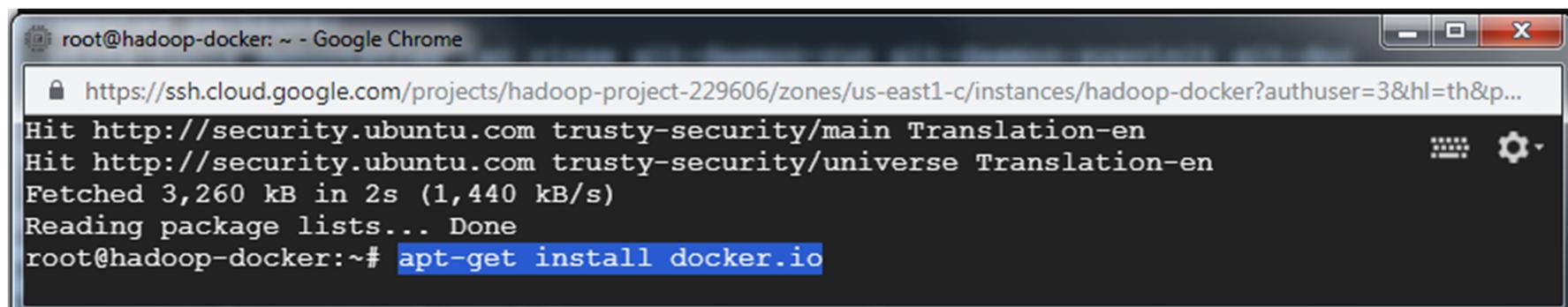


A screenshot of a terminal window titled "root@hadoop-docker: ~ - Google Chrome". The window shows the command "apt-get update" being run by the root user. The output of the command is displayed, showing the retrieval of package lists from various repositories.

```
root@hadoop-docker: ~ - Google Chrome  
thanisabd@hadoop-docker:~$ sudo su -  
root@hadoop-docker:~# apt-get update  
Ign http://us-east1.gce.archive.ubuntu.com trusty InRelease  
Hit http://us-east1.gce.archive.ubuntu.com trusty-updates InRelease  
Hit http://us-east1.gce.archive.ubuntu.com trusty-backports InRelease  
Hit http://us-east1.gce.archive.ubuntu.com trusty Release.gpg  
Hit http://us-east1.gce.archive.ubuntu.com trusty Release
```

# Docker Installation

```
# apt-get install docker.io
```

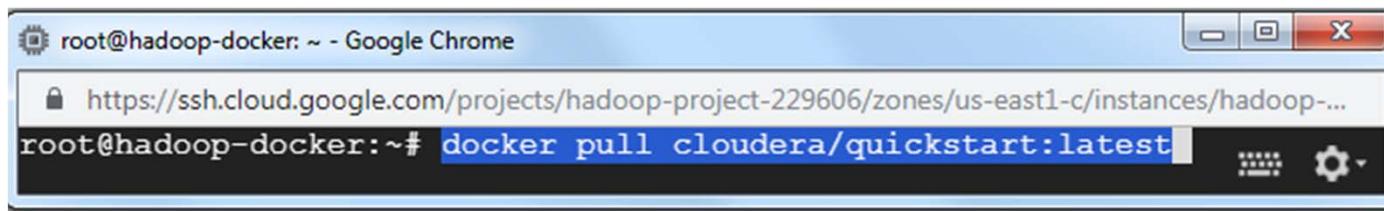


A screenshot of a terminal window titled "root@hadoop-docker: ~ - Google Chrome". The URL in the address bar is "https://ssh.cloud.google.com/projects/hadoop-project-229606/zones/us-east1-c/instances/hadoop-docker?authuser=3&hl=th&p...". The terminal output shows the following command and its execution:

```
Hit http://security.ubuntu.com trusty-security/main Translation-en
Hit http://security.ubuntu.com trusty-security/universe Translation-en
Fetched 3,260 kB in 2s (1,440 kB/s)
Reading package lists... Done
root@hadoop-docker:~# apt-get install docker.io
```

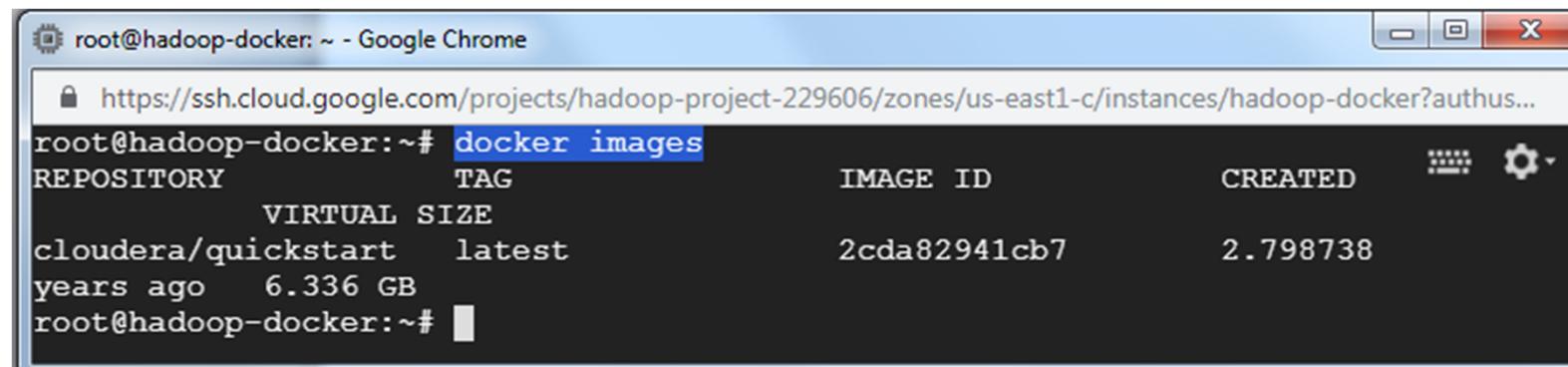
## Pull Cloudera Quickstart => Install Cloudera Quickstart on Docker Container

```
# docker pull cloudera/quickstart:latest
```



Verify the image was successfully pulled

```
# docker images
```





## Run Cloudera quickstart

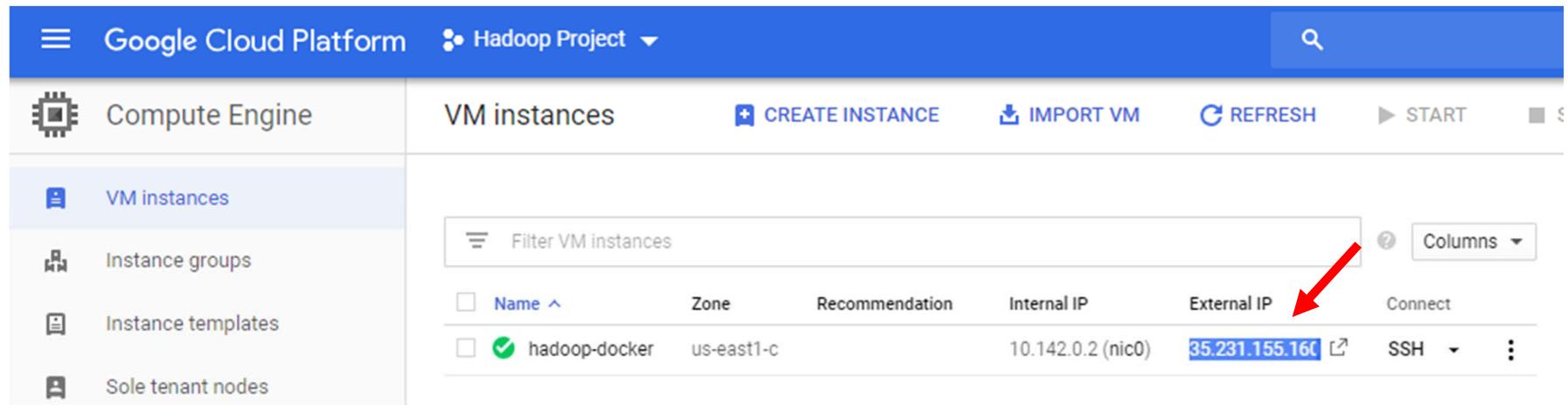
- SYNTAX: `docker run --hostname=quickstart.cloudera --privileged=true -t -i [OPTIONS] [IMAGE] /usr/bin/docker-quickstart`

```
# docker run -v /root:/mnt --hostname=quickstart.cloudera --privileged=true  
-t -i -p 8888:8888 -p 8880:8880 -p 9092:9092 -p 2181:2181 -p 11122:11122  
cloudera/quickstart /usr/bin/docker-quickstart
```

# Successful running the Cloudera image

```
Using CATALINA_BASE:      /var/lib/oozie/tomcat-deployment
Using CATALINA_HOME:      /usr/lib/bigtop-tomcat
Using CATALINA_TMPDIR:    /var/lib/oozie
Using JRE_HOME:           /usr/java/jdk1.7.0_67-cloudera
Using CLASSPATH:          /usr/lib/bigtop-tomcat/bin/bootstrap.jar
Using CATALINA_PID:       /var/run/oozie/oozie.pid
Starting Solr server daemon:                                [ OK ]
Using CATALINA_BASE:      /var/lib/solr/tomcat-deployment
Using CATALINA_HOME:      /usr/lib/solr/..../bigtop-tomcat
Using CATALINA_TMPDIR:    /var/lib/solr/
Using JRE_HOME:           /usr/java/jdk1.7.0_67-cloudera
Using CLASSPATH:          /usr/lib/solr/..../bigtop-tomcat/bin/bootstrap.jar
Using CATALINA_PID:       /var/run/solr/solr.pid
Started Impala Catalog Server (catalogd) :                  [ OK ]
Started Impala Server (impalad):                            [ OK ]
[root@quickstart /]#
```

# Hue: Finding the instance's external IP address



The screenshot shows the Google Cloud Platform Compute Engine VM instances page. The left sidebar has 'Compute Engine' selected, and the main area shows a table of VM instances. A red arrow points to the 'External IP' column for the row where 'hadoop-docker' is listed. The table columns are Name, Zone, Recommendation, Internal IP, External IP, Connect, SSH, and more.

Name	Zone	Recommendation	Internal IP	External IP	Connect	SSH	⋮
hadoop-docker	us-east1-c		10.142.0.2 (nic0)	35.231.155.160		SSH	⋮



# Login to Hue: <http://<<external-ip-address>>:8888>

**Username: cloudera Password: cloudera**

Welcome to Hue  
Sign in to continue to your dashboard

Username

Password

Sign in

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**HUE**  Query Editors ▾ Data Browsers ▾ Workflows ▾ Search Security ▾       

 About Hue **Quick Start** Configuration Server Logs

## Quick Start Wizard - Hue™ 3.9.0 - The Hadoop UI

Step 1:  Check Configuration Step 2:  Examples Step 3:  Users Step 4:  Go!

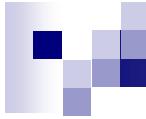
### Checking current configuration

Configuration files located in </etc/hue/conf.empty>

All OK. Configuration check passed.

[Back](#) [Next](#)

Hue and the Hue logo are trademarks of Cloudera, Inc.



## Step Conclusion

1. **cloud.google.com** -> Try free
2. Create Project
3. Create VM Instance
4. Add firewall rule
  - Target : **All instances in the network**
  - Source IP ranges: **0.0.0.0/0**
  - Allowed protocols and ports : Allow all
5. Connect to the instance (via SSH)
  - Update OS : **apt-get update**
  - Install Docker : **apt-get install docker.io**
  - Install Cloudera in Docker : **docker pull cloudera/quickstart:latest**
  - Run Docker : **docker run -v /root:/mnt --hostname=quickstart.cloudera --privileged=true -t -i -p 8888:8888 -p 8880:8880 -p 9092:9092 -p 2181:2181 -p 11122:11122 cloudera/quickstart /usr/bin/docker-quickstart**

## Docker commands that are frequently used (Cont.)

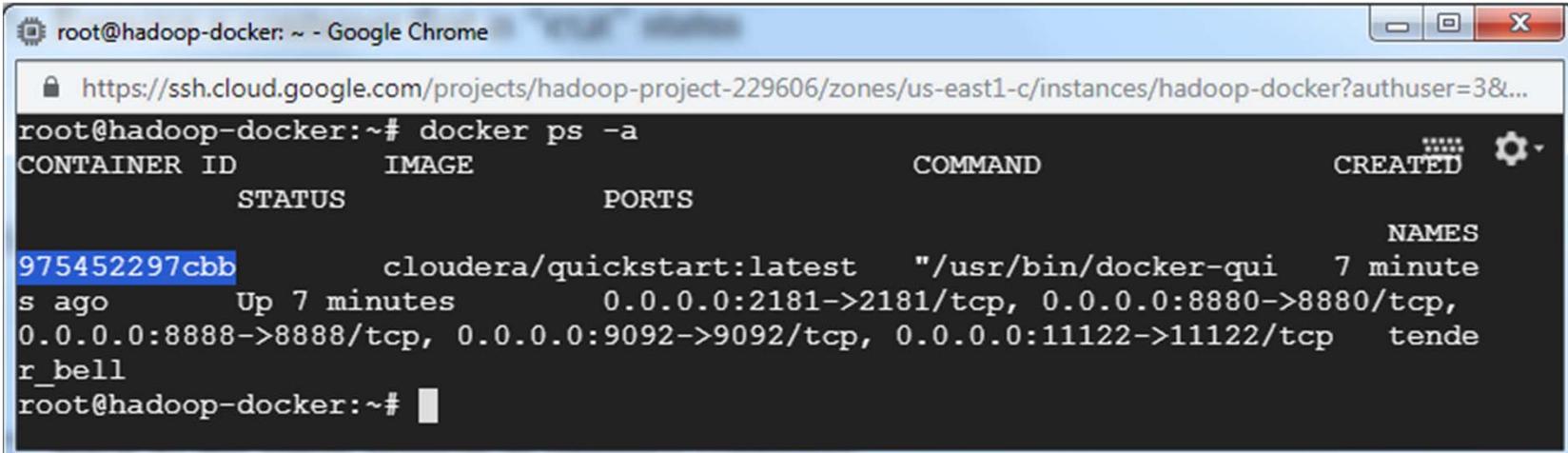
1. Exit from container (to -> root@hadoop-docker:~# )

```
# exit (exit & kill the running image)
```

**Ctrl-P, Ctrl-Q** (exit without killing the running image)

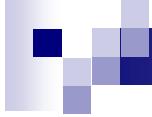
2. Check for Container ID and its status

```
# docker ps -a -> [container id]
```



The screenshot shows a terminal window titled "root@hadoop-docker: ~ - Google Chrome". The command "docker ps -a" is run, displaying a table of container information. The table has columns: CONTAINER ID, IMAGE, COMMAND, CREATED, STATUS, PORTS, and NAMES. One row is highlighted in blue, showing the container ID "975452297cbb", the image "cloudera/quickstart:latest", the command "/usr/bin/docker-qui", the creation time "7 minute ago", the status "Up 7 minutes", and the port mappings "0.0.0.0:2181->2181/tcp, 0.0.0.0:8880->8880/tcp, 0.0.0.0:8888->8888/tcp, 0.0.0.0:9092->9092/tcp, 0.0.0.0:11122->11122/tcp". The name of the container is "tender\_r\_bell".

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS	PORTS		NAMES
975452297cbb	cloudera/quickstart:latest	/usr/bin/docker-qui	7 minute ago
s ago	Up 7 minutes	0.0.0.0:2181->2181/tcp, 0.0.0.0:8880->8880/tcp, 0.0.0.0:8888->8888/tcp, 0.0.0.0:9092->9092/tcp, 0.0.0.0:11122->11122/tcp	tender_r_bell



## Docker commands that are frequently used

3. Force to stop a container

```
# docker stop [container id]
```

4. Remove a container that is “exit” status

```
# docker rm [container id]
```

5. Back to the running container (back to -> [root@quickstart /]#)

```
# docker exec -it [container id] bash
```

6. Back to the latest session in running container

```
# docker attach [container id]
```



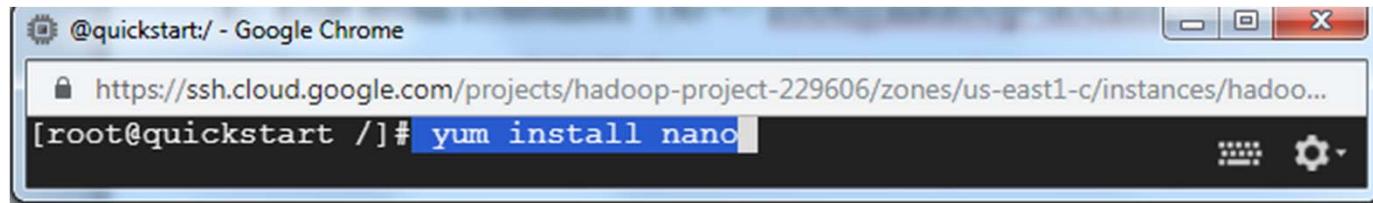
# Shell Script for Complete stopping Hadoop's all services

```
#!/usr/bin/env bash  
  
/etc/init.d/zookeeper-server stop  
/etc/init.d/hadoop-hdfs-datanode stop  
/etc/init.d/hadoop-hdfs-journalnode stop  
/etc/init.d/hadoop-hdfs-namenode stop  
/etc/init.d/hadoop-hdfs-secondarynamenode stop  
/etc/init.d/hadoop-htpfs stop  
/etc/init.d/hadoop-mapreduce-historyserver stop  
/etc/init.d/hadoop-yarn-nodemanager stop  
/etc/init.d/hadoop-yarn-resourcemanager stop  
/etc/init.d/hbase-master stop  
/etc/init.d/hbase-rest stop  
/etc/init.d/hbase-thrift stop  
/etc/init.d/hive-metastore stop  
/etc/init.d/hive-server2 stop  
/etc/init.d/sqoop2-server stop  
/etc/init.d/spark-history-server stop  
/etc/init.d/hbase-regionserver stop  
/etc/init.d/hue stop  
/etc/init.d/impala-state-store stop  
/etc/init.d/oozie stop  
/etc/init.d/solr-server stop  
/etc/init.d/impala-catalog stop  
/etc/init.d/impala-server stop
```

# Steps to stop all services

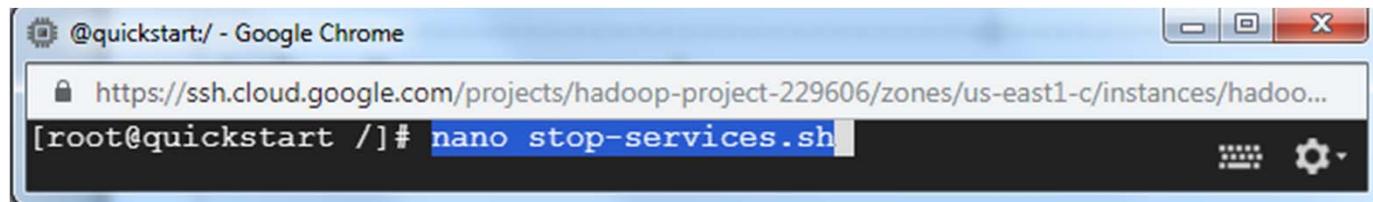
1. Install nano command

```
# yum install nano
```



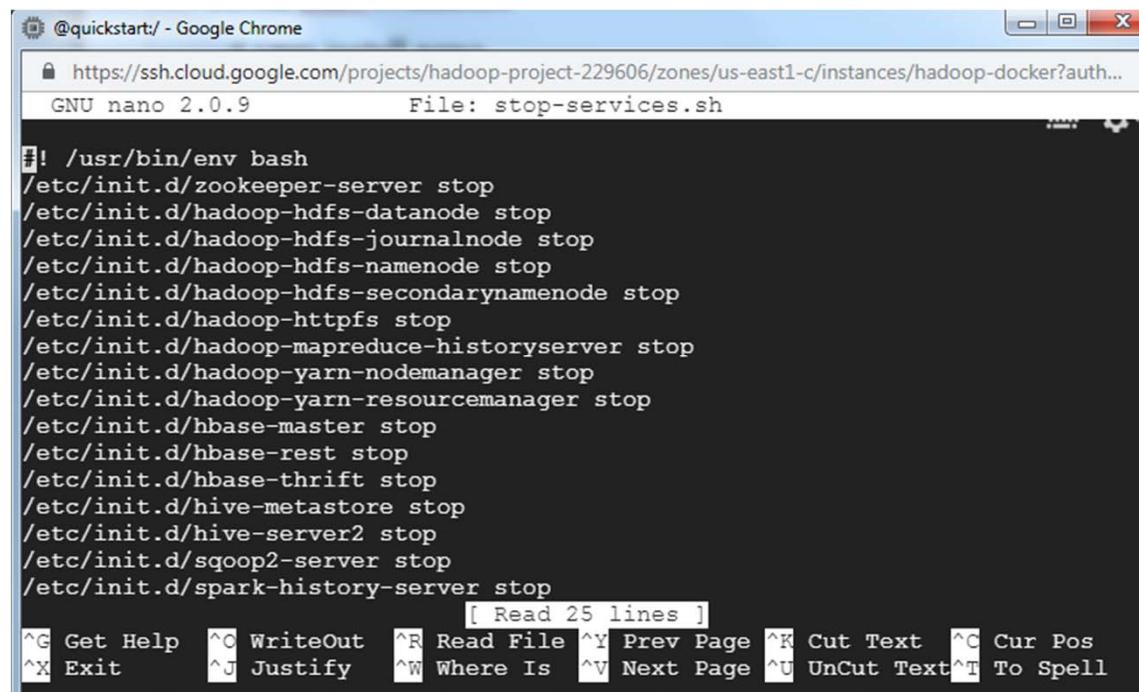
2. Create stop-services.sh

```
# nano stop-services.sh
```



# Steps to stop all services (Cont.)

3. Copy the content of the file and paste



The screenshot shows a terminal window titled "GNU nano 2.0.9" with the URL "https://ssh.cloud.google.com/projects/hadoop-project-229606/zones/us-east1-c/instances/hadoop-docker?auth..." at the top. The window contains a list of service stop commands:

```
#!/usr/bin/env bash
/etc/init.d/zookeeper-server stop
/etc/init.d/hadoop-hdfs-datanode stop
/etc/init.d/hadoop-hdfs-journalnode stop
/etc/init.d/hadoop-hdfs-namenode stop
/etc/init.d/hadoop-hdfs-secondarynamenode stop
/etc/init.d/hadoop-httpfs stop
/etc/init.d/hadoop-mapreduce-historyserver stop
/etc/init.d/hadoop-yarn-nodemanager stop
/etc/init.d/hadoop-yarn-resourcemanager stop
/etc/init.d/hbase-master stop
/etc/init.d/hbase-rest stop
/etc/init.d/hbase-thrift stop
/etc/init.d/hive-metastore stop
/etc/init.d/hive-server2 stop
/etc/init.d/sqoop2-server stop
/etc/init.d/spark-history-server stop
```

At the bottom of the terminal window, there is a status message "[ Read 25 lines ]" and a series of keyboard shortcuts:

[ Read 25 lines ]  
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos  
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell

**Ctrl-x, type Y and press Enter**

# Steps to stop all services (Cont.)

4. Give permission to the file

```
# sudo chmod 777 stop-services.sh
```

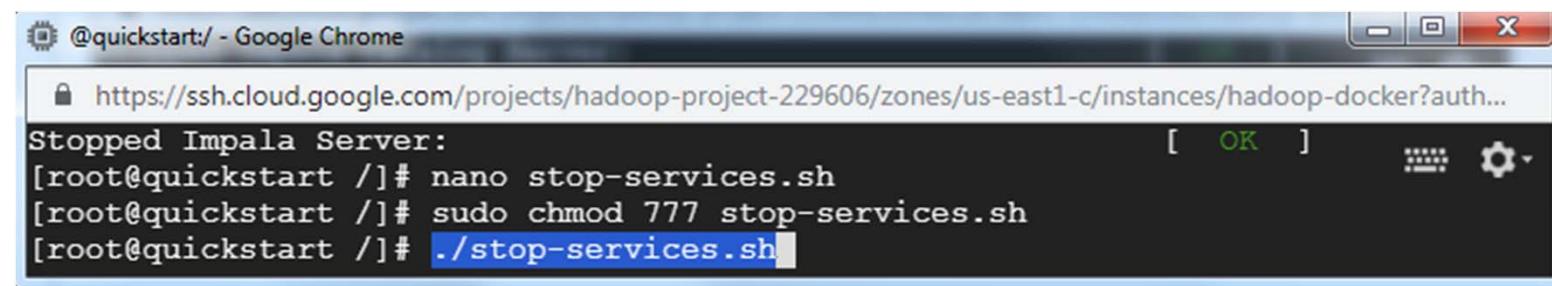


A screenshot of a terminal window titled '@quickstart:/ - Google Chrome'. The URL in the address bar is partially visible as 'https://ssh.cloud.google.com/projects/hadoop-project-229606/zones/us-east1-c/instances/hadoop-docker?auth...'. The terminal output shows the following commands:

```
Stopped Impala Catalog Server: [ OK ]
Stopped Impala Server: [ OK ]
[root@quickstart /]# nano stop-services.sh
[root@quickstart /]# sudo chmod 777 stop-services.sh
```

5. Run the file

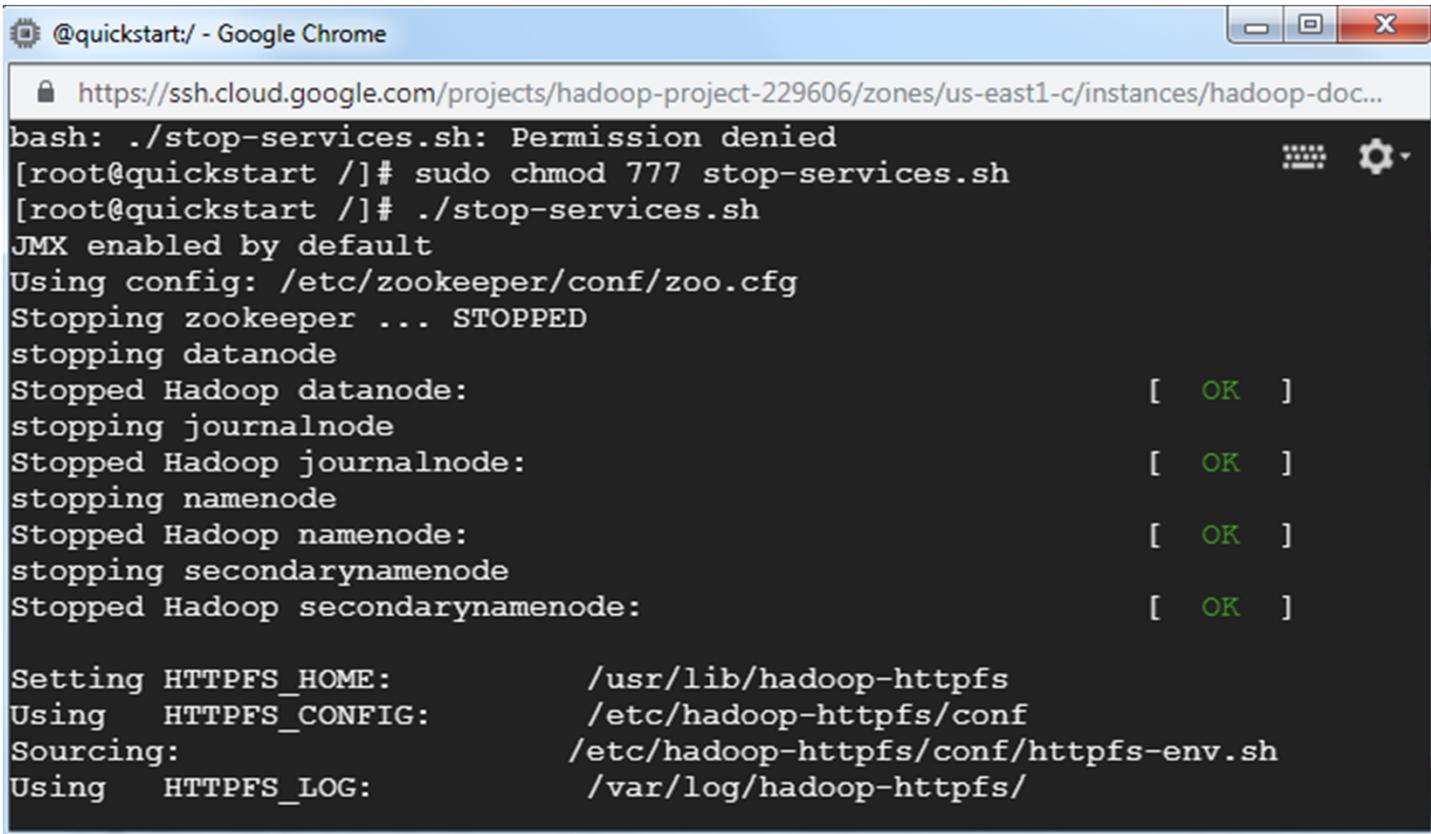
```
# ./stop-services.sh
```



A screenshot of a terminal window titled '@quickstart:/ - Google Chrome'. The URL in the address bar is partially visible as 'https://ssh.cloud.google.com/projects/hadoop-project-229606/zones/us-east1-c/instances/hadoop-docker?auth...'. The terminal output shows the following commands:

```
Stopped Impala Server: [ OK ]
[root@quickstart /]# nano stop-services.sh
[root@quickstart /]# sudo chmod 777 stop-services.sh
[root@quickstart /]# ./stop-services.sh
```

# Steps to stop all services (Cont.)



The screenshot shows a terminal session in a Google Chrome window titled '@quickstart:/ - Google Chrome'. The URL is https://ssh.cloud.google.com/projects/hadoop-project-229606/zones/us-east1-c/instances/hadoop-doc... . The terminal output is as follows:

```
bash: ./stop-services.sh: Permission denied
[root@quickstart /]# sudo chmod 777 stop-services.sh
[root@quickstart /]# ./stop-services.sh
JMX enabled by default
Using config: /etc/zookeeper/conf/zoo.cfg
Stopping zookeeper ... STOPPED
stopping datanode
Stopped Hadoop datanode: [ OK ]
stopping journalnode
Stopped Hadoop journalnode: [ OK ]
stopping namenode
Stopped Hadoop namenode: [ OK ]
stopping secondarynamenode
Stopped Hadoop secondarynamenode: [ OK ]

Setting HTTPFS_HOME:          /usr/lib/hadoop-httpfs
Using   HTTPFS_CONFIG:        /etc/hadoop-httpfs/conf
Sourcing:                    /etc/hadoop-httpfs/conf/httpfs-env.sh
Using   HTTPFS_LOG:          /var/log/hadoop-httpfs/
```