**Developing Applications in IBM Business Process Manager Advanced V8.5.5 – I**

Description: 5300_IBMpos

**WB857 (Classroom)**

**ZB857 (Self-paced)**



Course description

This course teaches you how to use the tools in IBM Business Process Manager Advanced V8.5.5 to build and deploy process integration solutions.

IBM Business Process Manager Advanced V8.5.5 provides a comprehensive way to manage business processes by offering a suite of tools that support visibility, management, and automation with high quality of service. IBM Process Server and WebSphere Enterprise Service Bus support a service-oriented architecture (SOA) by providing a platform for using diverse technologies to integrate business applications. IBM Process Center provides a scalable central repository and control center for organizing and managing process artifacts, applications, and services. IBM Process Server is a high-performance business process engine that orchestrates services within an SOA, and WebSphere Enterprise Service Bus enables interaction between applications and services by using standards-based connectivity.

In this course, you learn the concepts, architecture, components, processes, and procedures that are required to develop and implement an integrated business solution by using a diverse set of WebSphere and IBM products. You learn how WebSphere Java EE Connector Architecture (JCA) adapters supply connectivity to enterprise information systems (EIS). You learn how IBM Process Server enables business integration applications to define business logic and processes based on Web Services Business Process Execution Language (WS-BPEL), and business rules.

You also learn how to use IBM Process Portal to collaborate with others to participate in processes and complete work efficiently. In addition, this course covers how WebSphere Enterprise Service Bus provides mediation services for integration applications.

In the intensive hands-on lab exercises, you design, develop, and test a comprehensive business integration solution. You use a standards-based process design tool, IBM Process Designer, as part of the authoring environment to rapidly compose a process design. You use the IBM Integration Designer tool to create business integration solutions by using the Service Component Architecture (SCA) programming model, the Service Data Objects (SDO) data model, and the mediation flow programming model. You then manage your processes in IBM Process Center and deploy the integration application to IBM Process Server.

The lab environment for this course uses the Windows Server 2008 R2 64-bit platform.

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

**ibm.com**/training

General information

Delivery method

Classroom or self-paced virtual classroom (SPVC)

Course level

ERC 1.0

Product and version

IBM Business Process Manager V8.5.5

Audience

This course is designed for system administrators, integration specialists, application developers, business process developers, support engineers, and technical sales and marketing professionals.

Learning objectives

After completing this course, you should be able to:

* Describe the purpose and business value of a service-oriented architecture
* Describe the purpose and business value of the tools included in IBM Business Process Manager Advanced V8.5.5: IBM Process Designer, IBM Integration Designer, IBM Process Server, IBM Process Center, IBM Process Portal, Business Space, and WebSphere Enterprise Service Bus
* Identify and describe the features that are available in IBM Process Designer, IBM Integration Designer, and the Service Component Architecture
* Describe the structure of modules and libraries
* Create business objects, shared interfaces, and business calendars
* Model a complex business process diagram in IBM Process Designer
* Create a complex business process that includes basic and structured WS-BPEL activities in IBM Integration Designer
* Use SCA bindings to communicate with web services
* Use WebSphere Java EE Connector Architecture (JCA) adapters in applications
* Implement data maps to transform business data
* Implement mediation modules to route and transform messages
* Implement business rules and use the Business Rules Manager web client to interact with business rules at run time
* Create a business space by using widgets and templates that are available for IBM Business Process Manager Advanced V8.5.5
* Create and run component test projects in IBM Integration Designer
* Bring the UTE Process Server online and connect with the Process Center
* Explore the IBM Process Center repository

Prerequisites

Before taking this course, you should have basic Java and Java Platform, Enterprise Edition (Java EE) skills and basic Extensible Markup Language (XML) skills. Successful completion of course WB814, *Process Implementing with IBM Business Process Manager Standard V8.5.5 - I*, is highly recommended, but not required.

Duration

5 days

Skill level

Basic

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| Classroom (ILT) setup requirements | |
| Processor | Intel Core i7-3630QM processor |
| GB RAM | 12 GB |
| GB free disk space | 120 GB |
| Network requirements | None |
| Other requirements | None |

Notes

The following unit and exercise durations are estimates, and might not reflect every class experience.

This course is an update of the following previous course:

* WB855, *Developing Applications in IBM Business Process Manager Advanced V8.5 – I*

Course agenda

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| Course introduction  Duration: 30 minutes |

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| Unit 1. Overview of IBM Business Process Manager V8.5.5  Duration: 1 hour and 15 minutes | |
| Overview | In this unit, you learn about the purpose, function, and business value of SOA, and apply SOA principles to business process management (BPM). The unit introduces the tools that are included with IBM Business Process Manager V8.5.5 Advanced edition. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the concepts of business processes and business process management (BPM) * Describe the IBM product editions * Describe the capabilities of IBM Business Process Manager V8.5.5 * Describe the purpose, advantages, and business value of using IBM Process Server and IBM Integration Bus |

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| Exercise 1. Exploring IBM Process Designer and IBM Process Portal  Duration: 1 hour and 30 minutes | |
| Overview | In this exercise, you use IBM Process Designer to review an existing business process diagram (BPD) and test the BPD by using the playback and inspector tools. |
| Learning objectives | After completing this exercise, you should be able to:   * Start IBM Process Designer * Open a business process activity in IBM Process Designer * Explore a business process in IBM Process Designer * Use the Playback feature to examine a running business process in IBM Process Designer Inspector * Use a coach to work with a running business process * Wire activities together in a business process * Start IBM Process Portal and explore its collaboration capabilities |

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| Unit 2. IBM Integration Designer overview  Duration: 1 hour and 15 minutes | |
| Overview | In this unit, you learn about the IBM Integration Development environment and how it relates to other IBM Business Process Manager V8.5.5 tools, such as IBM Process Designer and IBM Process Server. The unit also explains how to use the features of IBM Integration Designer. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the purpose and business value of IBM Integration Designer * Define the types of projects that are developed in IBM Integration Designer:   + Modules   + Mediation modules   + Libraries * Describe how to create and deploy applications in IBM Integration Designer |

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| Exercise 2. Exploring IBM Integration Designer, part I  Duration: 45 minutes | |
| Overview | In this exercise, you explore IBM Integration Designer and import the business process diagram that you created in the previous exercise. |
| Learning objectives | After completing this exercise, you should be able to:   * Describe IBM Integration Designer capabilities and preferences * Use the help menu to search for assistance * Use the Installation Manager to find product updates * Browse the Business Integration perspective and views * Examine the modules and libraries of a business integration project * Browse the IBM Integration Designer graphical editors * Use the IBM Integration Designer documentation capabilities * Use the Task Flows view |

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| Unit 3. Service Component Architecture overview  Duration: 1 hour | |
| Overview | In this unit, you learn about the service component architecture (SCA), its constituent components, and its relevance to SOA, BPM, and IBM Integration Designer. |
| Learning objectives | After completing this unit, you should be able to:   * Identify the purpose and business value of using SCA * Identify and explain the function of the individual parts of an SCA component * Define the concept of a service module and explain each of the service module components * Describe how to test SCA applications in IBM Integration Designer * Describe the features that are available in the IBM Integration Designer test environment |

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| Exercise 3. Exploring IBM Integration Designer, part II  Duration: 1 hour | |
| Overview | In this exercise, you use the IBM Integration Designer environment to explore various SCA components and examine them in the test environment. |
| Learning objectives | After completing this exercise, you should be able to:   * Assemble an SCA application * Examine project components * Explore staging projects * Use the IBM Integration Designer test environment * Enable cross-component tracing to examine a business process in testing * Deploy a library globally |

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| Unit 4. SCA bindings  Duration: 1 hour and 15 minutes | |
| Overview | This unit teaches you about SCA components and their bindings. You also learn how to use and implement web services in the SCA framework, specifically with IBM Integration Designer. |
| Learning objectives | After completing this unit, you should be able to:   * List the various types of SCA import and export bindings * Describe how SCA bindings facilitate integration with different types of applications * Describe how web services are used in the Service Component Architecture framework |

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| Exercise 4. Working with web services  Duration: 1 hour and 30 minutes | |
| Overview | In this exercise, you create an interface, import and export SCA components, and test a web service. |
| Learning objectives | After completing this exercise, you should be able to:   * Import an external Web Services Description Language (WSDL) file into IBM Integration Designer * Create an SCA component from a web service interface file * Use the integrated test client to test a web service * Use a web service export to expose an existing IBM Process Server application |

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| Unit 5. Business objects  Duration: 45 minutes | |
| Overview | This unit explains the Service Data Objects (SDO) architecture and framework, and how SDO is used in a solution. |
| Learning objectives | After completing this unit, you should be able to:   * Identify the purpose and advantages of using the SDO framework * Define the data object and data graph components of the SDO framework * Identify the purpose and advantages of using the business object framework * Define the business object and business graph components of the business object framework |

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| Exercise 5. Creating business objects and shared interfaces  Duration: 45 minutes | |
| Overview | In this exercise, you build business objects in IBM Integration Designer and compare them to the business objects that are employed in the business process diagram of IBM Process Designer. |
| Learning objectives | After completing this exercise, you should be able to:   * Compare business objects between IBM Process Designer and IBM Integration Designer * Implement business objects and define their elements * Implement interfaces that use business objects as inputs and outputs |

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| Unit 6. Business process choreography overview  Duration: 1 hour and 15 minutes | |
| Overview | This unit introduces you to Business Process Execution Language (BPEL) and business process development that uses the business process choreographer (BPC). |
| Learning objectives | After completing this unit, you should be able to:   * Describe the purpose and business value of using the WS-BPEL standard * Describe the function of the business process container * Describe the difference between long-running and microflow (short-running) business processes * List and describe the seven parts of a business process |

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| Exercise 6. Creating a business process, part I  Duration: 1 hour | |
| Overview | In this exercise, you build a basic business process with variables and reference partners. |
| Learning objectives | After completing this exercise, you should be able to:   * Create a business process * Implement WS-BPEL interface partners and reference partners * Create process variables * Compare business processes between IBM Integration Designer and IBM Process Designer |

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| Unit 7. Business process basic and structured activities  Duration: 1 hour and 15 minutes | |
| Overview | This unit describes the various types of activities in BPEL, including basic and structured activities. |
| Learning objectives | After completing this unit, you should be able to:   * List and describe the basic activities for business processes * Define each of the available structured activities for business processes |

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| Exercise 7. Creating a business process, part II  Duration: 1 hour and 15 minutes | |
| Overview | In this exercise, you implement activities to build upon their previous business process, and then compare that business process to the business process diagram that you employed in IBM Process Designer. |
| Learning objectives | After completing this exercise, you should be able to:   * Implement basic BPEL activities in a business process * Implement structured activities in a business process * Compare the BPEL to the BPD in IBM Process Designer |

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| Unit 8. Business process handlers, runtime behavior, and clients  Duration: 1 hour and 15 minutes | |
| Overview | This unit covers the handlers, clients, and runtime behavior of the BPEL process. |
| Learning objectives | After completing this unit, you should be able to:   * List and describe the available handlers and error-processing activities * Describe the runtime behavior of business processes * Describe the administrative options and types of client access that are available for business processes |

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| Exercise 8. Creating a business process, part III  Duration: 1 hour | |
| Overview | In this exercise, you implement handlers, data maps, and context variables to build upon your business process. |
| Learning objectives | After completing this exercise, you should be able to:   * Use data maps to transform process data * Use context variables to create a runtime process description * Assemble an SCA application that contains a business process * Test a business process in the IBM Integration Designer test environment |

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| Unit 9. Business rules  Duration: 1 hour | |
| Overview | This unit describes the purpose and function of business rules as an SCA component in IBM Process Server. You also learn about other IBM solutions, such as JRules, that can be used as business rule components. |
| Learning objectives | After completing this unit, you should be able to:   * Define the purpose and business value of using business rules * Describe the function of a rule group and list the rule group components * Define the concepts of rule sets and decision tables * Describe the runtime behavior of a rule group component * Identify the IBM Process Server administrative capabilities for importing, exporting, and auditing business rule changes in the runtime environment * Describe the support for JRules in IBM Integration Designer |

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| Exercise 9. Creating business rules  Duration: 1 hour | |
| Overview | In this exercise, you build a business rule group that contains rule sets and a decision table, which is then invoked from your business process. |
| Learning objectives | After completing this exercise, you should be able to:   * Create rule sets and decision tables that contain business rules * Create a rule group component * Incorporate a rule group component in an assembly diagram * Test a business rule group in the integrated test client * Use the Business Rule Manager web client to interact with business rules at run time |

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| Unit 10. Adapters  Duration: 45 minutes | |
| Overview | In this unit, you learn about WebSphere (JCA) adapters and how they are used to integrate solutions with other applications. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the purpose and business value of using adapters in applications * Describe the capabilities of WebSphere (JCA) adapters * List the advantages of using the JCA architecture for WebSphere adapters * Describe how to use the External Service wizard for WebSphere adapters |

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| Exercise 10. Implementing WebSphere (JCA) adapters  Duration: 45 minutes | |
| Overview | In this exercise, you configure a WebSphere adapter as part of a business process solution. |
| Learning objectives | After completing this exercise, you should be able to:   * Configure the WebSphere Adapter for Flat Files * Use the external service tool to generate artifacts that are used in an application * Incorporate adapter-related SCA artifacts in an assembly diagram * Test an adapter in the IBM Integration Designer test environment |

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| Unit 11. Developing mediation services  Duration: 1 hour | |
| Overview | This unit covers mediation services, mediation modules, service message objects (SMOs), and the relationship between IBM Process Server and WebSphere Enterprise Service Bus. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the role of mediation services in IBM Process Server and WebSphere Enterprise Service Bus * Define the concept of mediation modules * Describe how to create mediation flows in IBM Integration Designer * Describe the role of SMOs in mediations * Explain the structure of SMOs |

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| Exercise 11. Creating mediation services, part I  Duration: 1 hour | |
| Overview | In this exercise, you create a mediation module and build a simple XML data map. |
| Learning objectives | After completing this exercise, you should be able to:   * Create a mediation module that contains a Mapping primitive * Define an XML data map * Test a mediation module that contains a Mapping primitive |

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| Unit 12. Mediation primitives  Duration: 45 minutes | |
| Overview | This unit explores the various mediation primitives that are used in mediation flows. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the role of mediation primitives in mediation flows * Describe the prebuilt mediation primitives that are available for mediation flows |

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| Exercise 12. Creating mediation services, part II  Duration: 1 hour and 30 minutes | |
| Overview | In this exercise, you build a mediation module that contains message filter mediation. |
| Learning objectives | After completing this exercise, you should be able to:   * Create a mediation module that contains a message filter mediation primitive and a Mapping primitive * Define an XML data map * Test a mediation module that contains a message filter mediation primitive and a Mapping primitive |

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| Unit 13. Business Space  Duration: 45 minutes | |
| Overview | This unit explains the business value of Business Space and describes how you can use it to interact with content from products in the business process management portfolio. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the purpose and business value of Business Space * Describe the types of widgets that are available in Business Space * Describe the types of templates that are available in Business Space * Explain how to create and configure a new space in Business Space |

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| Exercise 13. Exploring Business Space  Duration: 1 hour and 30 minutes | |
| Overview | In this exercise, you explore the capabilities of Business Space by using templates, pages, and widgets. |
| Learning objectives | After completing this exercise, you should be able to:   * Create a space by using the Business Space client * Use the Business Space client to work with human tasks * Create a page and display content by using widgets and Business Space templates |

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| Unit 14. Advanced testing  Duration: 1 hour | |
| Overview | This unit describes the testing features that are available in IBM Integration Designer. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the advanced testing facilities that are available in IBM Integration Designer, including the Component Test Explorer and cross-component trace * Describe the Integration debugger * Define the purpose and function of the serviceDeploy tool * Describe how to use serviceDeploy in single-developer and multiple-developer environments |

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| Exercise 14. Using component tests  Duration: 1 hour | |
| Overview | In this exercise, you use component tests to test applications. You also use cross-component tracing to inspect SCA components. |
| Learning objectives | After completing this exercise, you should be able to:   * Create a component test project with an operation-level test case * Create a component test project with a scenario-based test case * Run component test project test suites in the IBM Integration Designer integrated test environment |

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| Unit 15. IBM Process Center  Duration: 1 hour | |
| Overview | This unit teaches you how to use IBM Process Center to deploy, test, and manage applications. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the purpose and business value of IBM Process Center * Define the components of IBM Process Center * Describe how to use the IBM Process Center Console to deploy, test, and manage BPM applications |

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| Exercise 15. Bringing the UTE Process Server online  Duration: 1 hour and 30 minutes | |
| Overview | In this exercise, you bring the UTE Process Server online and connect with the Process Center.. |
| Learning objectives | After completing this exercise, you should be able to:   * Verify the status of the connected Process Server * Run wsadmin commands for environment configuration * Exchange SSL certificates between Process Center and Process Server |

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| Exercise 16. Exploring IBM Process Center  Duration: 1 hour and 30 minutes | |
| Overview | In this exercise, you use the IBM Process Center repository to manage your applications. |
| Learning objectives | After completing this exercise, you should be able to:   * Explore the IBM Process Center repository * Create a BPM toolkit in IBM Process Center * Associate IBM Integration Designer artifacts with the toolkit * Generate access to process applications and toolkits * Archive and delete process applications |

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| Unit 16. Course summary  Duration: 15 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, visit **ibm.com/**training.

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

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

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