Recommended reading list: Service-Oriented Architecture and WebSphere Process Server

IBM Software Services for WebSphere
WebSphere Consultants
IBM Software Group

Learn about using Service-Oriented Architecture (SOA) and IBM® WebSphere® Process Server with this list of essential reading, compiled for customers, consultants, and other technical specialists by IBM Software Services for WebSphere.

Introduction

This list of recommended reading, compiled from a variety of sources by IBM Software Services for WebSphere, provides links to practical documents that focus on important topics related to developing and using Service-Oriented Architecture (SOA) and an Enterprise Service Bus (ESB). This list is updated periodically and is intended for customers, consultants, and other technical specialists interested in using and learning more about these areas.

How the list is organized

The items in this list are organized under these headings:

A. Architecture and key concepts
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C. Integration
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   3. Enterprise Service Bus
D. Migration
E. Security
F. Testing
G. Packaging
H. Performance and monitoring
   1. WebSphere Process Server
Recommended reading list: Service-Oriented Architecture and WebSphere Process Server

2. Common Event Infrastructure

I. Deployment
J. On demand computing

A. Architecture and key concepts

1. **Service-Oriented Architecture (SOA) from IBM**
   These pages provide an overview of service-oriented architecture (SOA) and resources from IBM to provide skills, software, and experience required to achieve business flexibility by using service-oriented architectures. This information prepares you to understand how WebSphere Process Server enables deployment of standards-based integration applications in a service-oriented architecture.
   http://www.ibm.com/soa/

2. **IBM Systems Journal issue on Service-Oriented Architecture**
   Service-oriented thinking is becoming popular in both the business and the information technology (IT) communities because it holds the promise of interoperability between heterogeneous systems, reuse of components, and flexible and efficient business processes. This issue of the journal contains 12 papers related to service-oriented architectures (SOAs). Topics covered include business aspects of SOAs, the IT development process for SOA implementations, and elements of the SOA infrastructure.

3. **A quick intro to WebSphere Business Process Management**
   Introducing WebSphere Business Process Management, IBM's new solution specifically designed to model, assemble, deploy, and manage applications with service-oriented architectures.

4. **Introducing the WebSphere Integration Reference Architecture**
   The IBM WebSphere Integration Reference Architecture enables organizations to take a service-oriented approach to integration and to avoid the pitfalls associated with traditional integration approaches. This paper explains how this complete and comprehensive architecture covers the breadth of integration needs within an enterprise.

5. **WebSphere Process Server: IBM's new foundation for SOA**
   WebSphere Process Server V6 is a next-generation business process server that supports all styles of integration based on SOA and open standards, and automates business processes that span people, workflows, applications, systems, platforms, and architectures. This article introduces the major WebSphere Process Server capabilities, features, and solutions, and provides references so you can learn more.

6. **Service-oriented modeling and architecture**
   This article discusses the highlights of service-oriented modeling and architecture; the key activities that you need for the analysis and design required to build a Service-Oriented Architecture (SOA). The author stresses the importance of addressing the techniques...
required for the identification, specification and realization of services, their flows and composition, as well as the enterprise-scale components needed to realize and ensure the quality of services required of a SOA.


7. Insight and outlook
IBM technical leaders answer pressing questions about IT architecture.
In this series:
   a. Part 1: Why and when should you choose SOA?
   b. Part 2: How do I translate business needs into IT requirements?
   c. Part 4: What's the best software to implement as a service if you're just starting SOA?
   d. Part 5: What is IT governance, and why should you care

8. Toward a pattern language for Service-Oriented Architecture and Integration
In this series:
   a. Part 1: Build a service eco-system
      As the IT industry matures, we will witness the emergence of more and more successful designs and implementations of Service-Oriented Architectures (SOA). We will also encounter challenges that appear to be recurring in slightly different forms but fundamentally have the same underlying problems. We also tend to repeat solutions with slight variations. To address this, the following patterns have arisen in the context of projects involving Service-Oriented Architecture (SOA) and Service-Oriented Integration (SOI). These projects have focused on the migration, modeling, design, and implementation of Service-Oriented Architecture and in the loosely-coupled integration enabled through services, which is termed Service-Oriented Integration. In this series, we will share these patterns and experiences related to their use. We will provide guidance on how to use them in combination to help solve commonly encountered problems in the migration, modeling, design, and implementation of SOA and SOI.
   b. Part 2: Service composition
      Explore the realm of patterns for Service-Oriented Architecture (SOA) and Service-Oriented Integration (SOI) and examine some of the fundamental concepts behind SOA and some key architectural decisions that you can make in creating a robust and flexible SOA. The author discusses the architectural decisions related to the notion of service composition, which is when the design of the service composition helps achieve flexibility through the use of services.

9. SOA antipatterns: The obstacles to the adoption and successful realization of Service-Oriented Architecture
Explore different Service-Oriented Architecture (SOA) antipatterns, which are descriptions of commonly occurring situations or solutions that generate decidedly negative consequences.
With more businesses taking major steps to move from Web services to SOA, barriers to the introduction, adoption, and successful implementations of SOA are becoming more evident. Documenting such barriers and worst practices will help consultants, architects and specialists not to repeat the same mistakes and learn how to avoid them instead.


10. **Patterns: SOA with an Enterprise Service Bus in WebSphere Application Server V6**
   This IBM Redbook focuses on how you can use the service-oriented architecture (SOA) profile of the Patterns for e-business to implement an Enterprise Service Bus in WebSphere Application Server V6.
   http://www.redbooks.ibm.com/abstracts/sg246494.html

B. Development

B1. Introductory

11. **Technical Overview of WebSphere Process Server and WebSphere Integration Developer**
    This IBM Redpaper is a technical introduction to WebSphere Process Server and WebSphere Integration Developer. Part of the WebSphere Process Integration family of products, WebSphere Process Server and WebSphere Integration Developer provide the core functionality for implementing a Service-Oriented Architecture (SOA) in an On Demand Business environment.
    http://www.redbooks.ibm.com/abstracts/redp4041.html

12. **WebSphere Business Integration Information Roadmaps**
    Lists of key resources for learning about specific products.
    In this series:
    a. **WebSphere Process Server Roadmap**
    b. **WebSphere Enterprise Service Bus Roadmap**
    c. **WebSphere Integration Developer Roadmap**
    d. **WebSphere MQ Roadmap**
    e. **WebSphere Message Brokers**

13. **WebSphere Education Role-based Skills Roadmaps**
    These role-based roadmaps will assist you by defining a path to acquiring skills for specific WebSphere product offerings. The roadmaps are based on skills required for specific job roles, such as developer, administrator, and architect, and therefore present educational opportunities that are most relevant to your actual job requirements.
In this series:
   a. **Service-oriented architecture**
   b. **WebSphere Integration Developer**
      #integration
   c. **WebSphere Process Server**
      #process

14. **IBM Education Assistant**
   This site integrates narrated presentations, Show Me Demonstrations, tutorials, and resource
   links to help you successfully use the IBM software products.
   http://www.ibm.com/software/info/education/assistant/
   In this series:
   a. **WebSphere Process Server and WebSphere Integration Developer V6.0.1**
      http://publib.boulder.ibm.com/infocenter/iedasst/v1r1m0/topic/com.ibm.iea.wpi_v6/
      wpswid/WPSWIDv601_Task.html
   b. **WebSphere Enterprise Service Bus V6.0.1 and WebSphere Integration Developer V6.0.1**
      http://publib.boulder.ibm.com/infocenter/iedasst/v1r1m0/topic/com.ibm.iea.wpi_v6/
      wpswid/WPSWIDv601_WESBTTask.html

15. **WebSphere Education Web-based Training**
   Web-based training courses are self-directed and self-paced. Each course is divided into
   modules so you can select and customize your course to your own educational requirements.
   Available Web-based training:
   a. **SW718: Design SOA Solutions and Apply Project, Technical, and Operational Governance**
      This course is the second of a suite of Web-based training courses designed to enable
      IT architects to participate in and evaluate service-oriented architecture (SOA) engagements.
   b. **SW861: Introduction to IBM WebSphere Enterprise Services Bus**
      The course teaches the features of IBM WebSphere ESB, the key architecture components in
      the product that enable the realization of these features, and the tooling available within IBM
      WebSphere Integration Developer to support the development, testing, and deployment of integration
      artifacts to IBM WebSphere ESB.

16. **WebSphere Technical Podcast Series**
   Join other busy developers and keep up-to-date on the latest trends in technology by taking
   advantage of the WebSphere Technical Podcast series, a new WebSphere developer resource on developerWorks. Focused on driving skills and adoption of Service-Oriented Architecture (SOA), the WebSphere Technical Podcast series features interviews with IBM technical experts.
B2. Service-oriented architecture

17. **Specifications: Service Component Architecture (SCA) and Service Data Objects (SDO)**
   In response to requests from customers and Independent Software Vendor (ISV) partners, IBM is jointly delivering two specifications for building systems that use a Service-Oriented Architecture (SOA), which aim to provide developers with simpler and more powerful ways of constructing applications based on SOA: Service Component Architecture (SCA) and Service Data Objects (SDO).

18. **SOA realization: Service design principles**
   Apply these principles to Service-Oriented Architecture design to help realize the vision of business agility through IT flexibility.

19. **Streamline SOA development using service mocks**
   Simplify SOA development -- especially if your project involves multiple teams -- and raise SOA application quality with use cases and mock objects.

20. **SOA programming model for implementing Web services**
   The IBM programming model for Service-Oriented Architecture (SOA) enables non-programmers to create and reuse IT assets without mastering IT skills. The model includes component types, wiring, templates, application adapters, uniform data representation, and an Enterprise Service Bus (ESB).
   In this series:
   a. **Part 1: Introduction to the IBM SOA programming model**
   b. **Part 2: Simplified data access using Service Data Objects**
   c. **Part 3: Process choreography and business state machines**
   d. **Part 4: An introduction to the IBM Enterprise Service Bus**
   e. **Part 5: Service-oriented user interfaces**
   f. **Part 6: The evolving component model**
   g. **Part 7: Securing service-oriented applications**
   h. **Part 8: Human-based Web services**
   i. **Part 9: Integrating rules with SOA**

21. **Security patterns within a service-oriented architecture**
This article aims to challenge the reader to think about security-as-a-service within an SOA. In this paper, we focus on an example of security as an infrastructure service in the context of an Enterprise Service Bus (ESB). We discuss the SOA architectural model and how the SOA principles can influence the definition of security as part of an overall service model, the benefits of a SOA based approach to security infrastructure components in a business environment and some typical patterns of the deployment of a SOA-security infrastructure.

http://searchwebservices.techtarget.com/originalContent/0,289142,sid26_gci1147321,00.html

22. **Modeling service-oriented solutions**
   The combination of the IBM Rational Unified Process Update for Service Oriented Architecture (RUP Update for SOA) and the Rational Software Architect implementation of the UML Profile for Software Services provides both a modeling approach as well as a set of best practices for the architecture and design of solutions based upon a services architecture model. This paper describes the background, scope, and some of the concepts behind this new capability.

B3. Process choreography

23. **Specification: Business Process Execution Language for Web Services**
   Business Process Execution Language for Web Services (WS-BPEL) provides a means to formally specify business processes and interaction protocols.

24. **Implementing a Workflow with WebSphere Process Choreographer**
   Applies to WebSphere Studio Application Developer Integration Edition V5.1
   In this series:
   a. **Part 1: Build and Test a Business Process**
      This article shows how to build and test a business process that contains several basic activities. This business process will call a simple Web service to accomplish some of the activities.
   b. **Part 2: Parallel Execution of Multiple Process Instances**
      Using a small business scenario, this article shows how use WebSphere Process Choreographer to build and test an asynchronous business process that requires parallel execution of multiple process instances. The business process invokes multiple child processes concurrently and waits for the desired response from the child activities.

   As part of WebSphere Process Server V6.0, Business Process Choreographer provides support for business processes and human tasks. It offers a way to model your business process based on the WS-BPEL specification, and to model interactions that involve humans, such as human-to-human, human-to-machine, and machine-to-human interactions. Both business processes and human tasks are exposed as services in a Service Oriented
Architecture. This Whitepaper introduces the programming model for processes and tasks provided by Business Process Choreographer.


26. Patterns: Building Serial and Parallel Processes with WebSphere Process Server V6
This IBM Redbook takes a scenario-based approach to building business process solutions using WebSphere Process Server, WebSphere Integration Developer, and the Patterns for e-business to demonstrate proven business process patterns.

http://www.redbooks.ibm.com/abstracts/sg247205.html

B4. WebSphere integration Developer

27. Get started with WebSphere Integration Developer
Learn how to use IBM WebSphere Integration Developer V6 by creating a business process, business state machine, and Java component for a simple application that uses a services-oriented architecture.


28. A guided tour of WebSphere Integration Developer
This series explores a service-oriented approach to application integration using IBM WebSphere Integration Developer.

In this series:

a. Part 1: Get a driver's view of the WebSphere Integration Developer landscape
This first article provides an overview of WebSphere Integration Developer and its key components and concepts.


b. Part 2: SOA development with WebSphere Integration Developer
This second article in a series explains the service oriented architecture (SOA) programming model and describes how to create a simple SOA application in WebSphere Integration Developer.


c. Part 3: Building a simple service-oriented application
Explore some of the basics of building an application using WebSphere Integration Developer.


29. Building SOA solutions with the Service Component Architecture
This series explores a service-oriented approach to application integration using IBM WebSphere Integration Developer.

In this issue:

a. Part 1: Oh great, another programming model?
With the release of IBM WebSphere Integration Developer and IBM WebSphere Process Server, comes a new programming paradigm for building service-oriented architectures (SOA) called the Service Component Architecture, a new programming model designed...
specifically for building and assembling business solutions in an SOA, and targeted for integrating and composing services.

b. **Part 2: Assembling SCA components**
Examine references and wires in the context of assembling Service Component Architecture components with IBM WebSphere Integration Developer.

**Part 3: Integrating SCA modules with imports and exports**
Build vertical integration solutions from a variety of components with the Service Component Architecture (SCA) and IBM WebSphere Integration Developer.

d. **Part 4: Integrating with JMS and Web services**
Learn how you can use JMS and Web services to integrate your SCA solutions with various types of systems.

30. **Team development with WebSphere Integration Developer and WebSphere Process Server: Developing applications using CVS**
Learn how to develop WebSphere Process Server applications and manage resources in a team-oriented CVS environment using WebSphere Integration Developer. This article identifies the artifacts needed for remote version control management, as well as the necessary procedures to develop applications with artifacts remotely managed in a team environment using WebSphere Integration Developer.

31. **Examining business objects in WebSphere Process Server**
Business objects are the primary mechanism for representing business entities, enabling everything from a simple basic object with scalar properties to a large complex hierarchy or graph of objects. A business object is a direct corollary to the Service Data Object (SDO) concept, and is a proper subset of the WebSphere Interchange Server business object concept. Rather than go through the SDO specification and the importance of WebSphere Process Server's business object, this article focuses on the XML aspects of the business object. It explains how a business object is defined, what best practices to follow, and how to create and validate a business object.

32. **Meet the Experts: Paul Pacholski on WebSphere Integration Developer**
This question and answer article features WebSphere consultant Paul Pacholski on WebSphere Integration Developer.
C. Integration

C1. J2EE components

33. Integrate EJB Services with WebSphere Process Server
   This article shows you how to use IBM WebSphere Process Server Version 6 and IBM
   WebSphere Integration Developer Version 6 to integrate existing J2EE applications without
   making changes to them.

34. Using Web services with WebSphere Process Server
   This article explains the key role of Web Service Definition Language and XML in IBM
   WebSphere Process Server and shows you how to use WebSphere Process Server to
   leverage Web service technologies.
   techarticles/0512_phan/0512_phan.html

C2. Business integration

35. Integrate WebSphere Business Integration Adapters with WebSphere Process Server
    Version 6
   In this series:
   a. Part 1: Application Event Notification (AgentDelivery) scenario
      WebSphere Business Integration Adapters create processes that exchange information
      with multiple Enterprise Information Systems. This series describes how to configure
      a business process in WebSphere Process Server and invoke it whenever an event is
      notified by the WebSphere Business Integration Adapter.
      techarticles/0601_reddy/0601_reddy.html
   b. Part 2: Synchronous Request Response (OutboundRequest) scenario
      Implement a simple Java component that sends a synchronous request message to the
      WebSphere Business Integration adapter and subsequently retrieves the response that
      is sent back to it. The Java code uses the programming interface provided by the Service
      Component Architecture in WebSphere Process Server.
      techarticles/0604_reddy/0604_reddy.html

36. Implement an inbound scenario over HTTP with WebSphere Partner Gateway and
    WebSphere Process Server
   Application developers with a fundamental understanding of WebSphere Process Server,
   WebSphere Partner Gateway, and WebSphere Integration Developer can use the scenario
   presented in this article to integrate WebSphere Partner Gateway with WebSphere Process
   Server using HTTP.
   techarticles/0512_kumar/0512_kumar.html

C3. Enterprise Service Bus

37. Simplify integration architectures with an Enterprise Service Bus
   Dispel the myths of an Enterprise Service Bus and learn how you can apply this architectural
   style to the implementation of Service-Oriented Architecture-based applications.
Why do developers need an Enterprise Service Bus?
It's not just for architects: Using an Enterprise Service Bus, the foundation of a Service-Oriented Architecture (SOA), makes life easier for developers, too.

Choose an ESB topology to fit your business model
Selecting the Enterprise Service Bus (ESB) topology that most closely matches the design of your business is an important step in applying service-oriented architecture (SOA) principles to achieve your business transformation goals. This step brings your IT infrastructure into alignment with your business design in light of your style of governance. Both the structure of the business and the company's approach to governance -- in other words, the placement of decision-making authority within the organization -- should dictate the visibility and management of ESB-enabled services. Choosing the ESB topology that best fits your business structure and governance approach maximizes business benefit. This article analyzes some multisegment ESB topology patterns in view of this paradigm and offers guidance to help you make this important choice.

Building a powerful, reliable SOA with JMS and WebSphere ESB
The Java Message Service (JMS) standardizes reliable messaging on the J2EE platform. The recently released IBM WebSphere Enterprise Service Bus (ESB) product offers functionality that is at the core of any environment based on a service-oriented architecture (SOA). This series will describe how to combine JMS and WebSphere ESB into a powerful combination for reliable SOA.
In this series:
   a. Part 1: Combining WebSphere ESB V6.0.1 and JMS
   b. Part 2: Creating a sample application for a common scenario
   c. Part 3: The WebSphere ESB mediation

Dynamic routing at runtime in WebSphere Enterprise Service Bus
Learn how to implement dynamic routing at runtime for Web services (SOAP/HTTP and SOAP/JMS) in IBM WebSphere Enterprise Service Bus Version 6.0.1.

Getting started with WebSphere Enterprise Service Bus and WebSphere Integration Developer
This article introduces developers to the IBM WebSphere Enterprise Service Bus server and its accompanying tooling, WebSphere Integration Developer. This article describes how to: 1) develop a mediation flow providing a basic Web service; 2) develop an intermediate flow, to connect to this service, with more complex routing logic provided by several of the pre-built mediation functions offered by the tooling; 3) deploy and test these flows using both the tooling test facilities and a standalone JSP-based front-end.
43. **Developing custom mediations for WebSphere Enterprise Service Bus**
   This article introduces the use of custom mediations using the WebSphere Integration Developer V6 environment for WebSphere Enterprise Service Bus V6. The article will walk you through the development of three types of custom mediations in a simple scenario.

44. **Patterns: Integrating Enterprise Service Buses in a Service-Oriented Architecture**
   This IBM Redbook focuses on how you can integrate Enterprise Service Bus (ESB) implementations in a service-oriented architecture (SOA). The book discusses patterns for integrating ESBs and includes step-by-step instructions for integrating ESBs implemented in WebSphere Business Integration Message Broker V5 and WebSphere Application Server V6. However, the ESB integration patterns and concepts apply to ESBs implemented with any product.

D. Migration

45. **Migrating WebSphere Business Integration Server Foundation V5.1.x projects to WebSphere Process Server V6**
   This article shows how to migrate a simple business process from WebSphere Studio Application Developer Integration Edition v5.1.x to the WebSphere Integration Developer v6.0 tooling environment. It also covers how to deploy and test that process in WebSphere Process Server v6.0. After reading this article, you will discover how the programming model has changed and how to create and wire the service types that were available in WebSphere Studio Application Developer by using WebSphere Integration Developer.

46. **Migrating WebSphere InterChange Server solutions to WebSphere Process Server V6**
   In this series:
   a. **Part 1: A simple migration example**
      This article explores the source artifacts migration capabilities provided in IBM WebSphere Process Server v6.0, specifically to support migration from WebSphere InterChange Server. It guides you through the migration of a simple WebSphere InterChange Server solution and the steps to test the migrated applications using the Visual Test Connector (VTC). A simple sample WebSphere InterChange Server solution demonstrates a successful migration with no required manual workarounds.
   b. **Part 2: Artifacts generated by migration**
      Part 2 of this article series explores the source artifacts migration capabilities provided in IBM WebSphere Process Server v6.0, specifically to support migration from WebSphere InterChange Server.
E. Security

47. **WebSphere Process Server Security Overview**
   This article provides an overview of how to secure a business integration system based on WebSphere Process Server v6.

48. **Defining a J2EE role on Service Component Architecture components with WebSphere Integration Developer 6.0.1**
   Service Component Architecture (SCA) lets you define policy and Quality of Service (QoS) by abstracting from underlying transports, without requiring programming or changes to the services implementation code. Two of the QoS qualifiers concern the security permission and the security identity for defining J2EE roles on an SCA component. This article describes how to define the security permission and the security identity on SCA components with WebSphere Integration Developer.

49. **Comment lines from Bill Hines: The (XML) threat is out there...**
   New technologies mean new types of attacks on systems and data. Knowing what kinds of attacks are possible is one step toward protect your environment from them. Another may be the implementation of a new type of hardware appliance like those available from DataPower.

F. Testing

50. **IBM Education Assistant: Integration Test Client**
   In WebSphere Integration Developer, you can test your modules and components using the integration test client. Any unimplemented components or unwired references are automatically emulated, which means that your modules do not need to be complete before you can perform your testing.

G. Packaging

51. **Introduction to packaging in WebSphere Process Server**
   IBM WebSphere Process Server V6.0 and IBM WebSphere Integration Developer V6.0 introduce advancements and extensions to the core J2EE and Java concepts underlie WebSphere Application Server and Rational Application Developer. This short article focuses on the packaging of application artifacts and executables within the V6.0.0 products.

52. **A case for SOA governance**
   Help your enterprise reap its true benefits by strengthening your awareness to the importance of SOA governance for an enterprise which has IT as one of its key organizations. The author
illustrates some key responsibilities of a governance body and concludes by showing you how you can effectively implement SOA governance.

53. Increase flexibility with the Service Integration Maturity Model (SIMM)
Increase flexibility in your Service-Oriented Architecture (SOA) when you apply the seven levels of maturity on the path to SOA adoption. Authors Ali Arsanjani and Kerrie Holley take you on a tour of the Service Integration Maturity Model (SIMM).

54. Versioning and dyanamicity with WebSphere Process Server
This article explores some simple scenarios that illustrate these issues and then shows how IBM WebSphere Process Server can be used to solve them by introducing key service-oriented concepts in the product and explain their purpose. This is an introductory article that assumes no knowledge about specific IBM products. However, some experience with application development projects or enterprise integration projects can be useful. It should be noted that this document does not attempt to provide a step-by-step guide to developing artifacts in WebSphere Process Server. Rather, it is intended to explain concepts and suggest areas for further study.

H. Performance and monitoring

H1. WebSphere Process Server

55. Problem determination in WebSphere Process Server
Testing business integration modules in IBM WebSphere Process Server using IBM WebSphere Integration Developer requires a good diagnostic approach that you can use to fix problems that prevent a module from working well. This article provides various recommendations that you can use to diagnose and fix these unexpected problems.

H2. Common Event Infrastructure

56. IBM Education Assistant: Common Event Infrastructure
Support for Common Event Infrastructure and Common Base Events enhances tracking, auditing and monitoring of business processes for applications running on WebSphere Process Server.

57. Specification: Common Base Event
The Common Base Event (CBE) specification defines a new mechanism for managing events in business enterprise applications and how to communicate self-healing events in the Autonomic computing model. (IBM's proprietary Common Event Infrastructure (CEI) emits CBE-compliant events.)

58. The Common Event Infrastructure: From technical preview to production
The Common Event Infrastructure was released as a technical preview in IBM WebSphere Business Integration Server Foundation V5.1 and provided developers with the ability to create and manage business and system events. With the release of the production-ready version in V5.1.1, you can now correlate and integrate information across systems using the Common Event Infrastructure.


59. **On demand business process life cycle, Part 7: Monitor business processes and emit events using CEI**

Applies to WebSphere Business Integration Server Foundation Version 5.1.1

Compare four different ways to emit events using the Common Event Infrastructure (CEI). The authors show you how to document the key performance indicators (KPIs) using IBM WebSphere Business Integration Modeler V5.1 and how to create the corresponding events in WebSphere Business Integration Server Foundation V5.1.1.


60. **Use the Event Catalog in the IBM Common Event Infrastructure**

See how the Common Event Infrastructure (CEI) Event Catalog builds on the foundation set by the Common Base Event specification in order to offer a higher-level of agreement for the applications exchanging event data through CEI.


61. **Configuring the Common Event Infrastructure using the WebSphere Administrative Console**

Developers can use the Common Event Infrastructure (CEI) to let applications send events to the server synchronously, asynchronously, in a new transaction, or in the current user's transaction. This article provides an overview of the configuration options for the CEI using the WebSphere Administrative Console.


62. **Use Common Event Infrastructure for business-level logging to improve business processes**

Information technology and infrastructure architects seeking to better understand how to apply the Common Event Infrastructure (CEI) to real world business applications will find the information in this article extremely helpful. This article helps you select and execute an overall business-level logging strategy that helps you improve your company's business processes and gets you to think about logging in a first-class way as we move towards more process-oriented and dynamic environments.


**I. Deployment**

63. **Monitor business IT services using IBM Tivoli Monitoring for Transaction Performance**

Business performance management (BPM) software can help you better manage your business operations. IBM Tivoli® Monitoring for Transaction Performance provides the ability
to manage IT services as part of a business performance management capability. These services can be exposed as Web services as part of a SOA or as components of a process model that leverage J2EE components. Tivoli Monitoring for Transaction Performance uses the Application Response Measurement (ARM) standard for data collection. In this article, learn about the Tivoli Monitoring for Transaction Performance management cycle and how to monitor a Web service deployed on IBM WebSphere Business Integration Server Foundation Version 5.1.1.


64. **Basic steps for clustering WebSphere Process Server**
Set up a basic clustered IBM WebSphere Process Server installation using a step-by-step approach for a simple, yet robust, clustered topology that addresses both availability and scalability.


### J. On demand computing

65. **Architecting on demand solutions**
Best practices for using the thirteen capabilities of the IBM On Demand Operating Environment.


In this series:

a. **Part 2: Use the Enterprise Service Bus to connect disparate applications**
This article examines a number of Enterprise Service Bus patterns that you see in today's products. Using a business scenario, it illustrates how to integrate a portal application, a CRM application, and a legacy application through a message-driven architecture. The Enterprise Service Bus provides connectivity and the transformation and routing of messages, as well as enables the use of multiple protocols.


b. **Part 5: Use BPEL and the Common Event Infrastructure**
In this article: You use IBM WebSphere Studio Application Developer Integration Edition 5.1.1 and WebSphere Business Integration Server Foundation 5.1.1 to enable Common Event Infrastructure (CEI). You learn how Business Process Execution Language for Web services (BPEL4WS) processes can send events to communicate information about those processes. Using two approaches, you also find out how process status, activity status, and business-specific data can be encapsulated in an event object and how those events can be consumed programmatically.


c. **Part 15: Use IBM WebSphere Integration Developer to assemble components**
In this fifteenth article in the series, you're introduced to IBM WebSphere Integration Developer V6.0, an Eclipse-based tool used for developing and assembling applications targeted for IBM WebSphere Process Server V6.0. By using this tool, you get a perspective of the Service Component Architecture (SCA), IBM's integration framework for Service-Oriented Architecture (SOA). Read this article to learn how to develop and test simple modules with Business Process Execution Language (BPEL) processes, business rules, and existing Web services.
d. **Part 17: Build a Hello World SOA application**

IT architects and developers are taking a life-cycle approach to Service-Oriented Architecture (SOA). IBM offers several enhanced products to support every stage of the SOA life cycle and to strengthen the SOA Foundation. But what are the practical steps you need to get started? In this article, the 17th in our series, you'll learn how to build your first Hello World SOA application.


e. **Part 18: Use IBM WebSphere Integration Developer to assemble components**

In Part 15 of this series, you were introduced to IBM WebSphere Integration Developer (Integration Developer) V6.0 as part of an insurance claim scenario. In this installment, you add human tasks, the steps in a workflow that require user action. You also find out how to include human tasks within your Business Process Execution Language (BPEL) process. And you also exploit WebSphere Portal V5.1.0.3 business process integration capabilities.


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Resources

- WebSphere Business Process Management Information Center
- IBM developerWorks SOA and Web services zone
- IBM developerWorks WebSphere zone
- Fee-based Web-based training
  - BI861: Understanding WebSphere Process Server and WebSphere Integration Developer
  - BI863: Integrating Using WebSphere ID and Process Server
- Blogs
  - Bobby Woolf: WebSphere SOA and J2EE in Practice
  - Ali Arsanjani: Best practices in service-oriented architecture
About the author

IBM Software Services for WebSphere

IBM Software Services for WebSphere is a team of highly skilled consultants with broad architectural knowledge, deep technical skills, best practices expertise, and close ties with IBM research and development labs. We provide worldwide support for WebSphere products to make it easy for clients and partners to design, build, test, and deploy solutions, helping you to become an on demand business.

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