

MOC 40500 A: DevOps Workshop - Supporting the Microsoft Professional Program

Course Summary

Description

This three-day Instructor-led workshop provides discussion and practical hands-on training of key DevOps strategies, including Continuous Integration and Continuous Deployment, DevOps Testing, and Application Monitoring and Feedback Loops. This workshop is a subset of the existing online MOOC content is intended to be used with the DevOps MOOC courses and provides students with an in-classroom experience with direct instructor feedback to better prepare students to pass the MPP.

You will be required to have an active Azure subscription, an active Visual Studio Team Services account, and a Github account. You will be provided an Azure Pass to create your Azure subscription, if you do not have an existing Azure subscription to use. If you do not have an active Visual Studio Team Services account, you can set up a free one online. The labs are intended to be used with your own accounts so that after the class you will still be able to access your work for a period of time.

Objectives

After taking this course, students will be able to understand:

- Key DevOps strategies, including Continuous Integration and Continuous Deployment, DevOps Testing, and Application Monitoring and Feedback Loops.
- Continuous Integration and Continuous Deployment with VSTS using PartsUnlimited sample application
- Continuous Integration and Continuous Deployment with Visual Studio team Services (VSTS) using the PartsUnlimitedMRP sample application
- Continuous Integration and Continuous Deployment with Jenkins using the PartsUnlimitedMRP sample application
- Testing with VSTS and Eclipse
- Creating and Running Unit Tests for Managed Code
- Application Performance Monitoring
- Auto-Scale and Load Tests
- Create a Coded UI Test
- Adding Application Insights Telemetry to a Website
- Managing User Telemetry
- Setting up Health and Performance Monitoring
- Customizing Reports and Adding Custom Telemetry Data
- Configuring Operations Management Suite to visualize Application Insights data

Topics

- Continuous Integration and Continuous Deployment
- DevOps Testing
- Application Monitoring and Feedback Loops

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Course Summary (cont'd)

Audience

This course is for IT professionals who are responsible for deploying and maintaining code in an efficient dependable manner through adoption of DevOps practices across medium, large, and enterprise organizations. Typically, this course's audience has some introductory experience with DevOps practices, and are looking to increase their knowledge level through a predominately hands-on experience with DevOps labs. This workshop is also beneficial for those interested in taking the Microsoft Professional Program for DevOps Capstone.

Prerequisites

This workshop is part of a larger series of courses offered on the practice of DevOps. While it is not required that you have completed any of the other courses in the DevOps series before taking this workshop, it is highly recommended that you start with the first course in the series, Introduction to DevOps Practices, so that you get a big picture view of DevOps before drilling down into specific methodologies. It is also recommended that you have experience working in Visual Studio or another IDE, as well as knowledge of Azure IaaS. However, students who may not have a technical background in these technologies, but who are curious about DevOps practices as a culture shift, should be able to follow the procedural and expository explanations in this workshop. To get the most from this Workshop it is recommended that you have experience working inside an organization that delivers software. Before taking this course, students need a fundamental knowledge of Microsoft Azure, Visual Studio Team Services, Git, and Visual Studio IDE. Students should have a basic understanding of version control and Agile software development process. Experience with software development and understanding of core development principles is also required.

Duration

Three days

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Course Outline

I. Continuous Integration and Continuous Deployment

Continuous Integration (CI) is the practice used by development teams to automate the merging and testing of code. Implementing CI helps to catch bugs early in the development cycle, which makes them less expensive to fix. Continuous Delivery (CD) is a process by which code is built, tested, and deployed to one or more test and production environments. Deploying and testing in multiple environments drives quality.

- A. Continuous Integration
- B. Continuous Delivery
- C. Continuous Deployment

Lab: Continuous Integration and Continuous Deployment Using PartsUnlimited

- Continuous Integration with VSTS
- Continuous Deployment with VSTS

Lab: Continuous Integration and Continuous Deployment Using PartsUnlimitedMRP

- Create a Continuous Integration Build
- Create a Continuous Deployment with Hosted agent
- Create a Continuous Deployment with Remote Agent

Lab: Continuous Integration and Continuous Deployment with Jenkins (self paced)

- Setup PartsUnlimitedMRP with Jenkins
- Create a Continuous Integration with Jenkins
- Create a Continuous Deployment with Jenkins

II. DevOps Testing

This module provides you with an overview of core testing concepts and guides you to implement a DevOps testing process using the features available in the Visual Studio family. You will learn about the different test types, including automated and manual tests. You will also learn how to create unit, integration, UI & exploratory tests. Finally, you will learn how to perform load testing and take advantage of some of the advanced features in Visual Studio to improve your tests.

- A. Unit Testing
- B. Integration Testing
- C. Functional Testing

Lab: Create and Run Unit Tests for Managed Code

- Testing with VSTS and Eclipse
- Create and Run Unit Tests for Managed Code

Lab: DevOps Testing: Web performance and Load Test

- Application Performance Monitoring
- Auto-Scale and Load Tests

Lab: Create a Coded UI Test

- Create a coded UI Test by Recording Actions and Adding Assertions

III. Application Monitoring and Feedback Loops

Monitoring is essential for DevOps teams to deliver at speed, get feedback from production, and increase customer satisfaction, acquisition, and retention. In this module you will explore application monitoring to understand monitoring, its benefits, and how monitoring can be used as part of a DevOps practice.

- A. Application Monitoring Practices and Principles
- B. Application Insights
- C. Log Analytics (Optional)

Lab: APM with Application Insights

- Add Application Insights telemetry to the Parts Unlimited Website

Lab: User Telemetry

- Add Usages Telemetry Metering
- Make Telemetry Metering Stage Specific
- Set Version Publish Annotations to Telemetry Graphs (Optional)

Lab: Health and Performance Monitoring

- Set Availability Ping Tests
- Create Multi-step Web Test
- Create Cloud Load Test
- Log Analytics with Application Insights (Optional)
- Explore Application Map (Optional)

Lab: Customize Reports and Add Custom Telemetry Data (Optional)

- Telemetry Data in Power BI

Lab: OMS (Optional)

- Setup OMS with Application Insights (Optional)
- Add SQL Data to the OMS Workspace (Optional)