Lab 6  
CST8912\_011  
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Submitted to :   
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# **Lab Report Format**

**Title**

Configuring Azure Private Network & Storage

**Introduction or Purpose**

This lab activity is a step-by-step guide to configure a secure Azure cloud environment via Private Link and Private Endpoints. By following this tutorial, you will create a virtual network, deploy a Bastion Host, set up a storage account, turn off public access, and establish private connectivity to Azure services. You will also create a test virtual machine, establish storage access, and test connectivity using Azure Storage Explorer.

**Steps covered in the lab**

### **Create a Virtual Network and Bastion Host**

* **Go to** Virtual Networks in the portal.
* **Click** + Create.
* On the **Basics** tab, fill in:
  + **Subscription**: Azure for students
  + **Resource Group**: CST8912demo
  + **Name**: 8912-vnet1
  + **Region**: Canada Central
* **Click** Next to go to the Security tab.
* Under **Azure Bastion**, select **Enable Bastion**.
* For **Azure Bastion**, set:
  + **Host name**: Bastion8912
  + **Public IP**: Create a new one, name it **public-ip**, and click **OK**.
* **Click** Next to go to the IP Addresses tab.
* In **Subnets**, select the default subnet.
* In **Edit subnet**, set:
  + **Name**: Subnet-1-8912
  + **IPv4 address range**: 10.0.0.0/16
  + **Subnet size**: /24 (256 addresses)
* **Click** Save.
* Once validation passes, **click** Create.

### **Create a Storage Account**

* **Search** for **Storage account** in the portal and select **Storage accounts**.
* **Click** + Create.
* On the **Basics** tab, fill in:
  + **Subscription**: Azure for students
  + **Resource Group**: CST8912demo
  + **Storage Account Name**: Storage1-8912
  + **Location**: Canada Central
  + **Performance**: Standard
  + **Redundancy**: Local Redundant Storage (LRS)
* **Click** Review.
* **Click** Create.

### **Disable Public Access to Storage Account**

* **Search** for **Storage account** in the portal and select **Storage accounts**.
* **Select** **storage1** or your existing storage account.
* Go to **Security + networking** and select **Networking**.
* In the **Firewalls and virtual networks** tab, set **Public network access** to **Disabled**.
* **Click** Save.

### **Create a Private Endpoint**

1. **Search** for **Private endpoint** in the portal and select **Private endpoints**.
2. **Click** + Create.
3. On the **Basics** tab, fill in:
   * **Subscription**: Azure for students
   * **Resource Group**: CST8912demo
   * **Name**: Privateendpoint-8912
   * **Network Interface Name**: Leave as **private-endpoint-nic**
   * **Region**: Canada Central
4. **Click** Next: Resource.
5. In the **Resource** pane, fill in:
   * **Connection method**: Leave as **Connect to an Azure resource in my directory**
   * **Subscription**: Select your subscription
   * **Resource type**: Microsoft.Storage/storageAccounts
   * **Resource**: Select **Storage1-8912** (or your storage account)
   * **Target subresource**: Select **blob**
6. **Click** Next: Virtual Network.
7. In **Virtual Network**, fill in:
   * **Virtual network**: Select **8912-vnet (CST8912demo)**
   * **Subnet**: Select **Subnet-1-8912**
   * **Network policy for private endpoints**: Click **edit**, then select the checkbox for **Network security groups** and **Route Tables**
   * **Click** Save
   * **Private IP configuration**: Select **Dynamically allocate IP address**
8. **Click** Next: DNS and leave the defaults.
9. **Click** Next: Tags, then **Next**: Review + Create.
10. **Click** Create.

### **Create a Test Virtual Machine**

* **Search** for and select **Virtual machines** in the portal.
* **Click** + Create, then select **Azure virtual machine**.
* On the **Basics** tab, fill in:
  + **Subscription**: Azure for students
  + **Resource Group**: CST8912demo
  + **Virtual Machine name**: 8912-VM1
  + **Region**: Canada Central
  + **Availability options**: No infrastructure redundancy required
  + **Security type**: Standard
  + **Image**: Windows Server 2022 Datacenter - x64 Gen2
  + **VM architecture**: Leave as **x64**
  + **Size**: Select **B1**
  + **Authentication**: Choose **username and password**
  + **Public inbound ports**: Select **None**
* **Click** the **Networking** tab.
* In the **Networking** tab, fill in:
  + **Virtual Network**: Select **8912-vnet (CST8912demo)**
  + **Subnet**: Select **Subnet-1-8912**
  + **Public IP**: Select **None**
  + **NIC network security group**: Select **Advanced**
  + **Configure network security group**: Select **Create new** and name it **nsg-1**
  + **Click** OK
* Leave the rest of the settings as default and **click** Review + Create.
* **Review** the settings and **click** Create.

### **Storage Access Key**

* **Search** for **Storage account** in the portal and select **Storage accounts**.
* **Select** your storage account (either the one you created or an existing one).
* Under **Security + networking**, select **Access keys**.
* **Click** Show, then **copy** the **Connection string** for **key1**.

### **Add a Blob Container**

* **Search** for **Storage account** in the portal and select **Storage accounts**.
* **Select** your storage account.
* Under **Data storage**, select **Containers**.
* **Click** + Container to create a new one.
* Name the container and select **Private (no anonymous access)** for the access level.
* **Click** Create.

### **Test Connectivity to Private Endpoint**

1. **Search** for **Virtual machine** in the portal and select **Virtual machines**.
2. **Select** **8912-VM1**.
3. In **Operations**, select **Bastion**.
4. Enter the **username** and **password** used during VM creation.
5. **Click** Connect.
6. Open **Windows PowerShell** on the server after connecting.
7. Run the command:  
   nslookup <storage-account-name>.blob.core.windows.net  
   Replace **<storage-account-name>** with the name of your storage account. **Note** the returned private IP address.
8. Install **Microsoft Azure Storage Explorer** on the VM.
9. After installation, **click** Finish and leave the box checked to open the app.
10. In **Microsoft Azure Storage Explorer**, click the **Power plug symbol** to open the **Select Resource** dialog.
11. Select **Storage account or service** to add a connection to your storage account.
12. Choose **Connection string**, then click **Next**.
13. **Paste** the connection string in the provided box.
14. **Click** Next.
15. **Verify** the settings in **Summary**.
16. **Click** Connect.
17. Select your storage account from **Storage Accounts** in the explorer menu.
18. Expand the storage account and click **Blob Containers**.
19. Your created container will be displayed.
20. **Close** the connection to **8912-VM1**.
21. **Clean up** all resources and document the steps with screenshots for your lab report.

**Results**

Create a Virtual Network and Bastion Host

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Create a Storage Account

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Disable Public Access to Storage Account

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Create a Private Endpoint

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Create a Test Virtual Machine

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Storage Access Key

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Add a Blob Container

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Test Connectivity to Private Endpoint

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