

OO220 - Operations Orchestration 10.x Flow Development

Course Summary

Description

This four-day course introduces students to the essential concepts and usage of the HPE Operations Orchestration (OO) software along with some advanced features. OO is part of HPE Cloud Automation solutions.

Working with OO 10.x includes using OO Central, the OO runtime engine, to locate, run, monitor, and perform important administrative tasks and using OO Studio to author and deploy automated workflows. A flow is a set of actions linked by decision-making logic to automate tasks.

Other topics in the course include using the source control management (SCM) system, which is a useful tool for groups of flow authors to work collaboratively on projects. This course also covers creating operations and subflows using OO Studio. Furthermore, you learn about using XML processing and using JavaScript Object Notation (JSON). In addition, this course shows you how to configure emails for flows, use file system integration, and so on. The importance of documenting your development is being discussed. Finally, the course highlights the differences between 10.51 and the latest OO version 10.60.

The course consists of focused, task-oriented lectures, text, and a series of detailed hands-on labs to teach the course material to the student. The hands-on labs use version 10.51 of the software as well as version 10.60. This course supports the OO 10.x ASE certification exam.

Objectives

After taking this course, students will be able to:

- Run and manage automated workflows using OO 10.x
- Perform a wide range of system administration, monitoring, and management tasks using OO Central
- Author, maintain, document, and package new automated workflows using the OO Studio application
- Test and debug the flows locally and remotely
- Work with Looping and Iteration operations
- Apply parallel processing methods to your flows in OO
- Use responses, rules, and transitions to control flow run
- Use XML operations and XML filters for processing XML content in OO
- Work with JavaScript Object Notation (JSON) operations
- Use the file system content in the OO library
- Add email notifications to your flows

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Course Summary (cont'd)

Topics

- Course Overview
- Introduction to Operations Orchestration
- Flow Authoring
- Administration and Maintenance with OO Central
- Inputs
- Results and Filters
- Operations, Responses, Transitions, and Subflows
- Looping and Iteration Operations
- Parallel Processing
- Working with XML Processing
- Working with JavaScript Object Notation (JSON)
- Working with File Systems
- Working with Remote Debugging
- Working with Emails
- Working with the PowerShell Wizard
- Working with OO Shell
- Working with Source Control Management (SCM)
- HPLN OO Community
- Documentation
- New Features in 10.60

Audience

This course is designed for workflow developers, System Administrators, Automation Operators, DevOps integrators, and other personnel responsible for the implementation of HPE OO.

Prerequisites

To be successful in this course, you should have the following prerequisites or knowledge.

- Networking terms and concepts
- Web browsers and Telnet or SSH connection methods
- Different operating system environments

Duration

Four days

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Course Outline

- I. Course Overview**
 - A. Introductions
 - B. Class schedule and class logistics
 - C. Related courses
 - D. Documentation
 - E. Lab environment details
- II. Introduction to Operations Orchestration**
 - A. Describe OO and its key benefits
 - B. Explain the system and functional architecture of OO
 - C. Identify role-based privileges in OO
 - D. Discuss the key capabilities of OO
 - E. Describe collaborative development in OO
 - F. Define content packs, operations, and projects
 - G. Explain the improvements in OO 10.x
- III. Flow Authoring**
 - A. Describe the OO Studio flow authoring environment
 - B. Explain the components of the OO Studio application
 - C. Explain a flow and describe the main components of a flow
 - D. Explain the differences between:
 - 1. A flow and an operation in OO
 - 2. An operation and a step in OO
 - E. Author a simple flow
 - F. Test the flow in the OO Studio Debugger
 - G. Modify a flow and test the modified flow
 - H. Explain the purpose of OO Studio Debugger
 - I. Explore the panes in the Debugger window
- IV. Administration and Maintenance with OO Central**
 - A. Explain the role of OO Central in deploying automated workflows
 - B. Describe the OO Central UI
 - C. Deploy projects and dependencies
- V. Inputs**
 - A. Explain inputs and flow variables
 - B. Explain local and global variables
 - C. Define inputs in the Inspector window
 - D. Use input data flow options
 - E. Add, remove, replace, and disable inputs
 - F. Create and assign system properties to inputs
 - G. Use login credentials with a stored system account
 - H. Create and use a selection list as an input
 - I. Validate an input using a created system evaluator
 - J. Work with flow inputs
- VI. Results and Filters**
 - A. Explain how to use results to create flow variables that contain operation outputs
 - B. Use the Step Inspector window's Results tab to add results to steps
 - C. Use the Filter Inspector window to filter a result so only the data required by the flow is assigned to a result flow variable
 - D. Use assignment actions to specify which action is taken for assigning the final result
- VII. Operations, Responses, Transitions, and Subflows**
 - A. Explain how operations and subflows are used as steps in a flow
 - B. Create new operations
 - C. Modify operation properties
- D. Run flows, monitor progress, and evaluate results**
- E. Set flow permissions**
- F. View the dashboard and reports**
- G. Visualize a deployed workflow**
- H. Enable authentication and add local users**
- I. Set the security banner**

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Course Outline (cont'd)

- D. Define responses and response rules
 - E. Explain transition properties
 - F. Use subflows in a parent flow
 - G. Explain best practices for working with subflows
 - H. Assign step results in a subflow to output fields for use in the parent flow
 - I. Work with the Properties editor of a subflow
- VIII. Looping and Iteration Operations**
- A. Explain how OO handles iterations and related tasks, such as list compilation
 - B. Perform looping, iteration, and related tasks for the content in the OO library
 - C. Author a flow that uses iteration and list compilation
 - D. Create a flow that uses the counter operation
- IX. Parallel Processing**
- A. Explain the implementation of the following multi-processing methods in your flows:
 1. Multi-instance step
 2. Non-blocking step
 3. Parallel-split step
 - B. Describe how to handle flow data in multi-processing operations
 - C. Create flows that use a multi-instance step
 - D. Create flows that use a parallel-split step
- X. Working with XML Processing**
- A. List and describe the operations and filters available in OO for working with XML
 - B. Explain how to use iterative operations to compile data extracted from XML documents
 - C. Build a flow that validates and parses an XML document
 - D. Use XML filters to extract data from an XML document
- E. Build a flow that validates and parses XML data returned from a web service Simple Object Access Protocol (SOAP) inquiry
 - F. Use XSL Transform to represent XML as HTML
- XI. Working with JavaScript Object Notation (JSON)**
- A. Describe the concepts of JavaScript Object Notation (JSON)
 - B. Work with JSON in OO
- XII. Working with File Systems**
- A. Locate and use the file system (FS) content in the OO library
 - B. Differentiate between FS content of the cross-platform and Windows-only content
 - C. Write data to a file
 - D. Read and filter data
 - E. List the contents of a directory
- XIII. Working with Remote Debugging**
- A. Explain the need and benefits of remote debugging
 - B. Configure remote debugging:
 1. Explain the prerequisites for remote debugging
 2. Explain the remote debugging lifecycle
 3. Explain the permissions for remote debugging
 4. Add or edit OO Central server connections
 - C. Configure the proxy settings for debugging on a remote OO Central environment
 - D. Rerun a flow
- XIV. Working with Emails**
- A. Explain how to add email notifications to flows
 - B. Use content in the OO library to:
 1. Get email messages
 2. Send emails

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Course Outline (cont'd)

3. Generate a run report URL to include in the email notifications
4. Use Microsoft Exchange email
5. Use the PowerShell operation to interoperate with third-party Simple Mail Transfer Protocol (SMTP) providers

XV. Working with the PowerShell Wizard

- A. Explain the benefits and requirements of the PowerShell wizard
- B. Configure the PowerShell wizard and import flows
- C. Verify and debug the generated flows

XVI. Working with OO Shell

- A. Explain the HPE Operations Orchestration Shell (OOSH) utility
- B. Run commands using the OOSH utility
- C. Connect to an OO Central server using the OOSH utility
- D. Display the flow information using the OOSH utility
- E. Run a flow using the OOSH utility

XVII. Working with Source Control Management (SCM)

- A. Summarize the features of Source Control Management (SCM) in OO
- B. Set up an SCM repository:
 1. Create an SCM repository
 2. Create a local project
 3. Link OO Studio to the SCM repository
 4. Check out a repository
- C. Work with SCM:
 1. Add a project in SCM
 2. Commit changes to the SCM repository
 3. Update a workspace from SCM
 4. Lock and unlock OO content
- D. Explain additional functions of SCM

XVIII. HPLN OO Community

- A. Describe the HPLN OO Community
- B. Take part in Forum discussions
- C. Download the latest content packs
- D. Share your own developments

XIX. Documentation

- A. Describe the importance of documentation
- B. Generate documentation

XX. New Features in 10.60

- A. Describe the new HPE look and feel for OO
- B. Describe the new features in OO 10.60
- C. Upgrade an existing OO 10.x installation to 10.60