

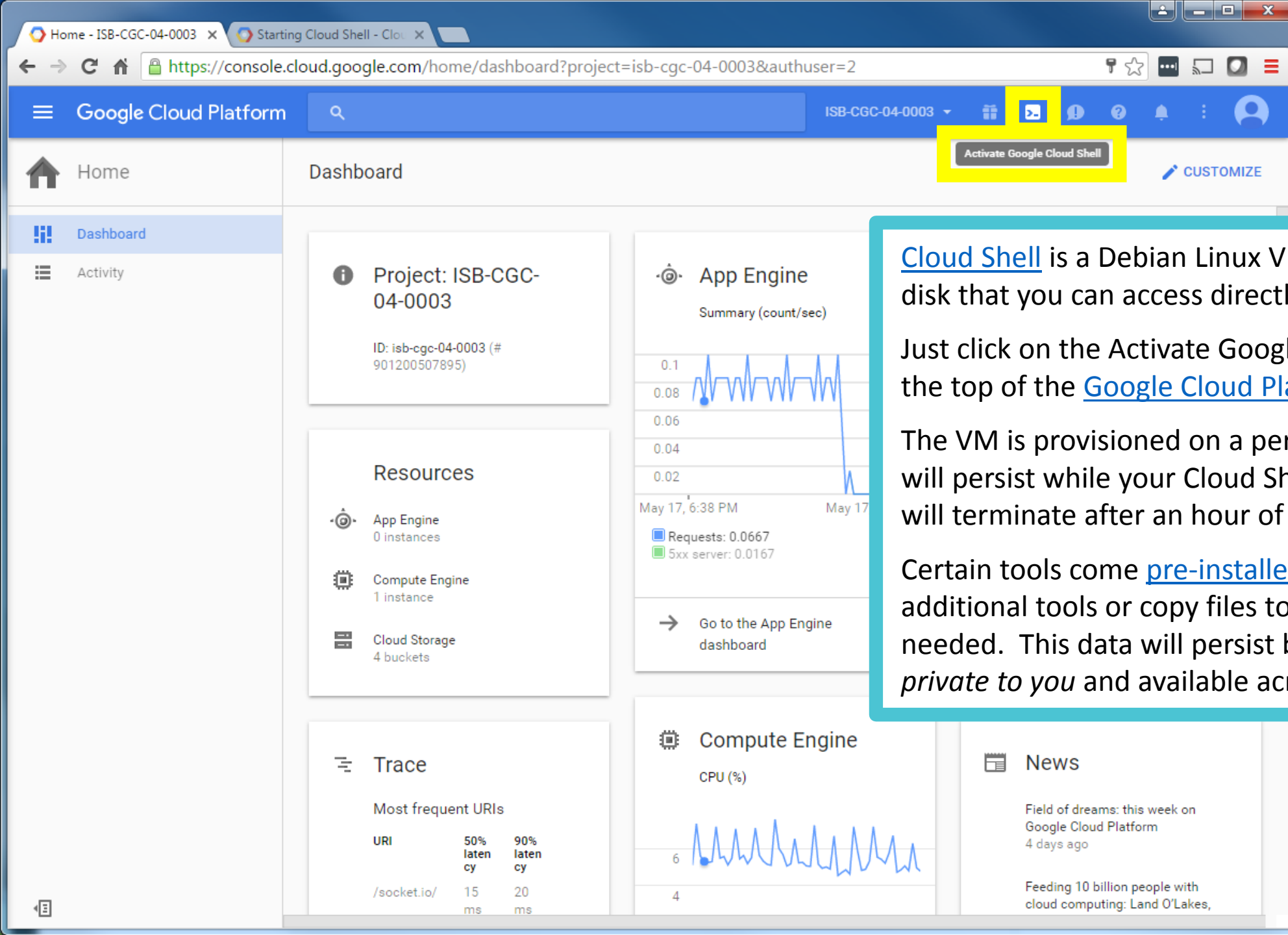
An Introduction to Cloud Shell

(in less than 5 minutes)

brought to you by

The ISB Cancer Genomics Cloud





[Cloud Shell](#) is a Debian Linux VM with a 5GB persistent disk that you can access directly from the Console.

Just click on the Activate Google Cloud Shell button at the top of the [Google Cloud Platform Console](#).

The VM is provisioned on a per-user, per-session basis, will persist while your Cloud Shell session is active, and will terminate after an hour of inactivity.

Certain tools come [pre-installed](#) and you can install additional tools or copy files to your home directory as needed. This data will persist between sessions and is *private to you* and available across projects.

Home - ISB-CGC-04-0003 x

https://console.cloud.google.com/home/dashboard?project=isb-cgc-04-0003

Google Cloud Platform

ISB-CGC-04-0003

Home Dashboard

Google Cloud Shell **BETA**

Free through end of 2016. Pre-installed with the tools you need for the Google Cloud Platform. [Learn More](#)

```
Cloning into 'appengine-example'...
remote: Counting objects: 476, done.
remote: Total 476 (delta 0), reused 0 (delta 0), pack-reused 476
Receiving objects: 100% (476/476), 432.65 KiB | 0 bytes/s, done.
Checking connectivity... done.
dr_ruth_mackin@cloudshell:~$ cd appengine-example
dr_ruth_mackin@cloudshell:~/appengine-example$ appcfg.py -A test-project update app.yaml
10:35 PM Host: appengine.google.com
10:35 PM Application: test-project; version: 1
Starting update of app: test-project, version: 1
10:35 PM Cloning 1 static file.
```

Real Linux environment

- Linux Debian-based OS
- 5GB persisted home directory
- Add, edit and save files

Configured for Google Cloud

- Google Cloud SDK
- Google App Engine SDK
- Docker
- Git
- Text editors
- Build tools
- View more [↗](#)

Popular language support

- Python
- Java
- Go
- Node.js

Start Cloud Shell Cancel

Most frequent URIs

URI	50% latency	90% latency
/socket.io/	15 ms	20 ms

→ Go to latency overview

Field of dreams: this week on Google Cloud Platform 3 days ago

Feeding 10 billion people with cloud computing: Land O'Lakes, Inc. moves to Google Cloud Platform

The first time you activate the Cloud Shell, you will see this introductory pop-up.

Click **Start Cloud Shell**.

Home - ISB-CGC-04-0003 x

← → ↻ 🏠 <https://console.cloud.google.com/home/dashboard?project=isb-cgc-04-0003> ☆ ☰

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🏠 Home Dashboard [CUSTOMIZE](#)

☰ Dashboard

☰ Activity

Project: ISB-CGC-04-0003

ID: isb-cgc-04-0003 (#901200507895)

App Engine

Summary (count/sec)

There is no data for this chart.

→ Go to the App Engine dashboard

Google Cloud status

All services normal

→ Go to cloud status dashboard

Resources

- App Engine
0 instances
- Cloud Storage
4 buckets

☰

🏠 ⚙️ Cloud Shell x + - 🔗 ✕

... Connecting: Provisioning your Google Cloud Shell machine.

The Cloud Shell session opens inside a new frame at the bottom of the console. It can take a few seconds for the session to be initialized.

Home - ISB-CGC-04-0003 x

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🏠 Home Dashboard [CUSTOMIZE](#)

☰ Dashboard

☰ Activity

📘 Project: ISB-CGC-04-0003

ID: isb-cgc-04-0003 (#901200507895)

🎯 App Engine

Summary (count/sec)

There is no data for this chart.

Resources

🎯 App Engine
0 instances

📁 Cloud Storage
4 buckets

➔ Go to the App Engine dashboard

📄 isb-cgc-04-0003 x +

Welcome to Cloud Shell! For help, visit <https://cloud.google.com/cloud-shell/help>.
dr_ruth_mackin@isb-cgc-04-0003:~\$

☰ ☒ ✖

Once you see the prompt, your Cloud Shell session is ready to use.

You can minimize, open in a new window, or close your Cloud Shell session using the controls in the upper right corner.

You can also open additional shell sessions as additional tabs using the + symbol, or close existing sessions using the x.

Home - ISB-CGC-04-0003 x

← → ↻ 🏠 <https://console.cloud.google.com/home/dashboard?project=isb-cgc-04-0003> ☆ ☰

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🏠 Home Dashboard [CUSTOMIZE](#)

📊 Dashboard

☰ Activity

📘 Project: ISB-CGC-04-0003

ID: isb-cgc-04-0003 (#901200507895)

📡 App Engine

Summary (count/sec)

There is no data for this chart.

→ Go to the App Engine dashboard

📊 Google Cloud status

All services normal

→ Go to cloud status dashboard

📊 Resources

- 📡 App Engine
0 instances
- 📦 Cloud Storage
4 buckets

📄 Billing

\$13.48

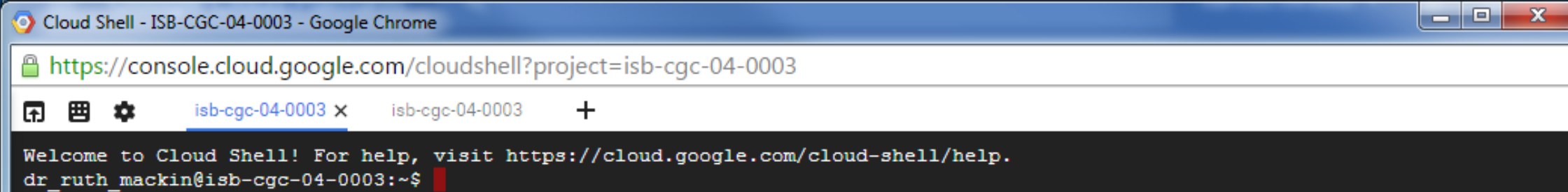
Approximate charge for this month

You can access settings and other information from the gear icon.

🏠 📄 ⚙️ isb-cgc-04-0003 x + - 🗑️

- Switch to light theme
- Tmux Settings
- Restart Cloud Shell
- About Cloud Shell
- Help
- How to copy / paste
- Terminal Usage Statistics
- Send Feedback

```
use_c
use_g
[comp
disab
[comp
gce_m
[core
accou
check
disab
proje
[metr
envir
dr_ru
c = 5
il.com
lse
03:~$
```



Popping the shell out into its own window lets you resize it and gives you more space to work.

Let's install a few additional Python packages so that we can run the ISB-CGC python examples. Type or paste the following commands into your Cloud Shell:

```
sudo pip install google-api-python-client
sudo pip install python-dateutil
```

Now we'll clone the ISB-CGC examples-Python repository and run an example script that will query the CCLE data at a point mutation of interest (takes about 10 minutes to scan over 500 samples):

```
cd
mkdir git_home
cd git_home
git clone https://github.com/isb-cgc/examples-Python.git
cd examples-Python/python
python ./query_ccle_reads_v2.py -c 7 -p 140453136 -w 25
```

<https://console.cloud.google.com/cloudshell?project=isb-cgc-04-0003>

isb-cgc-04-0003 x

isb-cgc-04-0003

+

Your Google Cloud Shell session was idle for over 60 minutes and terminated.

[Reconnect](#)[Close](#)

```
{
  "kind": "cohort_api#cohorts",
  "name": "example cohort from samples",
  "perm": "OWNER",
  "email": "dr.ruth.mackin@gmail.com",
  "comments": "None",
  "filters": [
    {
      "name": "SampleBarcode",
      "value": "[u'TCGA-OR-A5J2-01A', u'TCGA-OR-A5J2-10A', u'TCGA-OR-A5J3-01A', u'TCGA-OR-A5J3-10A', u'TCGA-OR-A5J4-01A', u'TCGA-OR-A5J4-10A', u'TCGA-OR-A5J5-01A', u'TCGA-OR-A5J5-10A', u'TCGA-OR-A5J6-01A', u'TCGA-OR-A5J6-10A', u'TCGA-OR-A5J7-01A', u'TCGA-OR-A5J7-10A', u'TCGA-OR-A5J8-01A', u'TCGA-OR-A5J8-10A', u'TCGA-OR-A5J9-01A', u'TCGA-OR-A5J9-10A']"
    }
  ],
  "last_date_saved": "2016-05-16 18:53:09",
  "id": "363"
},
{
  "kind": "cohort_api#cohorts",
  "etag": "\"Ga8btiTfgttDwD6hb042onDGVm0/ayxhC4hdwFRd_TOaP1Rdo8CqaPw\""
}

*** calling delete endpoint *** 363
{
  "msg": "Cohort 363 successfully deactivated.",
  "kind": "cohort_api#cohortsItem",
  "etag": "\"Ga8btiTfgttDwD6hb042onDGVm0/KS7RMeCCe70-qF9uORpDQMItfx4\""
}

=====

time taken in seconds : 2.59256911278

=====

dr_ruth_mackin@isb-cgc-04-0003:~/git_home/examples-Python/python$
```

After 60 minutes of inactivity, your session will be terminated, but you can **Reconnect** with just one click.

Cancer Genomics Cloud

What Next?

You can find more details about [Cloud Shell](#) in the [Google Cloud Platform Product Documentation](#).

The ISB-CGC platform includes an interactive [Web App](#), over a Petabyte of TCGA data in Google Genomics and Cloud Storage, and tutorials and code examples on [GitHub](#) to get you started.

Documentation for the [ISB-CGC](#) platform and [Google Genomics](#) can be found on readthedocs.