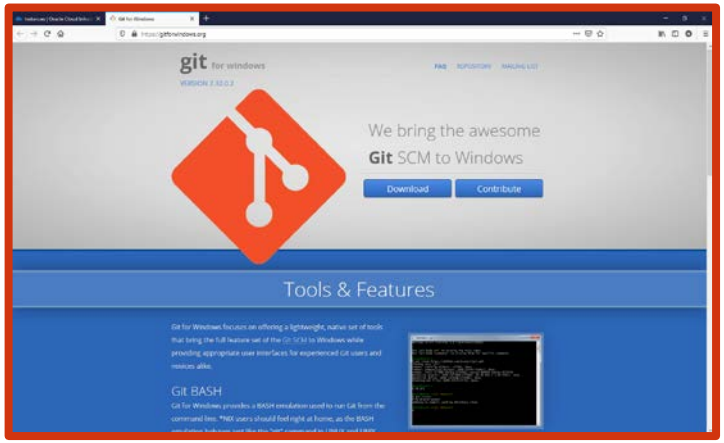
Oracle Academy Cloud Program (OACP)
Oracle Cloud Infrastructure (OCI) - Lab 1

- **Create and Connect to a Compute VM Instance with Oracle Linux Server**
- **Install Java JDK**
- **Create, Compile, and Run a Java Program on Linux Command Line**

Section 1: Download and Install Required Software

To manage public/private keys we will require Git for Windows
This task will take approximately 10 minutes to complete

1. On your local computer go to https://gitforwindows.org
2. Click Download
3. Save the file
4. Open the folder where the file is saved from step 3, and then click the executable file to install
5. Follow the On-Screen Instructions - **accept all default settings**



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To connect a GUI session on our Compute VM Oracle Linux Instance we will require Real VNC Viewer
This task will take approximately 10 minutes to complete

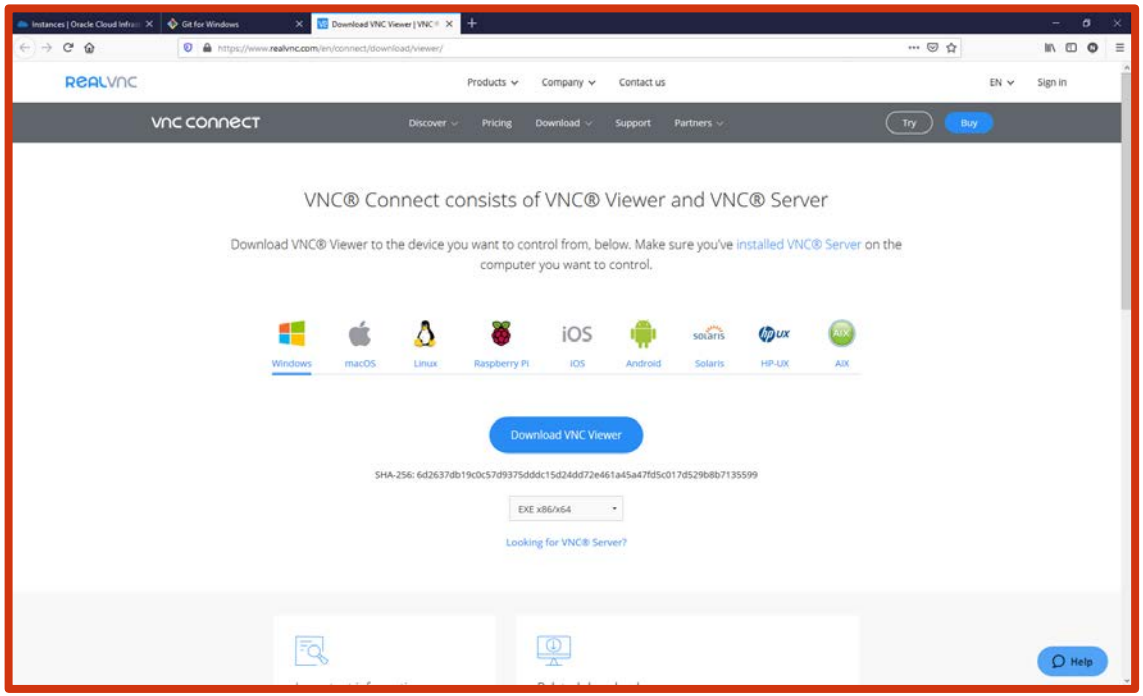
1. On your local computer go to
   `https://www.realvnc.com/en/connect/download/viewer/`

2. Click Download VNC Viewer

3. Save the file

4. Open the folder you have saved the file in and click the executable to install

5. Follow the On-Screen Instructions



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Section 2: Create secure Public/Private Key authentication

If you already have a public private key set, you may skip this section

This task will take approximately 5 minutes to complete

1. Open a Git Bash Terminal window
    a. Find Git in your programs
    b. Click Git Bash to open a Terminal window

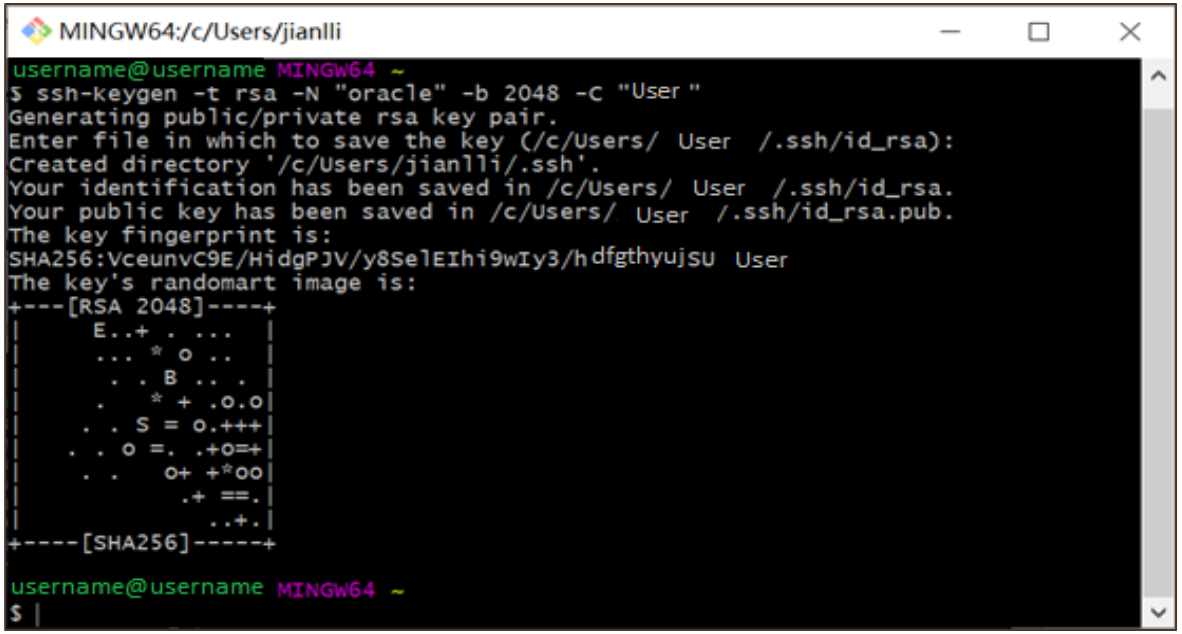
2. Enter the following command to create the key:
    `ssh-keygen -t rsa -b 2048`

3. You will be Prompted for a Passphrase (or hit enter for blank)

4. You will be Prompted to repeat the Passphrase (or hit enter for blank)
    a. If you entered a Passphrase, be sure to make note of it

5. You will be Prompted for path (or hit enter for default)
    a. Default path is `c:\users\username\.ssh\`
    b. 2 files will be created:
        i. **`id_rsa`** (private key)
        ii. **`id_rsa.pub`** (public key)
    c. Make a note of where these files are located

6. Close Git Bash



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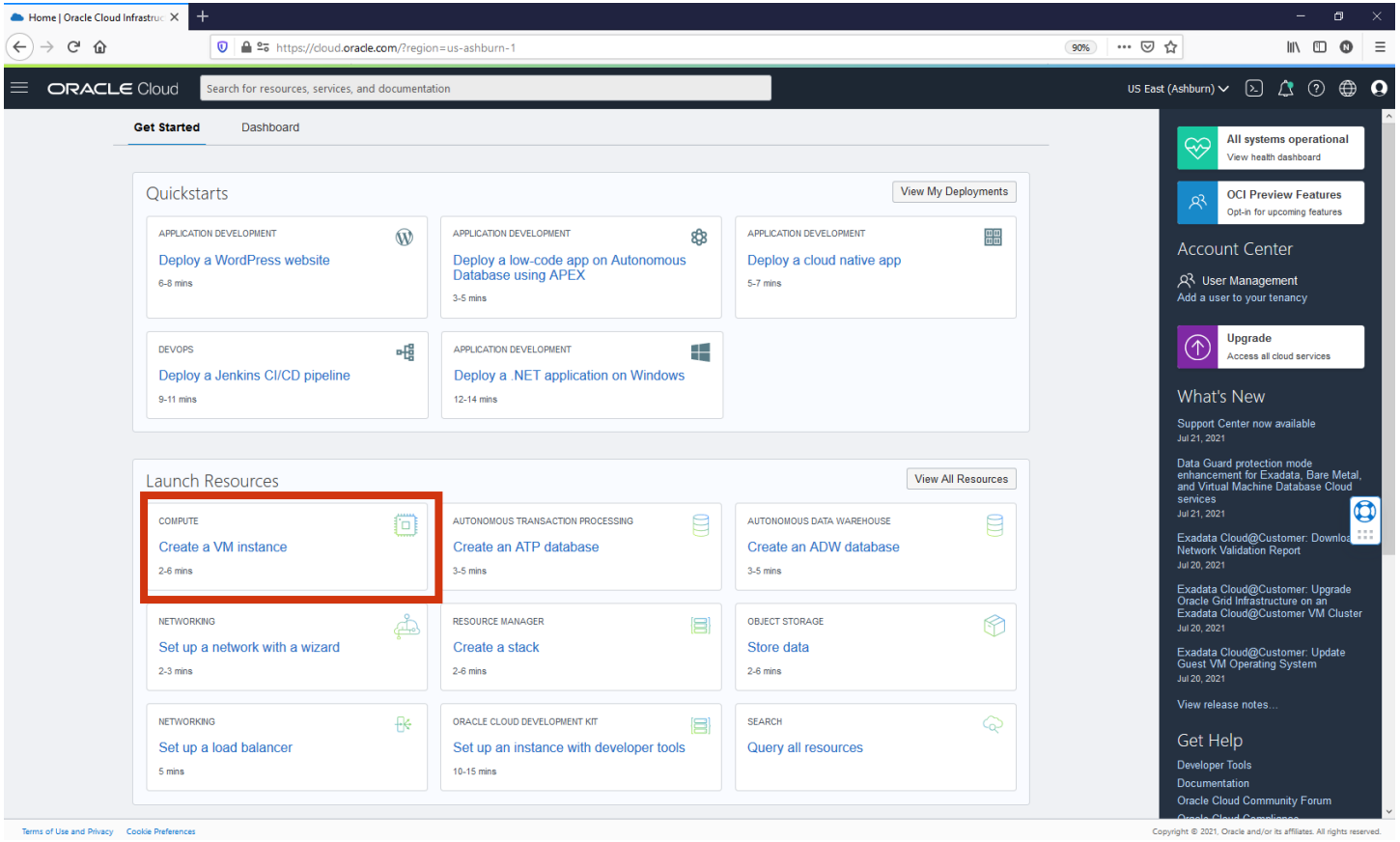
Section 3: Create an Always Free Compute Instance with Oracle Linux 7

This task will take approximately 10 minutes to complete. You can create/own 2 (two) **Always Fr**ee Instances.

1. Sign into your Oracle Cloud Tenancy

2. Select Create a VM Instance



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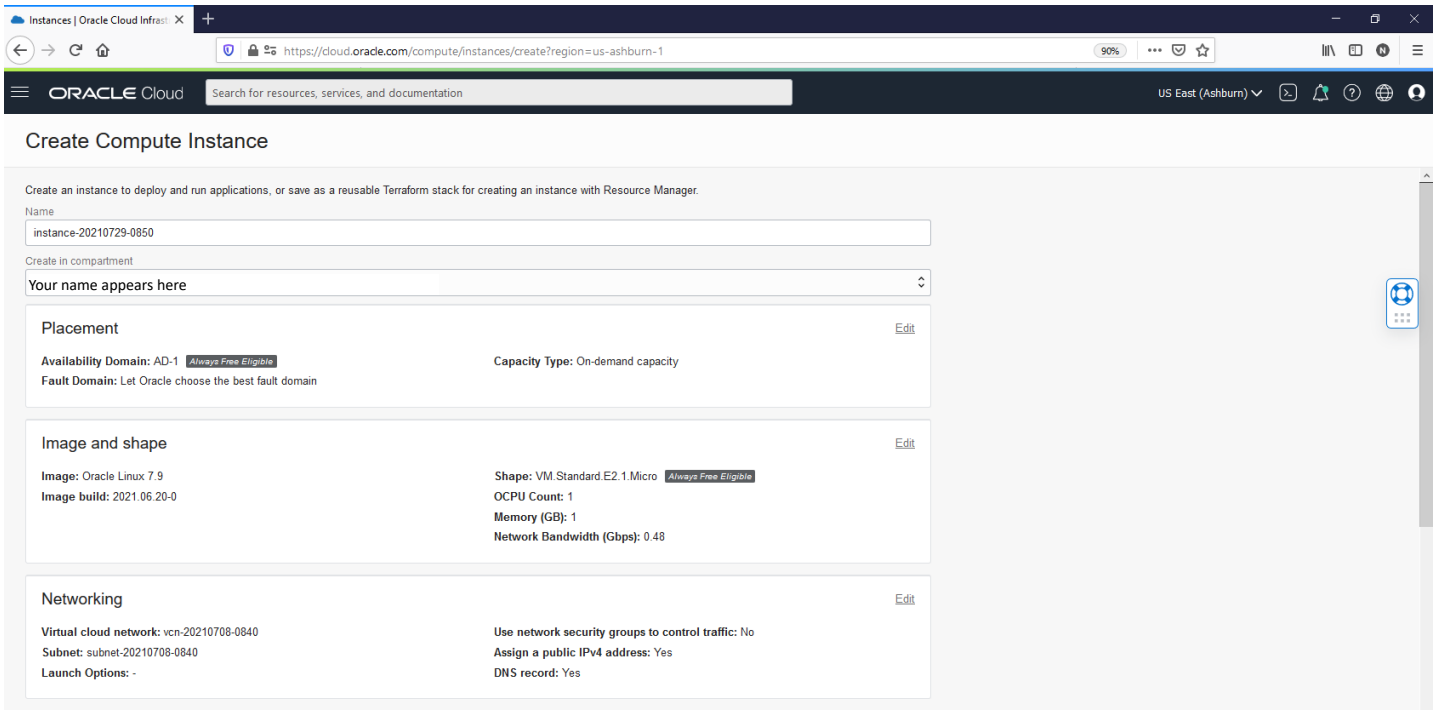
3. Accept defaults for:
    a. Placement
    b. Image and shape
    c. Networking



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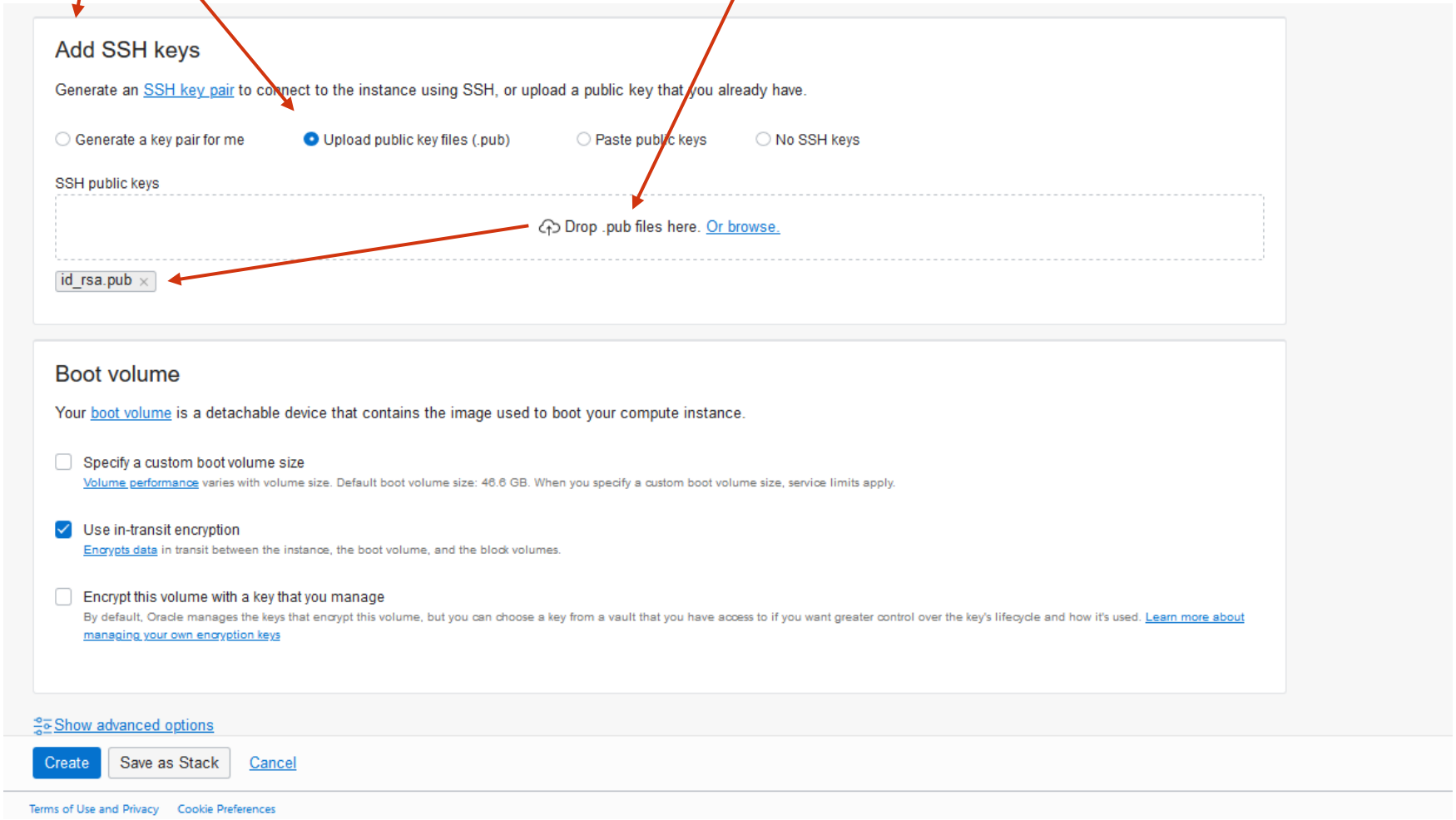
4. Add SSH keys:

   a. Select Upload public key files (.pub)

   b. Drag **id_rsa.pub** that you saved in Section 2, Step 5 into the “Drop .pub files here”



5. Click “Create”

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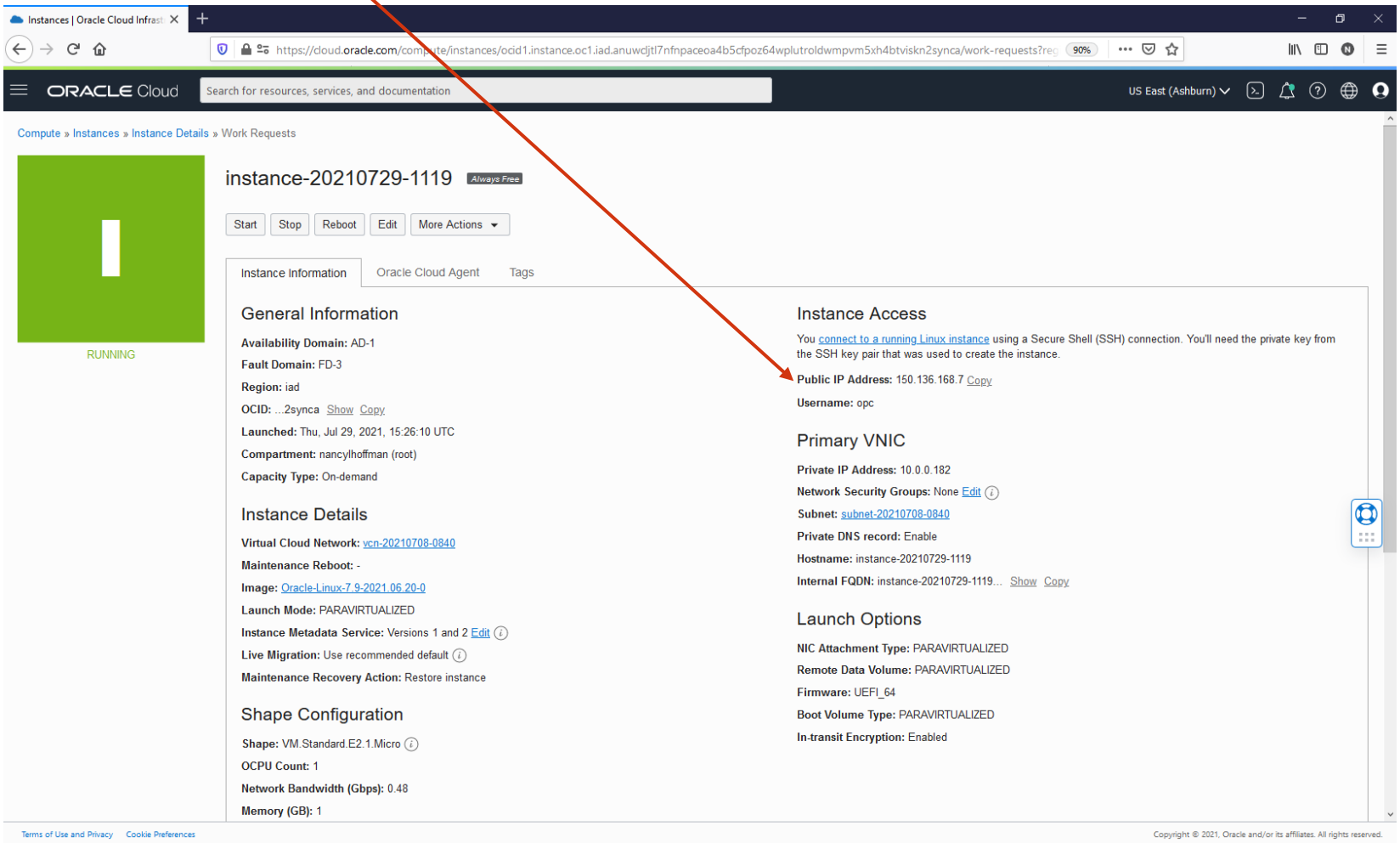
6. Your new Compute VM Instance will now be created

   a. It may take a few minutes to provision your Compute Instance

   b. When completed with Provisioning, you will see your Compute Instance in green (Running)

   c. Once provisioned, **take note of the public IP address assigned to your Instance**



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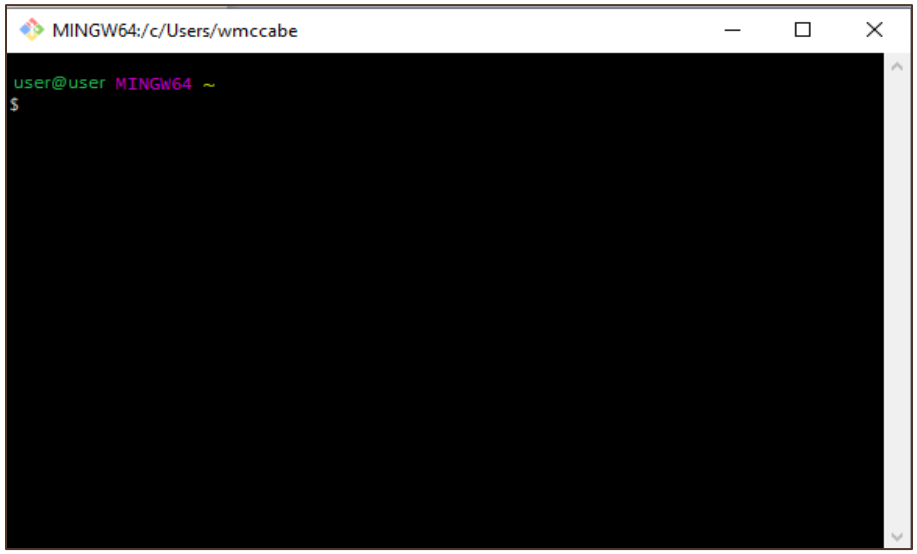
Section 4: Connect to the Compute VM Instance

This task will take approximately 5 minutes to complete.

1. Open a Git Bash Terminal window

   a. Find Git in your programs

   b. Click Git Bash to open a Terminal window



   Note: You can have multiple Git Bash Terminal windows open

2. Execute the following command **using your public IP address** (from Section 3, Step 6c) to SSH Connect to your Compute VM Instance:
   `ssh opc@public IP address`

   Example: `ssh opc@111.222.33.444`

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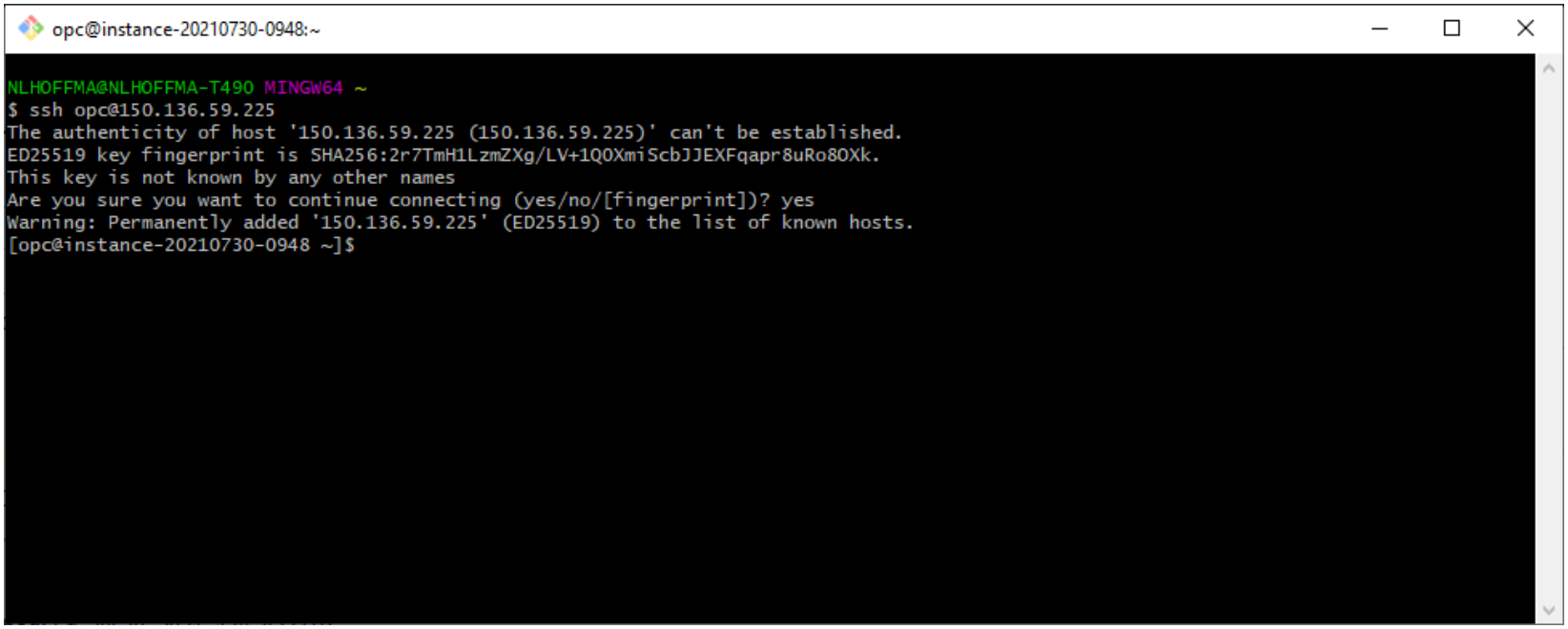
3. If prompted to continue, enter “yes”

   If you entered a Passphrase in Section 2 (Steps 3 and 4), you will be prompted to enter it here



   The first time you connect, you will see a message that the new IP address has been added to a list of known hosts.

   You now have a fully functioning Oracle Linux 7 Server

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Section 5: Install JDK 8

To Install JDK 8 follow these steps:

1. In the Git Bash terminal window execute the following command to install the latest version of the repository:

   `sudo yum install -y --enablerepo=ol7_ociyum_config oci-included-release-el7`

2. Once step 1 is completed, execute the following command to list the available JDK versions:

   `yum list jdk*`

   Note: As of this writing, the repository contains Oracle Java 8, 11,12,13, 14, 15, 16

```
[opc@instance-20210729-1119 ~]$ yum list jdk*
Loaded plugins: langpacks, ulninfo
Available Packages
jdk-11.0.10.x86_64                          2000:11.0.10-ga                     ol7_oci_included
jdk-11.0.11.0.1.x86_64                      2000:11.0.11.0.1-ga                 ol7_oci_included
jdk-11.0.12.x86_64                          2000:11.0.12-ga                     ol7_oci_included
jdk-11.0.3.x86_64                           2000:11.0.3-ga                      ol7_oci_included
jdk-11.0.4.x86_64                           2000:11.0.4-ga                      ol7_oci_included
jdk-11.0.5.x86_64                           2000:11.0.5-ga                      ol7_oci_included
jdk-11.0.7.x86_64                           2000:11.0.7-ga                      ol7_oci_included
jdk-11.0.8.x86_64                           2000:11.0.8-ga                      ol7_oci_included
jdk-11.0.9.x86_64                           2000:11.0.9-ga                      ol7_oci_included
jdk-12.0.1.x86_64                           2000:12.0.1-ga                      ol7_oci_included
jdk-12.0.2.x86_64                           2000:12.0.2-ga                      ol7_oci_included
jdk-13.x86_64                               2000:13-ga                          ol7_oci_included
jdk-13.0.1.x86_64                           2000:13.0.1-ga                      ol7_oci_included
jdk-14.x86_64                               2000:14-ga                          ol7_oci_included
jdk-14.0.1.x86_64                           2000:14.0.1-ga                      ol7_oci_included
jdk-14.0.2.x86_64                           2000:14.0.2-ga                      ol7_oci_included
jdk-15.x86_64                               2000:15-ga                          ol7_oci_included
jdk-15.0.1.x86_64                           2000:15.0.1-ga                      ol7_oci_included
jdk-15.0.2.x86_64                           2000:15.0.2-ga                      ol7_oci_included
jdk-16.x86_64                               2000:16-ga                          ol7_oci_included
jdk-16.0.1.0.1.x86_64                       2000:16.0.1.0.1-ga                  ol7_oci_included
jdk-16.0.2.x86_64                           2000:16.0.2-ga                      ol7_oci_included
jdk1.8.x86_64                               2000:1.8.0_301-fcs                  ol7_oci_included
```

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3. To install Oracle Java 8, version 1.8.0 Execute the following command

   `sudo yum install jdk1.8.x86_64`

   Follow the on-screen instructions to download and install. If prompted to accept download size – type y.

```
[opc@instance-20210729-1119 ~]$ sudo yum install jdk1.8.x86_64
Loaded plugins: langpacks, ulninfo
Resolving Dependencies
--> Running transaction check
---> Package jdk1.8.x86_64 2000:1.8.0_301-fcs will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package                Arch                   Version                  Repository
================================================================================
Installing:
 jdk1.8                 x86_64                 2000:1.8.0_301-fcs       ol7_oci_included

Transaction Summary
================================================================================
Install  1 Package

Total download size: 109 M
Installed size: 253 M
Is this ok [y/d/N]: y
Downloading packages:
jdk-8u301-linux-x64.rpm
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 2000:jdk1.8-1.8.0_301-fcs.x86_64
Unpacking JAR files...
        tools.jar...
        plugin.jar...
        javaws.jar...
        deploy.jar...
        rt.jar...
        jsse.jar...
        charsets.jar...
        localedata.jar...
  Verifying  : 2000:jdk1.8-1.8.0_301-fcs.x86_64

Installed:
  jdk1.8.x86_64 2000:1.8.0_301-fcs

Complete!
```

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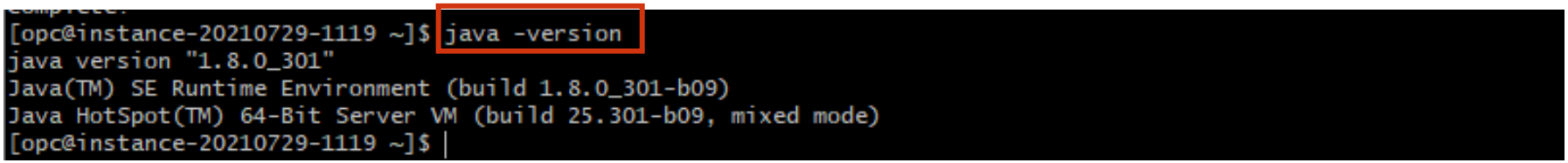
4. To confirm the Java version, execute the following command

   `java -version`



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Section 6: Create, Compile and Run a Java Program

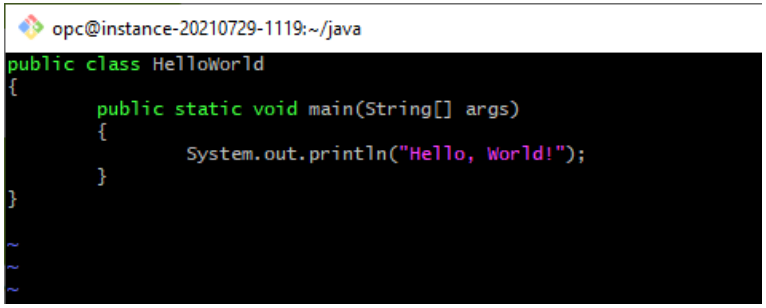
1. Create a new folder in your user directory (opc) by entering the command:
   ```
   mkdir java
   ```

2. Change to that folder, enter the command
   ```
   cd java
   ```

3. To start the vi editor and open a .java file, enter the command
   ```
   vi HelloWorld.java
   ```

4. To begin editing the file, enter Insert Mode by typing the letter "`i`"
   ```
   i
   ```

5. Enter the following code exactly as follows:
   ```
   public class HelloWorld
   {
         public static void main(String[] args)
         {
         System.out.println("Hello, World!");
         }
   }
   ```



6. To complete editing, exit Insert mode - press **Esc**

7. To write the file to your `java` directory, enter the command
   ```
   :w
   ```

8. To quit the vi editor, enter the command
   ```
   :q
   ```

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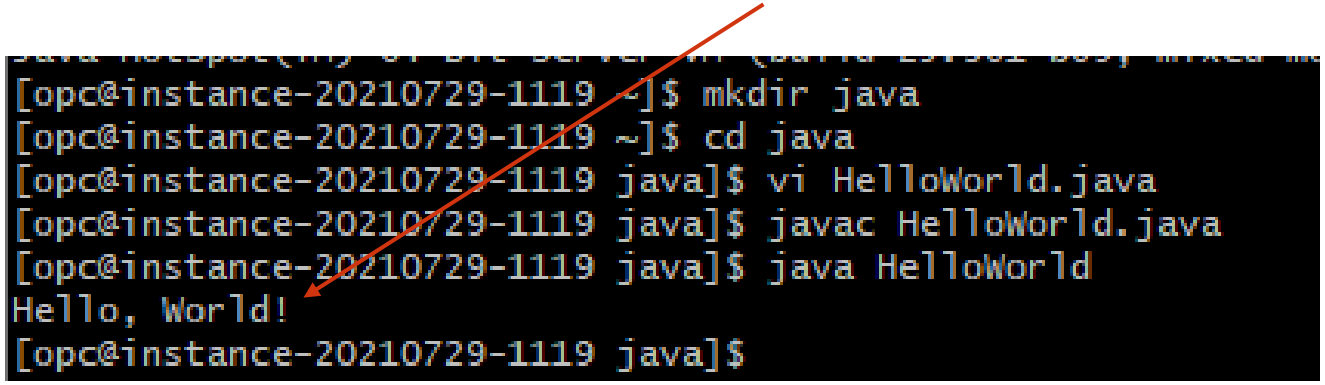
9. To compile the .java program, enter the command

   `javac HelloWorld.java`

10. To run the program, enter the command

    `java HelloWorld`

11. You should see **`Hello, World!`** displayed in the command line like below:



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