

# Lab Creation Guide – OWASP Juice Shop with Nginx WAF

## 1. Installation of Docker

Before starting the lab, Docker must be installed on the host machine.

### Prerequisites:

- Windows 10 or Windows 11 system.
- At least 4 GB RAM and 10 GB free disk space.
- Internet connection to download Docker.

### Steps to Install Docker Desktop:

- Go to the official Docker website: <https://www.docker.com/products/docker-desktop>.
- Download Docker Desktop for Windows.
- Run the installer and follow the steps.
- During installation, enable WSL 2 if asked (Windows Subsystem for Linux).
- After installation, restart the computer.
- Open Docker Desktop and check if it is running.

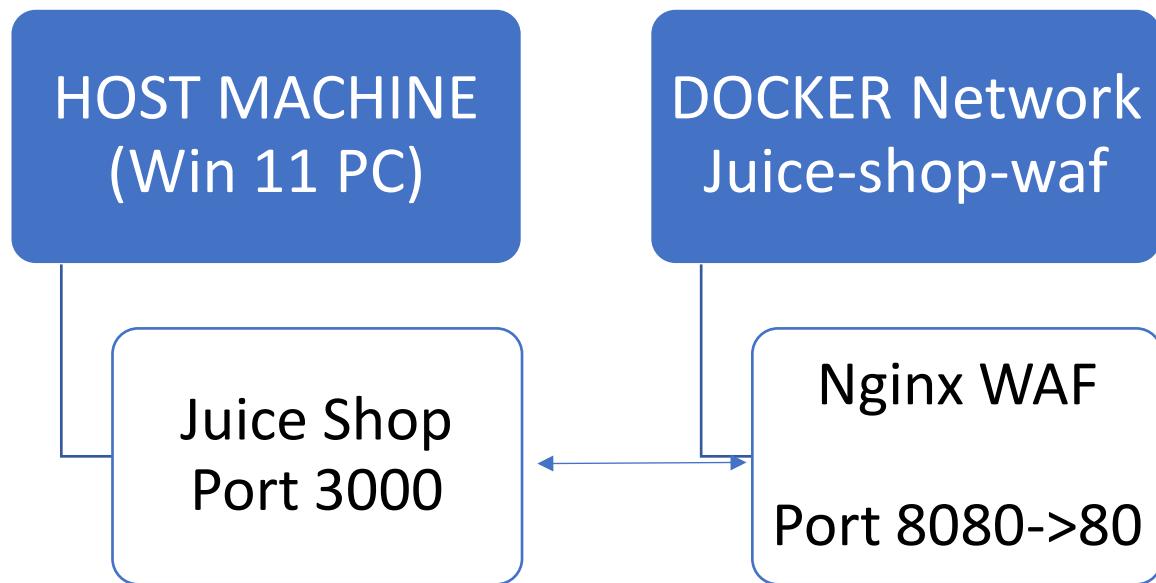
## 2. Infrastructure Documentation

This lab uses Docker to run two containers:

- Juice Shop: vulnerable web application.
- Nginx WAF: reverse proxy with ModSecurity.

Both containers run on a single host machine (Windows PC with Docker Desktop). They are connected through the default Docker network created by Docker Compose.

### 3. Network Diagram



#### Host Machine Ports:

- localhost:3000 → Direct Juice Shop.
- localhost:8080 → Juice Shop through WAF

### 4. Configuration Files Created

(Files are available in the Project repository)

- Docker Compose File
- Nginx Config
- Default Config

### 5. Credentials and Secrets

- Admin account: admin@juice-sh.op with weak password admin123.
- Credentials are stored inside the Juice Shop database. For lab documentation, passwords are shown only for demonstration. In real environments, they should be stored securely and redacted in reports.

## **6. Setup Steps**

- Create a folder C:\Projects\Juice-shop-waf.
- Inside the folder, create files:
  - docker-compose.yml
  - default.conf
  - modsecurity.conf
  - crs-setup.conf
- Open PowerShell in the folder and run:
- Verify containers are running using poweahell

### **Test access:**

<http://localhost:3000> : Direct Juice Shop.

<http://localhost:8080> : Juice Shop through WAF.

## **7. Versions Used**

- Juice Shop Image: bkimminich/juice-shop:latest
- Nginx WAF Image: owasp/modsecurity:nginx
- Docker Desktop: 29.1 or higher
- Docker Compose: v2

## **Conclusion**

This lab guide explains how to set up Juice Shop with Nginx WAF using Docker. It begins with Docker installation, then covers infrastructure documentation, a simple network diagram, configuration files, credential handling, and setup instructions. Following this guide, any student can reproduce the vulnerable environment and perform the attacks described in the attack report.