

COURSE ABSTRACT

Merative Cúram Express Rules for Developers 8.X

CUR099

Course Description

This training course provides students with a technical understanding of developing Cúram Express Rules (CER) for Merative Cúram.

Gaining a practical understanding of a complex area of the Cúram product such as CER is vital for anyone seeking to implement the Eligibility & Entitlement (and Decision Details) Rules that Product Delivery cases rely on. It is also invaluable for those seeking to develop Screening and Evidence Validation in Cúram, where CER can play a significant role.

In this course, students will also learn about the CER language and toolset, all the while developing muscle memory through real-world exercises in a bespoke Cúram Lab Environment.

General Information

Delivery Method: Classroom (Onsite or Virtual) with lab, Self-Paced with lab.

Audience: This course is intended primarily for developers and technical architects who will work on SPM implementation projects.

Topics: The course covers the following topics:

- The functions and features of CER.
- How to use CER rule elements to implement rule logic.
- How to configure, test, and debug CER rules using Developer tools.
- How to develop Eligibility & Entitlement Rules that a Product Delivery case invokes

- Creating and configuring Decision Details Rules and their associated Dynamic UIM Display Screens, used to render E&E results in the desired manner.

Learning Objectives: After completing the course, learners should be able to:

- Build Cúram Express RuleSets to determine Eligibility and Entitlement.
- Develop functioning RuleSets to display the Determination Results of the Eligibility and Entitlement Rules.
- Use Developer tools to configure, test, and debug rule sets.
- Access and interpret product guides for implementing CER rules.

Prerequisites: It is recommended that learners complete the following courses before taking this course:

- *Merative Cúram for Developers (ADE)*
- *Merative Cúram for Developers (Customization)*

Duration: 32 Hours

Skill Level: Intermediate to Advanced

Version: This course was last updated for Cúram 8.1.2. Please note, however, that it will apply to Cúram 8.X in general.

Notes

The course duration gives learners an estimate of how much time they need to allocate to the course. The course duration does not specify the actual time required to complete the course, which varies by learner. The course agenda shows the schedule for a classroom (ILT) delivery. Learners taking this course in a self-paced environment should allow more time for lab exercises.

Course Agenda

Unit 1 – Introduction to Cúram Express Rules

<u>Lesson 1: The Goal of CER</u> <u>Duration: 15 minutes</u>	
Learning objectives:	After completing this lesson, students should be able to: <ul style="list-style-type: none"> • Describe the business problems that CER is designed to address • Explain what CER is • Define the advantages of CER

Lesson 2. The Use of CER across the Cúram Platform

Duration: 15 minutes

Learning objectives:	After completing this lesson, students should be able to: <ul style="list-style-type: none">• Describe the functional areas of Cúram which use CER• Outline what CER does for these functional areas• Explain the significance of what CER produces
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Exercise 1. Universal Access' Use of CER

Duration: 15 minutes

Learning objectives:	After completing this exercise, students should be able to: <ul style="list-style-type: none">• Explore the Universal Access Screening RuleSet configuration
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Lesson 3. How Users interact with CER

Duration: 15 minutes

Learning objectives:	After completing this lesson, students should be able to: <ul style="list-style-type: none">• Describe which users are impacted by CER• Explain how CER impacts users during Evidence Validation• Explain how CER impacts users during Eligibility & Entitlement
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Unit 2 – CER Development Approach

Lesson 1. Key Developer Activities with CER

Duration: 30 min

Learning objectives:	After completing this lesson, students should be able to: <ul style="list-style-type: none">• List the main activities performed by CER developers• Describe the CER development approach• Outline the ways developers can work with Rulesets• Explain the functionality of the CER Editor• State the reasons for developing outside of the CER Editor
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Exercise 2. Using the CER Editor

Duration: 30 minutes

Learning objectives:	After completing this exercise, students should be able to: <ul style="list-style-type: none">• Build experience of using the CER Editor and its features• Understand its alternate Views and way of rendering RuleSets
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Lesson 2. Creating RuleSets by Hand

Duration: 45 minutes

Learning objectives:	After completing this lesson, students should be able to: <ul style="list-style-type: none">• Explain where rulesets belong in the directory structure• Describe how to define a new ruleset by using the schema• Explain the purpose and options of basic CER language elements:<ul style="list-style-type: none">◦ <Class>◦ <Attribute>◦ <type>• <derivation>
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Exercise 3. Create a new RuleSet

Duration: 30 minutes

Learning objectives:	After completing this exercise, students should be able to: <ul style="list-style-type: none">• Create a new RuleSet in Eclipse• Configure the RuleSet.xsd schema to help with editing

Lesson 3. Uploading and Testing RuleSets

Duration: 30 minutes

Learning objectives:	After completing this lesson, students should be able to: <ul style="list-style-type: none">• Explain how to validate rulesets• Describe how rulesets can be loaded into Cúram• Explain the differences between loading new and existing rulesets• Describe the approach to testing rulesets• Define and execute ruleset unit tests
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Exercise 4. Validating and Uploading RuleSets

Duration: 20 minutes

Learning objectives:	After completing this exercise, students should be able to: <ul style="list-style-type: none">• Validate your HelloWorld RuleSet• Load the HelloWorldRuleSet into the Cúram database
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Exercise 5. Writing Rules Unit Tests

Duration: 30 minutes

Learning objectives:	After completing this lesson, students should be able to: <ul style="list-style-type: none">• Generate Rule scaffold classes for your HelloWorld RuleSet• Test the RuleSet t by using the scaffold classes
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Lesson 4. Using RuleDoc and SessionDoc

Duration: 30 minutes

Learning objectives:	After completing this exercise, students should be able to: <ul style="list-style-type: none">• Describe what RuleDoc is• Outline how you use RuleDoc• Explain how to generate RuleDoc• Describe what SessionDoc is• State how you would typically use SessionDoc• Explain the value of defining a Rule description attribute and how to configure it
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Exercise 6. Generate RuleDoc

Duration: 15 minutes

Learning objectives: After completing this lesson, students should be able to:

- Build RuleDoc for your HelloWorldRuleSet

Exercise 7. Add a Rule Description and View the SessionDoc Output

Duration: 30 minutes

Learning objectives: After completing this exercise, students should be able to:

- Define a description value for your HelloWorld Rule Class and build SessionDoc to see the output

Unit 3 – How to implement logic in RuleSets

Lesson 1. Core CER Language Components

Duration: 40 minutes

Learning objectives: After completing this lesson, students should be able to:

- Describe the core Data Types in CER:
 - Boolean, Date, Number, String, Codetable, Rule Class
- Explain how to build rule logic using essential CER Expressions:
 - choose, compare, create, equals, arithmetic, reference, specified, this

Exercise 8. Code a Mathematical Expression

Duration: 45 minutes

Learning objectives: After completing this exercise, students should be able to:

- Add Attributes to HelloWorldRuleSet
- Generate Test Classes and write the Unit Test

Lesson 2. Using Static Java Methods

Duration: 30 minutes

Learning objectives: After completing this lesson, students should be able to:

- Describe the business case for calling static java methods
- Explain the technical principles of defining static java methods
- State the Rule syntax to use when calling static java methods

Exercise 9. Calculate Age from Date of Birth

Duration: 45 minutes

Learning objectives: After completing this exercise, students should be able to:

- Write a new static java method that works out someone's age based on their date of birth
- Invoke this function from your HelloWorldRuleSet
- Write a unit test to assess correct behavior

Lesson 3. RuleSet Inheritance

Duration: 15 minutes

- Learning objectives: After completing this exercise, students should be able to:
- Explain what inheritance means in CER
 - Demonstrate how to develop Rulesets that employ inheritance

Exercise 10. Subclass the HelloWorld Rule Class

Duration: 30 minutes

- Learning objectives: After completing this lesson, students should be able to:
- Create a new Rule Class that inherits from HelloWorld
 - Specify a description attribute **for the new Rule Class**
 - Review RuleDoc to check correct behavior

Lesson 4. Understanding and Using Timelines

Duration: 30 minutes

- Learning objectives: After completing this exercise, students should be able to:
- State the purpose of Timelines
 - Explain the operation of Timelines
 - Detail the available functionality for manipulating Timelines
 - Describe how to write unit tests for Timelined Rules

Exercise 11. Configure and Test a Timeline Attribute

Duration: 45 minutes

- Learning objectives: After completing this lesson, students should be able to:
- Add Timeline Attributes to the BraveNewWorld Rule Class
 - Write the Unit Test

Lesson 5. Best Rules Design Principles

Duration: 20 minutes

- Learning objectives: After completing this exercise, students should be able to:
- Outline how to organize rule logic to improve maintainability
 - Make use of Rule Inheritance to improve Rules design and maintainability
 - Successfully refactor logic into separate new rule classes

Exercise 12. Refactor the BraveNewWorld Rule

Duration: 45 minutes

- Learning objectives: After completing this lesson, students should be able to:
- Generate unit-test coverage reports
 - Outline useful tips and approaches for testing CER rules
 - List the essential CER build targets
 - Locate the Javadoc for the CER API

Unit 4 – Exploring CER, the Dependency Manager and Succession Sets

Lesson 1. The Dependency Manager

Duration: 45 minutes

Learning objectives: After completing this lesson, students should be able to:

- Briefly describe Rule Object Propagators
- Explain the reason for the Dependency Manager
- Outline the scope of the Dependency Manager
- Discuss how the Dependency Manager works
- Clarify interaction between CER and the Dependency Manager
- Compare use of the Dependency Manager Batch Suite with Cúram's Bulk Reassessment Batch Jobs

Exercise 13. Run Bulk Reassessment

Duration: 60 minutes

Learning objectives: After completing this exercise, students should be able to:

- Update the Sample Income Assistance Benefit Entitlement Rate and run Bulk Reassessment Batches to trigger the calculation of a new Case Determination

Lesson 2. Working with Eligibility & Entitlement Rule Objects

Duration: 45 minutes

Learning objectives: After completing this lesson, students should be able to:

- Explain how Rate Rule Objects operate and are used
- Describe the role of Entity Rule Objects and how they are created
- Discuss the nature of Active Succession Set Rule Objects

Lesson 3. Combining Succession Sets

Duration: 30 minutes

Learning objectives: After completing this exercise, students should be able to:

- Explain why combining SuccessionSet Rule Objects is helpful and which scenarios it applies to
- Describe how to use combineSuccessionSets to splice together Interval values from a list of Rule Objects into a single Timeline Attribute

Exercise 14. Create a Rule Class with the combineSuccessionSets expression

Duration: 45 minutes

Learning objectives: After completing this lesson, students should be able to:

- Create a rule class that consolidates a list of Timelines into one Timeline and run a unit test to check the consolidated Timeline

Unit 5 – Developing Rules for Product Eligibility & Entitlement

Lesson 1. What is involved in building E&E RuleSets

Duration: 20 minutes

Learning objectives: After completing this exercise, students should be able to:

- Describe the general approach Cúram provides for the use of framework Rules and how it works conceptually
- Explain what is involved in creating E&E Determinations

Lesson 2. Exploring E&E Framework RuleSets

Duration: 30 minutes

Learning objectives: After completing this lesson, students should be able to:

- Explain the purpose of the E&E framework rule classes needed to implement a Product:
 - Product Structure Rule
 - Objective Type Rule
 - Objective Tag Type Rule
 - Case Rule
 - Objective Timeline Rule
 - Tag Timeline Rule

Lesson 3. Developing Eligibility & Entitlement RuleSets

Duration: 60 minutes

Learning objectives: After completing this exercise, students should be able to:

- Outline the process of developing Eligibility & Entitlement rules for a Benefit Product
- Create Eligibility rules
- Create Entitlement rules

Exercise 15. Debug Eligibility & Entitlement

Duration: 60 minutes

Learning objectives: After completing this lesson, students should be able to:

- Add a new Family Income Support case
- Add evidence
- Run Check Eligibility
- Debug any problems that occur

Exercise 16. Use Rate-based Values

Duration: 60 minutes

Learning objectives: After completing this exercise, students should be able to:

- Add a new Family Income Support case
- Add evidence
- Run Check Eligibility
- Debug any problems that occur

Unit 6 – Decision Details RuleSets

Lesson 1. Overview of Developing Decision Details

Duration: 20 minutes

Learning objectives: After completing this lesson, students should be able to:

- Explain the purpose and behavior of Decision Details
- Provide an example of what Decision Details looks like
- Outline the Key Terms relating to Decision Details
- Explain the standard process to adopt for implementing Decision Details

Lesson 2. Creating the Display Rules

Duration: 30 minutes

Learning objectives: After completing this lesson, students should be able to:

- State the rules required to implement Decision Details
- Detail the hierarchy of rules classes to extend from
- Describe the rules and attributes required for a basic implementation

Lesson 3. Build the Dynamic UIM Screens

Duration: 30 minutes

Learning objectives: After completing this lesson, students should be able to:

- Describe what Dynamic UIM screens are typically required for implementing Decision Details
- Explain the differences between the Summary, Dropdown Pane and Subscreen Dynamic UIM screens
- Develop the Dynamic UIM screens for a basic implementation

Lesson 4. Configure the Rules DMX Files

Duration: 30 minutes

Learning objectives: After completing this lesson, students should be able to:

- Describe the DMX files and records required to implement Decision Details
- Explain the connection between the DMX files and Dynamic UIM screens
- Develop the DMX files for a basic Decision Details implementation, in raw file form as well as via the Admin Console

Exercise 17 – Configure Decision Details

Duration: 60 minutes

Learning objectives: After completing this exercise, students should be able to:

- Configure Decision Details Rules to support the UI needs
- Develop working Decision Details Dynamic UIM screens
- Configure the Curam application to use your RuleSet and Screens

