

## Exercise 2. Install the Linux Data Science VM

In this exercise you will

1. Create a password protected private and public key
2. Install and deploy the Linux DS VM using your public key
3. Download X2GO and use it to visit your VM
4. Run Jupyter on the VM through the jupyter hub

### Step 1

You will need a public-private key pair.

If you have a mac or linux do this

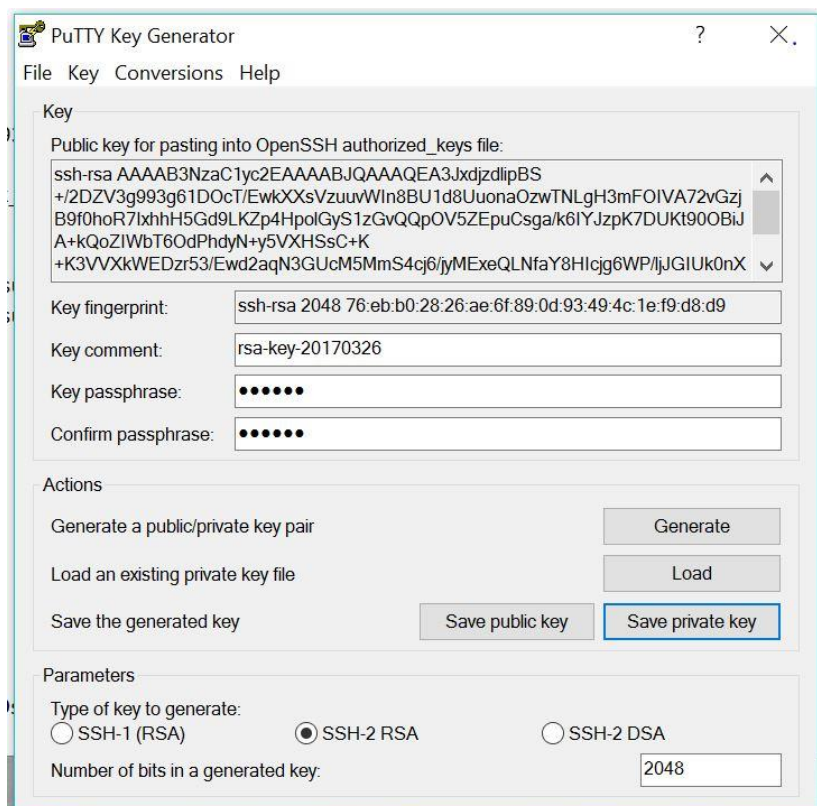
>ssh-keygen

And follow the instruction. This will generate two files. One is your private key and the other has the extension .pub. this is the public key you will upload to your VM.

If you are on a windows machine do this

Download and Install PuTTY. From [www.putty.org](http://www.putty.org)

This should contain two programs. PuTTY and PuTTYgen. Run PuTTYgen. After a few mouse moves you will see



Give it a password (key passphrase) and save the public and private keys.

## Step 2. Install the Linux Data Science VM

Using your Azure account connect to the portal and sign in.

### Using the Azure portal to create a VM

Click this To bring up The VM page Then click Add

In the search box enter "data science" and you will see this choice. Pick this one and click here

Next do the basic configuration

Create virtual machine Basics

1 Basics Configure basic settings

2 Size Choose virtual machine size

3 Settings Configure optional features

4 Summary Linux Data Science Virtual Machine

5 Buy

\* Name myDataScienceVM

VM disk type SSD

\* User name dbgannon

\* Authentication type SSH public key Password

\* SSH public key BEGIN SSH2 PUBLIC KEY -----BEGIN RSA PUBLIC KEY-----AAAAB3NzaC1yc2EAAAQEAi+SooqE+zhRcAt8wsF31YDgpnTQSnVMwQ5c

Subscription azure4research

\* Resource group Create new Use existing bookRG

Location South Central US

OK

Give your vm a name



Give yourself a user ID



Copy and paste your public key here



You probably don't have a resource group, so select "create new"



South Central US works for me. It will tell you which regions you are allowed to use.

IF everything has a green check mark then click OK

You next must select a server type for this VM. You will get three choices

DS2_V2 Standard	DS3_V2 Standard	DS14_V2 Standard
2 Cores	4 Cores	16 Cores
7 GB	14 GB	112 GB
4 Data disks	8 Data disks	32 Data disks
6400 Max IOPS	12800 Max IOPS	50000 Max IOPS
14 GB Local SSD	28 GB Local SSD	224 GB Local SSD
Load balancing	Load balancing	Load balancing
Premium disk support	Premium disk support	Premium disk support
94.49 USD/MONTH (ESTIMATED)	189.72 USD/MONTH (ESTIMATED)	989.52 USD/MONTH (ESTIMATED)

Pick the one you can “afford”. Then go to step 3. Just click OK to accept all the defaults. And finally click “Buy”.

When the VM starts you should be able to see it in the portal on your dashboard (which you get to by clicking on the big [Microsoft Azure](#) in the upper left corner. You should see:

Connect Start Restart Stop Capture Delete

Essentials

Resource group (change) [bookRG](#)

Status **Running**

Location **South Central US**

Subscription name (change) [azure4research](#)

Subscription ID [f518fe6b-5262-4e5a-80cb-05b7a39f9298](#)

Computer name **myDataScienceVM**

Operating system **Linux**

Size **Standard DS14 v2 (16 cores, 112 GB mem...**

Public IP address/DNS name label [13.84.55.19/<none>](#)

Virtual network/subnet [bookRGvnet771/default](#)

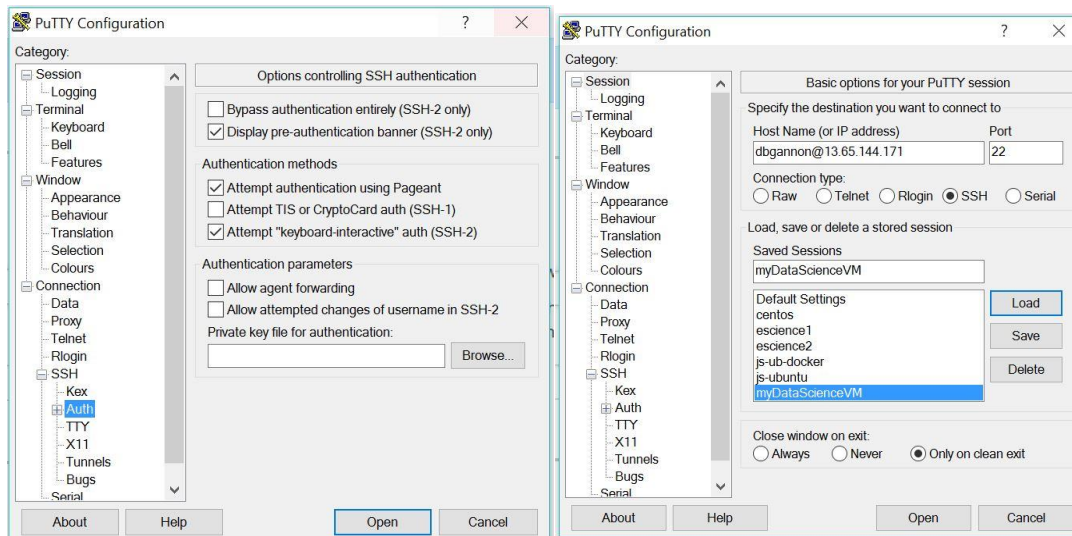
Monitoring

Make note of the IP address. You should be able to log into your VM with your private key as follows.

For the Mac or Linux type

```
>ssh -i privatekey youruserid@ipaddress
```

For Windows run Putty. You will need to upload your private key into the putty client



Then return to the session tab and enter your userid@yourVM-IP-address. You can give it a name and select "save". This will save the configuration for next time. Next select "open".

While you are logged into the vm, you should also set your local password. Type

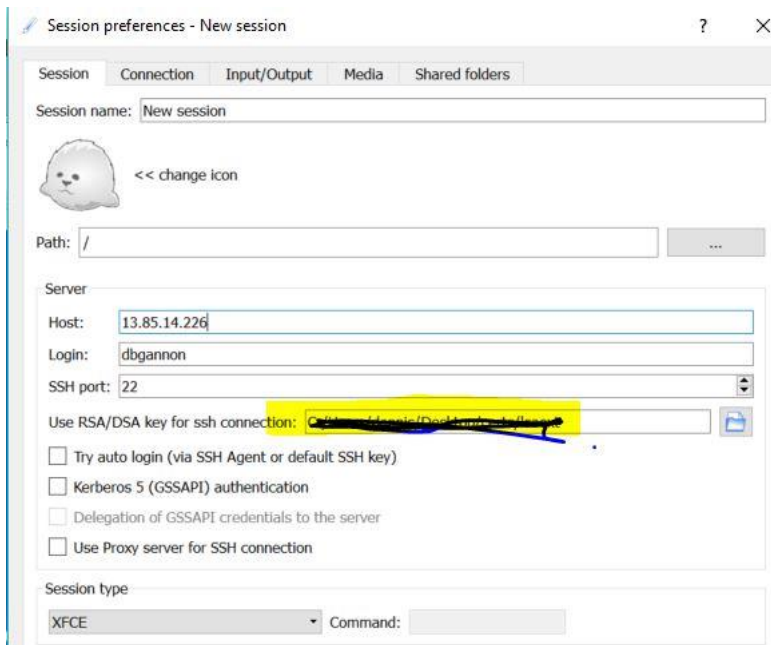
```
> sudo passwd userid
```

```
> enter your password twice
```

We will use this later.

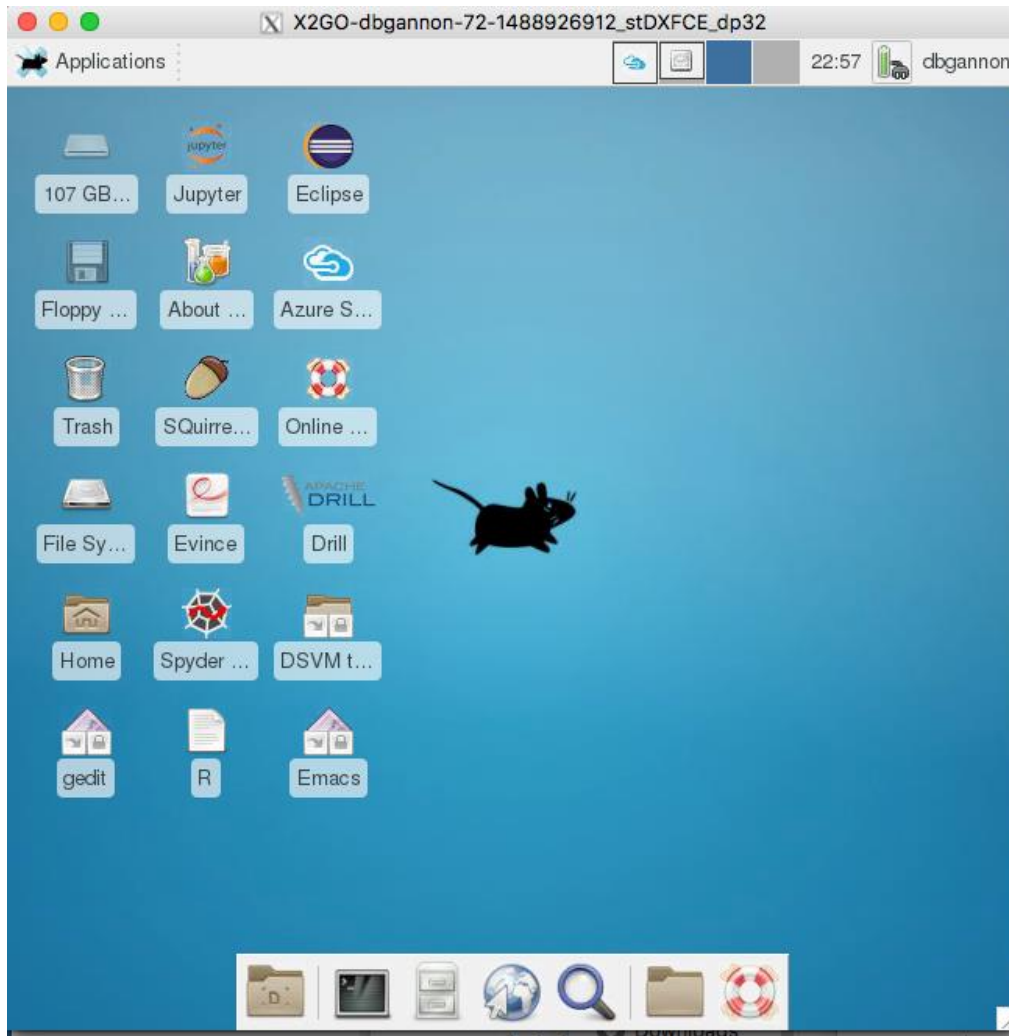
### Step 3. X2Go

Download X2Go. <http://wiki.x2go.org> install it. Create a new session.



You will need your ip address and login id and the path to your secret key. And set the session type XFCE

You will need to give it the password to unlock your secret key. If you are running windows it may protest but just wait. It should come up with the desktop.



From here you can launch a terminal window, file manager, web browser by looking in the bottom row of icons. There are many other tools.

#### Step 4. Run jupyter

The system is already running a tool called jupyter hub that will allow you to log in and start a jupyter session in your browser. Go to <https://youvm-IP:8000>. Login with your userid and password.

There are some great examples here.

