

Developing Rule Solutions in IBM Operational Decision Manager V8.10

WB404 (Classroom)

ZB404 (Self-paced)

Course description

This course introduces developers to IBM Operational Decision Manager V8.10. It teaches you the concepts and skills that you need 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, which is the primary working environment for developers. You design decision services and work with the object models that are required to author and execute rule artifacts. You gain experience with deployment and execution, and work extensively with Rule Execution Server. In addition, you become familiar with rule authoring so that you can support business users to set up and customize the rule authoring and validation environments. You also learn how to use Operational Decision Manager features to support decision governance.

The lab environment for this course uses Windows Server 2012 R2 Standard Edition.

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 1.2

Product and version

IBM Operational Decision Manager version 8.10

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 rule 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
* Work with Operational Decision Manager features that support decision governance

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

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| Classroom (ILT) setup requirements | |
| Processor | Intel Xeon CPU E7-2860 @ 2.27GHz |
| 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 V8.9.2*

Course agenda

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| Course introduction  Duration: 30 minutes |

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| Unit 1. Introducing IBM Operational Decision Manager  Duration: 1 hour and 30 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 benefits of using Operational Decision Manager * Identify the need for governance * Map the various roles that are involved in a decision management solution to roles in your organization * Identify the tasks that are performed on various Operational Decision Manager modules, and which user roles perform them |

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| Exercise 1. Operational Decision Manager in action  Duration: 1 hour and 30 minutes | |
| 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 |

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| 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 |

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| Exercise 2. Setting up decision services  Duration: 1 hour and 30 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 |

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

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| Exercise 3. Modeling decisions  Duration: 1 hour | |
| Overview | This exercise demonstrates how to create, test, and deploy 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 the business logic in decision modeling language * Test the model * Export and import models from IBM Decision Composer * Deploy and run a decision model service |

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

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| 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 |

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| Exercise 4. Working with the BOM  Duration: 30 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 |

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| 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 |

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| 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 |

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| Exercise 6. Working with ruleflows  Duration: 30 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 |

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| Unit 7. Authoring rules  Duration: 2 hours | |
| 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 |

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| 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 |

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| 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 |

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| 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 |

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| 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 |

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| 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 |

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| 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 |

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| 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 |

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| Exercise 12. Working with queries  Duration: 45 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 |

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| Unit 10. Running and debugging  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 execute and debug rulesets * Work with automatic exception handling * Work with Rule Designer debugging tools |

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| Exercise 13. Executing rules locally  Duration: 30 minutes | |
| Overview | This exercise teaches you how to run rule projects locally to ensure the correctness of rulesets. |
| Learning objectives | After completing this exercise, you should be able to:   * Create launch configurations to run rulesets locally |

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| Exercise 14. Debugging a ruleset  Duration: 30 minutes | |
| Overview | This exercise teaches you how to debug 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 |

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| Unit 11. Enabling tests and simulations  Duration: 1 hour and 15 minutes | |
| 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 |

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| Exercise 15. Enabling rule validation  Duration: 1 hour | |
| 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 |

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| 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 |

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| Exercise 16. Managing deployment  Duration: 45 minutes | |
| 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 |

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| Exercise 17. Using Build Command to build RuleApps  Duration: 30 minutes | |
| Overview | This exercise teaches you how to work with the Build Command tool, which is a Maven plug-in, to build projects into RuleApps for deployment. |
| Learning objectives | After completing this exercise, you should be able to:   * Define POM files * Build a RuleApp archive from a set of projects |

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| Unit 13. Executing rules with Rule Execution Server  Duration: 2 hours and 15 minutes | |
| 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 |

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| Exercise 18. Exploring the Rule Execution Server console  Duration: 30 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 |

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| Unit 14. 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 |

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| Exercise 19. Auditing ruleset execution through Decision Warehouse  Duration: 45 minutes | |
| 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 |

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| Unit 15. Working with the REST API  Duration: 45 minutes | |
| Overview | This unit teaches you how to use the REST API for ruleset execution and how to work with API Connect. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the ruleset execution REST API * Expose a decision service as an API |

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| Exercise 20. Executing rules as a hosted transparent decision service (HTDS)  Duration: 1 hour | |
| Overview | This exercise teaches you how to execute rules as a hosted transparent decision service (HTDS). |
| Learning objectives | After completing this exercise, you should be able to:   * Retrieve a WSDL description and call the decision service in a generated client * View and test a ruleset in REST by using an OpenAPI in the Rule Execution Server console * Retrieve an OpenAPI description for API Connect, and run the decision service through API Connect |

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| Unit 16. Introducing decision governance  Duration: 1 hour and 30 minutes | |
| 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 |

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| 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 * Access the IBM Training website * Identify other IBM Training courses that are related to this topic * Locate appropriate resources for further study |

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

To stay informed about IBM training, see the following sites:

IBM Training News: http://bit.ly/IBMTrainEN

YouTube: youtube.com/IBMTraining

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Twitter: twitter.com/websphere\_edu