



*Manage, Automate and Optimize  
Business Processes.*

## **Technical Paper**

# **Understanding Adeptia BPM Server**

Version 1.1

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## Introduction

Adeptia BPM Server is an enterprise software product that combines process management with application and partner integration. The BPM Server easily and quickly automates business processes across supply chains using industry-specific standards. It allows customers to integrate disparate information sources, software applications and business users both within an enterprise and across customers, vendors and business partners. It also allows customers to design, automate and improve workflows and thereby drive efficiencies.

Adeptia BPM Server helps business users and IT staff to collaborate so as to automate and optimize complex business processes. It offers a powerful business tool for managers to document, control and monitor critical processes and then improve them. It also offers IT staff an easy and simple way to deliver highly complex process management for changing business needs. This enterprise-class software allows companies to leverage the Internet by deploying extended enterprise processes that link partners, suppliers and customers.

This document describes the Adeptia BPM Server in detail from a technical perspective. It is expected that this document will facilitate an introductory understanding of the architecture and functionality of the product.

**Prerequisite:** We recommend that the reader first review the Adeptia BPM Server data sheet for an understanding of the features and functionality.

## BPM Server Principles

### Product Goal

Adeptia designed and developed the BPM Server to address the most common challenges associated with integration and process automation. Solving these issues was the driving goal behind this product.

**Simplify complexity:** Automating the process of sharing data between applications has always been considered as one of the most complex IT projects.

→ BPM Server should simplify business process integration.

**Accelerate long implementation times:** Process integration projects take a long time to complete because of the sheer quantity of design, programming and testing effort required to do the job.

→ BPM Server must accelerate business process integration.

**Minimize tedious coding:** Integration projects typically require huge amount of coding to manually program business rules and data transformations. Even use of application servers and other off-the-shelf products does not help much because they only provide libraries of functions that still need to be coded.

→ Adeptia BPM Server should virtually eliminate the need for any programming.

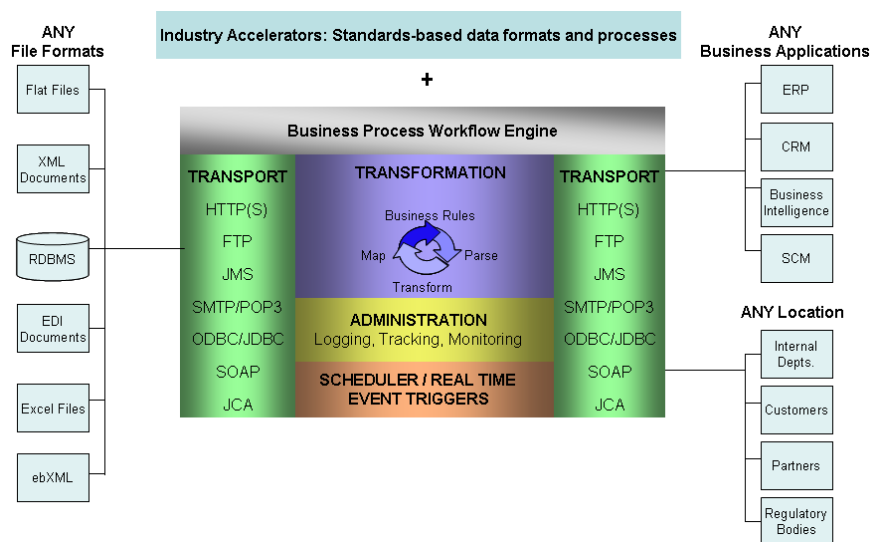
**Minimize need for expert users:** Business process integration has usually required expensive consultants, experienced architects and users with extensive training.

→ BPM Server should allow even complex projects to be implemented by business users working with IT staff.

**Incremental rather than enterprise-wide approach:** A phased approach of starting small and building on each success builds support across organizations and leads to management buy-in.

→ BPM Server must allow companies to employ a prudent, incremental approach to process integration.

Addressing these common issues significantly increases success rates and reduces risk of failure of business process management and integration projects.



## Product Philosophy

Adeptia BPM Server delivers successfully on the above mentioned objectives because of these key attributes of the product philosophy.

**Process based integration:** BPM Server is a next generation product that pioneers the evolution of integration into business process management. For too long, integration has simply meant moving and processing of data between apps and partners. There is no intelligence in terms of sending acknowledgements, processing receipts, notifications, alerts and handling errors and exceptions. Data connectivity by itself does not solve a business problem; integration as part of automation of a real business process has significantly higher value.

**End-to-end solution:** BPM Server is a comprehensive product that includes full set of features needed to provide a complete solution for process based integration. This functionality includes process management, enterprise integration, Web services, external partner integration and human workflow. These features are pre-built into the BPM Server and not part of a separate set of tool-kits.

**Single install:** The BPM Server offers all of this capability in one product and in a single install. Unlike other products, there is no need to install and configure many different components of a toolset.

**Minimize need for coding:** BPM Server offers an intuitive, wizard-driven interface to allow users to configure complex processes and integrations. This “code-free approach” accelerates deployments and virtually eliminates need for any programming. Use of BPM Server does not require expertise in any programming language or standards like XML, Java, or Web Services.

**Empower business users:** BPM Server engages business users to directly participate in the designing and management of process flows. Collaboration with IT is ensured because business users can easily help model processes as well as review, edit and sign-off on business rules. Self-service is enabled because business users can directly trigger, monitor, stop and interact with processes.

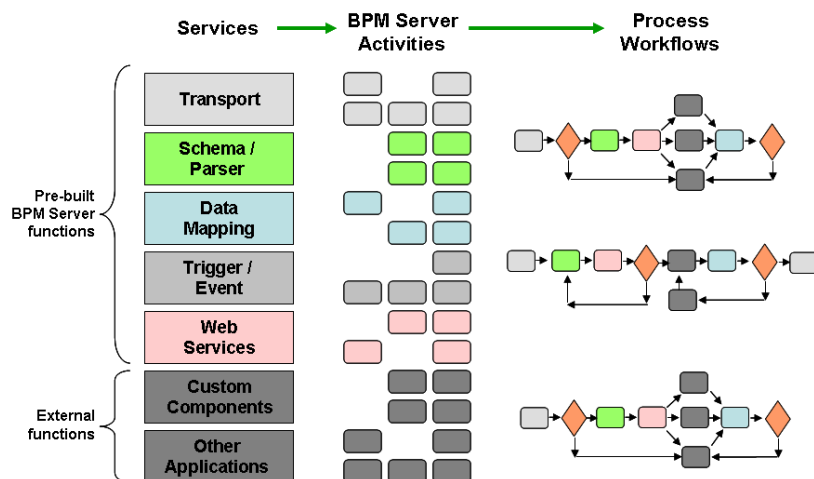
**Open Standards support:** BPM Server leverages the latest open standards and technologies such as XML, Java, Internet protocols and Web Services. This allows flexibility for the future and prevents lock-in to proprietary technology. BPM Server also includes support for common industry-specific standards to facilitate adoption.

## Key concepts

### Service

A Service is a “type” or class of distinct business tasks or actions and each service represents a specific feature category of the product. Adeptia BPM Server provides many types of pre-built Services, such as FTP, Email, Database, Excel, Workflow etc. Users may add their own services, for example, an external custom program may be included as a service in the product. Each Service is unique.

A Service is not an “actionable” item.



## Activity

An Activity is an instance of a Service. Each Service may have many Activities associated with it. For example, FTP Service may have the following instances of activities: FTP\_to\_Website activity, FTP\_to\_Customer1 activity, FTP\_to\_NY\_BranchOffice activity etc.

An activity is an “actionable” business task; it is executed at run-time. It is an atomic unit of action.

## Process Flow

A Process Flow represents an orchestration of activities to create a desired business result. For example, business operations like Order Management, Expense Approval, Claims Processing, Loan Application Processing etc. are process flows that can be represented in a flowchart by a specific set of distinct business tasks that are combined together in a logical manner.

A Process Flow is an “actionable” item in the Adeptia BPM Server; it is executed at run-time.

## Trigger

A Trigger is an event that initiates the execution of the process flow. A Process Flow once created is “deployed” for execution by attaching a trigger to it. When a condition is met to activate the trigger, the process flow is executed. Triggers allow real-time, event-driven execution of flows.

A Trigger is needed to deploy a process flow, although for testing and troubleshooting the process flow may also be triggered by a manual trigger.

Examples of triggers are: Scheduler/Timer event, FTP event, JMS event etc.

## Workflow

Workflow service in the Adeptia BPM Server allows business users to interact with running process flows. As described above, the Workflow Activity is an instance of this service that relates to a specific task performed by a specific business user in a specific manner.

For example, Expense\_review can be a workflow activity that is performed by a manager to approve or reject an expenses application in the Expense\_Approval\_Process\_Flow.

## Control Flow

Control Flow represents the sequence of execution of activities in a process flow. It is used to “orchestrate” activities and it essentially determines which activity will be executed next in the process flow. The business rules and logic of a process flow are enforced by the control flow.

The control flow is represented by a solid line in the graphical representation of the process flow.

### **Decision Node**

A Decision Node is a type of control flow that manages which activity is to be executed next based on prior results of the process flow. It allows specification and then execution based on complex business rules such as conditional statements.

For example, if a manager approves an expense application, it may have to be routed to a senior manager if the expense amount exceeds \$5000. This type of a check will be in the Decision Node and it will pass the control to next activity based on the amount of expenses.

### **Data Flow**

Data Flow represents the sequence of flow of data stream from one activity to next. It is not always necessary that the data will flow from one activity to next as shown by the control flow. The data stream may need to be passed much further in the process flow if the following activities (as defined by control flow) are not going to use or process the data stream.

The data flow is represented by a dashed line in the graphical representation of the process flow.

### **Design Time**

Design Time is defined as that phase of utilizing the Adeptia BPM Server when business users document, and developers design and create activities and process flows.

At this time, the users are using the User Interface components to “implement and deploy” business process flows.

### **Run Time**

Run Time is defined as that phase of utilizing the Adeptia BPM Server when a process flow that has been already deployed is executed and run.

At this time, the back-end components of the product are used to execute all the activities of the running process flow in a proper sequence to complete the business operation as defined in the process flow.

### **Developers**

The developers in this context is the IT team responsible for designing and implementing the activities and process flows as well as managing the BPM Server on an ongoing basis. The developers may be part of the customer IT department and may include any external consultants helping in the deployment of the BPM Server. Developers will have software programming skills and some training on using the BPM Server. Developers interact with the BPM Server primarily during design-time.

### **Business Users**

The business users are analysts and managers who are responsible for working a business process flow that is being automated with the Adeptia BPM Server. They own the process flow, they specify the business rules, they make decisions and monitor progress. The business users work closely with the developers to design and specify the requirements for the process flows that are to be deployed. Once the process flow is implemented, the business users interact with the running process flow thru the Human Workflow service. Business users interact with the BPM Server mostly during run-time.

## Manage, Automate, Optimize

The overall value that the Adeptia BPM Server provides to customers can be summarized as the application that helps them “Manage, Automate and Optimize business processes”.

Customers can better **“manage”** their processes by first documenting and designing them in the BPM Server. Later, they can manage and monitor the execution of these processes and have real-time visibility into the status of all running process flows. The business value of this is that the business managers have “control” of their processes and so they can ensure that the processes and policies are consistently followed.

BPM Server can **“automate”** the execution of the business process flows. This involves creating the various business tasks in terms of distinct activities, orchestrating them into process flows and then deploying those processes by attaching them to real-time triggers. BPM Server executes these deployed processes automatically when needed and seamlessly coordinates the execution of the tasks and workflow activities. The business value of this is that significant “operational efficiencies” result by the automation of many manual tasks.

Finally, customers are able to **“optimize”** their business processes by viewing the historical run-time statistics in easy to understand reports that make it easy to pinpoint bottlenecks and other areas of improvement. The business value of this is that companies can make their processes more efficient and gain “competitive advantage”.

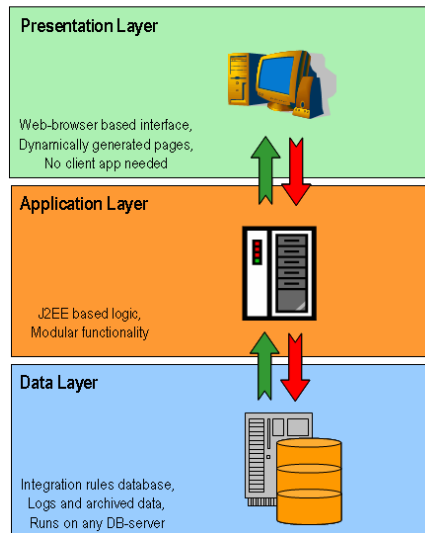
## Architecture

Adeptia BPM Server is a Java-based application that has been designed using the J2EE framework. Adeptia BPM Server is built using state-of-the-art technologies and open standards. It is a fully java-based product that leverages the J2EE architecture. It utilizes XML, XSLT, Java (JMX, JDO, JCA, JMS etc.), Swing and Web services. XML is the core data format used in the integration component although the product supports a long list of disparate formats and structures. It has been designed from the ground up to be a powerful process management and integration server that resides in contemporary technology environments.

It utilizes the typical **N-Tier application architecture**. A unique attribute of this product is that the Presentation Layer is fully web-based and so there is no need to install a client app on the desktop either for business users or developers. This user interface layer is primarily used during design-time by the developers and by the

business users during run-time to interact with workflow tasks. The Application Layer is the set of java-based server side programs that reside on a central server and is mainly used during the run-time phase to execute process flows. The Data Layer represents the database where all business rules, design rules, activity instances and process flows are saved and archived. The run-time logs are also stored in this database.

### N-Tier Application Architecture



Adeptia BPM Server follows a Hub-and-Spoke model in terms of deployment in an IT infrastructure. It acts as a central hub, with the connections to other systems and external partners as spokes in this model. It is the core server that implements and executes the process flows and integrations. As a hub, it is imperative that the BPM Server offer scalability in terms of performance so as not to become a bottleneck. This is achieved by its clustering functionality as described later in the document.

BPM Server follows a Store and Forward framework. Any data coming into the server can be archived, and it is converted into an internal XML format for further processing. XML is also used for all representations including process flow descriptions, saving of business rules, logs, configurations etc.

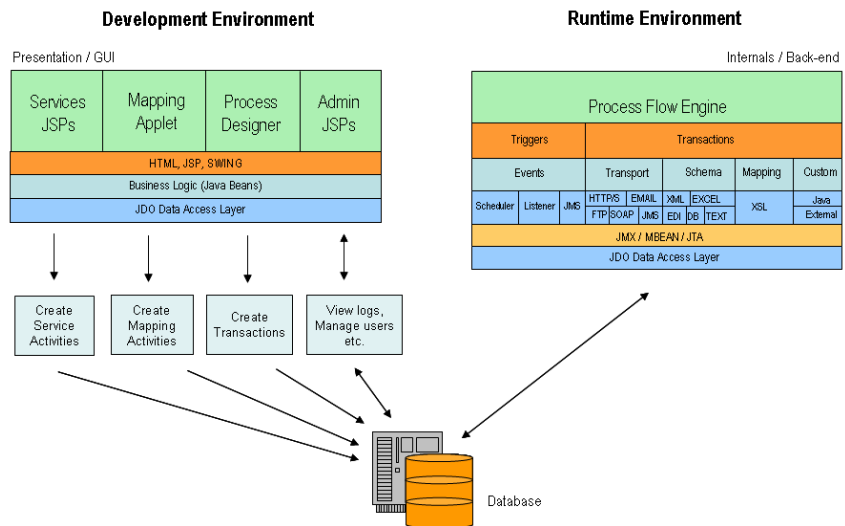
## Modular Design

Adeptia BPM Server leverages a modular architecture that allows for greater flexibility and extensibility. This approach has allowed Adeptia to easily add greater features and functionality over time. The biggest benefit to the customers of this modular design is that they can easily expand the product and add their own custom modules to address their business needs.

The N-Tier architecture easily separates out the Presentation, Application and Data layers into fairly isolated and independent

modules. The BPM Server functionality in each of these layers is further separated into independent modules. For example, in the application layer, the Process Engine, Events, Transport, Transformation and Workflow features are all part of separate modules.

This makes it quite easy to extend the BPM Server by adding custom programs as new services that can be utilized in the process flow. Custom transports and application integration components can be easily configured to access legacy systems. Custom parsers, schemas can also be developed to handle file formats not supported in the core product.



## Scalability

Adeptia BPM Server supports distributed execution by clustering of multiple nodes that run in parallel on separate servers for load balancing and failover capability. This allows for scalability both in terms of processing large data volumes as well as large number of concurrent transactions.

To enable clustering, Adeptia BPM Server is installed on a set of servers that would act as nodes in a cluster. A cluster in fact represents multiple instances of the “application layer”, each running on a separate server while they all share one back-end data layer represented by the database. The presentation layer also runs from one server.

To create a cluster, a “network of nodes” is created. One node acts as a primary and the others as secondary nodes. As process flows are triggered, they are distributed to the nodes of the cluster for execution. If any secondary node goes down in the cluster, it is taken out of the “available list” and the process flow execution jobs are distributed to other nodes in the cluster. If the primary node goes down, a secondary node is automatically assigned to be the new primary node, allowing process execution to proceed smoothly.

A simple round-robin algorithm is used for distribution of jobs in the cluster. A complete process flow is assigned to a node for execution thus ensuring that every activity in that flow is run from that one node.

## Service Oriented Architecture

Adeptia BPM Server allows customers to deploy business solutions based on Service Oriented Architecture. The unique attribute here for the BPM Server is that it enables SOA not just for a Web Services only environment but for a heterogeneous mix of Web Services and other Services as well.

The key capabilities of a successful and complete service-based solution are:

- Ability to create independent, reusable services or activities
- Manage repository of these services or activities
- Ability to orchestrate these tasks into a process flow that represents a business function
- Ability to expose these business processes for use by other applications or programs

Adeptia BPM Server offers all of the above and more.

Many types of services are included pre-built into the product. These relate to Triggers, Data Transport, Transformation, Workflow and Web Services. Instances of these services that are created by developers are called "activities" which are actionable tasks. These activities are reusable in multiple different process flows. Developers may create new services or add their existing programs as activities into the BPM Server. It is important to note that these services may not necessarily be only web services but in fact could also be BPM Server services or custom programs. Examples of these activities are, "Get customer details from CRM app based in customer ID" or " Enter purchase order into the order management app", "FTP file to partner A", "Purchasing Manager to review and accept/reject an invoice" etc. All of these activities are persisted on the BPM Server in a "Service Repository". These activities may be assigned different READ, WRITE and EXECUTE access privileges by their owners and so made available for other users to view, edit and use.

Process flows are created by taking these individual activities and sequencing them together to create a complex, fully functional business process flow. Each process flow usually represents a business operation like "Manage and process web site orders", "Loan application approval process", "Distribute product catalog process" etc.

Adeptia BPM Server also allows these process flows to be published as Web Services for use in other processes or by other applications. A process once created can also be called as sub-process in another process flow.

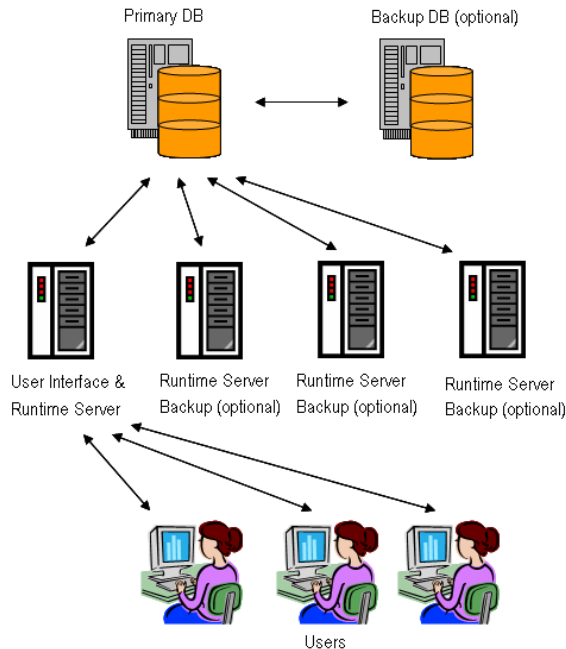
## Deployment model

Adeptia BPM Server is one complete product that is delivered in a single install package and can be fully deployed with one installation exercise. This is in contrast to other competitor products that take a

tool-kit approach and so require purchase and install of many different tools and products.

When BPM Server is installed on a server, it installs all the code modules related to the presentation, application and data layers. The back-end database can be installed on the same server or another database server can be specified.

Depending on the data and transaction volume that is expected, clustering of nodes can be setup for scalability of performance and higher robustness. Similarly, backup database can be setup to ensure higher uptime.



Typical deployments of BPM Server in a customer environment:

- Production Server: This will be the instance of BPM Server that is used for the final, production environment. There will be multiple production servers to create a cluster.
- Development Server: This will be the instance of BPM Server that is used by the developers for the design, creation and development of activities and process flows. Once a process flow is ready, it is migrated to the production server for deployment.
- Staging and Testing Server: This instance of BPM Server is used after the process flows are ready and before deploying them on the production server. The process flows are used here for staging, testing and user acceptance. This is optional and may be combined with Development server.

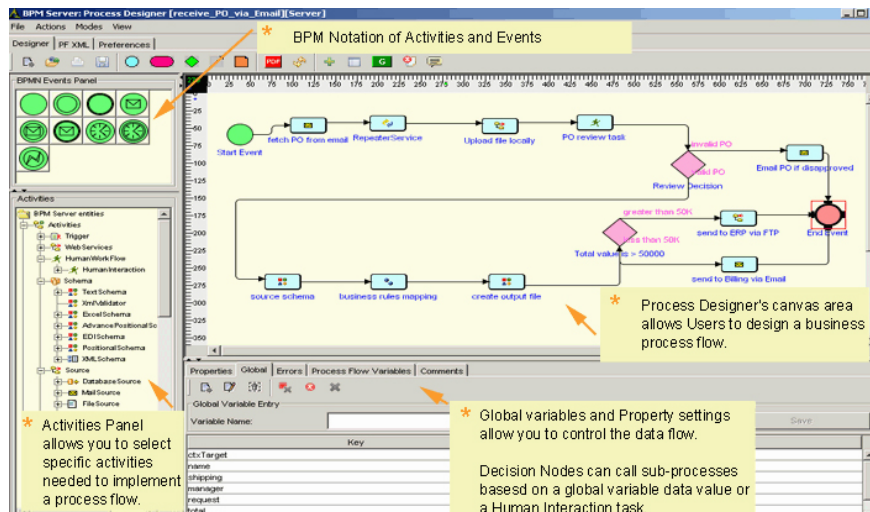
## Business Process Management

The key components that comprise the BPM part of the Adeptia BPM Server are the Process Designer, Process Engine and Workflow.

### Process Designer

BPM Server offers a graphical process design interface. It is a simple to use, drag and drop interface for business managers to quickly create a process, document business rules and optimize execution. IT users can take these processes and directly implement them for execution by creating and populating each service task in the process flow. Process Designer utilizes BPMN standards based notation for flows.

Process Designer allows both “top-down” and “bottom-up” approach for building processes and it can be used by both business users and developers to collaborate on documenting and designing process flows. Business users will take a “top-down” approach where they can document process flows while the underlying activities don’t yet exist and they use place-holders for activities in their process flows. Business users can work together to iterate and finally agree on a finished business process flow that can be handed to the developers. In this case the developers will create the underlying activities and attach them to this pre-designed flow. The other approach is “bottom-up” when the developers design and implement with process flows after first creating the activities and then orchestrating them in the Process Designer.



The Process Designer is an applet that runs on the user desktop when it is started. It is developed using the Java SWING technology. When the Process Designer is started it opens on the user desktop and the first thing it does is synchronize with the Services Repository on the BPM Server to download all the activities and process flows that the user has access to. These are shown on the left hand menu and so are made available for the developer who can drag and drop them into the canvas area.

Process Designer can be run in offline mode which allows the user to work on designing and implementing the process flow while remaining disconnected from the network and so from the BPM Server. User may save the work on the desktop. When the user is again connected to the network, the Process Designer can be “synchronized” with the BPM Server to save work on the server.

The output of the Process Designer is the Process Flow XML (PF XML) that is automatically generated based on the process flow that is designed in the canvas area and it is saved on the server. The Process Designer can also represent the process flow in an auto-generated PDF document which is useful for sharing, archiving and sign-offs.

## Process Engine

BPM Server includes a powerful, full-featured engine for automated process execution. Its support for decision nodes, sub-processes, exception handling, forks and joins, loops and long-running transactions allows execution of process flows of almost any complexity. It also supports failure recovery and clustering for reliability and high performance.

The Process Engine executes the PF XML that is generated by the Process Designer. Typically a real-time event triggers the process flow. When a process flow is triggered the Process Engine takes over. It instantiates the process flow for and prepares it for execution. Every triggered process flow is marked as "ready" and placed in a job queue where it waits for execution. The Process Engine manages the running, waiting and ready process flows in a way that ensures reliable and robust execution.

### Long-running transactions

Process Engine supports "long-running" process flows to support situations where certain processes may take a long time to complete because they have extended wait states while waiting for human workflow tasks to be completed by business users.

This feature enables Automated Transaction Recovery. While designing process flows, users may mark certain states in the flow as "sync points". At a sync point the process engine persists a copy of all runtime state information in a relational database. If an unexpected down event occurs, such as hardware or software failure, the server or a node in a cluster may go down. When that server and so the BPM Server is restarted, the process engine automatically checks for process flows that were interrupted and recovers these transactions from the sync point. The process flow execution proceeds as if no interruption had occurred.

### Transactional Support

Adeptia BPM Server supports the concept of transactional execution using Java Transaction API (JTA).

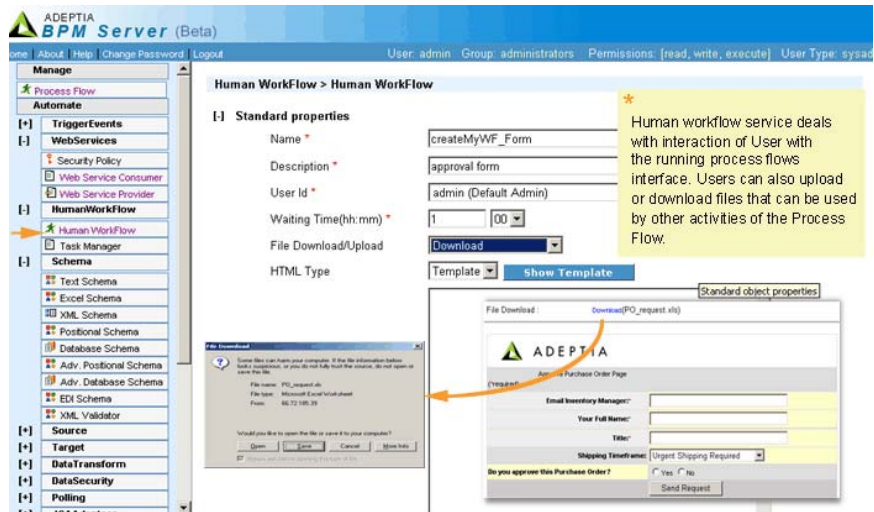
Users implement this feature by using "JTA Aware" block in which all activities/tasks are marked to be either successful or if any activity fails then the others in the JTA Aware block are rolled-back. Rollback scripts are specified for each activity in the JTA Block and they are executed when the function of that activity has to be reversed.

## Workflow Service

The Workflow service allows business users to interact with running process flows. BPM server allows deploying of process flows that

include tasks where human decisions are needed. When an action is required business users are alerted via email and on the Task Manager. Users interact via a web-interface with the process flow to complete their tasks. These actions may require manual intervention to resolve exceptions, review of business data to make decisions, and download/upload of documents.

Workflow activities are included in the process flow where a business user is required to take some action or to view some process related information and make decisions. During the execution of the process flow, when a workflow activity is encountered, a task is assigned to the user and an email notification is sent.



The business users will view all pending tasks in the Task Manager, which is similar to an electronic “to-do” list. This lists all the tasks waiting for the user and other pertinent information such as which process flow the task belongs to, when was it assigned etc.

The business user views the workflow tasks in the Task Manager. Clicking on a task, open a web-page where the data from the process flow, documents and any other information is displayed. The user utilizes this information to complete their tasks. When the task is finished, the process flow execution moves to the next activity and the task is removed from the user’s task manager.

## Integration Server

The key modules that comprise the Integration part of the Adeptia BPM Server are Data Transport, Transformation, Mapping and Web Services.

## Data Transport Services

Business process management and integration require ability to transport and replicate data from one location to another application or

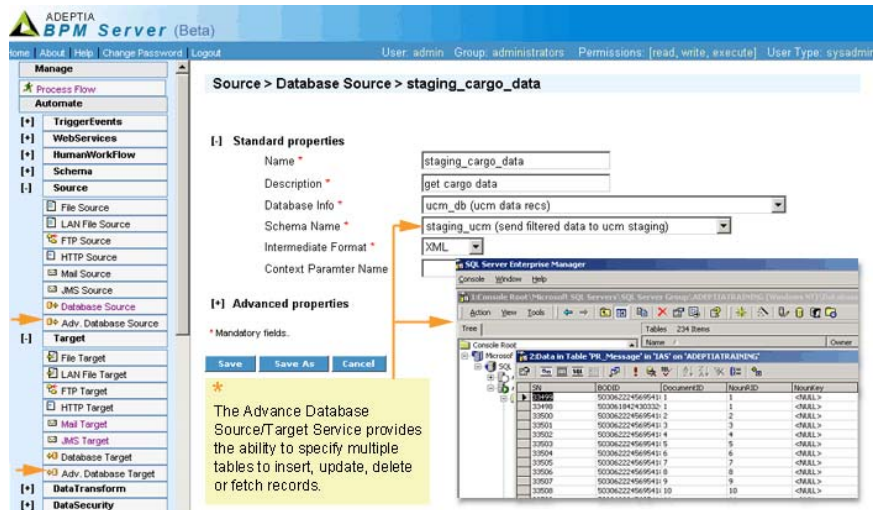
user. This must be done in a reliable, robust manner to ensure data integrity and delivery.

Adeptia BPM Server delivers comprehensive message transport capability facilitating assured, secure and timely delivery of business information to cross functional departments, and partner organizations. The data transport module facilitates end to end data delivery management through easy configuration and use of standards based data protocols. This allows synchronization, aggregation, distribution, replication and validation of data within organizations and across firewalls.

Adeptia BPM Server offers powerful data transport functionality that can be configured using a wizard-driven, form-based interface; without writing a single line of code. The product's loosely-coupled architecture allows users to configure these features thereby creating re-usable "services" which can be used both for receiving (sources) and sending (targets) data messages. This functionality can be classified into the following categories:

**Internet transport protocols**

- HTTP/S: Download and upload documents using the HTTP protocol. Secure HTTP (HTTPS) is also supported.
- FTP: Receive and transmit files using File Transport Protocol.
- SMTP/POP3: Receive messages from email accounts whether they are in the body of the message or as attachments. Similarly, send messages via email.



**Databases**

The BPM Server provides easy connectivity for relational databases such as Oracle, SQL Server, DB2 and MySQL. It includes common JDBC-based database drivers and enables wizard-driven setup. To enable unparalleled ease-of-use for novice users, SQL queries are automatically generated. Users may setup complex views and joins across multiple database instances. Adeptia BPM server allows both

"inserts" and "updates" into database tables. Stored Procedures can also be called both to retrieve data as well as to load data into databases.

### **Message queue**

The data transport module can use any Java Messaging Service (JMS) standards-based message queue server for "publish-subscribe" as well as point to point communications. This ensures guaranteed, asynchronous, and reliable delivery of data. The BPM Server can deliver as well as read data messages from a JMS-based message bus. It also allows configuration of JMS triggers to enable automated execution of process flows upon receipt of a messages.

### **Connectors support**

Adeptia BPM Server includes support for Java Connector Architecture (JCA) that allows users to configure adapters for bi-directional, real-time connectivity with third-party applications such as SAP, PeopleSoft, JD Edwards etc. for enterprise application integration. For easy and quick deployment, Adeptia offers more than fifty JCA-compliant adapters as optional components. Installation and customization of adapters is wizard driven for ease-of-use.

### **Legacy data stores**

Adeptia offers optional adapters to access data from legacy flat file databases such as VSAM (Virtual Storage Access Method), ISAM (Indexed Storage Access Method) and Cobol Copybooks. Metadata and file formats:

Adeptia BPM Server includes pre-built adapters for ASCII flat files, Microsoft Excel, Fixed-length files, complex XML messages and EDI. Users can create schemas to easily specify meta-data information to specify structure and meaning of data messages. These schema services allow the BPM Server to parse and process incoming data and correctly structure it for sending to internal applications or external partners.

### **Message security**

The BPM Server includes comprehensive security functionality that enables encryption and decryption of data for transmission and receipt respectively. It supports digital certificates management as well as PGP-style public-private key encryption.

## **Data Transformation Services**

Data Transformation is critical for automating process integration. Data is often received in different formats and needs to be converted into other formats for target applications or for users to review. Complex mapping rules need to be defined as these formats are converted. This usually requires tedious and extensive coding while the tools available to simplify this process are expensive and only offer limited capabilities. Adeptia provides functionality to do all this quite easily and without any need for coding. This data transformation

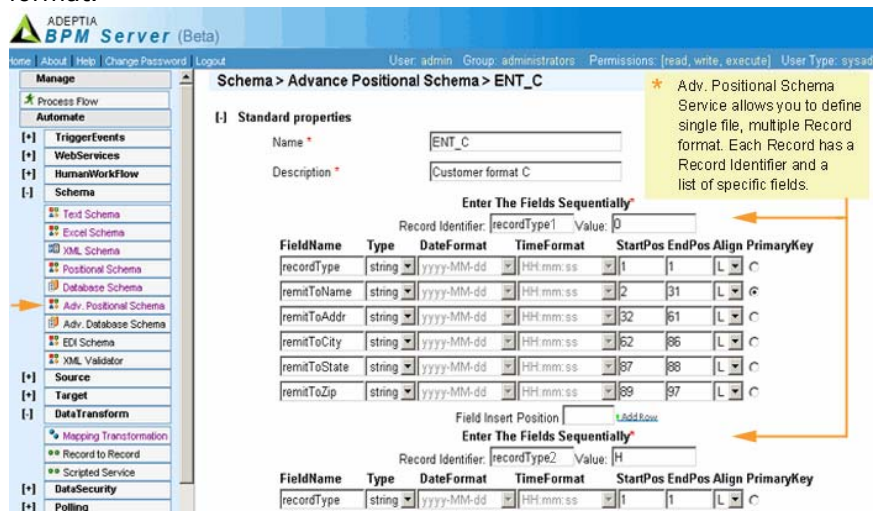
capability is strength of Adeptia and differentiates it from other BPM products in the market.

The following two components provide the Data Transformation functionality of the Adeptia BPM Server: Schema and Data Mapper (described above).

### Schema

Schema is a structure of a file format and it specifies information on the different data fields and records that are in a message or data file. Designing a schema is the process of providing metadata information. Schema Designer is a wizard driven Web-interface that allows IT users to design and manage data formats. The **Schema Designer** allows IT users to specify metadata for all commonly used file formats such as Flat Files, Fixed-length positional files, EDI, XML, Microsoft Excel, as well as relational databases like Oracle, SQL Server, IBM DB2 and MySQL etc. Complex metadata information can be provided including data field element names, attributes, field types as well as hierarchical record structure.

**Schema Parser** allows data messages and files of different formats to be automatically processed based on the schema definitions. This is a run-time service that can be orchestrated by a user as a task in a process flow. It uses schema (metadata) rules as defined in the Schema Designer to identify the format and structure of a message file and so parse that file into records and data elements. This parsed data can then be sent to the Mapping engine to be transformed into another format.



### Managing Bulk Data

Adeptia BPM Server supports processing of both single-record messages as well as bulk data in the form of multiple-record data files. The Parser and Mapping engine have highly scalable performance so the BPM Server can scale up to handling hundreds of megabytes of data files that may contain hundreds of thousands of records. The BPM Server does this in an efficient manner allowing it to offer speed and throughput that is only matched by dedicated hardware appliance-type of solutions.

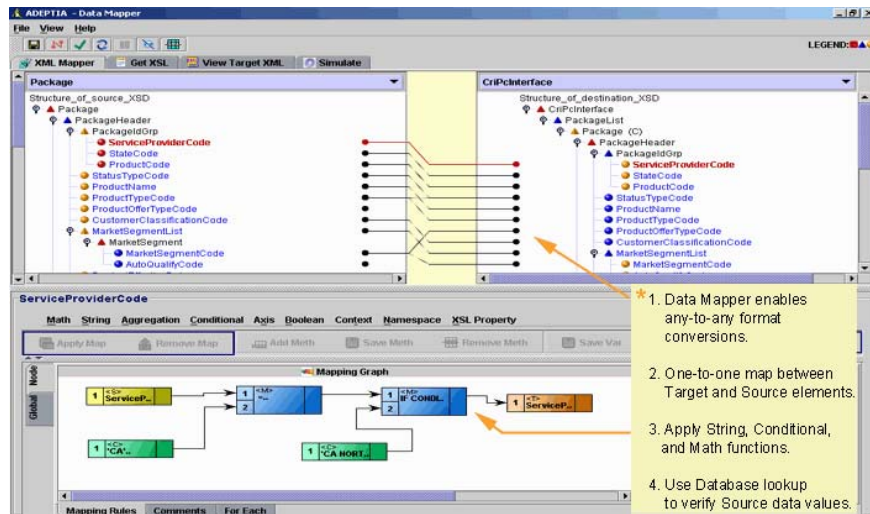
## Data Mapping

The Data Mapper is a Web-based interface for managing data transformation rules. It is a graphical tool that enables visual and rapid specification of complex business rules in easy to understand English rather than code. It auto-generates data transformation code in a fraction of time compared to custom manual coding. The Data Mapper eliminates the need for the intricate, time consuming and error-prone process of manually writing thousands of lines of data mapping code. Collaboration and mapping rules management is simplified by auto-generation of transformation rules in PDF format for easy documentation, business user sign-offs and archival.

Data Mapper simplifies management of mapping rules because these rules are:

- \* Defined using a visual, drag-and-drop interface
- \* Specified in easy to understand English
- \* Documented in PDF directly from the code
- \* Archived for later edits
- \* Directly converted into program executable code

**Mapping rules** are easy to specify. For any selected target data field, a text area is provided where a user can build complex transformation rules for that field. For ease of use, the Data Mapper consists of built-in libraries of Math, String, Aggregate, Conditional and Boolean functions for data manipulation. Text area is also provided for users to specify comments where they can note the versioning information, history and any other context for the mapping rules for that field. This simplifies edits and future manageability of the mapping rules.

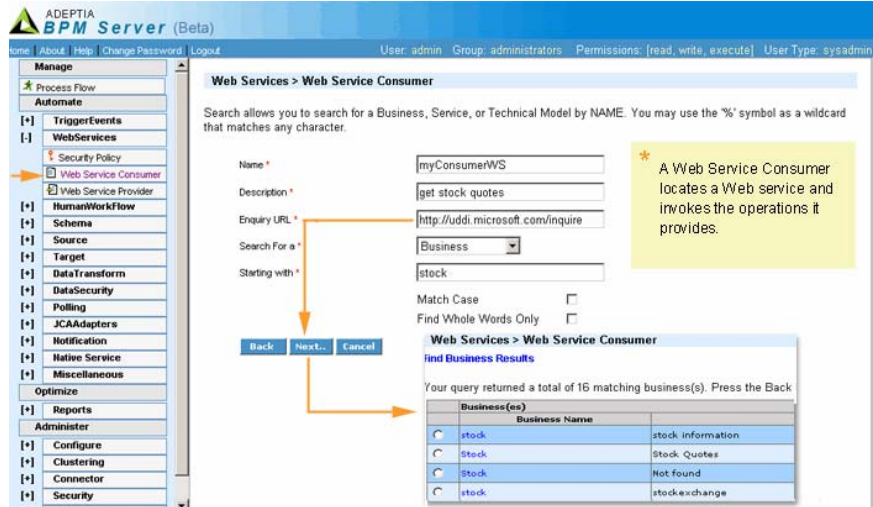


The **Mapping Engine** is the heart of the data transformation module of the BPM Server. It takes the mapping rules as defined in the Data Mapper and applies those rules to the parsed data to create the transformed output. Adeptia has designed the Mapping Engine to be functionally powerful so it can apply complex rules to complex data structures.

# Web Services

## Web Services Client

Comprehensive support for Web Services includes ability to utilize any external Web Service as an activity in a process flow. This includes support for introspection of UDDI/WSDL and both RPC and message-style invocation.



**Web Services > Web Service Consumer**

Search allows you to search for a Business, Service, or Technical Model by NAME. You may use the "\*" symbol as a wildcard that matches any character.

Name \*  \* A Web Service Consumer locates a Web service and invokes the operations it provides.

Description \*

Enquiry URL \*

Search For a \*

Starting with \*

Match Case

Find Whole Words Only

**Web Services > Web Service Consumer**

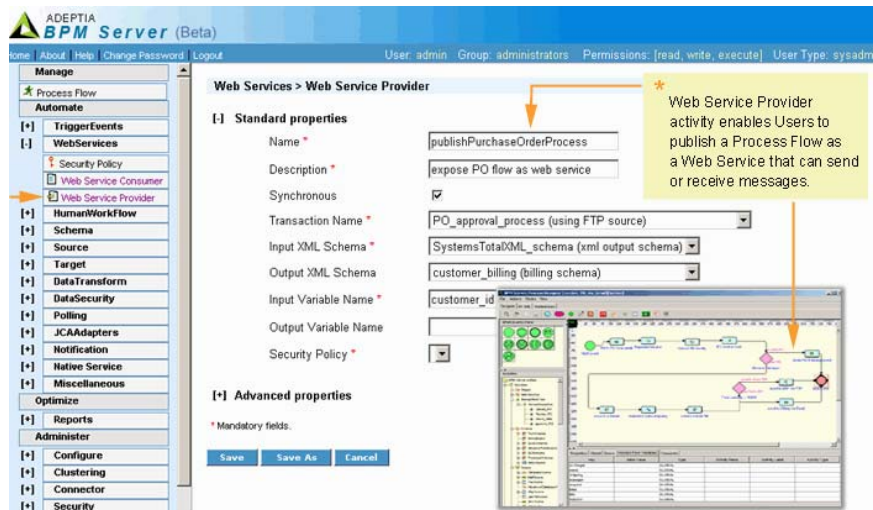
**find Business Results**

Your query returned a total of 16 matching business(s). Press the Back

Business(es)	
Business Name	
<input type="checkbox"/> stock	stock information
<input type="checkbox"/> \$tstock	\$tstock Quotes
<input type="checkbox"/> \$tstock	Not found
<input type="checkbox"/> \$tstock	stockexchange

## Web Services Provider

Process flows can be triggered by and even exposed as Web Services by using the Publish-WS capability of the product. WSDL is automatically generated which is needed for the client program to invoke this published web service.



**Web Services > Web Service Provider**

**Standard properties**

Name \*

Description \*

Synchronous

Transaction Name \*

Input XML Schema \*

Output XML Schema

Input Variable Name \*

Output Variable Name

Security Policy \*

**Advanced properties**

\* Mandatory fields.

Web Service Provider activity enables Users to publish a Process Flow as a Web Service that can send or receive messages.

# Application Management

## Collaboration Environment

Adeptia BPM Server offers a collaboration environment where business users and developers can interact with each other to document, design, develop and deploy business processes.

Users can be assigned to different self-contained “groups” that refer to departments and individual external partners. Users may be assigned different access privileges based on their roles and responsibilities. Services and processes created by managers may be “published” and so made accessible by other team members.

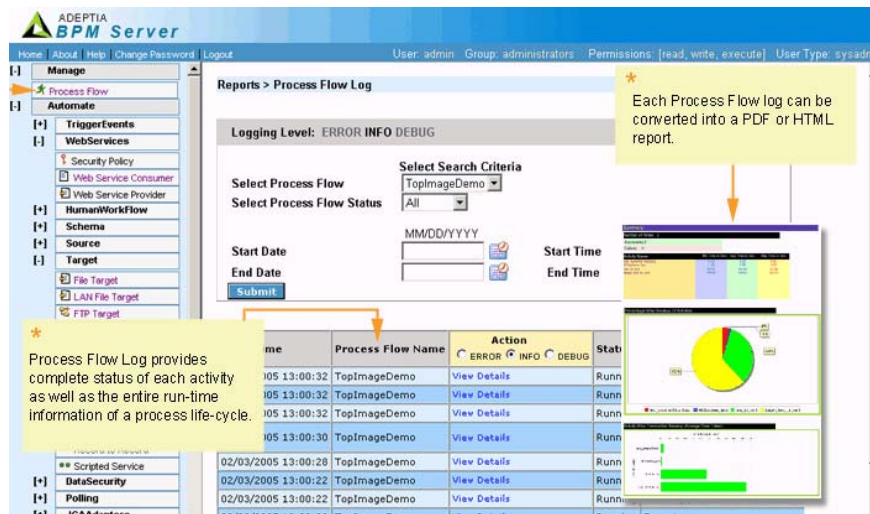
The user interface to the BPM Server is fully web-based and all the rules, activities and processes that are created are all saved on the back-end database repository. This allows users to share their work with others.

## BPM Server Configuration

The Adeptia BPM Server is administered by two types of admins: the “system administrators” that have full access to the whole application and the “group administrator” who only has access to a group.

The configuration of the BPM Server is managed thru the “property file” that details scores of different system parameters that control the functioning of this product.

The property file parameters are viewable and editable by the system administrator thru the standard web-based interface.



## Monitoring

System and process flow monitoring feature offers a consolidated view of server resources, users logged in and all the processes that are currently running. Adeptia BPM Server provides Process Engine console where all deployed process flows can be viewed and all currently

running processes can be monitored. This allows a real-time view of the running process flows and allows the user to “pause”, “abort” or “restart” them.

### **Logs and Reporting**

BPM Server saves all logs and run-time process data in a database for archival. This information details statistics of every executed instance of the process flow including data pertaining to when the process flow started, when it ended, did it run successfully, the start and end time of each activity, the size of files and number of records processed.

This information is presented in log reports that a user may “drill-down” to view details related to each instance of the process flow. Developers can also specify the detail-level (ERROR, INFO, DEBUG) of logging information so that debug info and detailed stack trace data is available for trouble-shooting purposes.

BPM Server includes pre-built process flow performance reports that allow tracking and analysis of run-time process metrics. These reports can be utilized to review performance of processes and identify resource or personnel bottlenecks. Improvement or elimination of these constraints can significantly optimize processes, resulting in cost savings, improved operational efficiencies and can lead to strategic business advantage.

## Summary

Adeptia BPM Server uniquely combines enterprise and external integration with business process management functionality. It offers an easy and simple approach to implement complex business process integration. Its point-and-click, wizard-driven interface allows implementation and deployment of business process flows without needs for any programming. It is a fully web-based product that does not require any client program to be installed on the desktop.

BPM Server offers a powerful business tool for managers to document, control and monitor critical processes and then improve them. It also offers IT staff an easy and simple way to deliver highly complex process management for changing business needs. This enterprise-class software allows companies to leverage the Internet by deploying extended enterprise processes that link partners, suppliers and customers.

Adeptia BPM has been successfully deployed in production environments at companies ranging from \$5M to \$50B in annual revenue. Generally, any medium to large sized company that wants to leverage its IT infrastructure within an e-business scenario and automate business processes would benefit from Adeptia BPM Server. It is ideal for organizations that intend to deploy process automation in an incremental approach by starting with one or two processes and then expanding deployment of business process management gradually over time.

Please visit [www.adeptia.com](http://www.adeptia.com) to learn more about how you can get started with deploying Adeptia BPM Server.

## About Adeptia, Inc.

Adeptia, an enterprise software company headquartered in Chicago, Illinois, provides business process integration technology to easily and quickly automate business processes across supply chains using industry-specific standards. Adeptia's unique product combines business process management with enterprise and external integration. Adeptia's reusable and highly scalable technology has been deployed by Fortune 1000 companies. For more information, visit <http://www.adeptia.com>.

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