DAT238x

Enabling Data Source Discovery with Azure Data Catalog

Lab 1 | Getting Started

Estimated time to complete this lab is 90 minutes

Overview

In this lab, you will create an Outlook account, and then use it to sign up for a free trial Microsoft Azure subscription. You will then configure the Azure Active Directory (AAD) by adding users and groups. You will also add an Azure Virtual Machine (VM) that will be used to complete the labs in this course. Once the VM is provisioned, you will complete the setup of the environment required to support the labs, including the installation of data sources, and the provisioning and configuration of your Data Catalog.

While it is possible to adapt the labs to work with your organization's Data Catalog, it is not recommended that you register sample data in your production catalog. As only one Data Catalog can be created for an organization, it is recommended that you sign up for the free trial Azure Subscription, as documented by this lab.

*The labs in this course are accumulative. You cannot complete **Lab 2** 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)
- The lab files for this course (available for download from GitHub, as described in this lab)

You will also need to:

- Create an Outlook account, which requires verification by mobile phone
- Create a free trial Azure subscription, which requires verification by mobile phone and a valid credit card. Note that if you complete the labs within a reasonable time frame (four weeks), and you stop the Virtual Machine when not being used, then you will not exceed the trial value and no charges should be made to the credit card.

Exercise 1: Setting Up the Azure Trial

In this exercise, you will create an Outlook account that will be required to create a free trial Azure subscription. Having created the subscription, you will then configure the trial Azure Active Directory (AAD) by creating users and a group.

Opening the MySolution.txt File

In this task, you will open the **MySolution.txt** file that will be used to store configuration values specific to your lab experience.

1. Open Notepad (or any text editor).
2. In the **File** menu, select **Open**.
3. In the **Open** window, in the **File Name** box, enter https://raw.githubusercontent.com/MicrosoftLearning/DAT238x-AzureDataCatalog/master/MySolution.txt
4. To save the file, in the **File** menu, select **Save**.
5. In the **Save As** window, save the file to a suitable location in your file system.

   You must remember were you save this file, as it will be required for the next lab.

   During the labs in this course, you will often refer to this file to copy-and-paste specific configuration values relevant to your solution.
6. Leave the **MySolution.txt** file open.

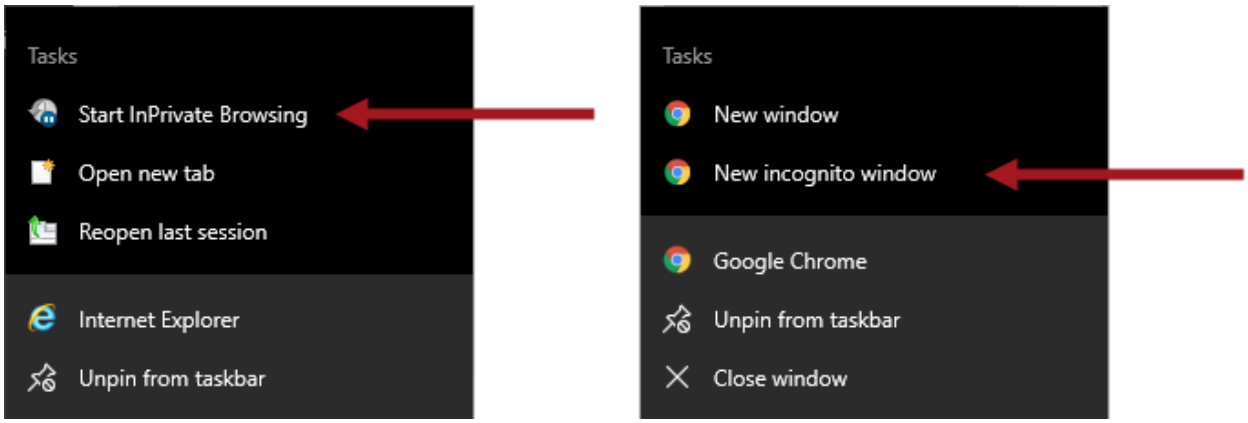
Creating an Outlook Account

In this task, you will create an Outlook account which that be used to sign up for the free trial Azure subscription.

It is important that you do not use an existing account, as there may be conflicts when attempting to create a free trial Azure subscription. On completion of the labs, you can easily delete the Outlook account you created for the lab.

1. In a web browser, open a private browsing session.

   *In Microsoft Internet Explorer, this is known as InPrivate Browsing; In Google Chrome, this is known as an Incognito Window. You can easily achieve this if you have a shortcut on the taskbar. Simply right-click the shortcut, and then choose **Start InPrivate Browsing** (for Internet Explorer), or **New Incognito Window** (for Chrome).*

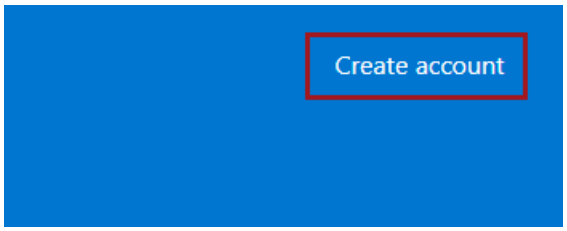


   Opening a private browsing session will avoid conflicts with existing security tokens that may be cached on your machine. In the labs, each time you open a browser session, you should use the same technique.

2. Navigate to https://aka.ms/edx-dat238x-ol

3. At the top-right corner of the web page, click the **Create Account** link.

   If your computer is configured for a language other than English, you will need to adjust the following steps according to the translations presented.



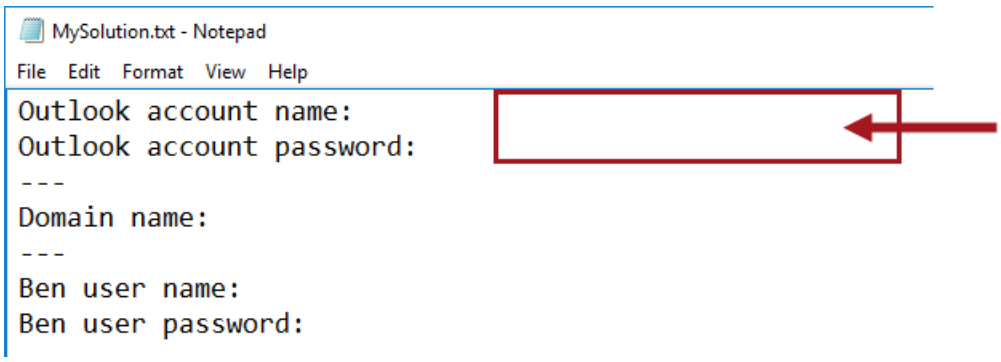
4. In the **Create Account** window, enter the name of a new Hotmail address, and password.

5. Click **Next**.

6. Complete the sign-up process, involving the selection of your country/region, birthdate, and verification process with your mobile phone.

   It is recommended that you select an English-speaking country/region. The lab instructions were written and tested by using the English user experience. If you select a non-English speaking country/region, you will need to adapt the lab instructions and screenshots to match your user experience.

7. In the **MySolution.txt** file, paste the Outlook account name and password values.



8. On the **File** menu, select **Save**.

   Each time you paste in new configuration values, be sure to save the file.

Creating a Trial Azure Subscription

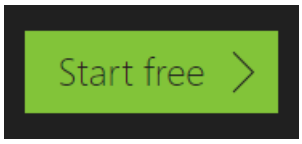
In this task, you will create a free trial Azure subscription. The subscription will provide you with an Azure Active Directory (AAD) enabling you to create a Data Catalog to support the lab exercises. There should be sufficient credit provided with the free trial to enable completing the labs at no cost.

Note that the Azure free account is only available to new users (email addresses), and is limited to one per customer.

1. In the same web browser session used to create the Outlook account, create a new browsing session.

2. Navigate to https://aka.ms/edx-dat238x-az

3. In the middle of the web page, click the **Start Free** command.



4. Review the benefits associated with creating an Azure free account, including the 30-day credit value, and the explanation that your credit card information is used for identity verification, and that you will not be charged unless you choose to upgrade.

5. Click the **Start Free** command.

6. In the **Sign In** window, enter the Outlook account name created in the previous task (copy from **MySolution.txt**: Outlook account name), and then click **Next**.

7. Enter the password (copy from **MySolution.txt**: Outlook account password), and then click **Sign In**.

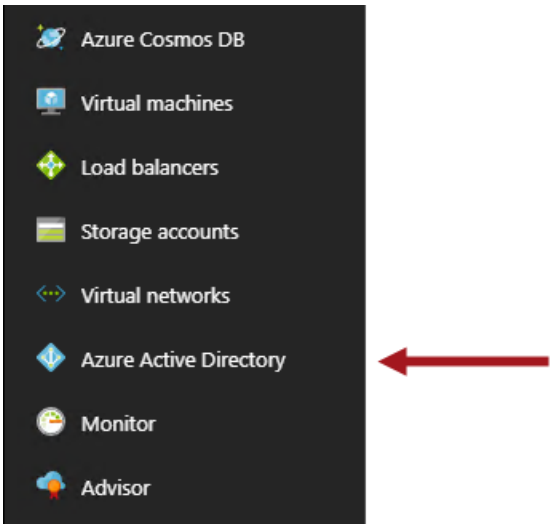
8. Complete the registration process, and optionally submit responses to the survey questions.

9. Click **Continue to the Azure Portal**.

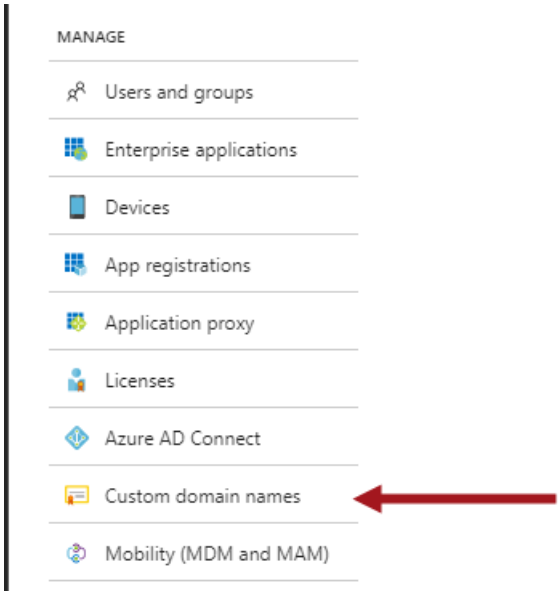
Configuring the AAD

In this task, you will configure the AAD by creating users, groups and assigning

1. In the Azure Portal, in the left pane, select **Azure Active Directory**.



2. In the **Azure Active Directory** blade, select **Custom Domain Names**.

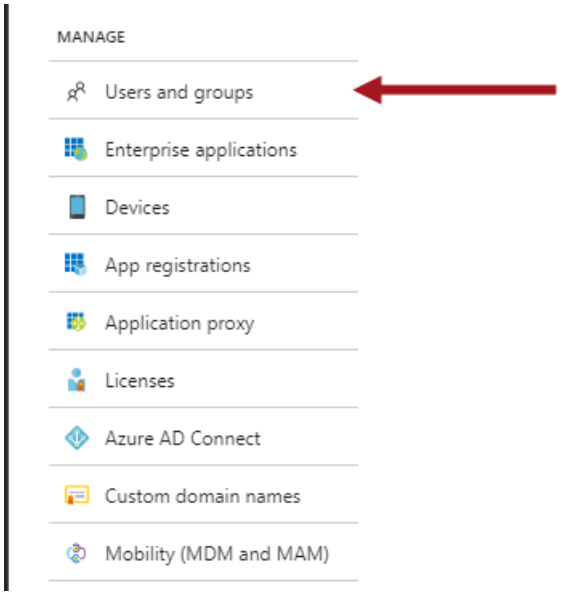


3. Copy the domain name to the clipboard.

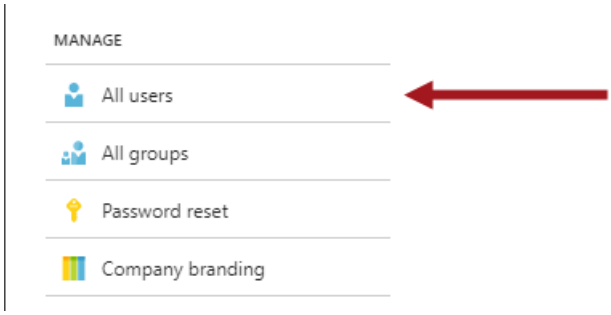
4. In the **MySolution.txt** file, paste the domain name (Domain name).

5. In the **MySolution.txt** file, paste the domain name after each of the five user names, immediately following the @ symbol, for **Ben**, **Stewart**, **Anna**, **John** and **Sally** (you will create the user accounts in the following steps).

6. In the **Azure Active Directory** blade, in the left pane, select **Users and Groups**.



7. In the left pane, select **All Users**.



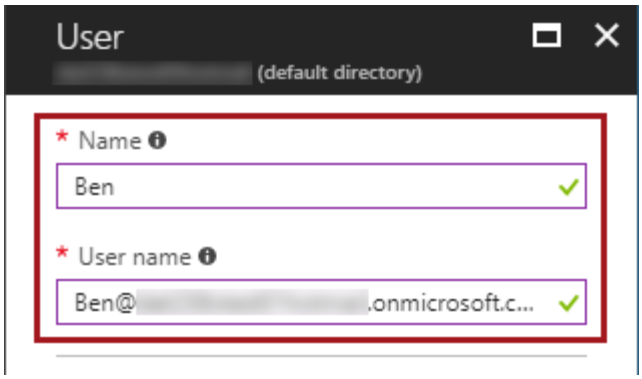
8. Click the **Add User** command.

You will create five AAD users which will be used in the labs:

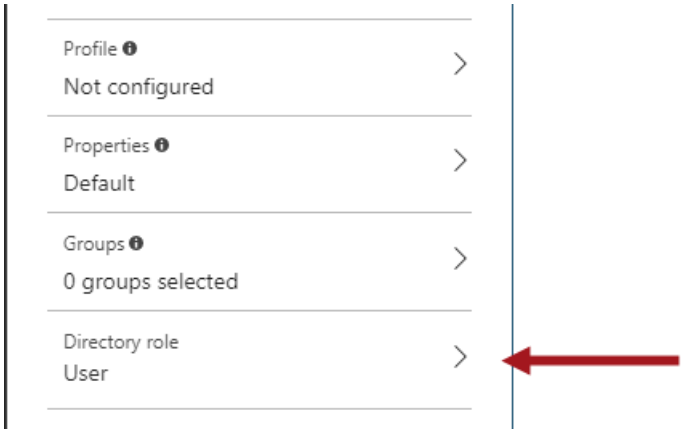
User	Role
Ben	**IT Administrator**, responsible for Azure operations, including the creation of managed resources
Stewart	**Data Steward**, responsible for enforcing the organization's Data Governance processes to ensure fitness of data elements—both content and metadata. He is required to register, annotate and secure data asset registrations.
Anna	**Business Analyst**, responsible for producing Self-Service Business Intelligence (SSBI) solutions. She is required to discover data assets, and enhance data asset registration to facilitate discovery and knowledge.
John	**Financial Controller**, responsible for financial reporting. He has technical knowledge of the Data Warehouse finance subjects.
Sally	**Sales Analyst**, responsible for sales and marketing reporting. She has technical knowledge of the Data Warehouse sales subjects.

9. In the **User** blade, in the **Name** box, enter **Ben**.

10. In the **User Name** box, enter the user name for **Ben** (copy from **MySolution.txt**: Ben user name—it is the full email address for **Ben**).

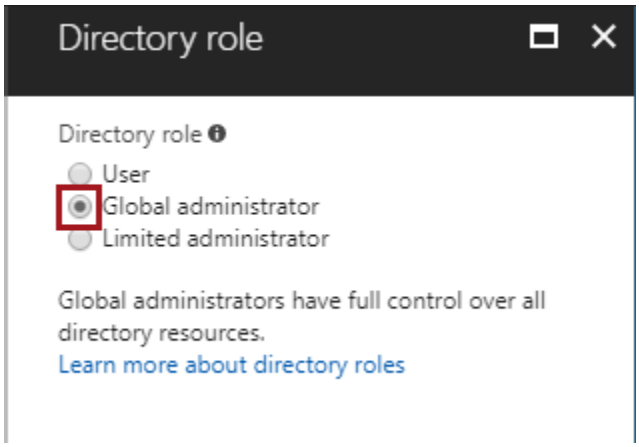


11. Click the **Directory Role** to assign the user to a role.



12. Select the **Global Administrator** option.

    Ben is the only user that will be assigned to a directory role.



13. Click **OK**.

14. To reveal the password, check the **Show Password** checkbox.

15. To copy the password to the clipboard, click the **Copy** command.

16. Paste the password in the **MySolution.txt** file (Ben user password).

17. Click **Create**.

18. Create four additional users, based on the following instructions.

    Do not assign any of the four users to a directory role.

    *For the first two users, be sure to reveal the password and paste it in the **MySolution.txt** file prior to creating the user.*

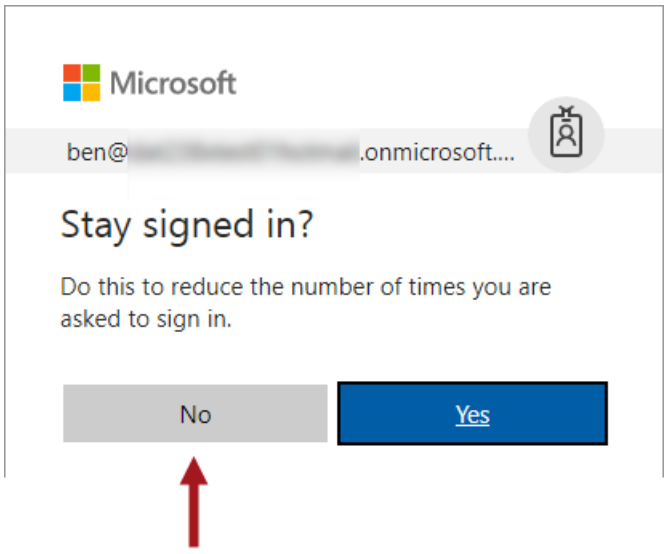
    In the labs, you will not sign in as the last two users, and so their passwords are not required.

User	Instruction
Stewart	Copy the user name and password to **MySolution.txt**
Anna	Copy the user name and password to **MySolution.txt**
John	(No instruction)
Sally	(No instruction)

19. Save the **MySolution.txt** file.

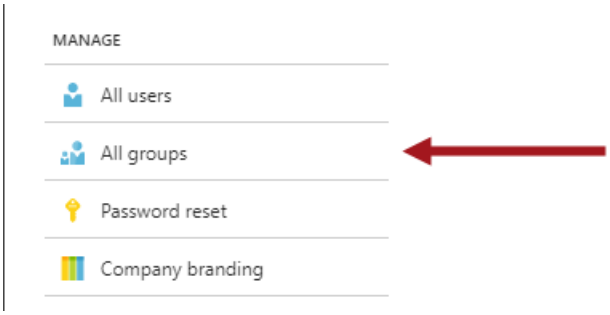
    *In the remainder of the labs, you will not be instructed to save the **MySolution.txt** file each time you modify it. It is recommended that you remember to save it.*

20. When prompted to stay signed in, click **No**.

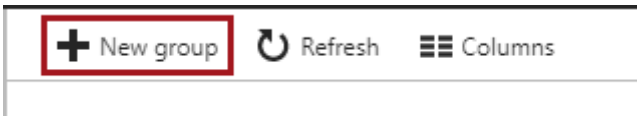


    *In the labs, each time you are prompted to stay signed in, click **No**.*

21. To create a group, in the left pane, select **All Groups**.



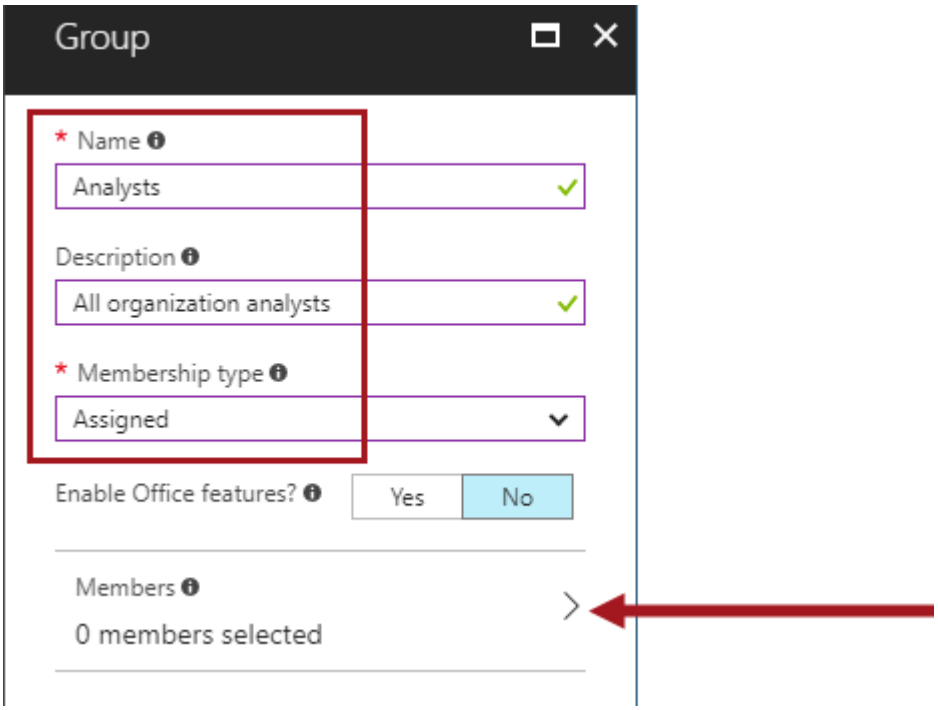
22. Click **New Group**.



23. In the **Group** blade, in the **Name** box, enter **Analysts**.

24. In the **Description** box, enter **All organization analysts**.

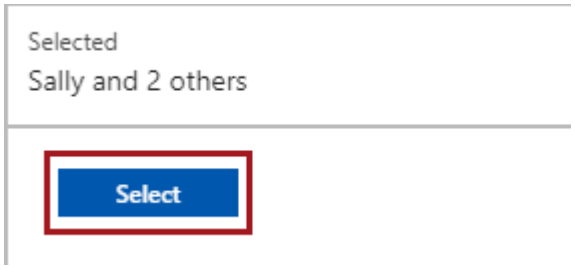
25. In the **Membership Type** dropdown list, select **Assigned**.



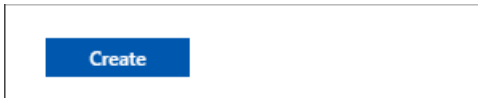
26. To assign a user to the group, hover the cursor over user **Anna**, and then check the checkbox.

27. Check also users **John** and **Sally**.

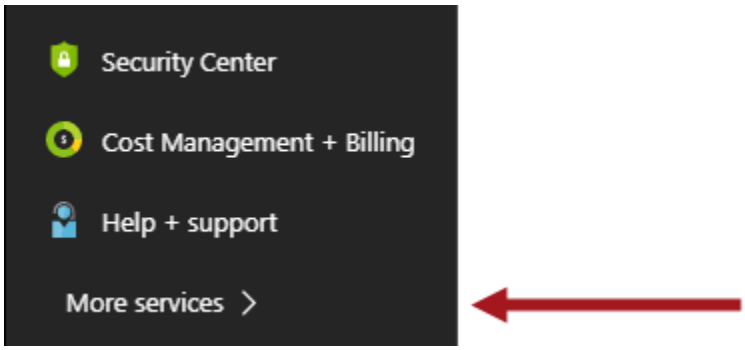
28. Verify that three users are select, and then click **Select**.



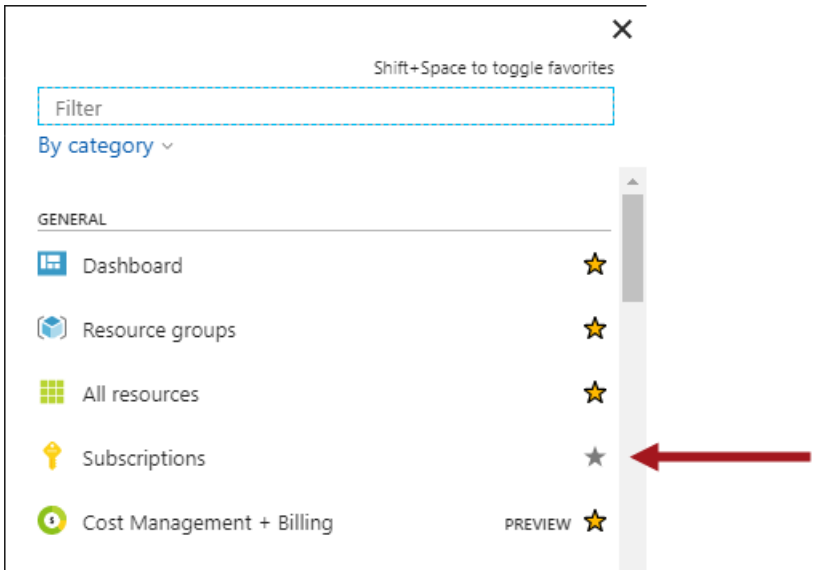
29. Click **Create**.



30. In the Azure Portal left pane, located at the bottom, click **More Services**.

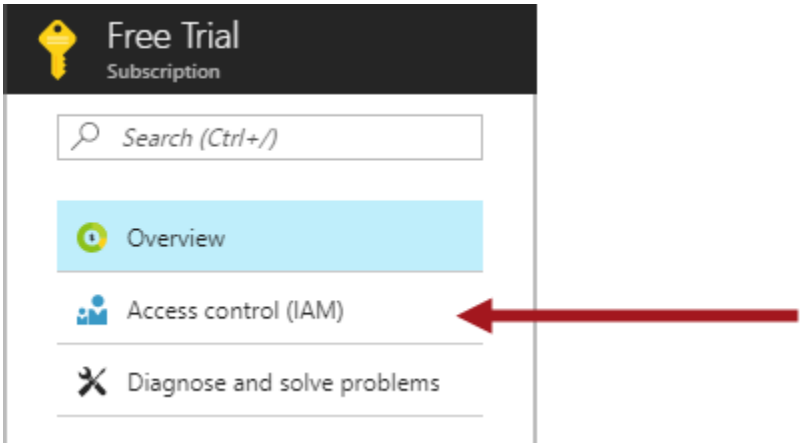


31. In the pop-out pane, select **Subscriptions**.



32. To assign subscription ownership permission role to **Ben** (IT Administrator), select the **Free Trial** subscription.

33. In the **Free Trial** blade, in the left pane, select **Access Control (IAM)**.

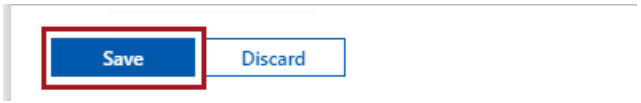


34. To add a permission, click **Add**.

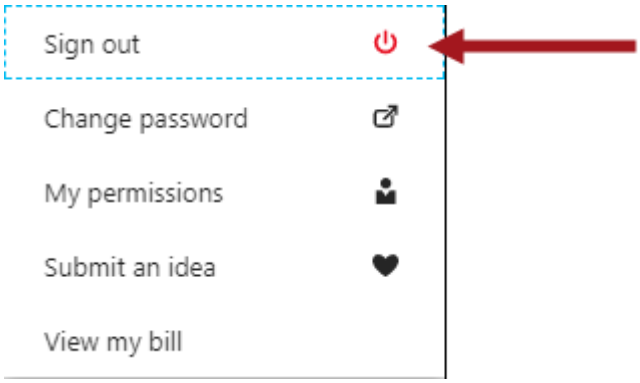
35. In the **Add Permissions** blade, in the **Role** dropdown list, select **Owner**.

36. In the **Select** list, select user **Ben**.

37. Click **Save**.



38. To sign out of the portal, at the top-right corner, click your user account, and then select **Sign Out**.



*You will no longer complete any tasks by using the Outlook account you created. For the remainder of the labs, you will complete tasks by signing in as either **Ben** (IT Administrator), **Stewart** (Data Steward), or **Anna** (Business Analyst).*

Exercise 2: Provisioning an Azure VM

In this exercise, you will sign in to the Azure Portal as **Ben** (IT Administrator), and then provision an Azure VM to be used as the environment for completing the lab exercises.

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).

Signing In to the Azure Portal

In this task, you will sign in to the Azure Portal as **Ben** (IT Administrator).

1. In a web browser, open a private browsing session.

   The labs will involve you signing in as different users, and so you should always open web browsers in this way. This approach will ensure that a cached security token is not unintentionally used.

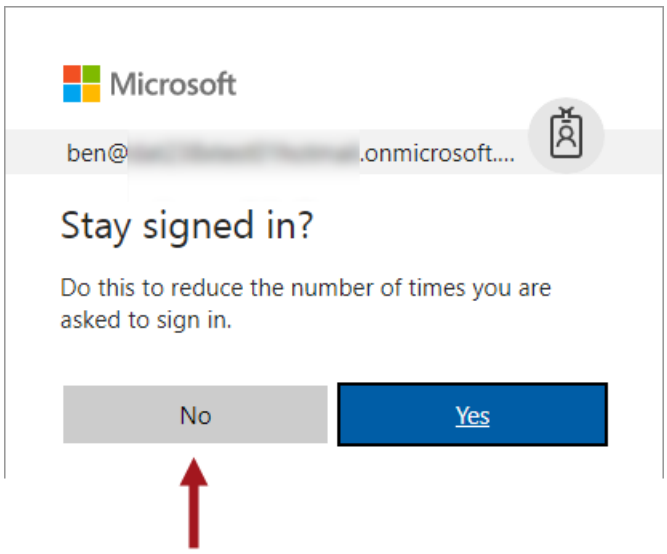
2. Navigate to https://aka.ms/edx-dat238x-az01

3. Sign in by using the credentials for **Ben** (retrieved from **MySolution.txt**).

4. When prompted to update the password, re-enter the initial password, and set a new password.

5. Update the password in the **MySolution.txt** file (Ben user password).

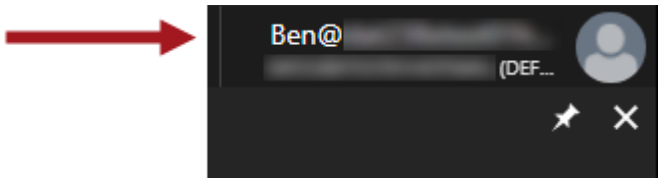
6. When prompted to stay signed in, click **No**.



*In the labs, each time you are prompted to stay signed in, click **No**.*

7. If prompted to start a tour of the Azure Portal, you can opt to take the tour, or dismiss the suggestion and proceed immediately to the next task.

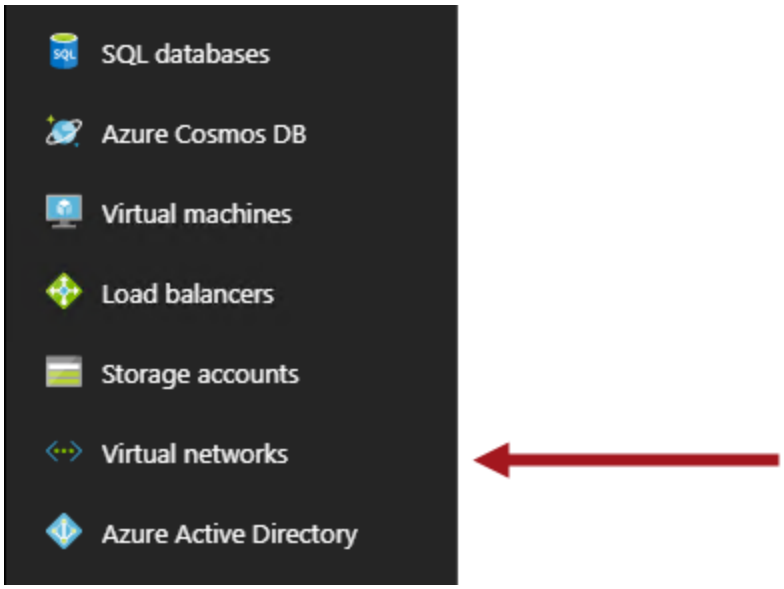
8. At the top-right corner, verify that you have signed in as **Ben**.



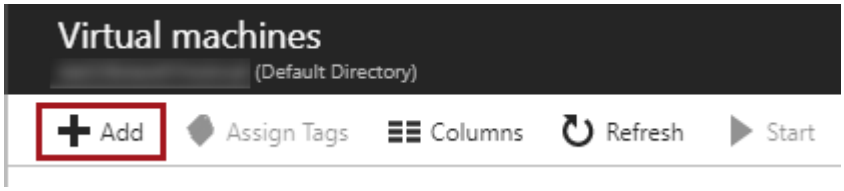
Provisioning an Azure VM

In this task, you will provision an Azure VM.

1. In the left pane, select **Virtual Machines**.

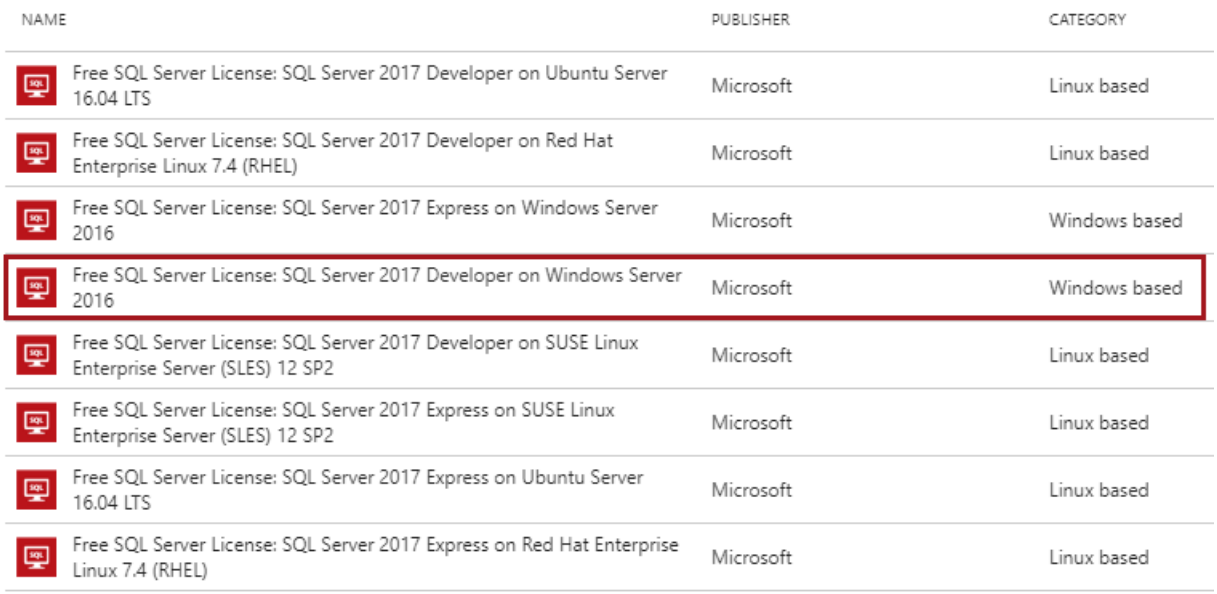


2. In the **Virtual Machines** blade, click **Add**.



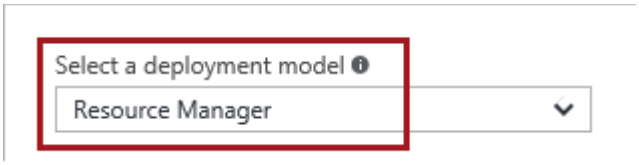
3. In the **Compute** blade, in the search box, enter the search text **Free SQL Server 2017**, and then press **Enter**.

4. Select the **Free License: SQL Server 2017 Developer on Windows Server 2016** image.

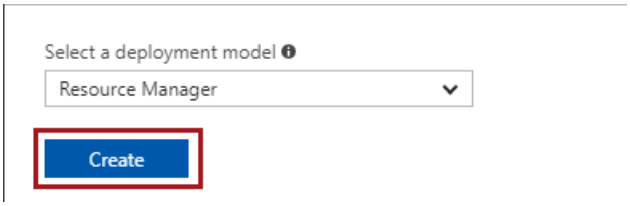


5. In the image blade, review the text that describes the virtual machine setup.

6. In the lower section of the blade, in the **Select a Deployment Model** dropdown list, ensure that **Resource Manager** is selected.



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 **Basics** blade, in the **Name** box, enter a name for the virtual machine (this will become the name of the machine to which you will connect).

10. In the **MySolution.txt** file, paste in the name (VM name).

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

12. In the **User Name** box enter **VM-Admin**.

13. In the password boxes, enter and confirm an appropriate password.

    This will become the machine administrator account password. Note that 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 permanently record these credentials, as you will be required to use them to sign in every time you will connect to the VM.

14. In the **MySolution.txt** file, paste in the password (VM admin password).

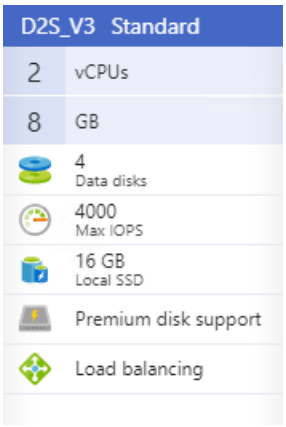
15. In the **Resource Group** box, enter **Lab**.

16. In the **Location** box, select a data center that is near you.

17. Click **OK**.

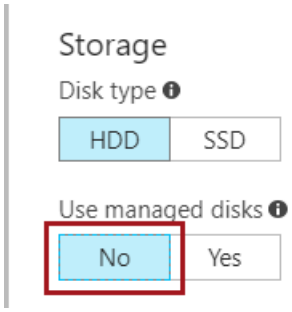
18. In the **Size** blade (step 2), scroll down to locate and select a **Standard** size VM which provides at least 2 vCPUs and 8GB RAM (like a **D2S_V3**, if available).

    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 you see will only apply when the VM is running.



19. Click **Select**.

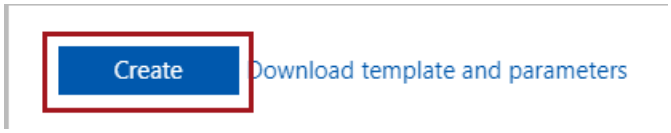
20. In the **Settings** blade (step 3), for **Use Managed Disks**, select **No**.



21. Click **OK**.

22. In the **SQL Server Settings** blade (step 4), to accept the default settings, click **OK**.

23. In the **Summary** blade, click **Create**.



*While the VM is being provisioned, you are directed to the **Azure Portal** dashboard.*

24. 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.

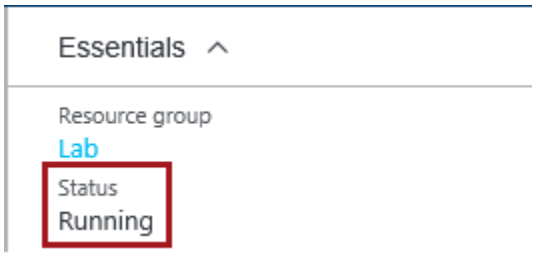
You cannot proceed to the next task until the deployment completes.

25. Leave the **Azure Portal** dashboard page open.

Connecting to the VM

In this task, once the VM has successfully deployed, you will connect to the VM.

1. In the **Azure Portal**, notice that the VM blade automatically opens, and that the VM status is **Running**.



*You are charged when the VM status is **Running**, but you are not charged—except for a relatively smaller storage cost—when the VM status is **Stopped (Deallocated)**.*

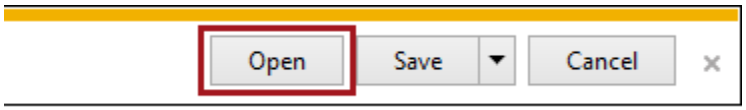
At the end of this lab, there will be instructions to guide you on how to stop and optionally deallocate the VM. You should consider doing this if you choose to commence the next lab at a much later time.

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

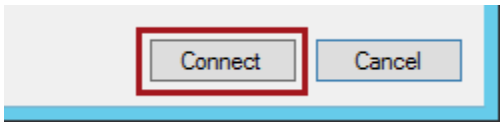
A Remote Desktop File (.rdp) file is downloaded to your computer.

This file can be used to reconnect to the remote desktop session, but note that if you deallocate the VM and later re-start the VM, it will be likely that a different IP address will be assigned.

3. If prompted by the web browser to open the Remote Desktop File, click **Open**, otherwise, locate the downloaded file, and then double-click it.



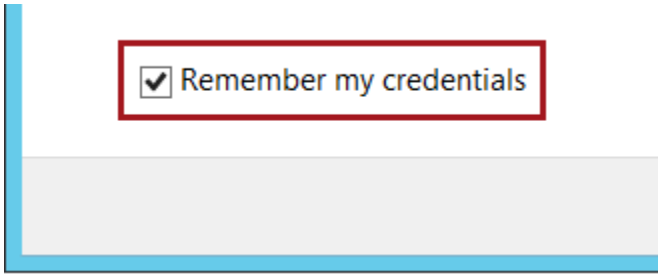
4. If prompted to connect to the unknown publisher, click **Connect**.



*You need to enter the VM administrator credentials. If the authentication window defaults to an existing account, you will need to select **More Choices**, and then select **Use a Different Account**.*

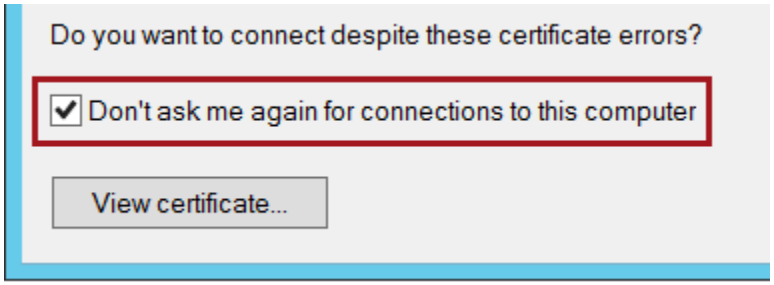
5. In the **Windows Security** window, enter the VM admin credentials (retrieved from **MySolution.txt**: VM admin user name, and VM admin password).

6. Check the **Remember My Credentials** checkbox.



7. Click **OK**.

8. In the **Remote Desktop Connection** window, check the **Don't Ask Me Again for Connections to This Computer** checkbox.



9. Click **Yes**.

Tip: If you have a second monitor, maximize the Remote Desktop window inside a single monitor.

Exercise 3: Setting Up the Environment

In this exercise, inside the Azure VM, you will complete tasks to setup the environment to support the lab exercises.

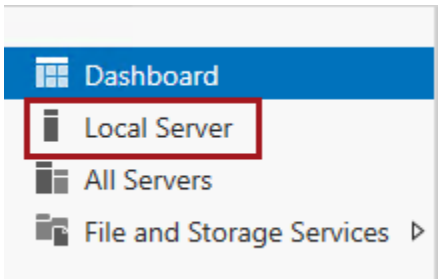
Configuring the Server

In this task, you will configure the server to support the lab experience.

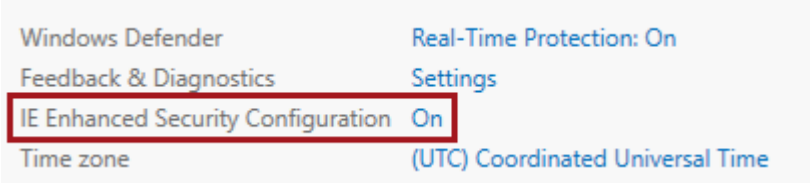
1. In the Remote Desktop window, when the **Networks** panel opens at the right, to ensure that the machine is not discoverable by other machines, click **No**.

2. Wait until **Server Manager** opens (it will open automatically).

3. In **Server Manager**, in the left pane, select **Local Server**.

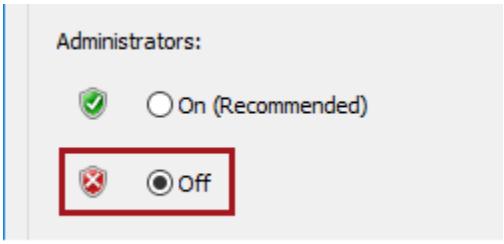


4. In the **Properties** pane, notice that **IE Enhanced Security Configuration** is set to **On**.



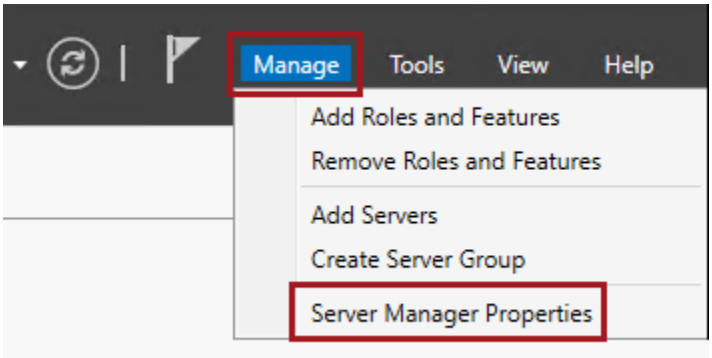
5. Click the **On** link.

6. In the window, for **Administrators**, select the **Off** option.

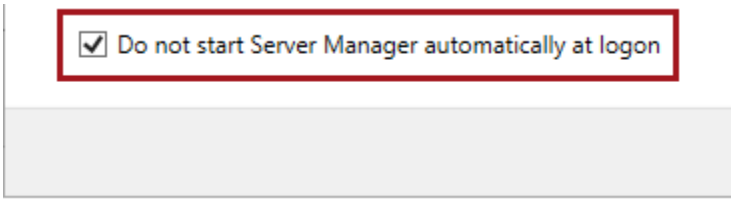


7. Click **OK**.

8. At the top-right corner, click **Manage**, and then select **Server Manager Properties**.

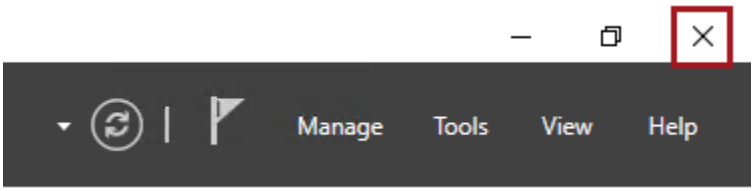


9. In the window, check the **Do Not Start Server Manager Automatically at Logon** checkbox.



10. Click **OK**.

11. To close **Server Manager**, located at the top-right corner, click **X**.



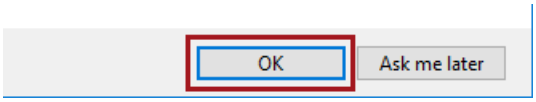
Installing the Lab Resources

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

1. To open Internet Explorer, on the taskbar, click the **Internet Explorer** shortcut.

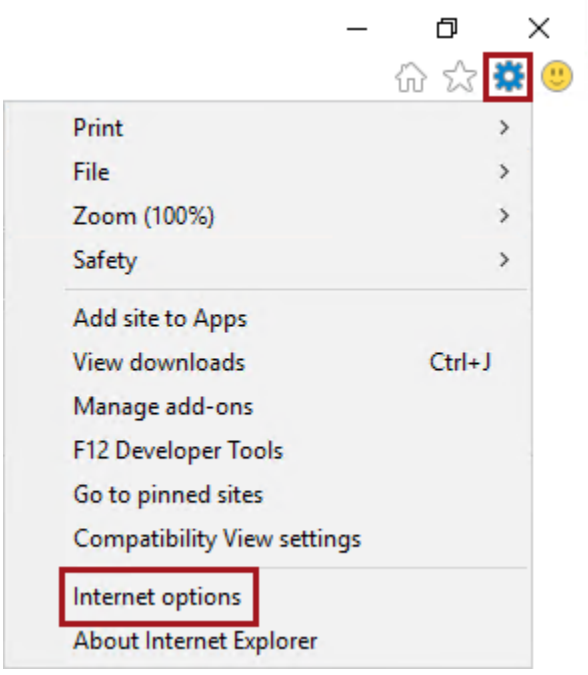
   There is no need to use a private browser session for this task.

2. When prompted to setup Internet Explorer 11, to accept the recommended settings, click **OK**.

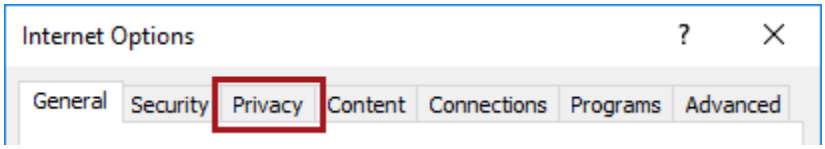


3. Maximize the Internet Explorer window.

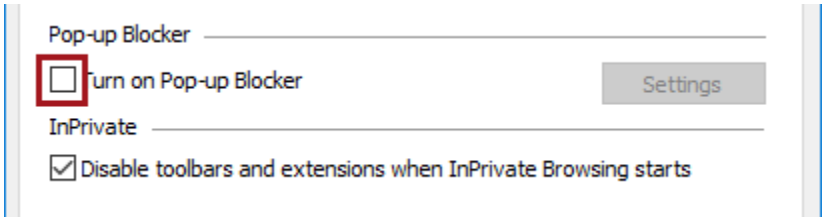
4. At the top-right corner, click the settings (cog) icon, and then select **Internet Options**.



5. In the **Internet Options** window, select the **Privacy** tab.



6. Uncheck the **Turn On Pop-up Blocker** checkbox.



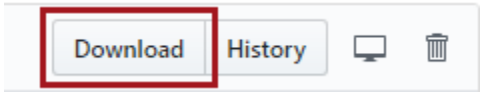
7. Click **OK**.

8. In the **URL** box, enter https://github.com/MicrosoftLearning/DAT238x-AzureDataCatalog

   Tip: You can copy-and-paste the URL into the Remote Desktop window.

9. On the web page, click the **DAT238x-Azure-Data-Catalog.zip** link.

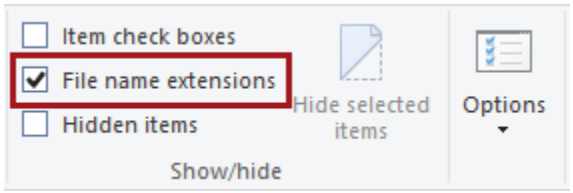
10. To download the lab resources, click **Download**.



11. Download the file (**Save As**) to **F:**.

12. When downloaded, open File Explorer.

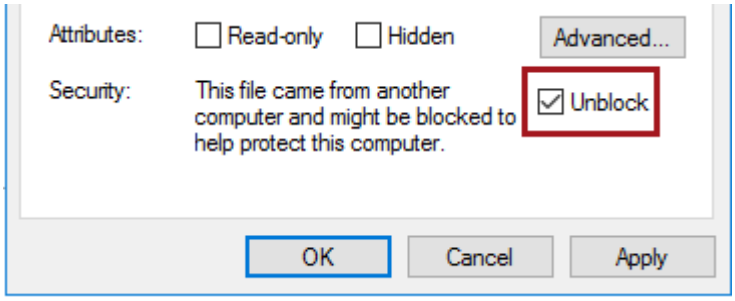
13. In the File Explorer window, on the **View** ribbon, check **File Name Extensions**.



14. Navigate to **F:**.

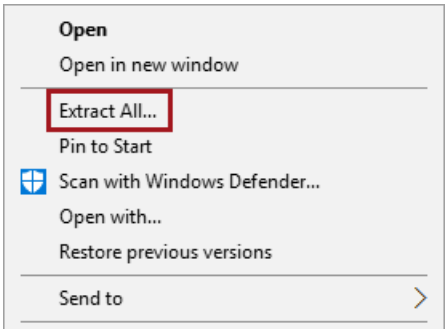
15. Right-click the **DAT238x-Azure-Data-Catalog.zip** file, and then select **Properties**.

16. In the window, check **Unblock**.



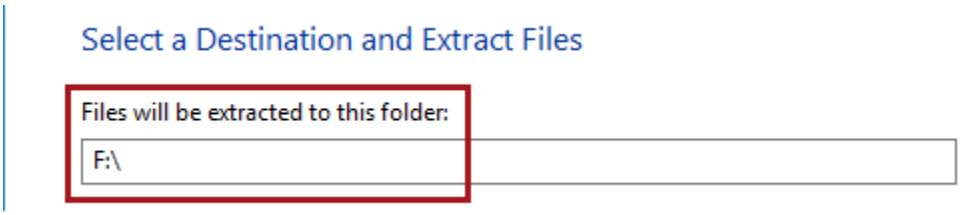
17. Click **OK**.

18. To extract the file content, right-click the **DAT238x-Azure-Data-Catalog.zip** file, and then select **Extract All**.

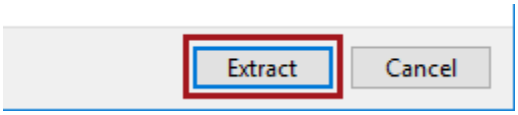


19. In the window, replace the folder path with **F:**.

*Be sure to extract the files to **F:**, otherwise later steps in this lab will fail.*



20. Click **Extract**.



21. Verify that you have the **F:\Labs** folder.

22. Optionally, delete the **F:\DAT238x-Azure-Data-Catalog.zip** file.

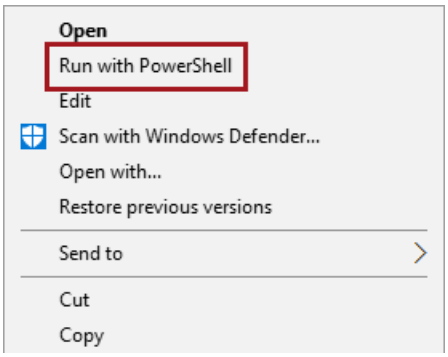
23. Close Internet Explorer (GitHub).

Installing a Relational Database

In this task, you will run a PowerShell script to install a relational database.

1. In File Explorer, navigate to the **F:\Labs\Lab01\Assets** folder.

2. Right-click the **Setup-SQL.ps1** file, and then select **Run with PowerShell**.



3. If the script produces an error, re-run the script again.

   It is possible that the SQL Server database engine service has not fully started. Re-running the script will provide sufficient time for the service to become responsive.

   *The setup will restore the **AdventureWorksDW2016** database. The database has been modified from the original sample for the purposes of this course.*

   The setup may take 1-2 minutes to complete.

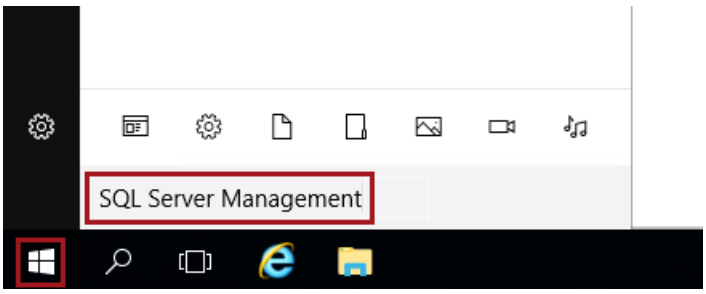
4. When **Press any Key to Continue** is displayed, press any key to close the PowerShell window.

5. Close File Explorer.

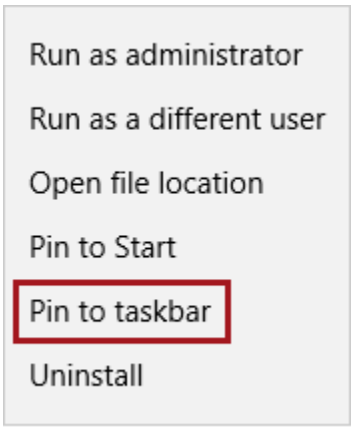
Verifying the Database Restore

In this task, you will first open SQL Server Management Studio (SSMS), and then verify that the **AdventureWorksDW2016** database was restored.

1. To add a shortcut to the taskbar, at the bottom-left corner, click the **Windows** icon, and then commence typing **SQL Server Management**.



2. In the **Best Match** section, when the search result appears, right-click **Microsoft SQL Server Management Studio**, and then select **Pin to Taskbar**.

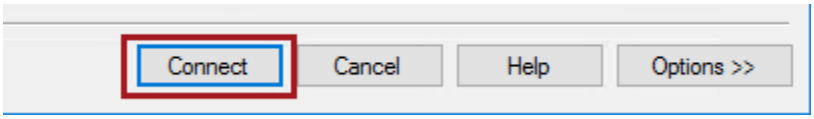


3. Return to the desktop, and then click the **SQL Server Management Studio** shortcut.

It may take 1-2 minutes for SSMS to perform its initial setup.

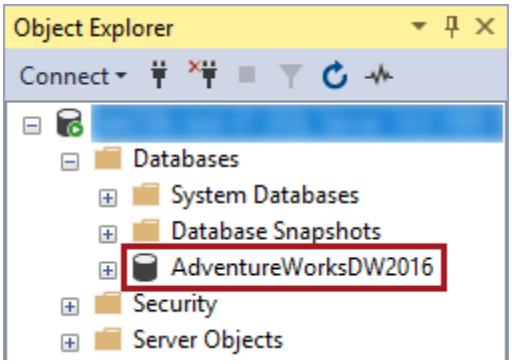
You may receive a popup notification from SSMS stating that a later version is available for download. There is no need to install a later version to complete the labs.

4. In the **Connect to Server** window, click **Connect**.



5. To verify that the **AdventureWorksDW2016** database was restored, in **Object Explorer** (located at the left), expand the **Databases** folder.

6. In **Object Explorer**, verify that the **AdventureWorksDW2016** database is listed.



7. To open a script file, on the **File** menu, select **Open | File**.

8. In the **Open File** window, navigate to the **F:\Labs\Lab01\Assets** folder.

9. Select the **Script-Query.sql** file, and then click **Open**.

10. To execute the script, on the toolbar, click **Execute**.

11. In the **Results** pane, notice the single-value query result.

Lab-based Knowledge Check

Lab 1 ► Sales Query Result

What is the **Sales** value retrieved?

You may need data from this step to answer a Lab-based Knowledge Check associated with this module.

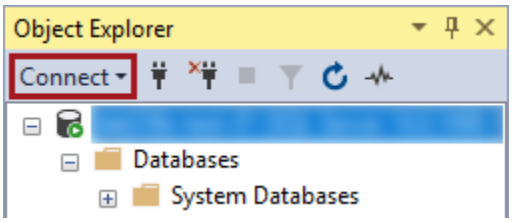
*Now, we recommend that you open the **Module 2** Lab-based Knowledge Check portion of the course in EdX to answer the questions as you complete this lab.*

12. To close the script, on the **File** menu, select **Close**.

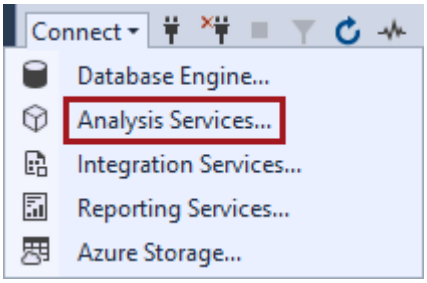
Installing an Analysis Services Database

In this task, you will connect to Analysis Services, and then open and execute a script to install a tabular database.

1. In **Object Explorer**, click **Connect**.



2. Select **Analysis Services**.



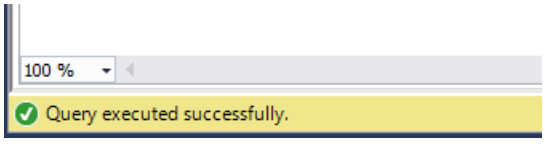
3. In the **Connect to Server** window, click **Connect**.

4. To open a script, on the **File** menu, select **Open | File**.

5. In the **Open File** window, open the **F:\Labs\Lab01\Assets\Script-Setup-SalesAnalysis.xmla** file.

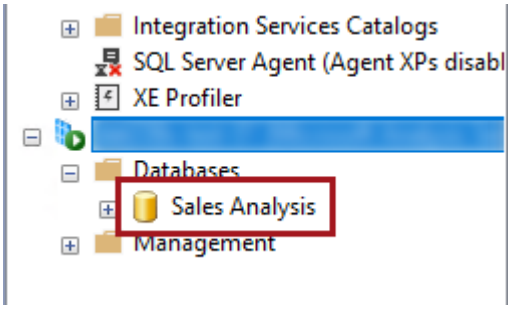
6. To execute the script, on the **Query** menu, select **Execute** (or press **F5**).

7. In the status bar, verify that the script executed correctly.



8. In **Object Explorer**, for the Analysis Services instance, expand the **Databases** folder.

9. Verify that the **Sales Analysis** database is listed.



10. To close SQL Server Management Studio, on the **File** menu, select **Exit**.

Installing Reporting Services

In this task, you will install and configure Reporting Services.

1. Launch Internet Explorer (an InPrivate session is not required), and then navigate to https://aka.ms/edx-dat238x-ssrs

   Tip: You can copy-and-paste the link into the VM.

2. When prompted along the bottom of the window, click **Run**.

   The download may take 1-2 minutes to complete.

   You will be prompted to commence the installation when the download has completed.

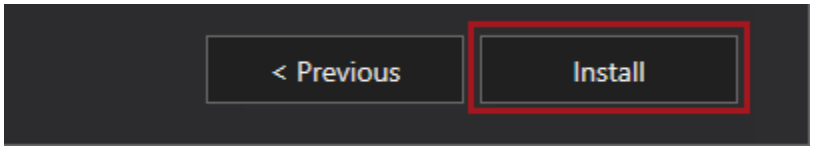
3. In the **Microsoft SQL Server 2017 Reporting Services** window, click **Install Reporting Services**.

4. To accept the **Evaluation** edition, click **Next**.

5. If you accept the license terms, check the **I Accept the License Terms** box, and then click **Next**.

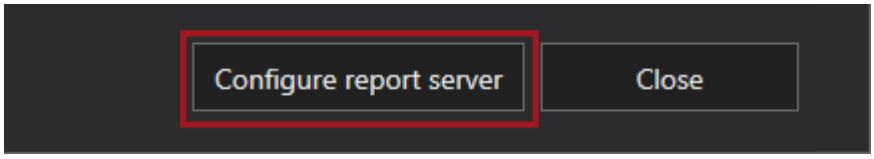
6. To install only Reporting Services, click **Next**.

7. To commence the setup, click **Install**.

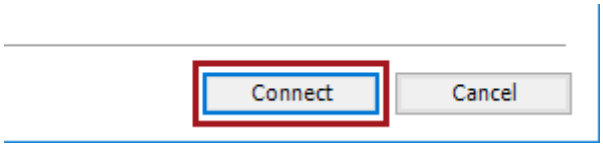


The setup may take 1-2 minutes to complete.

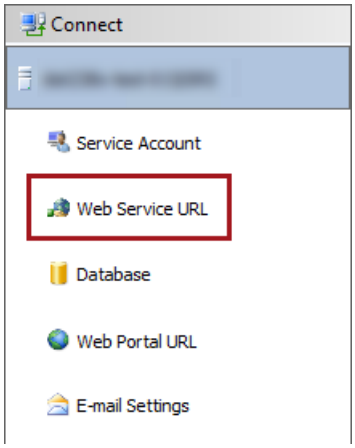
8. When the setup has completed, click **Configure Report Server**.



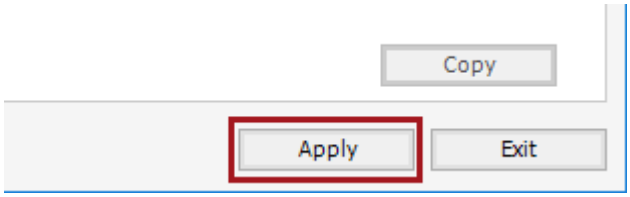
9. In **The Report Server Configuration Connection** window, click **Connect**.



10. In the left pane, select the **Web Service URL** page.

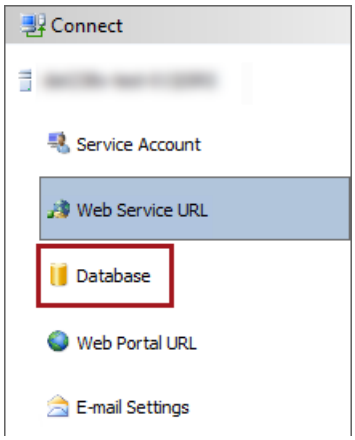


11. To configure the Web Service URL, at the bottom-right corner, click **Apply**.



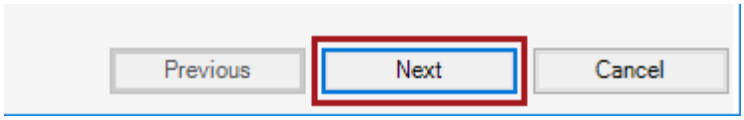
12. In the **MySolution.txt** file, update the Report Server URL value by replacing the **<VM-Name>** token with the value stored for your VM name (be sure to also remove angular brackets).

13. In **The Report Server Configuration Connection** window, select the **Database** page.



14. Click **Change Database**.

15. In the **Report Server Database Configuration Wizard**, to create a new Report Server database, click **Next**.



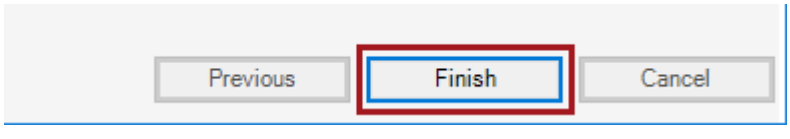
16. To connect to the default database server, click **Next**.

17. To accept the default Report Server database name, click **Next**.

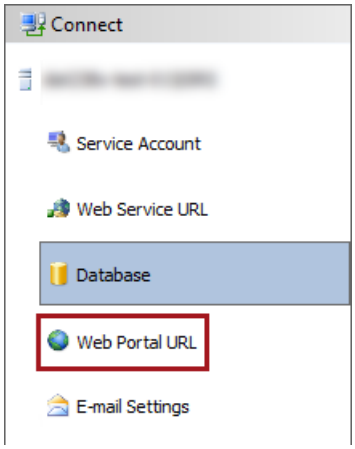
18. To accept the default credentials, click **Next**.

19. To accept the summary, click **Next**.

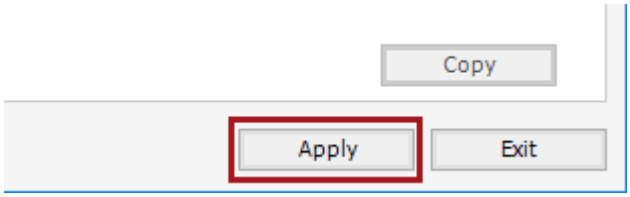
20. When the setup has completed, click **Finish**.



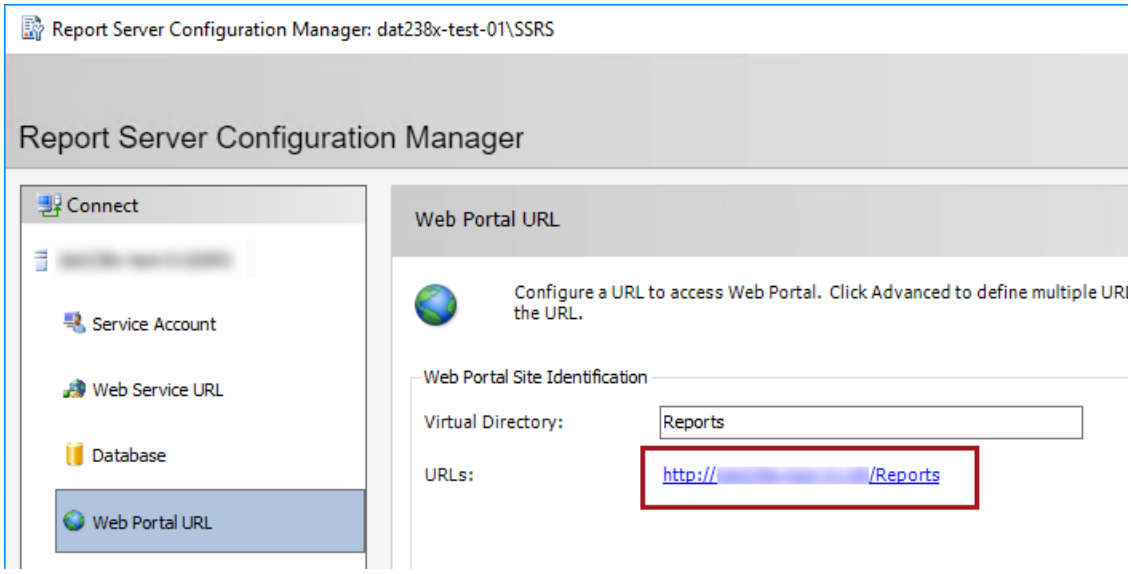
21. In the **Report Server Configuration Manager** window, select the **Web Portal URL** page.



22. To configure the web portal URL, at the bottom-right corner, click **Apply**.



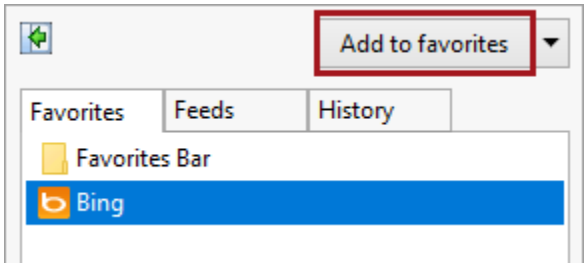
23. When the configuration has completed, click the URL link.



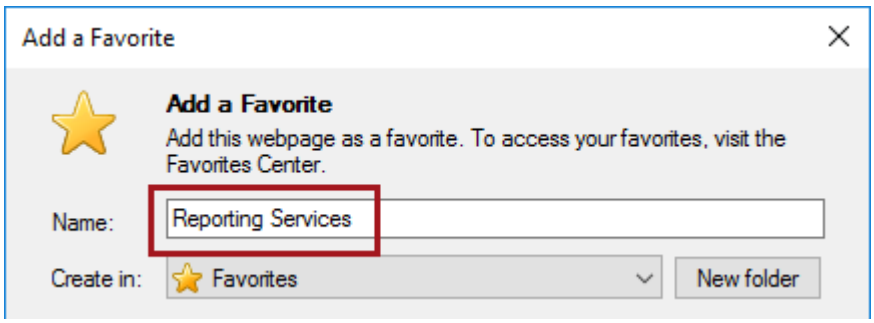
24. Notice that the Reporting Services Web Portal opens in Internet Explorer.

25. To create a browser favorite, at the top-right corner click the star icon.

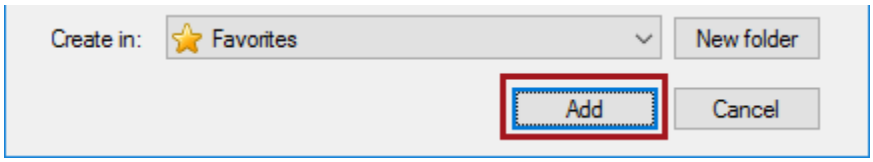
26. In the left pane, click **Add to Favorites**.



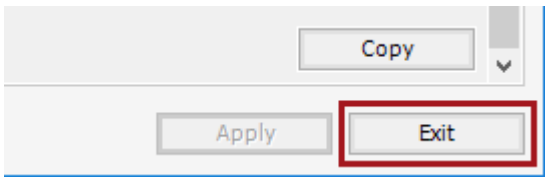
27. In the **Add a Favorite** window, in the **Name** box, replace the text with **Reporting Services**.



28. Click **Add**.



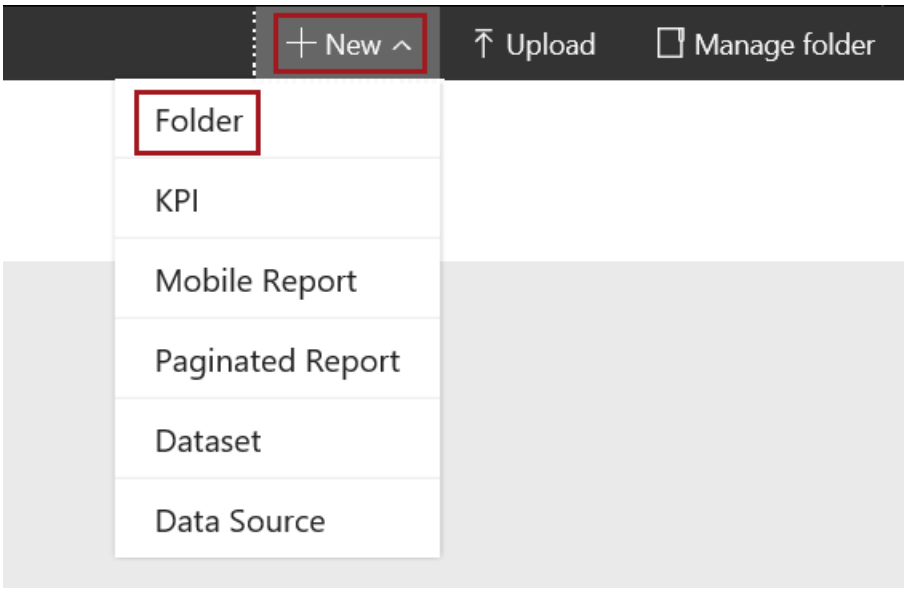
29. Switch to Report Server Configuration Manager, and click **Exit**.



Installing a Report

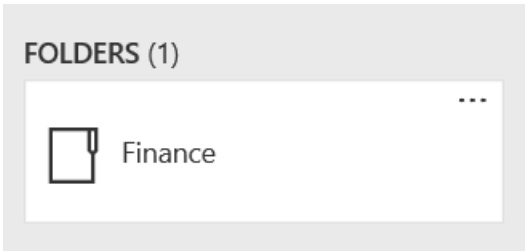
In this task, you will install a Reporting Services paginated report.

1. Switch to Internet Explorer (Reporting Services Web Portal).
2. To create a folder, click the **New** command, and then select **Folder**.

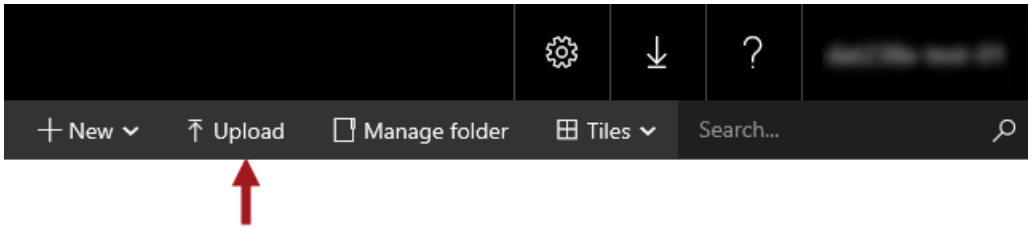


3. In the **Create a New Folder in Home** window, in the **Name** box, enter **Finance**.
4. Click **Create**.

5. To navigate to the **Finance** folder, click the **Finance** tile.

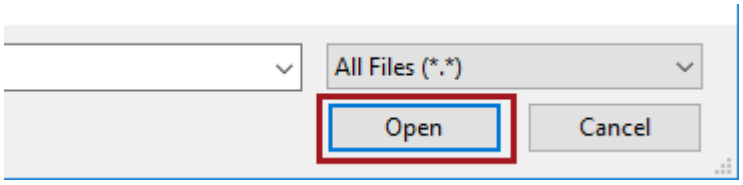


6. To upload a report, click the **Upload** command.

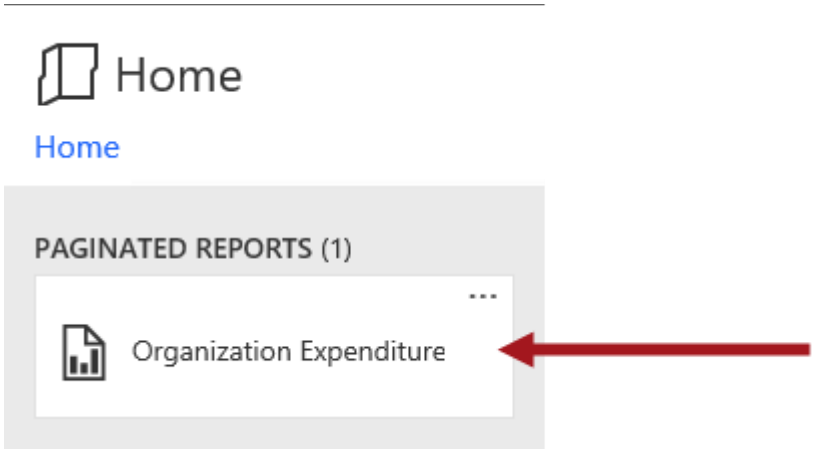


7. In the **Choose File to Upload** window, navigate to **F:\Labs\Lab01\Assets**.

8. Select the **Organization Expenditures.rdl** file (report definition file), and then click **Open**.



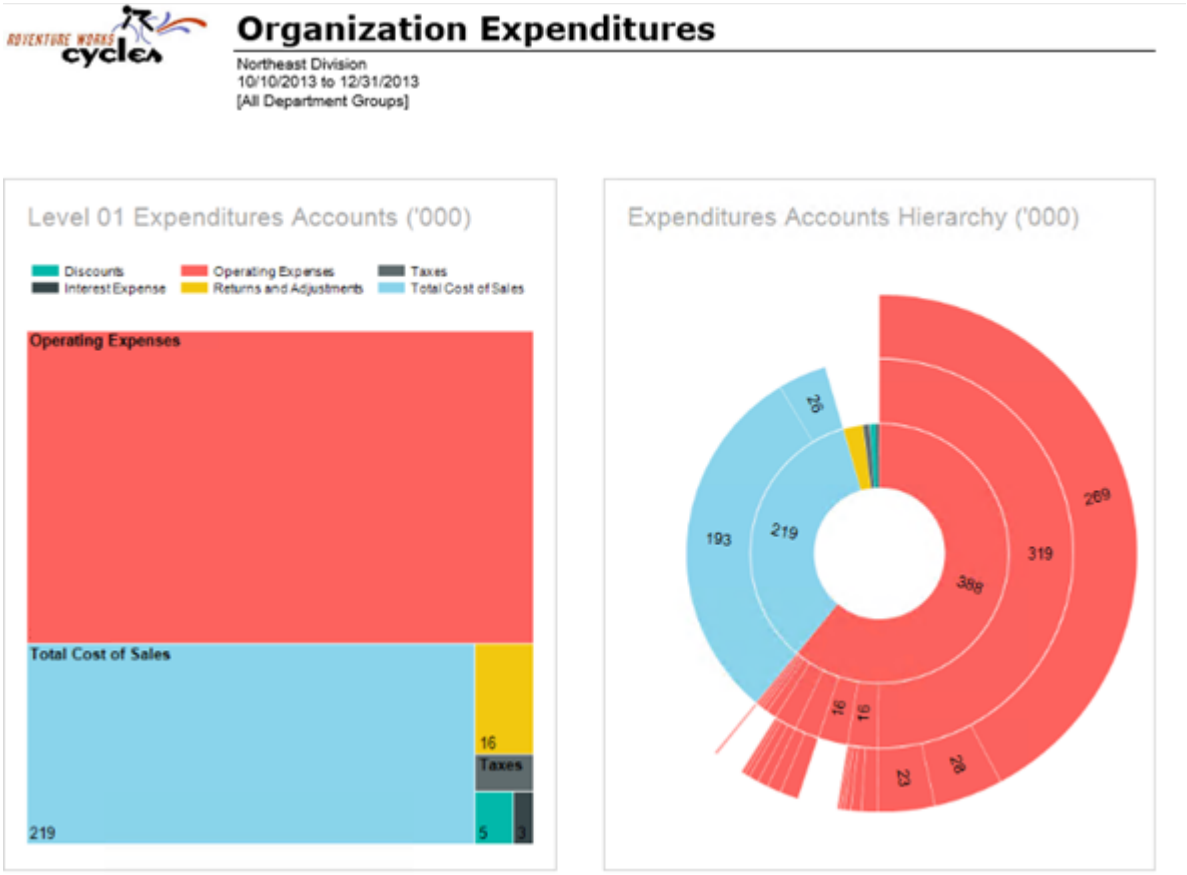
9. When the file has uploaded, notice the **Organization Expenditures** report tile.



10. To view the report, click the **Organization Expenditures** report tile.

11. Verify that the report opens.

*The report sources data from the **AdventureWorksDW2016** database installed previously in this exercise.*



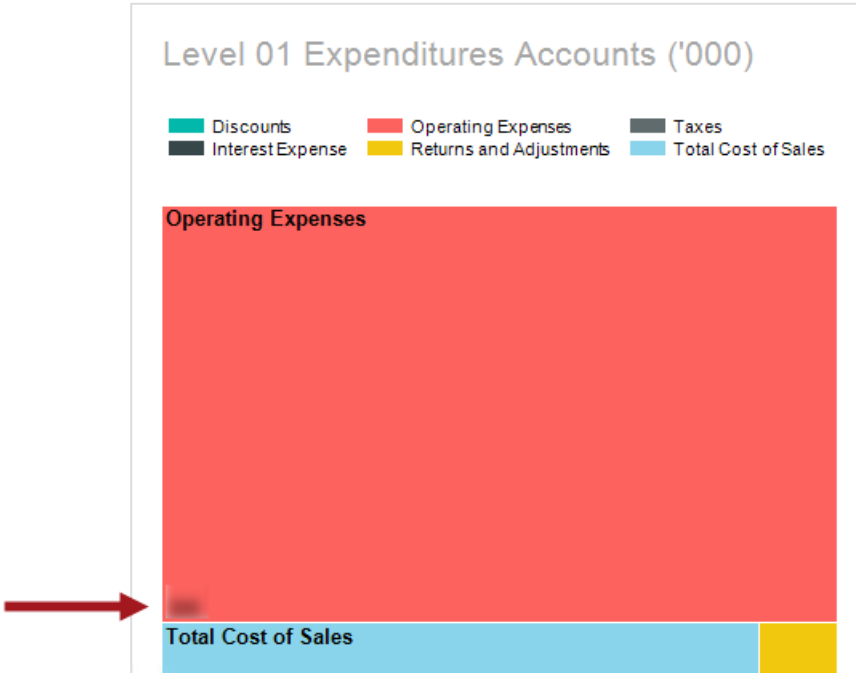
Lab-based Knowledge Check

Lab 1 ► Organization Expenditures Report Result

What is the **Operating Expenses** value displayed at the bottom-left corner of the larger tile in the tree map visualization (located at the left)?

You may need data from this step to answer a Lab-based Knowledge Check associated with this module.

*Now, we recommend that you open the **Module 2** Lab-based Knowledge Check portion of the course in EdX to answer the questions as you complete this lab.*



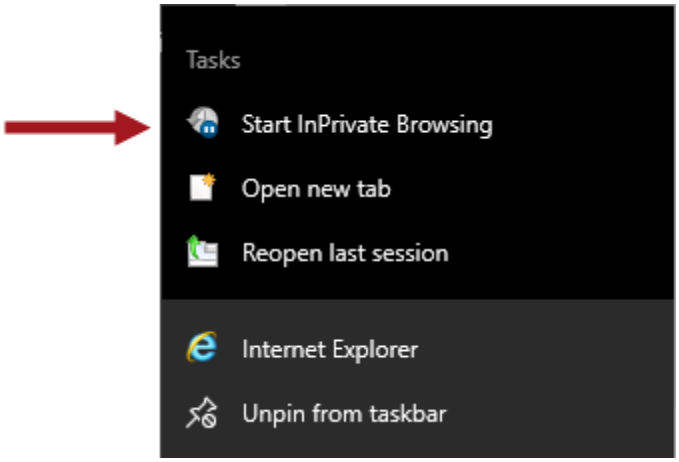
12. Close Internet Explorer (Reporting Services Web Portal).

Creating Azure Storage

In this task, you will create an Azure storage account.

1. Close any open Internet Explorer windows.

2. In the taskbar, right-click the **Internet Explorer** shortcut, and then select **Start InPrivate Browsing**.



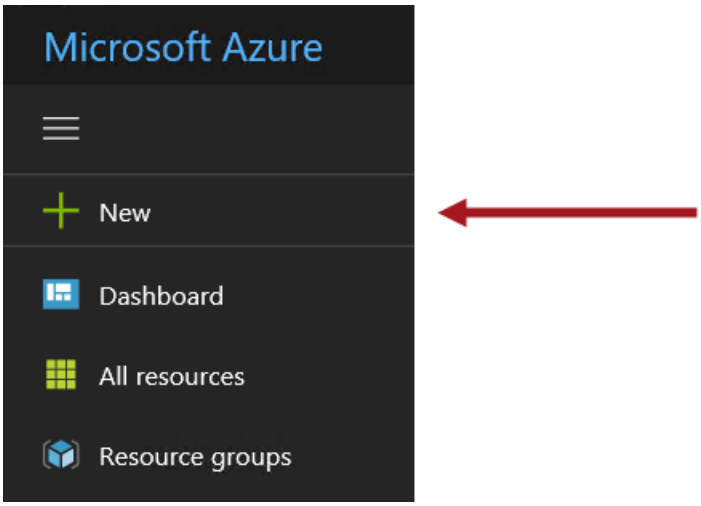
3. Navigate to https://aka.ms/edx-dat238x-az01

4. Sign in as **Ben** (IT Administrator).

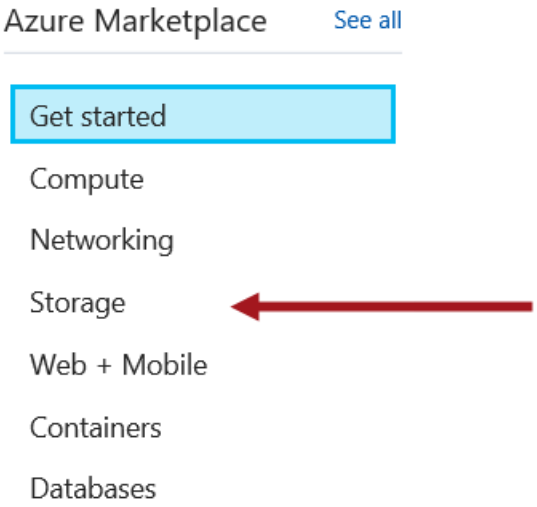
   *Use the values stores in your **MySolutions.txt** file.*

5. If prompted to stay signed in, click **No**.

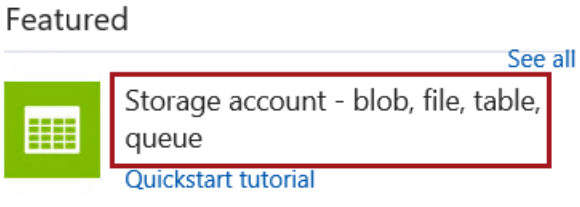
6. In the left pane, click **New**.



7. In the **New** blade, in the left pane, select **Storage**.



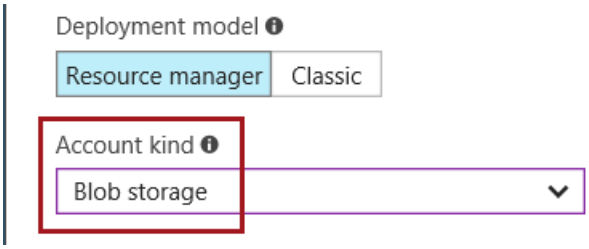
8. In the **Featured** list, select **Storage Account**.



9. In the **Create Storage Account** blade, in the **Name** box, enter a unique name.

   The name must be at least 3-24 characters in length, and must consist of lower case letters and numbers.

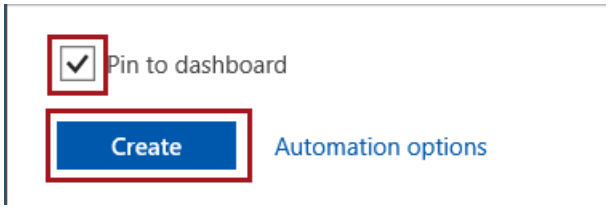
10. In the **Account Kind** dropdown list, select **Blob Storage**.



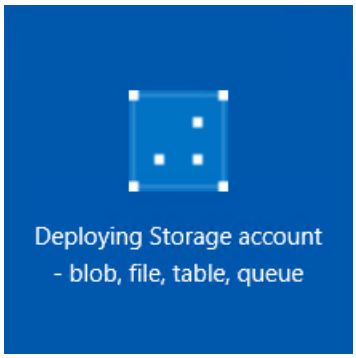
11. For the **Resource Group**, select the **Use Existing** option, and then in the dropdown list, select the **Lab** resource group.

12. In the **Location** dropdown list, select the same region used to create the Azure VM.

13. Check the **Pin to Dashboard** checkbox, and then click **Create**.



14. Notice the tile added to the portal dashboard.



15. When the deployment completes, to open the storage account, in the **Azure Portal** dashboard, click the tile.

16. In the **MySolution.txt** file, paste the storage account name value.

17. Enter the storage account name in **MySolution.txt** (Azure storage account name).

18. In the storage account blade, in the left pane, select **Access Keys**.

19. Click the **Copy** command to the right of **key1**.

20. When prompted to allow Internet Explorer access to the clipboard, click **Allow Access**.

21. In the **MySolution.txt** file, paste the key value (Azure storage key).

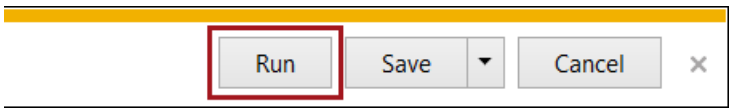
22. Leave the Internet Explorer (Azure Portal) window open.

Installing Azure Storage Explorer

In this task, you will download and install Azure Storage Explorer to enable uploading content.

1. In a new Internet Explorer tab, navigate to https://aka.ms/edx-dat238x-az02
2. In the **Operating System** dropdown list, ensure that **Windows** is selected.
3. Click **Download Storage Explorer for Free**.

4. When prompted by the web browser to run or save, click **Run**.

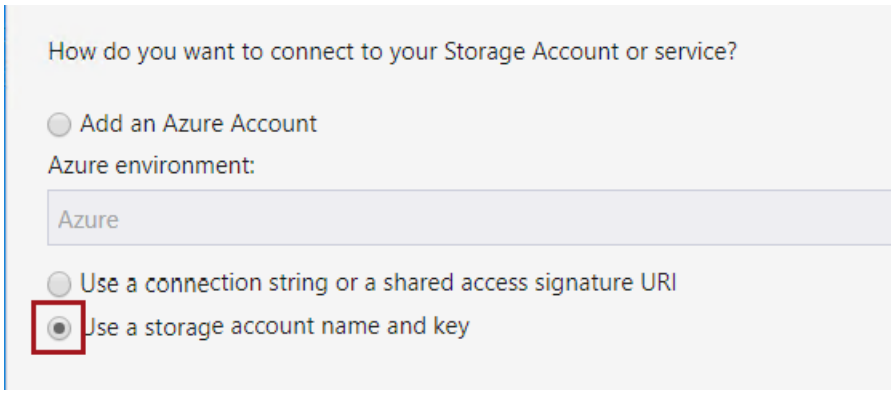


5. In the **Setup** window, if you agree to the license terms, select the **I Accept the Agreement** option, and then click **Install**.
6. At the **Select Destination Step**, to accept the default location, click **Next**.
7. At the **Select Start Menu Folder**, to accept the default folder, click **Next**.
8. When the installation has completed, to launch the program, click **Next**.
9. Close the Internet Explorer session (Azure Storage Explorer download).

Uploading Files to Blob Storage

In this task, you will upload sales files to a new container.

1. In **Microsoft Azure Storage Explorer**, select the **Use a Storage Account Name and Key** option.



2. Click **Next**.

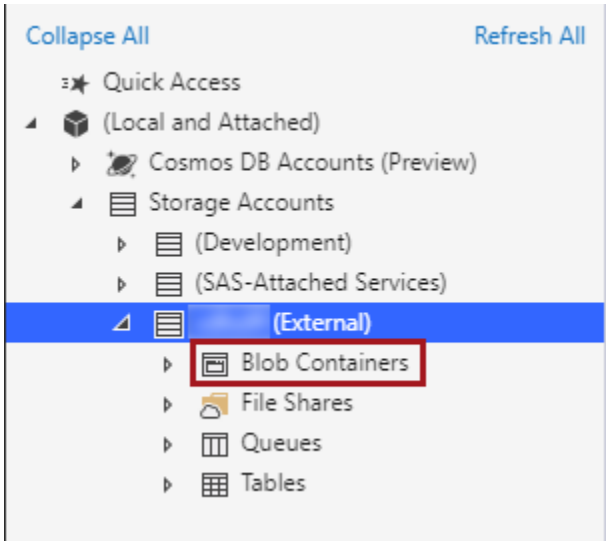
3. In the **Account Name** box, enter the storage account name (retrieved from **MySolution.txt**: Azure storage account name).

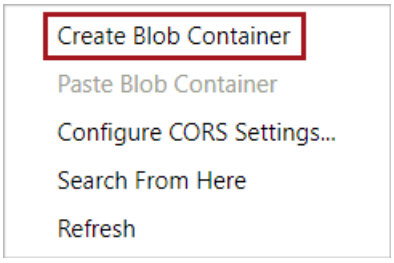
4. In the **Account Key** box, enter the storage account key (retrieved from **MySolution.txt**: Azure storage key).

5. Click **Next**.

6. Review the summary, and then click **Connect**.

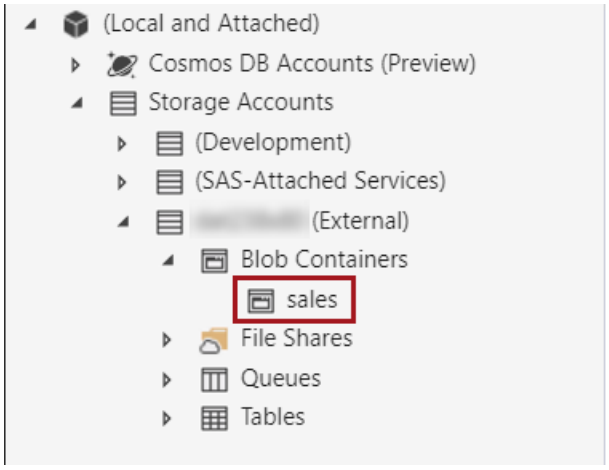
7. Once connected, in the left pane, right-click **Blob Containers**, and then select **Create Blob Container** sales



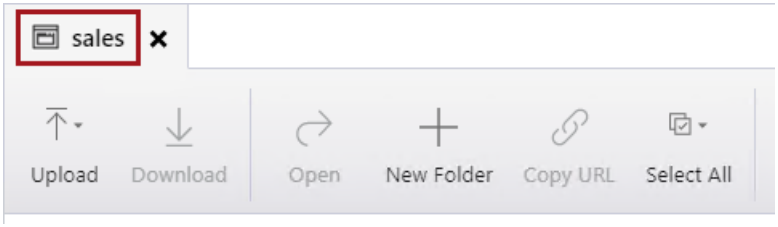


8. In the box, enter **sales** (in lowercase), and then press **Enter**.

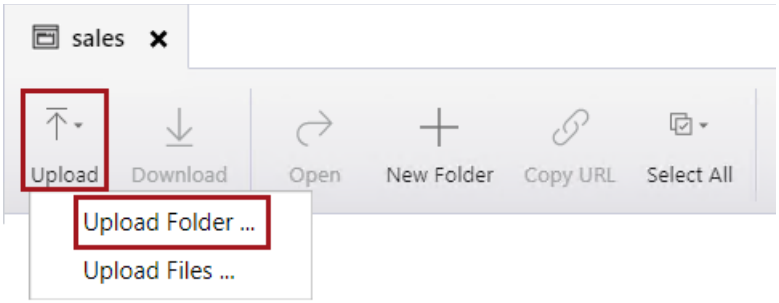
9. Verify that the **sales** container has been created.



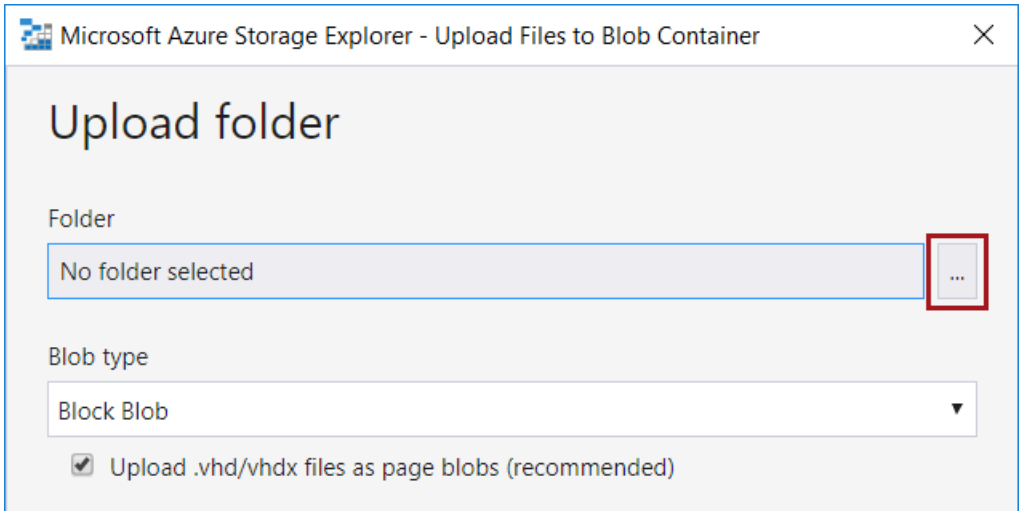
10. Notice that the sales contain is open in the right pane.



11. Click the **Upload** command, and then select **Upload Folder**.



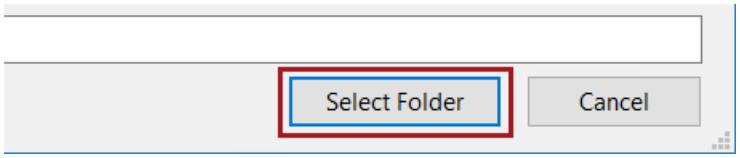
12. In the **Upload Folder** window, to the right of the **Folder** box, click the ellipsis command.



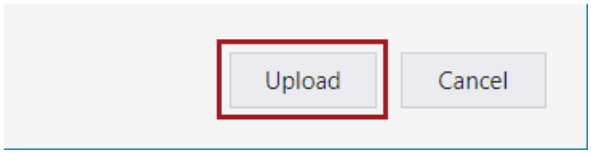
13. In the **Select Folder to Upload** window, navigate to **F:\Labs\Lab01\Assets**.

14. Select the **ResellerSales** folder.

15. Click **Select Folder**.

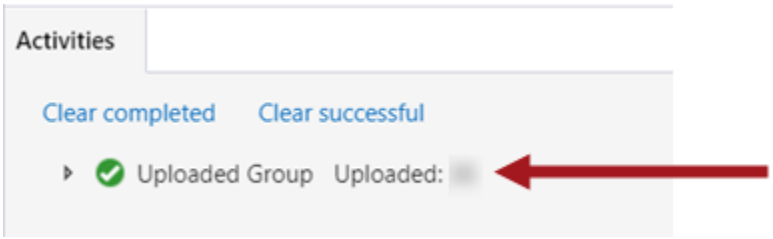


16. In the **Select Folder to Upload** window, click **Upload**.



17. Review the upload status in the **Activities** pane.

18. When the upload has completed, review the number of files uploaded.



Lab-based Knowledge Check

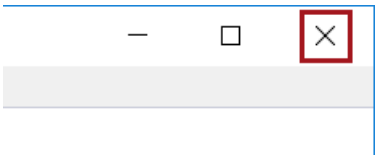
Lab 1 ► Upload to Blob Storage Result

What is the number of uploaded files displayed in the **Activities** pane?

You may need data from this step to answer a Lab-based Knowledge Check associated with this module.

*Now, we recommend that you open the **Module 2** Lab-based Knowledge Check portion of the course in EdX to answer the questions as you complete this lab.*

19. To close the application, at the top-right corner, click **X**.



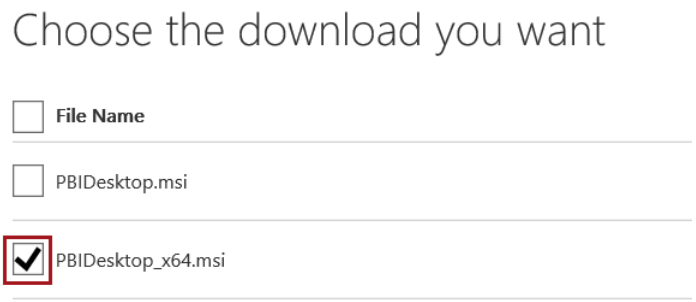
Installing Power BI Desktop

In this task, you will install Power BI Desktop, and sign up for Power BI as **Anna** (Business Analyst).

1. In a new Internet Explorer tab, navigate to https://aka.ms/edx-dat238x-pbi

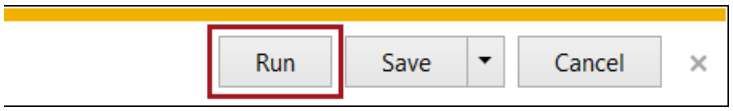
2. Click **Download**.

3. Check the **PBIDesktop_x64.msi** file.



4. Click **Next**.

5. When prompted by the web browser to run or save, click **Run**.

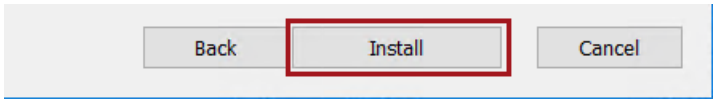


6. In the **Microsoft Power BI Desktop (x64) Setup** window, click **Next**.

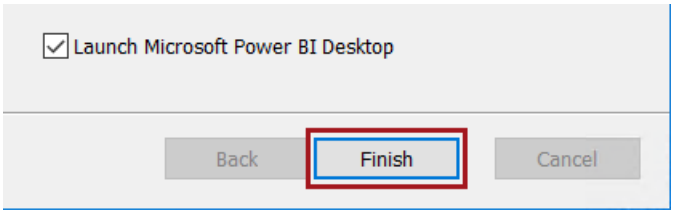
7. If you agree to the license terms in the license agreement, check the **I Accept the Terms in the License Agreement** checkbox, and then click **Next**.

8. At the **Destination Folder** step, to accept the default installation location, click **Next**.

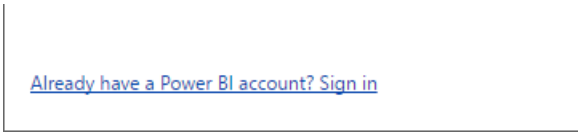
9. At the **Ready to Install** step, click **Install**.



10. When the installation has completed, to launch the application, click **Finish**.



11. In the **Welcome to Power BI Desktop** window, at the bottom-left corner, click the **Already Have a Power BI Account?** link.



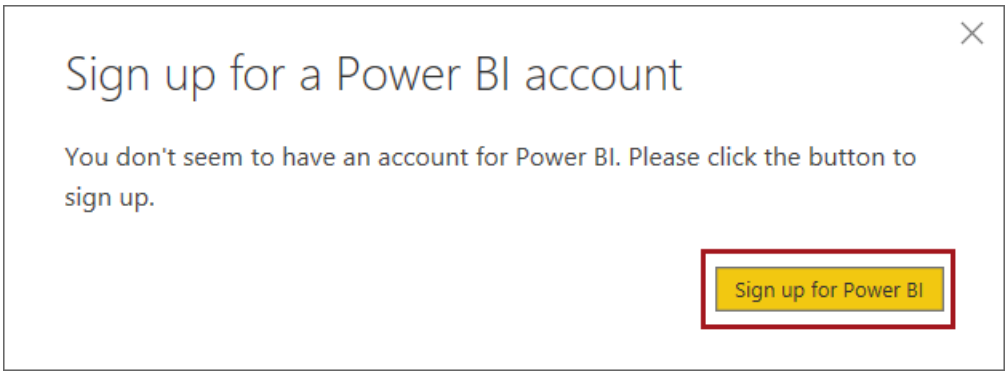
12. Sign in as **Anna** (Business Analyst).

    *Use the values stores in your **MySolutions.txt** file.*

13. When prompted to update the password, re-enter the initial password, and then set a new password.

14. In the **MySolution.txt** file, update the new password (Anna user password).

15. In the **Sign Up for a Power BI** account window, click **Sign Up for Power BI**.



16. When directed to Internet Explorer, click **Sign Up**.

17. Complete the process by signing in, until you arrive at the Office 365 account settings page.

18. Close the Office 365 account settings page.

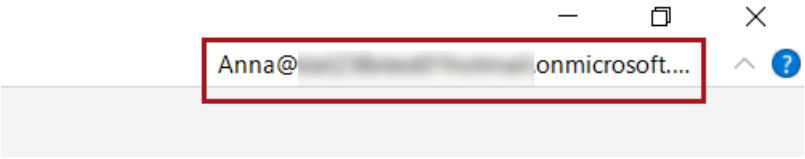
19. Return to Power BI Desktop.

20. Click **Sign In**.

21. Complete the sign in process as **Anna**.

22. If prompted to stay signed in, click **No**.

23. At the top-right corner, verify that **Anna** is signed in.



24. To close Power BI Desktop, at the top-right corner, click **X**.

25. Close the Internet Explorer session (Power BI Desktop download).

Exercise 4: Provisioning the Data Catalog

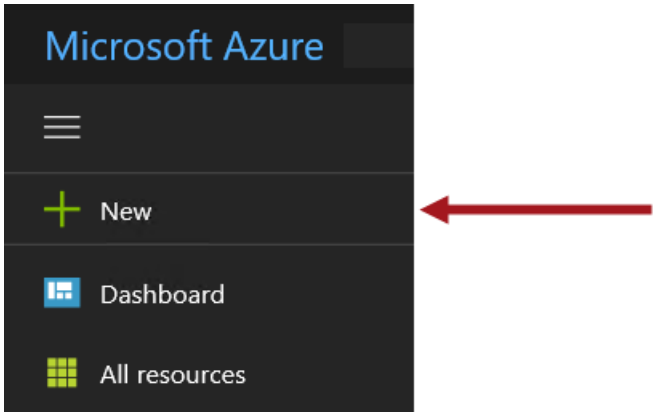
In this exercise, signed in as **Ben** (IT Administrator) you will provision and setup the Data Catalog.

Provisioning the Data Catalog

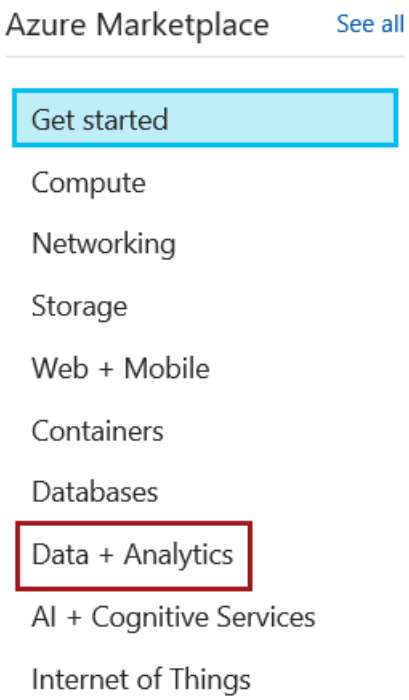
In this task, you will provision the Data Catalog.

1. Return to the Internet Explorer (Azure Portal) window.

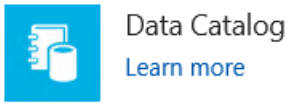
2. At the top-left corner, click **New**.



3. In the **New** blade, in the left list, select **Data + Analytics**.



4. At the right of the list, select **Data Catalog** (usually listed last).



5. In the **New Data Catalog** blade, in the **Name** box, enter **Catalog**.

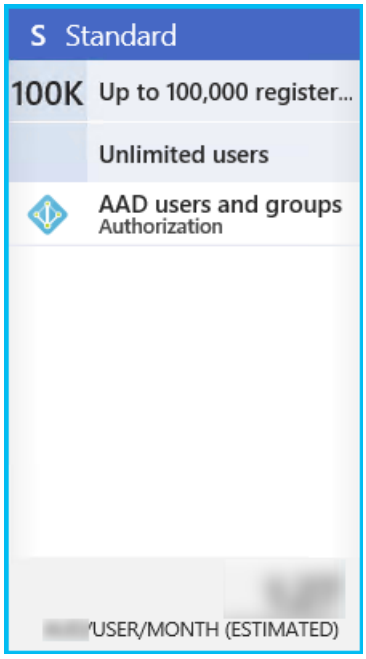
6. For the **Resource Group**, ensure that the **Use Existing** option is selected, and in the dropdown list, select **Lab**.

7. In the **Location** dropdown list, select the same region used to create the Azure VM.

8. To select a pricing tier, click **Pricing Tier**.

9. In the **Choose Your Pricing Tier** blade, review the two options.

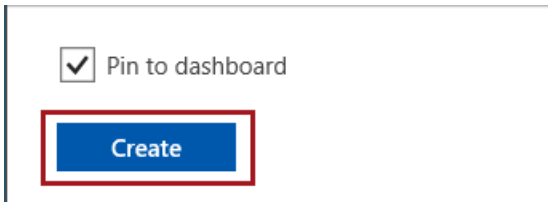
10. Select the **Standard** tier.



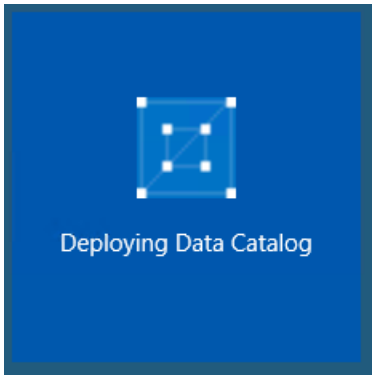
*The **Standard** tier is required to work with security, and other advanced concepts in the labs.*

11. Click **Select**.

12. In the **New Data Catalog** blade, check the **Pin to Dashboard** checkbox, and then click **Create**.



13. Notice the tile added to the **Azure Portal** dashboard.



When the deployment completes, the portal will automatically open the catalog.

Configuring the Data Catalog

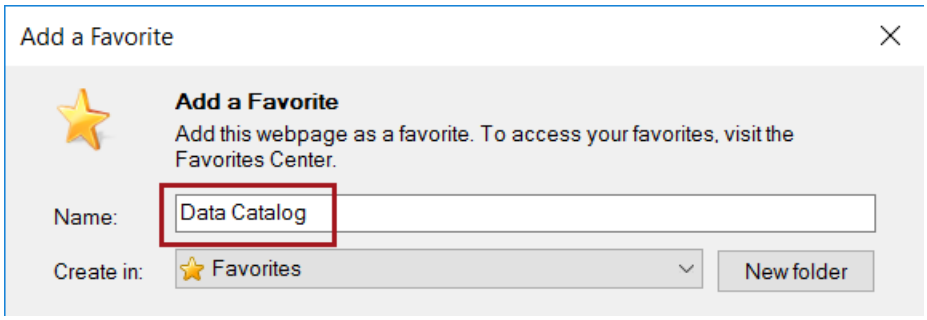
In this task, you will configure the Data Catalog permissions and portal title.

1. In a new Internet Explorer tab, navigate to https://aka.ms/edx-dat238x-az03

2. To create a browser favorite, at the top-right corner click the star icon.

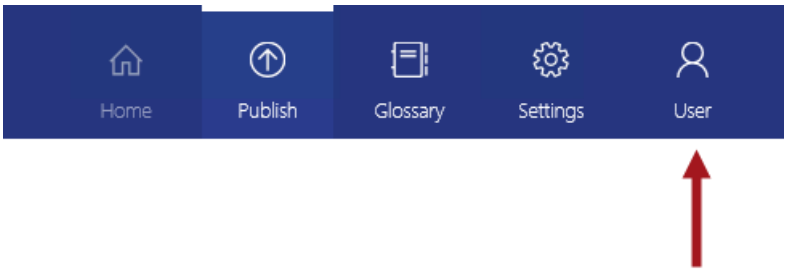
3. In the left pane, click **Add to Favorites**.

4. In the **Add a Favorite** window, in the **Name** box, replace the text with **Data Catalog**.



5. Click **Add**.

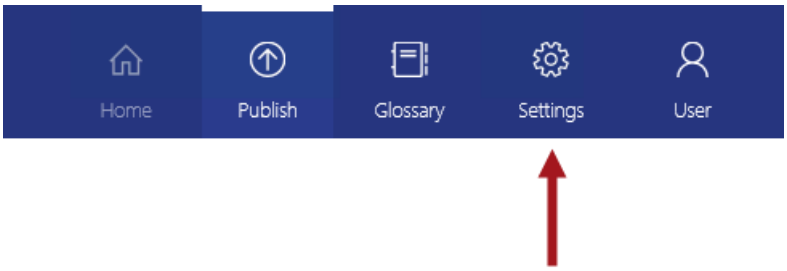
6. At the top-right corner, click **User**.



7. Notice that it confirms who the currently signed-in user is, and verify that it is **Ben**.

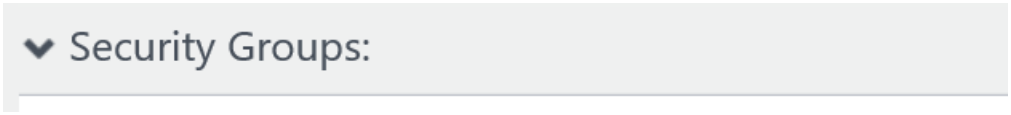
   *As the Data Catalog was provisioned by **Ben**, he is the first user added, and is a Catalog Administrator.*

8. At the top-right corner, click **Settings**.



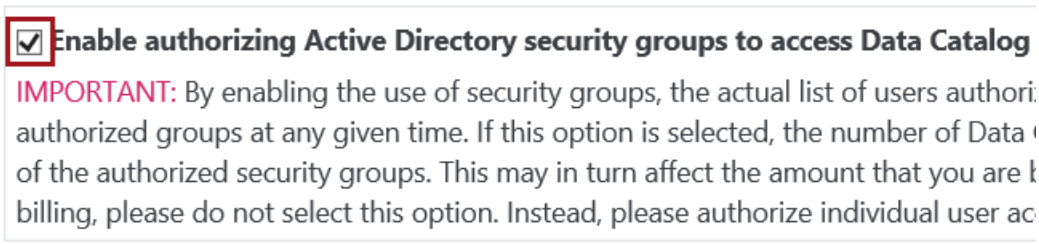
   Settings are only available to Catalog Administrators.

9. Scroll down to the **Security Groups** section.



10. Read the important notice.

11. Check the checkbox to enable authorizing AAD security groups to access the Data Catalog.



12. In the **Catalog Users** section, notice that **Ben** has already been added as a Data Catalog user.

    *The user who provisioned the Data Catalog is automatically added to **Users** and **Catalog Administrators**. Ben's user rights cannot be restricted while he remains an administrator.*

13. To add a security group, click **Add** (within the **Catalog Users** section).

14. In the box, enter the user name for **Stewart** (Data Steward) (retrieved from **MySolution.txt**: Stewart user name), and then press **Enter**.

15. Notice that the user **Stewart** is added to the grid, and that this user is granted permissions to annotate, register and take ownership of data assets.

16. Click **Add** again.

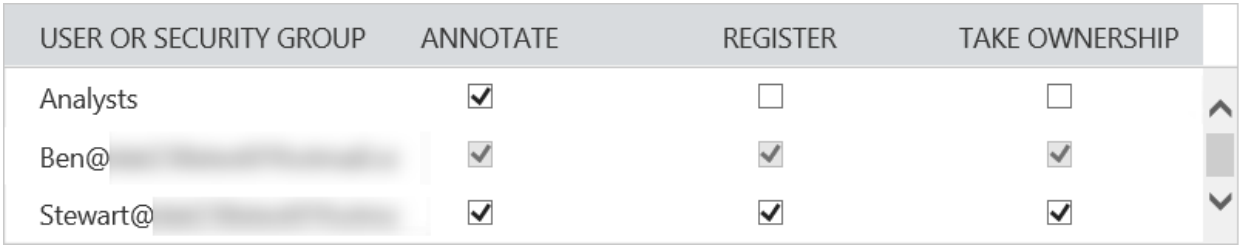
    

17. In the box, enter the group name **Analysts**, and then press **Enter**.

18. In the grid, for the **Analysts** group, uncheck **Register**, and uncheck **Take Ownership**.

    ***Anna**, **John** and **Sally** are members of the **Analysts** group. These users will only have permission to annotate data assets in the Data Catalog.*

19. Verify that the user permissions consist of the **Analysts** group, and **Ben** and **Stewart** as users, and that the **Analysts** group does not have **Register** or **Take Ownership** permissions.

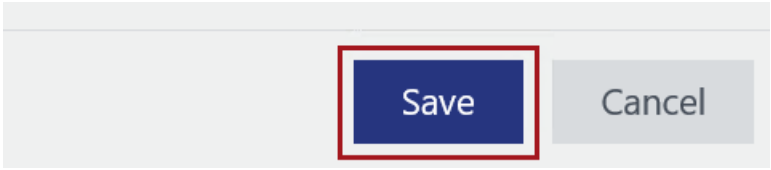
20. In the **Glossary Administrators** section, click **Add**, and then add the user **Stewart** (retrieved from **MySolution.txt**: Stewart user name).

    ***Stewart** will be able to manage Business Glossary terms.*

21. In the **Portal Title** section, in the box, enter **Adventure Works**.

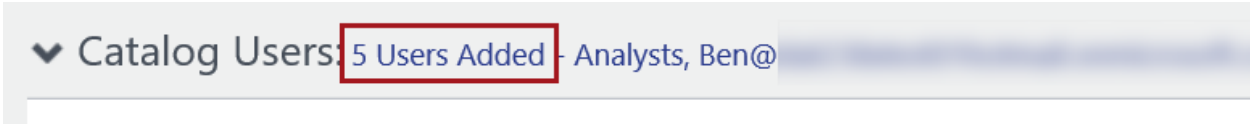
    This title will appear in the Data Catalog Portal.

22. At the bottom of the page, click **Save**.



23. When the save process has completed, scroll up to the **Catalog Users** section, and notice that five users were added (three belong to the **Analysts** group).

    All five users count for billing purposes.



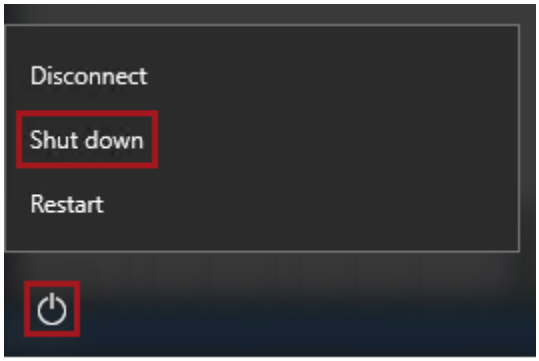
Finishing Up

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

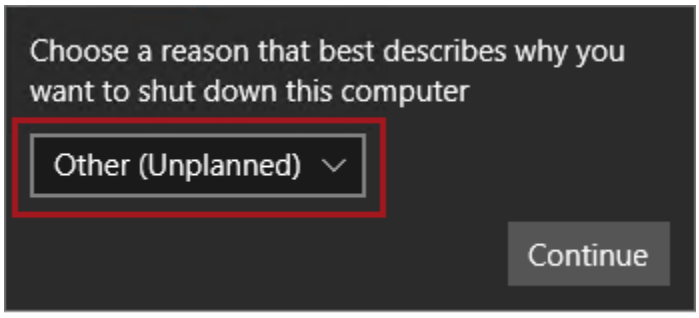
If you intend to immediately commence the next lab, you can leave the VM running. But remember—it will accumulate charges while running.

1. Close all open applications.

2. Press the **Windows** key, and then in the **Start** page, located at the bottom-left, click the **Power** button, and then select **Shut Down**.

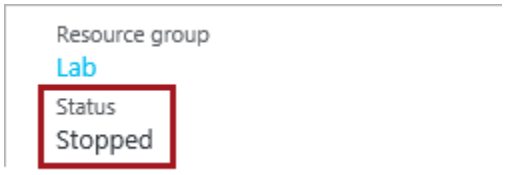


3. When prompted to choose a reason, select **Other (Unplanned)**.



4. Click **Continue**.

5. In the **Azure Portal** Web browser page, wait until the status of the VM updates to **Stopped**.

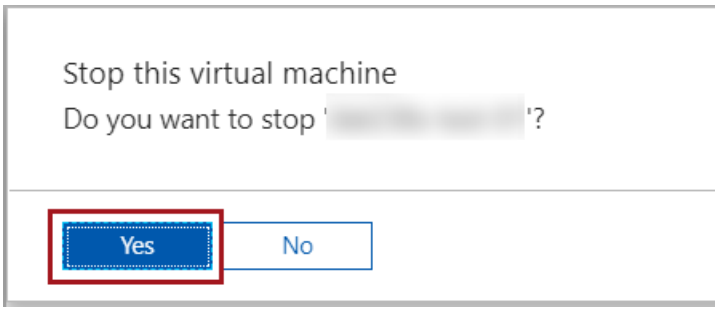


In this state, however, the VM is still billable.

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

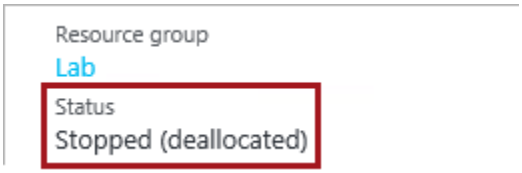
   Deallocation will take some minutes to complete, and also extends the time required to restart the VM. Consider deallocating the VM if you want to reduce costs, or if you choose to complete the next lab after an extended period.

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



   The deallocation can take several minutes to complete.

8. 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.

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