DAT247x

Managing Database Operations
Lab 00 | Getting Started

Estimated time to complete this lab is 60 minutes

Overview

In this lab, you will provision a Microsoft Azure Virtual Machine (VM) that will be used by all labs in this course. Once the VM is provisioned, you will complete the setup required to support the labs.

The labs in this course are accumulative. You cannot complete the following labs if this lab has not been successfully completed.

What You'll Need

To complete this lab, you will need the following:

- High-speed and reliable internet connectivity (for remote connections to the VM)
- A second monitor is recommended (for the Remote Desktop connection)
- A Microsoft account (such as one used for outlook.com, Hotmail, or other Microsoft services)
- A Microsoft Azure subscription
- The lab files for this course (available for download from GitHub, as described in this lab)

Creating a Free Trial Azure Subscription

If you already have an Azure subscription, you can skip this section. Otherwise, follow these steps to create a free trial subscription. You will need to provide a valid credit card number for verification, but you will not be charged for Azure services—for more information, refer to https://aka.ms/edx-dat247x-az1. Note that the free trial is not available in all regions.

If you already have a Microsoft account that has <u>not</u> already been used to sign up for a free Microsoft Azure trial subscription, you're ready to get started. If not, don't worry—just create a new Microsoft account at https://signup.live.com.

After you've created a Microsoft account, browse to https://aka.ms/edx-dat247x-az1 and then click the **Start Free** link. Then follow the instructions to sign up for a free trial subscription to Microsoft Azure. You'll need to sign in with your Microsoft account if you're not already signed in. Then you'll need to:

- Enter your cellphone number and have Microsoft send you a text message to verify your identity
- Enter the verification code sent to you
- Provide valid payment details—don't worry, your credit card won't be charged for any services you use during the trial period, and the account is automatically deactivated at the end of the trial period, unless you expressly decide to keep it active.

Exercise 1: Provisioning a Linux Azure VM

In this exercise, having signed in to the Azure Portal by using your Azure subscription, you will provision a Linux Azure VM to support all labs for this course.

The Azure VM should be stopped when you have completed a lab so that your subscription is not charged (for free trial subscriptions, this will ensure you will have sufficient credits left to complete the labs over the duration of the course).
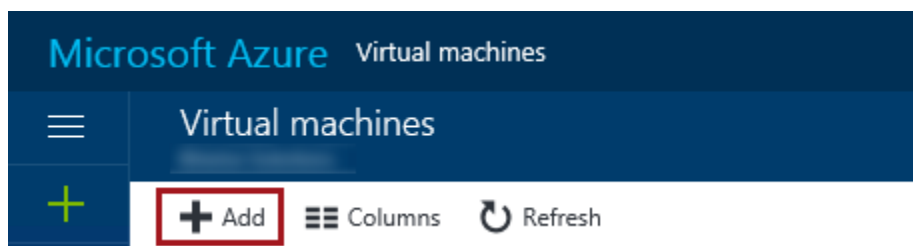
Provisioning a Linux Azure VM

In this task, you will sign in to the Azure Portal, and then provision an Azure VM.
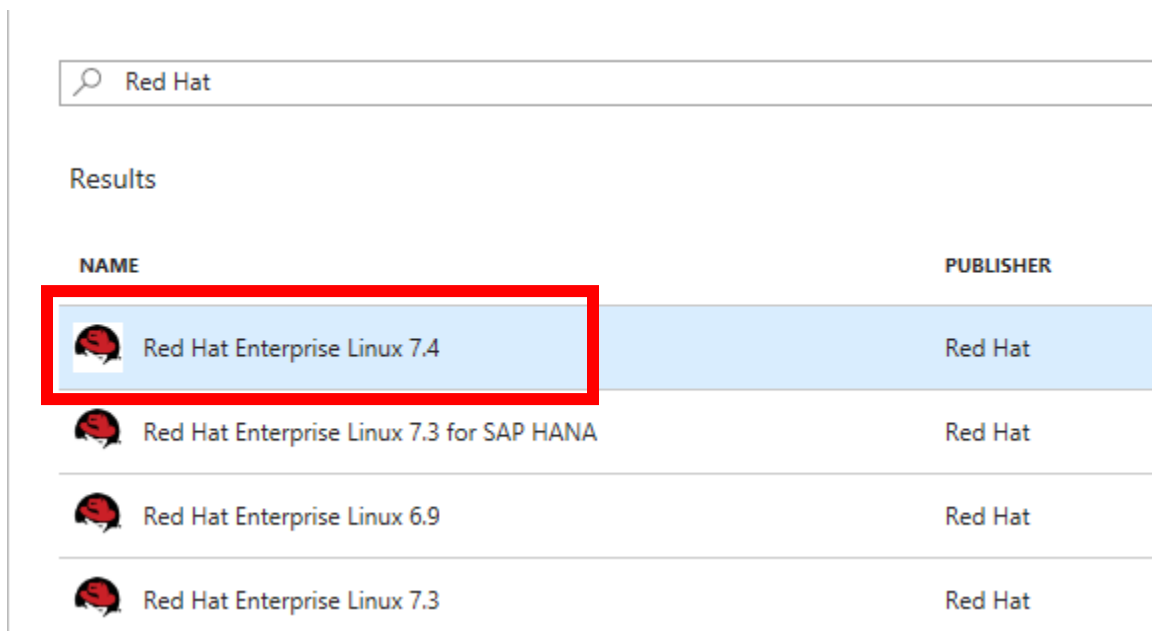
1.   Sign in to the **Azure Portal** by using your subscription.

2.   In the left pane, select **Virtual Machines**—<u>do not</u> select **Virtual Machines (Classic)**.
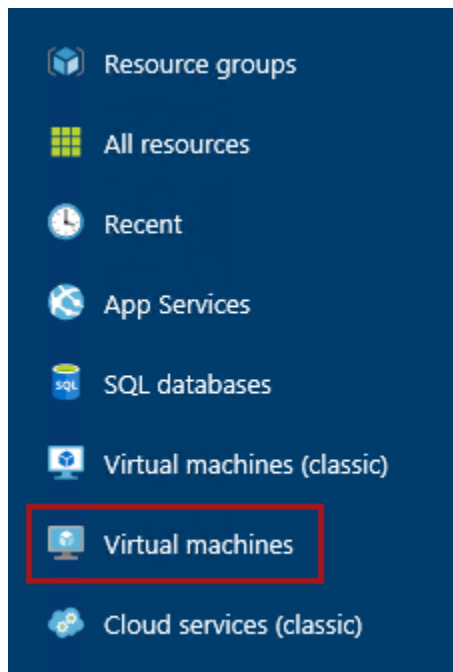
3.   In the **Virtual Machines** blade, click **Add**.

4.   In the **Virtual Machines** blade, in the search box, enter **Red Hat**, and then press **Enter**.

5.   Select the **Red Hat Enterprise Linux 7.4** image.

6.   In the image blade, review the text that describes the virtual machine.

7.   To provision the virtual machine, click **Create**.

8.   Notice that the **Create Virtual Machine** blade opens, and that also the **Basics** blade (step 1) opens.

9.   In the **Name** box, enter a name for the virtual machine (this will become the name of the machine).

10. In the **VM Disk Type** dropdown list, select **HDD**.

11. In **Authentication type**, select **Password**.

12. In the **User Name** box and **Password** boxes, enter appropriate values (this will become the machine administrator account).

     The password must be at least 12 characters in length, and must have three of the following: one lower case character, one upper case character, one number, or one special character.

     Be sure to securely record these credentials, as you will be required to use them to sign in every time you will connect to the VM.

13. In the **Resource Group** box, enter **Lab**.

14. In the **Location** box, select a data center that is near you.
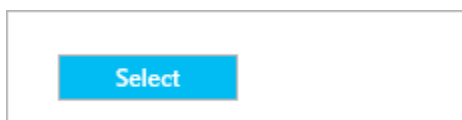
15. Click **OK**.

16. In the **Choose a Size** blade, click **View all**.

17. In the **Choose a Size** blade, scroll down to locate and select the **D1_V2** size.

    The labs in this course will not require excessive storage, memory or processing. Also, you will be prompted to deallocate your VM between labs, and so the monthly cost will only apply when the VM is running.


18. Click **Select**.

19. In the **Settings** blade, scroll down and select **Diagnostics storage account**.

20. On the **Choose Storage account blade**, click **Create new**.

21. On the **Create storage account** blade, in the **Name** box, type a globally unique name. For example use your name, followed by the digits of today's date, followed by *sa*.
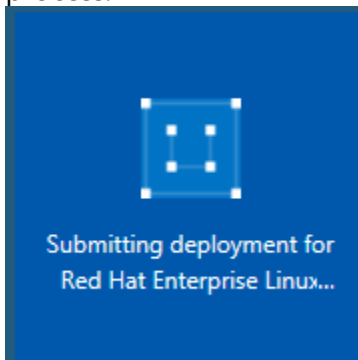
22. Click **OK**.

23. On the **Settings** blade, click **OK**.

24. On the **Create** blade, click **Create**.
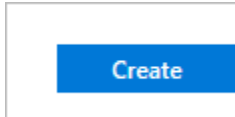
25. On the **Azure Portal** dashboard, notice the tile displaying the status of the deployment process.

The deployment usually takes 15-20 minutes to complete, and this time depends largely on the VM size selected. The VM blade will open when the deployment completes.

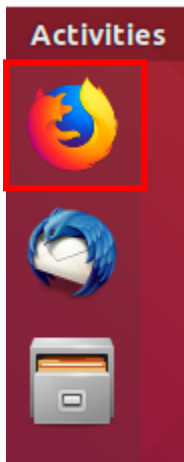*You cannot proceed to the next task until the deployment completes.*

Exercise 2: Setting Up the Azure VM

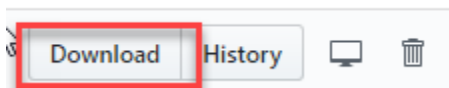In this exercise, you will complete several lab setup tasks.

Installing the Lab Resources

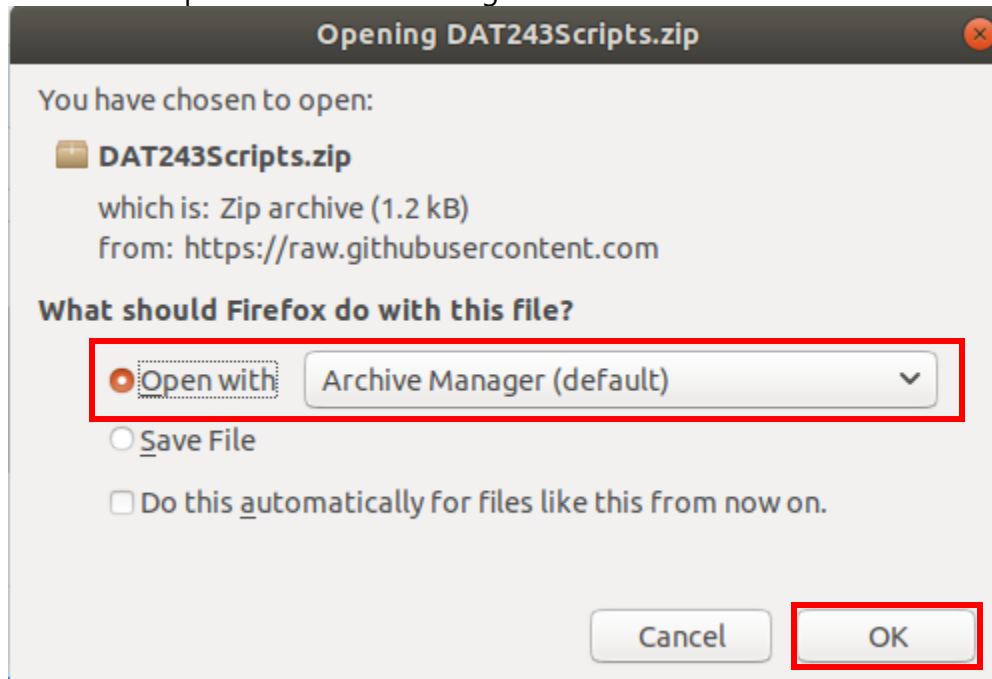In this task, you will download and extract the lab resources that support the labs.

1. To open Firefox, on the Activities bar, click the **Firefox** shortcut.

2. In the **URL** box, enter
    https://github.com/MicrosoftLearning/DAT247-Managing-SQL-Server/blob/master/DAT247Scripts.zip
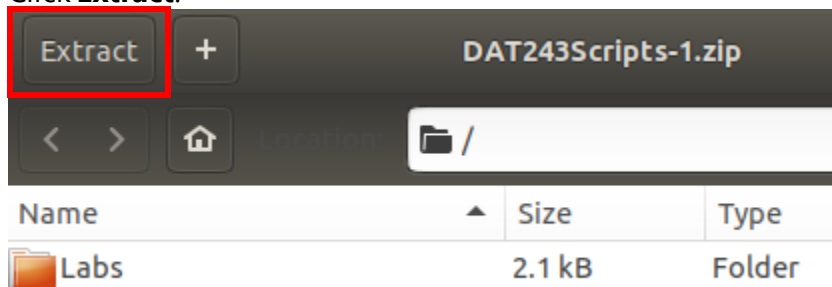
3. Click **Download**.

4. Ensure that Open with Archive Manager is selected and click **OK**.
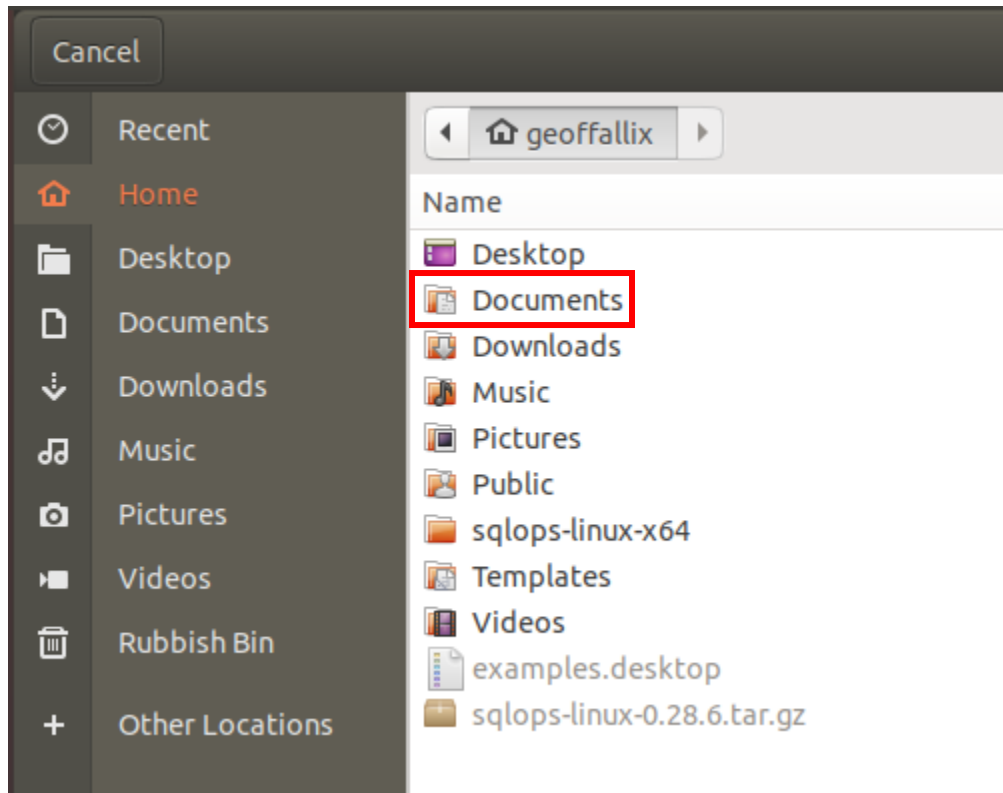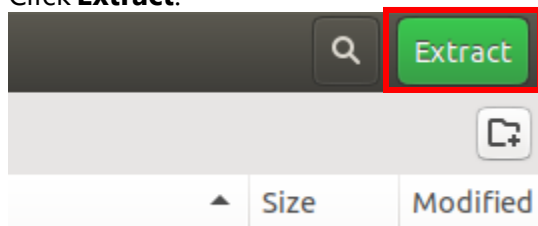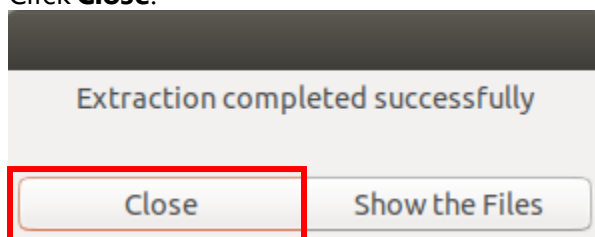

5. Click **Extract**.

6. Double-click **Documents**.
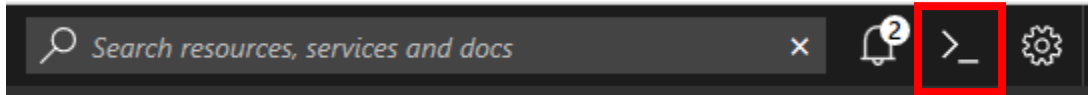

7. Click **Extract**.

8. Click **Close**.

9. Close down all open apps.

Install SQL Server for Linux

In this task, you will install SQL Server on your Linux virtual machine.

10. In the Azure Portal, click **Cloud Shell**.

11. To connect to the VM, click **Connect**.

   Note down, or copy, the command to connect to the virtual machine.

12. In the Cloud Shell window, paste or type the command from the previous step.

13. If prompted whether you want to continue connecting, type **yes** and press Enter.

14. Type your password and press Enter.

15. Type the following command to add the SQL Server repository:
    ```
    sudo curl -o /etc/yum.repos.d/mssql-server.repo  https://aka.ms/edx-dat247x-sql1
    ```

16. Type your password and press Enter.

17. Type the following command to install SQL Server:
    ```
    sudo yum install -y mssql-server
    ```

Configure SQL Server for Linux

In this task, you will configure SQL Server on your Linux virtual machine.

18. Type the following command to configure SQL Server:
    ```
    sudo /opt/mssql/bin/mssql-conf setup
    ```

19. To choose Evaluation Edition, type **1** and press Enter.

20. Type **yes** and press Enter.

21. Type a memorable password and press Enter. For this lab you can use the same password as your Linux administrator account, but in a real world example, you would typically use another password.

22. Confirm your password and press Enter.

23. Type the following command to verify that SQL Server is running:
    systemctl status mssql-server

24. Type the following commands to accept incoming traffic on port 1433 (enter your password if requested):

```
sudo firewall-cmd --zone=public --add-port=1433/tcp --permanent
sudo firewall-cmd --reload
```

25. On the left **FAVORITES** list in Azure, click **Dashboard**.

26. Click your Linux VM.

27. Note down the **Public IP address** for use later.

28. At the top left of the page click the name of the **Resource group**.

29. Select the Network security group.

30. Under **Settings**, click **Inbound security rules**.

31. At the top of the page, click **Add**.

32. In **Destination port ranges**, type **1433**.

33. In **Name**, type **SQL**.

34. Click **OK**.

Connect to SQL Server for Linux

In this task, you will connect to SQL Server on your Linux virtual machine.

1. If you do not have curl installed, install it

2. Navigate to https://aka.ms/edx-dat247x-sql3.

3. Follow the instructions to download and install SQL Operations Studio to your client operating system.

4. Start SQL Operations Studio.

5. Click **New Connection**.

6. If the **Connection** blade does not automatically open, click **New connection**:

7. In **Server name**, type the Public IP address of the server that you noted down previously.

8. In **Authentication type**, select **SQL Login**.

9. In **User name**, type **sa**.

10. In **Password**, type your database administrator password.

11. Select **Remember password**. Note that this is for convenience in the lab and in reality, you might not want to remember the password on the client.

12. Click **Connect**.

13. Navigate to https://aka.ms/edx-dat247x-sql4.

14. Follow the instructions to download and install SQL command-line tools to your client operating system

Attach a SQL Server Database

In this task, you will attach a sample database.

1. In Cloud shell, type **cd /tmp** and press Enter.

2. Tpe **wget https://github.com/Microsoft/sql-server-samples/releases/download/adventureworks/AdventureWorks2016.bak** and press Enter.

3. Wait until the download has completed.

4. Start SQL Operations Studio.

5. Click your server in the servers list and, when it has started, right-click the server and click **Manage**.

6. In **Tasks**, click **Restore**.

7. In **Restore from**, click **Backup File**.

8. Click the build button for **Backup file path**.

9. Click **tmp** and select **Adventureworks2016.bak**.

10. Click **OK**.

11. Click **Restore**.

12. When the restore has completed, click **Servers**.
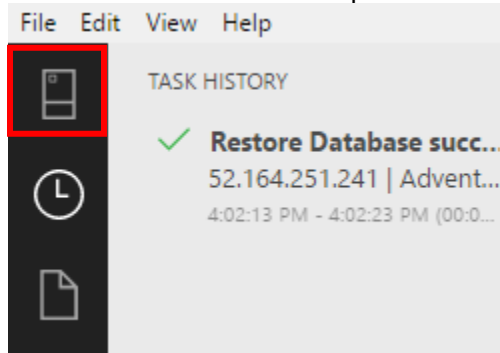
13. Expand **Databases** and note that there is now an **Adventureworks2016** database.

If you are not immediately continuing with the next lab, you should complete the
Finishing Up *exercise to shut down and stop the VM.*

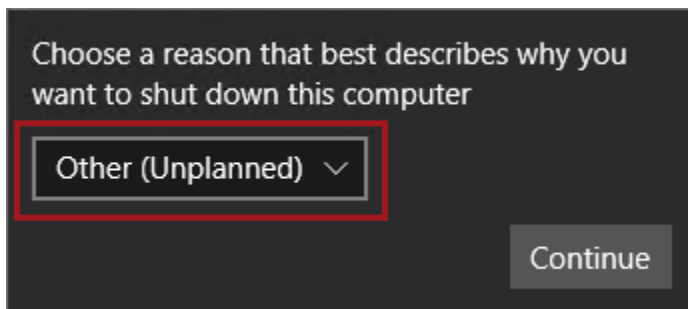# Finishing Up

In this exercise, you will shut down and stop the VM.

15. Close all open applications.

16. Press the **Windows** key, and then in the **Start** page, located at the bottom-left, click the
    Power button, and then select **Shut Down**.
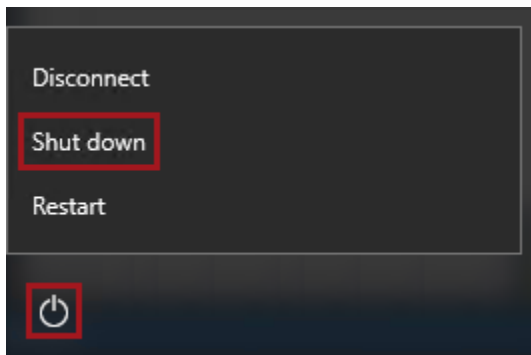
17. When prompted to choose a reason, to accept the default.

18. Click **Continue**.

19. In the **Azure Portal** Web browser page, wait until the status of the VM updates to
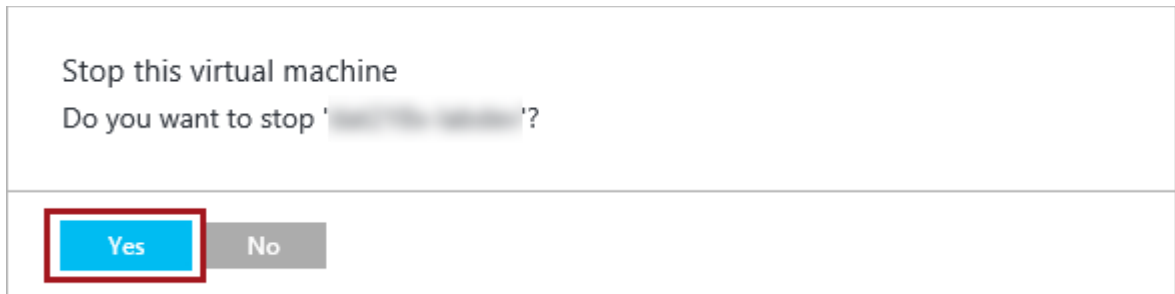   **Stopped**.
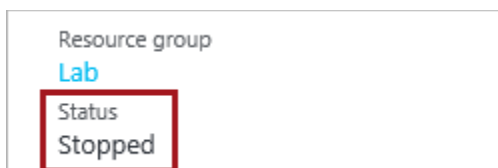
In this state, however, the VM is still billable.

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20. Optionally, to deallocate the VM, click **Stop**.

    Deallocation will take some minutes to complete, and also extends the time required to restart the VM. Consider deallocating the VM if you want to reduce costs, or if you choose to complete the next lab after an extended period.
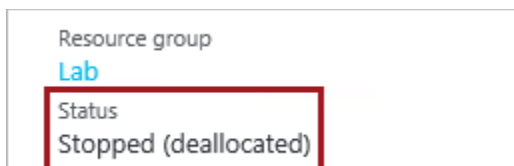

21. When prompted to stop the VM, click **Yes**.

    The deallocation can take several minutes to complete.

22. Verify that the VM status updates to **Stopped (Deallocated)**.

    In this state, the VM is now not billable—except for a relatively smaller storage cost.

    Note that a deallocated VM will likely acquire a different IP address the next time it is started.

23. Sign out of the **Azure Portal**.