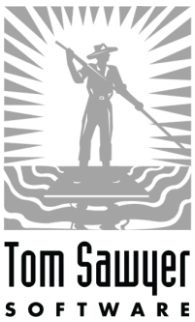


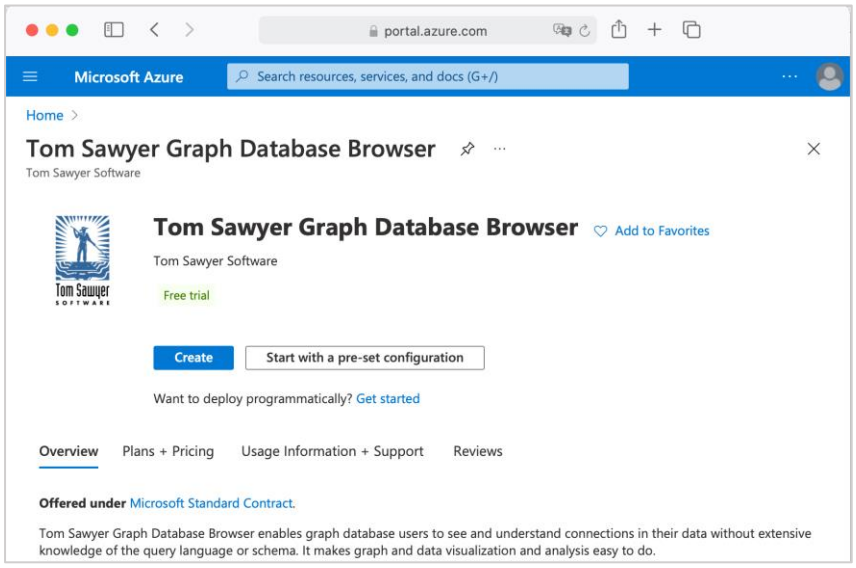
Getting Started with Tom Sawyer Graph Database Browser VM on Microsoft Azure

Introduction

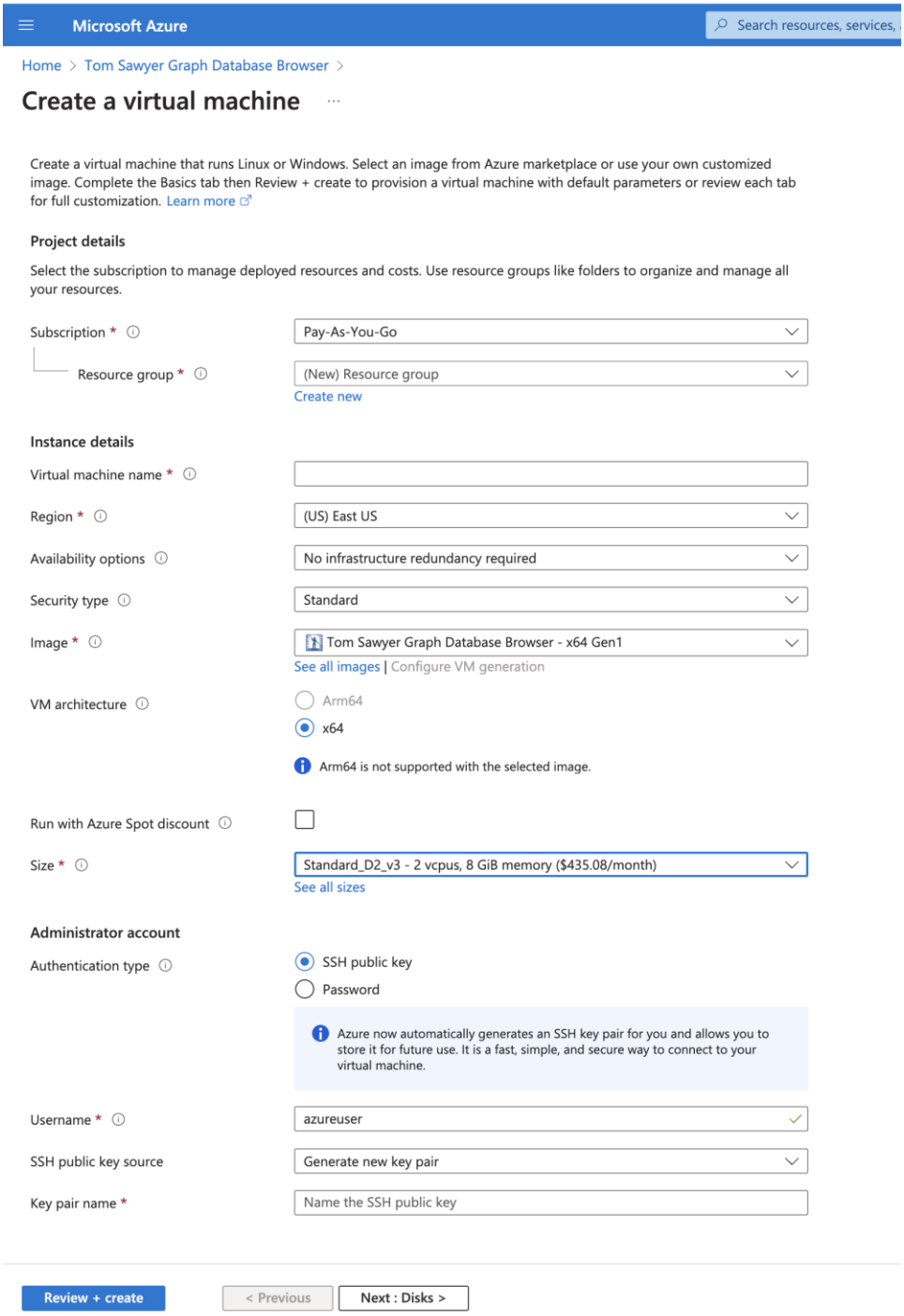
This guide will walk through the steps to create your virtual machine (VM) with Tom Sawyer Graph Database Browser on Azure Marketplace. You will launch the web application, connect to your Azure Cosmos DB database, and start visualizing your data.

Launch the Web Application

1. Sign in to the Azure portal and go to the Graph Database Browser product page.



2. Click **Create** to start the wizard. The first step is to set up the virtual machine.



3. Complete the project details as follows:

— Subscription: Use the default **Pay-As-You-Go**

— Resource group: Select from your existing list or create a new one. A resource group is a logical container for deploying and managing Azure resources like web apps, databases, and storage accounts.

— Virtual machine name: Enter a meaningful name for this VM.

— Region: Select your preferred region.

— Availability options: Use the default **No infrastructure redundancy required**.

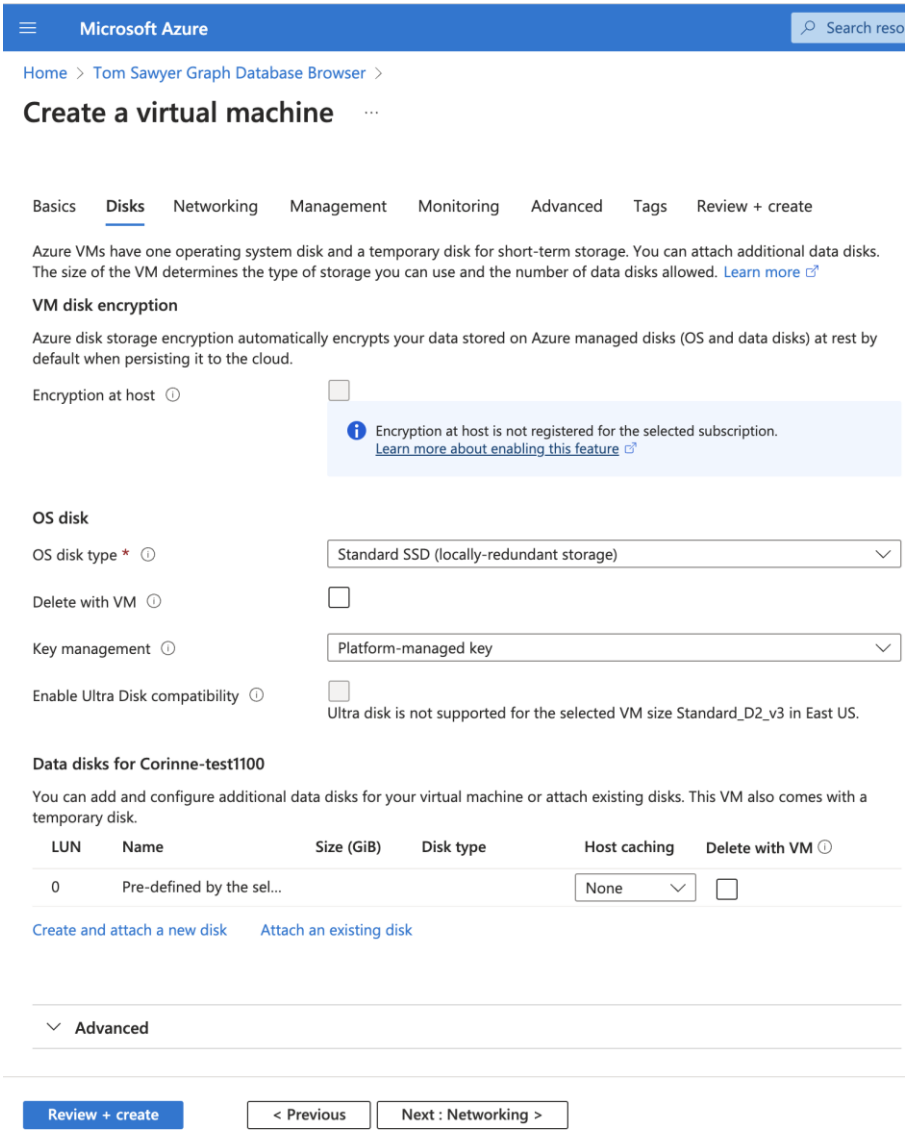
— Image: Use the default **Tom Sawyer Graph Database Browser – x64 Gen1**

— Azure Spot instance: Optional; Azure Spot offers unused Azure capacity at a discounted rate versus Pay-As-You-Go prices

— Size: Select a VM size. We recommend **D2s_v3** (2vcpus, 8 GiB memory) to begin with.

— Administrator account: Select whether the administrator account will use an SSH key or username/password for authentication.

4. Click **Next : Disks >** to set up disk options.

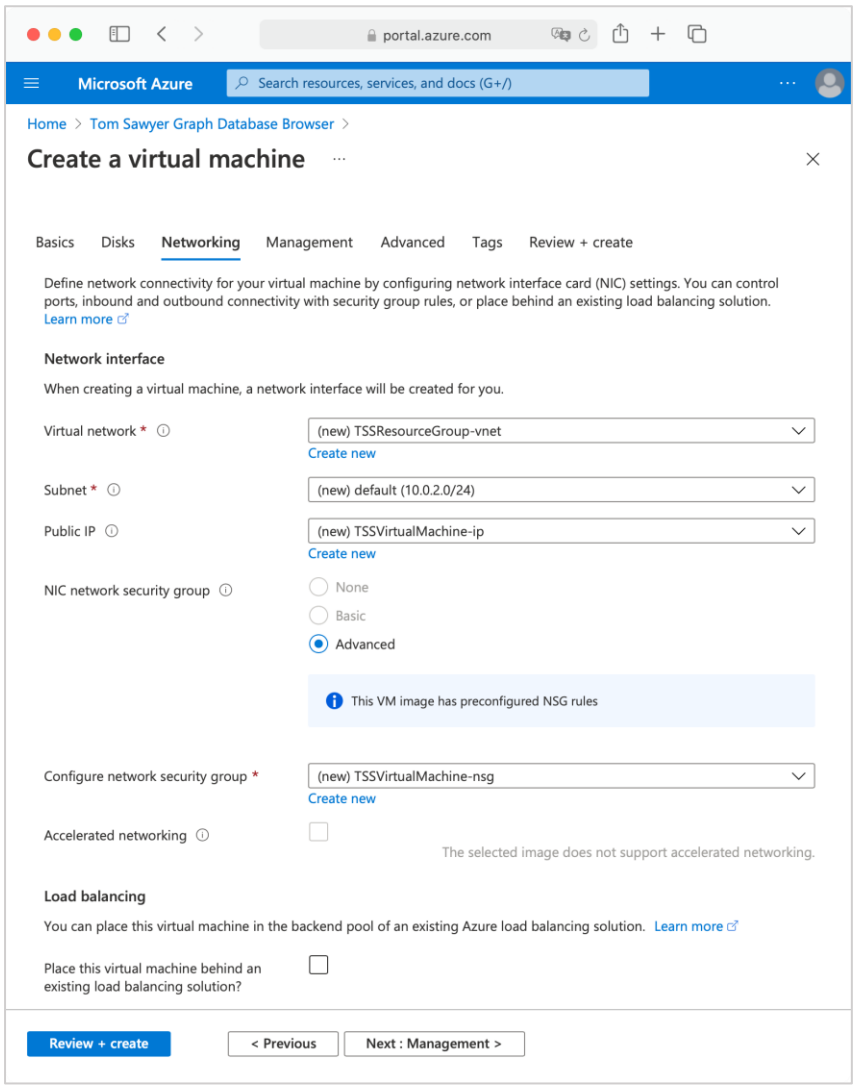


— OS disk type: Use the default **Standard SSD** or select another option.

— Key Management: Use **(Default) Platform-managed key** or select another option.

— Delete with VM: No.

5. Click **Next : Networking >** to set up networking.



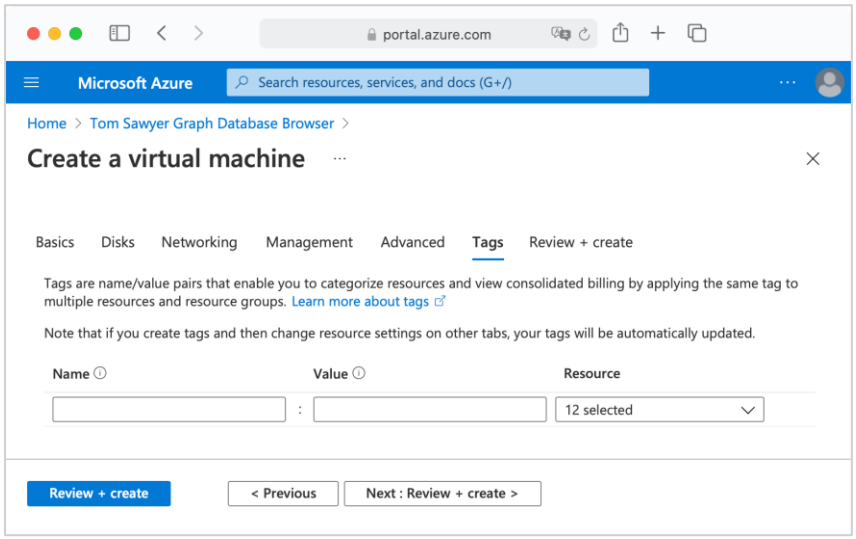
Your account administrator may already have networking set up for you.

- Virtual network: Virtual networks are logically isolated from each other in Azure. You can configure their IP address ranges, subnets, route tables, gateways, and security settings.
- Subnet: A subnet is a range of IP addresses in your virtual network, which can be used to isolate virtual machines from each other or from the Internet.
- Public IP: Use a public IP address if you want to communicate with the virtual machine from outside the virtual network. If you create a new IP, the most simple way is to use a “Basic” SKU with a “static” assignment.
- NIC network security group: Use the default **Advanced**. A network security group contains security rules that allow or deny inbound network traffic to, or outbound network traffic from, the virtual machine.
- Configure network security group: The security group should allow traffic inbound on ports 22, 80, and 443. If restricting outbound, make sure the ports are open for Azure Cosmos DB or other graph database communication.
- Accelerated networking: Not available.

— Load balancing: Optional, configure it if you want to place your VM behind a load balancer.

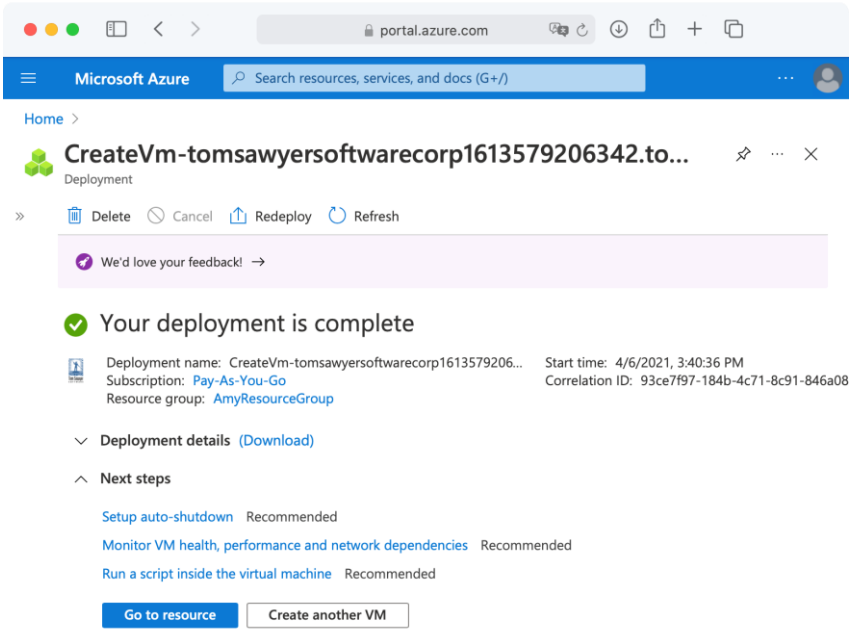
6. Click **Next : Management >** to configure management options for the VM. None of the settings on this page are required for Graph Database Browser. They are all optional.
7. Click **Next : Monitoring >** to configure monitoring options for the VM. None of the settings on this page are required for Graph Database Browser. They are all optional.
8. Click **Next : Advanced >** to set up add additional configuration, agents, scripts, or applications via virtual machine extensions or cloud-init. None of the settings on this page are required for Graph Database Browser. They are all optional.
9. Click **Next : Tags >** to configure your tags for the VM.

   Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. No tags are required for Graph Database Browser. They are optional.



10. Click **Next : Review + create >** to review the summary, including the cost of your configuration.
11. If you are satisfied with the configuration, click **Create** to launch the virtual machine.

    Once you see the message **Your deployment is complete**, your VM with Graph Database Browser is successfully launched and running.



12. Click **Go to resource** to construct the URL. Under the Networking section, find the Public IP address or Private IP address if you didn't set up public.

Your URL for Graph Database Browser access is http://<your_ip_address>/databasebrowser.

13. If the URL returns a 503 error:

    a. Check to see if the GDBB application was started, by connecting to the VM with SSH, and reviewing the logs located in /opt/TomSawyer/graph-database-browser/logs

    b. Confirm that the user's IP in Azure is not public.

    c. Add the environment variable TS_GDBB_VIRTUAL_HOST and restart the instance.

        i. ssh to your instance and modify the variable in the script:
        /opt/TomSawyer/graph-database-browser $ nano tsgddb.sh
        ii. Uncomment the following line, with the domain name and any additional hostname you will use to access your instance:
        # export TS_GDBB_VIRTUAL_HOST="$my-host.com"

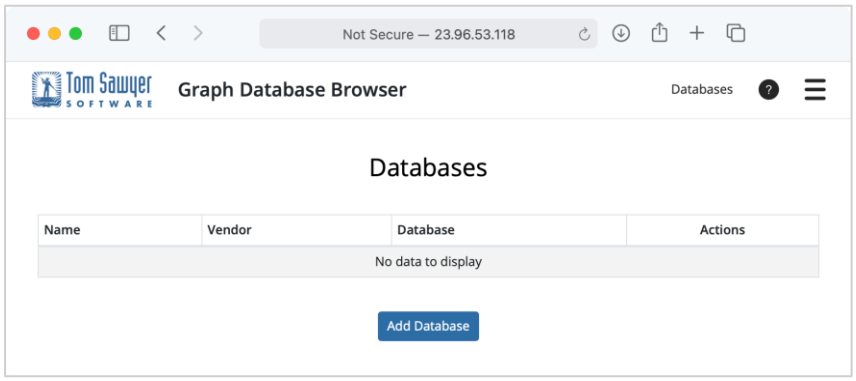
        It should look something like this:
        export TS_GDBB_VIRTUAL_HOST="localhost,$your-host.com"

        iii. Reload the changes by running:
        /opt/TomSawyer/graph-database-browser $ sudo ./tsgddb.sh
        iv. Wait a few minutes to make sure everything is reloaded and try again:
        http://<your-host.com>/databasebrowser

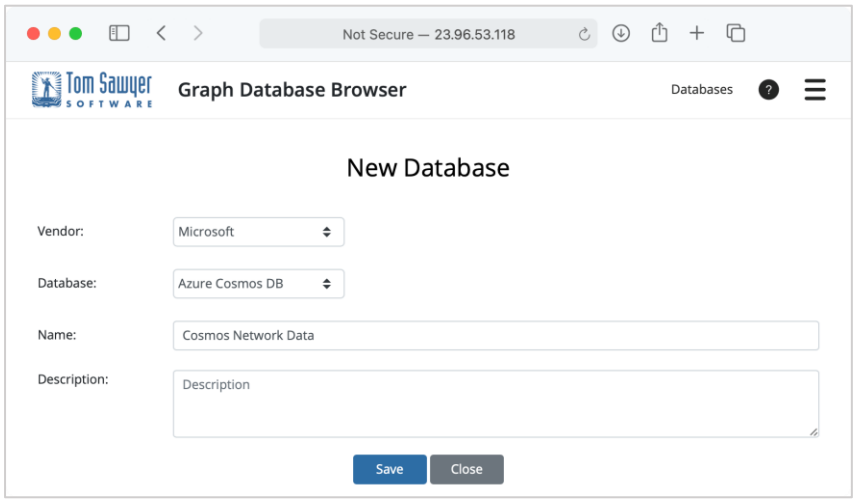
    The user should be able to get past the 503 and see your login for your Graph Database Browser.

Connect to Your Azure Cosmos DB Database

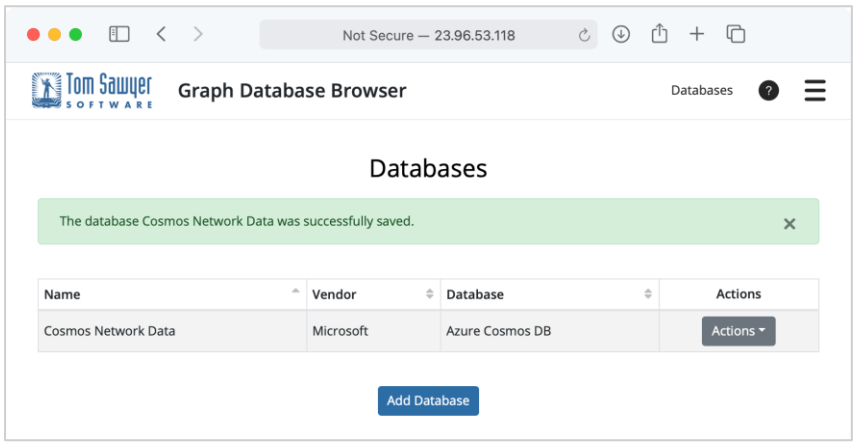
1. In a web browser, go to the URL you constructed above to access the Graph Database Browser sign in page.
2. To sign in for the first time, use the default username **admin** and enter your Azure subscription ID for the password.
3. Set up a permanent administrator account with your e-mail address and a new password.
4. If you don't need to make changes to the account information, click **Close** to access the Databases page. Before you can view the data in your graph database, you need to add it to Graph Database Browser and specify the connection details.



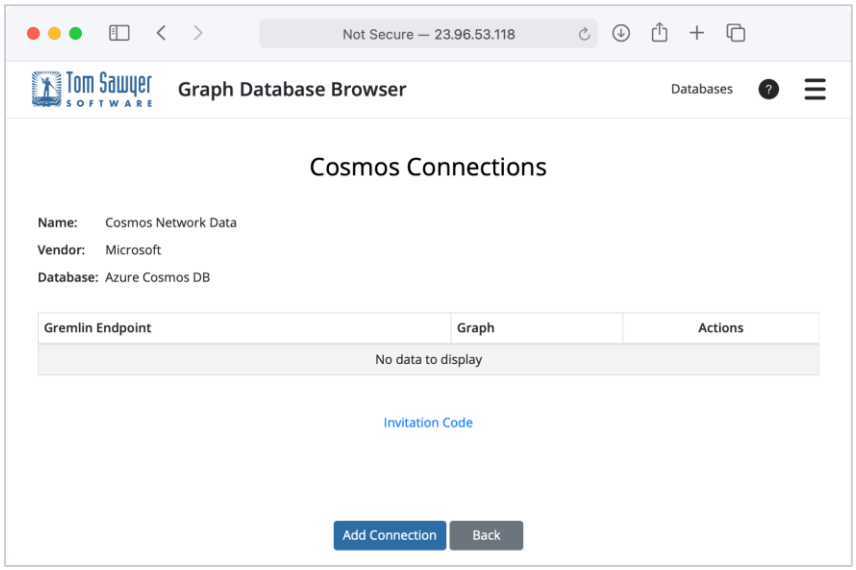
5. Click **Add Database**.
6. For an Azure Cosmos DB database, select **Microsoft** from the Vendor menu. **Azure Cosmos DB** automatically populates in the Database field. Enter a meaningful name for this connection and click **Save**.



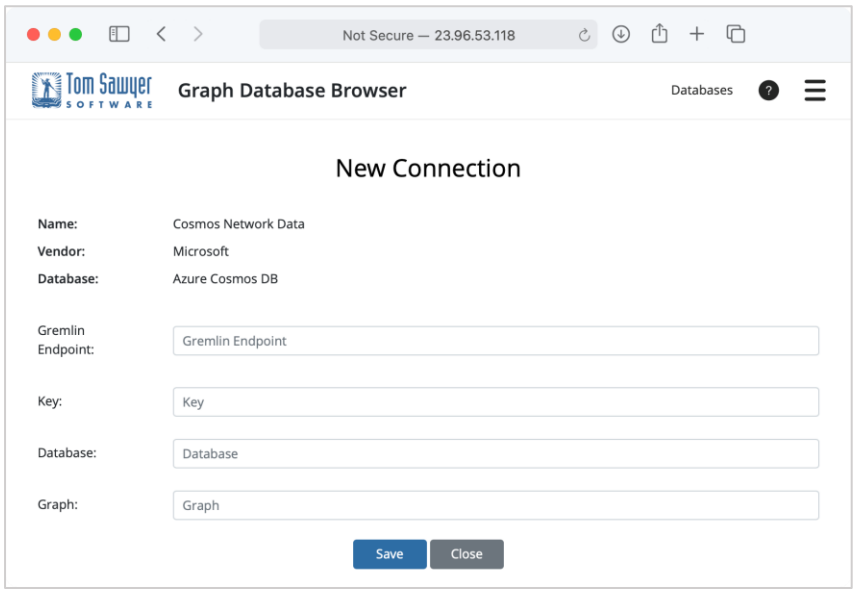
7. On the Databases page, for the newly added database, select **Actions** > **Connections.**



8. On the Cosmos Connections page, click **Add Connection**. If you have an invitation code from the Azure Cosmos team, click the corresponding link and enter it before you add the connection.



9. On the New Connection page, enter the connection details for your database and click **Save**.



10. For the newly added connection, select **Actions** > **Connect** to establish the connection.

    After a few seconds, your database is loaded in Graph Database Browser. If you aren't successful making a connection the first time, and the application times out, please try again.

    The results of the default initial query g.V().limit(25).bothE() display in the graph view.

Start Visualizing Your Data

Now you are ready to explore all that Graph Database Browser has to offer. To start, you can replace the default initial query with something specific to your data or add data-driven node and edge appearance rules for the graph elements. Begin your exploration by right-clicking on a node.

Advanced Setup

Advanced setup of your Graph Database Browser requires opening an SSH session to your Linux VM and running scripts via the command line using root login or sudo.

■ Allowing Multiple Users

By default, only one user can use the Tom Sawyer Graph Database Browser. To allow multiple users to create their own accounts on your VM, you must enable self-registration. There is no extra charge for this as it is all local to your VM.

- To enable user self-registration, run the script `/opt/TomSawyer/graph-database-browser/enable-user-registration.sh`. This adds a Sign Up link on the sign-in page.
- To restrict user registration, run the script `/opt/TomSawyer/graph-database-browser/disable-user-registration.sh`. This removes the Sign Up link and only registered users can sign in.

The user account information stays on the instance itself, encrypted in a local database and is not transmitted anywhere else. User accounts are required to keep user preferences, as this is a multiuser platform for all your graph database users. Once logged in, users can click the help icon for help using the application.

Changing Application Session Timeout

By default, the Graph Database Browser application uses the global Tomcat session timeout value of 1800 seconds. If the user does not refresh or request a page within this 30-minute period, the session ends. You can change the default session timeout value by changing a configuration in the application's environment.

1. In `/opt/TomSawyer/graph-database-browser`, edit `docker-compose.yml`. At the end of the environment section, below the line `ts-dbbrowser-webapp`, add this line:

   ```
   - server.servlet.session.timeout=nnnn
   ```

   where `nnnn` is the timeout value you want in seconds. Make sure to include the hyphen at the beginning of the line.

2. Save and close the file.
3. Restart the web server by running this command from the `graph-database-browser` directory:

   ```
   docker-compose up -d
   ```

Enabling Password Recovery

To enable password recovery, you need to know the SMTP settings of your own mail server. You also need to obtain `javax.mail.jar`, a library necessary for enabling e-mail.

To configure the mail server for password recovery:

1. Download the file `javax.mail.jar` from javaee.github.io/javamail/ - Download_JavaMail_Release.
2. Add `javax.mail.jar` to the directory `/opt/TomSawyer/graph-database-browser/libraries`.
3. In the same directory, edit the `spring.mail` properties in the file `javax.mail.properties` with information for your mail server.
4. Restart the instance or run the update script `/opt/TomSawyer/graph-database-browser/tsgddb.sh`.

Certificate Setup

Certificate management and key rotation should be followed in accordance with your security policy's best practices. It should be as stringent as necessary to protect your graph database data, as this application has access to any databases configured as connections.

Use these locations to place certificates and keys:

- For web server configuration: Nginx Docker image, configuration template :

  ```
  /opt/TomSawyer/graph-database-browser/lic-docker-gen/nginx.tmpl
  ```

- For key rotation, SSL certificates:

  ```
  /opt/TomSawyer/graph-database-browser/lic-docker-gen/ssl/default.crt
  ```

  ```
  /opt/TomSawyer/graph-database-browser/lic-docker-gen/ssl/default.key
  ```

■ Upgrade and Migration Instructions

When upgrading to a new version of Tom Sawyer Graph Database Browser, use the procedure below to migrate user accounts and preferences. The upgraded version includes all the latest software including support for the latest operating systems and patches.

During an upgrade, a new VM is created through the Azure launch process. This process will guide you through shutting down the old VM, exporting the application data, and importing the data into the new instance.

Use this storage location for migration of application data, which is the same as the backup and recovery location:

```
/opt/TomSawyer/graph-database-browser/.postgres-data
```

As root or superuser:

1. ssh into the old instance. Change directory to `graph-database-browser` and stop the Tom Sawyer Graph Database Browser:

   ```
   /opt/TomSawyer/graph-database-browser$ docker-compose stop
   ```

2. Compress the directory `.postgres-data`:

   ```
   /opt/TomSawyer/graph-database-browser$ tar -zcvf postgres-data.tar.gz
   .postgres-data
   ```

3. Transfer the compressed file, `postgres-data.tar.gz`, from the old instance to the new instance. Do this directly between instances, or:
   a. Copy the file from the old instance to a local machine:

      ```
      scp -i /LocalMachine/keyfile.pem
      user@oldinstance:/opt/TomSawyer/graph-database-browser/postgres-
      data.tar.gz
      ```

   b. Copy the file from the local machine to a new instance:

      ```
      scp -i /LocalMachine/keyfile.pem postgres-data.tar.gz
      user@newinstance:/opt/TomSawyer/graph-database-browser
      ```

4. ssh into the new instance. Stop the Tom Sawyer Graph Database Browser in the new instance and replace the `.postgres-data` directory:

   ```
   /opt/TomSawyer/graph-database-browser$ docker-compose stop
   /opt/TomSawyer/graph-database-browser$ sudo rm -rf .postgres-data
   /opt/TomSawyer/graph-database-browser$ tar -zxvf postgres-data.tar.gz
   ```

5. Restart the Tom Sawyer Graph Database Browser on the new instance:

   ```
   /opt/TomSawyer/graph-database-browser$ docker-compose up -d
   ```

   You have successfully migrated your data to the new VM.

Need More Help?

For more information, you can access the product documentation by clicking the help icon in the upper right corner of the Graph Database Browser.

Your Azure VM subscription entitles you to free support from Tom Sawyer Software. You have to sign up with Tom Sawyer Software to submit a support request at support.tomsawyer.com. With your free Tom Sawyer Software account, you will also be able to view additional product documentation.