

# Hacking and Securing Docker Containers v2.0

**Duration:** 1 days (8hrs/day)

**Prerequisite:** -- This course starts from very basics and thus no Docker experience is required

## **Course Objective:**

This course introduces students to the security concepts associated with Docker. Docker is a popular software and it is widely used in Information Technology Industry. It's popularity also brings a larger attack surface and thus it is important to understand it's security aspects to be able to protect Docker containers.

**Lab Requirement:** -- Koenig DC

### ❖ **Module 1: Introduction**

### ❖ **Module 2: Fundamentals of Docker**

- What is Docker?
- Virtual Machines vs Containers
- Virtual Machine Download
- Lab setup
- Building your first Docker Image
- Running your first Docker container
- Images vs Containers
- How Docker Images are stored locally
- Control Groups
- Namespaces

### ❖ **Module 3: Hacking Docker Containers**

- Introduction
- Docker Attack Surface
- Exploiting Vulnerable Images
- Backdooring Docker Images
- Privilege Escalation
- Introduction to Container Breakout
- Introduction to docker.sock
- Container escape using docker.sock
- Introduction to --privileged flag
- Writing to Kernel Space from a container
- Writing a Kernel Space to get a reverse shell
- Accessing Docker Secrets

### ❖ **Module 4: Automated Assessments**

- Introduction
- Scanning Docker Images
- Auditing the Environment using Docker Bench Security

### ❖ **Module 5: Defenses**

- Introduction

- Apparmor Profiles
- Seccomp Profiles
- Capabilities
- Docker Content Trust