

**Exploring Cosmos DB via the Gremlin API**

**Introduction**

During this lab, you will learn how to create vertices, edges, and how to query a graph using the Gremlin language in the Graph API in Azure Cosmos DB.

**Estimated Time**

15 minutes

**Objectives**

At the end of this lab, you will be able to:

         Create a graph in the Azure Portal in Cosmos DB

         Create vertices and edges in your graph

         Query the graph using the Gremlin language

Lab: Exploring Cosmos DB via the Gremlin API

During this lab, you will learn how to create vertices, edges, and how to query a graph using the Gremlin language in the Graph API in Azure Cosmos DB.

**Exercise 1: Create a graph**

In this hands-on exercise, we will use the graph API in Azure Cosmos DB to create a graph called People.

**Tasks**

**1.      Create Account Resource**

1.       In a new window, sign in to the **Azure Portal** ([http://portal.azure.com](http://portal.azure.com/)).

2.       In the **Jumpbar (left navigation bar)**, click **Create a resource**, click **Databases**, and then click **Azure Cosmos DB**).

3.       In the **Azure Cosmos DB** blade, specify the desired configuration for the new Azure Cosmos DB account using the following steps:

                                                                           i.      In the **ID** box, enter a name to uniquely identify the account. When the **ID** is validated, a green check mark appears in the **ID** box. The **ID** value becomes the host name within the URI. The **ID** may contain only lowercase letters, numbers, and the '-' character, and must be between 3 and 50 characters.

                                                                         ii.      In the **API** section, select **Gremlin (graph)**.

                                                                       iii.      In the **Subscription** section, select the Azure subscription that you want to use for the account. If your account has only one subscription, that subscription is selected by default.

                                                                       iv.      In the **Resource Group** section, choose resource group for your account named **CosmosWorkshop.**

                                                                         v.      Use **Location** to specify the geographic location closest to your current location in which to host your account.

4.       Once the new account options are configured, click the **Create** button to begin the deployment.

5.       To check the status of the deployment, check the **Notifications hub** at the top-right corner of your Azure portal.

6.       After the Azure Cosmos DB account is created, you will receive a notification in the **Notifications Hub** indicating that the deployment action is complete.

7.       Click the **Go to Resource** button in the notification to view the **Azure Cosmos DB** account resource. If you cannot find the notification, click the **bell** icon in the Azure portal to view your list of notifications.

2.       **Create the People graph**

1.       In the Azure Cosmos DB account blade, locate and click the **Overview** option.

2.       At the top of the blade, locate and click the **Add Graph** button.

3.       In the **Add Graph** blade, perform the following actions:

                                                         i.            In the **Database** section, ensure that the **Create New** option is selected.

                                                       ii.            In the **Database** section, enter the name **Social**.

                                                     iii.            In the **Graph Id** box, enter the name **People**.

                                                      iv.            In the **Storage Capacity** section, select the **Fixed (10 GB)** option.

                                                        v.            In the **Throughput Capacity** section, enter the value **400** for Request Units per second (RU/s).

                                                      vi.            Ensure that the *Partition Key*\* box is left blank.

                                                    vii.            Click the **OK** button. Click the **Data Explorer** link on the left-hand side of the blade.

4.      In the **Data Explorer** section, expand the **Social** database node and then expand the **People** graph node. Click the **Graph** link to view the empty graph in a new tab.

*Exercise 1 has been completed.*

**Exercise 2: Create Vertices and Edges**

This exercise shows how to create Vertices and Edges in the graph API.

**Tasks**

**1.      Create Person vertices**

1.       In the **New Vertex** dialog, perform the following actions:

                                                         i.            In the **label** box, enter the value **person**.

                                                       ii.            Click the **Add Property** button. In the new property row, enter the key **id** and value **rhonda-hughes**.

                                                     iii.            Click the **Add Property** button. In the new property row, enter the key **firstName** and value **Rhonda**.

                                                     iv.            Click the **Add Property** button. In the new property row, enter the key **lastName** and value **Hughes**.

                                                       v.            Click the **OK** button to create the vertex. The new vertex should be immediately visible in the graph tab.

2.       Click the **New Vertex** button at the top of the graph tab.

3.       In the **New Vertex** dialog, perform the following actions:

                                                         i.            In the **label** box, enter the value **person**.

                                                       ii.            Click the **Add Property** button. In the new property row, enter the key **id** and value **nelida-zemora**.

                                                     iii.            Click the **Add Property** button. In the new property row, enter the key **firstName** and value **Nelida**.

                                                     iv.            Click the **Add Property** button. In the new property row, enter the key **lastName** and value **Zemora**.

                                                       v.            Click the **OK** button to create the vertex. The new vertex should be immediately visible in the graph tab.

4.       Click the **New Vertex** button at the top of the graph tab.

5.       In the **New Vertex** dialog, perform the following actions:

                                                         i.            In the **label** box, enter the value **person**.

                                                       ii.            Click the **Add Property** button. In the new property row, enter the key **id** and value **maya-steele**.

                                                     iii.            Click the **Add Property** button. In the new property row, enter the key **firstName** and value **Maya**.

                                                      iv.            Click the **Add Property** button. In the new property row, enter the key **lastName** and value **Steele**.

                                                        v.            Click the **OK** button to create the vertex. The new vertex should be immediately visible in the graph tab.

6.       Click the **New Vertex** button at the top of the graph tab.

7.       In the **New Vertex** dialog, perform the following actions:

                                                         i.            In the **label** box, enter the value **person**.

                                                       ii.            Click the **Add Property** button. In the new property row, enter the key **id** and value **chad-corbitt**.

                                                     iii.            Click the **Add Property** button. In the new property row, enter the key **firstName** and value **Chad**.

                                                     iv.            Click the **Add Property** button. In the new property row, enter the key **lastName** and value **Corbitt**.

                                                       v.            Click the **OK** button to create the vertex. The new vertex should be immediately visible in the graph tab.

8.       In the filter box at the top of the graph tab, enter the value g.V() and then click the **Apply Filter** button.

9.       This action should refresh your list of vertices.

**2.      Create ‘Educated-With’ Edges**

1.       On the left-hand side of the graph tab, click the **maya-steele** vertex option in the list of vertices.

2.       In the vertex properties pane, locate the **Targets** section and then click the edit button (using a *pencil icon*).

3.       If you do not see an edit icon/button, you may need to zoom in or out within your browser window.

4.       In the target list, enter the target **chad-corbitt** and the edge label **educated-with**.

5.       Click the *checkmark icon* at the top of the **Targets** section to save your edge[s].

6.       On the left-hand side of the graph tab, click the **nelida-zemora** vertex option in the list of vertices.

7.       In the vertex properties pane, locate the **Targets** section and then click the edit button (using a *pencil icon*).

8.       If you do not see an edit icon/button, you may need to zoom in or out within your browser window.

9.       In the target list, enter the target **chad-corbitt** and the edge label **educated-with**.

10.   Click the *checkmark icon* at the top of the **Targets** section to save your edge[s].

**3.      Create ‘Lived-With’ Edges**

1.       On the left-hand side of the graph tab, click the **chad-corbitt** vertex option in the list of vertices.

2.       In the vertex properties pane, locate the Targets section and then click the edit button (using a pencil icon).

3.       If you do not see an edit icon/button, you may need to zoom in or out within your browser window.

4.       In the target list, enter the target **rhonda-hughes** and the edge label **lived-with**.

5.       Click the checkmark icon at the top of the Targets section to save your edge[s].

*Exercise 2 has been completed.*

**Exercise 3: Create Gremlin Queries and View Results**

This exercise shows how to use Gremlin language to query graphs in the Graph API in Cosmos DB.

**Tasks**

**1.      View Resulting Graph**

1.       In the filter box at the top of the graph tab, enter the value g.V() and then click the Apply Filter button.

2.       On the left-hand side of the graph tab, click the chad-corbitt vertex option in the list of vertices.

3.       Expand the graph pane to view your final graph. Shrink the expanded graph.

2.       **Create Gremlin Queries and View Results**

1.       In the filter box at the top of the graph tab, enter the value g.V('maya-steele').outE('educated-with').inV() and then click the Apply Filter button.  The result of this query will return the entity that is “educated-with” the vertex which contains **maya-steele**. In this case, the result of this query will be Chad Corbitt as seen in the right pane in the graph.

2.       Expand the graph pane to view your result graph. Shrink the expanded graph.

3.       Click the JSON button at the top of the graph pane to view the raw JSON results.

4.       In the filter box at the top of the graph tab, enter the value g.V('maya-steele').outE('educated-with').inV().outE('lived-with').inV() and then click the Apply Filter button.

5.       Expand the graph pane to view your result graph. Shrink the expanded graph.

6.       Click the JSON button at the top of the graph pane to view the raw JSON results.

*Exercise 3 has been completed.*