

Developing Rule Solutions in IBM Operational Decision Manager V8.10.5

WB404 (Classroom)

ZB404 (Self-paced)

Course description

This course introduces developers to IBM Operational Decision Manager V8.10.5. It teaches you how to design, develop, and integrate a business rule solution with Operational Decision Manager.

The course begins with an overview of Operational Decision Manager, which is composed of two main environments: Decision Server for technical users and Decision Center for business users. The course outlines the collaboration between development and business teams during project development.

Through instructor-led presentations and hands-on lab exercises, you learn about the core features of Decision Server Rules, which is the primary working environment for developers. You learn how to support your business users by setting up the rule authoring environment and object models that are required to execute rule artifacts. You also work with rule authoring so that you can support business users to set up and customize the rule authoring and validation environments. You learn how to manage ruleset deployment and execution, and work extensively with Rule Execution Server. And, you learn how Operational Decision Manager features support decision governance so that it can be implemented in your organization.

The lab environment for this course uses Windows Server 2016 Standard.

For information about other related courses, see the IBM Training website:

**ibm.com**/training

General information

Delivery method

Classroom or self-paced virtual classroom (SPVC)

Course level

ERC 2.0

Product and version

IBM Operational Decision Manager version 8.10.5

Audience

This course is designed for application developers.

Learning objectives

After completing this course, you should be able to:

* Describe the benefits of implementing a decision management solution with Operational Decision Manager
* Identify the key user roles that are involved in designing and developing a decision management solution, and the tasks that are associated with each role
* Describe the development process of building a business rule application and the collaboration between business and development teams
* Set up and customize the Business Object Model (BOM) and vocabulary for rule authoring
* Implement the Execution Object Model (XOM) that enables ruleset execution
* Orchestrate rule execution through ruleflows
* Author rule artifacts to implement business policies
* Debug business rule applications to ensure that the implemented business logic is error-free
* Set up and customize testing and simulation for business users
* Package and deploy decision services to test and production environments
* Integrate decision services for managed execution within an enterprise environment
* Monitor and audit execution of decision services
* Apply governance principles to decision management

Prerequisites

* Experience with the Java programming language and object-oriented concepts
* Knowledge of Java Platform, Enterprise Edition (Java EE)
* Basic knowledge of Extensible Markup Language (XML)
* Basic knowledge of the REST API and RESTful architecture

Duration

5 days

Skill level

Intermediate

|  |  |
| --- | --- |
| Classroom (ILT) setup requirements | |
| Processor | Intel Xeon CPU X7560 @ 2.27GHz 4 CPU |
| GB RAM | 24 |
| GB free disk space | 120 |
| Network requirements | None |
| Other requirements | None |

Notes

The following unit and exercise durations are estimates, and might not reflect every class experience. If the course is customized or abbreviated, the duration of unchanged units will probably increase.

This course is an update of the following previous courses:

* WB402: *Developing Rule Solutions in IBM Operational Decision Manager V8.10.0*

Course agenda

|  |
| --- |
| Course introduction  Duration: 30 minutes |

|  |  |
| --- | --- |
| Unit 1. Introducing IBM Operational Decision Manager  Duration: 1 hour and 15 minutes | |
| Overview | This unit introduces IBM Operational Decision Manager and describes the advantages of implementing a decision management solution in your organization. |
| Learning objectives | After completing this unit, you should be able to:   * Explain the purpose of decision management * Describe how the Operational Decision Manager architecture supports business and technical user roles and tasks * Map the various roles that are involved in a decision management solution to roles in your organization * Identify the need for governance |

|  |  |
| --- | --- |
| Exercise 1. Operational Decision Manager in action  Duration: 2 hours | |
| Overview | In this exercise, you see how the Operational Decision Manager modules work together to provide comprehensive decision management across the business and development environments. |
| Learning objectives | After completing this exercise, you should be able to:   * Explain the general workflow in Operational Decision Manager for working with business rule projects * Identify the Operational Decision Manager tasks that apply to your role in your organization |

|  |  |
| --- | --- |
| Unit 2. Developing decision services  Duration: 1 hour and 30 minutes | |
| Overview | This unit teaches you how to get started with development of decision services. |
| Learning objectives | After completing this unit, you should be able to:   * Identify the development tasks in building a decision management application * Describe how to set up a decision service in Rule Designer * Share and synchronize decision services between the business and development environments |

|  |  |
| --- | --- |
| Exercise 2. Setting up decision services  Duration: 1 hour and 45 minutes | |
| Overview | In this exercise, you learn how to set up decision services in Rule Designer. |
| Learning objectives | After completing this exercise, you should be able to:   * Create main and standard decision service projects * Set up the decision service to reference the execution object model (XOM) * Generate a business object model (BOM) and a default vocabulary * Create a decision operation * Define ruleset variables and ruleset parameters * Create rule packages * Synchronize decision services with Decision Center |

|  |  |
| --- | --- |
| Unit 3. Modeling decisions  Duration: 30 minutes | |
| Overview | This unit introduces decision modeling in Decision Center. |
| Learning objectives | After completing this unit, you should be able to:   * Explain when to use a decision model service * Describe how to model decisions |

|  |  |
| --- | --- |
| Exercise 3. Modeling decisions  Duration: 30 minutes | |
| Overview | This exercise demonstrates how to create and test a decision model service. |
| Learning objectives | After completing this exercise, you should be able to:   * Create a model diagram * Define the decision and data node structure * Create custom data types * Author business logic in decision modeling language * Test the model |

|  |  |
| --- | --- |
| Unit 4. Programming with business rules  Duration: 45 minutes | |
| Overview | This unit describes how the rule engine works and rule execution modes. |
| Learning objectives | After completing this unit, you should be able to:   * Describe rule execution * Explain rule execution modes and execution principles |

|  |  |
| --- | --- |
| Unit 5. Developing object models  Duration: 1 hour | |
| Overview | In this unit, you learn how to design the object models upon which rules are written and executed, and how to create the vocabulary that is required to author business rules. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the association between the BOM and the vocabulary that is used in rules * Define the XOM * Work with BOM-to-XOM mapping * Use refactoring tools to maintain consistency between the BOM and XOM |

|  |  |
| --- | --- |
| Exercise 4. Working with the BOM  Duration: 45 minutes | |
| Overview | This exercise describes how to create a BOM from a XOM. |
| Learning objectives | After completing this exercise, you should be able to:   * Generate a BOM from an existing XOM * Verbalize the BOM with natural-language vocabulary |

|  |  |
| --- | --- |
| Exercise 5. Refactoring  Duration: 45 minutes | |
| Overview | This exercise describes how to manage inconsistencies within the project as the XOM, BOM, and vocabulary evolve. |
| Learning objectives | After completing this exercise, you should be able to:   * Refactor vocabulary changes * Manage inconsistency issues after updating the XOM and BOM |

|  |  |
| --- | --- |
| Unit 6. Orchestrating ruleset execution  Duration: 45 minutes | |
| Overview | This unit describes how to orchestrate rule execution through ruleflows. You also learn about rule engine execution modes. |
| Learning objectives | After completing this unit, you should be able to:   * Design ruleflows to organize the execution of the rule artifacts in a ruleset * Configure how rules are selected for execution at run time * Explain rule engine execution modes |

|  |  |
| --- | --- |
| Exercise 6. Working with ruleflows  Duration: 45 minutes | |
| Overview | In this exercise, you learn how to create a ruleflow. |
| Learning objectives | After completing this exercise, you should be able to:   * Describe the parts of a ruleflow * Create a ruleflow * Orchestrate rule selection and execution through the ruleflow |

|  |  |
| --- | --- |
| Unit 7. Authoring rules  Duration: 1 hour and 30 minutes | |
| Overview | This unit teaches you how to author rule artifacts that implement the business logic and policies of a business rule application. |
| Learning objectives | After completing this unit, you should be able to:   * Describe rule languages * Use the various rule editors to author rule artifacts * Define the objects that rule artifacts manipulate |

|  |  |
| --- | --- |
| Exercise 7. Exploring action rules  Duration: 30 minutes | |
| Overview | In this exercise, you learn how to write action rules. |
| Learning objectives | After completing this exercise, you should be able to:   * Identify the parts of an action rule * Explain the difference between using automatic variables or rule variables |

|  |  |
| --- | --- |
| Exercise 8. Authoring action rules  Duration: 45 minutes | |
| Overview | In this exercise, you learn how to author action rules. |
| Learning objectives | After completing this exercise, you should be able to:   * Use the Intellirule editor and Guided editor to author action rules * Use rule variables, automatic variables, and parameters in rule statements |

|  |  |
| --- | --- |
| Exercise 9. Authoring decision tables  Duration: 45 minutes | |
| Overview | In this exercise, you learn how to author decision tables. |
| Learning objectives | After completing this exercise, you should be able to:   * Use the decision table editor to create a decision table |

|  |  |
| --- | --- |
| Unit 8. Customizing rule vocabulary with categories and domains  Duration: 1 hour | |
| Overview | This unit teaches you how to work with categories and domains to customize rule vocabulary. |
| Learning objectives | After completing this unit, you should be able to:   * Simplify rule authoring by using categories * Define domains |

|  |  |
| --- | --- |
| Exercise 10. Working with static domains  Duration: 45 minutes | |
| Overview | In this exercise, you learn how to simplify rule authoring by defining static domains in the BOM. |
| Learning objectives | After completing this exercise, you should be able to:   * Create various types of static domains * Use domains in rules |

|  |  |
| --- | --- |
| Exercise 11. Working with dynamic domains  Duration: 1 hour and 30 minutes | |
| Overview | In this exercise, you learn how to define and use dynamic domains with Microsoft Excel spreadsheets. |
| Learning objectives | After completing this exercise, you should be able to:   * Create dynamic domains in Microsoft Excel spreadsheets * Update and use dynamic domains in rules * Access and update dynamic domains in Decision Center * Synchronize dynamic domains between Rule Designer and Decision Center |

|  |  |
| --- | --- |
| Unit 9. Working with queries  Duration: 45 minutes | |
| Overview | This unit explains how to use search and query tools with rule artifacts. |
| Learning objectives | After completing this unit, you should be able to:   * Use search features and queries to identify rules according to specific criteria * Define semantic queries according to rule behavior * Use queries to create ruleset extractors |

|  |  |
| --- | --- |
| Exercise 12. Working with searches and queries  Duration: 30 minutes | |
| Overview | This exercise teaches you how to define queries and rule extractors on rule projects. You also learn how to synchronize queries between Rule Designer and Decision Center. |
| Learning objectives | After completing this exercise, you should be able to:   * Search for rule artifacts and find rules according to their dependencies * Define and run queries and apply actions on query results * Synchronize queries between Rule Designer and Decision Center |

|  |  |
| --- | --- |
| Unit 10. Debugging rulesets  Duration: 45 minutes | |
| Overview | In this unit, you learn how to verify that the implemented business logic is free of errors. |
| Learning objectives | After completing this unit, you should be able to:   * Use launch configurations to run and debug rulesets * Work with automatic exception handling * Work with Rule Designer debugging tools |

|  |  |
| --- | --- |
| Exercise 13. Debugging a ruleset  Duration: 1 hour and 30 minutes | |
| Overview | This exercise walks you through the steps of debugging a ruleset in Rule Designer. |
| Learning objectives | After completing this exercise, you should be able to:   * Use automatic exception handling * Set breakpoints in rules, decision tables, and ruleflows * Run a debugging session |

|  |  |
| --- | --- |
| Unit 11. Enabling tests and simulations  Duration: 1 hour | |
| Overview | This unit teaches you how to enable business users to run tests and simulations. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the basic features of testing and simulation * Collaborate with business users to set up testing and simulation |

|  |  |
| --- | --- |
| Exercise 14. Enabling rule validation  Duration: 1 hour and 15 minutes | |
| Overview | This exercise teaches you how to set up testing and simulation functionality for business users. |
| Learning objectives | After completing this exercise, you should be able to:   * Validate the BOM and generate scenario file templates * Customize scenario file templates * Validate remote testing conditions for business users in the Business console |

|  |  |
| --- | --- |
| Unit 12. Managing deployment  Duration: 1 hour | |
| Overview | This unit teaches you how to deploy and manage rule artifacts for execution in Rule Execution Server. It also covers how to use Ant tasks and the Build Command Maven plug-in for RuleApp management. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the principles for managing RuleApp and XOM deployment * Prepare deployment configurations * Build and deploy RuleApps outside of Rule Designer |

|  |  |
| --- | --- |
| Exercise 15. Managing deployment  Duration: 1 hour | |
| Overview | This exercise teaches you how to deploy rules and XOMs for managed execution with Rule Execution Server. |
| Learning objectives | After completing this exercise, you should be able to:   * Define a RuleApp and ruleset properties * Use deployment configurations to deploy decision services * Deploy the XOM for its management in Rule Execution Server * Build and deploy rulesets in the Decision Center API console |

|  |  |
| --- | --- |
| Unit 13. Executing rules with Rule Execution Server  Duration: 2 hours | |
| Overview | This unit explains how to create client applications that request the managed execution of business rules with Rule Execution Server. It also covers the various enterprise environments in which Rule Execution Server can run. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the Rule Execution Server architecture * Describe the platforms in which Rule Execution Server can be deployed * Explain the APIs that are used to create client applications that request ruleset execution with Rule Execution Server |

|  |  |
| --- | --- |
| Exercise 16. Exploring the Rule Execution Server console  Duration: 45 minutes | |
| Overview | This exercise teaches you how to work with the Rule Execution Server console. |
| Learning objectives | After completing this exercise, you should be able to:   * Work with Rule Execution Server console tools * Manage RuleApps and rulesets through the Rule Execution Server console |

|  |  |
| --- | --- |
| Unit 14. Working with transparent decision services  Duration: 45 minutes | |
| Overview | This unit teaches you how to work with transparent decision services and use the REST service for ruleset execution. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the options for using transparent decision services * Describe the REST service for ruleset execution * Expose a decision service as an API |

|  |  |
| --- | --- |
| Exercise 17. Executing rules using the REST service  Duration: 30 minutes | |
| Overview | This exercise teaches you how to retrieve HTDS description files and test ruleset execution by using the REST service. |
| Learning objectives | After completing this exercise, you should be able to:   * Retrieve HTDS description files * Test ruleset execution by using the REST service |

|  |  |
| --- | --- |
| Unit 15. Auditing and monitoring ruleset execution  Duration: 1 hour | |
| Overview | In this unit, you learn how to audit and monitor ruleset execution with Decision Warehouse. |
| Learning objectives | After completing this unit, you should be able to:   * Audit the execution of rulesets with Decision Warehouse * Monitor ruleset execution with the Rule Execution Server console |

|  |  |
| --- | --- |
| Exercise 18. Auditing ruleset execution through Decision Warehouse  Duration: 1 hour | |
| Overview | This exercise describes how to enable monitoring of ruleset execution and how to audit execution traces in Decision Warehouse. |
| Learning objectives | After completing this exercise, you should be able to:   * Enable monitoring for ruleset execution * Retrieve decision traces through Decision Warehouse * Optimize Decision Warehouse * Delete trace data from Decision Warehouse |

|  |  |
| --- | --- |
| Unit 16. Applying decision governance  Duration: 1 hour | |
| Overview | In this unit, you learn how to identify governance issues and use Operational Decision Manager features to support decision governance. |
| Learning objectives | After completing this unit, you should be able to:   * Explain governance issues and good practices * Identify Operational Decision Manager features that support decision governance * Describe how to implement the decision governance framework |

|  |  |
| --- | --- |
| Unit 17. Course summary  Duration: 30 minutes | |
| Overview | This unit summarizes the course and provides information for future study. |
| Learning objectives | After completing this unit, you should be able to:   * Explain how the course met its learning objectives * Identify IBM credentials that are related to this course * Locate resources for further study and skill development |

For more information

To learn more about this course and other related offerings, and to schedule training, see **ibm.com**/training

To learn more about validating your technical skills with IBM certification, see **ibm.com**/certify