DevOps++ Alliance

Monitoring/ Operations
docker DATADOG
Nagios

07

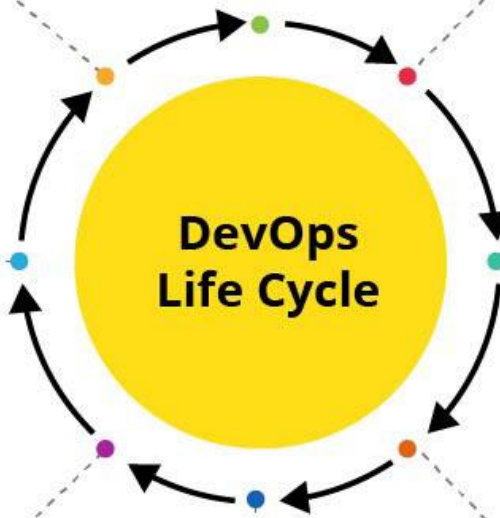Business Need/ Use Case
01
Product Owner

ated ent
06

DevOps Life Cycle

02
Software Development Team
Dev and Testing
eclipse Visual Studio

05

04
Automated Software Build
Bamboo Maven
Jenkins

03
Software CheckIn
GitLab git

Certified Professional DevOps Foundation
CP-DOF Certification Course

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DevOps++ Alliance

What is CP-DOF course?

CP-DOF stands for "Certified Professional – DevOps Foundation" certification prepared and honored by Agile Testing Alliance.

The course is applicable for all roles and knowledge, experience & certification is consciously designed all the roles in DevOps.

CP-DOF is the only globally recognized certification program which has the following key advantages:
- Completely hands on.
- 100% Lab/Tools Driven
- Covers all the tools in entire lifecycle
- You will not only learn but experience the entire DevOps lifecycle.
- Practical Assessment to help you solidify your learnings

The program covers end to end DevOps lifecycle using a complete tool chain. The program setup is provided through a sandbox where the participants get to learn the concepts by practicing exercises.

This is version 1.6 of the Learning Objective. There are two new additions to the program now.
a) Creation of custom docker image using Dockerfile
b) Push this custom image to Docker Hub
c) Use of GKE (Google Kuberenetes Engine) – deploying the custom image to GKE

How is it useful?

Leading organizations have adopted the DevOps approach to deliver in-time software. DevOps has quickly become the most hyped, overused and ambiguous term in IT. It is being used to reference everything from job titles (DevOps is not a job title!) to technology practices, but the truth is that DevOps is more of a culture than anything else. It is about transformation, about building quality in, improving productivity and about automation in Dev, Testing and Operations. DevOps is about breaking down silos and to increase communication and accomplish the tasks that require expertise in multiple areas.

CP-DOF enables you to learn DevOps fundamentals along with Continuous Integration and Continuous Delivery and deep dive into DevOps concepts and mind-set. It also helps you explore the possibilities in applying the concepts learned during the course using the most popular tools today

Am I Eligible?

There are no pre-requisites for this certification. Any IT professional interested in truly understanding DevOps can do this course. Little technical background is very helpful and is recommended.

Duration?

CP-DOF is designed specifically for corporates and working professionals alike. The program can be undertaken over 3 to 4 full days. The CP-DOF examination has two parts, a theory exam of 1 hour and a practical exam of 2 hours. The exam has to be taken on the last day of the training.

Background

DevOps and Agile are they connected or are they different. There are other similar areas which are topics of discussion. Agile Testing Alliance keeps on publishing community blogs which make a good read for someone who wants to pursue CP-DOF certification.

Here are few recommended blogs from the ATABlogs DevOps page.
(https://atablogs.agiletestingalliance.org/category/devops/)

1. DevOps and 40 years of Continuous Improvement in the Software Industry (https://atablogs.agiletestingalliance.org/agile-testing-alliance-news/devops-and-40-years-of-continuous-improvement-in-the-software-industry/)
2. Are DevOps and Agile same, different, friend or enemies ? (https://atablogs.agiletestingalliance.org/agile/are-devops-and-agile-same-different-friend-or-enemies/)
3. Continuous Improvement with DevOps (https://atablogs.agiletestingalliance.org/agile-testing-alliance-news/continuous-improvement-with-devops/)
4. In DevOps world, everything is connected (https://atablogs.agiletestingalliance.org/devops/in-devops-world-everything-is-connected/)
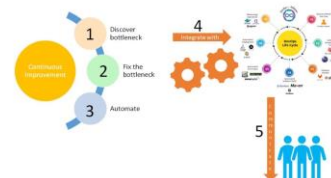
Course Coverage

- Welcome and Introductions, CPDOF Certification criteria
- Overview of DevOps, DevOps++ Alliance and certification portfolio

DevOps Fundamentals

- Recall Waterfall and Agile concepts
- Differences within Dev and Ops Teams
- DevOps and Agile – complementary concepts
- DevOps Definition and need
- DevOps history
- Shift left approach to Ops
- DevOps Principles
- Benefits achieved using DevOps, trends towards faster delivery
- DevOps Life Cycle and need of tools

Software Configuration Management (SCM)

- Purpose and Basic Concepts of SCM
- Main SCM Activities
- Need of SCM for testers
- SCM Tools – basic features
- SCM Tool Overview and usage - [Git, Github, GitLab]
- Features of GIT – concept, overview, three stages
- Linux, Vim , Git Exercise – using CP-DOF Case study
- Practice Git commands, Create Git account, Git Repository creation and usage
- Publishing to Github/Gitlab, modify, delete, track, check logs for git repositories
- Automated Software Build process

Maven – as a Build tool

- Maven Objectives and usage
- Maven Build Life Cycle and Goals
- Maven build file POM.xml and its configuration elements with example
- Basic Maven commands – practical using CP-DOF case study

Continuous Integration

- Need of CI, definition and usage
- Benefits and uses of CI
- CI Build ingredients
- Frequency of build, how to build and when to build
- Steps to CI success
- CI Workflow and Tools

- Continuous Integration/Delivery (CI) [Maven, Jenkins]

Continuous Integration using Jenkins

- Jenkins Overview and History
- Jenkins in CI/CD Workflow
- Continuous Delivery and Continuous Deployment
- Main features of Jenkins
- Setup, Building and Reporting using Jenkins
- Create Jenkins Jobs for building Maven project - practical using CP-DOF case study
- Artefact-ing.
- Repository Management [Git, (Artifatory]
- Best Practices Version Management and Control
- Automated Build using Jenkins
- Continuous Testing - CI at every Check-in
- Concept of TDD
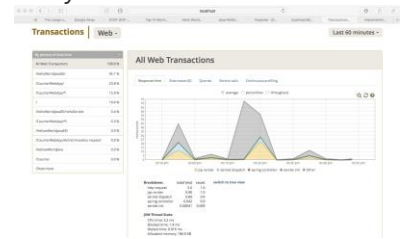
Automated Test Scripts – Static and Dynamic

- Unit Tests **- Junit Tests** setup for Java project- practical using CP-DOF case study
- Functionals Tests - **Selenium Test (Continuous Testing)**
- Definition of Done –need and examples
- Static Code Analysis using PMD

Checking Code Coverage [Cobertura]

- Setting up Cobertura Coverage Reports - practical using CP-DOF case study

Infrastructure Management – Docker, Ansible, Kubernetes

- Cloud Containers using Docker
- Docker Architecture and Overview
- Docker vs VM and benefits of Docker
- Docker images, containers and usage
- Docker commands - practical using CP-DOF case study
- Improved Deployment Process - Continuous Release / Deployment (CD) [Jenkins, Ansible]
- Infrastructure as Code
- Container Orchestration
- Micro-services
- Docker and Kubernetes (need of Container management software)
- Using Dockerfile to create custom docker image
- Pushing custom image to Docker Hub
- Deploying custom images to Google Kubernetes Engine

Automated Deployment Tool – Ansible

- Ansible definition and principles
- Ansible architecture

- Using Ansible to copy file to multiple linux hosts (using inventory and .yml files)
- Ansible yml file – deploy.yml overview
- Deploy using Jenkins Job and Ansible - practical using CP-DOF case study
- End-to-end project – configure, build, artefacting and deploying a project on docker container and on tomcat server -- practical using CP-DOF case study
- Anytime Deployable software building culture

JFrog Artifactory

Continuous Delivery

- Continuous Monitoring and Logging – overview
- Simian Army - (Simian Monkeys - Conformity, Janitor, Chaos)
- DevOps end-to-end pipeline and tool chain - Useful DevOps Tools Groups by category
- DevOps Jargon
- DevOps Anti-patterns
- DevOps Myths
- DevOps Culture/ Values
- Create and use Docker VM effortlessly

Continuous Monitoring

- CM using tools like Nagios

Tools Covered

Nagios®

- Jenkins
- Git
- Ansible
- Docker and Docker Hub
- Kubernetes and Google Kubernetes Engine
- JFrog Artifactory
- Cobertura
- Junit
- Selenium
- Maven
- Tomcat
- Nagios
- PMD

Disclaimer(s)

- **Certification exam is conducted by globally recognized body Agile Testing Alliance.**

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