



# BEA WebLogic Integration™

**Introducing BEA  
WebLogic Integration**

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# About This Document

This document provides an overview of BEA WebLogic Integration. First, this document outlines the integration challenges e-businesses face with the wide variety of systems used to power their enterprises. It then describes the application integration, business process management, and data integration functionality WebLogic Integration provides to integrate those business systems.

## Who Should Read This Document

This document is intended for the following members of an integration team:

- **Application Developer**—Provides in-depth knowledge of Java or other object-oriented programming languages.
- **Business Analysts**—Provide expertise in an organization's business processes, procedures, policies, business rules, and resources. The skills of business analysts include business analysis, process design and modeling, and operations knowledge.
- **Integration Specialists**—Lead the integration design effort. Integration specialists have expertise in defining the business and technical requirements of integration projects, and in designing integration solutions that implement specific features of WebLogic Integration. The skills of integration specialists include business and technical analysis, architecture design, project management, and WebLogic Integration product knowledge.
- **Technical Analysts**—Provide expertise in an organization's information technology infrastructure, including telecommunications, operating systems, applications, data repositories, future technologies, and IT organizations. The skills of technical analysts include technical analysis, application design, and information systems knowledge.

- Enterprise Information System (EIS) Specialists—Provide domain expertise in the systems that are being integrated using WebLogic Integration adapters. The skills of EIS specialists include technical analysis and application integration design.
- System Administrators—Provide in-depth technical and operational knowledge about databases and applications deployed in an organization. The skills of system administrators include capacity and load analysis, performance analysis and tuning, deployment topologies, and support planning.

## Contact Us!

Your feedback on the WebLogic Integration documentation is important to us. Send us e-mail at **docsupport@bea.com** if you have questions or comments. Your comments will be reviewed directly by the BEA professionals who create and update the WebLogic Integration documentation.

In your e-mail message, please indicate that you are using the documentation for BEA WebLogic Integration 8.1.

If you have any questions about this version of WebLogic Integration, or if you have problems installing and running WebLogic Integration, contact BEA Customer Support through BEA WebSUPPORT at **www.bea.com**. You can also contact Customer Support by using the contact information provided on the Customer Support Card, which is included in the product package.

When contacting Customer Support, be prepared to provide the following information:

- Your name, e-mail address, phone number, and fax number
- Your company name and company address
- Your machine type and authorization codes
- The name and version of the product you are using
- A description of the problem and the content of pertinent error messages

# Introduction to WebLogic Integration

BEA WebLogic Integration 8.1 is a new unified solution to integrating business systems within an enterprise. WebLogic Integration provides a development and run-time framework that unifies all the components of business integration—business process management, data transformation, trading partner integration, connectivity, message brokering, application monitoring, and user interaction—into a single flexible environment.

WebLogic Integration combines the divergent pieces of the business integration picture, including ERP, CRM, legacy applications, business users, supply chains, and trading partners, by providing a versatile development environment for delivering rapid business integration with simplified production and management.

These WebLogic Integration topics are discussed in the following sections:

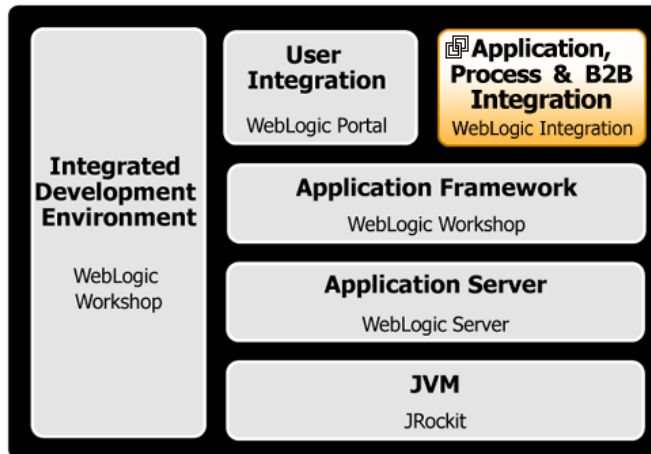
- [Integration Component of WebLogic Platform](#)
- [Unified Approach to Enterprise Integration](#)
- [Features of BEA WebLogic Integration](#)

## Integration Component of WebLogic Platform

WebLogic Integration is the *component* of the WebLogic Platform that provides functionality for businesses to use for developing new applications, integrating them with existing systems, streamlining business processes, and extending e-business infrastructure through portal gateways.

As shown in [Figure 1](#), the WebLogic Platform comprises multiple component products that you can use independently, or in combination, as required for your application.

**Figure 1 WebLogic Platform Component Products**



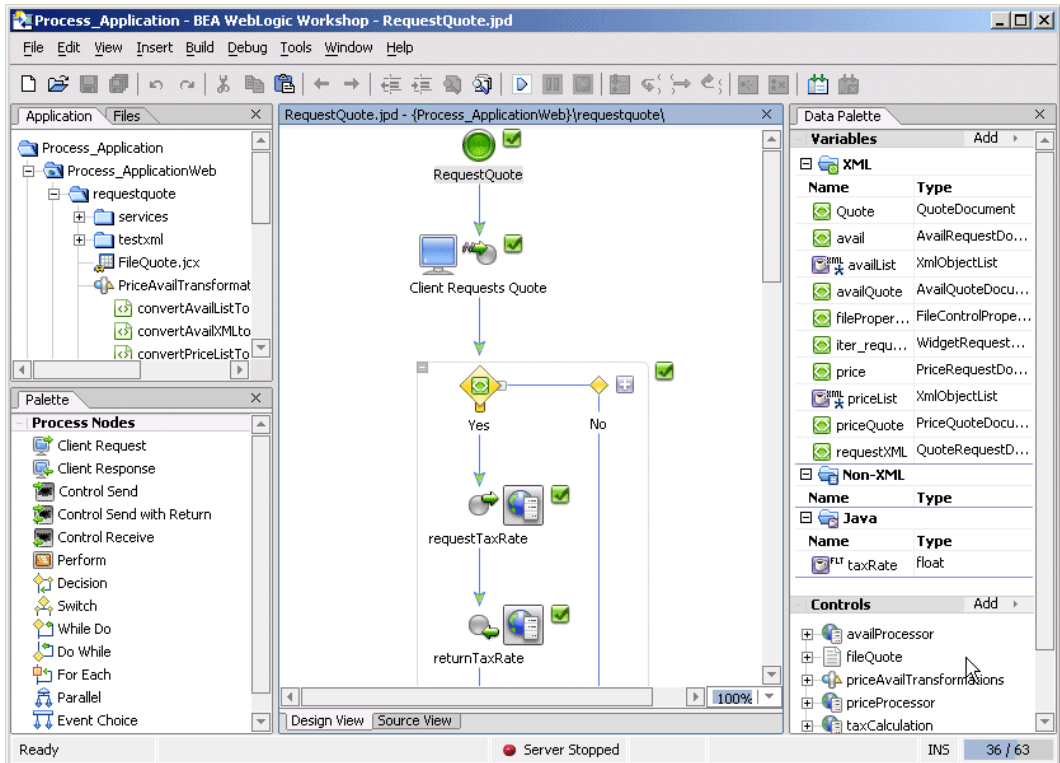
BEA WebLogic Server, the industry-leading J2EE application server, provides the critical infrastructure needed to develop integrated solutions, including security, transaction management, fault tolerance, persistence, and clustering.

Leveraging WebLogic Server as the underlying deployment environment, WebLogic Integration uses Web services to integrate distributed systems inside and outside an organization, and uses the BEA WebLogic Workshop framework to simplify application development.

As a seamless component of the WebLogic Workshop environment, WebLogic Integration uses all of the available resources for extending an integration application. As shown in [Figure 2](#), the graphical tools you use to edit your business processes are available in the same WebLogic Workshop environment as your controls, your Web services, and your portal-building tools.

Whether your starting point is business process integration (from business process modeling to integrating enterprise adapters), custom application development using robust Web services and controls, or developing a portal to provide employees, partners, and customers with an integrated view of applications and data, you have one environment to build your integrated enterprise application.



**Figure 2 WebLogic Integration Business Process in the WebLogic Workshop IDE**

## Benefits of a Common Application Framework

While WebLogic Integration provides all the elements of integration that you need, your integration project will encompass more. You will need to write application logic and expose business processes to the user. You will need to customize the user interface. You might need to build a Web-based application on top of your application. This is where the new unified platform provides an ease-of-use advantage. In the same framework and with the same resource interfaces, you can use Web services, access the J2EE layer for specialized application logic, and use NetUI and Portal resources to allow your users to interact with the business process. Once you build your integration application, you can stay within the IDE to build your user interface. You can use the JSP editor to create forms for data entry, and you can use Page groups to orchestrate the flow of information across multiple Web pages. You can use Portal to host your web interface

and customize the user experience. The WebLogic Workshop framework for development, integration and portal applications includes the following benefits:

**Table 1 Benefits of a Common Framework**

Feature	Benefit
Unified programming model	<ul style="list-style-type: none"> <li>• Event-driven programming model based on procedural logic development.</li> <li>• Control-based environment for constructing processes and abstracting resources.</li> <li>• Abstracts the low-level technical details of the J2EE APIs and back-end resources.</li> </ul>
Common look-and-feel	Visual development model provides a unified developer experience across the WebLogic Workshop, Integration, and Portal product components.
Annotated Java code model	<ul style="list-style-type: none"> <li>• Enables you to specify behavior and focus on handling events and calling methods, instead of writing complex code.</li> <li>• Provides meta data-driven application construction.</li> </ul>
Web services	<ul style="list-style-type: none"> <li>• Natively built, extended and integrated at the enterprise level.</li> <li>• Expose processes as Web services and invoke internal and third-party Web services from IDE components.</li> <li>• Implemented processes are automatically accessible as a Web service.</li> <li>• Follow Web services standards, such as Simple Object Access Protocol (SOAP) and Web Services Description Language (WSDL).</li> <li>• Accessed via XML messages.</li> </ul>
Common project and deployment model	Application encapsulation through J2EE mechanisms—EAR and WAR files.
<b>Controls</b>	
Simple visual components	<ul style="list-style-type: none"> <li>• High-level, easy-to-use interface represented as visual elements in the Workshop environment.</li> <li>• Behavior defined through methods, events, and properties.</li> </ul>

**Table 1 Benefits of a Common Framework**

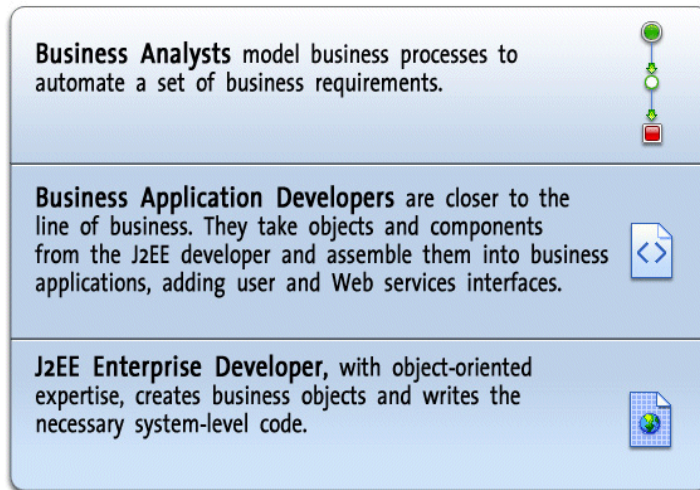
Feature	Benefit
Extensible architecture	<ul style="list-style-type: none"> <li>• Application artifacts built in WebLogic Workshop automatically become controls that can be reused anywhere within the environment.</li> <li>• Developers and ISVs can develop custom controls.</li> </ul>
Consistent mechanism for representing resources	<ul style="list-style-type: none"> <li>• Abstracts resource-specific details so that all resources look the same.</li> <li>• Reduces development learning curve.</li> </ul>
Composition	Controls can invoke other controls.
Java component with Java methods	Easier access to J2EE resources.
Complete access to J2EE API	J2EE developers can build the logic at the J2EE layer, package it as a control, and make it available to the application developer or integration specialist.

## Unified Approach to Enterprise Integration

Enterprises operate today in a diverse environment. They interact with a wide variety of clients, both inside and outside of the enterprise, and they rely on disparate systems and processes to power their business activities. In this kind of environment, businesses face an integration challenge. To fully maximize their resources, enterprises strive to bring together their internal systems and processes to gain operational efficiency, and they strive to extend those systems to increase revenue. Gaps exist between business integration needs and the tools available to fulfill IT requirements.

Traditional business process management tools are targeted at helping business analysts paint a high-level picture of integration. However, implementing that picture requires staff with scarce and expensive specialized knowledge of proprietary integration and deployment environments. WebLogic Integration provides the tools to create the visual models for an integration solution in the same highly productive environment that the architect and developer use to implement the solution. [Figure 3](#) illustrates the layers in the IT organization that must communicate to build an integration solution.

**Figure 3 WebLogic Integration Unifies the Different IT Layers Needed to Build an Integration Solution**



By providing access to enterprise resources—such as messaging, adapters, and integration controls coupled with business process modeling and data transformation—the WebLogic Integration environment equips IT staff with the means to quickly implement and bind business processes to IT resources without specialized knowledge of the deployment environment.

Within the WebLogic Workshop framework—with its robust Web services and controls architecture—WebLogic Integration supports a business process layer of abstraction and a common language for gathering requirements, validating implementation, and monitoring run-time execution. By bridging the gap between the development and integration environments, WebLogic Integration cuts through the accumulation of proprietary integration technologies and makes the integration effort easier and less costly.

WebLogic Integration optimizes enterprise integration by recognizing and reflecting the following design principals:

- **Loosely coupled integrations** are easier to maintain than traditional tight and rigid integrations.
- **Asynchronous communication** is critical to conducting and protecting business operations when communication goes down.
- **Coarse-grained communication** is key to maximizing the efficiency of typically high cost communication between loosely coupled systems.

With a common environment that recognizes that code must be written for integration solutions and that applications require integration to communicate, WebLogic Integration enables the re-use of technical skills across the entire life-cycle of building, integrating, and deploying, and maintaining applications. The following sections outline the key WebLogic Integration features available in the WebLogic Workshop environment.

## Features of BEA WebLogic Integration

WebLogic Integration provides a set of enhanced enterprise integration-specific capabilities within the Workshop environment that are designed for improved developer productivity. WebLogic Integration provides the following design-time and runtime integration features:

**Table 2 BEA WebLogic Integration Features**

Feature	Description
<a href="#">Business Process Management</a>	Enables users to model business process scenarios and orchestrate integration and automation in terms of business goals.
<a href="#">Data Transformation</a>	Transforms data from one format to another using simple drag-and-drop mapping. Allows any-to-any data transformation of incoming and outgoing data (in any combination of structured XML, non-XML, or Java data), transformation within a process flow, multiple input sources, and complex operations (such as joins, unions, and grouping by key fields).
<a href="#">Message Broker</a>	Provides rules-based message routing, using a channels-based publish-subscribe broker to transport events in a loosely-coupled manner. Enables high-performance and low latency message routing between applications.
<a href="#">WebLogic Integration Controls</a>	Enable non-experts to achieve rapid integration results by dragging and dropping simple component interfaces that represent the resources being integrated. Over a dozen pre-built, out-of-the-box controls are available for access to integration resources, such as database, file, HTTP, messaging, service broker, and human interaction with enterprise resources.

**Table 2 BEA WebLogic Integration Features (Continued)**

Feature	Description
Worklist System	Provides controls-based functionality that allows interaction from end users—such as task creators, task workers, and task administrators—to business processes for handling process exceptions, approvals, status tracking, and so forth. Includes centralized user and group management, as well as user rules and authorization for secure participation within processes.
Trading Partner Integration	Enables rapid, secure online-connection with suppliers and customers through leading standard protocols such as RosettaNet and ebXML, with secure messaging, digital signatures, and encryption, recoverable and trackable messages, and dynamic configuration updating. Accommodates a full range of partners—from full interaction and lightweight partner client (BEA WebLogic Integration - Business Connect) to zero weight client access via portal, browser, or FTP access. Management of trading partner profiles with streamlined import and export of configurations.
Application Integration and Adapters	Enables rapid, secure integration with enterprise applications using a modular, adapter-based framework. Application Views built using the Application Integration Design Console allow Workshop controls to access application events and services over pre-built BEA WebLogic Adapters as well as custom adapters.
Administration and Management	Administration Console provides integration-focused, life-cycle management of running business processes, deployed applications, message broker traffic, enterprise adapter health and usage, trading partner activity and parameters, and worklists, giving administrators full, unified, and secure visibility into the distributed integration environment.

The following sections provide more information about these WebLogic Integration components available in the WebLogic Workshop environment.

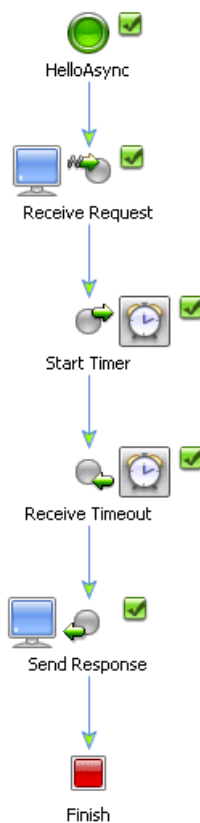
## Business Process Management

WebLogic Integration BPM allows the user to model and execute business processes that span multiple internal systems, external resources, and users. From the BPM perspective, the

enterprise is a set of business services that are accessed through controls that can be orchestrated to model a business process. WebLogic Integration supports synchronous and asynchronous communications, as well as stateless and stateful processes.

The business process engine combines flexibility with ease-of-use through visual tools that enable you to create business processes graphically, allowing you to focus on the application logic rather than on implementation details as you develop. In effect, you build a graphical representation of your business process. [Figure 4](#) shows an example of the visual business process editor.

**Figure 4 New Graphical Business Process Editing**



As you design business processes using the graphical tools (Design View) in WebLogic Workshop, WebLogic Workshop writes source code to a business process file (a JPD file).

When you do need to write Java code, it is always available with single click access (Source View). The business process management functionality of WebLogic Integration enables corporate developers to develop, run, and maintain complex e-business processes that integrate existing enterprise systems, cross-enterprise applications, and human decision makers.

The following table lists the key features of WebLogic Integration business process management.

**Table 3 Business Process Management Features**

Key Feature	Description
Unified access to resources through Controls	<ul style="list-style-type: none"><li>• View business activities as services and model the business process to orchestrate integration and automation.</li><li>• Business process seamlessly interacts with users, applications, back-end resources, and resources inside and outside the firewall.</li></ul>
New simplified structured business processes	<ul style="list-style-type: none"><li>• XML for the flow.</li><li>• Java for the operations.</li></ul>
Graphical business process editing for high-level integration scenarios	<ul style="list-style-type: none"><li>• Message-based, transformation routing.</li><li>• Business Processes are Java classes. Business process (JPD) files also contain the metadata that describes the business process logic.</li><li>• Two-way editing.</li></ul>
Support for Java code in business process nodes	One click away from Java coding.
Support for synchronous and asynchronous business process invocations	Allows messages (including synchronous starts) to be sent from external Java clients via Remote Method Invocation (RMI).
Process implementation optimization for performance	Support for: <ul style="list-style-type: none"><li>• stateless synchronous processes</li><li>• stateless asynchronous processes</li><li>• stateful asynchronous processes</li></ul>

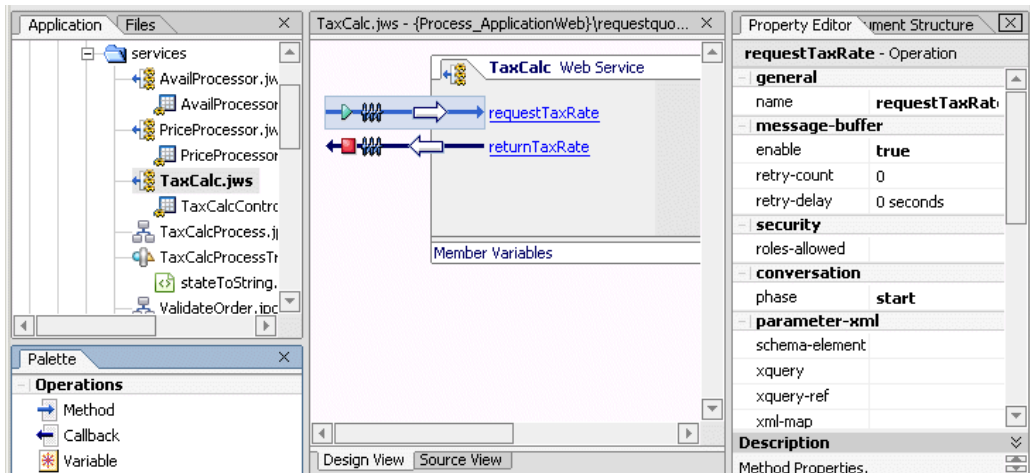


## Web Services Available as Business Process Resources

WebLogic Integration leverages Web services, asynchronous communication, and XML messaging at the platform level. At this level, these services can be used across internal and external integrations, giving application developers the tools to simplify development and integration of loosely coupled and asynchronous applications.

WebLogic Integration features native support for Web services, including Web service security and reliable messaging. Web services can be invoked from within a WebLogic Integration business process, and business processes can be exposed as a Web Service and made available as resources to other applications and application components. [Figure 5](#) shows a Web service invoked from a business process.

**Figure 5 Web Services Available as Resources to Integration**



## Data Transformation

Data transformation enables you to translate between XML, non-XML, and Java data formats, allowing you to rapidly integrate heterogeneous applications regardless of the format used to represent data. The data transformation functionality is available through a Workshop control, and data transformations can be packaged as controls and re-used across multiple business processes and applications.

In WebLogic Workshop business processes, XML data can be transformed using either XQuery expressions or eXtensible Stylesheet Language Transformations (XSLTs). While WebLogic Integration provides functionality for executing existing XSLTs in business processes, it also

offers a new and easier path to data transformation through XQuery, a standards-based query language with the familiar simplicity of SQL-like expressions and an easy-to-use data mapping tool.

WebLogic Integration features a powerful visual data mapping tool, the *XQuery Transformation Mapper*, that gives you the ability to generate complex transformations easily with a drag-and-drop simplicity combined with the power of XQuery functions and operators. [Figure 6](#) shows the XQuery Transformation Mapper. The mapper functionality of WebLogic Workshop enables the conversion of data of different types. For example, XML data can be transformed from XML data valid to one XML Schema to another XML document valid to a different XML Schema. In addition, untyped data can be assigned to typed variables, maps can include parameter names and custom Java classes, and maps display links implied from user-edited functions and structural relationships such as unions.

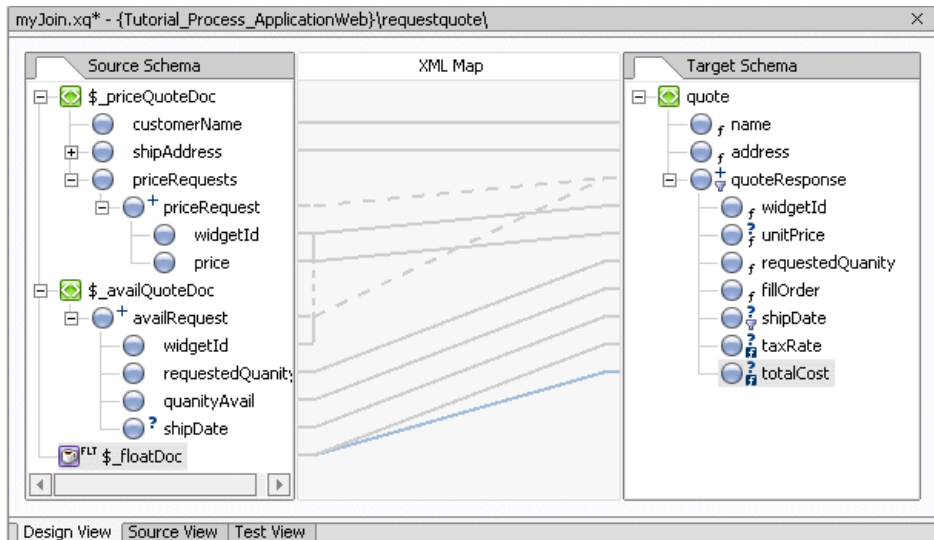
The following table lists the key features of data transformation.

**Table 4 Data Transformation Features**

Feature	Description
Data transformation	<ul style="list-style-type: none"><li>• Transformations packaged as controls that can be treated as resources and reused across multiple processes and integration solutions.</li><li>• Transformation of data between any of the following input-output data types: XML Data, Non-XML Data, Java Primitives, and Java classes.</li><li>• Allows multiple-input sources to a transformation.</li><li>• Supports complex relations and constraints including joins, unions, and grouping by key fields.</li><li>• Enables transformation of XML grammars.</li></ul>
Integration with business processes	<ul style="list-style-type: none"><li>• Enables the transformation of data in a business process using transformations written in XQuery or XSLT.</li><li>• Transforms data received as an incoming message into the business process.</li><li>• Transforms data before the business process sends an outgoing message.</li><li>• Transforms data inside the business process.</li></ul>

**Table 4 Data Transformation Features (Continued)**

Feature	Description
XQuery Transformation Mapper	<ul style="list-style-type: none"> <li>Provides visual modeling tool for transformation between any combination of XML, non-XML, and Java data formats.</li> <li>Enables the visual transformation of data from one format to another through drag-and-drop mechanism.</li> <li>Engages the power of XQuery functions and operators.</li> </ul>
Data transformation tutorial	Step-by-step tutorial that illustrates the use of business process actions for data transformation.
Format Builder tool	Enables creation of metadata to describe non-XML data.

**Figure 6 XQuery Transformation Data Mapper**

## Message Broker

WebLogic Integration implements a Message Broker that provides business processes with a channels-based publish and subscribe communication mechanism. This enables business processes to communicate in a loosely-coupled, anonymous manner using a business-naming paradigm. For example, a Purchase Order routing process can subscribe to the *New Order*

*Entered* channel and, as each new order message is published to that channel, the process is activated. Each business process can specify the channels to which it publishes and subscribes.

Publishers can broadcast messages without knowing who is going to receive them. The consumers of these messages can be any one of several different types of listeners. Consumers, such as business processes and other back end resources, can subscribe to Message Broker channels. In this way, the Message Broker facilitates a loosely coupled interface. At run time, you can add new publishers and new subscribers.

The Message Broker supports Event Generators that can publish events from external sources to Message Broker channels. WebLogic Integration supports File, JMS, Email, and Timer Event Generators. WebLogic Integration adapters, hosted in the Application Integration framework, publish events from packaged applications to channels.

**Table 5 Message Broker Features**

Feature	Description
Publish and Subscribe	<ul style="list-style-type: none"> <li>• High-performance throughput.</li> <li>• Channels via event generators—Business processes dynamically subscribe to Message Broker channels via controls. Business Processes can also specify static subscriptions to channels at the Start node. In this case, a business process is started when it receives a message from a Message Broker channel to which it is subscribed. You can specify an asynchronous or synchronous static subscription.</li> <li>• Subscriptions can start a new business process or be used within a running business process to block a message.</li> <li>• XQuery filters refine message selection on subscription.</li> </ul>
Message Broker Channels	<ul style="list-style-type: none"> <li>• Static and dynamic binding to channels.</li> <li>• Channel typing explicitly defines the structure of the message that the channel can route.</li> <li>• Defined channel-naming hierarchy.</li> <li>• Event Generators publish messages to channels from external sources.</li> <li>• Dynamically bind Event Generators to channels at run time using WebLogic Integration Management Console.</li> <li>• WebLogic adapters can publish events to channels.</li> </ul>

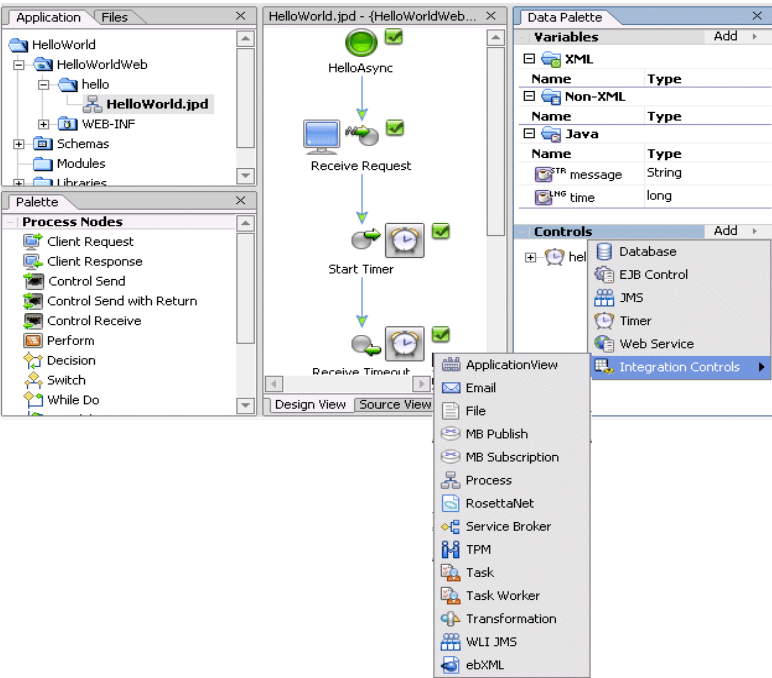
**Table 5 Message Broker Features**

Feature	Description
Message Routing	<ul style="list-style-type: none"><li>• Routing from Event Generators to stateless business processes.</li><li>• Single transaction (no need to save state).</li></ul>
Rules	<ul style="list-style-type: none"><li>• Business process logic defines trigger, transformation, and routing rules.</li><li>• Short-running rules—not long-running processes.</li><li>• Stateless business processes implement rules.</li></ul>

## WebLogic Integration Controls

WebLogic Integration provides a set of out-of-the box controls that enable you to start integration projects with a portfolio of resources. [Figure 7](#) shows a sample menu of controls. These WebLogic Integration controls provide access to external resources to enhance developer productivity. WebLogic Integration applications also have access to external resources through the WebLogic Workshop high-level controls. The WebLogic Workshop framework provides a consistent mechanism for interacting with resources across all Workshop, Integration, and Portal components.

Figure 7 Out-of-the Box Controls



WebLogic Integration controls provide access to Web services and to any J2EE resources, such as JMS, EJB, and Databases (JDBC). The following table describes the available WebLogic Integration controls.

Table 6 WebLogic Integration Controls

Controls	Features
Message Broker	The Message Broker resource provides a publish and subscribe message-based communication model for WebLogic Integration business processes, and includes a powerful message filtering capability. For more information, see <a href="#">“Message Broker” on page 13</a> .
Database	Enables business processes to read and write to XA and non-XA databases. The BEA WebLogic RDBMS Adapter provides additional functionality and access to database resources.

**Table 6 WebLogic Integration Controls**

Controls	Features
Data Transformation	Encompasses a range of data transformations among XML, non-XML, and Java data formats. For more information, see <a href="#">“Data Transformation” on page 11</a> .
E-Mail	Enables WebLogic Integration business processes to send e-mail messages to a specific destination. To receive e-mail, you must use the Email Event Generator, which publishes incoming e-mails to the Message Broker. You use the WebLogic Integration Administration Console to create and manage event generators.
File	Allows business processes to read, write, or append to a file in a file system. The files can be one of the following types: XmlObject, RawData (binary), or String. An Event Generator publishes unsolicited file events to the Message Broker. Supports large files through pass by reference and batching.
WLI JMS	The WLI JMS control enables WebLogic Workshop business processes to easily interact with messaging systems that provide a JMS (Java Message Service) implementation. A specific WLI JMS control is associated with the particular facilities of the messaging system. Once a WLI JMS control is defined, business processes may use it like any other WebLogic Workshop control.
Application View	Allows Web services or business processes to access an enterprise application using an Application View. An Application View must be created using the Application Integration Design Console before it can be referenced using an Application View control. For more information, see <a href="#">“Application Integration and Adapters” on page 23</a> .
ebXML	The ebXML control enables WebLogic Workshop business processes to exchange business messages and data with trading partners via ebXML. For more information, see <a href="#">“Trading Partner Integration” on page 20</a> .
RosettaNet	The RosettaNet control enables WebLogic Workshop business processes to exchange business messages and data with trading partners via RosettaNet. For more information, see <a href="#">“Trading Partner Integration” on page 20</a> .
Trading Partner Management	The TPM (Trading Partner Management) control provides WebLogic Workshop business processes and Web services with query (read-only) access to trading partner and service information stored in the TPM repository. For more information, see <a href="#">“Trading Partner Integration” on page 20</a> .

**Table 6 WebLogic Integration Controls**

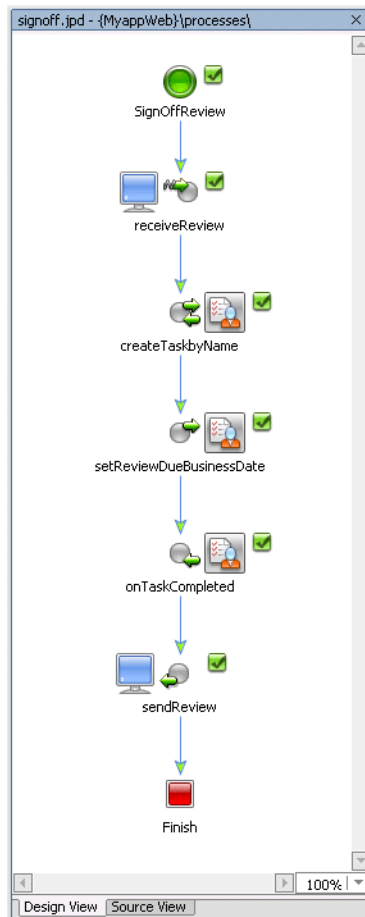
Controls	Features
Worklist	The Worklist controls enable you to build a Worklist system that supports user assigned tasks and task management. WebLogic Workshop provides two Worklist controls, the <i>Task control</i> and the <i>Task Worker control</i> , for building your Worklist system. For more information, see <a href="#">“Worklist System” on page 18</a> .
Process	The Process control is used to send requests to, and receive callbacks from, another business process. The Process control is typically used to call a subprocess from a parent process.
Service Broker	The Service Broker control allows a business process to send requests to, and receive callbacks from, another business process, a Web service, or a Web service or business process defined in a Web Service Description Language (WSDL) file.

## Worklist System

WebLogic Integration delivers rapid access to integration with business users through the Worklist system. The Worklist system supports administration capabilities for managing users, groups, and roles, as well as managing the routing of tasks to people in an enterprise. It enables people to collaborate in business processes, including assigning tasks, tracking the status of tasks, handling approvals, and so on. Integral to the flow of work are actions, such as receiving, approving, modifying, and routing documents. The documents that often accompany work activities provide the background required for people to complete tasks, which are the central component of all Worklist systems.

In the WebLogic Workshop environment, WebLogic Integration provides two controls—the Task control and the Task Manager control—to support the Worklist functionality. [Figure 8](#) shows Worklist controls in a business process.



**Figure 8 Worklist Controls Add Human Interaction to Business Processes**

The Worklist controls are server-side components managed by the Workshop framework. They expose Java interfaces that can be invoked directly from your business processes. The Task control creates an instance of a Task, manages its state and data, and so on. The Task Worker control assumes ownership of Tasks, works on them, completes them, and provides administrative privileges, such as starting, stopping, deleting, and assigning. The Worklist system provides the functionality that enables end users, such as task creators, task workers, and task administrators, to interact with running business processes for handling process exceptions, approvals, and status tracking.

A sample Worklist user interface (Worklist client) is provided for you, but you can also create a custom user interface to manage the Worklist components of your applications.

# Trading Partner Integration

WebLogic Integration allows you to automate and manage relationships with your trading partners so that you can streamline your business processes with customers, suppliers, distributors, and other partners to get a top-down a view of business transactions across the value chain.

The following table summarizes WebLogic Integration’s trading partner integration capabilities.

**Table 7 Trading Partner Integration in WebLogic Integration**

Feature	Description
Visual public and private process integration	Leverages the unified programming model and run-time framework of WebLogic Workshop to provide end-to-end business process integration with easily implemented controls and templates.
Support for leading B2B industry protocols and standards	Supports the following protocols and standards: ebXML 1.0 and 2.0, RosettaNet 1.1 and 2.0, and Web services.
Trading Partner Management (TPM) and repository access	Provides sophisticated Trading Partner Management capabilities through the unified WebLogic Integration Administration Console. This console enables administrators to easily manage a central repository of trading partner profile information, including protocol bindings used for secure message exchanges between trading partners, services representing public processes, security, and bulk import and export capabilities. Authorized business processes and Web services can dynamically access trading partner information via easily implemented controls. In addition to the Administration Console, MBean APIs are also provided so that third-party MBean clients can be written to access the TPM repository.
Easy access to run-time information	Provides flexible run-time tracking, audit, and reporting capabilities to show a top-down view of trading partner activities and business transactions across the value chain.
High performance and availability	Provides fast and reliable business message exchanges between trading partners, supporting the clustered configuration for scalability and fail-over, message persistence, low-level acknowledgements and receipts, and transactional integrity.

**Table 7 Trading Partner Integration in WebLogic Integration (Continued)**

Feature	Description
High security, auditing, and non-repudiation	Ensures the private, secure, and reliable business message exchanges among trading partners using transport level security with SSL and message level security with digital signature and encryption. The certificates and private keys used for various purposes are kept in protected keystores while the passwords are kept in encrypted forms in the WebLogic Integration PasswordStore.
Interoperability	Interoperates with a wide range of B2B servers from other vendors. In addition, WebLogic Integration Business Connect, a lightweight B2B server, is designed for small trading partners who do not have their own B2B server. For trading partners who want a zero-install solution, WebLogic Integration can easily be extended to offer a browser or FTP interface.

Figure 9 shows basic interactive business processes between trading partners. The Buyer business process sends an order to the Seller using an agreed-upon business protocol (ebXML or RosettaNet). The Seller business process receives the request, writes the order to a database, receives an invoice from an internal back-end system, and then sends the invoice to the Buyer using the same business protocol.

This message exchange is known as a *conversation*. In the conversation, the initiating trading partner (Seller) is known as the *initiator*, while the responding trading partner is known as the *participant*.

**Figure 9 Interactive Business Processes Between Trading Partners**

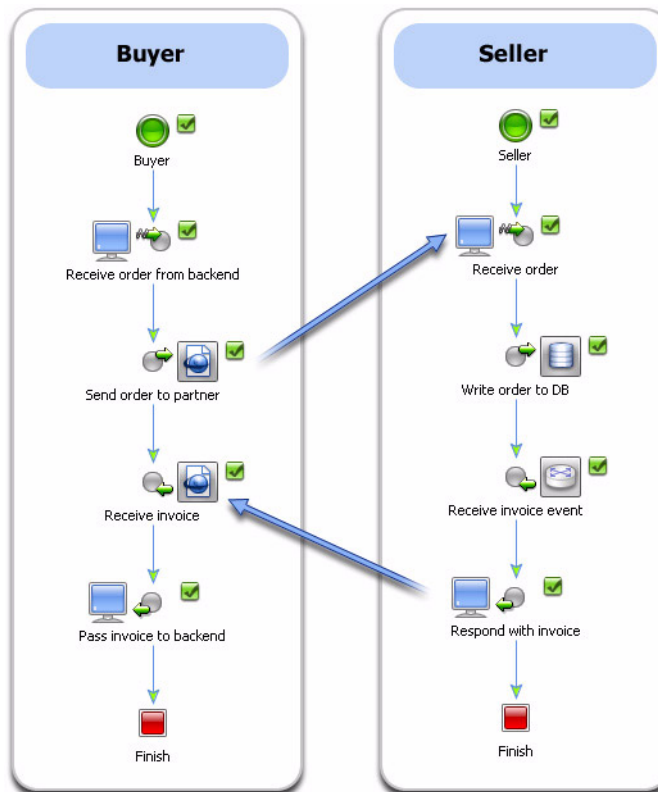
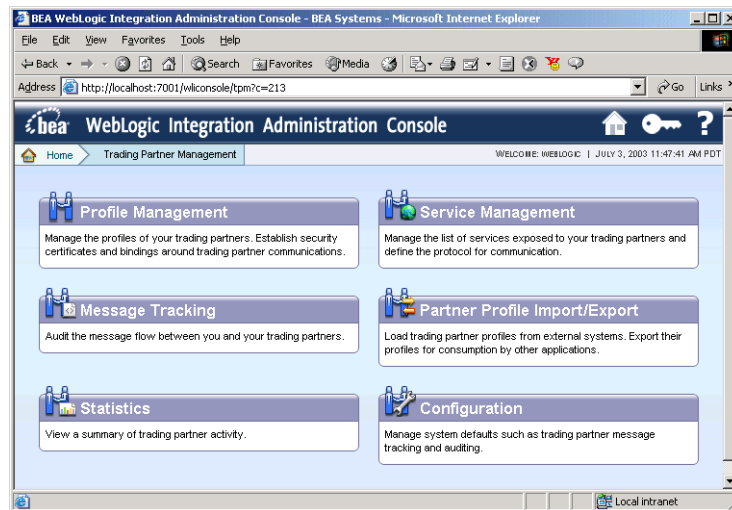


Figure 10 shows the Trading Partner Management home page in the WebLogic Integration Administration Console, which allows administrators to manage trading partner profiles, security certificates, protocol bindings, services, message tracking and auditing, trading partner activity, system defaults, and importing and exporting trading partner profile information.

**Figure 10** Trading Partner Management in the WebLogic Integration Administration Console

## Application Integration and Adapters

WebLogic Integration provides a modular, adapter-based application integration framework that enables rapid, secure integration with enterprise applications. The application integration framework allows you to link existing systems and new applications within a standards-based architecture to host J2EE Connector Architecture (J2EE-CA)-based adapters. Application integration components include the Application View control in the Workshop environment, the Application Integration Design Console, and modular, pre-built BEA and custom adapters.

With the Application View control, you can invoke application view services both synchronously and asynchronously, and you can start a new business process whenever an EIS event occurs. For services and events, the developer uses XML and mapping tools to interact with the Application View control. The developer need not understand the particular protocol or client API for the enterprise application.

The Application Design Console allows integration specialists to configure adapters without coding, including application introspection, abstracting application logic, and inputs and outputs through Application Views.

WebLogic Integration provides a set of J2EE CA-based adapters to integrate with back-end systems, including packaged business applications from major vendors. WebLogic integration supports leading enterprise applications and technologies with pre-built BEA WebLogic Adapters for RDBMS, Peoplesoft, SAP, Siebel, Oracle Applications, and MQ Series formats.

In addition, it supports the development of J2EE CA-based custom adapters using an Adapter Development Kit (ADK). These adapters are exposed to the WebLogic Workshop framework via the Application View control. To configure an application view control, the application expert uses the WebLogic configuration tool to configure the adapter and define relevant high-level business services and events.

The application integration functionality of WebLogic Integration greatly simplifies the integration of existing internal enterprise systems with each other and with new e-business applications. The following table lists the key features of application integration.

**Table 8 Application Integration Features**

Key Feature	Description
Application Integration	<ul style="list-style-type: none"><li>Standards-based architecture for hosting J2EE CA-based adapters.</li><li>Exposed as the Application View control in the WebLogic Workshop business process.</li></ul>
JSP-based Application Integration Design Console	<ul style="list-style-type: none"><li>Enables the development and management of Application Views.</li><li>Allows EIS specialist to configure adapters via application introspection.</li><li>Defines services and events in Application Views.</li></ul>
Adapters	<ul style="list-style-type: none"><li>J2EE CA 1.0-based adapter infrastructure with extensions.</li><li>Service adapters expose application services to WebLogic Integration.</li><li>Event adapters publish asynchronous, unsolicited messages from the application to Message Broker.</li><li>BEA Adapters available for MQ Series, Oracle Applications, PeopleSoft, RDBMS, SAP, and Siebel applications.</li></ul>
Adapter Developer Kit (ADK)	<ul style="list-style-type: none"><li>J2EE CA-compliant sample adapters that developers can use to learn how to develop adapters using the Adapter Development Kit.</li></ul>

## Administration and Management

WebLogic Integration provides a simplified secure browser-based administration console for run-time management and administration analytics. The WebLogic Administration Console

allows centralized configuration, maintenance, and monitoring of integrated resources, including audit trails (as well as associated security and role information), extensible with JMX interfaces to third-party tools. The WebLogic Integration Administration Console is designed for the applications administrator—an administrator who needs an integration-focused view of business processes, messaging activity, and monitoring of deployed applications.

WebLogic Integration separates run-time administration from offline analytics by maintaining two logical database stores. The online administration database contains run-time data about the integration engine, business process states, and message history. This repository is designed for performance—to scale and to retrieve information as quickly as possible while maintaining its data in an optimized format. This online repository is periodically archived to an offline data store in accordance with configurable archiving policies. Data archiving enables analysis of process data, task and message histories by third-party tools through SQL to archived databases.

Using the WebLogic Integration Administration Console, you can monitor and manage process flows, message broker activities, work lists, Application Views, and trading partners in one place. [Figure 11](#) shows the WebLogic Integration Administration Console.

**Figure 11 Unified, Browser-based Administration Console**



The WebLogic Integration Administration Console addresses the following operations, management, and administration features:

**Table 9 WebLogic Integration Administration Console Features**

Feature	Description
Business Process Instance Monitoring and Process Configuration	Deploy and configure business process types, set Service Level agreement (SLA) limits, and manage tracking level on individual business process types. View statistics on running business process instances and filter instance lists. Terminate, delete, and suspend business process instances.
Message Broker	Manage all aspects of the Message Broker. View and manage channels, filters, and subscription rules. Monitor the volumes of messages routed through the message broker, or view subscribers to the various channels. Track and reset channel message counts for periodic reporting.
Worklist Administration	Manage Worklist users, groups, and tasks. Configure rules for Business Calendars and monitor the progress of task completion against due dates. Perform queries to show individual workloads and reassign tasks to speed task progress.
Trading Partner Management	Manage and monitor all trading partner profiles. Configure information about trading partners, including agreed upon service access and communication channels. Maintain trading partner information individually or bulk loaded and exported. Track and archive all messages for detailed partner auditing. Monitor partner activity through event statistics.
Application Integration	Monitor enterprise adapter health, tune adapters for automatic suspension and failover, and swap adapters to leverage different enterprise application servers.
User, Group, Role Management	Manage users and groups within the system using tasks. Define new roles for users and allocate roles to groups or users.
System Configuration	Set general configuration and security. Configure security for processes (both authorization and execution policies), channels, and trading partner communications.



**Table 9 WebLogic Integration Administration Console Features (Continued)**

Feature	Description
Event Generator Management	Configure environment events that spawn new processes. Environment events can include file updates, reception of email messages, or placing messages on a JMS queue.
Business Calendar Configuration	Maintain calendars that can be used for process scheduling or task assignment.

## For More Information About WebLogic Integration

The following table provides links to useful information in the WebLogic Integration documentation set, such as topics that teach you how to use the tools for implementing, deploying, and managing integration applications and resources.

**Table 10 WebLogic Integration Topics**

To learn about...	See the following...
Developing business processes	<p><i><a href="#">Tutorial: Building Your First Business Process</a></i>, available in the WebLogic Workshop Help at:  <a href="http://edocs.bea.com/workshop/docs81/doc/en/integration/tutorial/tutWLIProcessIntro.html">http://edocs.bea.com/workshop/docs81/doc/en/integration/tutorial/tutWLIProcessIntro.html</a></p> <p><i><a href="#">Guide to Business Processes</a></i>, available in the WebLogic Workshop online help at:  <a href="http://edocs.bea.com/workshop/docs81/doc/en/integration/wfguide/wfguideIntro.html">http://edocs.bea.com/workshop/docs81/doc/en/integration/wfguide/wfguideIntro.html</a></p>
Implementing data transformations	<p><i><a href="#">Building Your First Data Transformation Tutorial</a></i>, available in the WebLogic Workshop Help at:  <a href="http://edocs.bea.com/workshop/docs81/doc/en/integration/dttutorial/tutWLIDataTransIntro.html">http://edocs.bea.com/workshop/docs81/doc/en/integration/dttutorial/tutWLIDataTransIntro.html</a></p> <p><i><a href="#">Guide to Data Transformation</a></i>, available in the WebLogic Workshop Help at:  <a href="http://edocs.bea.com/workshop/docs81/doc/en/integration/dtguide/dtguideIntro.html">http://edocs.bea.com/workshop/docs81/doc/en/integration/dtguide/dtguideIntro.html</a></p>
Using WebLogic Integration controls	<p><i><a href="#">Using Integration Controls</a></i>, available in the WebLogic Workshop Help at:  <a href="http://edocs.bea.com/workshop/docs81/doc/en/integration/controls/controlsIntro.html">http://edocs.bea.com/workshop/docs81/doc/en/integration/controls/controlsIntro.html</a></p>

**Table 10 WebLogic Integration Topics**

To learn about...	See the following...
Adding worklist capabilities to a business process	<p><i>Using the Worklist System</i>, available at:  <a href="http://edocs.bea.com/wli/docs81/worklist/index.html">http://edocs.bea.com/wli/docs81/worklist/index.html</a></p> <p><i>Tutorial: Building a Worklist Application</i>, available at:  <a href="http://edocs.bea.com/wli/docs81/wltutorial/index.html">http://edocs.bea.com/wli/docs81/wltutorial/index.html</a></p>
Trading partner integration	<p><i>Introducing Trading Partner Integration</i>, available at:  <a href="http://edocs.bea.com/wli/docs81/tpintro/index.html">http://edocs.bea.com/wli/docs81/tpintro/index.html</a></p>
B2B controls	<p><i>RosettaNet Control</i>, available in the WebLogic Workshop Help at:  <a href="http://edocs.bea.com/workshop/docs81/doc/en/integration/controls/controlsRosettaNet.htm">http://edocs.bea.com/workshop/docs81/doc/en/integration/controls/controlsRosettaNet.htm</a></p> <p><i>ebXML Control</i>, available in the WebLogic Workshop Help at:  <a href="http://edocs.bea.com/workshop/docs81/doc/en/integration/controls/controlsleebXML.html">http://edocs.bea.com/workshop/docs81/doc/en/integration/controls/controlsleebXML.html</a></p> <p><i>TPM Control</i>, available in the WebLogic Workshop Help at:  <a href="http://edocs.bea.com/workshop/docs81/doc/en/integration/controls/controlsTPMa.html">http://edocs.bea.com/workshop/docs81/doc/en/integration/controls/controlsTPMa.html</a></p>
Managing integration applications	<p><i>Managing Integration Solutions</i>, available at:  <a href="http://edocs.bea.com/wli/docs81/manage/index.html">http://edocs.bea.com/wli/docs81/manage/index.html</a></p>
Application integration	<p><i>Introducing Application Integration</i>, available at:  <a href="http://edocs.bea.com/wli/docs81/aiover/index.html">http://edocs.bea.com/wli/docs81/aiover/index.html</a></p> <p><i>Using Application Integration Design Console</i>, available at:  <a href="http://edocs.bea.com/wli/docs81/aiuser/index.html">http://edocs.bea.com/wli/docs81/aiuser/index.html</a></p>
Creating custom adapters	<p><i>Developing Adapters</i>, available at:  <a href="http://edocs.bea.com/wli/docs81/devadapt/index.html">http://edocs.bea.com/wli/docs81/devadapt/index.html</a></p>
Connecting your EIS with BEA WebLogic Adapters	<p><b>BEA WebLogic Adapters 8.1</b> online documentation, available at the following location, which includes a set of online manuals for all BEA package adapters for enterprise application integration:  <a href="http://edocs.bea.com/wl.adapters/docs81/index.html">http://edocs.bea.com/wl.adapters/docs81/index.html</a></p>

**Table 10 WebLogic Integration Topics**

To learn about...	See the following...
Upgrading from BEA WebLogic 7.0 versions to WebLogic 8.1	<i>WebLogic Integration 8.1 Upgrade Guide</i> , available at: <a href="http://e-docs.bea.com/wli/docs81/upgrade/index.html">http://e-docs.bea.com/wli/docs81/upgrade/index.html</a>
Deploying WebLogic Integration applications	<i>Deploying WebLogic Integration Solutions</i> , available at: <a href="http://e-docs.bea.com/wli/docs81/deploy/index.html">http://e-docs.bea.com/wli/docs81/deploy/index.html</a>

