Azure Infrastructure and Juice Shop Setup Guide

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Overview

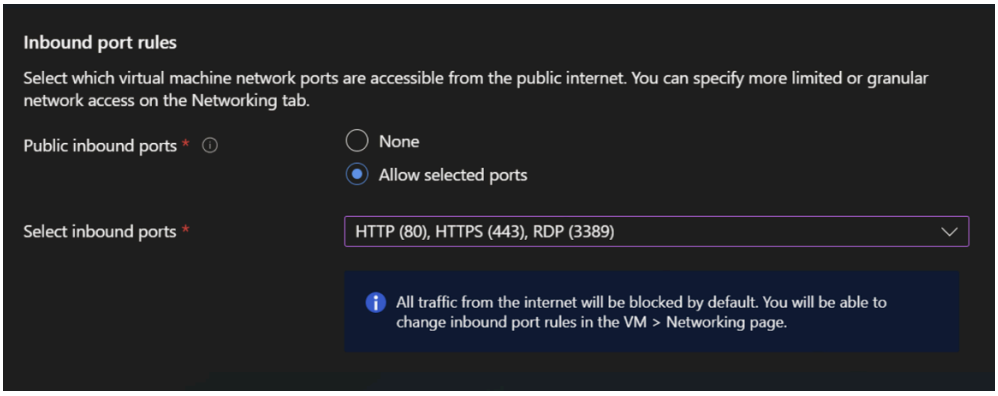
This guide provides a comprehensive step-by-step process to set up an Azure infrastructure for hosting the OWASP Juice Shop application. It includes the creation of the Azure Virtual Machine (VM), networking configurations, and deployment of Juice Shop for learning and security testing purposes. The infrastructure was created with several vulnerabilities on purpose to have these show on the risk assessment at the end.

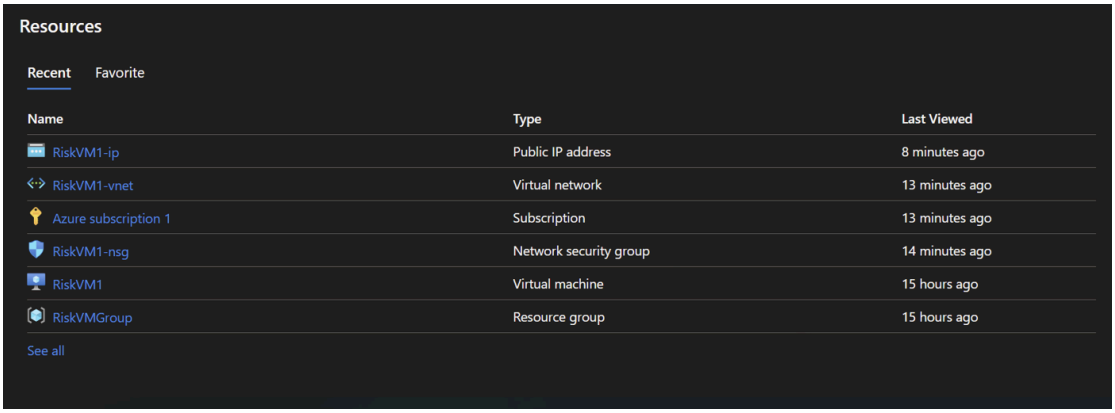
Section 1: Setting Up Azure Infrastructure

1.1 Create an Azure Virtual Machine (VM)

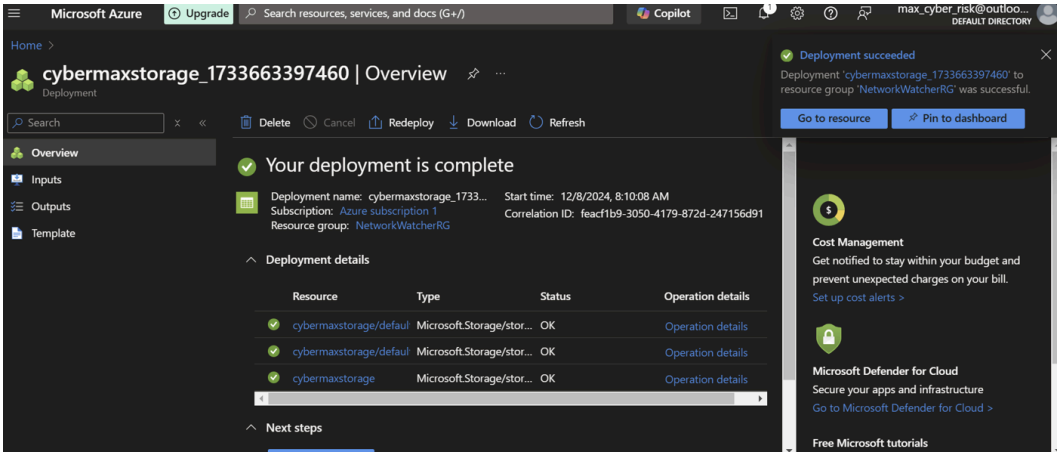
1. **Access Azure Portal**
    - Navigate to Azure Portal and log in.
2. **Start Virtual Machine Setup**
    - Go to **Virtual Machines** → Click **Create** → **Azure Virtual Machine**.
3. **Basic Configuration**
    - **Subscription**: Select your subscription.
    - **Resource Group**: Create a new group
    - **VM Name**: Enter a name
    - **Region**: Choose a region
    - **Image**: Select **Windows Server 2022 Datacenter**.
    - **Size**: Use Standard_B1s (cost-efficient).
4. **Administrator Account**

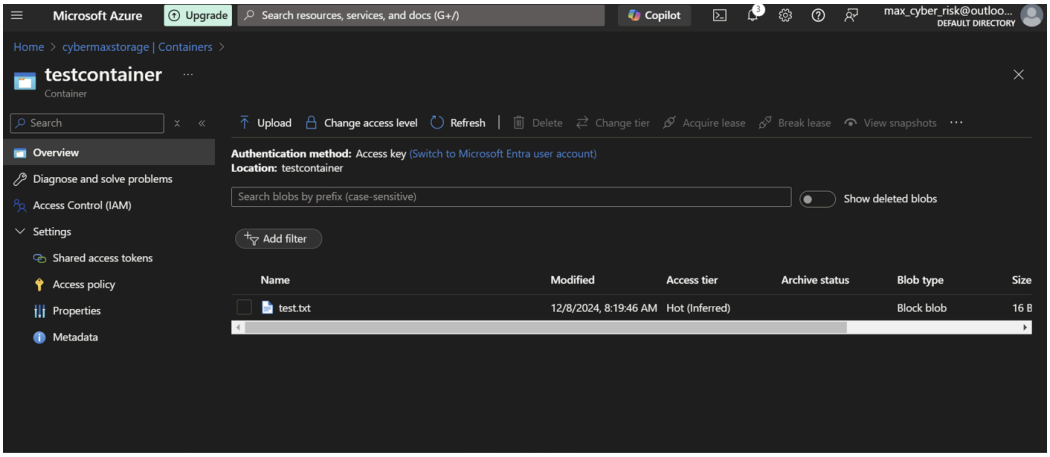
- **Username**: Create an admin username.
- **Password**: Use a strong password.

5. **Inbound Port Rules**
   - Allow **RDP (3389)**, **HTTP (80)** and **HTTPS (443)**
   - 

6. **Deploy VM**
   - Review the configuration and click **Create** to deploy.
   - When all said is done, you should have the following
   - 

7. **Storage (Optional)**
   - I have added storage and a test container, this is not necessary

- 

- 

1.2 Configure Networking

1. **Verify Network Security Group (NSG) Rules**
   - Navigate to the VM's **Networking** tab.
   - Ensure the following:
     - **Allow Port 3389**: For RDP access.
     - **Allow Port 3000**: For Juice Shop.
     - Remove unnecessary ports (e.g., SQL Port 1433).
2. **Restrict RDP Access**
   - Modify NSG rules to restrict access to specific IP ranges.

1.3 Software Installation

1. **Connect to the VM**
   - Use RDP with the VM's **Public IP Address**.

2. **Install Node.js**
    - Download from Node.js and install the **LTS version**.
3. **Install Git**
    - Download from git-scm.com and install.

Section 2: Deploying OWASP Juice Shop

2.1 Clone the Repository

1. Open **Command Prompt** or **PowerShell**.

- Clone the repository:

  git clone https://github.com/juice-shop/juice-shop.git
- cd juice-shop

2.2 Install Dependencies

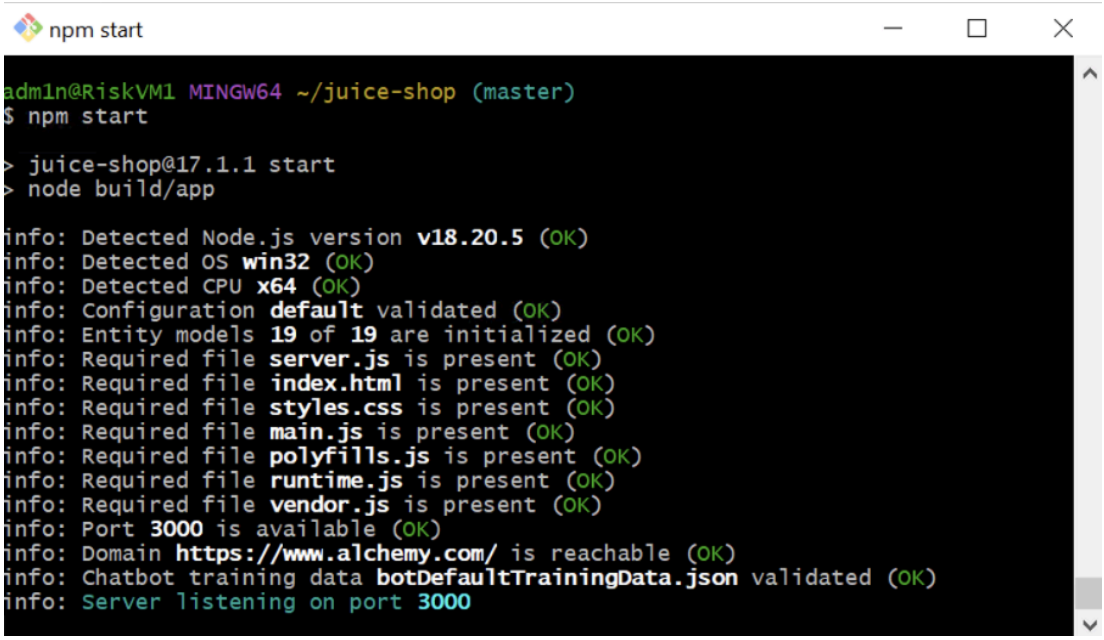
Install required packages:

1. Npm install
2. Wait for the installation to complete.

2.3 Start Juice Shop

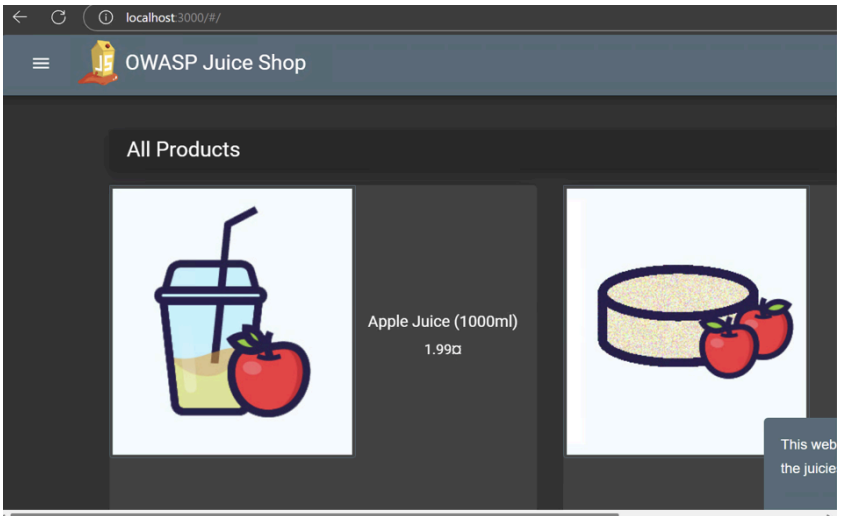
Run the application:

1. npm start

2. 

3. Verify the application:
    - Open a browser and navigate to http://<Public-IP>:3000.

2.4 Configure Firewall

1. **Allow Port 3000**
    - Open **Windows Defender Firewall → Advanced Settings**.
    - Create an inbound rule for Port 3000.
2. **Test Connectivity**
    - Access Juice Shop from your local machine.
    - It should look like the following if everything works correctly
    - 

Section 3: Securing the Environment

Only do the following if you want to secure the environment, if you want to do a risk assessment with vulnerabilities and risks in the infrastructure, ignore the following.

3.1 Strengthen Password Policies

- Change the admin password to a strong, complex value.
- Enable **Account Lockout Policies** to prevent brute force attacks.

3.2 Enable Azure Defender

- Navigate to **Security Center** and enable **Azure Defender** for Servers.
- Resolve any recommendations provided.

3.3 Monitor and Log Activity

- Enable **Azure Monitor** to track RDP connections and system activity.
- Set up alerts for suspicious activities (e.g., failed login attempts).

Summary

This document provided the step-by-step process for:

1. Setting up Azure infrastructure and configuring the VM.
2. Deploying OWASP Juice Shop for testing.
3. Securing the environment by restricting access, enabling monitoring, and applying best practices.

There are faster ways to set up an azure environment using scripts, however, I wanted to do it manually to learn as much as possible.
