Lab 1 - SQL Setup

CompSci 316
Fall 2020

Virtual Machine instruction

https://www2.cs.duke.edu/courses/fall20/compsci316/instructions/vm/

Step 1: Reserve a VM:https://vcm.duke.edu/

Welcome to Virtual Computing Manager!

Virtual Computing Manager is a service providing the Duke community with easy access to virtual software packages, and semester-long virtual machine (VM) reservations. Access specialized software without installing it on your own computer, host your own server for development projects and coursework, or customize your own environment to use for the semester.

My Reservations

VIRTUAL MACHINES

Virtual Machines (aka VMs)

Your Duke VM is like having a second computer that lives in OIT. You can log into and use your VM from your own machine.

- Run Windows or Linux
- Install zero, one or multiple apps for free

Reserve a VM

Virtual Software (aka Containers)

A Container lets you use a desktop software application in your browser without installing it on your machine or your VM.

- Simple to use
- Launch an app in a click!
- Use anywhere you can run a browser

Reserve a Container

No SSH Key Found

Duke encourages the use of SSH Keys to limit password exposure. It is **HIGHLY** recommended that VCM users create an SSH Key to be used to access their VM.

Please use the Self Service Tool to create a SSH Key before making a reservation for a Linux VM.

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VIRTUAL MACHINES

vcm-▇▇▇.vm.duke.edu
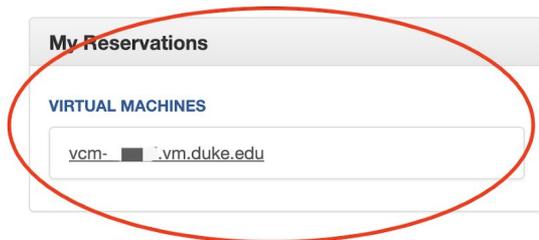
check the vm

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VM Management Tools

vm.duke.edu

⏻ Power on   ⏻ Power off   📷 Take a current snapshot   ↻ Reload from snapshot   🗎 Export this VM

💾 Reload original image   📑 Create an alias   ⇄ Transfer ownership   🗑 Delete this reservation

Automatic power downs? ☑

THIS VM WILL POWER DOWN AUTOMATICALLY

To make efficient use of the shared VCM resources and reduce our carbon footprint, this VM will be powered down **every morning at 6:00 AM**. Click the Power on button to turn your VM back on before you log into it. If your VM is being used as server or runs very long computations and must remain on continuously, you can un-check the **Automatic power down** check box above to opt out of automatic shutdowns.

General Information

Hostname:	vcm-15837.vm.duke.edu
Operating System:	Ubuntu18 Server
Base memory:	2 GB
Processors:	2
Extra info:	Request: https://clockworks.oit.duke.edu/vm_request/119995 Deployed from OVF packer-ubuntu-18.04-server-amd64(content version 13) on content library FE-VM-Manage @ 2020-08-05 09:04:59 -0400 ClockworksUrl: https://clockworks.oit.duke.edu/vms/31578
VM Status:	complete

Users

check username and password

User:	
Admin user:	vcm
Admin password:	View password

ASK A VCM QUESTION

Step 2: Access to the Machine

Mac/Linux:

In terminal, type "ssh vcm@vcm-xxxx.vm.duke.edu"

Enter password

If Windows OS: MobaXterm
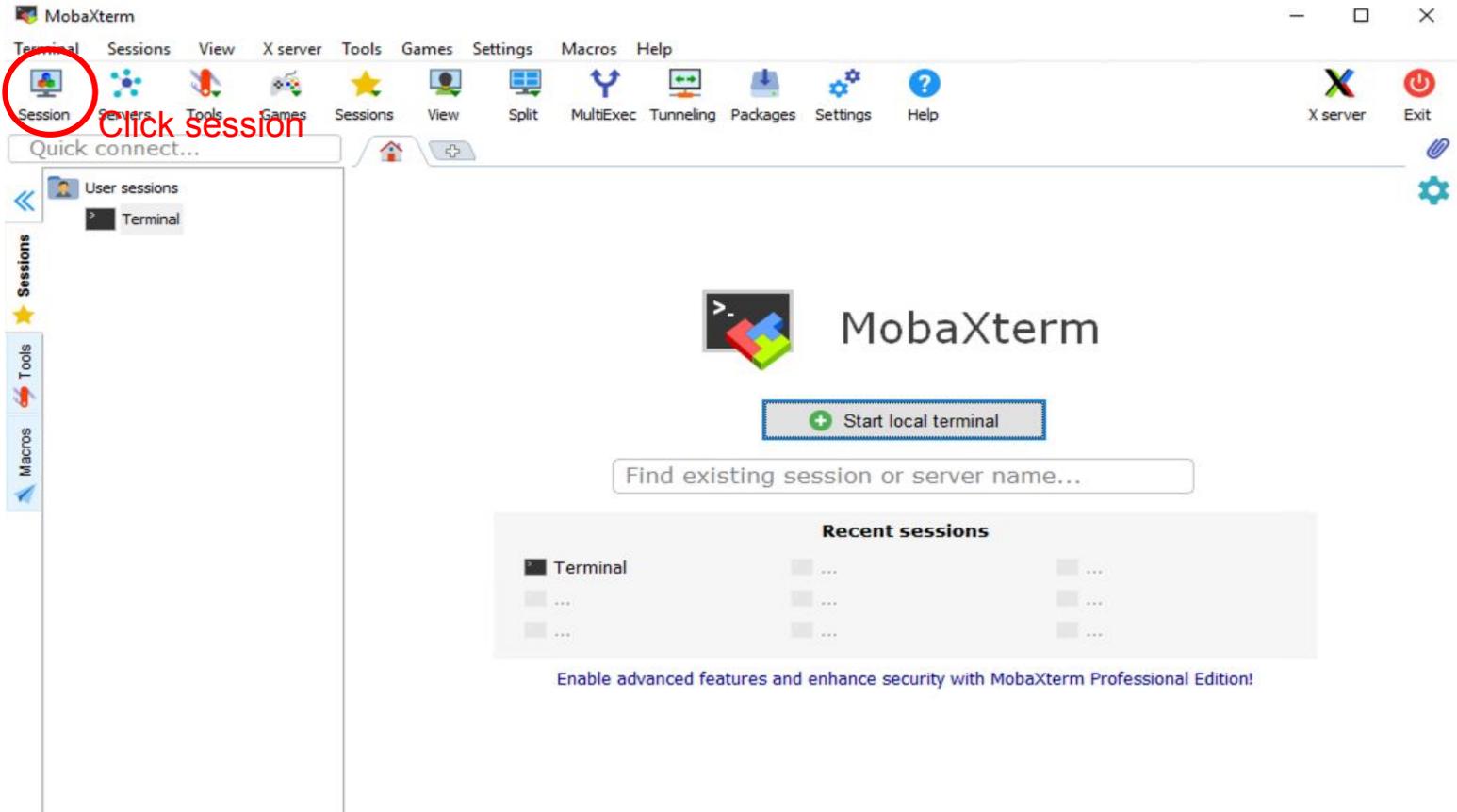
SSH Telnet Rsh Xdmcp RDP VNC FTP SFTP Serial File Shell Browser Mosh Aws S3

Click SSH

Choose a session type...

OK   Cancel

Session settings   ✕

SSH   Telnet   Rsh   Xdmcp   RDP   VNC   FTP   SFTP   Serial   File   Shell   Browser   Mosh   Aws S3   WSL

1.

🔑 Basic SSH settings   vcm@vcm-xxx.vm.duke.edu

Remote host * [vcm@vcm-xxx.vm.d]   ☐ Specify username   [   ] 👤   Port [22 ⏶⏷]

🔑 Advanced SSH settings   📟 Terminal settings   ⚛ Network settings   ⭐ Bookmark settings

Secure Shell (SSH) session   🔑

2.

✅ OK   ❌ Cancel

VM Setup - download & run setup script

1. Download the setup script:
    a. `wget -N https://www2.cs.duke.edu/courses/spring20/compsci316/static/init.sh`
2. Run the script:
    a. `bash init.sh`

VM Setup - add SSH Key to your GitLab

1. Pause at this screen
2. Copy your public key (everything starting from "ssh-rsa" to your duke email address)
3. Open a browser, go to gitlab.oit.duke.edu, login with your Duke credentials
4. Click on the icon on upper right corner, Go to setting → SSH Keys
5. Paste the public key under Key, give it a title, doesn't matter what the title is, don't have to set expiration date
6. Add Key
7. Go back to your terminal and hit [Enter]
8. Answer yes if asked to continue to connect
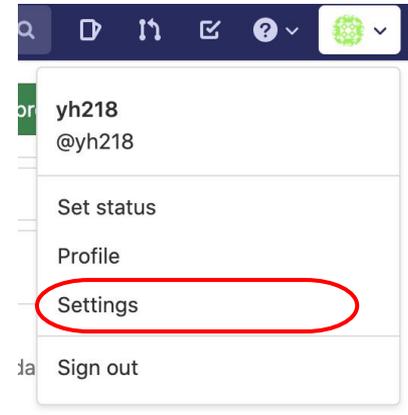
VM Setup - Install necessary tools

1. init.sh downloads a repository from GitLab
   a. They are under path /opt/dbcourse on your VM
2. Run the following command:
   a. `/opt/dbcourse/sync.sh`
   b. This would install necessary tools for setup
3. Just wait for the command to finish (it takes a while)
4. Once it is finished, reboot to adopt the changes:
   a. `sudo reboot now`
   b. This would terminate SSH connection, just wait for the reboot and re-ssh
5.

VM Setup - Final Step

1. Run the command:
   a. `/opt/dbcourse/examples/db-beers/setup.sh`
2. Once done, you should see output similar to the screenshot
3. Go to the following URL:
   a. vcm-XXXXX.vm.duke.edu:8081
   b. XXXXX is the number of your VM
   c. Must include the port number at the end

```
[vcm@vcm-15957:~$ /opt/dbcourse/examples/db-beers/setup.sh
CREATE TABLE Bar(name VARCHAR(20) NOT NULL PRIMARY KEY,
                address VARCHAR(20));
CREATE TABLE
CREATE TABLE Beer(name VARCHAR(20) NOT NULL PRIMARY KEY,
                brewer VARCHAR(20));
CREATE TABLE
CREATE TABLE Drinker(name VARCHAR(20) NOT NULL PRIMARY KEY,
                address VARCHAR(20));
CREATE TABLE
CREATE TABLE Frequents(drinker VARCHAR(20) NOT NULL REFERENCES Drinker(name),
                bar VARCHAR(20) NOT NULL REFERENCES Bar(name),
                times_a_week SMALLINT CHECK(times_a_week > 0),
                PRIMARY KEY(drinker, bar));
CREATE TABLE
CREATE TABLE Serves(bar VARCHAR(20) NOT NULL REFERENCES Bar(name),
                beer VARCHAR(20) NOT NULL REFERENCES Beer(name),
                price DECIMAL(5,2) CHECK(price > 0),
                PRIMARY KEY(bar, beer));
CREATE TABLE
CREATE TABLE Likes(drinker VARCHAR(20) NOT NULL REFERENCES Drinker(name),
                beer VARCHAR(20) NOT NULL REFERENCES Beer(name),
                PRIMARY KEY(drinker, beer));
CREATE TABLE
\COPY Bar(name, address) FROM 'data/Bar.dat' WITH DELIMITER ',' NULL '' CSV
COPY 5
\COPY Beer(name, brewer) FROM 'data/Beer.dat' WITH DELIMITER ',' NULL '' CSV
COPY 7
\COPY Drinker(name, address) FROM 'data/Drinker.dat' WITH DELIMITER ',' NULL '' CSV
COPY 7
\COPY Frequents(drinker, bar, times_a_week) FROM 'data/Frequents.dat' WITH DELIMITER ',' NULL '' CSV
COPY 13
\COPY Serves(bar, beer, price) FROM 'data/Serves.dat' WITH DELIMITER ',' NULL '' CSV
COPY 17
\COPY Likes(drinker, beer) FROM 'data/Likes.dat' WITH DELIMITER ',' NULL '' CSV
COPY 14
```

Pgweb

In web browser, enter vcm-xxx.vm.duke.edu:8081

Pgweb