SOFTWARE ENGINEERING LAB

EXERCISE – 7

TOPIC – 6

DEPLOYING AND MANAGING MONITORING SYSTEMS USING NAGIOS IN DOCKER

In this exercise, we will be:

- Setting up and running Nagios using Docker for quick and simple installation.
- Accessing the Nagios Dashboard to explore its features.
- Monitoring the health and status of systems and services effectively.
- Learning how to manage checks, notifications, and downtime settings.
- Understanding how to stop and remove the Nagios Docker container when finished.
- **Note: At every step take screenshots and save in a document**

Step 1: Pulling the Nagios Image

1. **Command to Pull Nagios**

   Open a terminal and type this command to download the Nagios image:

   ```
   docker pull jasonrivers/nagios:latest
   ```

   - This command tells Docker to download the **latest version** of Nagios from a specific repository (`jasonrivers`).

Step 2: Running Nagios

1. **Command to Run Nagios**

```
docker run --name nagiosdemo -p 8888:80 jasonrivers/nagios:latest
```

Explanation of Each Part:

- `--name nagiosdemo`: Names the container **nagiosdemo** so you can easily identify it later.
- `-p 8888:80`: Maps your computer's **port 8888** to the container's **port 80** (port 80 is used for web access).
- `jasonrivers/nagios:latest`: Specifies the software image (Nagios) and its version.

Step 3: Accessing Nagios

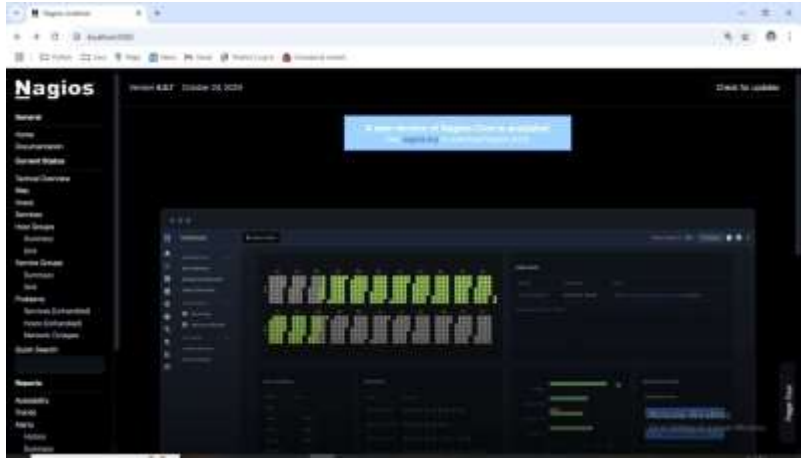
1. Open a browser and type:

   `localhost:8888`

   This will open the Nagios web interface.

2. **Login Credentials**:
   - **Username**: `nagiosadmin`
   - **Password**: `nagios`

Understanding the Nagios Dashboard



1. General Information

- **Nagios Version**: The top-left corner shows the version of Nagios you're using (e.g., Version 4.5.7).

2. Navigation Panel (Left-Side Menu)

- **Home**: Returns you to the main dashboard.
- **Hosts**: Displays the list of systems (hosts) being monitored.
- **Services**: Shows activities or tasks being monitored, such as CPU usage, disk space, or network status.
- **Reports**: Provides historical data and trends about your systems.

3. Dashboard Content

a. System Status (Top Section)

- **Green Boxes**: Indicate periods when everything was working fine.
- **Red or Yellow Boxes**: Indicate problems or warnings.

b. Latest Alerts

- **Source**: Shows which system (e.g., IP address) had the issue.
- **Alert**: Describes the problem (e.g., "Memory usage critical").

c. Server Statistics

- **Load**: How much work the server is handling.
- **CPU Stats**: How busy the processor is.

d. Status Grid

- **Green Circles**: Everything is working fine.
- **Red or Yellow Circles**: Indicate issues.

4. Monitoring Specific Hosts and Services

1. **Monitor Hosts**:
    - Go to the **Hosts** menu on the left.
    - You'll see a list of systems being monitored.

2. **Monitor Services**:
    - Click on a host to see details about the services being monitored, such as CPU usage or memory status.

Step 4: Exploring the Host Information Page

a. Top Section (Basic Host Details)

- **Host**: The system being monitored is named `localhost` (your own computer).
- **Member of**: This host belongs to the `linux-servers` group.
- **IP Address**: The host's IP address is `127.0.0.1` (this means it's your local system).

b. Middle Section (Host State Information)

This section shows the **current health and performance** of the host:

- **Host Status**: **UP** (green color) means the system is working fine.
- **Status Information**: Nagios checks if the system is alive using a "ping" command.
    - **No Packet Loss**: The system is responding properly.

- **Round-Trip Time (RTA)**: The time it takes for a message to go to the system and back is very fast.

- **Last Check Time**: The last time Nagios checked the system.
- **Next Check**: When the next check will happen.
- **Flapping**: Flapping occurs when a system repeatedly goes up and down. Here, it's stable (NO).
- **Active Checks**: Monitoring features like active checks and notifications are all **ENABLED** (green boxes).

c. Right Section (Host Commands)

You can perform actions for this host using these commands:

- **Locate Host on Map**: See the host's location on the network map.
- **Disable Active Checks**: Stop Nagios from checking this host automatically.
- **Re-schedule Next Check**: Force Nagios to check the host immediately.
- **Disable Notifications**: Turn off alerts for this host.
- **Schedule Downtime**: If you plan to shut down the host, use this to avoid unnecessary alerts.

Stopping Nagios

To stop Nagios, we need to stop the Docker container running it.

1. **Find the Container Name:** If you used the earlier command to start Nagios, the container name is `nagiosdemo`. If you're unsure about the name, follow these steps:
   - Open your terminal.
   - Type this command to see all running containers:

     ```
     docker ps
     ```

   - You'll see a list of containers. Look for the **CONTAINER NAME** column to find the container running Nagios (e.g., `nagiosdemo`).
1. **Stop the Container:** Use the following command to stop the Nagios container:

   ```
   docker stop nagiosdemo
   ```

- `nagiosdemo`: This is the name of the container. Replace it with the actual container name if it's different.

Step 2: Deleting the Nagios Container

If you no longer need Nagios, you can delete the container.

1. **Remove the Container:** Use this command to delete the container:

   ```
   docker rm nagiosdemo
   ```

   - This permanently deletes the Nagios container.
   - If the container is still running, you'll see an error. In that case, ensure you've stopped it first (Step 1).

Step 3: Deleting the Nagios Image

1. **Find the Image Name:** To see all Docker images on your system, type:

   ```
   docker images
   ```

   - Look for the **IMAGE NAME** column. You should see something like `jasonrivers/nagios`.

2. **Delete the Image:** Use this command to remove the image:

   ```
   docker rmi jasonrivers/nagios:latest
   ```

   - If the image is still being used by a container, you'll get an error. Make sure you've already deleted the container (Step 2).