

## COURSE ABSTRACT

# Merative Cúram Express Rules for Developers (ADE)

9D94G

## Course Description

This self-paced course provides students with a technical understanding of developing Cúram Express Rules (CER) for Merative Social Program Management (SPM).

The course describes how to develop CER rules using the CER Application Development Environment (ADE) and covers the following topics: the CER editor; defining rule elements; CER development approach; testing and debugging CER rules; Timelines, and advanced CER features.

During the course, students will design and implement a simple end-to-end application using CER features.

## General Information

**Delivery Method:** 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 and Administrator tools.

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

- Select CER elements to implement rule logic.
- Use Developer and Administrator 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 SPM for Developers (ADE)*
- *Merative SPM for Developers (Customization)*

**Duration:** 24 Hours

**Skill Level:** Intermediate

**Version:** This course was last updated for Cúram V7.

## 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 exercises.

## Course Agenda

### Unit 1 - Function of CER Rules in SPM

#### Lesson 1 : Course Introduction

**Duration:** 5 minutes

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

- List the course objectives

#### Lesson 2. Rules in SPM

**Duration:** 30 minutes

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

- Explain what a rule is from a business and technical perspective
- Outline the use of rules by SPM products and services
- Outline the use of rules by other SPM applications
- List the SPM Modules and Solutions that use rules

#### Checkpoint Questions

**Duration:** 15 minutes

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

- Recall the key points from the lesson

### Lesson 3. Key Elements of Products

Duration: 15 minutes

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

- Describe the interrelationship between rules, products, and evidence

### Exercise 1-1. Execute Cúram Rules

Duration: 40 minutes

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

- Create a case and execute CER rules to determine Eligibility and Entitlement

### Lesson 4. What is CER?

Duration: 25 minutes

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

- Provide a brief description of CER and the CER environment
- Describe how CER is used to execute rules
- Outline the basic structure of a CER rule set

### Checkpoint Questions

Duration: 15 minutes

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

- Recall the key points from the lesson

## Unit 2 - Configuring Rules Using Basic CER Elements

### Lesson 1. General Approach for Developing CER Rules

Duration: 20 min

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

- Outline the recommended approach for developing CER rules
- Summarize the steps for developing CER rules
- List the development tools for implementing CER rules

### Exercise 1-2. Design a Simple Rule Set

Duration: 60 minutes

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

- Design rules for a simple piece of legislation

## Lesson 2. The CER Editor

Duration: 30 minutes

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

- Use the Administration application to maintain rules
- Describe the layout of the CER Editor
- Distinguish between the Business and Technical views of the CER Editor
- Use the main features of the CER Editor

## Exercise 1-3. Use the CER Editor

Duration: 50 minutes

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

- Use the Administration application and CER Editor to navigate a rule set and use the features of the Editor

## Lesson 3. Adding a Simple Boolean Rule

Duration: 30 minutes

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

- Outline the naming conventions for Rule Sets, Rule Classes, and Rule Attributes
- Describe how to configure Rule Classes and Attributes
- Explain the purpose of the Reference (Rule) element
- Configure AND, OR, NOT, and Reference elements

## Exercise 1-4. Create a New Rule Set

Duration: 40 minutes

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

- Implement rules for a simple product using AND, OR, NOT, and the Reference (Rule) elements
- Use the Business and Technical views to define and document rules

## Lesson 4. Adding Arithmetic and Selection CER Elements

Duration: 30 minutes

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

- Use the Compare element
- Use the Arithmetic element
- Use Choose...When...Otherwise elements
- Describe how to define a Decision Table
- Outline the use of the Codetable and Rate data types

### Exercise 1-5. Add Arithmetic and Selection Elements

Duration: 70 minutes

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

- Use the Arithmetic and Compare elements
- Create a new rule class
- Add a rule that uses the Choose, When, and Otherwise elements

### Lesson 5. Adding List Elements

Duration: 30 minutes

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

- Describe the purpose of lists in CER rules
- Describe the logic elements that can be applied to lists
- Explain the purpose of list transformation elements, such as Filter, Sort, and Fixed List

### Exercise 1-6. Use List Elements

Duration: 40 minutes

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

- Complete the implementation of the rules for the sample product
  - Create an attribute that is a list of Rule Classes
  - Use the Repeating Rule element
  - Use the Size element
  - Use the Sum element

## Unit 3 - CER Development Tasks

### Lesson 1. CER Development Overview

Duration: 20 minutes

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

- Outline the steps for designing, implementing, and testing a rule set
- Describe the environment and tools for developing rule sets
- Describe the test-driven development approach for implementing rules

### Checkpoint Questions

Duration: 15 minutes

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

- Recall the key points from the lesson

## Lesson 2. Publishing, Extracting, and Loading Rule Sets

Duration: 20 minutes

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

- State the purpose of publishing a rule set
- Describe how to extract a rule set and associated labels
- Describe how to load a rule set into the database
- Explain the purpose of RuleDoc and how to generate it

### Exercise 1-7. Publish, Extract and Load a Rule Set

Duration: 35 minutes

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

- Publish, extract, and reload a rule set

### Exercise 1-8. Generate Rule Doc

Duration: 15 minutes

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

- Generate RuleDoc for your rule set

## Lesson 3. Testing Rule Sets

Duration: 30 minutes

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

- List the Java classes created by the code generator from your rule sets
- Use the API to create sessions and rule objects
- Describe how to unit test rules at different levels
- List the types of changes to rule sets that require you to regenerate the Java classes

### Exercise 1-9. Test a Rule Set

Duration: 70 minutes

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

- Write and run a unit test to check the rule logic

## Lesson 4. Generating SessionDoc

Duration: 20 minutes

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

- Describe the output from SessionDoc
- Implement the Description attribute to identify your rule objects
- Generate SessionDoc from your test class

### Exercise 1-10. Generate Session Doc

Duration: 15 minutes

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

- Generate SessionDoc that includes the Description attribute

## Lesson 5. Code Coverage and Testing Tips

Duration: 15 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

## Exercise 1-11. Generate a Coverage Report

Duration: 15 minutes

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

- Generate a coverage report

## Unit 4 - Configuring Rules Using Advanced CER Features

### Lesson 1. Timelines

Duration: 60 minutes

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

- State the purpose of Timelines in CER rules
- List the CER elements that support Timelines
- Explain typical approaches for combining Timelines

### Exercise 1-12. Implement a Timeline

Duration: 70 minutes

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

- Implement a timeline that returns the number of items for a specified date

### Lesson 2. Accessing Attributes in Another Class

Duration: 15 minutes

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

- Configure initialization attributes
- Describe the use of the Create element

### Exercise 1-13. Access an Attribute Using an Anonymous Class

Duration: 30 minutes

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

- Add a new class containing initialization attributes and a derived attribute
- Execute the derived attribute from another class using an anonymous class

### Lesson 3. Calling Static Methods

Duration: 20 minutes

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

- Configure the CallOut element to invoke a static method
- Describe how to pass parameters from your rule to a static method
- List the API for creating Timelines from a static method
- Avoid problems when implementing static methods

### Exercise 1-14. Call a Static Method

Duration: 30 minutes

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

- Call a static class from your rules using the CallOut element

### Lesson 4. Using Inheritance

Duration: 15 minutes

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

- Describe how inheritance is implemented in CER
- Describe how to specify abstract classes and interfaces

### Exercise 1-15 – Investigate Inheritance in Out-of-the-Box Rules

Duration: 20 minutes

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

- Access infrastructure rule sets used for Eligibility and Entitlement to determine how inheritance is used

### Lesson 5. Additional CER Elements

Duration: 15 minutes

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

- Describe the Frequency Pattern and XML message data types
- Outline the purpose of the Legislation Change, Era, Search, Property, and Period Length and This elements
- Add the Period Length element to determine age from date-of- birth

### Exercise 1-16 – Add the Period Length Element

Duration: 30 minutes

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

- Use the Period Length element to determine age



## Lesson 6. CER References

**Duration:** 10 minutes

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

- List the main parts of the CER Reference Manual
- Access the CER Reference Manual to interpret rule samples in XML

## Exercise 1-17 – Interpret Expressions Using the CER Reference Manual

**Duration:** 30 minutes

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

- Access the CER Reference Manual to interpret CER expressions and interpret sample rules that are represented in XML format